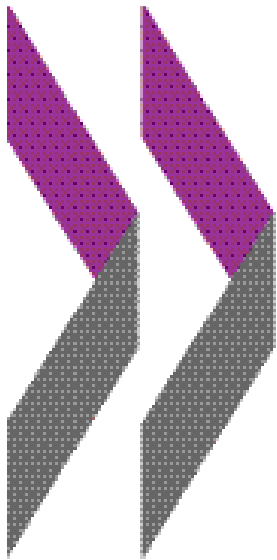


# The State of Higher Education 2014

OECD Higher Education Programme (IMHE)



# THE STATE OF HIGHER EDUCATION

## 2014

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## FOREWORD

In 2013, the OECD Higher Education Programme (IMHE) launched the first annual State of Higher Education publication (SOHE). Within the format of the series, three substantial chapters of each volume are devoted to analysis or research from the Organisation and subsequent chapters are commissioned contributions from leading experts in higher education whose views and opinions may complement or challenge those from the OECD.

At international conferences, it is often remarked that, although each higher education institution has its own set of specific problems, the challenges faced by institutions everywhere are remarkably similar. This publication addresses a few of the fundamental challenges common to every institution: concern for quality, the struggle to balance modern governance models with traditional academic values and missions, and the push for scholastic excellence while coping with shrinking resources. The intention is to provide a relevant and useful resource for higher education leaders and interested stakeholders engaged with such issues.

This volume presents original work from the OECD Higher Education Programme team, including a proposed framework for approaches to quality in higher education (Chapter 1) and a self-assessment framework higher education institutions may apply to their business models (Chapter 2). In Chapter 3, we present a summary of the 2014 publication on promoting and funding research excellence by the OECD Directorate for Science, Technology and Innovation.

For the commissioned contributions, three higher education practitioners drew on their respective areas of expertise to present fresh views on relevant issues. From the Asia-Pacific region, and in anticipation of the OECD Conference on Higher Education Futures planned for 2015 in Singapore, Concepcion V. Pijano gives a first-hand account of higher education regionalisation in ASEAN and the networks responsible for this development. A leading voice on matters of higher education governance, Peter Scott reflects anew on university business models and the tensions that shape their formation and application. Jane Knight, who developed the definitive definition of internationalisation in higher education, writes for the first time on “3rd generation” international universities, where the main component of internationalisation is not student mobility. These articles offer timely, informed reflections on what is happening in higher education today and how developments are likely to progress in the near future. I am pleased to thank the authors of the commissioned articles for their vital contributions to SOHE 2014.

In the OECD Secretariat, several people contributed to the creation of this publication, in particular fellow analysts on the IMHE team Adam Krcal, Patricia Mangeol and Karine Tremblay. The project was supervised by Deborah Roseveare and members of the IMHE Governing Board provided constructive feedback and helpful corrections on preliminary draft version. Emily Groves proof-read and formatted the final draft.

Anna Glass

Editor, SOHE 2014



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### Monitoring and enhancing quality in higher education: developing a quality framework

In the last few decades, OECD countries have seen a massive expansion of higher education. Systems worldwide shifted from an elite form of higher education to mass participation, with some countries reaching a universal model. Yet, in most countries, higher education is a key agenda issue as economic development depends in part on the presence of an educated and skilled workforce and on technological improvements that raise productivity.

The changes experienced by systems include broader access and greater diversity of study programmes and students, with a broader spread of institutions' social missions. As a result, higher education has become more flexible in order to meet the needs of new student populations and higher education institutions (HEIs) now offer distance learning and professionally-relevant courses to attract adult populations. This trend is reinforced by labour market pattern changes and the need to re-skill adults, through lifelong learning, to remain competitive. In addition, most higher education systems have undergone a form of decentralisation, which also changed their structure in terms of diversity and size. Greater and broader autonomy to HEIs was followed by a need for public accountability and transparency. The need for accountability also resulted from the growing trend of public-private cost sharing, especially via tuition fees. This shift resulted, in turn, in greater student demands and expectations.

All these sizeable changes relate particularly to quality issues. Not only do countries need to maintain quality at a certain threshold level, they also need to enhance quality to keep their higher education systems competitive and reactive to changes in the external environment. In this context, higher education quality is exposed to high pressure and countries have applied various approaches to performance monitoring and quality enhancement.

This chapter examines the current academic literature and policy discussions with regard to quality in higher education. It encompasses the existing debate on what quality means in the contemporary context and provides an overview of the various quality monitoring processes and approaches to quality assurance. A description of existing and emerging instruments of quality assurance and tools to enhance quality across OECD member countries is presented. Based on this ground analysis and typology, the authors present a conceptual framework of the tools and mechanisms used to monitor, evaluate and enhance quality with various possible interplays between the individual elements of the framework. The framework should enable stakeholders to better approach the complex and multi-faceted concept of quality monitoring and enhancement in higher education.

Recent developments in educational policies have led to new interest in designing better conceptual frameworks to analyse quality in education. For example, the OECD developed and applied a conceptual framework in 2011 to analyse evaluation and assessment in school systems. Although it focuses on education systems in general rather than specifically on higher education, many of its taxonomy elements are also relevant to higher education. Furthermore, several countries have already developed national frameworks for quality assurance.

Any quality approach could be regarded from different perspectives. An approach may serve various purposes, be carried out on different levels (*system, institutional and programme* levels) and benefit from different methodologies to achieve quality results. The three main purposes that different quality approaches serve are *accountability, improvement and transparency*.

Different groups of approaches maybe applied within the framework. They typically include instruments such as: performance indicators, financial and strategic mechanisms, as well as legislative and regulatory tools, accreditation, audits, rankings, benchmarking, standards and guidelines, frameworks of qualifications, staff

appraisals, student and graduate surveys, assessment of learning outcomes, student portfolios, and quality assessments. Although countries currently use only a limited number of these various levers and approaches to promote quality, the quality framework may be used to help identify what combinations of approaches could strengthen the overall quality of higher education.

## **Strengthening business models in higher education institutions: an overview of innovative concepts and practices**

From an institutional perspective, HEIs are under pressure to become more effective and efficient across all of their missions – teaching, research and innovation and local economic development. Yet, many face financial challenges that threaten their long-term sustainability.

In addition, HEIs also face organisational changes that started several decades ago as both governments and HEI management have increasingly emphasised efficiency, flexibility and innovation to address the dilemma of constrained resources and ever growing demands placed on higher education. In this context, the identity of HEIs as organisations is undergoing profound mutations. Whereas few may disagree with the need for HEIs to adapt to their fast-changing environment, there are intense debates around how they should do so and what organisational models are most appropriate.

This chapter shows that many facets to institutional operations may be improved and there are many ways to pursue organisational effectiveness and innovation. Following a discussion of different aspects of institutional operations, a typology of business models is drawn in the concluding part of the chapter. This serves to summarise key elements of different business models in higher education based on current research. The chapter also provides a preliminary analytical framework to help better define HEIs' business models and identify the benefits and challenges associated with a given model. The framework is drawn to assist HEIs with strategic planning, as they imagine and work towards institutional identity and features for the longer term.

Rather than equating business models with a shift to a single model of the managerial or corporate university, this chapter uses the concept of the business model in two ways. First, business models are used to categorise and discuss different aspects of HEIs' operations that impact their performance in a competitive environment. Section 2 looks at various practices and highlights some that may lead to improvements in terms of the effectiveness (higher quality services) and efficiency (increased value for money) of HEIs. Second, the concept is used to develop an initial typology of business models, and to provide a preliminary matrix of benefits and challenges offered by the various models.

Four general dimensions of business models, applicable across economic sectors or industries, have been adapted to the higher education context. This approach views business models in higher education as central levers to promote innovation in HEIs.

Defining an institution's value proposition is, in some ways, similar to establishing a mission statement. However, the concept of value proposition implies that this exercise takes place in a competitive context, where institutions must demonstrate their unique strengths and relevance compared to other higher education providers. Not only do HEIs compete for students and prominent academics, they also compete for visibility, funding, partnerships and other benefits that allow them to maintain a good competitive position – and for some to simply continue to operate.

There are diverse benefits to defining a strong value proposition. From a policymaker's perspective, clear institutional missions contribute to establishing a coherent, complementary and cost-efficient system. For institutions, benefits range from opportunities to focus resources and ensure sustainability, build on strengths and deliver high quality in one or several particular functions (e.g. teaching, basic research, applied research, innovation, regional development) and/or subject areas (e.g. STEM, social sciences, professional education including engineering, law). For students, differentiation can offer both a greater range and higher quality of available options. If differentiation is communicated well to students and the broader public, it can help

students, parents and other stakeholders, including employers, more easily identify institutions that meet their particular needs.

***Key messages: dimensions of business models for higher education institutions***

*Institutional value propositions*

Developing distinct institutional value propositions is often conditioned by system-wide structures, including legal contexts and government objectives and policies, but also broader conditions, such as demographic trends and the level of economic development of countries. At the institutional level, HEIs adopt a range of approaches, which may be encouraged by broader government schemes but are sometimes entirely rooted in institutions' own strategic objectives and policies. These approaches range from the internal allocation of resources, to choices regarding staff appointment and hiring, or the selection of students, where the institutional setting allows for such autonomy.

HEIs face several challenges when developing value propositions, including:

- matching strategies to objectives
- ensuring their approach contributes to the overall cohesion and quality of the higher education system
- fostering transparency and mobility of students
- assessing and managing organisational risks.

*Cost structure of higher education*

A second dimension of institutional business models is the cost structure of higher education. It is challenging to measure and compare cost structures internationally. Costs vary greatly across countries and over time, in part because HEIs typically have more autonomy than other levels of education in the way they handle financial matters. In addition, "costs" are essentially assessed by measuring the expenditures of HEIs, which are a function of the amounts of investment that the public, individuals and other private funders are willing to provide. In other words, if there is more investment, expenditures go up, if there is less, expenditures are constrained. The financial model of higher education is thus made of a range of flows between different actors.

Measuring the efficiency of higher education is a complex endeavour. While several economic studies have tackled the issue, mostly at national level, there are on-going debates about the choice of appropriate measures to take into account the inputs and outputs of higher education and relevant exogenous factors. Beyond a formal determination of efficiency levels, many HEIs across OECD countries are faced with high costs, and see their resources increasingly constrained. This reality provides the impetus for institutions to identify cost-efficiency measures that can be implemented while preserving quality.

Government regulations and incentives constitute the first lever to encourage HEIs to pursue cost savings and economies of scale. These levers, which could be called "framework conditions" due to their system-wide nature, vary across countries. This is due in part to the different relationships that exist between governments and HEIs across countries, and specifically the degree of steering exerted by governments over different types of HEIs.

Cost-cutting strategies can be directly mandated by governments, as they have in the midst of the global economic crisis. Cost-efficiencies can, however, also be encouraged in less directive ways. For example, the introduction and scaling up of technology in higher education is a widely discussed lever to save costs and make higher education more affordable and accessible

There is scepticism about the feasibility of scaling up such approaches and sustaining cost reductions over the long-term. Continuing with the same example, in terms of scale, buy-in from all parties involved must be secured to make the introduction of technology work at an institutional level beyond pilot projects. Additionally, some institutions that have integrated technology in learning indicate that, while technology has assisted in quality improvements, cost savings are not always significant. In this sense, technology may be cost-effective rather than cost-efficient.

The diversification of higher education providers and increased participation of both general and specialised private providers responds to a number of pressures.

These trends have led to the development of a diverse array of private institutions and organisations, alongside traditional public and private comprehensive universities, which often focus on delivering a very specific value proposition and operate according to well-defined business models.

Among the various challenges to enhancing cost efficiency in higher education, this chapter discusses:

- the difficulty of tracking costs in higher education
- avoiding negative implications of cost reductions
- the limitations of transformative approaches to cost efficiency, such as technology, regulatory settings, and the political economy.

#### *The revenue side of higher education finance*

On average across OECD countries, HEIs continue to receive most of their income from public sources; however, over the past 20 years, trends in higher education funding have shown a tendency for public support to decline. This has resulted in an increasingly important role for private sources in the financing of higher education. Student tuition fees are the largest and most hotly debated source of private revenue. Several rationales underpin the shift towards sharing the burden between the public and the individuals who directly benefit from higher education, namely:

- financial sustainability
- equity
- efficiency

While these rationales continue to be relevant, new developments have complicated the use of tuition fees to address higher education funding needs. On the one hand, the global economic crisis has exacerbated existing financial issues (e.g. public funding constraints) and made the search for private sources of funding more important than before. However, new risks have also surfaced, as students and families, the main sources of private funding globally, also face new financial constraints, including weaker labour market outcomes as a result of the economic downturn.

Other issues have also emerged regarding the equity of cost-sharing, as risk aversion may deter disadvantaged students from accessing higher education. Lessons from OECD analysis on the various combinations of tuition fees and student aid suggest that, more than the level of tuition fees, the existence of strong student support is most critical to fostering access to higher education. Other research suggests that assessing the performance of a financial model should focus not only on its impact on access, but also on whether it supports student success.

Increasing funding from private entities other than students and households is another approach of interest to many HEIs. This can be achieved through various activities, including contracts with private partners for research and teaching, philanthropy and the commercialisation of a range of products and services. The size of these additional sources of funding varies significantly across institutions and depends to a large extent on

country specificities – ranging from legislative and regulatory frameworks to practices and cultural factors. In practice, HEIs rely on diverse strategies to raise the share of non-public funding.

While governments may often initiate performance-based schemes, a number of HEIs have also started introducing performance-based mechanisms in their operations. There are several benefits of performance-based funding systems, including:

- greater awareness by HEIs of state priorities and institutional performance
- improved use of data about performance by HEIs and the state
- improvements in academic and student service policies and practices that promise to improve student outcomes.

There can be challenges to implementing performance-based funding schemes, beginning with the lack of clarity around how performance-based funding leads to improving institutional outcomes, such as graduation rates, credit accumulation and degree production.

It is important to keep in mind some specific limitations linked to the design and implementation of performance-based systems. One limitation relates to the potential complexity of administering such systems, particularly in countries where data systems to track outputs are poor. In addition, performance-based systems may have limited effectiveness, either because too many indicators make these systems difficult to apply and understand, or because the chosen indicators do not provide good measures of the areas of interest, such as quality.

#### *Negative impacts of funding model reforms*

Several countries, in particular in Latin America, Eastern Europe and Central Asia and Eastern Asia, have shifted from traditional and publicly-funded systems to systems that are highly reliant on cost-sharing and the private sector. These countries have faced challenges after implementing such reforms, both in terms of creating the right conditions for the reshaped systems to work and due a number of negative impacts, including inequity and inefficiencies resulting from dual-track tuition fee policies, high default rates on student loans, and the insufficient financial autonomy of private higher education institutions. Corrective actions may thus be required for multiple aspects, such as quality assurance mechanisms, funding policies or institutional autonomy.

European HEIs recently reported facing many internal obstacles while attempting to change their funding models. Obstacles ranged from inadequate governance structures and processes, e.g. decision-making structures that prevent effective and timely engagement with external stakeholders, to the lack of information available on income generated from alternative sources, which hinders strategic decisions on investments.

Other internal obstacles faced by European HEIs include the lack of skills and expertise at management level to conduct income diversification. Sometimes achieved through one-off partnerships conducted on a personal basis by faculty members, income diversification strategies typically lack consistency and stewardship that would allow HEIs to reap the benefits from such initiatives. In addition, HEIs reported that there has been significant internal tension regarding the impact of income-generating activities on academic integrity and freedom.

While these aspects are within the purview of the HEI community, broader conditions are required to foster effective income diversification in higher education. These conditions are far-reaching and include, for example:

- regulatory frameworks
- funding modalities
- government incentives to encourage income diversification.

Achieving a wide range of goals through funding instruments can be challenging, and funding reforms can lead to unexpected effects. The delicate balance between public and institutional goals in times of changing financial models requires an appropriate policy mix that combines classic concepts of accountability and autonomy, with newer, innovative policies designed to support HEIs in a competitive and rapidly changing environment.

### ***Towards a self-assessment framework of institutional business models***

Chapter 2 situates four broad HEI business models relative to each other, along with an initial list of benefits and drawbacks of the four broad business models. This categorisation may serve as a starting point to move from a description to an impact analysis of various models. It also provides a draft rubric to help HEIs perform self-assessments on the nature, benefits and drawbacks of their business models, and identify the pros and cons of other business models they may consider adapting in the future.

The broader purpose of this framework is to contribute to the policy- and practice-oriented research on improving the coherence and effectiveness of higher education business models. In line with the analytical approach used in this chapter, it is suggested that the models be viewed in a holistic manner, rather than focusing on a single dimension. The framework is intended as a guiding tool, which is expected to change over time as HEI business models become more purposeful and more is known about their impacts.

While there are numerous possible categories of higher education business models, since many criteria could be used to distinguish them, this particular framework places a deliberate emphasis on two complex and broad aspects that are likely to be priorities from an institutional perspective. The two main dimensions identified in the framework – value proposition and financing – are key elements that define the identity and operations of HEIs following the analytical framework described at the onset of the chapter. It should be kept in mind that a traditional revenue model may be found in institutions that have developed innovations in their expenditure strategies, and that, conversely, some institutions may have first innovated in terms of revenue (e.g. by diversifying sources) while keeping the way they use funds and deliver their services largely unchanged.

### **Promoting research excellence: new approaches to funding**

This chapter is a synthesis of the OECD Directorate for Science, Technology and Innovation’s publication *Promoting Research Excellence: New Approaches to Funding*. The case studies included in the Annex to this chapter are from members of the OECD Higher Education Programme who contributed to a compendium of practices in promoting research excellence in higher education, issued in June 2014.

The OECD’s study on Promoting Research Excellence is the result of efforts to obtain data and evidence on how governments steer and fund public research in higher education and public research institutions through “Research Excellence Initiatives” (REIs). The study draws on the results of three surveys. The first, on government agencies responsible for administering REI funding for higher education and public research institutions, aimed to define the characteristics that differentiate REIs from other modes of support. Of the two subsequent surveys, one asked centres of excellence (CoEs) funded by REIs about their management structure, funding schemes, measurement of impact and sustainability, co-operation with the public and private sectors, and perceived long-term effects of their research. The other survey addressed the institutions hosting the CoEs about their administrative arrangements and financial and research objectives and about the impact of REI-funded CoEs on the institutions. Responses from the surveys were supplemented by six case studies.

National research systems face an increasingly competitive environment for ideas, talent and funds, and governments have increasingly shifted funds from institutional core funding to project funding, often on a competitive basis, or reward success in raising third-party funds in performance-based funding schemes. REIs

have emerged in this context as an instrument designed to encourage outstanding research by providing large-scale, long-term funding to designated research units, with an emphasis on research of exceptional quality.

Research activities funded by REIs reflect the objectives of the funding programme. The single most important goal is to raise the research and innovation capacity of national research landscapes. Besides the high degree of convergence of programmes in terms of goals and strategies, REIs often have a specific focus, such as promotion of early-stage researchers or recruiting top scientists from other countries; development of co-operation between research and industry; and the renewal of physical infrastructure. The ambitious systemic objectives of central governments explain why REIs often have substantially more funding than project funding measures. The selection of research is science-driven via peer reviews and panel discussions of proposals with other academics, even though these programmes also have broader political goals.

The REIs discussed in this study are positioned conceptually between institutional core funding and project funding. They allow for relatively lengthy projects that often involve undefined outcomes or fundamental research and may include a more or less elaborate administrative environment to support the research activities. Moreover, the funding is time-limited and linked to participation in application and selection processes, which brings them closer to typical project funding.

The information collected in this study can help inform discussions on future government policy directions by providing information on how REIs work and on the functioning and characteristics of institutions that host CoEs funded by REIs. The survey responses are not representative of all REIs in OECD countries, but these exploratory findings show some of the benefits to be gained through REIs and note some pitfalls to be avoided.

### **Key messages**

*REIs provide CoEs with relatively long-term resources for carrying out ambitious, complex research agendas.* This is particularly important for interdisciplinary and co-operative research and for high-impact, high-risk research. Some countries operate a single excellence initiative, while others operate several. The former may provide a boost to the broad research system, while the latter can target specific topics.

*REIs can lead to broad changes in the structure of the research system* by pushing research centres and institutions to continually prove and develop their strengths, show their ability to build interdisciplinary networks, create links with the private sector and abroad, and generally enhance a country's overall research capacity.

*REIs allow for greater flexibility than other forms of funding, notably in terms of managing resources and hiring researchers.* CoEs' freedom for managing research funds is seen as crucial. They usually have faster and more flexible recruitment processes. In some cases, they offer professorships and tenure track positions with attractive packages in terms of research facilities. This may enhance their ability to attract talented researchers.

Researcher mobility (both within national boundaries and abroad) is essential for scientific discovery and increasing productivity. REIs make it easier for CoEs to attract top scientists and foreign talent who, in turn, gain status and further career opportunities from their association with the CoE. The intake of foreign researchers helps to form the long-run international linkages that foster innovation and knowledge creation at the international level.

*An increasingly skilled workforce is fundamental for economic growth and is likely to have lasting effects on society.* REI funding allows CoEs to enhance post-doctoral and doctoral programmes and training, thereby attracting and training future generations of leading scientists.

*REIs concentrate exceptional researchers in well-equipped working environments* to open up new lines of research, establish new patterns of interdisciplinary research, strengthen human capital, and generally enhance research capacities. However, fostering competition and structural change can create frictions.



Competition for scarce financial resources requires a sound and transparent selection process, usually involving international panels of experts to judge the quality of applications.

*REIs raise the international reputation of domestic research institutions.* Hosting a CoE increases an institution's visibility and helps it attract students, researchers and additional funding (further REIs, third-party, institutional funds). The strong links that REI funded CoEs generally establish with their host institution may lead to the integration of the CoEs into the host structures when the REI programme ends.

*The activities of CoEs can spill over and create positive externalities* that positively affect those of other departments in the host institution both directly, through the establishment of new networks and co-operative ties, and indirectly, through the overall reputational gains of the host institution. There is, however, some potential for CoEs to create divisions within university departments or research institutions.

*The effects of concentrating research in excellent and large institutions deserve close inspection.* Highly concentrated funding may undermine the competitive element of REIs in the long run by providing additional funds to well-established institutions. Funding centres rather than institutions may mitigate concentration.

*Third-party funding is important to the success of many REIs.* The increased visibility afforded by hosting a CoE can lead to a virtuous funding circle: hosts can integrate CoEs within their structures and CoEs can raise additional funds to extend their research activities. Important sources of external funding include competitive project funding and private investment.

*Responsible public funding bodies, CoEs and hosts view REIs positively.* The objectives of these programmes have been largely achieved. New lines of research have opened up, new co-operative patterns of interdisciplinary research have been established, development of human capital has been strengthened, and concentration processes have generally led to enhanced research capacities.

## Commissioned articles

### ASEAN's Journey toward the regionalisation of higher education

*Concepcion V. Pijano*

The journey to higher education regionalisation in ASEAN was made possible by various actors involved in the process. Two regional networks drove the process: the Asia Pacific Quality Network (APQN) and the ASEAN Quality Assurance Network (AQAN). These bodies have emerged as the new actors in higher education regionalisation by promoting quality assurance as a means to harmonisation and integration, leading to the formation of the ASEAN Economic Community by 2015. Regionalisation of higher education is a continuing journey of collaboration and co-operation, of working towards common agreements and consensus, of intra-regional exchanges and inter-regional dialogues, of alignment and convergence of ideas.

### Universities and university business models: reflections on governance and structures

*Peter Scott*

In the 21st-century, the "entrepreneurial university" tends to displace the 20th century's socially-oriented "mass university", yet must still co-exist with the traditional "ivory tower" university. From this tension, which may be better described as a dialectic or perhaps synergy, flow nearly all the active policy and management issues that preoccupy higher education leaders today, whether concerned with funding, organisation or governance.

Even as universities become more relevant, differentiated, autonomous and accountable, they are also still deeply engaged in "business as usual", including the provision of high-quality academic and scientific

education and the fostering of critical enquiry and promotion of knowledge through speculative research. It is these – traditional – activities that still largely constitute global “excellence”, as league tables of “top” universities clearly demonstrate.

To succeed in the 21st century, universities may need to be rather conservative in their business models, even reversing some of the managerialist and corporatist policies and practices they have been encouraged to adopt since the 1990s. Alternatively, universities could be much more radical, embracing the flexible (and volatile) models characteristic of cutting-edge, knowledge-based businesses rather than merely implementing old-fashioned corporate models. Or, confusingly, universities could be both conservative and radical, so long as the models they adopt are fitting to the context and needs of the institution, well planned and carefully implemented.

## **What is an international university?**

*Jane Knight*

This article addresses the question: what is an international university? There is much confusion as to what it actually means for a university to be international, bi-national, transnational, multinational or global. In fact, the term is not important; important is the approach or model used to meet the needs and objectives of the higher education institution. There is no standardised model, nor should there be. This article identifies three “generations” of international universities. There are variations within each group. The 1st generation is an internationalised university with a diversity of international partnerships, international students and staff, and multiple collaborative activities. This is the most common type and reflects the internationalisation mandate of universities in countries around the world. The 2nd generation includes universities that have established satellite offices in different countries of the world in the form of branch campuses, research centres and management/project offices. The 3rd and most recent generation of international universities are new, stand-alone institutions co-founded or co-developed by two or more partner institutions from different countries. This article focuses on the 3rd generation institutions, the newest form of international university. Examples are provided and a number of issues and challenges related to this new type of international university are identified.



## CHAPTER 1 – MONITORING AND ENHANCING QUALITY IN HIGHER EDUCATION: DEVELOPING A QUALITY FRAMEWORK

Adam Krcal, Anna Glass, Karine Tremblay

### Introduction

In most countries, higher education is a key agenda issue. Indeed, in the knowledge economy, economic development depends in part on the presence of an educated and skilled workforce and on technological improvements that raise productivity. Hence, a well-performing higher education system contributes to national competitiveness.

In recent decades, most countries have seen a massive expansion of higher education. The expansion is especially evident when considering the number of students enrolled. In 2011, the OECD average net entry rate<sup>1</sup> into tertiary education<sup>2</sup> was 80%, while in 2001 it was 65% (OECD, 2013a; OECD, 2001). Systems worldwide shifted from an elite form of higher education to mass participation, with some countries reaching a universal model (Trow, 2007). This rapid expansion faces significant challenges and the need to ensure quality within the system is crucial. In this context, higher education quality is exposed to high pressure and countries have applied various approaches to performance monitoring and quality enhancement. Hence, diverse mechanisms for quality monitoring and quality assurance have been developing since the 1980s (OECD, 2013b).

The changes faced by systems include broader access, greater diversity in terms of study programmes and students, with a broader spread of institutions' social missions. These changes relate especially to quality issues because quality provision in a mass or universal higher education system needs different approaches and different tools from the former elite system. Not only do countries need to maintain quality at a certain threshold level, they also need to enhance quality to keep higher education systems competitive and reactive to changes in the external environment. Countries also face substantial budgetary constraints and push strongly for efficiency.

In terms of types of provision, higher education has become more flexible to meet the needs of new student populations. Higher education institutions (HEIs) now offer distant learning and relevant courses to attract adult populations. Traditionally, while new entrants into higher education came directly from secondary education, nowadays HEIs also look for new students within the adult population present in the labour market. This trend is reinforced by labour market pattern changes and the need to re-skill adults in lifelong learning to remain competitive.

Most higher education systems have also undergone a form of decentralisation. The internal structure of higher education has also changed. HEIs are more diversified and, in general, they have significantly grown in size. Greater and broader autonomy has been granted to HEIs in many countries, which was followed by the need for public accountability and transparency, especially when public money is at stake (Askling, 1997). The need for accountability also resulted from the growing trend of student participation in funding higher education through tuition fees. This shift also resulted in greater student demands and expectations.

This chapter examines current academic literature and policy discussions with regard to quality in higher education. It encompasses the existing debate on what quality means in the contemporary context and provides an overview of the various quality monitoring processes and approaches to quality assurance. A description of existing and emerging instruments of quality assurance and tools to enhance quality across OECD member countries is presented. Based on this ground analysis and typology, the chapter develops a conceptual framework of the tools and mechanisms used to monitor, evaluate and enhance quality with various possible interplays between the individual elements of the framework. The framework should enable

stakeholders to better approach the complex and multi-faceted concept of quality monitoring and enhancement in higher education.

## “Quality” in the higher education context and its monitoring

This section provides an overview of the existing definitions of quality in higher education, its features and dimensions, as well as possible tools for measuring or assessing quality.

### **Definitions for quality in higher education**

#### *Quality as a multi-faceted phenomenon*

Harvey and Green (1993) developed a concept for quality and identified five aspects to grasp “quality” in higher education: *exceptional*, when quality means a level of excellence that cannot be attained by most; *transformative*, when quality is linked with empowering and enhancing student ability to control their learning process; *value for money*, when quality is linked with efficiency and effectiveness of the educative process achieved at the lowest possible cost; *fitness for purpose*, when quality describes the extent to which the institution is able to fulfil its mission; *perfection*, when quality is closely linked to the process and aiming at zero-defect.

This classification has been used by the OECD (2008b), but has also been presented in various modified versions (Newton, 2006). Lomas (2002) builds on the concept and raises the issue of a possible end of quality relating to mass higher education. Despite efforts to characterise it, quality is difficult to define and must be contextualised (EUA, 2006). Indeed, quality can stand for various things for different stakeholders (Becket and Brookes, 2008). A concurring opinion (Tam, 2001) argues that quality is a highly contested concept and has multiple meanings.

Quality has moved away from a mechanistic to a holistic and cultural view (Ehlers, 2009). The shift suggests an advance also characterised by the development of an organisational culture based on shared values, necessary competencies and new professionalism. Hence, the focus is increasingly on mastering change rather than on mastering instruments of quality assurance (mainly accreditation).

#### *Different concepts and terminology*

*Quality* as a concept is different from *quality as a mechanism* (Harvey, 2006). Moreover, there is a clear distinction between the term *quality culture* and *quality assurance*. “Whereas quality assurance processes are something tangible and manageable by institutional decisions, the cultural aspect of quality culture – shared values, beliefs, expectations and commitment – is far more difficult to change” (Ehlers, 2009).

Quality control involves a complex array of tools and procedures that checks whether predefined standards are reached (Tam, 2001). Quality management is then described as an instrument developed to ensure evaluation of the work done by academic staff at an educational institution (Barrow, 1999). However, quality management can also apply to administrative processes, environmental performance of operations, and the quality of outcomes or meeting mission goals (e.g. equity).

Another common term is “evaluation”<sup>3</sup>, used for expressing judgement on the potentials or effects of public actions (Di Nauta et al., 2004). Learning outcomes are often subject to evaluation and describe a student’s real achievements. Learning outcomes usually represent something that can be observed, demonstrated and measured (Nusche, 2008).

**Quality monitoring**

Various approaches exist to monitor quality in higher education. However, due to the complexity of the concept, since none is able to cover quality in all its dimensions, they focus on selected aspects.

*Internal/external quality monitoring*

Askling (1997) describes the relationship between external and internal quality monitoring. External quality monitoring and assessment underpins further development of internal management of institutions. In many countries, much effort is expended to find models for how quality monitoring is to be undertaken. Usually, a government authority carries out the external quality monitoring, and it is common to establish buffer organisations (national agency or other outside bodies) to this end. Internal quality monitoring is usually under the responsibility of the institution.

*Dimensions of quality: identifying the right indicators*

Indicators of quality can be for an entire organisation, academic quality, research, and/or particular departments. Indicators can be outcome, input or process focussed; they can be quantitative or qualitative. However, many aspects relevant to academic quality cannot be measured. Hence, governments face problems in calculating the output and quality of HEIs, resulting in distortional funding schemes and budgeting procedures (Rauhvargers, 2013). Also, allocating subsidies becomes difficult because student abilities and performance are hard to observe (Jacobs and van der Ploeg, 2006), although there have already been approaches taken to measure, for example, student engagement (Gibbs, 2010).

Gibbs (2010) suggests that there is little or no relationship between measures of the quality of teaching and the quality or quantity of research teachers carry out. In fact,

“...the quality of students and their academic performance are key indicators in appraising university teaching activities. Ideally, one should seek to measure the ‘added value’ of university provision, meaning the difference between the quality of students at the outset of their chosen programme and the quality of graduates. Unfortunately, such overall measurement of ‘added value’ for an entire student population is not readily possible at the current stage of knowledge about measurement and evaluation...” (Tavernas, 2003).

De Weert (2011) gives a monitoring example of supply and demand for graduates. Another possible approach lies in tracking initiatives and career paths of students and graduates (European Commission, 2013b). Different methods may also be used to measure graduate employment; for example, Gibbs (2010) developed a categorisation of quality dimensions and distinguishes three categories: *presage* relates to funding, staff-student ratios, the quality of teaching staff and the quality of student; *process* to class size, class contact hours, independent study hours and total hours, the quality of teaching, the effects of research environment, the level of intellectual challenge and student engagement, formative assessment and feedback, reputation, peer quality ratings, and quality enhancement; and *product* relates to student performance and degree classifications, student retention and persistence, and employability and graduate destinations as variables.

**Instruments for quality monitoring***Global university rankings*

Global university rankings are third-party private forms of higher education monitoring. Widely disputed for their one-sided orientation to research indicators, trends in recent years show that their number is likely to grow. However, they are likely to become more specialised (Rauhvargers, 2011).

Policy makers and society often see global university rankings as tools for university “transparency” and are tempted to judge HEIs by the standards that rankings use rather than by one of the core principles of quality assurance – “fitness for purpose”. Existing ratings and rankings of HEIs tend to also neglect information on student learning outcomes (Nusche, 2008). Yet rankings are popular among students who use them to choose their potential place of study and research (European Commission, 2010). Indeed, Chevalier and Jia (2013) suggest that improved rankings of HEIs in the “league tables” boost their income.

There is no one-size-fits-all approach for rankings (Costes et al., 2010), indeed the 2006 “Berlin Principles on Ranking of Higher Education Institutions”<sup>4</sup> stress that rankings should have a clear purpose and target group. Nevertheless, rankings and league tables are here to stay, although their role in increasing or promoting transparency is far from clear. One thing is apparent: if university leaders use them “blindly”, rankings can distort university performance (Nazaré, 2012).

### *Transparency tools*

Transparency tools are much related to rankings although they are not the same. Transparency and quality assurance are not synonymous either. Transparency is a desirable outcome of good quality assurance processes (Costes et al., 2010). Other such tools are, for instance, quality profiles whereby HEIs display their performance against a set of common indicators in order to enhance comparability, or registers offering comparable information on HEIs/study programmes (EHEA, 2010).

### *Recent international initiatives*

The U-Map and U-Multirank initiatives adopted by the European Commission are a response to the global university rankings. U-Map classifies all European HEIs regardless of the institution type, focus, etc., and reflects the variety of missions and profiles of HEIs, without providing a final score (Rauhvargers, 2011). U-Multirank is a multidimensional ranking including all aspects of an HEI: education, research, knowledge exchange and regional involvement. Although no final score of the HEI is calculated, it is still unclear how third parties will keep from turning the ranking results into a league table.

## **Approaches to quality assurance**

This section presents various approaches to quality assurance as well as different instruments in use.

### ***Concept of quality assurance***

#### *Defining quality assurance*

The term “quality assurance”(QA) seems to have been borrowed from the manufacturing sector and relates to quality control (Crozier et al., 2006). Harvey (2004-12) defines QA as a process of establishing stakeholder confidence that provision (input, process and outcomes) fulfils expectations or measures up to the minimum requirements. This is a very broad definition that encompasses various tools, measures and levers: in practice, quality assurance activities take many forms and cover a wide spectrum of processes designed to monitor, maintain and enhance quality (OECD, 2008b). The OECD’s review on *Tertiary Education for the Knowledge Society* (2008b) provides a solid theoretical background on assuring and improving quality, including advantages and disadvantages of different quality assurance mechanisms.

Although there are differences across countries in terms of terminology and varieties of tools and measures to define QA, the three main overarching approaches to quality assurance are: accreditation, assessment and audit. Moreover, quality assurance usually reflects two major purposes: accountability and improvement (OECD, 2008b). Danø and Stensaker (2007) also add the transparency purpose.

*General model of quality assessment*

Van Vught and Westerheijden (1994) developed a general model of quality assessment, attempting to encompass both systems of quality assurance prevalent in the early 1990s: one with an emphasis on market co-ordination in the United States and Canada, the other dominated by state control in Western Europe. The authors identified some common elements, such as the presence of an intermediary agency responsible for quality checks, the existence of a self-evaluation mechanism, the use of site visits and peer reviews, result reporting and, finally, a relationship between the outcomes of a quality review and funding of higher education activities. Billing (2004) argues that this model does not apply universally, but most of its elements may be used in many countries as a good starting point.

The strong development of quality assurance systems has been evident in recent decades. New systems and approaches have replaced the traditional, often informal quality assurance procedures previously used in systems with few HEIs and students (OECD, 2013b).

*Responsibilities for quality assurance*

Responsibility for quality assurance is shared between several players, usually local or national governments, HEIs, and quality assurance agencies of various statuses and diverse functions. In 2003, the Berlin Communiqué of the Conference of Ministers for Higher Education stressed “that consistent with the principle of institutional autonomy, the primary responsibility for quality assurance in higher education lies with each institution itself and this provides the basis for real accountability of the academic system within the national quality framework.” (Conference of Ministers Responsible for Higher Education, 2003). Yet, the annual report on the Bologna Process Implementation (EACEA, 2012), states that, as of 2012, 11 countries of the European Higher Education Area still have not established quality assurance agencies.

*Summative vs. formative approach*

Distinguishing between *summative* and *formative* approaches is a common classification in quality assurance. The *formative* approach monitors an institution’s performance and encourages it to identify strengths and deficiencies and develops strategies to address them. The *summative* approach judges whether an institution meets certain criteria. Generally, formative assessments have low stakes (low effects on the final evaluation), and summative assessments high stakes (important consequences for the institution’s final evaluation by the respective authorities) (Weber, Mahfooz and Hovde, 2010).

***Purposes of quality assurance***

Quality assurance is often regarded as ambivalent in terms of serving purposes. The purposes of accountability, improvement, monitoring and transparency are all important in higher education; however, combining them in quality assurance approaches and their implementation through individual quality assurance instruments is difficult.

*Accountability*

Often connected with summative approaches, accountability is characterised by an external locus of control and associated with centralised administrative structures and external auditors measuring quantitative indicators of success. In its perspective, a central aspect is that of “rendering an account” about what one is doing in relation to set goals or legitimate expectations that others may have of one’s products, services or processes, in terms that can be understood by those who have a need or right to understand “the account” (OECD, 2008b). It has shifted over time from system efficiency, to educational quality, to organisational productivity, and to external responsiveness to public priorities or market demands (Burke, 2004).



In reviewing trends in quality assurance, the European University Association (EUA) noted that:

“The growth of external accountability has its origin in a range of factors that have prompted universities to become more pro-active, specifically: increased autonomy from governments; increased demands for accountability linked to broader and wider access to higher education and its concomitant rising costs on the public purse; increased need to diversify income sources as government funding stagnates or declines, the rise of the ‘knowledge society’ and heightened expectations of higher education’s contribution to the local, regional, national and European economies, the on-going creation of the European education and research areas; increased internationalisation (student and staff mobility, cross-border partnerships), which, through comparisons, raises expectations about quality; increased globalisation, leading to the emergence of competitors in hitherto safe national ‘markets’ as well as a trend towards the ‘marketisation’ of higher education.” (EUA, 2005)

### *Improvement*

Quality improvement is different from accountability and many believe that the two are incompatible and may not be reviewed by the same quality assurance agency, yet the two concepts are closely linked (OECD, 1999). Often related to formative approaches, improvement is characterised by an internal locus of control and associated with facilitative administrative structures, which use peer review to assess more qualitative indicators of success (OECD, 1999).

Improvement definitions have changed and perspectives regarding its purpose and focus vary according to different stakeholders. Still, the approach prevails in the academic world, where quality assurance is seen as a means of improving the effectiveness of tertiary education delivery by allowing academic staff to revisit their approaches, methods and attitudes to teaching through an analysis of strengths and weaknesses and recommendations from peers. Where this approach is predominant, the reports are written for an academic audience with emphasis on recommendations (OECD, 2008b).

### *Transparency*

Transparency aims to provide HEIs and different stakeholders with information on an institution’s performance and scores in different indicators so that it may compare itself with other similar national or international institutions and thus become transparent in terms of its activities.

## **Major approaches to quality assurance**

### *Accreditation*

Accreditation evaluates if an institution qualifies for a certain status, which may have implications for the institution itself (e.g. permission to operate) or its students (e.g. eligibility for grants) or both. Accreditation output is a pass/fail decision, but graduations are possible in the context of a transitional phase (OECD, 1999). Accreditation may include all existing institutions and their programmes, or be limited to new institutions or programmes (OECD, 2008b). The approach involves a set of procedures designed to gather evidence to enable the decision of granting accredited status. Procedures usually include self-assessments, document analysis, scrutiny of performance indicators, peer visits, inspections, specially constituted panels, delegated responsibility to internal panels, often via proxy entrustment to external examiners or advisors; stakeholder surveys, such as student satisfaction surveys, alumni and employer surveys, direct intervention, such as direct observation of classroom teaching or grading of student work (Di Nauta et al., 2004).

Institutional accreditation provides a licence to operate and usually evaluates if the institution meets specified minimum standards, such as staff qualifications, research activities, student intake and learning resources. It

might also be based on an estimation of the potential for the institution to produce graduates that meet explicit or implicit academic standards or professional competence. Programmes are accredited based on their academic standing or on their capacity to produce graduates with professional competence to a specific profession, usually known as professional accreditation (Di Nauta et al., 2004).

### *Quality assessment*

Quality assessment (sometimes referred to as evaluation) is a process that results in a grade, whether numeric (e.g. a percentage or a shorter scale of say 1 to 4), literal (e.g. A to F) or descriptive (excellent, good, satisfactory, unsatisfactory). There may or may not be a pass/fail boundary along the grade spectrum. Quality assessments focus on the quality of outputs. In New Zealand, some of the quality assessment is focused on outcomes for graduates, for example, percentage of graduates employed after completion of the qualification.

### *Quality audit*

Quality audit inspects the existence and the proper work of the relevant systems and structures within an institution. It also ensures that provision is at or beyond a satisfactory level of quality (Tam, 2001). An audit usually involves an external check on an organisation's explicit or implicit claims about itself; the output is a description of the extent to which the claims are correct (OECD, 1999). It is sometimes called review in countries where judgements or decisions do not result from this process (OECD, 2008b). Audits are focused on those processes by which academic institutions exercise their responsibility to assure academic standards and improve the quality of their teaching and learning (Dill, 2000).

## **Current trends in quality assurance**

### *Moving from a programme-focused to an institution-wide approach*

Amourgis et al. (2009) suggest that the programme approach is too burdensome and costly for HEIs. Programme and institutional-level procedures are often combined and there are other possible approaches as well – such as quality assurance at subject or theme level. A unique, ideal model and a one-dimensional definition of quality that would suit every national context is barely conceivable (Amourgis et al., 2009). The Bologna implementation report (EACEA, 2012) stresses that the vast majority of quality assurance systems focus (as of 2012) on a combination of institutions and programmes rather than on either programmes or institutions.

### *Internationalisation of quality assurance*

Froment (2013) refers to recent trends in Europe and points out that countries have started to open their higher education systems to non-national quality assurance agencies for programme or institutional evaluations, although with some restrictions, especially after a first national accreditation. In this case, the same criteria as in the case of a national agency usually have to be used. A final decision would still be in the hands of national authorities and usually this procedure is reserved to (European Quality Assurance Register for Higher Education (EQAR)-registered agencies only.

### ***Involving students and graduates***

Among higher education stakeholders, student engagement is an important element. Experience suggests that if the departments and faculties manage to integrate students successfully, this increases students' level of engagement as well as their progress during their university years (Sursock, 2011). Student involvement in the quality assurance is usually realised on the system level (participation in quality assurance bodies), on the institutional level (participation in the internal processes of HEIs), or both.

*Employability in quality assurance*

Quality assurance and accreditation have increasingly become structural instruments to strengthen the ties between higher education and the labour market. Some quality assurance agencies cover employability (e.g. by developing an employability framework highlighting the skills and attributes valued by employers) (Grifoll et al., 2012). The representation of employers and practitioners in quality assurance processes has strengthened to ensure that efforts are made to develop skills that enhance students' employability in all programmes. This ensures that higher education provision responds to labour markets (De Weert, 2011).

*Assessing e-Learning, Massive Open Online Courses (MOOCs) and OER (Open Educational Resources)*

E-Learning is a prominent development within HEIs and faces challenges in terms of quality assurance. It is rarely included in national quality reviews and quality assurance, but as it becomes an integral part of higher education, it should be included in quality assurance procedures, along with new respective criteria for its evaluation. The Swedish National Agency for Higher Education (2008) proposes an e-learning Quality Model that consists of ten quality areas: communication, co-operation and interactivity, flexibility and adaptability, material/content, resource allocation, staff qualifications and experience, structure/virtual environment, student assessment, support (student and staff), the holistic and process aspect, and vision and institutional leadership.

**Instruments for quality assurance**

This section describes specific instruments for quality assurance. Individual instruments and quality assurance mechanisms may be more or less relevant based on the overarching goal, i.e. accountability, improvement or monitoring and transparency, and may be used differently depending on the main type of quality assurance approach taken, whether accreditation, assessment or audit. It is important not to rely only on a single quality assurance instrument, particularly if it shapes staffing decisions (e.g. promotions). Only a mix of several instruments ensures good intelligence. These instruments must be related to institutional strategies and – ultimately – to academic values (Sursock, 2011). Usage of multiple instruments is also necessary to ensure a more comprehensive picture of the quality of higher education, which is then useful to students, the government, employers and the general public.

***Qualification frameworks/descriptors***

The establishment and referencing to qualifications frameworks and the adoption of assessment methods focusing on student learning outcomes pose important challenges to the methods and processes used for internal and external quality assurance. In Europe, countries are still at the beginning of implementing qualifications frameworks. It is, thus, important to make sure that frameworks are developed jointly with quality assurance, learning outcomes, and other recognition tools (Blomqvist et al., 2012). Some universities have designed their own quality assurance frameworks for teaching and learning as institution-specific, but are also following national frameworks and guidelines (Loukkola and Zang, 2010).

***Governance arrangements and guidelines***

Governance arrangements have become major tools for improving quality in all aspects of higher education. Most arrangements are advisory in nature and allow institutions to use them in their own way. Governance arrangements represent a cautious approach to helping institutions progress without hampering the diversity of higher education and clarifying institutional structures and procedures, notably with regard to governing board members.

In comparison, quality guidelines have a rather binding character and may demand compliance from institutions seeking full accreditation. They focus on planning processes and the nurturing of a quality culture. Governance arrangements and quality guidelines play similar roles in helping institutions become more effective (Hénard and Mitterle, 2010).

### ***Student and graduate surveys***

Student satisfaction surveys are one of the qualitative tools. They focus principally on the evaluation of courses, teachers, and the overall quality of learning facilities and services provided at universities (Hénard, 2010). In practice, there are potential limitations in using student satisfaction surveys; Goe, Bell and Little (2008) point out that students are not necessarily qualified to rate teachers on curriculum, content, knowledge, or the level of facilities available during the courses.

### ***Instruments related to the labour market***

Instruments related to the labour market typically include monitoring supply and demand for higher education graduates and surveys of employers, but also initiatives such as meetings of academics and employers. The monitoring and surveys are reported to be very successful in countries that apply them thoroughly by central authorities, such as national agencies or similar authorities. Similarly, where adopted successfully, meetings of academics and employers frequently lead to positive developments and revisions in programme organisation and content (De Weert, 2011).

### ***Instruments for internal quality assurance***

Quality assurance systems have matured over time in many countries. Greater reliance has been devolved to internal processes, although frequently with an external push. Many countries within EHEA (European Higher Education Area) reported (as of 2012) on the number of institutions that have published a strategy for continuous quality improvement in very recent years: in 37 countries, more than 75% of HEIs have developed such strategies.

### ***Instruments for evaluating quality in teaching***

Teaching is one of the three main missions of HEIs, along with research and engagement with society. Although accepted in principle, the evaluation of quality in teaching is often challenged. As teaching is primarily appraised through activity and input indicators, institutions struggle to create reliable evaluation instruments for the impact of teaching. Hence, the demonstration of the causal link between teaching and learning remains challenging (Hénard, 2010). Altbach (2006) suggests that there are no widely accepted methods for measuring teaching quality. Although many HEIs have developed approaches to assure teaching quality, there are still obstacles to these approaches becoming reliable and solid.

### ***Learning outcomes as an evaluation tool***

Learning outcomes are statements of what a learner is expected to know, understand, and be able to demonstrate after completion of a process of learning. Where institutions have tried to describe learning outcomes, student assessment is directly related to them and the methods and criteria are usually made transparent to students (Loukkola and Zang, 2010).

For HEIs, evaluating learning outcomes can present an opportunity to present what their students are actually capable of and what they can do after graduation. Hence, through the creation of tools and mechanisms for measuring learning outcomes, institutions find new ways to develop pedagogical methods. For students, the evaluation of learning outcomes presents an opportunity to be informed on study programme content. If well

described, learning outcomes inform a prospective student far more than the previous course descriptions. For ministries of education, evaluating learning outcomes present interesting possibilities to reflect on national policy making (Gallavara et al., 2008).

### *Student portfolios assessment*

“A portfolio assessment is the systematic, longitudinal collection of students’ work created in response to specific, known instruction and objectives, and afterwards evaluated in relation to the same criteria. The assessment is done by measuring the individual sections as well as the portfolio as a whole against the specified criteria, which match the objectives toward a specific purpose. Portfolio creation is the responsibility of the learner, with teacher guidance and support, and often with the involvement of peers and parents. The audience can participate in the assessment of the portfolio. Academics have developed portfolio instruction and assessment criteria, and gained appropriate administrative support. During the development process, they found answers to their own questions, and addressed issues concerning portfolio assessment coming from colleagues, students and parents.” (Alimemaj and Ahmetaj, 2010)

Notwithstanding, student portfolios are subject to criticism. Shavelson and Klein (2009) suggest that student portfolios are not standardised, not feasible for large-scale assessment due to administration and scoring problems, and evaluation methods are potentially biased.

### *Performance indicators*

HEIs turn to performance indicators as a tool to evaluate teaching quality, since indicators are quantifiable and contain available data. The data usually focuses on inputs and resources (such as entrance scores, number of academic staff and number of contact hours, number of study places, number of computers available in the study rooms, etc., i.e. variables that can be measured relatively well). The collection of data has improved quickly since HEIs introduced new technologies and software. Yet, these quantitative, input-based indicators do not seem to sufficiently reflect the quality of teaching and it is very dangerous to over-interpret such data.

### ***Instruments for assessing research and the “third mission”***

Teaching and learning activities are not the only areas for which quality assurance is relevant. Research and development (European Commission, 2010) and the “third-mission” (the institution’s engagement with society) activities are also more and more on the agenda of quality assurance agencies (European Commission, 2012).

## **Instruments for quality improvement**

This section provides a review of the different measures and tools countries and institutions use for quality improvement.

### ***Benchmarking***

ESMU (2008b) suggests that “benchmarking is an internal organisational process which aims to improve the organisation’s performance by learning about possible improvements of its primary and/or support processes by looking at these processes in other, better-performing organisations.” In an increasingly competitive higher education sector, benchmarking is a modern management tool to support strategic decision-making, yet its use is still limited. Whether carried out within or between institutions, benchmarking must always lie in the identification of strengths and weaknesses with a view to set targets for improvement. Benchmarking goes

beyond the comparison of statistical data. It is a dynamic comparative exercise during which relevant indicators are defined, and against which the performance of a group of institutions can be measured (Blackstock, et al., 2012). It can be a valuable method to improve collaborative relationships, obtain information on best practices and increase levels of performance. Collaborative benchmarking is grounded on the presupposition of voluntary co-operation for the benefit of all partners (ESMU, 2008a).

### ***Quality teaching instruments***

#### *Concept of quality teaching*

Biggs (2001) suggests that quality enhancement in teaching should be about getting teachers to teach better, which can be achieved by means of continually reviewing and improving current practice in response to new content knowledge, changing student populations and changing conditions in the institution and society.

Hénard and Roseveare (2012) reviewed numerous initiatives that countries and institutions take and could take to foster quality teaching, such as establishing a centre for teaching and learning development, teaching excellence awards and competitions for remarkable improvements, teaching innovation funds, teaching recruitment criteria, communities of teaching and learning practices, support to foster student achievement (e.g. counselling, career advice, mentoring...), students' evaluation (i.e. programme ratings, evaluating learning experiences), self-evaluation of experimentations, peer-reviewing, benchmarking of practices, etc. As a proactive measure, many institutions have implemented specific teaching and learning strategies and have designed mechanisms and instruments to improve the quality of education.

Hénard (2010) suggests that fostering quality teaching is likely to be beneficial to research activities. An increasing number of institutions are convinced that they will make quality teaching progress by combining professional orientations and research. Leadership at executive levels is also a success factor. The participation of faculty deans is vital, as they are at the interface between an institution's decision-making bodies and teachers on the job. They encourage the cross-fertilisation of strategic approaches, build and support communities of practice, and nurture innovation in everyday practice in the classroom.

#### *Improving teachers' skills*

The first and foremost instrument to foster quality teaching relates to the initial training and professional development of academics in order to improve their teaching skills. However, several countries and/or individual HEIs have developed various instruments for the improvement of the *teaching standards* through the establishment of framework standards or benchmarking initiatives. Other initiatives that have proven successful in various national contexts include: the establishment of *national forums and structural frameworks*; *centres of teaching excellence*; *mentoring of new teachers*; and *continual pedagogical development*.

#### *Awards for excellence in teaching*

Awards schemes for excellence in teaching is yet another tool applied by a number of countries at the national or institutional level to recognise and celebrate teachers who have an outstanding impact on the student learning experience, to draw attention on the importance of teaching excellence and to promote a better balance between the focus on research and that on teaching (European Commission, 2013b).

#### *Study programmes redesign*

Joint and double degree programmes are powerful tools to promote quality assurance and mutual recognition of qualifications, to attract talent and deepen partnerships and to enhance the international experience,

intercultural competence and employability of graduates (European Commission, 2013a). Another approach focuses on curriculum redesign.

### ***Providing support to students***

To smooth the transition from school to university, some HEIs organise summer schools and preparatory courses in order to better inform prospective students about the variety of choices and those most apt for them (European Commission, 2013b). Some institutions also offer special access courses, where prospective students take preparatory courses before they enter the full degree programmes (Orr, Gwosć and Netz, 2011).

### ***Working with alumni***

Higher education alumni can be an invaluable resource to institutions. They know best how well or poorly they were prepared for the work they undertake after graduation. For HEIs to avail themselves of this unique resource, relationships and databases must be established and maintained from the student's entrance to graduation and beyond into the world of work (OECD, 2013b).

Some institutions track students' and graduates' progression paths. Overall tracking was found to be useful in contributing to enhancing the quality of the institution, learning and teaching, support services and its strategic development and management. Tracking results were found to be instrumental to improving and devising better targeted student support systems that underpin all phases of the student's lifecycle, resulting in better quality of education and better student retention. It is also used for benchmarking within the institution or between institutions (Gaebel et al., 2012).

### ***Improving research activities***

To promote and enhance the quality of their research sectors, some OECD countries have adopted various approaches that could be addressed together as "research excellence initiatives". They are usually programmes operated/carried out by governments that provide specific funding schemes (mostly limited to a certain period). The main goal is to enhance the competitiveness of the national research institutions.

### ***Quality improvement and funding***

Consistent with the improvement purpose and spirit of the instruments, there are usually no stakes for HEIs to engage in quality-enhancement activities and limited implications on their funding. However, a trend towards higher stakes improvement instruments is emerging, with the move towards contract (also performance-based) funding approaches in a number of countries. As Miao (2012) defines it,

"...performance-based funding is a system based on allocating a portion of a state's higher education budget according to specific performance measures such as course completion, credit attainment, and degree completion, instead of allocating funding based entirely on enrolment. It is a model that provides a fuller picture of how successfully institutions have used their state appropriations to support students throughout their college careers and to promote course and degree completion."

Contracts have multiple purposes, like stimulating overall performance, quality and meeting national priorities.

The most common approach takes the form of financial incentives such as bonuses/special quality awards to reward high performance, but these usually add up to core budgets. A more radical approach is to make the core budget of HEIs dependent on their demonstrating quality improvements, which de facto turns quality improvement measures into accountability instruments. A number of countries have adopted softer forms of performance contracts in which the level of funding is not dependent on performance indicators. Irrespective of the implications of quality improvement instruments on the level of government support to HEIs,

Estermann and Bennetot Pruvot (2011) point to the efficiency gains that these activities generated at the institutional level and contribute to freeing up resources that can be reallocated into strategic investments. Hazelkorn (2009a) suggests that “Centres of Excellence”, which have been emerging as one of the results of the world-wide pursuit for world-class excellence due to the presence of the global university rankings, enable a more efficient concentration of resources.

## Developing conceptual frameworks and models of quality in higher education

This section aims to develop a conceptual quality framework in higher education. The goal is to conceptualise the concept of quality in higher education and the interplay of the different approaches, as well as the ways they interact with each other.

### *Existing frameworks of quality in higher education*

Recent developments in educational policies have seen some remarkable attempts to build up a conceptual framework to analyse quality in education. A “Conceptual framework to analyse evaluation and assessment in school systems” was created within the OECD (2011). Although it focuses on education systems in general then specifically on higher education, many of its taxonomy elements are also relevant for higher education. Moreover, some countries have already developed their national frameworks for quality (assurance) in higher education.

### *Reflecting different features of quality approaches*

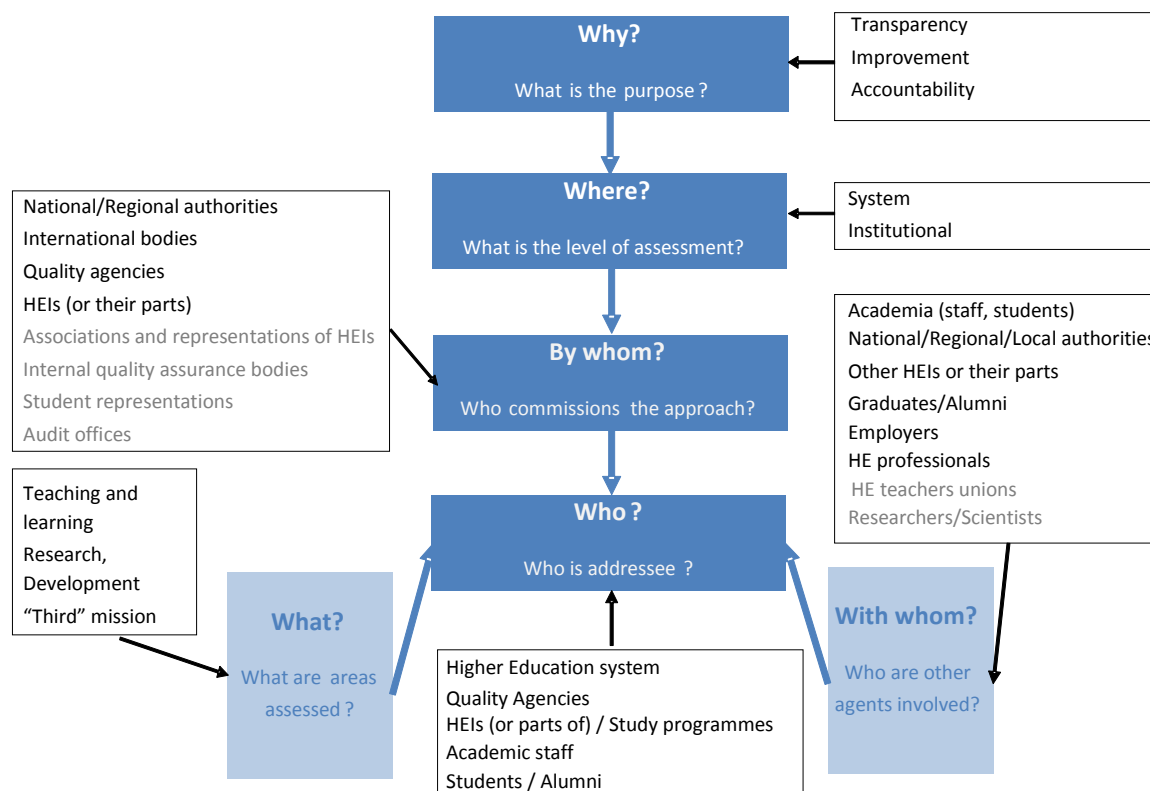
Any approach or instrument applied in quality mechanisms consists of different constituents and features. The approach can work and be put to use only if all the features are present simultaneously:

- *Why?* – What is the purpose?
- *Where?* – What is the level of assessment?
- *Who is addressee?* – Which units are assessed?
- *Who commissions the approach?* – Who prepares the assessments/evaluations/monitoring?
- *What?* – Which area (teaching and learning, research and development, third mission)?
- *With whom?* – Who are the other agents involved?

Figure 1.1 shows different features of quality approaches with the most common concrete examples (black) and some other examples (grey).



Figure 1.1 Different features of quality approaches in higher education



### Reflecting different perspectives in the framework

Any quality approach could be regarded from different perspectives. It may serve various purposes, carried out on different levels and different methodological approaches could be used to achieve it. The main levels on which quality approaches are performed are:

- *System level* – Usually carried out at the national level by national governments and with the participation of other national authorities. However, in some countries respective competencies and powers may be vested in regional governments (depending on the jurisdiction). In some cases, an institutional level may apply (e.g. cross-border quality assurance). The system level can be also referred to as *macro level*.
- *Institutional level* – This refers to HEIs and approaches that are usually internal, institution-wide and carried out by the respective bodies of HEIs.
- *Programme level* – This approach refers to a study programme or a group of study programmes. Both institutional and programme levels can be also referred to as *micro level*.

The three main purposes that quality approaches serve are: *accountability*, *improvement* and *transparency* (See section II for the description of the three purposes). The methodological approach can be either quantitative or qualitative, or a combination of both. Some approaches are based on the qualitative methodology (e.g. regulatory tools), some of them are quantitative (e.g. performance indicators).

Figure 1.2 shows the conceptual framework for quality in higher education. It reflects all the three perspectives and includes the major quality approaches. The different approaches/instruments represent the

“umbrella” approaches identified in the particular practices used in several countries. However, there may be different variations to these approaches at work across countries or within one country.

While some approaches are universal and may be used both on the macro and micro level and may serve various purposes, some are specific and may be applied either within system-focused or institution-focused processes or may serve only one of the purposes. Some approaches are uniquely quantitative or qualitative and others constitute a specific combination of both. Although some approaches are grouped under one block, in practice they may be used differently according to the way they are implemented.

Figure 1.3 shows a spectrum of different approaches/tools/instruments and the purposes they may serve. Different colours correspond to different purposes. Each instrument is positioned according to the application of quantitative, qualitative or both methodologies and according to the level at which they may be carried out. Clearly, some sections of the “circle” remain blank, indicating that, in practice, no instrument corresponding to the characteristics has been identified as being in use.

### ***Different groups of approaches***

#### *Performance indicators*

Performance indicators may be used for different purposes. They may serve as a transparency tool and for accountability and improvement. They are usually quantifiable and help make transparent information about a system’s or an institution’s performance. In some countries their results are used to identify weaknesses, which then may lead to improvement. Their usage is also documented for funding purposes (e.g. in the funding formulas), making this tool a high-stake instrument.

#### *Financial and strategic mechanisms and legislative and regulatory tools*

Financial and strategic mechanisms and legislative and regulatory tools are very powerful instruments. However, their usage is limited for accountability purposes as they are, by nature, very high-stake. Financial mechanisms may be implemented at the system and institutional level and may take different forms (e.g. funding formulas, block funding or targeted funding, [OECD, 2008b]). Legislative tools are usually applied on the system level. However, there is widespread usage of internal regulations within institutions. Strategic plans also go under this group.

#### *Accreditations*

Accreditations are a popular tool at the system level and well known across OECD countries. Both institutions and study programmes can be subject to accreditation. The implementation of this mechanism may differ from country to country and the agents involved in the process also. At the institutional level it may take the form of an internal accreditation process, often as a part of an internal quality assurance system. Accreditations are a pure high-stake instrument and as such serve the accountability purpose.

#### *Audits*

Quality audits are useful at the system and the institutional level. Whether carried out internally at the institutional level or by a system level body, they serve the purpose of improving quality. Unlike accreditations, they do not imply a decision on further operation, further provision or delivery of study programmes and as such they constitute a low-stake instrument.

### *Rankings*

Global university rankings are meaningful only at the system level. Although they may have secondary effects leading to improvement, primarily they constitute a transparency tool. Yet, making institutions or systems accountable according to their results in global university rankings is very questionable. Thus far no such case has been identified in practice.

### *Benchmarking*

Benchmarking tools are a combination improvement and transparency purposes in one single instrument. The essence of the tool is to offer transparent and visible information on the system or institution to others and, at the same time, use the results of other actors for self-improvement. Evidence shows that benchmarking is not used for accountability.

### *Standards and guidelines*

Standards and guidelines include: cross-border guidelines, quality guidelines and internal quality standards. In practice they are implemented differently on the system level and on the institutional level. On the system level they may serve accountability, transparency and improvement, while on the institutional level they may have the form of a binding document valid across the institution (to serve the accountability purpose similar to the internal regulations). On the system level they may also be non-binding, recommendatory for the institutions (used in a similar way to benchmarking).

### *(Qualifications) frameworks*

Frameworks are used at the system level. While they are not binding and are mostly used for improvement, there is evidence that in some countries (and also at the European level) qualifications frameworks are implemented.

### *Staff appraisals*

Staff appraisals are a tool that institutions use internally and they may serve accountability and improvement. The results of such exercises may be instrumental for academia improvement, e.g. quality of teaching. Some institutions also use them as a high-stake tool, upon which conclusions can be built that have an impact on staff members' careers.

### *Student and graduate surveys*

Unlike student and graduate surveys, there is no evidence of the use of employers' surveys for accountability. Yet, they may be instrumental for improvement and transparency.

### *Assessment of learning outcomes*

Institutions may carry out assessments of learning outcomes internally to collect information about their students or graduates and use the results for transparency or improvement. Although still relatively rare in practice, if assessments or learning outcomes are performed on the system level, they may also serve accountability.

### *Student portfolios*

Institutions use student portfolios as an instrument for internal improvement. They are not implemented on the system level.

### *Quality assessments*

Quality assessments refer to tools that are programmatic, institutional or system-wide and their results have a form of grading. They are useful both at system and institutional levels. When implemented at the system level they may serve different purposes. External evaluations – i.e. carried out by an external body or agency, an institution usually being the object of this process – serve to provide accountability. Self-evaluations commissioned by an external body are usually used for improvement, and if the results and reports are made public they also serve to enhance transparency. When implemented at the institutional level, they take the form of an internal quality assessment usually commissioned by a body within the institution. In this case, they serve all three purposes. Assessments of research and of the third mission also fall under this group.

### ***Interplays within the framework***

Approaches could follow many combinations and tracks. Figure 1.3 shows interplays between the different features/constituents of quality approaches in higher education. In practice, however, countries use only a limited number of them.

All the three purposes (accountability, improvement and transparency) are relevant whether the approach is carried out at the system or institutional level. When carried out at the system level, both national/regional authorities and quality agencies may have a role in the process of commissioning the approach. When the approach is institutional, quality agencies and HEIs are instrumental.

With regard to the units assessed (addressees of the approach), there is no evidence that HEIs carry out assessment at the system level. Yet, national/regional authorities may carry out approaches targeted to different units – HE systems, HEIs (or their parts)/study programmes, academic staff or students. The other constituents of an approach (i.e. *what?* And *with whom?*) are relevant for all the units assessed, with one exception – there is no evidence for students being the primary unit assessed in third mission evaluations.

Figure 1.2 Conceptual quality framework in higher education (reflecting different perspectives)

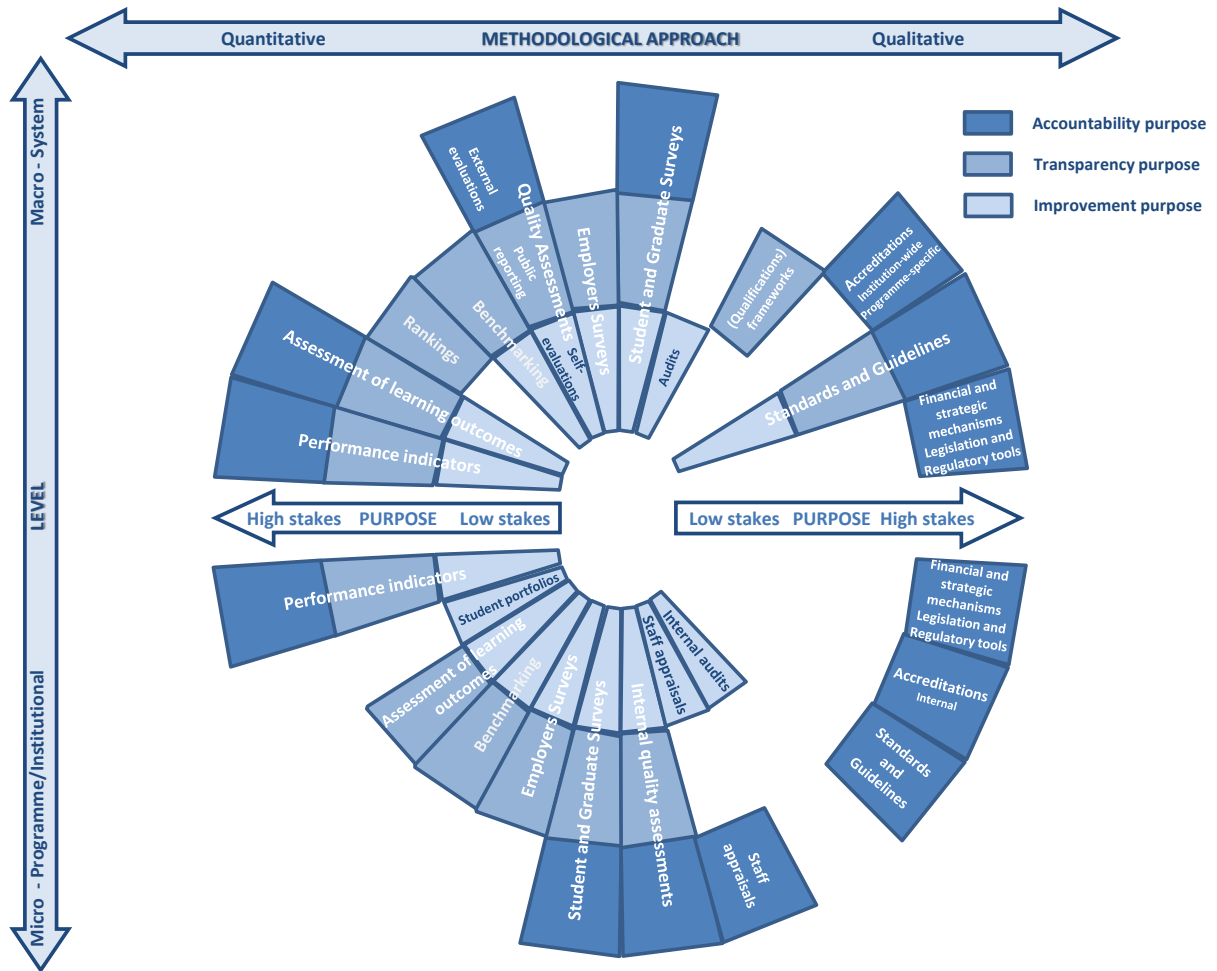
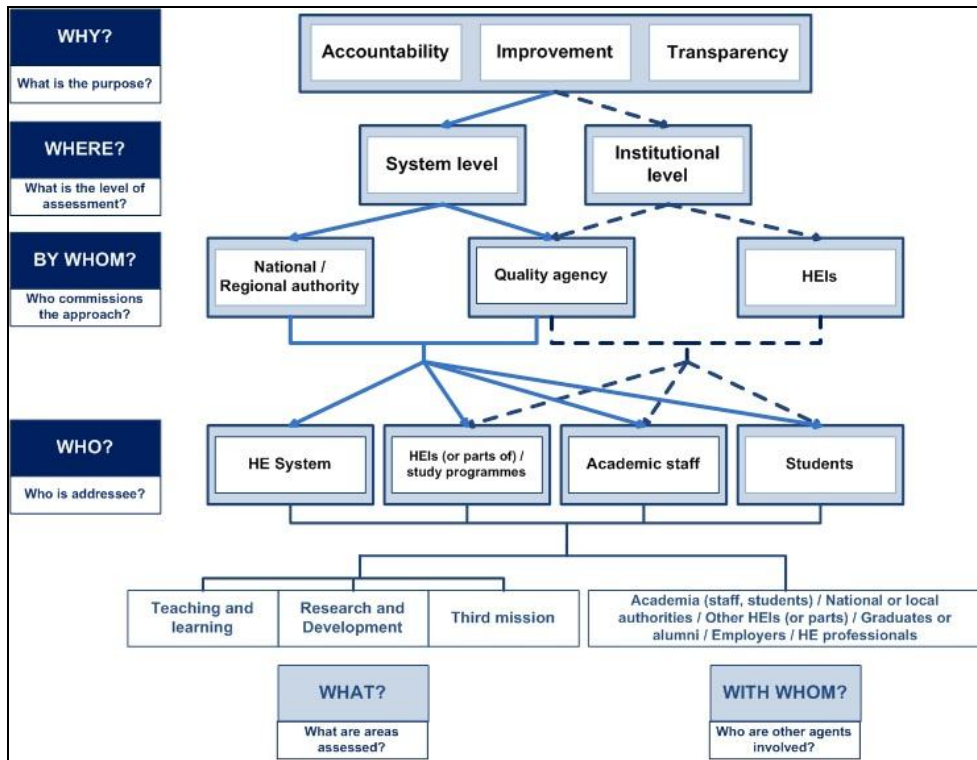


Figure 1.3 Interplays between different constituents in quality mechanisms



## NOTES

1. A net entry rate represents an estimate of the probability that a young person will enter tertiary education in his/her lifetime if current age-specific entry rates continue.
2. Tertiary education refers to the levels ISCED 5A and 5B.
3. See Section 2 for the most commonly used approaches in quality assurance.
4. [www.ireg-observatory.org/index.php?option=com\\_content&task=view&id=41&Itemid=48](http://www.ireg-observatory.org/index.php?option=com_content&task=view&id=41&Itemid=48)

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## CHAPTER 2 – STRENGTHENING BUSINESS MODELS IN HIGHER EDUCATION INSTITUTIONS: AN OVERVIEW OF INNOVATIVE CONCEPTS AND PRACTICES

Patricia Mangeol

### Introduction: the rationale for organisational change in higher education<sup>1</sup>

Higher education institutions (HEIs) have long had to adapt to changing economic and social realities, yet this need has become more pressing in recent decades. Since the last OECD large-scale comparative study of tertiary education systems (OECD, 2008), disruptive trends have reshaped the way higher education is organised and delivered. Unlike the primary and secondary levels of education, which are often public services delivered on a mainly national basis; higher education is increasingly described as a globalised, diversified and competitive market (OECD, 2009; Sheets, Crawford and Soares, 2012; Barber, Donnelly and Rizvi, 2013).

HEIs have already had to deal with rapid “massification”. Participation has expanded radically and now concerns people of different ages and from diverse socioeconomic backgrounds. Students are also very mobile internationally: between 2000 and 2012, the number of foreign tertiary students enrolled worldwide more than doubled, with an average annual growth rate of almost 7% (OECD, 2014a).

Governments also expect more of higher education, viewed as strategic to support economic growth and social wellbeing. Yet, government policy levers seem more constrained than ever before, largely due to fiscal constraints made more acute by the 2008 global financial crisis. As a result, many HEIs rely more on private sources of funding and less on government resources than in the past. Although less directly affected, governments’ regulatory powers may also be more limited in a context of rapid change. While governments may take several years to develop qualifications frameworks or policies to accommodate student mobility, bottom-up initiatives developed at the institutional level may be more flexible and quicker to implement.

From an institutional perspective, HEIs are under pressure to become more effective and efficient across all of their missions – teaching, research, innovation and local economic development. Yet, HEIs face financial challenges that threaten long-term sustainability. This is due to an array of factors, from rising costs to new constraints on both public and private funding sources. Notably, relying on cost-sharing at a time when students and families face financial difficulties of their own, including high debt loads, is becoming increasingly challenging.

In addition, HEIs also face organisational changes. These started several decades ago as governments and HEI management increasingly emphasised efficiency, flexibility and innovation to address the paradox of constrained resources and ever growing demands placed on higher education (Rinne and Koivula, 2005). In this context, the identity of HEIs as organisations is undergoing a profound transformation. Whereas many agree that HEIs need to adapt to the fast-changing environment, there are debates around how institutions should do this and what models are most appropriate. These debates are particularly intense because organisational changes directly impact the people who deliver higher education, notably academics in their roles of researchers and teachers (see Enders and Musselin, 2008). Other categories of personnel, such as staff in charge of financing or innovation, are similarly faced with the need to develop different sets of skills and approaches (see Estermann and Bennetot Pruvot, 2011; OECD, 2014b).

As this chapter shows, there are many facets to institutional operations that may be improved, and many ways to pursue organisational effectiveness and innovation. Following a discussion of different aspects of institutional operations, a typology of business models is drawn in the concluding part of this chapter. It will first serve to summarise key elements of different business models in higher education based on current research. It will also provide a preliminary analytical framework to help HEIs better define their own business models and identify the benefits and challenges associated with them. The typology is also meant to assist HEIs with strategic planning, as they envision and work towards the identity and features of their institutions in the longer-term.



## The concept of business models: why it is relevant for higher education institutions?

The idea that business models are concepts applicable to HEIs, while increasingly common, remains contentious. The emergence of the concept in the higher education sector is strongly associated with the view that each institution operates as an individual firm within a competitive market and seeks efficiency and market gains (Collis, 2000). Indeed, the transfer of management strategies from the private sector, which began in the 1980s, is a well-documented trend in higher education. These practices, often referred to as “new public management” or “managerialism”<sup>2</sup> include shifts such as the introduction of market mechanisms and encouragement of institutional competition, the concentration of resources in select universities, departments or research domains, the focus on the user as payer and customer, the emphasis on entrepreneurial activities and significant efforts to foster knowledge transfer and commercialisation (Hood, 1989; Parker and Gould, 1999; Rinne and Koivula, 2005; Hazelkorn, 2005; Deem and Brehony, 2005).

There are differing opinions as to whether this shift to new public management in higher education and its causes and effects is beneficial or damaging to existing systems. The following points highlight some of the contrasting perspectives on the topic.

- **Necessary shift due to structural issues:** The role of the private higher education sector is often viewed as critical to absorbing demand where the public sector fails to provide sufficient opportunities, in quantity or quality, to students. In India or Mexico, for example, the private sector has taken the lead in absorbing large increases in student numbers at the tertiary level (Salmi, 2009; Dossani, 2014).
- Where traditional public funding has become insufficient or inadequate, providing HEIs with enhanced autonomy and certain corporate features (e.g. to offer diverse services) helps maintain financial sustainability (see Greer and Klein, 2010 for a discussion on public colleges and universities in the United States; Estermann and Bennetot Pruvot, 2011 for the European context).
- **Beneficial shift to better respond to new needs/enhance quality:** Relying on private resources, including student tuition fees, may help strengthen the quality of education programmes and how they meet student and employer demands (for an example of that view, see the white paper on the recent reforms in the UK (BIS, 2011). Some authors also argue that private providers foster higher quality overall by generating more competition (Holzhacker et al., 2009; Bajaj, 2012; Varela-Petito, 2010).
- **Damaging shift driven by new public management theory:** New public management concepts such as efficiency, flexibility and free enterprise reduce the role of the state in the delivery of public services (see Rinne and Koivula, 2005). From this perspective, some authors view the privatisation of higher education as unescapable and potentially damaging: both for students, who pay more while quality (real and perceived) declines as institutions pursue cost efficiencies, and for academics and institutional staff who face increasing job stress and low satisfaction (Shin and Jung, 2014). Institutional leaders also face new demands, as they are tasked with complying with increased financial accountability and performance requirements that take a growing role in strategic management (Parker, 2013).

Despite this close link between the notion of business models and debates on the marketisation of higher education, a wide range of business models exists and not all of them are focused on implementing new public management principles and practices. In fact, the “ivory tower” model of a university focused on knowledge creation disconnected, to some extent, from the demands of the broader socio-economic environment is a business model in itself. It is indeed a coherent operational approach, focused on a specific elite niche and supported by a clear funding structure, for example a strong reliance on public funding in many European countries. In the United States, while high tuition fees and large private endowments may enable prestigious private HEIs to follow an ivory tower model, private sector connections may be viewed as de facto “opening” this model to external influences and needs.

Therefore, rather than equating business models with the shift to a single model of the managerial or corporate university, this chapter will use the concept in two ways. First, business models are used to categorise and discuss different aspects of HEIs’ operations that impact their performance in a competitive environment. This section will look at various practices and highlight some that may lead to improvements in terms of the effectiveness (higher quality

services) and efficiency (increased value for money) of HEIs. Second, the concept will be used to develop an initial typology of business models and to provide a preliminary matrix of benefits and challenges offered by the various models.

For a decade, higher education experts have been using the concept of the “business model” more and more often to describe current approaches and future scenarios. A frequent approach is to attempt to delineate and predict the possible futures for higher education based on recent evolutions in the organisation of both systems and institutions of higher education (see for example Vincent-Lancrin, 2004; Salmi, 2009; Sheets, Crawford and Soares, 2012; Barber, Donnelly and Rizvi, 2013; UNITE, 2014). Because the field of higher education is particularly complex, the identification of multiple models along an array of dimensions might be necessary to reflect the many nuances and sheer diversity of HEIs around the world. However, following Vincent-Lancrin’s argument (2004), there is limited analytical and practical value in developing a large number of models or scenarios that are not sufficiently distinct from one another. The models could also quickly become outdated and limit the usefulness of any analytical tool meant to help policy and institutional decision-makers examine business models and their changes over time.

In this context, the simple analytical model proposed by Sheets, Crawford and Soares (2012) offers a useful perspective. The authors propose four general dimensions of business models, applicable across economic sectors or industries, that can be relatively easily translated to the higher education context (see Table 2.1). The originality of this approach is that, building on Christensen’s work (for example Johnson, Christensen and Kagermann, 2008) on disruptive innovation, business models in higher education are viewed as central levers to promote innovations in HEIs. While technology, for example, is widely acknowledged as a source of innovation in higher education, the authors argue that business models have often been overlooked in debates on innovation. Their approach was selected for this chapter thanks to its simplicity and applicability to the higher education field.

**Table 2.1 Business model analytical framework applied to higher education**

Business Model Elements – Generic	Business Model Elements Adapted to HEI context
Customer value proposition <i>How an organisation will address customer needs</i>	Value Proposition <i>Mission, offerings, particular strengths in a globally competitive market</i>
Competitive strategy <i>How an organisation will compete with rivals and defend its position in the value network</i>	
sValue chain <i>Organises processes, partners, and resources to deliver the value proposition</i>	Delivery of core services and cost structure <i>How funds are used, how teaching and research are organised, how costs are managed</i>
Profit formula <i>How an organisation will generate revenue to more than cover costs</i>	Funding <i>From which sources and how is funding organised</i>

Source: Adapted from Sheets, R., S. Crawford and L. Soares (2012), “Rethinking higher education business models: steps towards a disruptive innovation approach to understanding and improving higher education outcomes”, 28 March 2012, Center for American Progress – EDUCAUSE, Washington, DC, [www.americanprogress.org/wp-content/uploads/issues/2012/03/pdf/higher\\_ed\\_business\\_models.pdf](http://www.americanprogress.org/wp-content/uploads/issues/2012/03/pdf/higher_ed_business_models.pdf)

## The value proposition: defining a clear mission in a competitive market

Defining an institution’s value proposition is in some ways similar to establishing a mission statement. However, the concept of a value proposition implies that this exercise takes place in a competitive context, where institutions must demonstrate their unique strengths and relevance in comparison with other higher education providers. Not only do HEIs compete for students and prominent academics, they also compete for visibility, funding, partnerships and other

benefits that allow an institution to maintain a good competitive position – and for some to simply continue to operate.

One main challenge in developing and communicating a clear value proposition is that HEIs are catering to a wide range of stakeholders whose interests are not always aligned. Direct stakeholders include students, but also government and funders generally (both public and private, including families and donors), as well as employers and industry more generally. From an organisational perspective, they also include the academic community and other categories of institutional staff. HEIs also work with external partners to whom they need to demonstrate value in order to maintain productive relations with, for example, other HEIs at the national and international level, other types of educational institutions, private companies and their research and development departments, as well as various public services (e.g. employment, health, housing).

In this complex context, where HEIs are at the heart of a multi-layered network of partners and stakeholders, the challenge is to develop clear missions wherein benefits to the various stakeholders are explicit and which are implemented through adequate operational strategies.

### ***Current state: rationale and features of differentiation***

Defining and enhancing the value proposition of institutions implies that key goals, functions, target student populations, strengths and areas of focus have been well identified. At a system level, this is often achieved through external differentiation: governments encourage institutions to develop a specific profile based on a set of national, regional or local social and economic needs. Another approach, less frequently discussed in the literature, is that of internal differentiation. In this scenario, institutions intentionally choose to expand the range of activities and/or disciplines they offer and to diversify their offerings to respond to a wider set of needs (Reichert, 2009). Since these two approaches may be complementary, as external differentiation theoretically leads to more specialisation at the institutional level, it is likely that while governments push for specialisation, institutions also seek to respond flexibly to new needs while maintaining some of their traditional features. In any case, the clarity of the mission and the alignment between the stated objectives and strategies are critical to ensuring that institutions effectively build on their strengths and make them visible to stakeholders.

There are various benefits to defining a strong value proposition. From a policymaker's perspective, clear institutional missions contribute to establishing a coherent, complementary and cost-efficient system. For institutions, benefits range from opportunities to focus resources and ensure sustainability, build on strengths and deliver high quality in one or several particular functions (e.g. teaching, basic research, applied research, innovation, regional development) and/or subject areas. For students, differentiation can offer both a greater range of options *and* higher quality. If differentiation is well-communicated to students and the broader public, it can help students, parents and other stakeholders, including employers, more easily identify institutions that meet particular needs.

In practice, differentiation is one of the key approaches used across OECD countries to maximise the range of available higher education offerings while avoiding duplication and containing costs. After studying higher education systems that exhibit different levels of system differentiation in more than 20 countries, the OECD (2008) recommended extensive and flexible diversification of higher education systems as an effective approach to meeting various national needs, including research and innovation, the development of a skilled workforce, social inclusion and regional development.

In five countries (England, France, Norway, Slovakia and Switzerland) examined by the European University Association (see Reichert 2009), governments promote differentiation either directly through legislation, regulation or separate funding instruments, or indirectly through the creation of competitive conditions, for instance by increasing research funding available on a one-off basis. The governments also rely on the broad autonomy of institutions to define their own mission profiles and seek specialisation based on signals received from the market, broadly speaking. In countries where HEIs enjoy broad autonomy, it is critical that differentiation strategies address the interests of both the government and institutions.

### ***Overview of recent approaches: developing institutional value propositions***

Developing distinct institutional value propositions does not occur in a vacuum and is often conditioned by system-wide structures, including legal contexts, government objectives and policies, but also broader conditions such as demographic trends and the level of national economic development. Over recent decades, many governments across OECD countries have encouraged system-wide differentiation to ensure the system meets a growing diversity of needs, usually while contending with constrained finances and growing student numbers. Exceptions to this latter trend include countries such as Japan and Korea, which face falling student numbers and have had to identify approaches to downsize their higher education sectors while simultaneously attempting to diversify in order to attract more domestic and international students (Yonezawa and Kim, 2008).

In the comprehensive review of tertiary education in 2008, the OECD highlighted two main differentiation patterns at the system-level, which vary depending on whether the tertiary education sector is unitary, i.e. composed of a single type of institution or not, in which case it is organised into two or more homogeneous sub-sectors separated by clear lines (OECD, 2008). These differentiation patterns include:

- creating more vocationally-oriented institutions within non-unitary systems, for example in Chile, Estonia, France, Finland, Mexico, Norway and Portugal;
- encouraging wider differentiation within a single institutional type through competition among institutions, for example in Australia, Iceland and the United Kingdom.

The province of Ontario, Canada offers an interesting recent example that combines features of both approaches. The province has a clearly defined binary system of higher education, with public colleges providing vocational educational and a research-intensive autonomous university sector. In addition, the province has recently sought to enhance wider differentiation and competition within its entire post-secondary education sector. The process undertaken by the Ontario government in 2012 provides an example of a multi-staged negotiation process leading to concrete steps for HEIs to take towards differentiation (see Box 2.1).

#### **Box 2.1 System-level differentiation: the example of Ontario, Canada**

In Canada and in the United States, the postsecondary system includes a range of public and private universities (although the latter is less common in Canada) and a large college system focused on vocational education and training. Many universities are comprehensive institutions, with a strong emphasis on research and theoretical knowledge. The teaching mission has had an increased focus as universities welcome larger cohorts of students from more diverse backgrounds. Colleges, public or private, have a strong focus on the labour market and the needs of the local communities in which they are established.

In Ontario, Canada, the public college system established in the 1960s has evolved from providing exclusively short vocational programs (mostly 2-year long or less) to offering a growing number of 3-year advanced diplomas and, in some colleges which have the government's authorisation to do so, 4-year degrees in applied areas of study. Yet, to limit "mandate creep", government has limited this degree-granting authority by setting a maximum percentage of all credentials granted by colleges. These degrees must also meet stringent quality assurance requirements.

In 2012, due to a combination of factors including fiscal constraints and demographic changes, the Ontario government signalled its intent to transform Ontario's higher education system, and undertook a process to examine system differentiation as a possible policy approach.

In 2013, Ontario formally adopted a policy of differentiation to advance the government's agenda for postsecondary transformation. In November of that year, the government released Ontario's Differentiation Policy Framework for Postsecondary Education. This framework outlined key dimensions, or components, of differentiation (such as research and teaching) and described Ontario's vision and goals for the higher education sector.

The government's policy of differentiation was subsequently endorsed by the Higher Education Quality Council of Ontario, an arm's length higher education research agency of the government, which convened an independent panel to propose policy options for the system (Hicks et. al. 2013). Their report recommended that differentiation be further pursued to maintain quality within a constrained fiscal environment, and highlighted considerations to proceed with such agenda.

Ontario's policy of differentiation seeks to focus and build on the existing well-established strengths of Ontario's colleges and universities, and enable institutions to work together as complementary parts of a whole.

Based on this framework, the Ontario government signed Strategic Mandate Agreements (SMAs) with each publicly funded college and university by summer 2014. Through SMAs, institutions publicly articulated their unique strengths and intended areas of future growth in six key areas of postsecondary education such as economic impact, teaching and learning, and research. The first round of SMAs will be in effect from 2014-17.

**Box 2.1 System-level differentiation: the example of Ontario, Canada (continued)**

The Ministry has committed to align its policies, processes and funding levers with the SMAs and with the Ministry’s policy of differentiation. In the first round of agreements, the ministry focussed on the following levers:

- Research and Graduate Education: The allocation of a significant share of remaining graduate spaces was informed by the system-wide metrics identified in the Differentiation Policy Framework. Some spaces were also allocated based on the Ministry’s assessment of institutional strengths in niche research areas.
- Programme Offerings: Going forward, programme approval and renewal processes will take into account institutions’ established areas of strength identified in their Strategic Mandate Agreements to ensure alignment of future programme growth.

The Ministry is committed to establishing a more robust set of system wide metrics – which are crucial to achieving greater differentiation, and will lay the foundation for further transformation by providing the evidence-base for future policy and lever alignment.

In addition, the government has committed to engage with the PSE sector around potential changes to the funding formula, beginning with the university sector in 2015.

Importantly, while the process provides support for government policy, it also provides an opportunity for institutions to strategically assess and define their objectives and competitive position in the system.

Source: Hicks, M. et al. (2013), “The diversity of Ontario’s colleges: a data set to inform the differentiation discussion”, Higher Education Quality Council of Ontario, Toronto, [http://heqco.ca/SiteCollectionDocuments/College\\_Differentiation\\_Report.pdf](http://heqco.ca/SiteCollectionDocuments/College_Differentiation_Report.pdf) and Ontario Ministry of Training, Colleges and Universities, Strategic Policy and Programs Division (2014), Input provided to the OECD Higher Education Programme (IMHE), 27 November 2014.

At the institutional level, HEIs adopt a range of approaches, which may be encouraged by broader government schemes, but are sometimes entirely rooted in institutions’ own strategic objectives and policies. These approaches range from the internal allocation of resources, to choices regarding staff appointment and hiring, or the selection of students, where the institutional setting allows for such autonomy.

Table 2.2 provides examples of institutional differentiation strategies that use different tools and structures to foster unique institutional features and strengths. These are based on recent submissions made by members of the OECD Higher Education Programme (OECD 2014b).

**Table 2.2 Institutional differentiation strategies with a focus on research excellence**

Organisation	Institutional Strategies to Foster Differentiation
<b>Finland</b> <b>Universities of Applied Sciences</b> <i>(Sub-sector of HEIs)</i>	<ul style="list-style-type: none"> <li>• Collaboration and sharing of resources and infrastructures among institutions with similar mandates (focus on applied research and labour market relevance) to enhance visibility and impact of research</li> <li>• Use of performance indicators to introduce applied research in teaching practices (e.g. indicator on number of credits obtained by students through work on research projects).</li> </ul>
<b>South Africa</b> <b>University of Pretoria</b> <i>(Higher Education Institution)</i>	<ul style="list-style-type: none"> <li>• Identification of strengths and goals to intensify research at strategic level in university-wide plan (leadership commitment)</li> <li>• Array of measures at all levels to support increased focus on research excellence                             <ul style="list-style-type: none"> <li>- Capacity: staff professional development</li> <li>- Visibility: scholarships to attract top scholars from abroad</li> <li>- Integration with teaching: inquiry-based curriculum at undergraduate level</li> </ul> </li> </ul>
<b>United States</b> <b>State University of New York</b> <i>(Multi-campus university system)</i>	<ul style="list-style-type: none"> <li>• Focus on inter-disciplinary and inter-institutional research, which is not yet the norm in the US, by leveraging SUNY’s specific leadership opportunity (system of 64 campuses, including different kinds of institutions)</li> <li>• To support this focus, creation of Networks of Excellence in 2013, focused on fostering collaboration across disciplines and researchers. Use of various levers to support this strategy, including:                             <ul style="list-style-type: none"> <li>- Governance: each network is steered by a consortium of SUNY campuses</li> <li>- Funding: USD 8 million provided as seed funding by SUNY research foundation, with the objective of developing pilot projects that will then be used to general large-scale external funding</li> <li>- Fields chosen: focus on inter-disciplinarity, including across broad groups, such as sciences, social sciences and humanities (e.g. 4E network, Energy, Environment, Economics, Education)</li> </ul> </li> </ul>

Source: OECD (2014b), *Fostering Research Excellence: Compendium of Practical Case Studies*, OECD Higher Education Programme (IMHE), OECD, Paris, [www.oecd.org/edu/imhe/ourpublications.htm](http://www.oecd.org/edu/imhe/ourpublications.htm).

***Some challenges: policy coherence in HEIs, system-level cohesion, and effective implementation***

*Matching strategies to objectives in HEIs*

Despite efforts usually driven by governments or institutional leadership to encourage the definition of clear value propositions, an important finding of the 2009 EUA study is that there is often a misalignment between institutions' stated key objectives and strengths and the use of levers to implement these objectives (Reichert, 2009).

For example, the study found that the institutions that declare business innovation to be a vital part of their mission did not report the use of innovation indicators more often than other institutions in their resource allocation, and that only 3% of the sampled institutions weighed these indicators strongly. In the same vein, mission priorities are not well reflected in hiring and promotion criteria, and typically, these remain heavily research-dominated in all institutions regardless of their stated mission. However, there is better alignment between the identification of a teaching-oriented mission and the structure of rewards: across the five countries, the study found that evidence of innovative teaching approaches was much more often a decisive factor for rewarding faculty at teaching-oriented institutions than on average across all institutions (Reichert, 2009).

*Ensuring the overall cohesion and quality of the higher education system*

The OECD (2008) has cautioned against the risks of fragmentation resulting from active differentiation efforts, recommending the use of a single strategic body to steer system differentiation. In addition, while reducing barriers to the higher education market can be beneficial by providing more options for students and stimulating performance, effective quality assurance mechanisms are critical to ensure diversity does not lead to lower quality (OECD, 2008). These issues appear to be particularly acute in transition economies, including in Eastern Europe and Central Asia where the rapid growth in tertiary enrolment rates has also led to the development of a myriad of low-cost, low-quality programmes that do not always provide students with relevant skills (Sondergaard et al., 2012; Arias and Sánchez-Páramo, 2014) or good employment outcomes (Salmi, 2009).

Furthermore, the focus on (re)defining value propositions can lead to the “academic drift” of vocationally-oriented institutions. This can challenge the differentiated nature of the system and create significant policy issues, for example in terms of ensuring the availability of particular study options in some regions or with respect to funding priorities. In fact, even in formally differentiated systems, certain policies or incentives may run counter to the differentiation objective.

For example, in the study referenced above, the EUA found that a range of factors influence the extent to which differentiation takes place in practice, and how various initiatives, policies and practices can have neutralising or counter-productive effects. For example, public policies providing large-scale research funding through competitive mechanisms, or the importance placed by academics on the research function, are factors that are expected to lead to research specialisation. Yet in practice these policies, practices and beliefs tend to promote convergence and competition through the academic drift of vocationally-oriented HEIs. By contrast, the study found that policies with a regional or local development focus tend to effectively promote differentiation. When both types of policies and practices are in place, multiple push and pull effects impact the level of differentiation achieved in higher education systems.

Differentiation may not always result in a set of different institutions of equal perceived value, but rather reinforce vertical competition among institutions, each institution attempting to be in a “higher tier” within a same category. These competitive behaviours, which ultimately drive convergence, may be an unexpected consequence of government policies such as those focused on world-class research performance or the rationalisation of higher education expenditures (OECD, 2014c).

A connected issue in a context of differentiation-driven competition is that of effectively encouraging collaboration and resource sharing among institutions. Incentives for co-operation across institutions to avoid wasteful duplication and overlaps are therefore important. Initiatives such as the *Pôles de Recherche et d'Enseignement Supérieur* (Research and

Higher Education Hubs) in France, which groups together a number of institutions, or the Finnish 2011-16 Development plan for education and research, which encourages institutions to form national alliances to build strengths in strategic areas, may be of interest to strengthen collaboration (OECD, 2014b).

### *Fostering transparency and mobility*

Without clear system maps, a highly differentiated system can be complex and confusing, particularly for prospective students who may find it difficult to identify which institution and programme suits their needs. In addition, when such a system also involves a large number of different qualifications, these can become excessively narrow and fail to be recognised in the labour market. This may be particularly the case for non-university institutions focused on delivering specialised vocational education and training, and where there is little agreement on the programmes goals and features. An example of government-level response to this type of issue comes from the United Kingdom: recognising the inefficiency of its current system, the government recently significantly streamlined the number of VET qualifications in an effort to enhance quality and labour market relevance (OECD, 2014e).

The lack of pathways allowing student mobility across multiple institutional types, in particular between VET institutions and HEIs, can also be a key issue in differentiated systems. Incentives for co-operation and pathways across different institutional types may not only help avoid the creation of silos across the system, but also enhance the status or reputation of various study options. Indeed, the establishment of credit transfer policies, for example, can act as a form of quality label. Such pathways thus seem particularly important to reduce the stigma still associated with vocational education in many OECD countries. Examples of such efforts can be found in the United States where articulation agreements between community colleges and four-year institutions are common.

### *Assessing and managing organisational risks*

Within institutions, staffing strategies have become an important marker of differentiation. Higher education is highly labour-intensive, which has led to fast-rising costs in the sector measured in terms of increasing education spending (Wolff, Baumol and Noyes Saini, 2014). Mechanisms that ensure academic freedom, such as tenure tracks, also involve long-term costs for institutions. This reality is compounded by the costs of attracting high-quality academic staff and top ranking researchers in a globally competitive market. In this context, staffing diversity, both in terms of profiles, work arrangements and conditions might be seen as a way to react flexibly and meet the needs of a particular institutional profile and priorities. Typically, institutions focused on teaching as their primary mission may see the increased use of contract staff as efficient.

In some cases, staffing diversity may be limited by national legislation or regulations, such as the status of the academic profession. In its 2008 review, the OECD noted that in 11 out of 23 countries, faculty were public servants (with separate provisions in some countries for part-time or temporary staff). These countries were found mostly in continental Europe (Belgium, Croatia, Finland, France, Greece, Poland, Portugal, Spain and Switzerland), but also in Korea and Japan. Using staffing levers flexibly may also be limited in practice as new staff-intensive initiatives are developed and made permanent (e.g. Centres of Excellence for Research). Thus leaders in higher education may view staffing flexibility as an effective management tool, but one that remains limited in different ways.

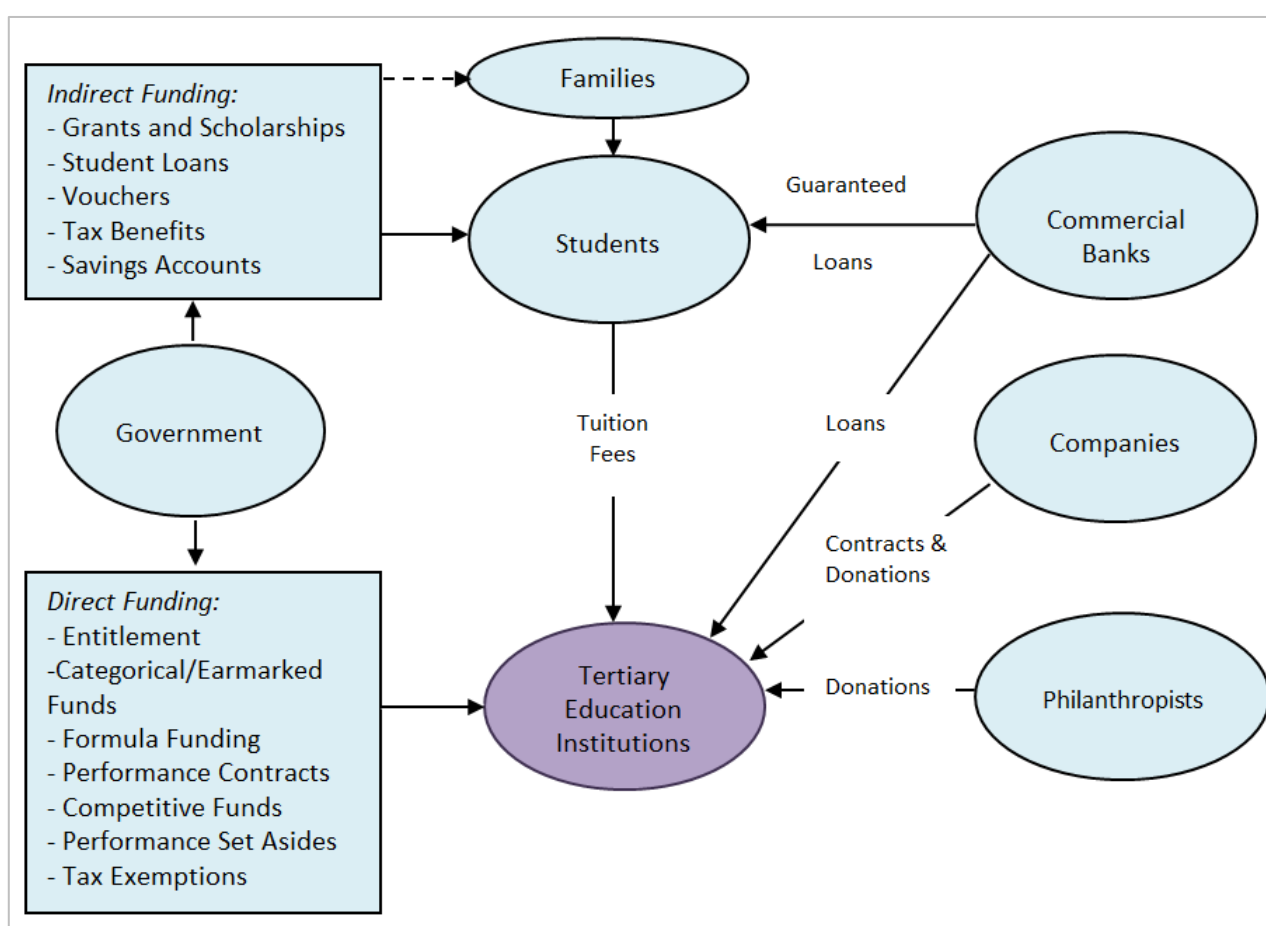
From the perspective of academics, staff diversity and flexibility is often experienced as a decline in working conditions. Empirical research shows that more flexible job arrangements, such as temporary contracts and the use of performance-based mechanisms, have led to greater job insecurity, lower satisfaction and higher levels of stress (Shin and Jung, 2014). In addition, the use of staffing strategies to support a particular focus at a given point in time may not be sufficient to build institutional capacity. For example, in the context of pursuing research excellence, the University of Tampere in Finland noted the importance of aligning institutional research, development and innovation projects with the expertise of existing staff and students, rather than relying systematically on external experts whose participation is usually tied to external funding (OECD, 2014b). Maintaining a balance between efficiency gains and longer-term capacity and performance thus warrants specific attention.

## Cost structure in higher education: enhancing the cost-efficiency of higher education institutions

### Current state: the cost of investing in higher education

A second dimension of institutional business models is the cost structure of higher education. This is challenging to measure and compare internationally. Costs vary across countries and over time, in part because HEIs typically have more autonomy than other levels of education in the way they handle financial matters. In addition, “costs” are essentially assessed by measuring the expenditures of HEIs, which are a function of the amounts of investment that the public, individuals and other private funders are willing to provide. In other words, if there is more investment, expenditures go up, if there is less, expenditures are constrained. The financial model of higher education is thus made of a range of flows between different actors, as shown in Figure 2.1.

Figure 2.1 Main tertiary education financing flows



Source: Salmi, J. (2009), “Scenarios for Financial Sustainability in Higher Education”, Figure 10.11, in OECD (2009), *Higher Education to 2030, Volume 2, Globalisation, Educational Research and Innovation*, OECD Publishing, Paris, pp. 285-322, <http://dx.doi.org/10.1787/9789264075375-en>.

Since levels of funding determine HEIs’ expenditures, it is difficult to identify an optimal level of funding. International benchmarks are useful for providing the range of expenditure levels and identifying which countries are outliers, either because they spend much more or much less than average on tertiary education. In addition, measures of quality of higher education can be helpful to identify when systems are under-funded. International rankings offer questionable approaches to measuring quality, but in the absence of a better way to measure performance in higher education to date, rankings are used extensively by HEI leaders and policymakers to assess performance and thus whether systems

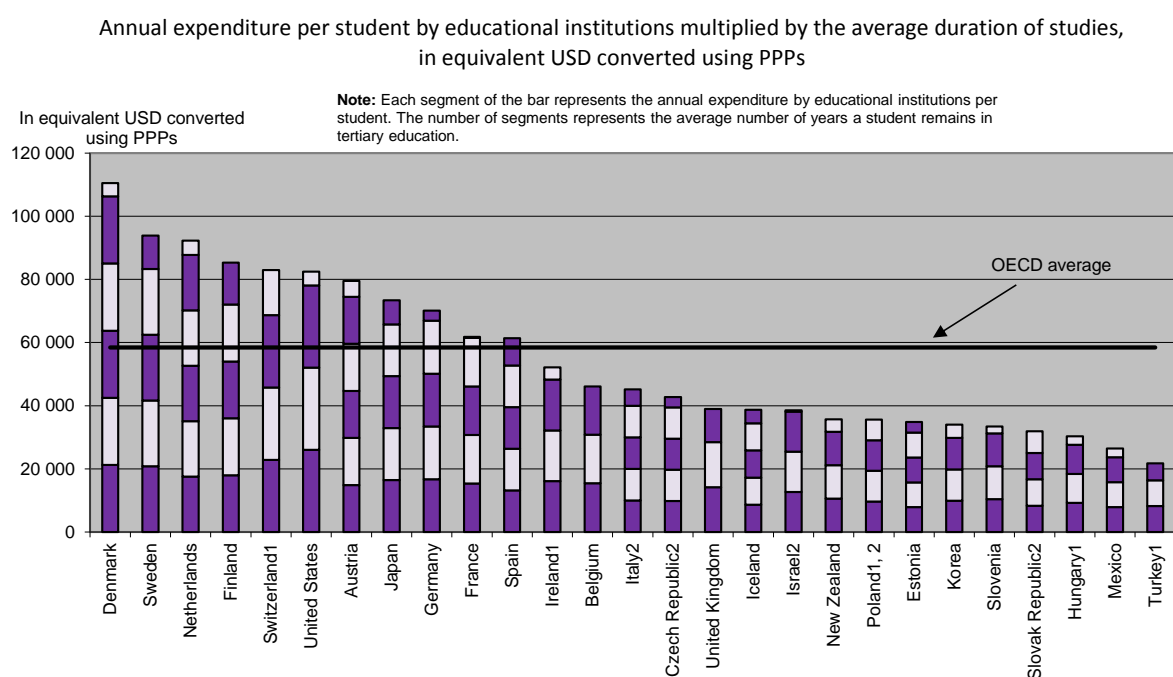


are sufficiently resourced. However, as has been observed in PISA studies, funding levels are not the only determinants of quality in education. The organisation and approaches also play a key role in maintaining high quality systems.

There are different ways of looking at the level of expenditures on higher education, each of them providing a specific perspective. For example, total spending can indeed be assessed overall over time, it can be presented in relative terms compared to other public spending, or calculated per student to facilitate comparisons across countries and over time (in countries facing rapid massification for example). Breakdowns of costs per funding source, public or private, are also particularly useful in contexts where private investments are growing compared to public investment in higher education.

Annual spending per student is an informative measure from a comparative perspective, but more so if the average duration of tertiary studies is taken into account given that the length of higher education programmes varies. Figure 2.2 shows that while the average annual expenditure per student is approximately USD 60 000 (PPP), countries that spend the most per student are diverse, both geographically and in terms of their higher education systems (e.g. Denmark, the Netherlands and the United States all spend more than USD 80 000 (PPP) per student). The same is true for countries that spend less per student, with countries such as Turkey, Mexico and Hungary spending less than USD 40 000 (PPP).

**Figure 2.2 Cumulative expenditure per student by educational institutions over the average duration of tertiary studies – 2011**



Notes: 1. Public institutions only. 2. Tertiary-type A and advanced research programmes only. Countries are ranked in descending order of the total expenditure per student by educational institutions over the average duration of tertiary studies.

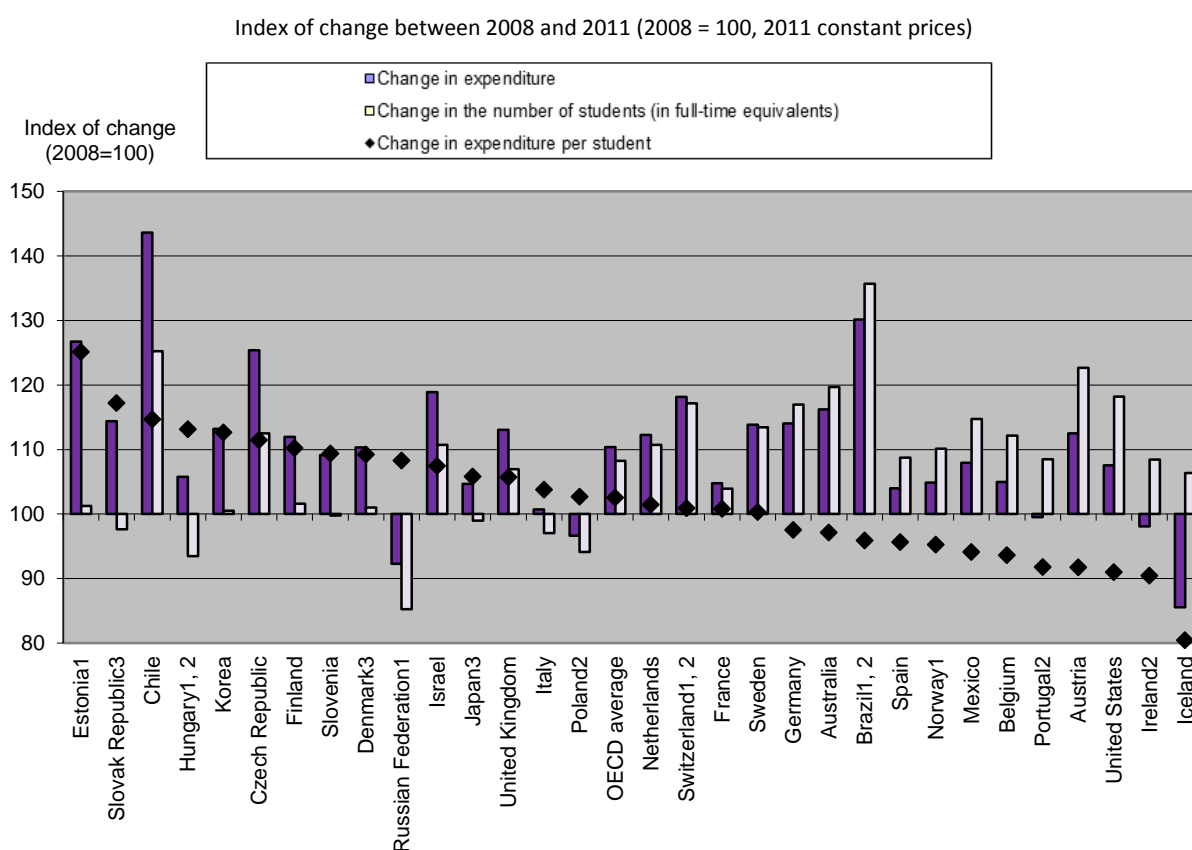
Source: OECD (2014a), *Education at a Glance 2014: OECD Indicators*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/eag-2014-en>, Table B1.3a, See Annex 3 for notes ([www.oecd.org/edu/eag.htm](http://www.oecd.org/edu/eag.htm)).

Unsurprisingly, the cost of higher education per student exceeds that of other levels of education in all OECD countries. However, these cost differentials vary across countries, in part due to large differences in tertiary education policy and funding approaches. OECD countries spend on average 1.7 times more per tertiary student than per primary student, but only 1.5 times more in Austria, Estonia, Korea, Iceland, Italy, New Zealand, the Slovak Republic, Slovenia and the United Kingdom. By contrast, Mexico and Turkey spend three times as much and Brazil four times as much.

Not only is the level of expenditures per student in higher education high, but it is also increasing in many countries. This could signal an increased effort as government make higher education a policy priority, but it also could signal growth in costs such as the salaries of top researchers or setting up sophisticated facilities for teaching, research and student life.

OECD data shows that between 1995 and 2001, in most OECD countries, spending per student increased, except in Australia, Brazil, the Czech Republic, Hungary, Israel and Switzerland, where expenditures did not keep up with expanding enrolments. Interestingly, while spending remained stable on average across countries between 1995 and 2000, it then increased at similar rates (5% to 10%) between 2000 and 2005, and between 2005 and 2011. This suggests that even during the initial years of the global economic crisis, between 2008 and 2011, countries have largely protected tertiary education from budget cuts. However, as shown in Figure 2.3, in 8 out of the 32 countries with available data, the number of students has increased faster than tertiary education expenditures, thus leading to a decrease of the amount of funding per student.

Figure 2.3 Change in expenditure per student by educational institutions, by level of education (2008, 2011)



Notes: 1. Public expenditure only. 2. Public institutions only. 3. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details. Countries are ranked in descending order of change in expenditure per student by educational institutions.

Source: OECD (2014a), *Education at a Glance 2014: OECD Indicators*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/eag-2014-en>, Tables B1.5a and B1.5b. See Annex 3 for notes ([www.oecd.org/edu/eag.htm](http://www.oecd.org/edu/eag.htm)).

In addition, future data could show more severe cuts in countries such as Australia or Ireland, which have seen major cuts in public funding for higher education and the public sector overall in recent years, or are currently considering such cuts. A key issue in this context is the extent to which private funding will be used to compensate for such shortfall. Yet in cases such as the United Kingdom, which nearly tripled the fee caps for undergraduates programmes to GBP 9 000 starting in 2012/13, the impact is still unclear. The government could in fact incur new costs, as the government pays fees upfront in the form of grants and income-contingent loans, thus preventing a barrier to entry,

but can only recoup the investment if students complete their programmes and obtain employment above a certain threshold (see Hillman, 2014 for a discussion of recent changes in the United Kingdom and Courtioux, 2014 for a recent overview of international experiences with income-contingent repayment loans). While income-contingent repayment loans are a key tool to promote access, the level of public investment necessary to support such mechanisms should not be underestimated.

While there is no direct measure to assess the impact on quality of decreased funding per student, it is likely that reduced investment can have a range of negative impacts: less likelihood of recruiting top faculty, increased student/staff ratios, lower quality equipment, etc. Such patterns can be of concern given the global nature of the competition among HEIs and countries for talented students and staff. This may be an even greater challenge in countries where the average annual expenditure per student is below the OECD average. Yet, countries such as the United States or Ireland, which have seen a substantial decrease in expenditure per student in the wake of the economic crisis, are also concerned about implications for the sustainability and attractiveness of their systems and their ability to meet rapidly changing economic needs.

The distribution of higher education expenditures also sheds light on the specific cost drivers underlying HEIs' business models. Data from the OECD's 2014 *Education at a Glance* shows that current expenditures comprise more than 90% of HEI total expenditures with the remaining 10% devoted to capital costs. Of current expenditures, more than two-thirds are usually directed to the compensation of academic and non-academic staff. Substantial variations exist, across countries, however, with countries such as the Czech Republic, Hungary, Korea and Japan focusing 60% or less of their current expenditures on staff costs. At the other end of the spectrum, Argentina, Brazil, Iceland and the United Kingdom spend more than 80% of their tertiary education resources on staff.

Although data is not available for all countries, there are important variations across countries in terms of the percentage of expenditures directed to academic staff versus other staff categories. The compensation of academic staff represents about 43% of total HEI expenditures across the OECD, but varies from about 30% in the Czech Republic and the United States to a proportion ranging between 50 and 60% in Austria, Mexico and Spain. Similar variations exist regarding non-academic staff, which ranges from a low of about 6% in Austria to about 36% in the United States and 37% in the United Kingdom, with many countries in the 20 to 30% range.

This data, while it remains general because it is aggregated at the country level, provides initial insights. First, while highlighting the importance of staff costs, the data also shows that about a third of current expenditures – thus a substantial amount – is spent on non-staff expenses. These may include various costs such as equipment and facilities. Second, the significant variations across countries, both in terms of the proportion of current expenditures spent on staff versus other expenditures, and in terms of spending on academic versus non-academic staff, reflect the variety of HEI spending approaches, regardless of actual expenditure levels.

### ***Overview of recent approaches: fostering cost efficiencies***

Measuring the efficiency of higher education is a complex endeavour. While several economic studies have tackled the issue, mostly at national level, there are ongoing debates about the choice of appropriate measures for higher education inputs and outputs and relevant exogenous factors. These studies can offer a broad sense of relative levels of efficiency and provide some insights regarding impact factors. For example, a study of Australian universities by Abbott and Doucouliagos (2003) shows a high degree of consistency in terms of efficiency across Australian universities. Using a different methodology, Daghbashyan (2011) identifies labour quality as the most relevant factor impacting the efficiency of Swedish universities. Overall, even when high degrees of efficiency are found, for example in the Australian study, the authors note that such performance does not indicate whether the system as a whole is performing well, nor does it indicate how it fares compared to other countries.

Beyond a formal determination of efficiency levels, many HEIs across OECD countries are faced with high, and often rising, costs, and see their resources increasingly constrained. This reality provides the impetus for institutions to identify cost-efficiency measures that can be implemented while preserving quality.

Policy-oriented higher education literature offers insights into several levers that can be used to enhance cost-efficiency. These include:

- Government regulations and incentives that foster cost-efficiency and performance in institutions.
- The effective use of technology – an approach governments can support, but that remains largely institutionally-led.
- The specialisation of HEIs along certain functional lines – sometimes called “unbundling” of higher education activities – that aims to maximise economies of scale. This is also an approach that governments may be able to encourage.

#### *Government regulations and incentives to promote cost-efficiency in HEIs*

Government regulations and incentives constitute the first lever to encourage HEIs to pursue cost savings and economies of scale. These levers, which could be called “framework conditions” due to their system-wide nature, vary across countries. This is due in part to the different relationships that exist between governments and HEIs across countries, and specifically the degree of steering exerted by governments over HEIs. Steering modalities also differ within countries, depending on the specific type of HEI; for example, they often depend on whether an HEI is public or private. In terms of cost savings, i.e. reducing costs while resource levels remain unchanged, the example of the United States is instructive, particularly at the level of individual states.

Cost-cutting strategies can be directly mandated by governments, as occurred in the midst of the global economic crisis. In Ireland, for example, the “Employment Control Framework” set up in 2011 following the economic adjustment plan designed by the European Union (EU) and International Monetary Fund (IMF) imposed strict controls on staff numbers from 2011 to 2014 (Government of Ireland, 2011). In Germany, the so-called “debt brake” enshrined in the German Constitution in 2009, which legally limits budget deficits, imposed cuts throughout the public sector (Truger and Will, 2013). Cost-efficiencies can, however, also be encouraged in less directive ways, and on an ongoing basis. The following are examples of state steering that can assist with cost reductions:

- In Finland, the government’s 2011-16 Development Plan for Education and Research requires Finnish HEIs to build national alliances that support their strategic areas to eliminate overlap, target resources better, form larger entities, and enhance the research profile by leveraging the entire research landscape and creating stronger “brands” internationally (OECD 2014c).
- In the US, Indiana limited credit requirements to facilitate cost-efficient degree completion. A 2012 law mandates that completing a Bachelor’s degree at public HEIs requires no more than 120 credit hours without special approval by a state commission. In the same vein, community colleges cannot require more than 60 credit hours for the completion of an associate degree without special justification (NASBO, 2013). In South Dakota, funding policies are designed to ensure that HEIs plan appropriately to support capital projects and avoid excessive or wasteful spending on facilities. For example, the state requires public HEIs to direct 20 cents out of every tuition dollar to an infrastructure fund to support construction projects, since these are not funded by general fund appropriations. In addition, the state requires institutions to pay for any additional operating costs that result from campuses increasing their footprint. As a result, institutions have an incentive to invest in deferred maintenance or repurpose existing facilities rather than undertake new construction when possible (NASBO, 2013).
- In Wales (United Kingdom), the Higher Education Funding Council for Wales has supported the merger of Cardiff University and the University of Wales College of Medicine through a Reconfiguration and Collaboration Fund. This is an example of state-supported university collaboration to create a leaner and more competitive higher education sector. The merger, which took place in 2004, has been evaluated as highly successful (Russell Group, 2010).

### *Technology and cost savings*

The introduction and scaling up of technology in higher education is also a widely discussed lever to save costs and make higher education more affordable and accessible (Collis, 2000; Vincent-Lancrin, 2004; Salmi, 2009; Sheets, Crawford and Soares, 2012; Bowen, 2013; Wolff, Baumol and Noyes Saini, 2014). Findings from this literature suggest that governments and institutions both have a role to play in fostering the use of technology, and that support from all parties, especially faculty, is critical for implementing technology in higher education and using it effectively (NASBO, 2013).

A first advantage and primary use of technology in education generally and in higher education in particular has been to expand access to populations facing barriers to participation for various reasons – geographic, economic, etc. Salmi (2009) shows that growth in online learning has been significant in countries leading the way in technology innovation, such as the United States, but also in middle-income countries. For example, he notes that in the early 2000s, the national open universities of Thailand and Turkey enrolled 41% and 38% of the total student population in each country respectively.

In recent years, views on technology have evolved: technology is thought not only to help expand access, but also to help save costs without compromising quality. The potential of technology to save costs in the area of administrative functions is widely acknowledged (e.g. automatising of procedures, more efficient library services, maintaining quality student records). It is not, however, fully realised, in particular due to significant limitations in data infrastructure and integration. Most importantly, technology is viewed as holding great promise to reduce the cost of the educational process.

Bowen (2013) and Wolff, Baumol and Noyes Saini (2014) provide an account of research to date on the cost savings generated by the use of technology in higher education delivery. First, as for-profit online institutions have already shown, technology can help reduce overall costs due to lower operational costs and smaller investments in physical infrastructure and amenities (Stokes, 2011). Second, technology can help expand and possibly improve the curriculum by adding online content from other institutions at little to no cost, using Massive Open Online Courses (MOOCs) for example (Osterman, 2011). Third, technology can support faster and thus more cost-efficient programme completion, for instance by allowing secondary school students to start attending introductory-level higher education courses while still in high school (Bowen, 2013).

Actual evidence on the costs and benefits of using technology in education exists, although the most detailed studies are still mostly based on data and experiments from the United States and are already relatively dated. For example, programmes of the National Centre for Course Transformation over the past decade have yielded some interesting results on cost reduction and quality improvement. A project based on the redesign of 10 courses using technology in US institutions between 2001 and 2003 led to a number of key lessons highlighted in Table 2.3.

Despite these promising findings, scepticism remains with respect to the feasibility of scaling up such approaches and sustaining cost reductions over the long-term. In terms of scale, buy-in from all parties involved must be secured to make the introduction of technology work at an institutional level beyond pilot projects, which can present challenges. Additionally, some institutions that have integrated technology in learning indicate that while technology has assisted in improving quality, cost savings are not always significant. In this sense, technology may be cost-effective rather than cost-efficient (NASBO, 2013). In terms of time horizon, some authors suggest that technology could result in a one-time reduction in costs by lowering staff and infrastructure expenses, but it may not help address rising costs of education over the long-term (Wolff, Baumol and Noyes Saini, 2014). Finally, the type of interactive online technology-enabled learning that is most promising from a quality perspective is more costly than the simple videotaping of lectures (Gaebel, 2014).

**Table 2.3 Role of technology in cost reduction while maintaining quality: early evidence from the US**

Strategy	Results
<b>Cost Reduction</b>	<ul style="list-style-type: none"> <li>- Reduce per student cost (no increase in enrolment)</li> <li>- Use technology only where more effective</li> <li>- Divide tasks between faculty (where require expertise) and staff with lower education level for less academically focused/challenging tasks</li> </ul>
<b>Quality Improvement</b>	<ul style="list-style-type: none"> <li>- All 10 projects reduced costs</li> <li>- Planned cost reduction per project: 41% on average, with a range of 28-56%</li> <li>- Actual cost reduction per project: 39% on average, with a range of 15-56%</li> <li>- Projected total savings (for 10 courses): USD 1 195 028</li> <li>- Actual total savings: USD 999 214</li> </ul>
<ul style="list-style-type: none"> <li>- Shift from passive to active and learner-centred pedagogy, including:               <ol style="list-style-type: none"> <li>1. continuous assessment and feedback</li> <li>2. increased interaction among students</li> <li>3. online tutorials</li> <li>4. undergraduate learning assistants</li> <li>5. individualised, on-demand support</li> <li>6. structural supports to foster student engagement (e.g. learning plan and milestones rather than entirely self-paced approach)</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>- 8 out of 10 projects reported enhanced learning outcomes; 2 reported no significant difference</li> <li>- Improvements in exam grades, reduction in drop-outs and withdrawals at many participating projects (see Twigg, 2003 for detailed per project results).</li> </ul>

Source: based on Twigg, C. A. (2003), "Improving quality and reducing costs: Lessons learned from Round III of the Pew Grant Program in Course Redesign", Center for Academic Transformation, Troy, [www.thencat.org/PCR/RdIII/Lessons.pdf](http://www.thencat.org/PCR/RdIII/Lessons.pdf).

In addition, the business models and sustainability of some of the newest forms of technology in education, such as MOOCs, remain the subject of intense debates. A literature review conducted in 2013 by the UK Department of Business, Innovation and Skills shows a range of views among experts and observers regarding the value of MOOCs in both reducing costs and enhancing learning of higher education. The report also reveals ambivalent reactions and concerns among institutional leaders in the United States, expressed through the 2013 Gallup Survey of University Presidents and the 2013 *Inside Higher Ed* survey of College and University Chief Academic Officers. The leaders surveyed are reportedly sceptical about using MOOCs to save costs, and tend to view MOOCs as a key threat to existing institutional business models, especially for non-elite universities. Nevertheless, despite the lack of consensus on the value and impact of MOOCs, the authors argue that initial business models are developing that could underpin the longer-term existence and sustainability of MOOCs, such as fee-based accreditation for courses or series of courses (BIS, 2013).

Looking at some more specific aspects, a recent paper by the EUA (Gaebel, 2014) takes stock of some of the cost aspects of producing MOOCs, noting that costs vary significantly depending on multiple factors. These include whether institutions produce in-house, low-cost video material or outsource production to external providers, with possible economies of scale depending on how many students a MOOC reaches, and the initial and ongoing staff and technological costs required to maintain and upgrade a MOOC. Finally, whether teaching assistance is provided to students is a key cost factor.

#### *Functional specialisation: from privatisation to unbundling higher education*

The diversification of higher education providers and increased participation of both general and specialised private providers responds to a number of pressures. First, fast-growing student demand worldwide and constrained public resources limiting the "absorption" capacity of the public higher education sector are key factors underpinning this trend (Salmi, 2009; Asian Development Bank, 2012). Governments' push for cost-efficiency and accountability has also opened up the higher education sector to a broad range of market actors focused on performance and value for money (see Rinne and Koivula, 2005; Parker, 2013).

Yet, besides constraints, the pursuit of new business opportunities, when allowed by institutional settings, is also an important driver of the diversification of providers. This is found in countries such as the United States (Collis, 2000), but also in emerging markets such as India where enrolment pressures combine with (or provide) new business

opportunities. For example, Dossani (2014) contends that compared to US-type community colleges, small-scale private colleges in India generate surpluses due to low expenditures on staff and student supports. Since 1995, these private colleges have represented 60% of the growth in the number of Indian HEIs, which has soared from about 7 000 to over 25 000 nation-wide.

These trends have led to the development of a diverse array of private institutions and organisations, alongside traditional public and private comprehensive universities, which often focus on delivering a very specific value proposition and operate according to well-defined business models.

Sheets, Crawford and Soares (2012) introduce a set of such innovative approaches. These models borrow features and practices from private sector industries, often in the high-tech sector. They also reflect trends already underway in higher education, such as the greater role of users (students, employers) in the process of producing and delivering higher education, or the development of activities focused on discrete segments of the higher education process (e.g. credentialing or tutoring services), rather than the entire learning and credentialing continuum provided by comprehensive HEIs.

The authors contend these innovations harness technological developments and utilise new conceptual approaches in a way that can enhance the performance of higher education. Such increased performance includes delivering higher education in a more cost-efficient manner. While the applicability of models they present depends on the national structure and regulatory settings of higher education systems, the publication provides insights regarding approaches that have transformative potential for HEI business models. Table 2.4 (below) presents a synthesis of these models, which can be combined, and an assessment of how/where they could impact HEI operations, as well as some specific examples. Limitations related to implementing such models, which require clear technological, regulatory and policy conditions to work, are discussed in the following section.

### ***Some challenges: hard to track costs, implementation impacts and unexpected effects***

#### *Difficulty of tracking costs*

HEIs that attempt to rationalise expenditures first face the challenge of identifying costs clearly. A detailed and transparent understanding of the costs of higher education, and particularly distinctions between core educational expenses and non-academic expenses are critical to all funders, including governments, but also students who, in many countries, pay a greater share of the costs than ever before.

#### *Cost reductions: avoiding negative implications*

Cost reductions are possible through various measures as shown throughout this chapter. However, effective implementation strategies that limit negative consequences are particularly important to ensure the success and sustainability of such approaches. A key issue is that HEIs have tended to either shift costs onto students through tuition fee increases (recent examples include the Netherlands, Sweden and United Kingdom) or deal with cost cutting through blunt instruments such as across-the-board cuts, hiring freezes or shifts to part-time or temporary staff without changing the underlying cost structure of the institution. In addition, although performance funding is often presented as a typical example of strategic change to a cost structure, it is often left unused in practice: when funding declines, and since performance funding is implemented last, there is often no “new money” to allocate based on performance criteria (NASBO, 2013).

**Table 2.4 Features of innovative business models and impact on HEIs**

Business Model Type	Key features	Potential impact on HEIs	Examples in the HE sector
<b>Open</b>	Use of external and internal ideas, resources and pathways to create value for an organisation.  e.g. online shopping sharing platforms	Leverages active participation of key stakeholders, including students and employers, in higher education process	<i>France:</i> the newly created “Ecole 42” uses peer-learning as a core pedagogical approach, thus maximising knowledge exchange.  <a href="http://www.42.fr/notre-pedagogie-principes/">(www.42.fr/notre-pedagogie-principes/)</a>
<b>Multisided</b>	Facilitation of interaction among interdependent groups.  e.g. online search engines	Supports interactions between key groups, such as students and employers or researchers and industry	<i>Australia:</i> the Australian Technology Network brings together five universities with a practical focus and delivers a new industry-based PhD programme in Mathematics and Statistics, thus enriching the experience of students and producing graduates who meet industry needs.  <a href="http://www.atn.edu.au/Partners/idtc/">(www.atn.edu.au/Partners/idtc/)</a>
<b>Unbundled</b>	Separation of three core functions: customer-relationship management, product innovation, infrastructure management. Functions can be centralised and outsourced.  e.g. telecommunications	Generates economies of scale and scope in the delivery of higher education (HE) by centralising and outsourcing. Has the potential to “professionalise” some functions and enhance efficiency.	<i>United States:</i> the University of Houston and others have outsourced the grading of student work to private companies such as Virtual-TA in specific cases, such as determining writing levels prior to entry into degree programmes.  <a href="http://www.virtual-ta.com/success-stories.php#1">www.virtual-ta.com/success-stories.php#1</a>
<b>Facilitated networks</b>	Users access the best mix of products and services that meet their needs through a contact point giving access to a comprehensive network.  e.g. patient-centred networks in healthcare	Helps students understand their options, reduces asymmetry of information among students and institutions, and offers opportunities for more personalisation of education.	<i>United Kingdom:</i> the University of Exeter offers a Flexible Combined Honours degree in which students can combine different subjects not currently offered in a set programme. Students can receive advice on the design of the programme at the outset to ensure it suits their needs.  <a href="http://www.exeter.ac.uk/undergraduate/degrees/flexible/">(www.exeter.ac.uk/undergraduate/degrees/flexible/)</a>

Source: Sheets, R., S. Crawford and L. Soares (2012), “Rethinking higher education business models: steps towards a disruptive innovation approach to understanding and improving higher education outcomes”, 28 March 2012, Center for American Progress – EDUCAUSE, Washington, DC, [www.americanprogress.org/wp-content/uploads/issues/2012/03/pdf/higher\\_ed\\_business\\_models.pdf](http://www.americanprogress.org/wp-content/uploads/issues/2012/03/pdf/higher_ed_business_models.pdf)

Issues that result from cost cutting, in particular at the staff level, can have widespread consequences, including reduced job satisfaction and increased stress. In a context of strong international mobility of academic staff, HEIs should ensure that achieving a strategic goal on the one hand – for instance reducing staff costs – does not hinder long-term strategic objectives, such as institutional capacity, excellence and international competitiveness.



*Limitations of transformative approaches: technology, regulatory settings, political economy*

While technology may not be a straightforward cost-cutting lever, there are broader challenges to introducing technology to higher education. These range from the low digital fluency of many faculty members and lack of reward structures focused on pedagogy, to the need for basic digital infrastructure and uncertainties regarding the possibility to scale up its use in a way that truly enhances access (Johnson et al., 2014).

Many obstacles face the development of open, multisided and unbundled business models in higher education:

- **Technology must be available and usable for these models to function smoothly.** For example, weaknesses in areas such as the integration of student data may complicate the process of student course selection and access to services from various institutions, while aiming to build a coherent educational pathway. The lack of robust data could limit, in particular, the notion of facilitated networks where students receive guidance based on their specific needs, if such needs are not properly tracked and communicated amongst various parties. Several legal issues are also noteworthy, from the protection of student privacy in shared data systems, to the appropriate development of intellectual property mechanisms to allow for the sharing and re-use of online resources.
- **Certain regulatory settings would need to be in place to allow for such an open higher education market.** Accreditation and quality assurance systems, as Sheets, Crawford and Soares (2012:12) point out, “assume that core learning and credentialing services will be managed within the institutions through traditional business models.” Accrediting a wide range of diverse private actors to perform different sections of the higher education process would undoubtedly represent a significant challenge. In addition, strong credit transfer systems would need to be in place to allow students to take advantage of varied opportunities. Finally, student finance and financial aid systems would need to be reformed to allow and support non-traditional student pathways.
- From an institutional management perspective, **many organisational innovations**, such as centralising the development of curriculum for introductory courses at the undergraduate level, **may be seen as a threat to many HEIs’ traditional “profit formula”**. This would particularly be the case for HEIs that generate more tuition income from first- and second-year students than required at these levels in order to address unmet costs in upper undergraduate years and at graduate level. This type of cross-subsidising is widespread in the United States (NASBO, 2013) and would be affected by open business models that allow for lower-cost and lower charges during the first undergraduate years (Sheets, Crawford and Soares, 2012). From a faculty perspective, the centralisation of the curriculum leaves little room for academics to shape their own courses, thus challenging the notions of academic freedom and programme diversity and questioning the role of faculty in the learning process.
- Regulatory settings and HEI business models, more than just organising higher education systems in a certain way, also reflect societal values and beliefs about what higher education should be. **Supporting transformative changes would thus not only require regulatory and policy shifts, but a broader societal consensus on the evolution and role of higher education.**

Nevertheless, while these approaches are not necessarily easy or desirable to implement in every country or all at once, they provide a range of options for HEIs to consider, in their specific context and taking into account their various advantages and drawbacks (see draft framework at the end of the chapter for a preliminary list of trade-offs).

## The revenue side of higher education finance: towards diversified and efficient models

### Current state: sources of funding, cost-sharing and student support systems

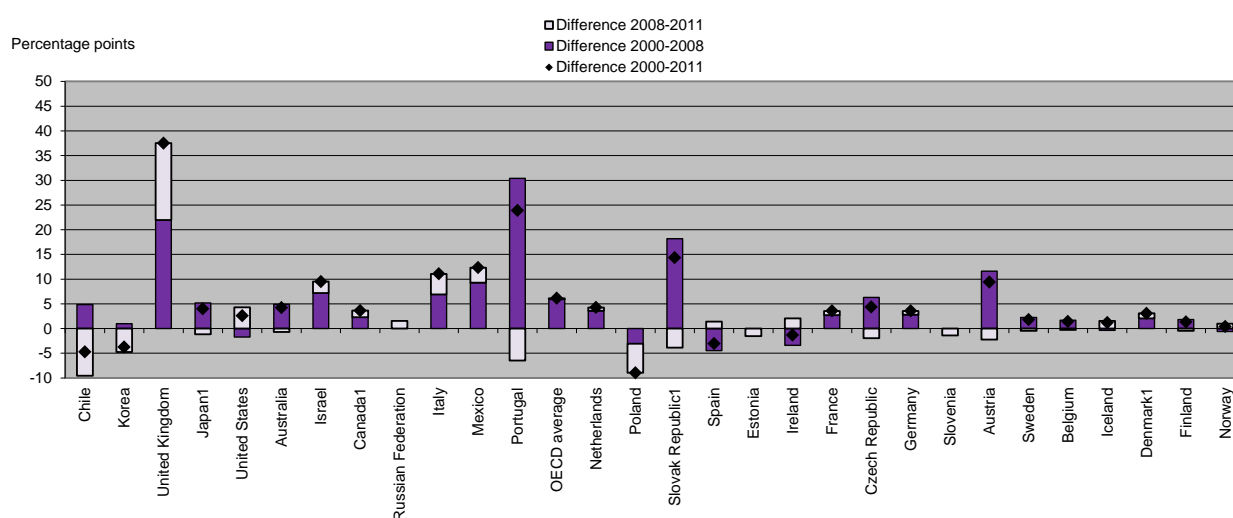
#### Sources of funding

The third and final dimension of business models discussed in this chapter deals with HEI revenues. This covers both the sources of revenue and the way these resources are allocated. Increasing resources available and value for money are important complements to strategies focused on value proposition identification and cost reduction discussed so far.

On average across OECD countries, HEIs continue to receive most of their income from public sources.<sup>3</sup> Public funding is usually provided to HEIs through different modalities, summarised by Estermann and Bennetot Pruvot (2011) as block grants (e.g. line item budget), targeted funding and project-based funding. The size of these categories varies greatly across systems. Furthermore, the way they are allocated also varies. Block grants, and some targeted funding, are typically allocated on a non-competitive basis, whereas project-based funding, and other types of targeted funding, are provided on a competitive basis. Requirements for co-funding, where HEIs have to secure matching funds to qualify for a specific public funding envelope, apply in some cases.

However, over the past 20 years, trends in higher education funding have shown a tendency for public support to decline (OECD, 2008). This has resulted in an increasingly important role for private sources in the financing of higher education. Between 2000 and 2011, the share of private funding for tertiary education increased in more than three-quarters of the countries for which comparable data are available (21 of 26 countries) as shown in Figure 2.4.

Figure 2.4 Change in the proportion of private expenditures on tertiary education, 2000-11



Notes: 1. Some levels of education are included with others. Refer to “x” code in Table B1.1a for details. Countries are ranked in descending order of the share of private expenditure on educational institutions in 2011.

Source: OECD (2014a), *Education at a Glance 2014: OECD Indicators*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/eag-2014-en>, Table B3.2c. See Annex 3 for notes ([www.oecd.org/edu/eag.htm](http://www.oecd.org/edu/eag.htm)).

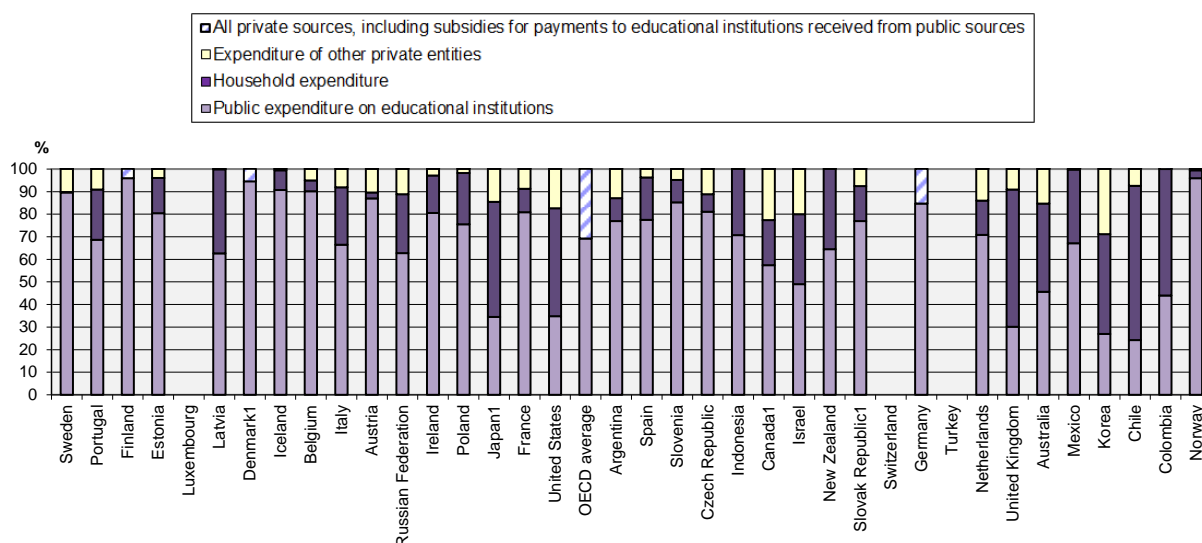
Student tuition fees form the largest and most hotly debated private revenue source. The combination of tuition fees and student financial aid constitute a key component of institutional business models, and are discussed below in more detail. In addition to tuition fees, HEIs rely on other sources of private funding, including contracts with the private sector, philanthropy and service-related activities.

These alternative revenues sources are growing but remain small in scale (see Figure 2.5). Based on research conducted by the EUA in 2009 and 2010, Estermann and Bennetot Pruvot (2011) note that in the European context, contracts with private partners for both research and teaching activities generate between 5 and 7% of universities' income. This makes private partners the top source of additional non-public income in Europe. Yet variation across institutions is significant, with several institutions reporting less than 1% of income coming from private partners and others, particularly in France, Germany, the Netherlands and Slovenia, reporting between 10% and 25% of their income from such contracts.

Philanthropy typically provides 3% or 4% of institutional revenues for European HEIs, although the United Kingdom is an exception with some universities obtaining up to 10% of their funding through this channel. Although more developed in the United States, philanthropic funding is mostly relevant for elite private and public institutions. As Johnstone (2004a) notes, it is much more difficult for most middle and lower-tier institutions in the United States to raise funds.

Generating income through services is yet another approach. Services include the management and renting out of university facilities (including student residences), consultancy work by academics, as well as educational services and the commercialisation of research results. In the European context, payment for services amounts to about 4% of HEI revenues, a figure that can reach between 10% and 25% of income in the United Kingdom (Estermann and Bennetot Pruvot, 2011). This variation may result from various factors, ranging from high institutional autonomy to skilled staff able to effectively seek out such business opportunities.

**Figure 2.5 Distribution of public and private expenditure on educational institutions (tertiary)**



Notes: 1. Some levels of education are included with others. Refer to "x" code in Table B1.1a for details (OECD 2014a). \* This includes all private expenditure, including subsidies for payments to educational institutions received from public sources. Countries are ranked in descending order of the proportion of public expenditure on educational institutions in primary, secondary and post-secondary non-tertiary education (See full graph in OECD 2014a).

Source: OECD (2014a), *Education at a Glance 2014: OECD Indicators*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/eag-2014-en>, Table B3.1. See Annex 3 for notes ([www.oecd.org/edu/eag.htm](http://www.oecd.org/edu/eag.htm)).

Finally, higher education financing is also a burning issue in emerging countries, given the accelerated tertiary education enrolment growth in recent decades. While enrolment growth has remained strong in OECD countries, it has been even more robust in emerging and developing countries, fuelled in large part by demographic factors. Unsurprisingly, many emerging and developing countries have also turned towards private sources of funding to cope with such growth and other challenges such as states' constrained funding capacities. In some regions, particularly Latin America and East Asia, the private sector has grown substantially, absorbing large parts of the student body (see Salmi, 2009; Dossani, 2014).

### *Cost-sharing and financial aid models*

Several rationales underpin the shift towards sharing the burden between the public and individuals who benefit from higher education. The OECD summarised these arguments in its 2008 review of tertiary education (see also Barr, 2004; Johnstone, 2004b and 2006):

1. **Financial sustainability:** There is a need for other-than-government revenue, due to greater demand for and expansion of tertiary education systems, decline in public revenue available to tertiary education and increasing costs per student in a number of countries.
2. **Equity:**
  - Those who benefit should contribute to the costs of tertiary education, and there is ample evidence that higher education provides high returns to individuals in the form of better labour market outcomes.
  - Systems entirely financed by public funds tend to be regressive as a larger proportion of individuals from well-off families attend higher education whereas taxes are paid by all families (who are thus less wealthy on average than those attending higher education).
  - Public savings from individual contributions can be channelled to improve equity of access.
3. **Efficiency:** the use of tuition fees as a market mechanism may result in greater incentives for students to complete their programmes “on time”. From the perspective of HEIs, having to compete for students and deal with the consequences of inefficiencies may result in increased quality.

While these rationales continue to be relevant today, new developments have complicated the use of tuition fees to address higher education funding needs. On the one hand, the global economic crisis has exacerbated existing financial issues (e.g. public funding constraints) and made the search for private sources of funding more important than before. However, it has also surfaced new risks, as those providing private funding, students and families primarily, are also facing new constraints including poor labour market outcomes as a result of the economic downturn. Student loan default has indeed become a problem in systems that combine high tuition fees and high levels of student aid provided primarily via student loans when students graduate and fail to find employment – or a well-paid enough employment – to pay back their debt. In addition to representing significant barriers for individuals who may suffer unemployment long after they graduate, student loan default, as well as income-contingent loan systems, may lead to substantial liabilities for governments as discussed above.

Other issues have also emerged regarding the equity and efficiency of cost-sharing. For example, Flacher et al. (2013) argue that a set of substantial measures, which are not in place today, would be necessary to ensure equity in the context of cost sharing. These would include large grants and strongly progressive tuition fees, monetary transfers between HEIs to avoid polarisation between HEIs with wealthier student populations and others, and a distribution of costs that would reflect the individual and collective returns of higher education, and take into account national tax systems. In addition, some critics emphasise that when very high tuition fees are charged in the initial years of undergraduate programmes to subsidise other levels or activities, some students may pay more in tuition than what they actually cost to the institution (NASBO, 2013).

Regarding the increased efficiency of cost-sharing, Flacher et al. (2013) note practical limitations. Indeed, they stress that one of the efficiency arguments put forward by cost-sharing proponents is based on the idea that cost-sharing will lead students to make rational choices based on an evaluation of their skills and the potential returns of higher education. The authors contend that, by contrast, students have insufficient information about themselves, the returns of higher education programmes and the future state of the labour market to make such efficient choices. They also note that cost-sharing creates issues of risk and debt aversion among students from lower socio-economic backgrounds who tend to underestimate their skills and the returns of higher education, and thus are more reluctant to pay tuition fees that could limit participation.

In practice, despite the overall shift towards a greater reliance on private sources, OECD countries vary significantly in their approach to higher education finance. The OECD has identified four models that combine different levels of tuition fees and financial aid, based on available data for a subset of countries. These models are summarised in Table 2.5.

**Table 2.5 Models of higher education financing: four combinations of tuition fees and student financial aid**

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
<b>Tuition fees</b>	No/low	High (> USD 1500 USD)	High (>USD 4 500)	Low (<USD 1 300)
<b>Student support systems</b>	Well-developed (>55% of students receive aid)	Well-developed (>75% of students receive aid)	Less developed	Less developed (<40% students receive aid)
<b>Countries</b>	Denmark, Finland, Iceland, Norway, Sweden	Australia, Canada, Netherlands, New Zealand, United Kingdom, United States	Chile, Japan, Korea	Austria, Belgium, Czech Republic, France, Italy, Mexico, Poland, Portugal, Switzerland, Spain
<b>Context/ Strategic approach</b>	Countries with progressive tax structures, focus on equal opportunities and social equality, view of access to HE as a right and high levels of public funding	Reliance on cost sharing, higher-than-average expenditures on core education services, relatively high income tax levels <sup>1</sup>	Overall low levels of public expenditures devoted to higher education	View that low fees ease access, reliance on public funding for HE but lower-than-average per student expenditures, student support sometimes provided by other public services (e.g. housing)
<b>Entry Rates in Tertiary Type A compared to OECD average (59%)</b>	Above average: 74%	Above average: ranging from 64% in the UK to 96% in Australia (due in part to high number of internat. students)	Below average in Chile (45%) and Japan (52%), but significantly above average in Korea (69%)	Below average: 56% (In Belgium, relatively low rate counterbalanced by high entry rate in tertiary type 5B)
<b>Recent changes</b>	Introducing tuition fees for international students (Denmark and Sweden, 2011)	The Netherlands and the UK moved from model 4 to model 2	Reforms to enhance student support systems in Japan and Korea, in addition to existing fee reductions/ exemptions for top students with financial barriers	Since 1995, reforms to increase tuition fees in public institutions (in particular in Austria and Italy)

Note: 1. The measure used here is the revenue from income tax as a percentage of GDP, which is relatively high for model countries, except the Netherlands, which has taxation levels below the OECD average.

Source: OECD (2014a), *Education at a Glance 2014: OECD Indicators*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/eag-2014-en>, Indicator B5. See Annex 3 for notes ([www.oecd.org/edu/eag.htm](http://www.oecd.org/edu/eag.htm)).

Lessons from OECD analysis on the various combinations of tuition fees and student aid suggest that more than the level of tuition fees, the existence and student awareness of appropriate financial aid is most critical to fostering access to higher education. In particular, such supports need to address the risk averseness of students, target students who need them most, and cover non-tuition costs incurred by attending higher education.

Yet, many limitations should be kept in mind. First, entry rates are an imperfect measure of access and access by socio-economic background is also critical to measuring the equity of higher education. In addition, high entry rates are influenced by many factors, for example the high numbers of international students in the Australian case. Conversely, lower entry rates do not automatically imply lower participation in tertiary education overall: in Belgium, high entry rates in tertiary education type 5B (vocational) may explain lower entry rates in 5A programmes.

Other research also suggests that assessing the performance of a financial model should focus not only on access, but also on student success, and here again results are not obvious. For example, recent work in France that explored the benefits and limitations of various higher education finance schemes showed that systems in models 2 and 3, with higher tuition fees, have mixed results in terms of graduation rates: they tend to be higher than those in model 4 countries, but lower than graduation rates in model 1 countries (Moulin, 2014). In addition, entry and graduation rates discussed here are compared at the aggregate level, which does not provide insights into the impact of a particular model on specific socioeconomic groups.

### **Overview of recent approaches: diversification of sources, performance funding and the management of funding**

#### *Diversification of revenues*

The most common approach to diversifying sources of income, in many countries, has been to increase the share of funding coming from students and households. Regardless of the rationale for diversification, it is pursued by a wide range of countries, including those without a tradition of private funding for higher education. For example, Salmi (2009) notes that, in Africa, university income from fees has increased from 24% to 29% since the early 2000s.

Private funding has also increased in European countries such as Austria and Italy, and also in France, where fees have increased slightly in public universities, but more significantly in the *Grandes Ecoles*. These institutions form a small, highly differentiated, elite subset of HEIs that benefit from a special status granting autonomy on various matters including student admission and tuition fees. The introduction of differentiated tuition fees in a few of these HEIs in the early 2000s represent an attempt at combining higher revenue through tuition fees while preserving equity (see Box 2.2).

#### **Box 2.2 Alternative approaches: tuition fees tied to parental income**

##### **Differentiated tuition fees in France**

In France, the introduction of tuition fees tied to parental income (or the student's income, if independent from his parents) at some *Grandes Ecoles* provides an alternative to flat fees or dual-track systems. The purpose of the approach, according to Sciences-Po Paris and Université Paris Dauphine, is to meet two key needs: increasing resources and ensuring social equity.

The approach is modelled after progressive income tax structures. Students pay a different fee according to their parents' income. For example, at Sciences-Po, the 2014-15 fees for an undergraduate degree range from zero for students from lower socioeconomic backgrounds to EUR 9 940 for those from upper socioeconomic families, with 11 different brackets. The advantages are particularly significant when a large share of students is from more affluent families, as is the case in these elite institutions. Through this method, significant resources can be generated and used for various purposes – from expanding enrolment, diversifying activities (for example, developing research capacity), or boosting quality and international recognition.

While limited empirical research has been conducted to date, this approach seems to be attractive to institutional leaders; the graduated fee structure initially developed at Sciences Po Paris (introduced in 2003) has been adopted by most *Instituts d'Etudes Politiques* (similar schools in other French regions outside Paris) and the Université Paris Dauphine (in 2010).

Yet, the approach remains highly contentious. Student groups contend the rapid increase in tuition levels across all tuition fee brackets affects the decision to pursue studies for those who do not benefit from exemptions or reductions and whose absolute tuition fee levels have increased substantially.

##### **Box 2.2 Alternative approaches: tuition fees tied to parental income (continued)**

Second, this approach could lead to the "polarisation" of universities between affluent and constrained HEIs, since the resources generated highly depend on the socioeconomic composition of the student body (see Moulin 2014). Other issues may also need investigation, such as the administrative processes to ensure efficient management of such schemes in larger HEIs. The impact on international students, who are typically required to pay the highest fee level, should also be examined.

Sources: Sciences Po (2014), Droits de Scolarité webpage, <http://formation.sciences-po.fr/droits-scolaire> (accessed 28 November 2014).

Internationalisation strategies can also play a role in raising tuition revenue. As shown in Table 6, many countries have adopted differentiated tuition fees for domestic and international students, and some countries such as Australia or New Zealand have been successful at maintaining and increasing the numbers of international students they attract despite the higher cost of education foreign students are charged. The United States, by contrast, has seen its share of international students decline from 23% in 2000 to 16% in 2012. This may be also explained by the growing internationalisation of HEIs all over the world: Oceania, Latin America and the Caribbean have seen their shares of international students grow (OECD, 2014a).

**Table 2.6 Structure of tuition fees: domestic versus international students**

Tuition fee structure	OECD and other G20 countries
<b>Higher tuition fees for international students than for domestic students</b>	Australia, <sup>1</sup> Austria, <sup>2</sup> Belgium, <sup>2</sup> Canada, the Czech Republic, <sup>2,3</sup> Denmark, <sup>2,3</sup> Estonia, <sup>2</sup> Ireland, <sup>3</sup> the Netherlands, <sup>2</sup> New Zealand, <sup>4</sup> Poland, <sup>2</sup> the Russian Federation, Spain, Sweden, <sup>5</sup> Turkey, the United Kingdom, <sup>2</sup> the United States <sup>6</sup>
<b>Same tuition fees for international and domestic students</b>	France, Germany, Italy, Japan, Korea, Mexico, <sup>7</sup> Switzerland. <sup>8</sup>
<b>No tuition fees for either international or domestic students</b>	Finland, Iceland, Norway

*Notes:*

1. International students (excepting students from New Zealand) are not eligible for government-subsidised places in Australia and therefore pay the full fee. While this typically results in international students having higher tuition fees than domestic students, who are usually given subsidised places, some domestic students in public universities and all students in independent-private universities are full-fee paying and pay the same tuition fees as international students.
2. For non-European Union or non-European Economic Area students.
3. No tuition fees for full-time domestic students in public institutions.
4. Except for students in advanced research programmes, or for students from Australia.
5. For students from outside the EU/EEA area and Switzerland.
6. In public institutions, international students pay the same fees as domestic out-of-state students. However, since most domestic students are enrolled in-state, international students pay higher tuition fees than most domestic students, in practice. In private universities, the fees are the same for national and international students.
7. Some institutions charge higher tuition fees for international students.
8. There is a negligible difference between the average annual tuition fees charged to domestic and mobile students.

Source: OECD (2014a), *Education at a Glance 2014: OECD Indicators*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/eag-2014-en>, Box C4.3, based on data from indicator B5. See Annex 3 for notes ([www.oecd.org/edu/eag.htm](http://www.oecd.org/edu/eag.htm)).

From an institutional perspective, the role of international tuition in revenue generation needs to be nuanced. As the results of the International Association of Universities (IAU) 4th Global Survey suggest, revenue generation is only one of several rationales for internationalisation (IAU, 2014). In addition, the ability of institutions to effectively recruit international students depends largely on the attractiveness of the country for these students, which itself results from multiple factors including language, location, climate and immigration and economic integration policies (see Gopal, 2014 for a brief overview of Canadian, US and UK policies in this area and EC/EM European Commission, 2012 for European countries).

Despite these factors, some institutions have developed clear strategies to actively attract international students. These include outreach efforts, targeting specific source countries, and developing various mechanisms that facilitate transnational education, such as articulation agreements or joint programmes delivered partly at the host institution, partly at another institution (see University of Manchester, 2014).

Increasing funding from private entities other than students and households is another approach of interest to many HEIs. This can be achieved through various activities, including contracts with private partners for research and teaching, philanthropy and the commercialisation of a range of products and services. As shown earlier, the amount of such additional funding varies significantly across institutions and depends to a large extent on country specificities –

ranging from legislative and regulatory frameworks to practices and cultural factors. Interestingly, Estermann and Bennetot Pruvot (2011) show that while technology-oriented institutions are particularly successful at generating contract funding; several comprehensive universities have done so as well. This suggests that productive relationships with the private sector are key to generating this type of income, and can be achieved by a wide range of institutions. In practice, HEIs rely on diverse strategies to raise the share of alternative sources of funding:

➤ **In Australia:**

- In 2010 Macquarie University sold AUD 150 million of TEN year bonds as part of An AUD 450 million financing package (the remaining AUD 200 million being bank loans). The University of Wollongong, Australian National University, La Trobe University, Sydney University, Melbourne University have also issued bonds to raise finance for the development of infrastructure.
- Edith Cowan University has developed a 38 year service concession agreement in relation to the development of student accommodation. The private sector is responsible for the construction, refurbishment, operation and maintenance of the accommodation and retains all the rental income as compensation for the capital works. The university has control of the assets and they are recognised in its balance sheet.
- Macquarie University developed the Australian Hearing Hub in 2012, a world-class facility purpose-designed for research, research training, teaching and learning in hearing and hearing-related speech, language and reading disorders. The Hub is a commercial venture by Macquarie University, the occupants of the Hearing Hub are tenants of the university under a commercial lease. The revenue generated from the leases covers the debt servicing requirements and building operations and maintenance, while also delivering a surplus that funds research, education and training. The total project cost was AUD 121 million including a AUD 40 million government grant.

(Australian Government Department of Education, 2014).

- In **England**, the University of Loughborough has developed into a **service-oriented institution**, actively engaged in commercial activities or services that are consistent with its academic mission. These include the operation of a consultancy office, generating about 1 million GBP per year, a “Science and Enterprise Park” and a “SportPark”, and a fully-owned subsidiary “Imago Ltd.”, with an annual turnover of 8 million GBP, which manages all the university’s commercial activities. The university has become the first provider of conferencing facilities in the region, but also rents out its sporting facilities, in line with its academic strength in sports engineering. Profits are reinvested in the academic activities of the university (Estermann and Bennetot Pruvot, 2011).
- In **Ireland**, Trinity College Dublin generates ongoing extra revenue through its **estates activities**. The income generated is used to finance or co-finance research and other activities. One strategy used by the university is to swap floor space not ideally suited to academic activities with other facilities to maximise the rental income from prime locations. The institution has also developed an active real estate investment strategy whereby it purchases properties at declining market prices which it further develops and rents at rates exceeding the cost of purchase. Finally, Trinity College Dublin partners with developers to enhance the value of its sites and facilities, bringing together the specialised expertise of developers with the institution’s purchasing power and good rating allowing it to obtain competitive funding conditions (Estermann and Bennetot Pruvot, 2011).
- In the **United States**, Ohio State University, Columbus, became the first public US institution to issue 100-year bonds, called “Century Bonds”, issuing USD 500 million that will mature in 2111. This adds to other bond offerings that the university issued in the past, but given historically low interest rates allowed it to borrow at a low interest rate fixed for 100 years. The funds will be used towards large-scale capital projects, including research facilities and student housing. Using such strategy requires a number of conditions, both external – e.g. the Ohio State Law allows institutions to borrow to finance capital projects – and internal – e.g. the



University has financial mechanisms allowing it to bring capital in and out and to repay in 100 years (Tobenkin/NACUBO, 2013).

### *Making public funding more efficient: allocation and performance*

From a policymaker's perspective, ensuring that public funding to HEIs is allocated in effective ways is of particular importance at a time when public funds are scarce. This means not only ensuring that public funding channelled to HEIs achieves the best outcomes per public dollar spent, but also that public funding can be used strategically to achieve a range of public policy goals in the area of higher education. Nevertheless, while governments may often be the initiators of performance-based schemes, a number of HEIs have also started introducing performance-based mechanisms in their operations (NASBO, 2013). These approaches are thus relevant to HEIs both in their position of recipients of public funding having to comply with government requirements, and as autonomous organisations attempting to enhance the way they allocate their own resources internally.

Salmi (2009) argues that two dividing lines separate the many public funding approaches used in higher education: whether funding mechanisms factor in the performance of HEIs or not, and whether funding is obtained through competition among beneficiaries or through negotiations between the state and beneficiaries. Beneficiaries of public funding typically include HEIs (the supply side of higher education), as well as students and families (the demand side of education). The array of existing public funding approaches are summarised in Figure 2.6. Those Salmi identified as **most innovative are highlighted in bold** and examples of *countries that have implemented these approaches are indicated with italics*.

Interestingly, innovative approaches can be found in all four quadrants of the matrix, reinforcing the point that there is no single approach to higher education finance, but rather an array of possibilities that can be combined according to national priorities and contexts.

As shown in Figure 2.6, the use of performance-based funding mechanisms is increasingly widespread. Yet, at the institutional level, these mechanisms are most often used in combination with traditional mechanisms focused on inputs. For example, in the United States, a 2011 survey of business officers at colleges and universities conducted by *Inside Higher Education* indicated that most HEIs report a combination of both approaches: 75% of responding institutions characterised their funding approaches as mostly incremental, which means based on prior year funding adjusted for changes in fixed costs such as inflation, salaries, etc.; while a growing share of HEIs, currently around 20%, had started introducing performance mechanisms (NASBO, 2013).

In Europe, Estermann et al. (2013) report that many systems use performance-based mechanisms to allocate at least part of teaching funding to HEIs. Denmark's "taximeter system" that links funding to the number of students having passed their exams is a large-scale example of this approach. Mechanisms to allocate research funding in Europe are partially or mainly performance-based, with frequent use of indicators related to publications and external research funding.

As reported by the NASBO (2013), in the United States, Dougherty and Reddy (2011) found several benefits of performance-based funding systems, including greater awareness by HEIs of state priorities and institutional performance, improved use of data about performance by HEIs and the state, and improvements in academic and student service policies and practices that promise to improve student outcomes.

Figure 2.6 Public funding matrix and innovative approaches

<p><b>No performance/Negotiated Allocations</b></p> <p>Entitlements (I) Earmarked Funds (I) Funding formulas (input-based) (I) Tax Benefits (F&amp;I) Universal vouchers (S) <i>Bulgaria, United States (Colorado)</i> Savings/Lifelong Learning Accounts (F) <i>Canada, Sweden, United Kingdom</i></p>	<p><b>Performance-based/Negotiated Allocations</b></p> <p>Funding formulas (output-based) (I) Performance Contracts (I) <i>Austria, Chile, Denmark, France, Finland, Spain, United States (Colorado, Virginia)</i> Performance Set-Asides (I) <i>South Africa, United States (states including Missouri, New Jersey, Tennessee, South Carolina, and Ohio)</i></p>
<p><b>No performance/Competitive Allocations</b></p> <p>Needs-based Grants and Scholarships* (S) Student loans* (S) Income-Contingent Student Loans* (S) <i>Australia, New Zealand, South Africa, Sweden, Thailand, United States</i> Universal Tuition Fees (I) Donations (I) Bank Loans (I)</p>	<p><b>Performance-based/Competitive Allocations</b></p> <p>Merit-based Grants and Scholarships (S) Merit-based Students Loans (S) Merit-based Vouchers (S) <i>Chile, Georgia, Hungary, Kazakhstan</i> Dual-Track Tuition Fees** (I) Competitive Funds (I) <i>Argentina, Bolivia, Bulgaria, Chile, Ghana, Egypt, Hungary, Indonesia, Mozambique, Sri Lanka, Tunisia</i> Sale of Products and Services (I)</p>

Notes: I= institutions, S=Students, F= Families

\* In countries, where there is no rationing, need-based scholarships and student loans would move up to the “no performance/negotiated allocations”, as everyone would be eligible.

\*\* Dual-track tuition fees refer to fee systems where a very small portion of students are granted free to low cost entry to higher education based on merit, while other applicants are charged a higher fee. For an example of this system in East Africa, see Marcucci, Johnstone and Ngolovoi 2008. By contrast, universal tuition fees are the same for all. Progressive tuition fees based on family income discussed in the case of France earlier are not included in Salmi’s work and left off this figure.

Source: Adapted from Salmi, J. (2009), “Scenarios for Financial Sustainability in Higher Education”, in OECD, *Higher Education to 2030, Volume 2, Globalisation, Educational Research and Innovation*, OECD Publishing, Paris, pp. 285-322, <http://dx.doi.org/10.1787/9789264075375-en>.

### **Some challenges: unwanted consequences of reforms, barriers to diversification and governance issues**

#### *Recognising the limitations of performance funding*

Evidence on the impact of performance-based funding on improving institutional outcomes, such as graduation rates, credit accumulation and degree production, is mixed (Dougherty and Reddy, 2011; Desrochers, 2012). This may be due in part to the fact that, as noted above, only a small portion of funding is typically allocated based on performance criteria, even in systems where performance funding is well-developed.

In addition, some specific limitations, linked to the design and implementation of performance-based systems, need to be kept in mind. One relates to the potential complexity of administering such systems, particularly in countries where data systems to track outputs are poor (International Bank for Reconstruction and Development/World Bank, 2010). In addition, performance-based systems may have limited effectiveness, either because too many indicators make these systems difficult to apply and understand, or because the chosen indicators do not provide good measures of the areas of interest, such as quality. In the United States, states such as South Carolina and Tennessee experimented with early performance-based models and have seen these models “die under their own weight”. This has led to new approaches with a targeted focus on increased student retention and degree production, accompanied by incentives to drive improvement in these specific areas (NASBO, 2013).

### *Addressing the negative impacts of reforms*

Funding models in higher education tend to become more complex as countries seek to increase resources available to HEIs, enhance the array of opportunities available to students through funding private institutions, and use allocation levers to achieve specific policy objectives. As a result, some unexpected effects may occur, requiring corrective action.

For example, several countries, in particular in Latin America, Eastern Europe, Central Asia and Eastern Asia, have shifted from traditional and publicly-funded systems to systems that are highly reliant on cost-sharing and the private sector. These countries face challenges after implementing such reforms, both in terms of creating the right conditions for these reshaped systems to work and due a number of negative impacts, including inequity and inefficiencies resulting from systems such as dual-track tuition fee policies; high default rates on student loans, in part due to many loan beneficiaries being enrolled in low-quality institutions; and insufficient financial autonomy of private sector institutions (Salmi, 2009). Corrective actions may thus be required on multiple aspects, such as quality assurance mechanisms, funding policies or institutional autonomy, among others.

Yet the issue of high student debt and default is one of particular concern to higher education stakeholders, given high youth unemployment rates in many countries. Strategies to address this issue include favouring moderate, gradual and predictable fee increases rather than sudden jumps in fees, limiting fees to avoid charging students more than what is spent on them, and rationalising tuition fees based on expected returns as opposed to simply setting fees at a certain price (NASBO, 2013). Setting fees at appropriate levels based on likely private returns nonetheless raises a host of different issues. Indeed, fast-changing economic and labour market demand can make estimates of such returns less reliable, as they vary across fields of study and over time.

Other types of mitigation strategies dealing with high student debt focus on effective student support, including innovative approaches such as income-contingent student loans. These instruments are different from fixed-repayment loans in that repayment is conditional on the borrower's income reaching a threshold, and includes debt forgiveness after a certain period of time. This type of repayment arrangement thus takes into account the ability of the graduate to repay the loan. While this approach is beneficial to students, it is more costly for governments (for further details, see OECD, 2014a). Further research may be needed to assess the impact of such strategies on government finances and the combination of policies required to contain the financial impact.

### *Tackling internal and external barriers to income diversification*

Estermann and Bennetot Pruvot (2011) highlight the many internal obstacles that European HEIs reported facing while attempting to change their funding models. Obstacles ranged from inadequate governance structures and processes, such as decision-making structures that prevent effective and timely engagement with external stakeholders, to the lack of information available on income generated from alternative sources, which hinders strategic decisions on investments.

Other internal obstacles faced by European HEIs included the need for skills and expertise at management level to conduct income diversification. Sometimes achieved through one-off partnerships conducted on a personal basis by faculty members, income diversification strategies typically lacked consistency and stewardship that would allow HEIs to reap the benefits from such initiatives. Finally, internal tensions regarding the risks of income-generating activities on academic integrity and freedom were noted as significant, both from the perspective of faculty members and university management. As the authors conclude, while the need for long-term sustainable funding for institutions as a motivation for income diversification should be clearly communicated and recognised, income diversification activities should also align with the HEI's mission. They also note the importance of effective and professional leadership, for example through the creation of fundraising structures, as well as internal incentives to increase commitment at all levels within institutions, such as rewards on both individual and collective (e.g. faculty or department) levels.

While these aspects are within the purview of the institution, broader conditions are required to foster effective income diversification in higher education. These conditions are far-reaching. They include, for example, regulatory frameworks allowing institutions to innovate in matters of funding policy, while maintaining strong quality assurance

systems. They also involve funding modalities such as the criteria and allocation mechanisms through which public funding is channelled to HEIs. Finally, they encompass the incentives that governments can provide to encourage income diversification, such as matching funds, providing tax incentives or exemptions, or targeted funding, for example for professional development programmes to assist HEIs in fostering the professional and management skills they need to effectively diversify their funding sources.

### *Ensure balanced governance systems*

Achieving a wide range of goals through funding instruments can be challenging, and unexpected effects are a typical problem of funding reforms. This is clear from recent OECD work on research excellence (see OECD, 2014d and [Chapter 3](#) of this volume), which shows that competitive research excellence funding both supported the emergence of world-class national research hubs, but also tends to concentrate resources at the expense of research diversity. Additionally, while large-scale funding helps some countries quickly improve their global research status, it adds to the funding unpredictability faced by HEIs, thus suggesting the need for a mix of short- and long-term instruments to ensure that institutional research capacity is also built over time.

Finally, another issue pertaining directly to the nature of funding is that of steering higher education systems, and particularly public institutions, when funding sources are increasingly private. As NASBO (2013) points out, while public HEIs may increasingly look like non-profit, private institutions rather than government agencies, they continue to have a public mandate that should not be questioned. This delicate balance between public and institutional goals in times of changing financial models likely requires an appropriate policy mix that combines classic concepts of accountability and autonomy, but revisited in the context of innovative policies designed to support HEIs in a competitive and rapidly changing higher education environment.

## **Towards a self-assessment framework of institutional business models**

This section summarises the literature reviewed so far through a simplified categorisation of business models. It includes two components:

- The first is a diagram that situates four broad HEI business models relative to each other.
- The second is a table that offers an initial list of benefits and drawbacks of these broad business models.

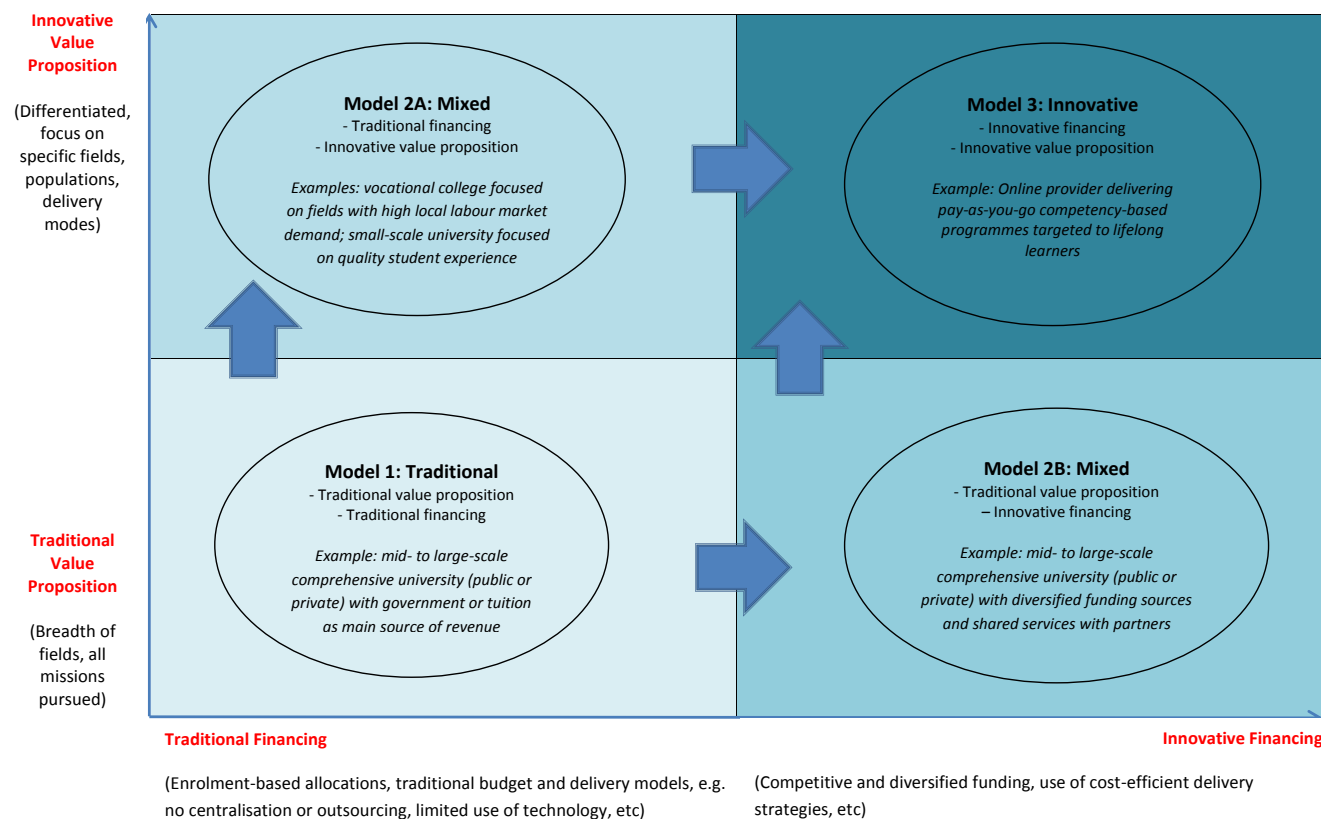
This categorisation is meant as a starting point to move from a description to an impact analysis of various models. The table can provide a draft rubric to help HEIs perform self-assessments on the nature of their business models, including the benefits and drawbacks thereof, and to identify the pros and cons of other business models they may consider adapting to their needs.

The broader purpose of this framework is to contribute to the policy- and practice-oriented research on improving the coherence and effectiveness of higher education business models. In line with the analytical approach used in this chapter, the framework proposes looking at these models in a holistic manner, rather than focusing on a single dimension. The framework is intended as a guiding tool, expected to change over time as HEI business models become more purposeful and more is known about their impacts.

While there are numerous categories of higher education business models since many criteria could be used to identify them, this framework places deliberate emphasis on two complex and broad aspects likely to be priorities from an institutional perspective. The two main dimensions identified in the framework – value proposition and financing – are key elements that define the identity and operations of HEIs following the analytical framework developed by Sheets, Crawford and Soares (2012) and described at the onset of this chapter. Financing addresses both the revenue and the expenditure side of the financial equation in HEIs. While these aspects have been discussed separately so far, combining them simplifies the diagram and enhances its usability. However, it should be kept in mind that a traditional revenue model may be found in institutions that have developed innovations in their expenditure strategies, and that,

conversely, some institutions may have first innovated revenue streams (e.g. by diversifying sources) while keeping the way they use funds and deliver their services largely unchanged.

**Figure 2.7 Draft business model framework for HEIs: four models from traditional to innovative**



Notes: 1. Arrows indicate possible “innovation routes” between different models. 2. HEIs are considered in a broad sense, including all post-secondary institutions. “Comprehensive public” thus refers to publicly-funded institutions that offer a wide range of programmes to a wide range of students, using a diversity of methods. Although the term is most often used to designate universities, it can also refer to universities of applied science, polytechnics or colleges if they are comprehensive. Most often, applied or vocationally-oriented institutions may fit in the differentiated models (2A and B), but not always as some such institutions are seeking to expand their mandate.

Table 2.7 below, assigning possible benefits and drawbacks to the four broad business models presented, is a theoretical framework based on an analysis of the literature covered in the chapter. It is not meant to provide definite answers, but rather to offer an analytical lens for institutions to reflect on the strengths and weaknesses of their current business models and the risks and opportunities of adapting it. Such a tool could constitute the basis for a peer learning discussions among HEIs to collectively assess not only current pros and cons, but also identify needs for modifications and corrective actions.

CHAPTER 2 – STRENGTHENING BUSINESS MODELS IN HIGHER EDUCATION INSTITUTIONS: AN OVERVIEW  
OF INNOVATIVE CONCEPTS AND PRACTICES

**Table 2.7 Draft business model framework for HEIs: benefits and challenges**

Benefits and challenges in key areas				
	<b>Model 1 Traditional</b>	<b>Model 2A Traditional Financing Innovative Value Prop.</b>	<b>Model 2B Traditional Value Prop. Innovative Financing</b>	<b>Model C Innovative</b>
Quality	- High quality, comprehensive approach with a focus on both teaching and research, “residential” student experience with substantial student-faculty interactions and student supports and services - However, quality may decrease in case of reduced funding	Supports quality by focusing resources on a well-defined set of activities	- Supports high quality comprehensive approach - Supplements traditional resources with new financing approaches	- May support high quality in niche area and financed through diversified sources - However, quality risks (new entrants with no experience in delivering HE) and possible challenges in quality assurance/accreditation
Breadth of student choice	Large choice	Limited choice, niche focus	Large choice	Limited choice, niche focus
Access	- Access normally possible for all groups (no specific target group) - Selectivity of admissions and costs can be barriers (if high tuition fees and no adequate financial aid schemes available)	- Increased access for some populations who may not be otherwise served (e.g. focus on adults) - Selectivity of admissions and costs can be barriers (if high tuition fees and no adequate financial aid schemes available)	- Access normally possible for all groups (no specific target group) - Selectivity of admissions and costs can be barriers (if high tuition fees and no adequate financial aid schemes available)	- Increased access for some populations who may not be otherwise served (e.g. focus on adults) - Selectivity of admissions and costs can be barriers (if high tuition fees and no adequate financial aid schemes available)
Financial stability	Greater simplicity due to reliance on two core sources (public funding and tuition), but risk of funding reduction in both sources	Greater simplicity due to reliance on two core sources (public funding and tuition), but risk of funding reduction in both sources	More sources of funding, but potentially less stable (e.g. volatility of sources such as philanthropy or commercial services)	- More sources of funding, but potentially less stable (e.g. volatility of sources such as philanthropy or commercial services) -In case of entirely new value proposition (e.g. provider focusing on new niche activity), questions around accreditation and whether provider will have access to public funds (both directly and to support students attending the institution)
Long-term financial sustainability	Risks exist in countries where student numbers grow and traditional funding sources (e.g. public funding and tuition fees) become more limited	Risks exist in countries where student numbers grow and traditional funding sources (e.g. public funding and tuition fees) become more limited	More sustainable due to diversified sources	Potentially more sustainable due to diversified sources, but also risk that model is not viable (e.g. if low quality, insufficient demand)

CHAPTER 2 – STRENGTHENING BUSINESS MODELS IN HIGHER EDUCATION INSTITUTIONS: AN OVERVIEW  
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Benefits and challenges in key areas				
	<b>Model 1 Traditional</b>	<b>Model 2A Traditional Financing Innovative Value Prop.</b>	<b>Model 2B Traditional Value Prop. Innovative Financing</b>	<b>Model C Innovative</b>
Flexibility/ adaptability to change and constraints	Limited flexibility due to existing constraints structures (set governance and funding patterns, long-standing practices, etc.)	Flexibility depends on existing structures – a new value proposition could be developed within existing structures or could involve more innovative governance/ organisational approaches	Limited flexibility due to existing structures (set governance and funding patterns, long-standing practices, etc.)	High flexibility; decision-making based on market demand
Responsiveness to students' needs	Variable – may respond well to “traditional” student needs (face-to-face interaction with faculty, breadth of choices, equipment/facilities, etc.) but be less responsive to new populations (international, adults, etc.)	Responds well to specific needs of target group	Variable – may respond well to “traditional” student needs (face-to-face interaction with faculty, breadth of choices, equipment/facilities, etc.) but be less responsive to new populations (international, adults, etc.)	May respond well to specific needs of target group, but may take time to build strong understanding of student needs if new entrant
Responsiveness to economic and labour market needs	Variable, possibly insufficient if lack of focus on labour market relevance and outcomes	Likely high responsiveness, focus on niche markets	Variable, possibly insufficient if lack of focus on labour market relevance	Likely high, focus on niche markets, but may take time to build recognition on the labour market
Responsiveness to academics/faculty needs and expectations	High: role of academic is comprehensive (teaching, research, involvement in third mission, etc.) and conditions are usually favourable faculty (salary, options for tenure)	Variable: role of academics may be changing and more differentiated. May use more part-time or casual staffing and offer less favourable conditions. May be more relevant to specialists in some areas, but requires attractiveness (salary, calibre of research, internationalisation, etc.)	High: role of academic is comprehensive (teaching, research, involvement in third mission, etc.) and conditions are usually favourable faculty (salary, options for tenure)	Variable: role of academics may be changing and more differentiated. May use more part-time or casual staffing and offer less favourable conditions. May be more relevant to specialists in some areas, but requires attractiveness (salary, calibre of research, internationalisation, etc.)

## Conclusion

This chapter provides an overview of several issues related to HEI business models in a fast-changing context. Changes to the way HEIs operate is a necessity in response to new realities, which range from funding constraints to increased competition and new student needs. It also underlined new opportunities, such as technology-enabled learning and provided examples from a variety of institutions around the world, which highlights the many ways adjustments may occur. In this sense, there is no one-size-fits-all model, and the specific context and circumstances of HEIs must be taken into account to ensure successful and sustainable business models.

The role of governments in laying out the “framework conditions” for HEIs to operate and adjust to such changes is also highlighted. The interaction between HEIs and governments, which remain the key funders and regulators of the higher education sector in many countries, is critical. The delicate balance between institutional autonomy, including in the financial sphere, and accountability is therefore at the core of the issues discussed here.

The proposed framework conditions are flexible and supportive: there are various ways in which HEIs can respond to the challenges of reduced funding, increased competition and changing (including expanding) student populations. While several of the strategies and approaches presented in this chapter involve radical transformation of often long-standing practices, the risks and limitations inherent to these strategies, highlighted throughout, should not be neglected. To that end, the proposed self-assessment framework highlights the ways HEIs business models may evolve, and outlines the benefits and challenges of various models, from traditional to transformative.

## NOTES

1. In this chapter, the terms “higher education” and “tertiary education” are used interchangeably. This is in recognition that traditional distinctions between theory-oriented and other tertiary institutions and programmes such as those that have a professional or vocational focus may have lost some of their usefulness as institutions diversify along new lines. While the distinction between research-orientation and professional orientation remains useful and real, the chapter will discuss the overall tertiary sector, thus covering the breadth of all tertiary education institutions.
2. Some authors view these two concepts as different, the former representing a host of actual practices, while the latter is described as a conceptual or ideological approach (see Rinne and Koivula, 2005).
3. Public funding is usually that provided by the national government or another relevant level of government depending on the institutional setting. However, as noted in Estermann and Bennetot Pruvot (2011), international public funding by supranational institutions such as the EU also plays a small role, in the order of 4% in Europe.



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CHAPTER 2 – STRENGTHENING BUSINESS MODELS IN HIGHER EDUCATION INSTITUTIONS: AN OVERVIEW  
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## CHAPTER 3 – PROMOTING RESEARCH EXCELLENCE: NEW APPROACHES TO FUNDING

Ester Basri and Anna Glass

This chapter is a synthesis of the OECD's Directorate for Science, Technology and Innovation's publication *Promoting Research Excellence: New Approaches to Funding* (OECD, 2014b). The case studies included in the Annex to this chapter are from some of the members of the OECD Higher Education Programme who contributed to a compendium of practices in promoting research excellence in higher education, issued in June 2014 (OECD, 2014a).

### Research excellence initiatives as a new form of competitive research funding

National research systems face an increasingly competitive environment for ideas, talent and funds, and governments have turned to more competitive forms of funding to promote efficiency and innovation. Funds have been shifted from institutional core funding to project funding (Lepori et al., 2007), often on a competitive basis, reward success in raising third-party funds in performance-based funding schemes (OECD, 2010). At the same time, because research requires a degree of stable funding, national systems strive for a balance between competition and stability (OECD, 2012, p. 177f.).

It is in this context that “research excellence initiatives” (REIs) have emerged. An REI is an instrument designed to encourage outstanding research by providing large-scale, long-term funding to designated research units, with an emphasis on research of exceptional quality, and various countries with diverse funding systems have adopted REIs since around 2005 (Salmi, 2009). The phenomenon is difficult to explain on the basis of the data collected; however, certain factors may have contributed:

- Globalisation presents a challenge to national science systems. World rankings of performance illustrate this competition and, as such, rankings have led to a certain standardisation of the concept of excellence (Deem et al., 2008; Drori et al., 2002). REIs, with their emphasis on global competitiveness, can be seen as a policy response to this challenge: REIs are designed to attract, train and retain the very best researchers by offering them the most favourable working conditions in terms of equipment, staff, academic freedom and salaries in order to improve global performance.
- Higher education systems in many countries developed when there were far fewer students and less demand for research services outside of academia (Gibbons, 1999). After decades of constantly rising expectations in scientific research (Frank and Meyer, 2007) and strong enrolment growth in higher education, governments have sought to find ways to make the allocation of public funding more efficient, while creating a stronger impact. To this end they have used clustering and smart specialisation, a set of policies increasingly part of science, technology and innovation strategies (OECD, 2012). REIs are an instrument for achieving this goal by concentrating resources for research in specialised areas.

The REIs covered in this study share the following traits:

- government-level funding of selected research units and institutions
- exceptional quality in research and research-related activities
- long-term funding (a minimum of four years)
- competitive and distributed funds on the basis of peer-reviewed applications
- applicants required to participate in the selection processes with fixed time frames



- collective applications of institutions or research units (instead of individuals) for funds
- substantially larger funding than for individual project-based funding (a general lower limit of USD 1 million per year per centre).

Research activities funded by REIs reflect the objectives of the funding programme. The single most important goal is to raise the research and innovation capacity of national research landscapes. Besides the high degree of convergence of programmes in terms of goals and strategies, REIs often have a specific focus, promotion of early-stage researchers or recruiting top scientists from other countries; development of co-operation between research and industry; the renewal of physical infrastructure. The ambitious systemic objectives of central governments explain why REIs often have substantially more funding than project funding measures. The selection of research is science-driven via peer reviews and panel discussions of proposals with other academics, even though these programmes also have broader political goals.

The REIs discussed in this study are positioned conceptually between institutional core funding and project funding. On the one hand, they allow for relatively lengthy projects that often involve undefined outcomes or fundamental research and may include a more or less elaborate administrative environment to support the research activities. On the other hand, the funding is time-limited and linked to participation in application and selection processes, which brings them closer to typical project funding.

### ***Choice of terminology***

For the purposes of this study the term “research excellence initiative” is found appropriate:

- **Research:** The schemes focus on the promotion of scientific research, although different REIs may focus on different aspects of research and, in some cases, further exploitation of the results (e.g. their potential economic value or their societal impact) is also important. Some REIs do not (only) fund research, but also measures to create favourable framework conditions for excellent research, i.e. through the acquisition of infrastructure, development of institutional research strategies or recruitment of outstanding researchers from abroad. Such initiatives are also discussed here.
- **Excellence:** All schemes aim at fostering research of the highest quality. The word “excellence” is widely used and is part of the title of many of the schemes (e.g. Centres of Excellence Programme). Use of the word in the title of the funding scheme or its official description was not, however, a criterion for selecting the initiatives covered. The term “research excellence initiative” was chosen as a convenient designation and is used in a purely descriptive way. The issue of what research excellence actually is or should be about is not part of this study.<sup>1</sup>
- **Initiative:** The schemes are designed to initiate changes in the national research landscape. Some countries have established their REIs on a more permanent basis, in which case the term “programme” is more common. A clear distinction between “programme” and “initiative” is often not made. In this study, both funding schemes limited in advance to a certain period of time and schemes set up on a more lasting basis are included. Both are covered by REI and the term “(excellence) scheme”.

### ***REIs as research funding instruments***

#### *REIs at the interface of excellence funding and programme funding*

##### Excellence funding

The term “excellence” has achieved considerable popularity in science policy. This does not imply that striving for the highest quality in science is a recent phenomenon. It seems, however, that in recent years “excellence” has become the word most often used to describe the concern for quality in science<sup>2</sup>. Indeed, science policy

makers across countries seem to agree that excellence does not necessarily emerge spontaneously from research systems. The recent spread of REIs testifies to a conviction that environments in which research excellence prospers can and should be actively encouraged and supported.<sup>3</sup>

REIs are by no means the only way in which research excellence is being promoted by national science funders (see Box 3.1). In fact, many public funding bodies with REIs, among other programmes, see it as their mission to support *only* excellent research, possibly through a variety of targeted measures.<sup>4</sup> In 2009, the European Commission's CREST (Comité de la recherche scientifique et technique) appointed a working group to investigate the various ways in which European governments promote excellence in research. The report (European Commission, 2009) shows that countries use a broad range of measures to nurture and support research of exceptional quality. In general, excellence funding may target institutions or individuals; it may be in the form of programmes, collective or individual target agreements, performance-based allocation schemes, specialised foundations, etc.

### Box 3.1 Examples of excellence funding

As a political measure to foster research excellence, REIs are distinguished by establishing competition among institutions for large-scale grants. A different approach is to build excellence institutes from scratch. This route was taken in Austria, when the Institute of Science and Technology Austria (IST) was founded near Vienna in 2006 and opened in 2009. The institute is dedicated to cutting-edge research in mathematics, natural sciences and computer sciences. After its multi-year expansion phase, the IST is scheduled to employ 1 000 scientists from around the world. The Korean government adopted a similar strategy. The Institute for Basic Science (IBS) was launched in Daejeon in 2011. It is not attached to an existing institution, but will be built up gradually in the years to come. It was founded in an attempt to strengthen pioneering basic research in a country where applied sciences have long been dominant. The IBS is expected to employ 3 000 scientists by 2017. Its "role models" are the German Max-Planck-Institute and the Japanese RIKEN institute.

In smaller jurisdictions, neither REIs nor large-scale elite research centres such as IST and IBS may be attractive. In several German Länder (federal states), the national Excellence Initiative inspired new forms of excellence funding beyond the REI format. The state of Berlin established the Einstein Foundation in 2009. Out of the revenue of its endowment, the foundation finances a host of programmes in support of excellent science, from support for early-stage researchers to fellowships for top-level professors, to additional funding for existing research excellence centres based in Berlin. In the federal state of Rhineland-Palatine, the ministry uses target agreements with universities to support excellence projects in both their emerging and consolidated stages. The main principle of governance in this approach is not competition but negotiation. This may be a more efficient way of fostering excellence in jurisdictions with few eligible institutions.

### Programme funding

Programme funding for research is well established in all OECD countries. The main function of a funding programme is to balance the interests of two parties: the community of researchers and the funding body. While the professional interests of researchers by and large do not change – to have sufficient amounts of resources, time and freedom to pursue their scientific endeavours – those of funding bodies vary. For funding programmes that target scientific excellence, the interests of the funding body seem to converge with those of the target group in that producing excellent research is an intrinsic motivation of scientists in the first place. The major tasks of the authority organising an REI are then:

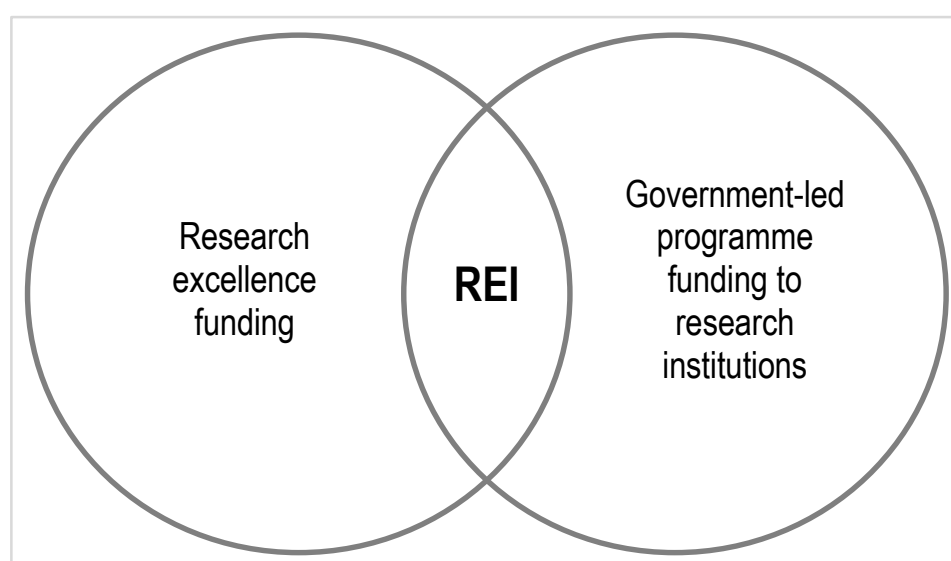
- to define scientific excellence, i.e. to specify the programme's goals
- to determine how excellence is best achieved (in a given setting), i.e. to operationalise the goal
- to establish mechanisms to ensure that funds go to applicants that are deemed, or have the potential to be, excellent, i.e. to determine the mode of allocation.

This study discusses how these three aspects are managed in various REIs.

REIs do not seek excellence for its own sake, but to link scientific excellence to goals beyond the confines of academic science. These external goals may be integrated in the selection criteria, or their attainment may be a “secondary effect” of excellent scientific performance.

REIs lie at the intersection of excellence funding (in whatever shape and form) and government-level programme funding to research institutions (for whatever purpose). As mentioned, excellence funding may take various forms. Similarly, government-level programme funding to research institutions may target scientific excellence, but it may also be designed to support regional research alliances, co-operation between academia and small and medium-sized enterprises (SMEs), early-stage researchers, gender equality, etc. Their combination situates REIs conceptually and operationally.

**Figure 3.1 Schematic definition of REI**



Source: OECD (2014b), *Promoting Research Excellence: New Approaches to Funding*, OECD Publishing, Paris, Figure 1.1, <http://dx.doi.org/10.1787/9789264207462-en>.

### *REIs in contrast to institutional core funding and project funding*

REIs share elements of both institutional core funding and project funding, but also combine them in view of a particular definition of objectives and further characteristics. They should therefore be viewed as a comprehensive funding instrument in their own right.

#### **Institutional core funding**

Institutional core funding (Box, 2010:86) is funding for universities and research organisations that is not directly tied to projects or programmes. It enables institutions to fulfil their core tasks. This form of funding is generally provided by governments to institutions as a whole, rather than to specific programmes or units, and it may have competitive elements. Institutional funding can be arranged in several ways, e.g. by line item budgeting with annual incremental adjustments, or by formula-based funding models, in which the block grant allocation is influenced by indicators, e.g. of equipment, of staffing, number of students enrolled, and research or teaching output. Generally speaking, the *ex post* measurement of performance is an important basis of assessment of institutional core funding<sup>5</sup>

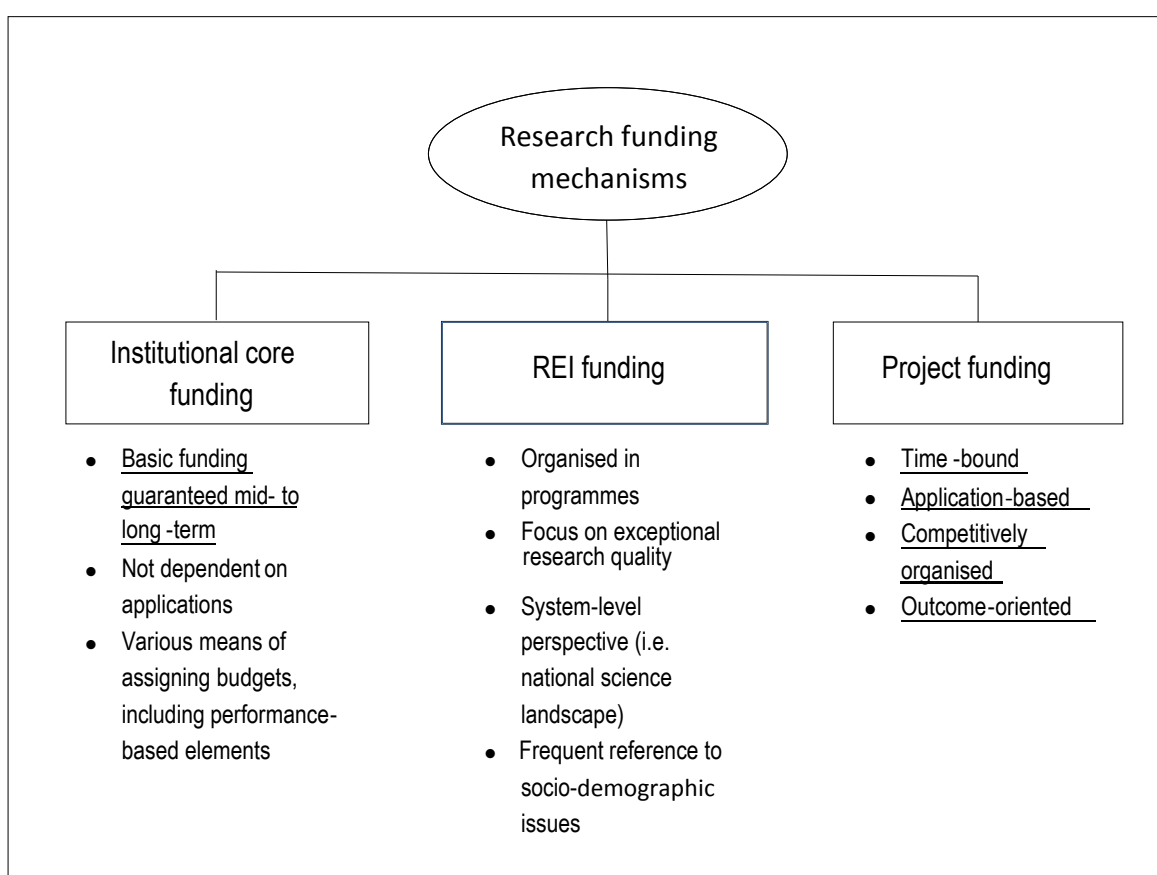
Funders and recipients of funding may use target and performance agreements to negotiate not only what and how they perform, but also what equipment and staffing they require. The tie-in between performance and funding may vary.

Institutional core funding and REI funding share the fact that both tend towards funding longer-term research and can address institutions as a whole. However, they differ in that institutional core funding does not require formal application. All institutionally funded organisations are necessarily tied to annual (and sometimes longer) budget rounds, whereas REI funding requires submission of an application and participation is not obligatory. Any clear-cut competitive elements in institutional core funding take the shape of mandatory quantitative schemes for measuring previous performance. Also, funding for research institutions via institutional core funding is not generally tied to any programme-like specifications, except in some cases via target agreements. REIs, in contrast, always set science-policy objectives for successful applications.

### Project funding

This form of funding is aimed at individuals or groups receiving funds for specific projects over limited time periods (Box, 2010:86). The content of a proposed project is generally defined in the application process, although direct contracting is also possible. Project funding is provided by a government (or an associated body) or by private organisations, such as foundations or sponsors. Public and private funding may also be combined in a programme and involve so-called “matching funds”.

Figure 3.2 Research funding mechanisms in comparison



Note: The characteristics in italics are shared by the respective funding mechanism and REIs.

Source: OECD (2014b), *Promoting Research Excellence: New Approaches to Funding*, OECD Publishing, Paris, Figure 1.2, <http://dx.doi.org/10.1787/9789264207462-en>.

Project funding and REIs are similar in several ways. Funding is based on competition and involves a formal application process. REIs can also be said to target project-like undertakings in the sense that a pre-defined objective must be achieved over a limited time period and with a limited budget. Unlike classic project-based funding, however, REIs are conceived as instruments to affect the performance of the research system as a whole; they call on institutions' capacities to develop and consolidate internationally competitive research profiles. The fact that large funds are involved and fixed time frames are binding for every applicant helps to create a sense of competition and mobilisation that are absent from the classic modes of project funding, where proposals can be submitted at any time or recurrently at short intervals. When funding opportunities are only provided once every couple of years, applicants must undertake careful and intense preparation and their success or failure may have an impact on the way institutions perceive themselves and are perceived by others.

The descriptions of REIs furthermore suggest that, apart from large-scale funding, the explicit attribution of prestige is an important incentive. The terms “excellent”, “top-level” or “world-class” that often accompany a successful proposal echoes this intention.

In sum, there is no single criterion that distinguishes REIs from other forms of funding and there is some overlap. REIs do not exclude other forms of funding. Nevertheless, a multi-faceted description of the main dimensions of existing REI procedures helps to identify and analyse REIs as a specific form of funding.

### ***Characteristics of government research funding***

REIs fit within a diverse country pattern of funding public R&D. Government accounts for a majority of R&D financing in the government and higher education sectors across the OECD, although the proportion of higher education research and development (HERD) financed by government has fallen over the past three decades. Government-financed HERD fell from over 80% in the early 1980s to around 70% in the most recent years. This compares to the higher, and largely stable, proportion of government intramural expenditure on R&D (GOVERD) financed by government.

The pattern of government funding varies among countries. Government finances most of GOVERD in all countries, ranging from 100% in the United States to just above 50% in the Netherlands and Belgium. The percentage of R&D in the higher education sector financed by government is slightly more varied; however, in most countries it is mainly financed by the government – only in Turkey and Israel is the proportion less than 50%. In terms of raw expenditure by countries, the largest OECD economies naturally dominate. OECD countries collectively spent USD 118 billion (in 2005 prices) on HERD and USD 100 billion on GOVERD in 2010.

### ***Scope of the study***

In an attempt to obtain new data and evidence on how governments steer and fund public research, the OECD's Working Party on Research Institutions and Human Resources (RIHR) launched a project, “New Forms of Incentive Funding for Public Research”. The project focused on higher education institutions (HEIs) and public research institutions (PRIs). It aimed to capture a new type of public research funding, as relatively little is known in a systematic and comparable way about REIs.<sup>6</sup>

The research was carried out in several stages. In stage one, a literature review was conducted and a concept paper was prepared to provide an overview of REI models and identify specific features of this type of funding. The paper was discussed at an OECD workshop on 29 November 2012, which brought together policy makers, funding practitioners, national experts and leaders from Centres of Excellence (CoEs) funded by REIs.

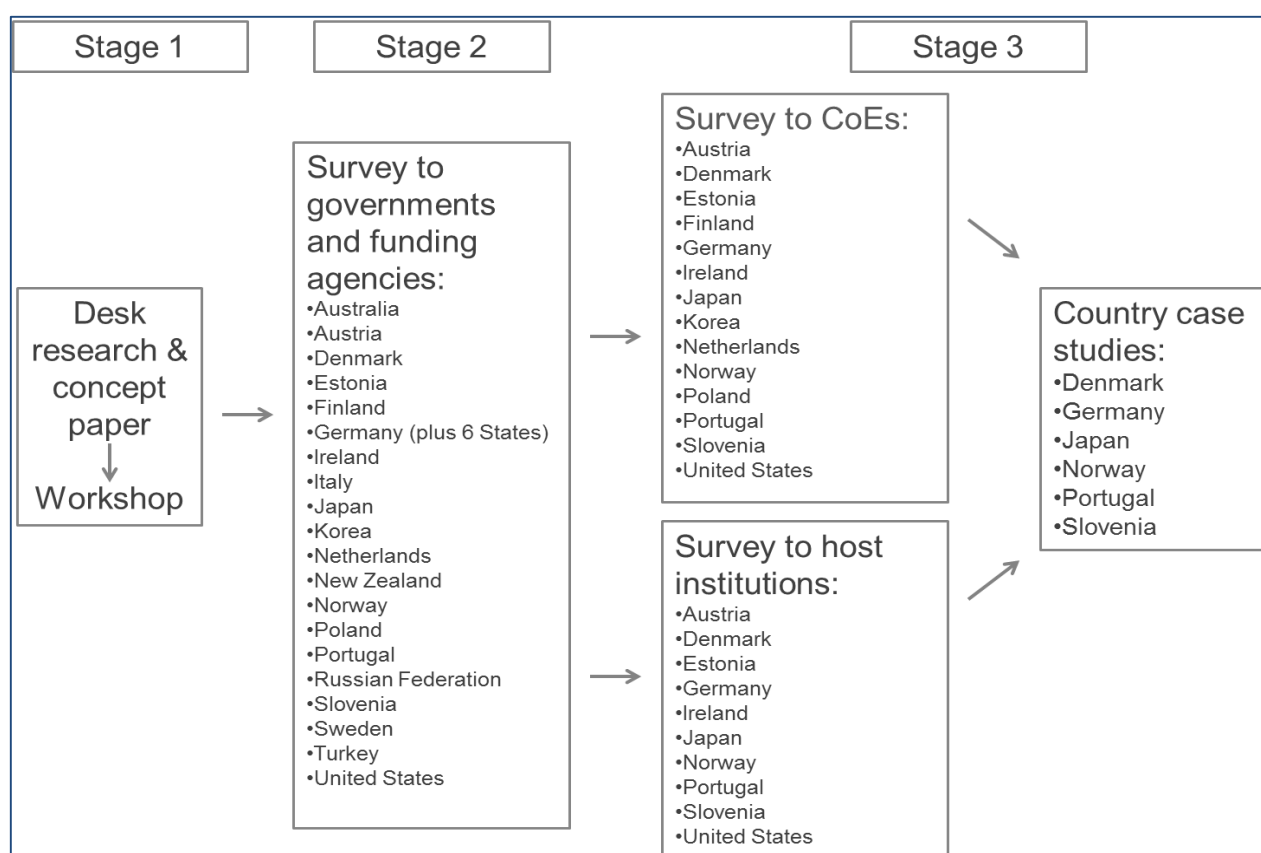
In stage two of the project, a questionnaire to research ministries or departments responsible for administering REI funding in HEIs and PRIs was distributed by country delegates to the RIHR Working Party. Responses came from 20 countries: Australia, Austria, Denmark, Estonia, Finland, Germany (including six German *Länder*), Ireland, Italy, Japan, Korea, the Netherlands, New Zealand, Norway, Poland, Portugal, the

Russian Federation, Slovenia, Sweden, Turkey and the United States. In all, 56 different funding schemes were reported.

Following a preliminary analysis of the responses from the 20 countries, 28 schemes in 18 countries were found to fit the project definition.<sup>7</sup> These countries were invited to take part in stage three of the project, the distribution of an electronic survey<sup>8</sup> to CoEs and host institutions that receive REI funding. Responses were received from 304 centres in 14 countries and 99 host institutions in ten countries.<sup>9</sup>

In addition to the surveys, delegates were invited to conduct a country case study based on a common template. Case studies were provided by Denmark, Germany, Japan, Norway, Portugal and Slovenia. Figure 3.3 provides an overview of the project, as well as country participation.

**Figure 3.3 Project organisation and participation**



Source: OECD (2014b), *Promoting Research Excellence: New Approaches to Funding*, OECD Publishing, Paris, Figure 1.8, <http://dx.doi.org/10.1787/9789264207462-en>.

### **Main messages from the study**

#### *REI funding schemes and excellence in research*

The results of this study highlight that the objectives of REIs are achieved through a variety of specific tools and management practices that aim, among others, at:

- enhancing interdisciplinary research and co-operation
- attracting foreign talent
- training young scholars through doctoral and post-doctoral programmes
- enhancing competition and increasing the visibility of research.

REIs are designed to ensure long-term funding and to provide research centres with more stable resources than other types, such as project funding, in order to carry out ambitious, complex research agendas. This is especially important for those novel lines of research that can lead to significant scientific developments, but are risky and may be difficult to develop through short-term project funding. REIs make it possible to fund such research.

The average funding cycle of the REIs examined in this study is around six years. This relatively long duration creates the stability needed to set up the required research infrastructures and hire talent from both national and international job markets and to establish the conditions required for research co-operation and interdisciplinary research and to achieve ambitious research goals.

#### *REIs as a tool to boost interdisciplinary research, co-operation and attract human capital*

REIs promote excellence in research by providing researchers with better opportunities to work across disciplines than in other research contexts. More than 90% of CoEs analysed in this study perform some type of interdisciplinary research, either within their own research field or cutting across the paradigms of other research fields.

Through interdisciplinary research, knowledge can be reshuffled to develop new scientific paradigms and innovations. CoEs funded by REIs engage in co-operation with other research bodies, either departments of the same host institution or external centres, to produce novel research that draws on different scientific backgrounds.

REIs enhance interdisciplinary research through the implementation of joint research activities, but also by providing resources to attract talent with an interdisciplinary profile or to build interdisciplinary research teams where researchers with different backgrounds are pulled together with the objective of diversifying the research environment.

Unlike some traditional research funding schemes, REIs allow CoEs to have fast and flexible recruitment processes. CoEs' administrative and funding flexibility allow them to offer, in some cases, professorships and tenure track positions with very attractive packages in terms of research facilities. This may enhance their ability to attract talented researchers from abroad and to build high-quality interdisciplinary research teams.

Researcher mobility (both within national boundaries and abroad) is essential for raising scientific discovery and increasing productivity. REIs make it easier for CoEs to attract top scientists and foreign talent through their generally flexible use of funds. Similarly, the "excellence" status and the higher visibility of CoEs' scientific activity provide them with additional leverage to attract outstanding researchers from abroad either for temporary or permanent engagements. The intake of foreign researchers ultimately helps to form the long-run international linkages that foster innovation and knowledge creation at the international level.

Co-operation with the private sector is a fundamental driver of innovation and of its implementation. CoEs funded by REIs can establish new ties with the private sector or, when these ties already exist, strengthen them significantly. Co-operation between CoEs and the private sector leads to novel products and innovations and to their quicker and more efficient absorption by the market and final users.

#### *REIs as a tool to boost competition and high-quality research*

Competition for public financial resources calls for a sound and transparent selection process. At the same time, the broad and systematic enhancement of national research capabilities requires contributions from a variety of scientific disciplines. It is, therefore, of crucial importance that different research areas can participate in the REI selection process on equal terms. REIs usually rely on international panels of experts to judge the quality of research projects and applications for funding with "excellence" as a guiding principle. Concerns, however, have been sometimes raised about a possible bias towards the selection of projects in technical sciences or popular research areas.

REIs help to counterbalance political influence in the selection of research lines through transparent appraisal and selection procedures. This is especially important in view of the high-risk character of blue-sky scientific research and the need to pursue ambitious and innovative research goals.

The allocation of funds and the achievement of research goals is scrutinised through mid-term evaluations or annual progress reports. Evaluations are also used to assess whether a CoE's funding should be continued at the end of the programme.

Fostering competition and structural change can sometimes create friction. Competitive research funding and concentration of resources mean that some groups may be disadvantaged in the short term. Although the overall perception of REIs is generally positive, other evidence suggests that REIs can also create "insider-outsider" conflicts in universities and departments.

#### *The links between hosts and Centres of Excellence and the issue of sustainability*

The application for REI funding relies on the interplay of several actors, but is generally driven internally by the host institution management structure or the researchers in specific departments. When the application for REI funding succeeds, host institutions use a combination of tools and strategies to support the activities of the hosted CoE. They provide, for instance, substantial backing to CoEs through direct financial channels (start-up funding, coverage of running costs) and through the provision of physical infrastructures for research. In some cases, this is a condition for applying for REI funding.

Host institutions and CoEs establish strong links that might go beyond the REI's financing period. In some cases, these lead to the integration of the CoEs into the host structures when the host proposes labour contracts to CoE staff that extend beyond the lifespan of the REI. This long-term integration of CoEs into the host's infrastructures can present financial challenges for the host institutions when the REI programme ends.

The risks associated with establishing costly structures that cannot be easily dissolved at the end of the REI's grant period are usually tackled by raising additional third-party or institutional funds. The visibility of CoEs research activities spills over to their hosts and puts them in a better negotiating position with the main funding body to deal with the long-term sustainability issues associated with the integration of CoEs. Important sources of external funding include competitive project funding and private investment.

If the decision of supporting (and hosting) the research activities of a CoE might have resources implications for the host institution, it also represents a strategic choice given that the increased visibility afforded by hosting a CoE brings more attention from the media, it increases the chances of attracting talented researchers and it offers easier access to funding in research-performance based competitions.

#### *REIs long-term effects on national research systems*

REIs are perceived to have achieved a number of their objectives. They have been able, in most cases, to reshape national research systems by providing the incentives and tools to enhance co-operation and interdisciplinary research and to create the conditions for attracting and developing highly qualified researchers.

REIs can lead to broad changes in the structure of the research system. Some changes can even positively affect institutions that were not selected for funding because they can trigger intensified co-operation between departments and interdisciplinary research and help raise the visibility and international reputation of the host institution.

Training an increasingly skilled workforce is fundamentally important for economic growth and it is likely to have lasting effects on society. REIs provide targeted funding to CoEs in order to enhance doctoral programmes and post-doctoral, thereby attracting and training future generations of scientists that will form the human capital needed to pursue scientific discoveries.



Knowledge and intangible assets can spill over and create positive externalities that last in the long run. The activities of CoEs positively affect those of other departments in the host institution both directly, through the establishment of new networks and co-operative ties and, indirectly, through the overall reputational gains of the host institution.

Impact assessments of large, wide-ranging science and technology funding programmes are of crucial importance for policy makers. Yet comprehensive long-term evaluations of the outputs of REIs (and of how they affect society and welfare) are lacking. The general perception of REIs, as described in the OECD/RIHR surveys, is, nonetheless, very positive.

## **Outlook**

### *The status of REIs in research policy: between one-off initiatives and permanent programmes*

REIs have become a part of many national funding systems (e.g. in the Scandinavian countries and the United States). In others, they will be discontinued after the present cycle (Germany-federal, Ireland) or were recently terminated (Korea, Denmark – Investment Capital for University Research). The answer to the question of whether an REI is better used as a temporary tool to boost the system or whether it should be institutionalised as part of the policy portfolio is not clear. If it is a temporary tool, this raises the issue of maintaining excellence once the funds channelled into the system through the REI have stopped flowing. If it is institutionalised, the question is whether constant competition for excellence status will improve system performance in the long term. Moreover, if new REI centres are selected, others must be dropped, with all the negative effects this may imply. If instead the successful centres remain largely the same across funding cycles, the question becomes whether the expensive process of competition and selection is appropriate, or whether privileged funding for some outstanding institutions or research centres should be organised more simply. Whether or not an REI should be maintained in the long term also depends on the scheme's secondary goals. If, for example, the goal is to trigger structural reforms in HEIs (like Germany's Excellence Initiative to some degree) or to renew and reorganise infrastructure in a strategic manner (as in the Irish Program for Research in Third-Level Institutions [PRTL]), there may be little reason to perpetuate the competition once this process is set in train.

### *Competition and concentration*

Both in the "one-off" and the long-term approach to REI programming, strong concentration of funds may create difficulties in the long run because it may eventually undermine competition. This is particularly true if, as Merton (1968, 1996) argued, the perception of current research performance is systematically distorted by prestige acquired in the past. Applied to REIs, this may imply that institutions that have received excellence status in the past have better chances of maintaining this status, a conjecture that would seem worthy of empirical scrutiny. A tendency to reward institutions that are already strong in terms of research capacity is inherent in the REI selection process, in that an appraisal of past merit is always important in review procedures.<sup>10</sup>

In most REIs, the danger of concentrating resources excessively on a few institutions is mitigated by the decision to fund centres instead of whole institutions. This allows for a broader distribution of funds across institutions and encourages (inter-institutional) collaborative structures. However, the influence of these factors is not obvious. On the one hand, most REIs do not limit how many centres an institution may host, so that concentration of centres, where large amounts of funds are concentrated in one institution, is not precluded *a priori*.<sup>11</sup> On the other hand, collaborative research structures do not *per se* prevent the concentration of prestige and resources in one place (usually the host institution); much depends on how the collaboration is actually set up. It has been suggested (e.g. Kaiser, 2009), that to avoid excessive concentration of funds, the concept of excellence in HEIs should be diversified to include education profiles, knowledge

transfer and regional orientation, so as not to “disqualify” institutions whose structure or profile does not match the specific objectives of research excellence in most REIs.

### *Degrees of selectivity*

Another topic linked to concentration is the degree of selectivity REIs allow. Should they fund a handful of units with very large sums, or should they support more units, possibly with fewer resources, as long as they are all judged excellent by the selection bodies? Experiences from Germany (Pasternack, 2008) and Korea (Gläser and Weingart, 2010) demonstrate that this issue can have serious political implications. In both countries, the national REIs were designed to provide funds to very few world-class institutions. After protests from political and scientific stakeholders, the schemes became more distributive in nature, funding 85 different centres in 37 universities in Germany, and 519 research units in 74 universities in Korea. In Finland, there was a tendency in the opposite direction when an impact evaluation of the Finnish CoE scheme (Hjelt, Ahonen and Pessala, 2009) advised the Academy of Finland to support fewer centres, each with more funds. This was seen as necessary to achieve permanent benefits from the REI. In Denmark, only four UNIK centres were selected for funding, although the ministry had initially planned to fund five to eight units (Gläser and Weingart, 2010:245). The Japan Society for the Promotion of Science sets a strong focus on selectivity through its WPI scheme, which funds no more than six large institutes for top-level research. However, in parallel, its Global COE scheme is much less selective, with less funding per centre. It supports 140 centres at 77 universities with a focus on researcher training. In addition, the very fact of selectivity can influence the international visibility of successful research units. Whereas the monetary resources are decisive for building “critical mass”, the act of awarding a relatively rare accolade (that of being excellent) ensures gains in reputation and thus credibility and access to resources (Weingart, 2010).<sup>12</sup>

### *One REI or many?*

The survey results show that some countries organise one REI, whereas others have several. In the first case, the REI is usually open to all sorts of research (with a tendency to favour basic research), whereas in the second, each REI has a different focus. Disregarding Germany, with its federal structure, Norway and Sweden have the most REIs, and the purpose of each scheme is clear. The Norwegian CoE scheme and the Swedish Linnaeus Grants are typical examples of an open competition for excellent basic research with a strategic impact on the host institution; the Norwegian Centres for Research-based Innovation (CRI) scheme and the Swedish Berzelii Centres emphasise linkages between academic and industrial partners; and the Norwegian and Swedish Strategic Research Areas (SRA) schemes are about funding national priority areas. In other countries, these three components are often intertwined within a single scheme. Which of the two approaches is more effective cannot be deduced from the data analysed in this report, and it certainly depends on each country’s research funding structures. It may be assumed that one comprehensive initiative is better able to provide an effective boost to the research system (this was observable in Germany), whereas a multitude of specialised REIs can address political needs in a more targeted way.

### *REIs, individual funding, and institutional core funding*

REIs are described in this report as being located between institutional core funding and traditional project funding. Many REIs certainly build on experience with other forms of project funding, adding aspects such as the requirement to concentrate resources and to build on strategic liaisons with the host institutions. Traditional funding of individual researchers or small teams has the advantage of being less susceptible to excessive concentration of resources, and, depending on how the allocation of funds is arranged, that it may not run the risk of funding those that are already most successful. Indeed, Aksnes et al. (2012:13) report that in Norway and Sweden, this small-scale funding is being increased, partly as a consequence of the criticism levelled against REIs. Italy had a scheme called Centres of Excellence in two cycles from 2000 to 2006; since then, excellence funding through the ministry has focused less on structures and more on schemes in which

the development of individual talent and research in areas of national interest are paramount. In a study of the Korean BK 21 scheme, Seong et al. (2008) propose directing excellence funds not to whole departments, but to “smaller groups or individual projects to increase competition both between and within universities” (Seong et al., 2008:202).

In the case of the Swedish SRA, there is a move in the opposite direction, away from project funding and towards increased institutional core funding. Institutions will receive REI funds in addition to their core funding if their REI-funded activities are evaluated positively after five years. Elsewhere, however, increasing institutional core funding as an alternative to competitive measures does not appear to be discussed. This is understandable in view of the priority accorded to competitive forms of governance in the new public management approach (Wespel, Orr and Jaeger 2012). However, as Salmi (2013) notes, becoming a world-class research university is “a marathon, not a sprint”. Salmi observes that most HEIs located at the top of global university rankings have taken a long time to get where they are now: “Developing a strong culture of excellence, especially in research, is the result of incremental progress and consolidation over several decades, sometimes centuries.” From this perspective, REI funding periods of five or even ten years do not seem overly long. Altbach (2011:25) argues that internationally competitive research universities are expensive institutions that must have adequate and sustained budgets and cannot succeed if funding fluctuates severely over time.

As regards individual funding, REI funding and institutional core funding, the question does not seem to be which one is better suited to supporting high-quality research, but rather how all three should be balanced to optimal effect. There does not seem to be a consensus among countries on the correct balance, nor is it to be expected in view of the many factors that enter the equation.

## Survey results on funding for research excellence initiatives

This section presents the results of three surveys to:

- Research ministries or departments responsible for administering research excellence initiative (REI) funding in higher education institutions (HEIs) and public research institutions (PRIs). In all, 56 different funding schemes were reported from 20 countries.
- Centres of Excellence (CoEs) that receive REI funding. Responses were received from 304 centres in 14 countries. The results of the survey of CoEs describe their characteristics, including funding schemes and cycles; mechanisms used to foster networks and interdisciplinary research; research impact; and perceived value of REIs.
- Host institutions that receive REI funding. Responses were received from 99 host institutions in ten countries. The results describe the characteristics of the institutions that host CoEs, the funding schemes and the perceived effects of REIs on research activities.

### ***Research excellence initiatives and government ministries***

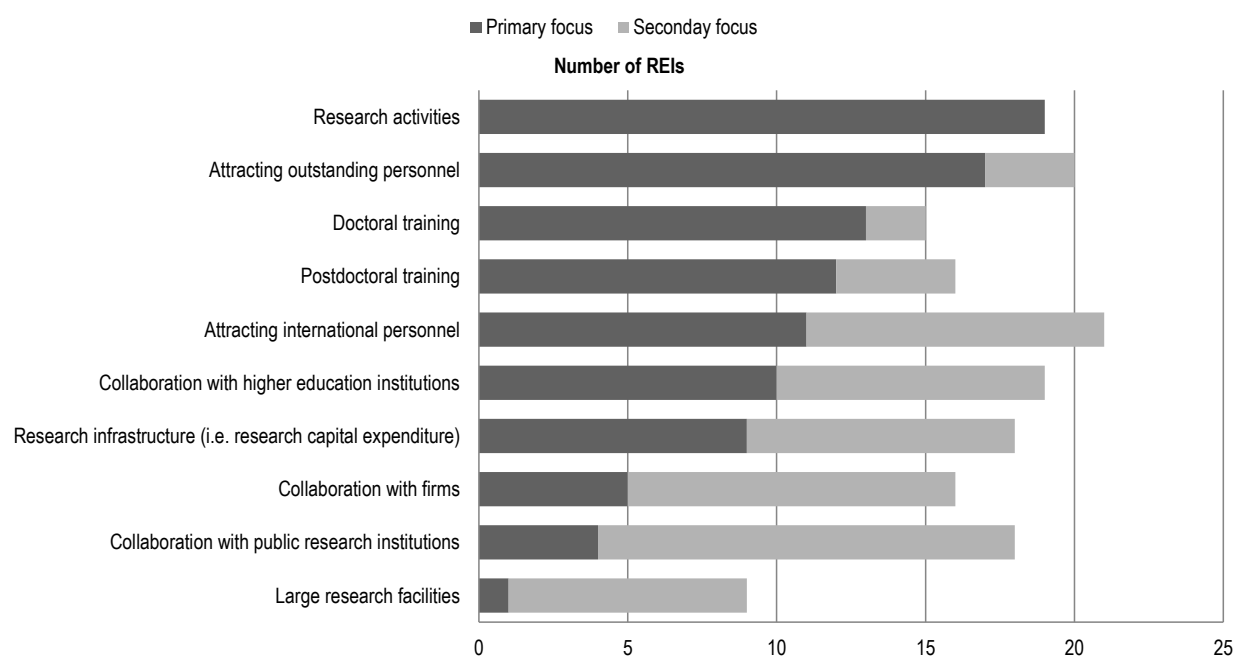
The results of the survey to government agencies responsible for administering research excellence initiative (REI) funding for higher education and public research institutions show that in OECD countries REIs are now widely used as a funding instrument. Two-thirds of OECD countries now operate such schemes. They are a special type of government programme. Their programmatic nature is defined by their objective: REIs aim to raise the international reputation of domestic research institutions. The general strategy to reach this goal is to fund large, stable and well-equipped structures that cross established institutional, disciplinary, sectoral and national borders.

The structures are established through a competitive, science-driven selection process in which excellence is the main criterion. Host and partner institutions are challenged to define and adjust their profiles in line with their opportunities to benefit from REI funding. In addition to funding research activities, REIs support a host

of research-related measures, such as the improvement or extension of physical infrastructure, the recruitment of outstanding researchers from abroad, and structured training of early-stage researchers.

The precise focus of REIs often reflects the political priorities defined in national innovation strategies. Ministries and responsible public funding bodies view REIs positively. The objectives of these programmes are largely reported to have been achieved. Among other things, new lines of research have opened up, new patterns of interdisciplinary research have been established, the development of human capital has been strengthened, and concentration processes have generally led to enhanced research capacities. In some countries, these results are supported by systematic evaluations of research centres funded by REIs.

**Figure 3.4 Activities eligible for funding in REIs**



Source: OECD (2014b), *Promoting Research Excellence: New Approaches to Funding*, OECD Publishing, Paris, Figure 2.4, <http://dx.doi.org/10.1787/9789264207462-en>; OECD/RIHR questionnaire to government ministries, Q3.2: What types of activities are supported by REIs? (multiple responses possible). Ranked by activities with priority focus. Multiple primary and secondary focuses could be specified for each REI.

**Table 3.1 Fields of science eligible for funding in REIs**

Field of science	Number of REIs in which eligible
Natural sciences	26
Engineering and technology	26
Medical sciences	24
Agricultural sciences	19
Social sciences	22
Humanities	18

Source: OECD/RIHR questionnaire to government ministries, Q3.1: What fields of science and technology are covered by the REIs? Multiple responses were possible for each REI.

**Table 3.2 Number of centres funded by REIs and selection rates in most recent funding cycle**

Country	Name of REI	Number of research units/centres funded in 2011	Number received (r)	Number selected (s)	Success rate (s/r)
Australia	ARC Centres of Excellence	25 centres	111	13	12%
Austria	COMET Competence Centres for Excellent Technologies	5 K2-centres, 16 K1-centres, 25 K-projects	93	46	49%
Denmark	UNIK	4 initiatives	28	4	14%
Estonia	Development of Centres of Excellence in Research	12 centres	17	5	29%
Finland	CoE	41 centres [1]	135	15	11%
Germany	Excellence Initiative	39 graduate schools, 37 clusters of excellence, 9 institutional strategies	227	99	44%
Germany-Hesse	LOEWE – State Initiative for the Development of Scientific and Economic Excellence	21 focuses <sup>1</sup> and 8 centres	23	5	22%
Germany-Saxony-Anhalt	Networks of scientific excellence	6 centres	6	6	100%
Germany-Thuringia	Thuringian Agenda for Supporting Excellent Research “ProExcellence”	-	70	27	39%
Ireland	Programme for Research in Third-Level Institutions (PRTLII)	44 programmes	56	32	57%
Ireland	Centres for Science Engineering and Technology (CSET)	9 centres	-	-	-
Japan	Global COE	140 centres	145	9	6%
Japan	World Premier International Research Centre Initiative (WPI)	6 centres	9	1	11%
Korea	Brain Korea 21 Programme (BK21)	517 units	969	569	59%
Korea	World Class University Programme (WCU)	119 units	621	162	26%
Netherlands	Bonus Incentive Scheme (BIS), from 2013 continued as "Gravitation"	6 top research schools	34	6	18%
Norway	Norwegian Centres of Excellence (SFF)	21 centres	98	8	8%
Norway	Centres for Research-based Innovation (SFI)	21 centres	86	7	8%
Norway	Centres for environment-friendly energy research (FME)	11 centres	8	3	38%
Poland	Leading National Scientific Centres (KNOW)		25	6	27%
Portugal	Multi-year Funding Programme (Excellent Centres and Associate Laboratories)	58 research units, 26 associate laboratories	378	55	15%
Russian Federation	National Research University initiative	29 universities	32	15	47%
Slovenia	Centres of Excellence (2009-13)	8 centres	61	8	13%
Sweden	Strategic Research Area (SRA)	43 milieus.	112	43	38%
Sweden	Linnaeus grant (LG)	40 centres.	106	20	19%
Sweden	Berzelii centres	4 centres	22	4	18%
United States	Science and Technology Centres (STC)	17 centres	45	5	11%

Source: OECD (2014b), *Promoting Research Excellence: New Approaches to Funding*, OECD Publishing, Paris, Table 2.4, <http://dx.doi.org/10.1787/9789264207462-en> Table 2.4.

CHAPTER 3 – PROMOTING RESEARCH EXCELLENCE: NEW APPROACHES TO FUNDING

**Table 3.3 Financial allocation to REI funding cycles and REI-funded research units**

Country	Name of REI	Time period of cycle	Funding of cycle		Maximum funding for individual research unit/centre per year		National currency	Maximum funding period for individual research unit/centre
			USD PPP millions	National currency millions	USD PPP millions	National currency millions		
Australia	ARC Centres of Excellence	2011 - 17	171.4	255.9	2.68	4	Australian Dollar (AUD)	7 years
Austria	COMET	2008 - 19	903.7	765	2.72	2.3	Euro (EUR)	K1, 7 years K2, 10 years
Austria					8.86	7.5		
Denmark	UNIK	2009 - 13	61.1	480	3.05	24	Danish Kroner (DKK)	5 years
Estonia	Development of Centres of Excellence	2008 - 15	84.6	45.8	2.03	1.1	Euro (EUR)	7 years
Finland	CoE	2008 - 13	60	56.3	Based on individual negotiations	Based on individual negotiations	Euro (EUR)	6 years
Germany	Excellence Initiative (national)	2005 - 17	5 726.4	4 600.0	17.93	14.4	Euro (EUR)	5 years
Germany	LOEWE (Hesse)	2009 - 13	510.4	410	9.96	8	Euro (EUR)	6 years
Germany	Networks of scientific excellence (Saxony-Anhalt)	2006 - 10	124.5	100	5.1	4.1	Euro (EUR)	5 years
Germany		2012	23.2	18.6				
Germany		2013	24	20.3				
Germany		2014-15	12.4	10				
Germany	ProExcellence (Thuringia)	2008 - 13	62.6	50.3	1.24	1	Euro (EUR)	5 years
Ireland	PRTL	2007 - 13	311.7	260.7	6.52	5.5	Euro (EUR)	6 years
Ireland		2011 - 17	427.6	357.7	15.1	12.6		
Ireland	CSET	2003 - 12	294.1	246	1.2	1	Euro (EUR)	10 years
Japan	GCOE	2007 - 12	218	23700	1.56	169.29	Japanese Yen (JPY)	5 years
Japan	WPI	2007 - 12	386	42 000.0	12.87	1 400.0	Japanese Yen (JPY)	
								15 years
Korea	BK21	2006 - 12	2 156.0	1 796 000.0	7.8	6 496.9	Korean Won (KRW)	7 years
Korea	WCU	2008 - 13	990.4	825 000.0	7.2	6 000.0	Korean Won (KRW)	5 years
Netherlands	BIS	2009 - 13	148.3	125	No maximum set	No maximum set	Euro (EUR)	No maximum set

CHAPTER 3 – PROMOTING RESEARCH EXCELLENCE: NEW APPROACHES TO FUNDING

Country	Name of REI	Time period of cycle	Funding of cycle		Maximum funding for individual research unit/centre per year		National currency	Maximum funding period for individual research unit/centre
			USD PPP millions	National currency millions	USD PPP millions	National currency millions		
New Zealand	CoRES	2008 - 2014	140.4*	199	Based on individual negotiation	7.8	New Zealand Dollar (NZD)	5/6 years
Norway	CoE (SFF)	2003 - 12	170.4	1 550.0	2.2	20	Norwegian Kroner (NOK)	10 years
		2007 - 16	88	800				
Norway	CRI (SFI)	2006 - 15	123.1	1 120.0	1.1	10	Norwegian Kroner (NOK)	8 years
		2011 - 19	52.8	480				
Norway	CEER (FME)	2009 - 18	132.8	1 208.0	2.2	20	Norwegian Kroner (NOK)	8 years
Poland	KNOW	2012 - 17	32	60	5.33	10	Polish Zloty (PLN)	5 years
Portugal	Multi-year Funding Programme	2008 - 12	260.9	165.2	1.58	1	Euro (EUR)	5 years
Russian Federation	NRU	2009 - 14	5 729.6	99 800.0	10.33	180	Russian Rouble (RUB)	10 years
Slovenia	Centres of Excellence	2009 - 13	120.3	77.5	3.88	2.5	Euro (EUR)	4 years
Sweden	SRA	2010 - 14	589.8	5 270.0	No upper limit	No upper limit	Swedish Krona (SEK)	5 years
Sweden	Linnaeus Grants	2006 - 16	156.7	1 400.0	1.12	10	Swedish Krona (SEK)	10 years
Sweden		2008 - 18	156.7	1 400.0				
Sweden	Berzelii Centres	2005 - 14	19	170	1.12	10	Swedish Krona (SEK)	10 years
United States	STC	2005 - 12	480	480	5	5	-	5 years

\* An IMHE Governing Board member provided updated data on 23 November 2014: National currency: 199 million NZD. Maximum funding for individual unit per year is based on individual negotiation (on average 5 million NZD) and maximum funding period for individual research unit is 5/6 years.

Source: OECD (2014b), *Promoting Research Excellence: New Approaches to Funding*, OECD Publishing, Paris, Table A2.2, <http://dx.doi.org/10.1787/9789264207462-en>; OECD/RIHR questionnaire to government ministries, year of reference 2011, questions 4.1, 4.2, 8.2, authors' calculations based on OECD data for USD PPP 2011.

### **Research excellence initiatives and Centres of Excellence**

The exploratory analysis carried out on the basis of the survey on Centres of Excellence shows that CoEs' research differs from that undertaken in other institutional settings.

Replies stressed the higher quality of the research, which must meet international standards of excellence. The ability to build interdisciplinary networks is also an important characteristic of CoEs. The results show that the

means employed are mostly joint research activities and the creation of large research teams with scientific personnel from a variety of backgrounds and disciplines.

Research is the most important activity to which REIs' funds are allocated. Postdoctoral and doctoral programmes are also important activities carried out by CoEs. Other activities supported include training, public awareness of science, mobility programmes, boosting links with industry and capacity building in developing countries.

CoEs report an average annual budget of USD 2.6 million a year in PPP and employ research teams with around 84 researchers on average. The data show that CoEs are usually young (7 years old on average) and that their existence is closely linked to the REI that supports their research objectives and provides the funding required to achieve excellence in research.

The analysis systematically compares CoEs endowed with large research budgets (above USD 1 million a year) with those of smaller size (whose annual funding is less than USD 1 million). CoEsLB (large budget) receive larger amounts of funding for research (around USD 3.2 million a year), whereas CoEsSB (small budget) seem to benefit more from the support of host institutions, especially through the use of the host's physical infrastructure or partial relief from administrative tasks or teaching obligations.

The CoEs for which information was received focus mainly on technical sciences; less than one-quarter of respondents had social sciences and humanities as their primary research field. The results highlight a marked difference in the average funding: CoEs in the technical sciences receive substantially larger research budgets than CoEs in the social sciences and humanities.

The results show marked differences in the objectives and strategies of CoEs with large and small budgets. CoEsLB engage significantly in co-operation with other research bodies, either departments of the same host institution or external centres, while CoEsSB, probably owing to the limitations imposed by smaller budgets, do so to a lesser extent.

Overall, CoEs have substantial links with the private sector; these are particularly strong for CoEsLB that focus on technical sciences. CoEs also put a considerable amount of effort into trying to attract and hire international researchers and thus create networks of excellence. Larger CoEs and those that focus on technical sciences employ the largest number of foreign researchers in their centres.

CoE researchers also have higher status than researchers affiliated only with the host institution. Researchers associated with a CoE have easier access to funds and career opportunities (e.g. tenure track positions), as well as privileged access to the host institution's physical infrastructures. In return, the host institution benefits from the establishment of a CoE, which raises the host's overall visibility and considerably strengthens its identity.

The management structure of the CoE relies on both top-down and bottom-up decision making strategies. The latter are more frequent in CoEsSB; being relatively smaller than CoEsLB, they are more able to involve all the bodies representing various members of the CoE.

REIs that support CoEs provide longer funding cycles than other forms of funding in order to achieve ambitious research goals. CoEs are generally able to manage research funds with some degree of freedom within the constraints imposed by the funding agency. Larger CoEs with longer funding cycles are, on average, granted more flexibility in the use of research funds.

CoEs are usually accountable to an external panel of reviewers who supervise their performance periodically. A smaller (while still consistent) fraction use metrics-based indicators to assess their overall performance. This latter method is more common in the technical sciences but less frequent in the social sciences and humanities owing to the measurement problems associated with building suitable output indicators in this area.



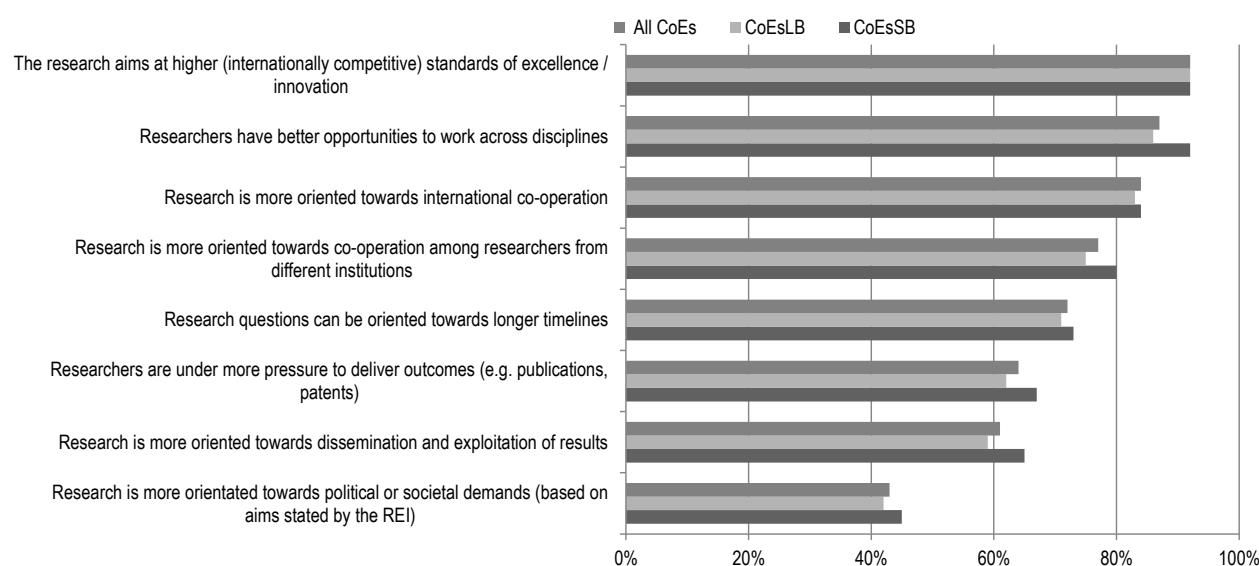
Overall, CoEs participating in the OECD/RIHR Survey on Centres of Excellence had a very positive view of the strategic importance of REIs, notably as regards their role in facilitating the opening of new lines of research and innovation that would not otherwise be pursued and thus in increasing the diversity of the research they undertake. Similarly, host institutions are likely to benefit from the research carried out by CoEs in terms of increased international visibility.

**Table 3.4 Distribution of CoEs across participating OECD countries**

Country	Number of CoEs	%	Number CoEsLB	%	Number CoEsSB	%
Austria	14	5.4	13	7.0		
Denmark	4	1.6	4	2.2		
Estonia	3	1.2	1	0.5		
Finland	3	1.2	1	0.5	2	4.1
Germany	39	15.1	34	18.4	1	2.0
Ireland	8	3.1	3	1.6	2	4.1
Japan	108	41.9	87	47.0	19	38.8
Korea	1	0.4	1	0.5		
Netherlands	2	0.8	2	1.1		
Norway	26	10.1	17	9.2	6	12.2
Poland	1	0.4	1	0.5		
Portugal	39	15.1	11	6.0	19	38.8
Slovenia	5	1.9	5	2.7		
United States	5	1.9	5	2.7		
Total	258	100.0	185	100.0	49	100.0

Source: OECD (2014b), *Promoting Research Excellence: New Approaches to Funding*, OECD Publishing, Paris, Table 3.1, <http://dx.doi.org/10.1787/9789264207462-en>; OECD/RIHR Survey to Centres of Excellence, 2012.

**Figure 3.5 Specificity of CoE's research**



Source: OECD (2014b), *Promoting Research Excellence: New Approaches to Funding*, OECD Publishing, Paris, Figure 3.1, <http://dx.doi.org/10.1787/9789264207462-en>; OECD/RIHR Survey to Centres of Excellence, 2012.

**Table 3.5 CoEs' funding per year (2011 or nearest available year)**

Funding per year	Average USD (PPP)	Minimum USD (PPP)	Maximum USD (PPP)	Median USD (PPP)
All CoEs	2 636 691	81 139	26 000 000	1 840 463
CoEs LB	3 210 744	1 021 943	26 000 000	2 199 064
CoEs SB	469 348	81 139	957 260	398 483

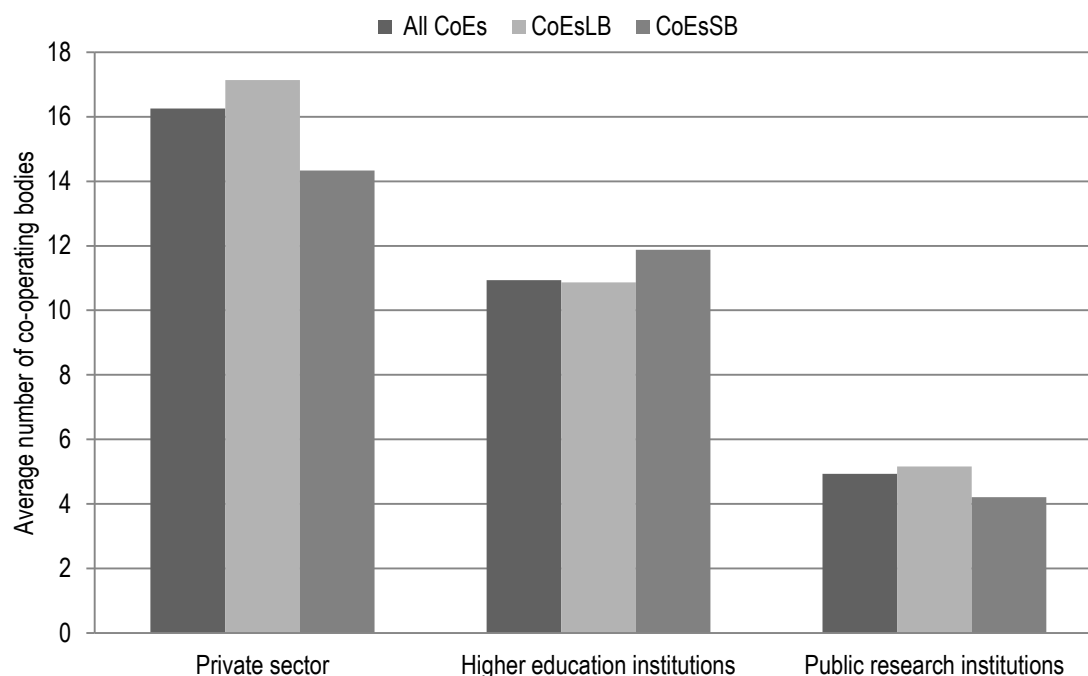
Source: OECD (2014b), *Promoting Research Excellence: New Approaches to Funding*, OECD Publishing, Paris, Table 3.2, <http://dx.doi.org/10.1787/9789264207462-en>; OECD/RIHR Survey to Centres of Excellence, 2012.

**Table 3.6 Funding per year and funding cycle length (2011 or latest available year)**

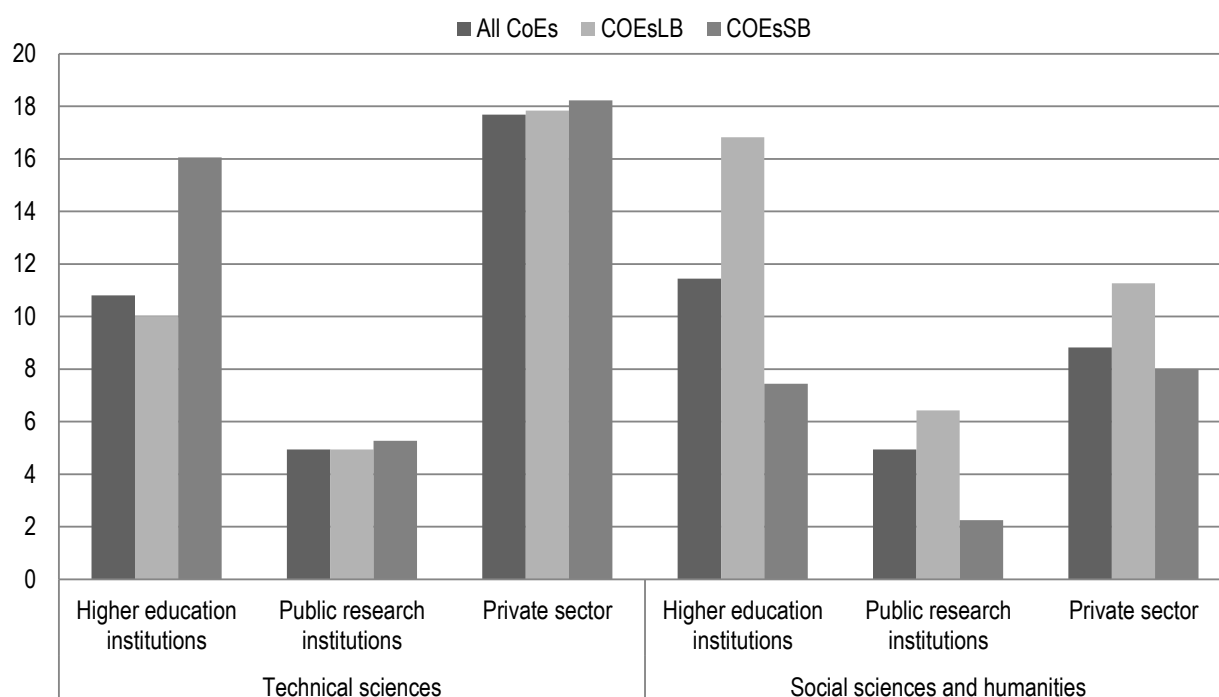
Funding per year and cycle length				
	Average USD (PPP)	Min USD (PPP)	Max USD (PPP)	Median USD (PPP)
CoEs with funding cycle of less than or equal to 6 years	2364623	81139	26000000	1685347
CoEs with funding cycle of more than 6 years	3674746	274882	14000000	2332610

Note: Shorter and longer funding cycles are defined as those above/below the CoE sample average of 6 years.

Source: OECD (2014b), *Promoting Research Excellence: New Approaches to Funding*, OECD Publishing, Paris, Table 3.4, <http://dx.doi.org/10.1787/9789264207462-en>; OECD/RIHR Survey to Centres of Excellence, 2012.

**Figure 3.6 Average number of co-operating bodies by type of partner**

Source: OECD (2014b), *Promoting Research Excellence: New Approaches to Funding*, OECD Publishing, Paris, Figure 3.6, <http://dx.doi.org/10.1787/9789264207462-en>; OECD/RIHR Survey to Centres of Excellence, 2012.

**Figure 3.7 Average number of co-operating bodies by research field**

Source: OECD (2014b), *Promoting Research Excellence: New Approaches to Funding*, OECD Publishing, Paris, Figure 3.7, <http://dx.doi.org/10.1787/9789264207462-en>; OECD/RIHR Survey to Centres of Excellence, 2012.

### **Research excellence initiatives and host institutions (HIs)**

The analysis on the Research Excellence Initiatives and Host Institutions describe the basic characteristics of 75 host institutions in ten OECD countries that hosted at least one centre of excellence funded through REIs. The exploratory analysis carried out on the basis of this sample shows that HIs have research budgets of approximately USD 222 million in PPP on average, and host almost three different CoEs at the same time. The total number of CoE-affiliated researchers at the HI is around 157 (FTE) and individual CoEs employ on average 42.5 researchers.

The HIs' main means of supporting and financing CoEs' research is to provide equipment and infrastructure free of charge and to cover CoE running costs. In some cases HIs also provide start-up funding and contribute directly to the CoEs' total overhead costs. In some cases, the REI obliges the HIs to finance the hosted CoEs. Interestingly, almost 50% of HIs provide additional funds to the CoEs on a voluntary basis in order to enhance the performance of the hosted CoEs. The data show that HIs do not view the activity of the CoEs funded through an REI as a one-off experience but as a fundamental part of the HI's overall research strategy.

Some 61% of the HIs stated that they planned to develop strategies to integrate the CoE structure more formally into the HI once the REI funding expires. This is one of the most important exit strategies used by HIs to ensure that CoEs continue their research activity. Similarly, almost 50% plan to develop arrangements to renew CoE researchers whose contract depends on the REI funds once these expire. HIs with a larger number of CoEs, however, are less likely to integrate all CoEs into their existing structures given the administrative and financial burdens that this would imply.

The importance of the research carried out by the CoEs at the HIs is also revealed in the indirect ways HIs support CoEs' researchers and their activities. In 53% of HIs, CoE researchers can be relieved from administrative duties and, in almost 41%, from teaching obligations, so that they are able to allocate more

time to CoE research. This is more frequent in the case of CoE researchers employed within the structures of HIs hosting three or more CoEs.

The substantial support provided by HIs to CoEs also has some clear strategic financial objectives. Hosting a CoE is perceived as a way of raising additional funds in the future. Some 71% of HIs believe that hosting a CoE will make obtaining additional REI funds easier in the future. Almost 94% perceive the support provided to CoEs as conducive to easier procurement of third-party funds owing to the higher research status conferred by the CoEs' research activity.

HIs differ substantially in terms of the share of total research budget allocated to the research of their hosted CoEs. On average, they allocate up to 9% of their total research budget to activities carried out by CoEs. However, some HIs allocate more than this (up to 68%). HIs that allocate larger shares of their budget to CoEs' research activities see their support as a means of obtaining additional REI and third-party funding, while others, for which the CoEs' activities represent a smaller fraction of their total research activities, rely more on traditional funding.

HIs show very strong appreciation of the REI funding schemes and of the research activity of the hosted CoEs. For almost 89%, the REI is perceived as having a strong impact on the development of new kinds of research activities that, in most cases, would otherwise have been difficult to finance. Moreover, 69% of the HIs declared that the positive effects of the research carried out by CoEs were not confined to the departments that received the funds but spilled over to departments not directly involved in the research. Other positive effects include more attention from the media and more possibilities of attracting top-level researchers and better-qualified students for their research programmes.

**Table 3.7 Distribution of HIs across participating OECD countries**

Country	Number of HIs	% of sample
Austria	5	6.7
Denmark	3	4.0
Estonia	2	2.7
Germany	14	18.7
Ireland	5	6.7
Japan	26	34.7
Norway	9	12.0
Portugal	4	5.3
Slovenia	4	5.3
United States	3	4.0
Total	75	100

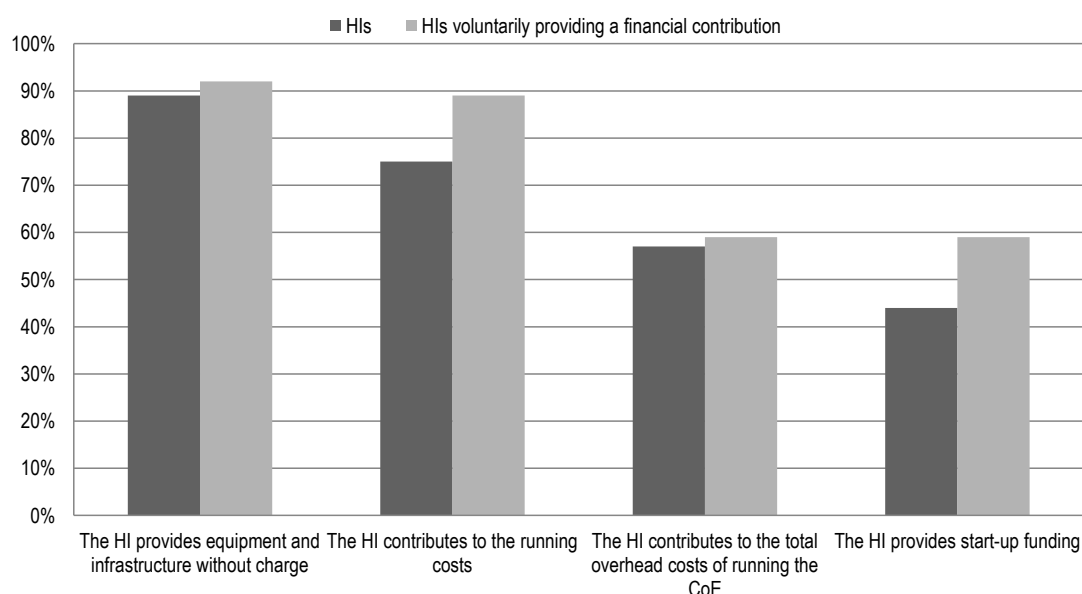
Source: OECD (2014b), *Promoting Research Excellence: New Approaches to Funding*, OECD Publishing, Paris, Table 4.1, <http://dx.doi.org/10.1787/9789264207462-en>; OECD/RIHR Survey to Host Institutions, 2012.

**Table 3.8 Characteristics of HIs and CoEs hosted (2011 or latest available year)**

Variable	Number of observations (HIs)	Mean	Minimum	Maximum
HI research budget (USD million PPP)	64	221.7	1.2	1 333.3
Number of CoEs hosted by each HI	75	2.6	1.0	11.0
Total staff employed (FTE) by HI in all hosted CoEs	72	157.0	4.0	1363.0
Average staff (FTE) per CoE	72	42.5	3.9	181.0
Average funds per CoE (USD million PPP)	75	3.6	1.0	12.4

Source: OECD (2014b), *Promoting Research Excellence: New Approaches to Funding*, OECD Publishing, Paris, Table 4.2, <http://dx.doi.org/10.1787/9789264207462-en>; OECD/RIHR Survey to Host Institutions, 2012.

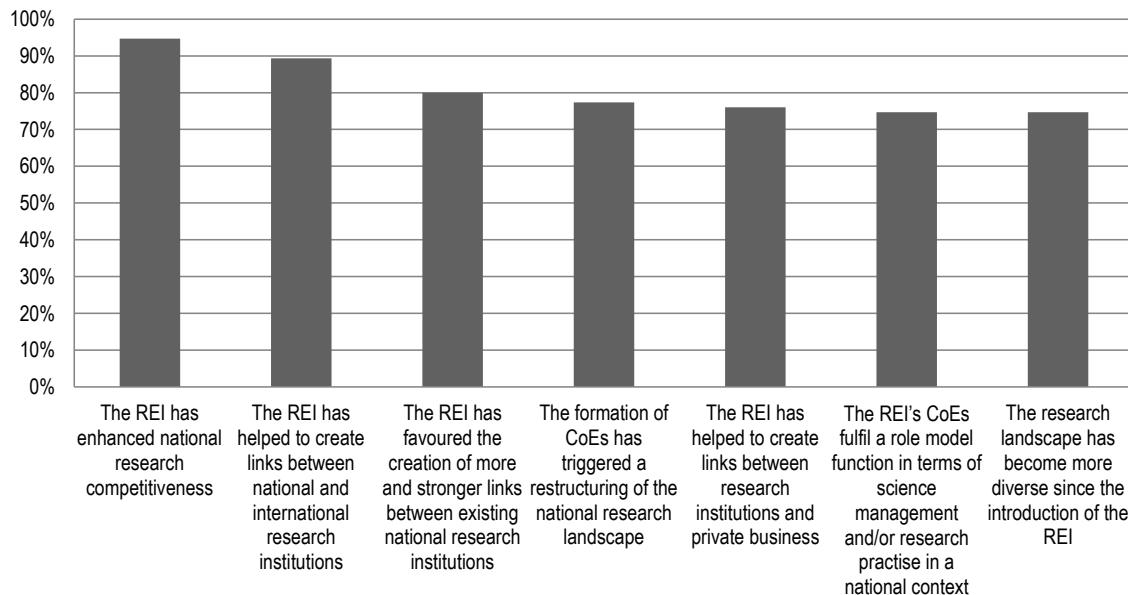
**Figure 3.8 HIs voluntarily providing financial contributions represent 59% of the total HI sample**



Note: HIs voluntarily providing financial contributions represent 49% of the total HI sample.

Source: OECD (2014b), *Promoting Research Excellence: New Approaches to Funding*, OECD Publishing, Paris, Figure 4.6, <http://dx.doi.org/10.1787/9789264207462-en>; OECD/RIHR Survey to Host Institutions, 2012.

**Figure 3.9 REI's lasting effects on the national research system**



Source: OECD (2014), *Promoting Research Excellence: New Approaches to Funding*, OECD Publishing, Paris, Figure 4.12, <http://dx.doi.org/10.1787/9789264207462-en>; OECD/RIHR Survey to Host Institutions, 2012.

## Conclusion

This study is the result of efforts to obtain data and evidence on how governments steer and fund public research in higher education and public research institutions through REIs. It draws on the results of three

surveys. The first, to government agencies responsible for administering REI funding for higher education and public research institutions, aimed to define the characteristics that differentiate REIs from other modes of support. In two subsequent surveys, one asked CoEs funded by REIs about their management structure, funding schemes, measurement of impact and sustainability, co-operation with the public and private sectors, and perceived long-term effects of their research. The second addressed the institutions hosting the CoEs about their administrative arrangements and financial and research objectives and about the impact of the REI-funded CoEs on these institutions. These responses were supplemented by six case studies.

The information collected can help inform discussions on future government policy directions by providing information on how REIs work and on the functioning and characteristics of institutions that host CoEs funded by REIs. The survey responses are not representative of all REIs in OECD countries, but these exploratory findings show some of the benefits to be gained through REIs and note some pitfalls to be avoided.

*REIs provide CoEs with relatively long-term resources for carrying out ambitious, complex research agendas.* This is particularly important for interdisciplinary and co-operative research and for high-impact, high-risk research (e.g. basic research). Their focus can be wide or narrow. Some countries operate a single excellence initiative while others operate several. The former may provide a boost to the broad research system, while the latter can target specific topics (including challenges such as climate change).

*REIs can lead to broad changes in the structure of the research system* by pushing research centres and institutions to continually prove and develop their strengths, show their ability to build interdisciplinary networks, create links with the private sector and abroad, and generally enhance a country's overall research capacity.

*REIs allow for greater flexibility than other forms of funding, notably in terms of managing resources and hiring researchers.* CoEs' freedom for managing research funds is seen as crucial. They usually have faster and more flexible recruitment processes. In some cases, they offer professorships and tenure track positions with attractive packages in terms of research facilities. This may enhance their ability to attract talented researchers. However, strict financial rules, such as those that prohibit carrying funds over from year to year, may lead to inefficient use of the available resources.

Researcher mobility (both within national boundaries and abroad) is essential for scientific discovery and increasing productivity. REIs make it easier for CoEs to attract top scientists and foreign talent who in turn gain status and further career opportunities from their association with the CoE. The intake of foreign researchers also ultimately helps to form the long-run international linkages that foster innovation and knowledge creation at the international level.

*An increasingly skilled workforce is fundamental for economic growth and is likely to have lasting effects on society.* REI funding allows CoEs to enhance post-doctoral and doctoral programmes and training, thereby attracting and training future generations of leading scientists.

*REIs concentrate exceptional researchers in well-equipped working environments* to open up new lines of research, establish new patterns of interdisciplinary research, strengthen human capital, and generally enhance research capacities. However, fostering competition and structural change can create frictions. Competitive research funding and concentration of resources can mean that some groups are disadvantaged in the short term while others reinforce their position. Competition for scarce financial resources therefore requires a sound and transparent selection process, usually involving international panels of experts to judge the quality of applications. This can also counter political influence on the selection of research lines.

*REIs raise the international reputation of domestic research institutions.* Hosting a CoE increases an institution's visibility and helps it attract students, researchers and additional funding (further REIs, third-party, institutional funds). However, it also involves considerable administrative and overhead costs. The strong links that REI funded CoEs generally establish with their host institution may lead to the integration of the CoEs into the host structures when the REI programme ends. This may present financial challenges for the host.

*The activities of CoEs can spill over and create positive externalities* that positively affect those of other departments in the host institution both directly, through the establishment of new networks and co-operative ties, and indirectly, through the overall reputational gains of the host institution. There is, however, some potential for CoEs to create divisions within university departments or research institutions.

*The effects of concentrating research in excellent and large institutions deserve close inspection.* Highly concentrated funding may undermine the competitive element of REIs in the long run by providing additional funds to well-established institutions. Funding centres rather than institutions may mitigate concentration. Ministries must also decide on selectivity: whether funding distributed through REIs should go to a small number of centres or be spread over a wider number.

*Third-party funding is important to the success of many REIs.* The increased visibility afforded by hosting a CoE can lead to a virtuous funding circle: hosts can integrate CoEs within their structures and CoEs can raise additional funds to extend their research activities. Important sources of external funding include competitive project funding and private investment.

*Responsible public funding bodies, CoEs and hosts view REIs positively.* The objectives of these programmes are largely reported to have been achieved. New lines of research have opened up, new co-operative patterns of interdisciplinary research have been established, development of human capital has been strengthened, and concentration processes have generally led to enhanced research capacities. However, systematic impact assessments to quantify these positive effects on research systems, society and welfare are so far lacking.

## Annex: A Selection of practical case studies on fostering research excellence from members of the OECD Higher Education Programme (IMHE)<sup>13</sup>

### Australia – University of Newcastle

<p><b>Organisation</b> <i>Please check one box.</i></p>	<p><input checked="" type="checkbox"/> Higher education institution  <input type="checkbox"/> Government ministry or agency  <input type="checkbox"/> Other stakeholder – please specify:  Name of organisation: University of Newcastle  Country: Australia</p> <p><i>If an institution:</i>  Size of student body: 39 131  Main emphasis of institution: <input checked="" type="checkbox"/> Research intensive <input checked="" type="checkbox"/> Teaching <input type="checkbox"/> Professional</p>
<p><b>Key context/ rationale for action</b></p>	<p>The University of Newcastle (UON) is a research intensive university and a leading contributor to research in Australia and the world. Across many discipline areas, our researchers are making discoveries that offer solutions to some of the world's greatest challenges.</p> <p>Under UoN's strategic plan, '<i>NeW Directions: Research and Innovation Plan</i>', we will deliver research and innovation clusters that strengthen multidisciplinary research and enhance knowledge transfer capability, specifically within the Central Coast and Hunter regions of New South Wales, Australia.</p> <p>Our commitment to research excellence is an investment in the future. UON recently ranked Australia's number one university in the Times Higher Education (THE) Top 100 Universities under 50, a ranking which, according to THE, "is designed to be dynamic and forward-looking".</p> <p>One of the advantages of being a young university is an inherent dexterity to identify and respond to new opportunities and developments, impacting curriculum, local industry, community and business, which coupled with our pioneering and entrepreneurial spirit, inspire innovation and research.</p>
<p><b>Overview of initiatives</b></p>	<p>Our NeW Directions Strategic Plan 2013-2015 introduced a new model by which we will make our research accessible to business and industry through Research and Innovation Clusters, and we are committed to supporting the regions in which we are based and engaging with their core industries.</p> <p>The areas of research undertaken by our Priority Research Centres (PRCs) include: Advanced Particle Processing and Transport; Asthma and Respiratory Disease; Bioinformatics, Biomarker Discovery and Information-Based Medicine; Cancer; Chemical Biology; Complex Dynamic Systems and Control; Computer Assisted Mathematics and its Applications; Energy; Gender, Health and Ageing; Health Behaviour; Organic Electronics; Geotechnical and Materials Modelling; Physical Activity and Nutrition; Reproductive Science; and Translational Neuroscience and Mental Health.</p> <p>Through the Newcastle Institute for Energy and Resources (NIER), UON unites industry and multi-disciplinary research to address rapidly emerging issues of resource sustainability, the transformation of the energy system and productivity. These research priorities sit alongside the energy reform agendas of government, industry and community. Through the Hunter Medical Research Institute (HMRI) – a partnership between the University, the Hunter New England Health Service and the community – UON contributes to translational research in health and medicine closely aligned with community needs.</p> <p>At UON, one single case study demonstrated a return on investment equal to 50 years of our income from external research grants. The 'Jameson Cell', a mineral flotation device developed by the University's Laureate Professor Graeme Jameson and 2013 NSW Scientist of the Year, has been revolutionary in improving the separation of minerals. In economic terms, the Cell is estimated to add more than \$4 billion per year to the value of Australia's resources exports. This success stems from an investment in world class research expertise applied to a commercially relevant problem.</p> <p>2012 NSW Scientist of the Year and Laureate Professor John Aitken leads a 150-strong research team studying fertility and contraception, which has attracted nearly \$50 million in funding. The CS10 project evolved out of the concept to separate cells on the basis of their size and charge, in this case, to select the least damaged spermatozoon for use in assisted conception procedures. It turns out that the best</p>



cells have the highest net negative charge. This research has led to the development of a separating device called the CS10, which has been manufactured in conjunction with life sciences company NuSep, and has the potential to snare a substantial share of a world market estimated to be worth \$100 million annually. Aitken, a recent inductee to the select group of Fellows of the Australian Academy of Science, has made some significant breakthroughs in the understanding of male fertility. "Every year the reproductive needs of 400 million couples go unmet. It is up to scientists working in public sector institutions such as Newcastle to make the breakthroughs that will lead to those new methods." Aitken says.

Similarly, the Reflux Classifier award-winning technology was developed in collaboration with commercial partner Ludowici, and is a revolutionary mineral processing machine that separates fine particles on the basis of either density or size, improving the efficiency of the process with its unique tilted design. Already under patent, the Reflux Classifier is currently used in seven countries and Professor Galvin's research team, which forms part of NIER, continues to investigate the full potential of the concept in other areas. "The technology has potential significance for any industry where a separation process based on particle size or density is applicable," Professor Galvin said. Professor Galvin was recently celebrated by the Australian Academy of Technological Sciences and Engineering's with the coveted Clunies Ross Award for 2014.

Given the University's aspiration to change the lives of Australians and provide solutions to environmental and global challenges through research, it is essential that the higher education sector can demonstrate that the funds it receives are being spent wisely and have real world impact.

<b>Contact person for initiatives</b>	Ms Suzanne Jenkins, Executive Officer, International and Advancement, University of Newcastle <a href="mailto:suzanne.jenkins@newcastle.edu.au">suzanne.jenkins@newcastle.edu.au</a>
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### **Belgium – Ghent University**

<b>Organisation</b> <i>Please check one box.</i>	<input checked="" type="checkbox"/> Higher education institution <input type="checkbox"/> Government ministry or agency <input type="checkbox"/> Other stakeholder – please specify: Name of organisation: Ghent University Country: Belgium
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*If an institution:*

Size of student body: 40 000

Main emphasis of institution:  Research intensive  Teaching  Professional

<b>Key context/ rationale for action</b>	<p>Ghent University is a comprehensive university composed of 11 faculties and more than 100 departments – <b>structures which are primarily based around educational responsibilities</b>. Such entities do not always foster research collaboration and innovation. A complicating factor – although not necessarily negative – is the fact that Ghent University has a longstanding tradition of supporting <b>bottom-up initiatives</b> and welcoming participation of all entities in decision-making bodies. Unlike many other comprehensive universities, there are very few top-down decisions, hierarchical structures or strongly steered initiatives that give shape to research excellence. While this certainly involves a risk of poor management and unclear responsibilities, Ghent University has found that bottom-up processes do not have to lead to chaotic and inefficient structures but can indeed foster excellence in areas with great potential.</p>
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One way of addressing at once the opportunities and the risks that come with bottom-up policies is the facilitation of “**clustering initiatives**”: new consortia that find their origins in the bottom-up partnerships of academics operating within similar research fields, challenging each other from opposing paradigms or addressing a particular research topic from a myriad of perspectives. What they all share is an ambition to become leaders in their field and to get the most out of the synergies that arise from working together. We list three different types of consortia:

(1) One example focusing on technology transfer activities are the “**Business Development Centres**”. Each centre is responsible for technology transfer within its area of expertise, across departmental and/or faculty boundaries. A centre is headed by a business development manager who can act as a

direct point of contact for industrial partnerships, be it research, services, collaborative research, or IP licensing. They form an Industrial Liaison Network across the university, in close contact with regional and international business partners. The consortia and business developers are funded by means of the university's own Industrial Research Fund.

More information: [www.techtransfer.ugent.be/en/support-for-academics/industrial-research-fund](http://www.techtransfer.ugent.be/en/support-for-academics/industrial-research-fund)

(2) A second example are the **Multidisciplinary Research Partnerships** (MRP's) set up in 2010 to foster inter- and multidisciplinary collaboration across the university. As part of the university's spearhead research policy plan, five consortia received a total of 13M€ of research funding as well as staff support in order to create new synergies, increase their critical mass and meet their potential research leadership position. The size of the consortia ranged from 6 to 16 professors at the start; most of them have been strengthened since by other colleagues in the field, and all have been able to appoint 5 to 6 new professorial staff members. In total, over 100 early stage and postdoctoral researchers are linked to each of these MRP's. The clusters are situated in the following areas: nano- and bio-photonics, bio-informatics, immunology, neurosciences and bio energy. These partnerships were funded by the university's own research funds.

More information: [www.ugent.be/en/research/research-ugent/topresearch/mrp](http://www.ugent.be/en/research/research-ugent/topresearch/mrp)

(3) Finally, also the **social sciences and humanities** were targeted to create opportunities for collaboration and strategic positioning. Although these research fields are characterised by a prevalence of individual research work, an increasing number of students, early stage researchers and professors recognise the value of exchanging expertise, working together and developing joint research ideas. In order to support such clustering of expertise Ghent University established **five consortia** in the humanities and social sciences, each of which now have a **research coordinator** responsible for developing joint research strategies, acquiring research funds and involving external partners in the distribution and application of new knowledge. These clusters, too, were funded by the university's own research funds.

More information:

[www.ugent.be/en/research/research-staff/organisation/humanities.htm](http://www.ugent.be/en/research/research-staff/organisation/humanities.htm)

**Challenges and Mitigation Strategies**

Although this system of clustering supports bottom-up initiatives and transcends departmental and faculty boundaries, educational structures and research structures often continue to develop according to their own internal forces. Anticipating this continues to be a challenge, and finding ways to maximise the interaction (e.g. by establishing interdisciplinary master programmes based on existing research collaboration) requires continuous effort.

An additional challenge is combining incentives targeted at individual excellence – still very dominant in academic achievement – with incentives fostering collaboration. While the former strategy makes researchers compete against one another, the latter relies on trust and collaboration. A good research system needs both.

**Contact person for initiatives**

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**Canada – Association of Universities and Colleges of Canada**

**Organisation**

*Please check one box.*

- Higher education institution
- Government ministry or agency
- Other stakeholder – please specify: Non-profit membership association

Name of organisation: Association of Universities and Colleges of Canada  
 Country: Canada

**Key context/ rationale for action**

The rationale for developing research excellence initiatives are listed in the document below but include the following:

- To help Canada compete with counterparts in other countries for the best minds and to attract, develop and retain world-class researchers in areas essential to Canada's productivity and

economic growth;

- To help Canada stimulate internationally competitive, leading-edge fundamental and applied research in areas critical to Canadian economic and social development;
- To help Canada’s universities excel globally in research areas that create long-term economic advantages for Canada;
- Create nation-wide multi-disciplinary and multi-sectoral research partnerships that integrate the research and development priorities of all participants;
- Accelerate the exchange of research results and use of this knowledge within Canada by organisations that can harness it for Canadian economic and social development.

## Overview of initiatives

### of **Canada First Research Excellence Fund**

- The February 2014 federal budget established the **Canada First Research Excellence Fund**. At this time, government officials are working on elaborating the program objectives and parameters and expect to launch in early 2015.
- The objective of the program is to help Canadian post-secondary institutions excel globally in research areas that create long-term economic advantages for Canada.
- The Canada First Research Excellence Fund will be funded by the federal government and will provide \$50 million in 2015–16, growing to \$100 million in 2016–17, \$150 million in 2017–18, and reaching a steady-state level of \$200 million annually in 2018–19 and beyond.

#### **Government of Canada’s suite of elite federal research capacity development programs**

The suite of elite, federally-funded, research capacity development programs begins with early graduate student support through the **Vanier Canada Graduate Scholarships**, progresses to postdoctoral training through the **Banting Postdoctoral Fellowships program** and continues through the academic career advancement (**Canada Research Chairs**) to a **career pinnacle (Canada Excellence Research Chairs)**.

Together, these programs are intended to increase the supply of highly-qualified research personnel in Canada and globally brand Canada as a nation known for quality research and research training.

#### **1. Vanier Canada Graduate Scholarships**

- The Vanier Canada Graduate Scholarships program, created in 2008, aims to attract and retain world-class doctoral students and to establish Canada as a global centre of excellence in research and higher learning.
- The program supports doctoral students who demonstrate both leadership skills and a high standard of scholarly achievement in graduate studies. The objectives of the program is to:
  - market Canada as a destination of choice for international students
  - enable Canada to attract world-class doctoral students
  - retain Canada’s own top doctoral students who are being sought by other countries
  - help build world-class research capacity
  - brand Canada and Canadian universities as a home for excellence in research and higher learning
  - be globally competitive and internationally recognised
- Each scholarship is worth \$50,000 per year for a period of three years and is available to both Canadian and international PhD students studying at Canadian universities.
- The Vanier program invests approximately \$25 million annually to support 500 Canadian and international doctoral students studying at Canadian universities.
- An evaluation of the Vanier program was recently concluded and the results will be made public in the next few months. Evaluations of the types of federally funded program (this applies to all programs listed below in this document) is a requirement in order to inform the program renewal process and meet the requirements of Treasury Board’s Policy on Evaluation. Overall success is measured by determining the extent to which the program’s objectives were met. (Given the timing of the evaluation in relation to how long the program has been in place, the focus was on the program’s short-term objectives while looking at progress made towards its longer-term goals.) Data was obtained from several lines of evidence including surveys of Vanier scholarship recipients and their supervisors as well as interviews with key stakeholders including deans/research liaisons from approximately half of all Vanier eligible Canadian universities.

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## 2. The Banting Postdoctoral Fellowships program

- Created in 2010, the Banting Postdoctoral Fellowships program provides funding to the very best postdoctoral applicants, both nationally and internationally, who will positively contribute to Canada's economic, social and research based growth.
- The objective of the Banting Postdoctoral Fellowships program is to:
  - attract and retain top-tier postdoctoral talent, both nationally and internationally
  - develop their leadership potential
  - position them for success as research leaders of tomorrow
- Each fellowship is worth \$70,000 per year for a period of two-years and is available to both Canadian and international postdoctoral students studying at Canadian universities. The program supports a total of 140 fellows a year.
- The yearly federal funding for this program is approximately \$9.8 million.
- The program is currently undergoing an evaluation with the results expected sometime mid-2015. As is typical of these types of program evaluations, this evaluation involves an assessment that utilises multiple lines of quantitative and qualitative evidence from surveys of fellowship recipients and their supervisors as well as interviews with key stakeholders including deans/research liaisons from universities.

## 3. The Canada Research Chairs

- The Canada Research Chairs program, created in 2000, by the Government of Canada, established 2000 research professorships—Canada Research Chairs—in eligible degree-granting institutions across the country to help attract and retain some of the world's most accomplished and promising researchers.
- The principal objective of the program is to strengthen Canadian research performance in universities in order to position Canada among the world leaders in research. To support Canada's research excellence and expand its research capacity, the CRCP aims to achieve the following specific objectives:
  - to attract and retain excellent researchers in Canadian universities;
  - to improve universities' capacity for generating and applying new knowledge;
  - to strengthen the training of highly qualified personnel ; and
  - to optimise the use of research resources through strategic planning.
- The yearly federal funding for this program is approximately \$262 million per year.
- Canada Research Chairs are divided into two tiers. Tier 1 Chairs are tenable for seven. These are for outstanding researchers acknowledged by their peers as being world leaders in their fields. For each Tier 1 Chair, universities receive \$200,000 annually for seven years. Tier 2 Chairs are tenable for five years. They are for exceptional emerging researchers, acknowledged by their peers as potential leaders in their field For each Tier 2 Chair, universities receive \$100,000 annually for five years.
- Since the creation of the program in 2000, three evaluations have been performed (3-year, 5-year and 10-year evaluation). The 2010 evaluation used multiple lines of evidence to measure success, efficiency and effectiveness and to examine governance, design, and delivery issues of the program. The evidence used included document and file review, interviews, focus groups, web surveys, case studies, and a bibliometric analysis.

## 4. Canada Excellence Research Chairs (CERC)

- Launched in 2008, the Canada Excellence Research Chairs Program supports Canadian universities in their efforts to build on Canada's growing reputation as a global leader in research and innovation.
  - Key objectives of the CERC program:
    - to strengthen Canada's ability to attract the world's top researchers in order to be at the leading edge of breakthroughs in priority research areas expected to generate benefits for Canadians;
    - to help Canada build a critical mass of expertise in the priority areas outlined in the Government of Canada's science and technology strategy, including: environmental sciences and technologies, natural resources and energy, health and related life sciences and technologies, and information and communications technologies;
    - to create a competitive environment to help Canadian universities attract a cadre of world-leading researchers in their pursuit of excellence in their research; and
-

- to establish Canada as a location of choice for leading research in science and technology development.
- The program awards world-renowned researchers and their teams up to \$10 million over seven years to establish ambitious research programs at Canadian universities within the four priority research areas outlined in the Government of Canada's science and technology strategy or addresses other issues of benefit to Canada.
- 19 CERCs were awarded as a result of the inaugural 2008 competition. In 2011, the Government of Canada announced funding to support the creation of 10 new CERCs.
- Canada Excellence Research Chairs are selected through a highly competitive and rigorous two-stage selection process involving a multilevel peer review assessment.
- The program recently underwent an evaluation and the results will be made public in the next few months. The evaluation process for the CERC is similar to the evaluation of the Canada Research Chair program in that multiple lines of evidence to measure success are taken including document and file review, interviews, focus groups, web surveys, case studies, and a bibliometric analysis.

#### 5. National Centres of Excellence (NCE)

- The National Centres of Excellence Program was created in 1989 with a goal to mobilise Canada's research talent in the academic, private and public sectors as a means of developing the economy and improving the quality of life of Canadians.
- The NCE Program is a federally funded program with a yearly investment of \$65 million (this funding amount includes only the NCEs and does not include the CECR, BL-NCE and IRDI).
- Key objectives of the NCE program:
  - stimulate internationally competitive, leading-edge fundamental and applied research in areas critical to Canadian economic and social development;
  - develop and retain world-class researchers in areas essential to Canada's productivity and economic growth;
  - create nation-wide multi-disciplinary and multisectoral research partnerships that integrate the research and development priorities of all participants; and
  - accelerate the exchange of research results within the network and the use of this knowledge within Canada by organisations that can harness it for Canadian economic and social development.

Since the creation of the program in 1989, the NCE program has undergone numerous evaluations. These evaluations examine the program rationale, success, and design and cost-effectiveness. The evaluation process is based on multiple lines of evidence to including qualitative and quantitative data including case studies, interviews and surveys of students, researchers and network partners, and comparative studies.

#### Contact person for initiatives

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##### **National Centres of Excellence**

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**Croatia –Agency for Science and Higher Education****Organisation***Please check one box.* Higher education institution Government ministry or agency Other stakeholder – please specify:

Name of organisation: Agency for Science and Higher Education

Country: Croatia

*If an institution:*

Size of student body:

Main emphasis of institution:  Research intensive  Teaching  Professional**Key context/  
rationale for action**

The Croatian Agency for Science and Higher Education is a public agency tasked with external quality assurance, evaluations and fostering excellence in Croatian higher education and research. A part of the Agency's work is based on its legally set public mission, and some are initiatives that grew out of new needs and challenges. A number of reports identified issues with the Croatian research sector, from fragmentation and varying quality standards in doctoral training to lack of funding, international cooperation and cooperation with the business sector. Since 2013 the Agency successfully completed a procedure of re-accreditation of all (25) public research institutes, aimed at acquiring a detailed picture of the state of these publicly-funded institutions, initiated a call and completed the first cycle of evaluating and mapping the potential research excellence centres and completed a system-wide analysis of all post-graduate (doctoral) study programs in Croatian universities.

**Overview of  
initiatives**

The Croatian publicly funded system of research has been, according to numerous reports of various national and international bodies, under-funded and subject to a number of centralised reforms and legislative changes which were not based on comprehensive evaluations or data collection. The Croatian Ministry of Science, Education and Sports and the Agency for Science and Higher Education initiated a series of evaluations aimed at collecting data before starting the next reform, with each specific evaluation publicly discussed and fine-tuned before implementation.

The first procedure introduced was the re-accreditation of public research institutes, initiated in February 2013, focusing on four main criteria: research excellence and research productivity, impact on society and economy, institution's internal resources and quality assurance. These were assessed by international experts from extinguished research institutions, on the basis of self-evaluations and site visits to each institution. In addition to their sound and useful recommendations for improvements, peers also detected areas and groups of (potential) global excellence. In February and March 2014 final reports and Agency's recommendation statements were submitted to the Minister in charge of research, with all reports published in English and Croatian at the Agency website.

Two of the main issues identified in this procedure were lack of funding based on excellence and overall lack of satisfaction with Croatian doctoral programs.

Thus, in June 2013, on the proposal of the higher education minister, the Agency for Science and Higher Education launched a call for proposals for establishing scientific centres of excellence which would then have access to additional funding. In addition to assessing the quality of the project proposal, originality, innovation and relevance of the proposed research, special emphasis was put on excellence of scientists – heads of scientific centres of excellence – with a special focus on their leadership potentials. With the selfless work of many distinguished foreign reviewers (more than 300 people in total), excellent applicants were recognised.

The process of paper-based evaluation of doctoral programs was launched already in 2012, based on the findings of the reaccreditation of Croatian higher education institutions carried out by the Agency for Science and Higher Education, but gained additional importance as the re-accreditation of research institutes indicated similar problems. The evaluation consisted of collecting for each program the data on indicators based on relevant European documents referring to doctoral education. These included recruitment, admission and status, quality of supervision, outcomes, credits and internationalisation. The ensuing report reflected the situation within the national framework and the methodology used enabled clear distinction between the excellent programs and those of low quality.

The total budget for the evaluations was provided by the state of Croatia and amounted to around 600 Euros per proposal in Excellence Centers initiative, around 3 800 Euro per research institute in the

reaccreditation procedure; and around 2000 euro for the evaluation of 125 doctoral programs.

The main output of all three initiatives was improved and comprehensive data on crucial segments of Croatian public research system. In addition to this, we hope that the procedures irretrievably helped the transition process of Croatian traditional scientific system toward innovation-oriented system, permanently changing the mindset of scientists. This is already visible in the new draft strategy for Croatia's higher education and research area which emphasises the culture of evaluation based on international peer-review and funding based on excellence. The long-term effects of these initiatives, however indirect, will be assessed mid-term on the basis of indicators of productivity and international recognition of Croatian researchers and research institutions.

**Challenges and Mitigation Strategies**

Some of the challenges of the re-accreditation of institutes stemmed from the size of Croatian academic community on one side (avoiding the conflict of interest in appointment of evaluators) and training for foreign evaluators for the complex task of assessing the institutional quality in a different system on the other. Additionally, institution-focused assessment leaves inadequate space for more detailed assessment of research outputs on individual as well as on research group level; this was partly mitigated by the excellence centres initiative.

In the evaluation and mapping of potential research excellence centres, poor understanding of the concept of excellence and the idea of knowledge transfer in the economy and society among the number of applicants made the selection procedure more difficult. However, with the selfless work of many distinguished foreign reviewers, excellent applicants were recognised. The Report on the procedure will ensure higher quality proposals in the future rounds of calls.

In most of the cases it was shown by the evaluation that the problems in doctoral education were generated by ambiguous funding policy which left enough space for different misinterpretations and reflected in several aspects on quality of doctoral programs. As the funding scheme was changing at the same time, Agency made some initiatives to stress the problem, which is to be solved within the framework of these changes.

**Contact person for initiatives**

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**Finland – Tampere University of Applied Sciences**

**Organisation**

*Please check one box.*

Higher education institution

Government ministry or agency

Other stakeholder – please specify:

Name of organisation: Tampere University of Applied Sciences

Country: Finland

*If an institution:*

Size of student body: 10 000

Main emphasis of institution:  Research intensive  Teaching  Professional

**Key context/ rationale for action**

Integration to the education process

Universities of applied sciences (UASs) offer practice-oriented higher education resulting typically with a bachelor level degree. They play an important role in our society where jobs in all sectors have become more demanding due to global competition and the use of advanced ICT. Higher education is a common requirement even for operational level jobs. In Finland, a country of 5 million inhabitants, roughly 20.000 students graduate yearly from UASs.

It is important that UAS students have opportunities to get involved in the real activities of their future employers during their studies. They will then be better prepared for the challenges of their jobs when they get employed after graduation. UASs should create such opportunities for their students by research, development and innovation (RDI) co-operation with companies and public organisations. This RDI co-operation differs from the traditional approach of universities because its objectives are more closely linked to daily operational challenges than scientific challenges. Involvement in RDI should be a natural part of studies and widely integrated to the contents of study courses.

Regional development

UASs can be seen as regional centres of excellence due to their highly qualified multidisciplinary teaching staff, well-equipped laboratories and the high volume of students possessing latest know-how. The challenge is to make the expertise and facilities easily available to companies and public organisations of the region to improve their RDI capability. The UAS could take the role of the RDI department of the partner organisation, providing access to multidisciplinary excellence and a variety of facilities in an extent which is not possible for a single company or public organisation with limited resources for RDI.

Because of the practice-driven nature of their education activities, UASs should have a continuous and intensive interaction with their partner companies and public organisations. When teaching staff and students are in daily contact with those partners, new problems and challenges from the real life come up all the time. We need to organise the activities of UAS staff and students in such a way that useful solutions to those problems and challenges can be produced cost-efficiently. Integration of RDI and study courses should facilitate serious work on real problems and not just demonstration of ideas.

**Overview of initiatives**Objectives and date established

The objective was to organise the research, development and innovation (RDI) activities of the UAS in a way which makes top quality RDI on strategic themes in co-operation with partners possible in integration with the educational activities of the UAS. The RDI services unit of Tampere University of Applied Sciences (TAMK) was established in January 2010 in connection to the merger of two UAS's and their RDI service units.

Instigator of initiative (e.g. government-led, institution-specific)

The initiative is institution-specific but guided by the Ministry of Education and Culture.

Main activities

The RDI services unit has the responsibility of all RDI projects and the preparation of project proposals. In addition, it runs the innovation process of TAMK including support services for inventors and business development services for business ideas with innovative character. The unit also coordinates the strategic development of RDI in TAMK and works on the operative routines of the participation of teaching staff and students in RDI activities.

Budgets allocated; source of funding

The yearly budget of the RDI services unit is around 3000000 euros plus the external project funding for the RDI project hours of teaching staff and students. The funding comes partly from the basic funding of TAMK, partly from strategic RDI funding of the Ministry and partly from various sources of public RDI funding.

Approaches to measure success and effectiveness to date

The amount of external project funding is the most important indicator of success. It comes as a result of successful project proposals and success in the execution of projects. Another indicator is the number of credits for students from their participation in RDI activities. It shows how well RDI is integrated to education. This is indicated also by the number of hours spent in RDI projects by teaching staff. The success of innovation activities is measured by the number of ideas, patents, licences and new companies.

**Challenges and Mitigation Strategies**The project idea process

UASs are often big multidisciplinary organisations. A process is needed for the objective evaluation and ranking of the ideas dealing with very different topics. In TAMK, this evaluation and ranking is done by the so-called idea group composed of the vice presidents of TAMK who gather for this every second Friday.

Ideas are submitted for evaluation and ranking electronically by filling in a specific form. In addition to filling in basic information about the contents and size of the proposed project and proposed sources for external funding, the following questions dealing with the strategic importance of the proposed project have to be answered:

- How does the project strengthen the strategic themes of the UAS?



- How does the project make the UAS more international?
- How is the project integrated to studies and teaching?
- How does the project meet the needs of regional development and the UAS's partner organisations?
- How does the project strengthen the UAS's strategic partnerships?

Based on the submitted information, the idea group decides if a project idea can proceed to the preparation stage. Negative decision means that there is no permission to go on with the project idea. Positive decision means that the person in charge of the project idea has the permission to proceed with the idea by following a standard sequence of steps. Those steps are necessary to ensure the availability of organisational support and the required time and resources to prepare a high quality project proposal for external funding.

#### Teaching staff and students as application domain experts

It is necessary to consider the impact of RDI activities on the competences and expertise at the level of individuals and at the organisational level. The strategic priorities of the university can be supported by RDI projects only if the topics of the projects are in line with the expertise and professional development goals of the teaching staff.

From this point of view, RDI projects should always be carried out in such a way that the application domain expertise comes from the participating members of teaching staff and their students. It might sometimes be easier just to hire a domain expert to work on the project as a member of the RDI service staff but that is not a sustainable solution. It is very difficult to secure continued project funding for such experts. As a result, they normally leave the university after some time and most of the expertise and knowledge resulting from the project is lost.

#### Research and development services as experts of project work

Allocating the work to teaching staff and their students is still not the complete solution. It is very challenging to carry out a multi-partner RDI project in a professional manner. Teaching staff do not usually have the necessary RDI project experience and expertise for that. Furthermore, it is not useful to train them to become project professionals because most of them participate in RDI activities only for a single project and shift their focus on other professional activities when the project ends.

Having a small group of RDI project professionals to run the projects is one way to deal with this problem. They have the skills to ensure that there is a work plan with realistic objectives, resources and timetables for each subtask. They also know good practices for project management and how to prepare materials and organise meetings and events for presenting the project and getting feedback and guidance. These RDI project professionals do not have to be experts of the domain but preferably individuals with a multi-disciplinary background and an ability to participate in discussions on the contents of the project from that point of view.

#### Project office as experts of funding and financial aspects

Multi-partner projects are often funded by public funding organisations in the context of strategic research programs or regional development programs. Examples of such funding organisations and schemes are the Finnish Funding Agency for Technology and Innovation, the European Regional Development Fund (ERDF) and the EU Framework Programme for Research and Innovation (Horizon 2020).

Each funding scheme has its own specific rules for the administration and financial management of projects. One solution is to have designated personnel to deal with the administrative and financial details and practices of publicly funded projects. Their expertise cumulates gradually by being involved in numerous projects dealing with different domains but similar administrative and financial rules.

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**United States – State University of New York****Organisation***Please check one box.* Higher education institution Government ministry or agency Other stakeholder – please specify: Multi-campus system of 64 campuses that range from community colleges to elite research universities

Name of organisation: State University of New York

Country: \_USA

*If an institution:*

Size of student body: \_\_463,000\_\_\_\_\_

Main emphasis of institution:  Research intensive  Teaching  Professional**Key context/  
rationale for action**

Some of the most important scientific questions directly affecting the health, safety, and wellbeing of the human race cannot be fully answered by any one individual or discipline. These questions require networks of researchers that are not bounded by the traditional disciplinary or institutional boundaries. Such collaborative endeavours have not yet become the norm in the United States. SUNY, as a system of 64 campuses with a range of scholarly experts, is poised to show leadership by creating multi-institutional and interdisciplinary research collaborations that transform how research is pursued and how students are experientially engaged.

**Overview of  
initiatives**

Launched in the Fall of 2013, The SUNY Networks of Excellence facilitate system wide collaboration by bringing together faculty and researchers and harnessing institutional expertise from across 64 SUNY campuses in the university centres and doctoral degree granting institutions, comprehensive colleges, technology colleges and community colleges to solve some of the world's most pressing problems.

Each network assembles scientists and scholars from varied campuses to engage in a joint program of research on a specific topic and enhance related experiential learning of students. Beyond the individual connections, each network created an inventory of campus assets (e.g. intellectual expertise, equipment, facilities, and supplies) that are able to be shared and used to support work in these areas.

The networks are engaging industry partners and working to create intellectual property that is readily commercialisable. By bringing together the expertise dispersed across the campuses into a collective network, SUNY can better position itself to become a national and international scientific leader, compete for research grants, and educate the next generation workforce.

Investments in the Networks of Excellence are expected to produce outcomes that include new strategic, scaled up multidisciplinary grants in high priority research areas, measurable societal impacts relative to the grand challenges, a broader portfolio of funding from state, federal and industry sources, and an enhanced reputation for SUNY nationally and internationally.

The SUNY Research Foundation has committed \$8 million to support the start-up of the Networks of Excellence. Each network is coordinated by a consortium of SUNY campuses, which will jointly direct and oversee a competitive grant award process. Funding is available for:

- Inter/cross-disciplinary, multi-investigator, multi-campus collaborative research projects and pilot studies;
- Travel funds for investigators from across SUNY campuses to meet to establish and develop partnerships;
- Speaker series that bring together SUNY faculty and visiting scholars to examine new trends and review promising findings;
- Student exchanges (including the opportunity for research experiences for undergraduates) between SUNY campuses to build collaborative efforts; and/or
- Workshops/Institutes for SUNY faculty and visiting scholars.

The goal is for the funded pilot projects to be used to pursue large-scale external funding to continue to support the work of the networks.

The four recently launched Networks are SUNY 4E (Energy, Environment, Economics, Education), SUNY Health Now, SUNY Brain, and SUNY Materials and Advanced Manufacturing.

SUNY 4E (Energy, Environment, Economics, Education)

SUNY 4E network focuses on research across SUNY related to energy and the environment with associated economic considerations and educational programming. SUNY 4E is identifying and bringing together faculty and facilities across SUNY in partnership with key academic institutions, the private sector, and national labs in unparalleled transdisciplinary teams that lead the nation and the world in key transformative research areas with a broad, positive, and lasting impact on society.

SUNY Health

SUNY Health is an umbrella network that will engage and maximise the diverse strengths in biomedical research across the SUNY campuses. SUNY Health is building on the successful model of SUNY REACH, which focused on four disease based pillars, by integrating assets in structural biochemistry and RNA research for drug design and personalised medicine, increasing clinical research capacity to advance translational research, and developing "big data" tools to support multi-scale clinical trials and public health research.

SUNY Brain

The SUNY Brain network is leveraging current large investments at multiple SUNY campuses in disciplines that include neurosciences, neuro-clinical services, analytic sciences, and technical platforms to better understand the way our brains work. SUNY Brain will also leverage academic exploration in other fields examining neurobiological underpinnings such as economics, education, religion, law, social sciences, and the humanities.

SUNY Materials and Advanced Manufacturing

SUNY Advanced Manufacturing and Materials network’s ultimate objective is to establish a single voice state-wide for advanced manufacturing and materials to ensure continued public-private collaboration and success in pursuit of significant federal funding opportunities –the federal government understands that a vibrant manufacturing sector is inextricably linked to the capacity to Innovate.

**Challenges and Mitigation Strategies**

The major challenge was overcoming the fear that the networks were to be centrally driven, making it difficult to obtain full campus engagement. To address this issue, a team of vice presidents of research and faculty from different campuses were tapped to coordinate each network. This approach ensured that the networks were campus-driven and developed in a way that met the needs and expectations of the faculty and campus leadership.

Sustained involvement by faculty/researchers for the long run is a challenge that all such endeavours face. To overcome this, the Networks implemented a multipronged approach to their initial funding investment. Seed funding for research and development ideas, collaboration expanding workshops, undergraduate summer scholar internship programs, development of a virtual collaboration platform, and large scale face-to-face meetings are amongst the activities that has afforded the Networks a sustained involvement by faculty and establishment of long term collaborations.

**Contact person for initiatives**

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**NOTES**

1. More information on the subject of scientific excellence can be found in the online documentation of the 2012 conference “Excellence Revisited” held in Aarhus in conjunction with the Danish Presidency of the Council of the European Union in 2012 ([www.excellence2012.dk](http://www.excellence2012.dk), accessed 20 February 2013).

2. It is indicative in this regard that the European Union’s eighth “Framework Programme for Research and Technological Development” (2014-20) reserves the biggest share, USD 32.7 billion, for “Excellent Science”, [http://ec.europa.eu/research/horizon2020/pdf/press/horizon\\_2020\\_budget\\_constant\\_2011.pdf](http://ec.europa.eu/research/horizon2020/pdf/press/horizon_2020_budget_constant_2011.pdf), accessed 20 February 2013.
3. A recent anthology discussing the German REI from a policy perspective captures this conviction in its title, *Making Excellence* (Bloch, et al., 2008).
4. One example, the National Health and Medical Research Council of Australia (NHMRC), states that “NHMRC will only support excellence in research because the best outcomes flow from the best research”, [www.nhmrc.gov.au/files/nhmrc/file/grants/apply/programs/2012\\_program\\_grants\\_funding\\_rules\\_for\\_funding\\_in\\_2014.pdf](http://www.nhmrc.gov.au/files/nhmrc/file/grants/apply/programs/2012_program_grants_funding_rules_for_funding_in_2014.pdf), p. 7 (accessed 20 February 2013).
5. A set of indicators for both monitoring and performance-based funding of research has been developing over the last decade. See European Commission (2010) for a review.
6. A notable exception is the PEAC project, which focuses on research excellence schemes in Denmark, Finland, Norway and Sweden (see Langfeldt et al., 2013).
7. Italy’s REI did not fit the project definition and Turkey is considering introducing a special funding programme for excellent research institutions.
8. The electronic survey contained multiple choice questions and fields for open-ended comments. All questionnaires are available from the OECD Secretariat.
9. The electronic surveys were returned directly to the OECD Secretariat.
10. The German Excellence Initiative may serve as evidence. In the first funding cycle, the universities that succeeded in the third, most prestigious line of funding, were those that had been most successful in raising public third-party funds in the years preceding the REI (Bloch et al., 2008:103f.).
11. Aksnes et al. (2012:59) report that in Scandinavia, each country has one or two universities that distinguish themselves by hosting a considerably above-average share of centres.
12. The Finnish CoE scheme was, at first (1995-96), only about reputation. No specific funding was provided for the centres; the competition was exclusively about receiving official excellence status (Aksnes et al., 2012:26).
13. OECD (2014a), “Fostering research excellence: Compendium of practical case studies”, OECD Higher Education Programme (IMHE), OECD, Paris, [www.oecd.org/edu/imhe/ourpublications.htm](http://www.oecd.org/edu/imhe/ourpublications.htm).

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## ARTICLES BY EXPERTS

The following articles are original contributions from higher education practitioners. The authors were invited to contribute to this publication to share insights and information and to stimulate debate.

The topics were developed in collaboration between the article author and the editor.

- Concepcion Pijano was invited to introduce her experience with quality assurance and developing regionalisation in ASEAN, in part to help inform the discussions leading up to the planned 2015 IMHE General Conference on Higher Education Futures in Singapore, which will focus on the Asia-Pacific region.
- Peter Scott explores the context in which university governance models are developed, as complement to the OECD chapter on business models in higher education institutions.
- Jane Knight extrapolates on her recent observations of a new generation of internationalisation now in development. New types of internationalisation directly relate to approaches to quality, institutional mission, governance and the missions of higher education; all are overriding themes throughout this publication and will assuredly also garner part of the focus of the 2015 IMHE General Conference.

These informed views from highly experienced and respected international experts are included herein to contribute context, perspective and know-how to what should be continual discussions on matters of concern to higher education stakeholders everywhere.

*Disclaimer: The views expressed in these commissioned articles are those of the authors and do not necessarily reflect the views of the OECD.*





## ASEAN'S JOURNEY TOWARDS THE REGIONALISATION OF HIGHER EDUCATION

Concepcion V. Pijano

### The Asia Pacific Quality Network

The Asia Pacific Quality Network (APQN) was established to enhance the quality of higher education in Asia and the Pacific Region by strengthening the work of quality assurance agencies and extending co-operation among them. Originally hosted by the Australian Universities Quality Agency (2004-08), the APQN's secretariat was moved to the Shanghai Education Evaluation Institute in 2009.

The Asia-Pacific region, made up of 53 countries that stretch east from the Ural Mountains in western Russia to the Pacific Islands, is home to over half of the world's population. From an initial 11 member agencies in 2004, the network has grown to 83 member-organisations representing 31 states of the Asia-Pacific region. Of these, 26 are full members, 14 are intermediate members, five are associate members and 38 are institutional members. In addition, the APQN has four observers.

### The ASEAN Quality Assurance Network

In 2008, the [Southeast Asian Ministers of Education Organization](#) – Regional Centre for Higher Education and Development (SEAMEO-RIHED) and the Malaysia Qualifications Authority – took the lead in establishing a network of quality assurance agencies in Southeast Asia known as the ASEAN Quality Assurance Network (AQAN).

Eleven quality assurance authorities and ministries representing the ten Association of Southeast Asian Nations (ASEAN) member states (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam) and Timor-Leste participated in its first Roundtable Meeting, which was held in Kuala Lumpur.

The meeting adopted the Kuala Lumpur Declaration, which aims to contribute to achieving the ASEAN target of establishing an ASEAN Economic Community by 2015. The network seeks to promote harmonisation in higher education in ASEAN through collaboration and sharing of good practices, while remaining mindful of the diversity and the different stages of development of quality assurance (QA) systems and agencies at national levels. The Network acknowledges common interests and concerns and affirms the need for a closer relationship among the people in the region through the mobility of students, faculty and programmes. AQAN also seeks to facilitate the mutual recognition of qualifications throughout the region and develop a regional quality assurance framework for Southeast Asia.

The network's Secretariat is hosted by the Malaysian Qualifications Authority. At present, AQAN has ten full members representing the member states of ASEAN, and six associate members.

Significantly, it was also in 2008 when the SEAMEO Council agreed on a "Structured Framework for Regional Integration in Higher Education in Southeast Asia: The Road towards a Common Space".

### The importance of APQN

The APQN is an important regional actor because it serves a large geographical area with over half of the world's population. As one of five regional QA networks established around the world in the past decade, the APQN supports the development of quality assurance through networking, online resources, internships and workshops for capacity building (Madden, 2012).

In 2004, APQN became the first quality assurance network to receive a grant from the World Bank (WB), its main source of funding for the next three years. The WB's Development Grant Facility is a source of seed money to assist in the emergence and growth of quality assurance initiatives that benefit developing countries.

When the grant ended in 2008, the WB required APQN to undergo an independent external evaluation to assess whether the objectives of the grant had been met. The Evaluation Report revealed that APQN made its greatest impact in the development of quality assurance mechanisms across national systems, the exchange of ideas and expertise, enhanced institutional capabilities and promoting communication and co-operation between agencies and institutions (Bateman and Giles, 2008). Workshops, conferences and training programmes were conducted in 14 countries and, over the short period of three years, there were 37 staff exchanges or internships that benefitted Lao PDR, India, Sri Lanka, China, Mongolia, Indonesia, Cambodia, Vietnam and Bangladesh.

As the grant was coming to an end, the World Bank and UNESCO launched the Global Initiative for Quality Assurance Capacity (GIQAC), for which main objective was to improve and expand worldwide capacity for quality assurance in higher education, particularly in developing and transition countries. From March 2008 until March 2010, GIQAC served as APQN's lifeline, allowing the Network to build on its past successes and continue strengthening quality assurance capacity in the Asia-Pacific region.

### ASEAN's own network

Unlike APQN, which from the start had funding support from the World Bank and UNESCO, the ASEAN Quality Assurance Network had to virtually pull itself up by its bootstraps, with the members shouldering expenses for annual meetings and conferences, regional workshops for reviewers, capacity building and sharing good practices.

Three years into its infancy, however, the ASEAN-QA project, a joint European-Southeast Asian initiative, was launched by six associations involved in international co-operation in higher education and regional quality assurance networking, namely, the German Academic Exchange Service (DAAD), German Rectors' Conference (HRK), the ASEAN University Network (AUN), SEAMEO-RIHED, AQAN and its European counterpart, the European Association of Quality Assurance in Higher Education (ENQA). The Memorandum of Understanding was signed in Bonn in July 2011.

Implemented over three years (2011-13), the ASEAN-QA focused on capacity training of QA practitioners of internal and external quality assurance. It brought together 24 QA officers from ASEAN universities and 17 officers of accrediting agencies across Southeast Asia in an organised, hands-on training programme that covered two parallel tracks: the Internal Quality Assurance (IQA) track for university staff members and the External Quality Assurance (EQA) track for officers of accrediting bodies. The activities ended in a peer review process conducted at 22 universities across the region.

ASEAN-QA is supported by the German Ministry for Economic Cooperation and Development. Overall project co-ordination is done by the University of Potsdam, which is recognised for its advanced quality management system.

A pioneer initiative, the ASEAN-QA project made history in the region. It was the first capacity building project conducted in Southeast Asia with six regional and international partners, and the first project where peer assessors from Europe served on teams that conducted site visits to 22 universities across the region, covering eight countries in six months. Prior to the site visits, the first Regional Training of Assessors was conducted in Manila, yielding 30 assessors from six countries in the region. The project also facilitated intra-regional co-operation with the long-term goal of increased student mobility and mutual recognition. Furthermore, it fostered inter-regional dialogue through the exchange of experiences and good practices between ASEAN and Europe.

The ASEAN-QA project was an important first step towards developing human capital in the region and building the second generation of QA champions who will carry out accreditation work in their agencies. The project pointed the way towards greater convergence of national systems and supported the harmonisation processes underway in the region. It gave a strong push towards regionalisation, defined as a process of building closer collaboration and alignment among higher education actors and systems in a designated area or framework (Knight, 2012).

The second phase of the ASEAN-QA Project (2014-16), TrainQA, builds on the success of the first initiative by providing support to a select group of Southeast Asian universities to build up systematic internal quality assurance structures and promote a culture of quality within their own organisations.

TrainQA is based on five modules with a strong practical focus on the tools and procedures of quality assurance, curriculum design and revision, change management and linkages between quality management and higher education management. The course includes an online module on data-based information management, data sharing and reporting.

## A framework for higher education

In 2011, the push towards regionalisation heightened as AQAN embarked on a project to develop an ASEAN Quality Assurance Framework for Higher Education (AQAFHE). A Task Force was established to work on the framework that will promote regional harmonisation in higher education. Harmonisation in ASEAN is defined as a process that recognises the diversity of higher education systems, cultures and traditions while promoting common practices and guidelines. The Framework should therefore serve as a common reference point for quality assurance agencies and higher education institutions as they strive towards harmonisation amidst the diversity in the region.

It is for this reason that the Principles and Statements of the Framework are generic so as to adapt to various political, legal and cultural settings without compromising a country's basic values and traditions.

The Framework consists of four thematic interrelated principles that focus on external quality assurance bodies, external quality assurance processes, institutional quality assurance systems and the national qualifications framework.

The Framework was endorsed in principle at a Round Table Meeting in Hanoi in February 2013. Refinements were made in the intervening months until the August 2014 meeting was held in Jakarta, where AQAN members agreed to submit the Framework to their principals for adaptation into their national QA systems. Members also recommended that information on the AQAFHE be submitted to the ASEAN Senior Officials Meeting held in September 2014 for formal endorsement.

Once the Framework has been officially accepted, capacity building workshops will commence in various countries on how to use it. Subsequently, national QA systems will be reviewed. Voluntary benchmarking exercises are scheduled in 2017.

## European Union support

In April 2014, as AQAN prepared to set the ASEAN QA Framework for Higher Education in motion and a call for proposals in support of higher education in ASEAN was issued by the European Union (EU). The EU Support to Higher Education in the ASEAN Region Program (EU SHARE) is aimed at strengthening regional co-operation and enhancing the quality, regional competitiveness and internationalisation of ASEAN higher education institutions, thus contributing to building the ASEAN economic community in 2015 and beyond. Through this project, the EU will share its experience and expertise on the Bologna Process and the development of the European Higher Education Area (EHEA), which are relevant to higher education in ASEAN. Like the Bologna

Process, the harmonisation of higher education in ASEAN does not aim to change national education systems, but rather provide tools that will connect them.

## The journey is on track

The drive towards the regionalisation of ASEAN higher education is on track and member agencies of AQAN are eager to move forward. This has been made possible by the key actors involved in this process, such as ministries of education, non-governmental organisations, higher education institutions, international organisations, international and regional development agencies, and professional bodies (Madden, 2012). The EU has served to stimulate significant projects that contribute to an ASEAN Community in 2015 and beyond.

Regionalisation is a continuous journey of collaboration and co-operation, of working towards common agreements and consensus, of intra-regional exchanges and inter-regional dialogues, of the alignment and convergence of ideas. In an article entitled "A Conceptual Framework for the Regionalization of Higher Education in Asia," Jane Knight (2012) wrote: "The regionalization train has already left the station. But questions like where it is headed, which tracks it will use, what passengers or cargo will be on board, how many stops it will make, and what is the final destination are yet to be answered."

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# UNIVERSITIES AND UNIVERSITY BUSINESS MODELS: REFLECTIONS ON GOVERNANCE AND STRUCTURES

Peter Scott

## Introduction

The dilemma facing 21st-century higher education can be simply stated – the “entrepreneurial university”, a brand that is tending to displace the more socially oriented “mass university” label standard in the late 20th century, must coexist with the “ivory tower” university. From this tension, which may be better described as dialectic or perhaps synergy, flow nearly all the active policy and management issues that preoccupy higher education leaders today, whether concerned with funding, organisation or governance.

The “entrepreneurial university” is now firmly established as a policy discourse (Clark, 1998; Etzkowitz, 2014). It has become routine to assert that universities face unprecedented challenges. Nearly every major report published in the last decade, whether by international organisations, national governments, rectors’ conferences or research groups, has reached broadly similar conclusions. Universities must face up to declining public funding (and, if political circumstances are favourable, rely more on tuition fees paid by students); they must be given greater operational freedom, even if paradoxically this is accompanied by new (and potentially more intrusive) forms of accountability; they must respond to the increasing pressures to demonstrate the relevance of their teaching (especially in terms of the employability of their graduates), their research (in terms of, especially economic, impact) and their wider social engagement (as the focus of so-called “clever cities” and as key players in regional development and global competitiveness). Reports from the OECD have contributed to this broad consensus (Marginson and van der Wende, 2007).

All this has been true for at least two decades, and is perhaps an inevitable outcome of the move towards mass higher education systems since 1960, although it is important to remember that elite universities not only survive, but thrive within these mass systems. It is still more true today that universities face unprecedented challenges – as the result of the decline of high-tax social-market welfare states, the development of the “knowledge society” (as much political rhetoric as post-industrial reality), the advance of globalisation and the pervasiveness of free-market ideology (often pejoratively labelled “neo-liberalism”). As a result, assertions that higher education faces “transformation” or a “paradigm shift” have become commonplace. A recent example in the United Kingdom is the report from the global management consultants PA Consulting with the colourful title *Here Be Dragons* (Boxall and Woodgates, 2014).

Yet that is only half of the story. Universities are also as deeply engaged in “business as usual”, including the provision of high-quality academic and scientific education (predominantly for younger adults drawn from more privileged social groups who are studying full-time), and the fostering of critical enquiry and promotion of knowledge through speculative research (reflecting the enduring values of the Enlightenment and scientific revolution). It is these – traditional – activities that still largely constitute global “excellence”, as league tables of “top” universities clearly demonstrate (Shin, Toutkousian and Teichler, 2011; Rauhvargers, 2011). Selective-entry, research-intensive, multi-faculty universities set the global “standard”. The exceptions to this general rule remain limited: *grandes écoles* in France, technical universities in Germany, music conservatoires and art colleges (although even these have been obliged to conform, to some degree, to the standards and practices established by traditional universities). Other types of institutions, including those with wider access entry practices or a more vocational orientation, can only “succeed” if they adopt at least some of the traditional university’s standards and practices.

It is far from clear that “entrepreneurial” activities, as such, confer prestige unless firmly rooted in these traditional standards and practices. It can even be argued that an important effect of the shift towards “markets” in higher education, even if this shift is more firmly rooted in policy rhetoric than policy

implementation, has been to entrench existing institutional hierarchies by privileging such traditional activities as much as, or more than, it has stimulated novelty and produced differentiation by rewarding “entrepreneurial” strategies. In considering the development of new business – or, better perhaps, organisational – models in higher education, it is important to adopt a more balanced, and nuanced, approach rather than uncritically accepting the rhetoric of the “entrepreneurial university”.

## Governance

Substantial changes have taken place in the governance of higher education in many countries, at both system and institutional level (Shattock, 2014).

- **At system level:** ministries have relinquished many of the detailed controls they once exercised over public universities; intermediate bodies, where they exist, have shifted their focus from funding and planning or “steering” to oversight and regulation; and, in some countries, the legal (and other) monopolies enjoyed by public institutions have been eroded, although without always leading to a significant expansion of the private for-profit sector.
- **At institutional level:** university councils and boards have been reduced in size and have sometimes taken on more strategic and performance review responsibilities; the selection of rectors (or presidents/vice-chancellors) has been modified, often by removing (or attenuating) any element of election; the powers of rectors, and their senior management colleagues, have been increased while academic self-government has atrophied; management capacity has been strengthened by recruiting high-level professional experts and creating new administrative divisions; and the internal organisation of universities has been transformed by the introduction of new (and more transparent) budgetary systems, the development of new academic structures (notably in research), and a new emphasis on line-management as opposed to collegial leadership (Deem, Hillyard and Reed, 2007).

Such changes can only be described as a transformation of the governance of higher education, the way in which universities do their business. The significance of these changes can hardly be exaggerated; however, the reasons for the changes are many and various. They are also country and context specific, so there are dangers in attributing them to single-cause generic trends (although policy borrowing, or mimicking, has clearly played its part). It would be misleading, therefore, to attribute all such changes to a primary cause, e.g. the shift towards more market-like behaviours, practices and structures. First, this shift is partial and incomplete (and, as has been argued in the introduction, older values and practices are by no means extinct, but rather tend to flourish in elite institutions). Secondly, these changes in system and institutional governance reflect deeper structural shifts, notably the growth in the size and complexity of systems (which means they can no longer be planned within traditional structures, even if welfare states were still flourishing) and of institutions (which require more sophisticated management of their increasing heterogeneity) (Scott, 2010). The changes in the governance of higher education, therefore, may owe less to the ebb-and-flow of ideological fashions and policy discourses than is sometimes suggested in policy headlines.

## Structure

The structure of higher education appears to have changed much less. In most countries the broad pattern of institutions has remained comparatively stable. Indeed the pace of establishing new public universities, and new forms of public higher education, has slackened as governments have abandoned national strategies and scaled down restructuring plans (many of which required additional public investment that is no longer readily available). This shortfall in state initiatives has not been fully compensated for by private-sector development. The number of private universities and their proportion of total student numbers remain modest in many countries and their impact has been largely confined to (more marginal?) student groups poorly catered for by public systems. Of course, it is possible that this could change if market-friendly policies are pursued more

vigorously and Massive Open Online Courses (MOOCs) and similar transformational initiatives succeed in changing the fundamental economy of higher education.

However, at present in terms of structure, the major changes have taken place within publicly funded systems. Two deserve special mention:

1. The first is the transformation in the *nature of systems*, rather than their replacement by market-like networks, as is commonly supposed. Systems designed to fund and “steer” have tended to be replaced by systems that focus instead on regulation and accountability. The retreat from overwhelmingly public funding of higher education has had the paradoxical, but necessary, effect of governments engaging in more explicit surveillance of the financial stability of institutions. The development of more innovative forms of delivery and the growth of more private for-profit provision of higher education have also heightened concerns about “quality”, requiring other forms of surveillance. The more robust managerial structures characteristic of contemporary universities, while owing much to their increasing scale, complexity, and heterogeneity, are also a response to this rising tide of accountability – a wider phenomenon, of course, familiar under the label of the “audit society” (Power, 1997).
2. The second is the growth of new forms of segmentation within higher education systems, which are as much the product of hierarchies of esteem as the outcome of differentiation by mission. Those new forms are partly the result of public policy, notably with regard to the concentration of funding for research (for example, the UK’s Research Excellence Framework [REF] exercise or, more broadly and strategically, the Excellenz initiative in Germany). National prestige is now calibrated in terms of “world-class” research universities. But they are also the result of institutional initiative, as universities with common characteristics (or, at any rate, shared aspirations) cluster together in informal groupings with the intention of lobbying governments and also creating “brands” in a policy environment increasingly dominated by rankings. These groups have been established within countries (such as the “Russell Group” of research intensive universities in the UK), in regions (for example, the League of European Research Universities) and across continents (such as Universitas 21, which now has 27 members in all five continents).

These two significant changes have helped to shape the subtle transformation of the structure of higher education systems. Although changes in the pattern of institutions have been limited (so far), changes in the relationships among these institutions and between these institutions and governments, business enterprises, and students have been far-reaching. Also, it is possible that, despite its resilience (or the powers of inertia), the pattern of institutions formed within a “public” culture, if not always by regimes of predominant state funding of higher education, during the second half of the 20th century will be increasingly difficult to maintain in the 21st century. The pace of restructuring – mergers, acquisitions and closures/failures – may accelerate, as also may the development of new organisational forms that combine higher education and research in radical new combinations.

## New business and organisational models

There has been a proliferation of business, or organisational, models for universities. Some of these new models owe more perhaps to ideological and managerial fashion than to deeper analysis of changing institutional roles. However, two broad types can be identified:

1. The first type is essentially *evolutionary*. Traditional models have been adapted in a number of ways. One is to develop a strengthened central core organised around an executive management team and a more powerful central administration able to offer more professional support to academic units. But this is often counterbalanced by greater devolution to these units – although they may now be headed by quasi-executive managers (who nevertheless maintain strong academic affiliations). This



has sometimes been linked with a degree of experimentation in academic structures; for example, replacing discipline-based departments with larger interdisciplinary schools or even “colleges”. As a result, the central core of the university may come to resemble a “holding company”. However, the degree of deviation from traditional institutional models is often limited; research and teaching usually continue to be combined (although there may be a greater specialisation of professional roles) and some element of academic self-government is maintained.

2. The second type is, or aims to be, more *transformational*. Academic departments, if they are retained at all in anything approximating their traditional form, are defined as “delivery units”, to meet the needs of the various student (and research) “markets” as identified by senior managers. Teaching and research programmes may be unbundled as a result. The role of academic staff is seen as deriving solely from their specific professional expertise rather than any wider intellectual and scientific responsibilities or their cultural status. Habits of collegiality are succeeded by line-management relationships. Institutions are progressively redefined as knowledge organisations.

However, this dichotomy of business and organisational models may still be too simple. First, many institutions combine elements of both – or, more often, retain a traditional academic core alongside more innovative business models (perhaps organised as subsidiary units). Secondly, it is misleading to align the first type with research intensive universities and the second with institutions predominantly focused on teaching; in some respects the organisation of research is better suited to new business models than teaching (certainly face-to-face teaching leading to academic or professional credentials). Thirdly, state policy and regulation impose constraints on all institutions, teaching oriented as well as research intensive, which restrict the scope for truly transformational business models. Finally, while many institutions, including those labelled “entrepreneurial universities” as well as newer institutions, may aspire to adopt business models of the second type, in practice few have attempted the fundamental restructuring necessary to achieve such radical transformation.

To succeed in the 21st century, universities may need to be rather conservative in their business models, even reversing some of the managerialist and corporatist policies and practices they have been encouraged to adopt since the 1990s. Alternatively, universities could be much more radical, embracing the flexible (and volatile) models characteristic of cutting-edge, knowledge-based businesses rather than merely implementing old-fashioned corporate models. Or, confusingly, universities could be both conservative and radical, so long as the models they adopt are fitting to the context and needs of the institution, well planned and carefully implemented.

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## WHAT IS AN INTERNATIONAL UNIVERSITY?

Jane Knight

### Introduction

Over the past decade, internationalisation of higher education has grown in scope and scale. In addition to the explosion in student mobility numbers and modes, there has been an unprecedented increase in branch campuses, joint and double degree programmes, franchise and twinning arrangements, global research networks, new independent international institutions, MOOCs, and the development of education hubs, zone and cities (Knight, 2014). In short, the world of international education is changing dramatically and at a rapid pace.

One of the more intriguing aspects has been the emergence of new types of international higher education institutions. It is intriguing because one is not sure what the label “international university” means exactly. The definition of an international university is both comprehensive and evasive. The expression “international” or “internationalised university” is now so commonplace that it has become a catchall phrase for any hint of international activity at an institution of higher education and thus has also become almost meaningless. It does illustrate, though, how attractive and important it is for a university to describe itself as international.

To complicate matters further, “international” is not the only term used. It is hard to discern the difference between an international university, a transnational university, a multi-national university, a binational university, or a global university. No wonder there is mass confusion about what an international university really means. There is no simple answer, but this short article attempts to organise the different types of international universities into three generic categories.

The discussion focuses on the distinguishing features of the three models and does not attempt to dissect the differences between the terms international, multinational or global. Such an exercise is complex due to nuanced meanings according to discipline, the biases of the English language, and the difficulty of translating subtle differences into other languages. Thus, international university is the operative term in this article and can be used as proxy for the other descriptors. Important to note is that terms describing higher education institutions such as “world class” or “internationally recognised” universities are not addressed as they deal more with perception, branding and status building related to rankings than to models *per se* (Crook, 2014).

### Three generations of international universities

#### ➤ University with multiple international activities and partners – 1st Generation

Today, a common characteristic of universities is collaboration with international partner universities and research centres. These partnerships span a diversity of academic and management initiatives including: academic student/scholar mobility, joint programme development and delivery, collaborative research projects, benchmarking, professional development, etc. The number of these bilateral or network-based arrangements has soared in the last few years. They are a result of the internationalisation mandate of universities around the world (Egron-Polak and Hudson, 2014). Most of the partnerships are motivated by academic benefits, yet there are some that are driven by status building or commercial rationales. Nevertheless, for whatever reason, it is common practice for universities to have both international students and staff and be engaged with multiple foreign partners for a diversity of activities both on campus and abroad. These are labelled 1st Generation International Universities and are, by far, the most common interpretation and use of the term international university.

#### ➤ International Branch Campuses or Satellite Offices – 2nd Generation

An interesting development is the creation of international branch campuses. These are satellite operations of the parent university established in different host countries. The set-up of a branch campus differs institution by institution and country by country, but the essential characteristic is that academic programmes developed by the parent institution are offered to students in a foreign country using local, expatriate, or fly-in faculty. The parent institution must be licensed to operate in the host country and, in many cases, incentives are offered to attract branch campuses. There are a range of rationales and expected outcomes by both the parent institution and the host country (Knight, 2008). The qualification awarded is normally from the parent institution. Worth noting is that some branch campuses are also involved in major research projects and community based initiatives. This is the most common approach; however, internationally engaged universities are also setting up offices focused on student recruitment, alumni affairs, fund raising, consultancies, professional training and research.

Again, there is significant variation in how universities establish and operate these satellite academic, research or management offices (Wilkins and Huisman, 2012). A university with three or more campuses or offices is often referred to as an international networked university. For example, New York University calls itself a “Global Networked University” with campuses in Shanghai, Abu Dhabi and New York and 11 research centres around the world (See: [www.nyu.edu/global](http://www.nyu.edu/global)).

### ➤ Internationally co-founded/co-developed universities – 3rd Generation

A more recent development is the founding of new, stand-alone universities involving one or more foreign partner institutions. This type of international higher education institution differs significantly from the international branch campus model because they are not operating as satellite operations of a parent institution. These are independent, internationally co-founded or co-developed institutions licenced by the host country, but developed through international collaboration among partner institutions (Knight, forthcoming).

There are many examples: Singapore University of Design and Technology, Nazarbayev University in Kazakhstan, German University of Technology in Oman, the Sino-British University and the Xi’an Jiaotong Liverpool University in China. These are known as 3rd Generation international universities. While each example is slightly different, a common element is that academic partners from different countries have been deeply involved in the establishment of the new institution and its academic programs.

## Brief profiles of 3rd generation international universities

### ***Singapore University of Technology and Design***

The Singapore University of Technology and Design (SUTD) was established in 2012 as Singapore’s fourth autonomous national university. It was developed in close collaboration with the Massachusetts Institute of Technology (MIT) and has a management team including former academics from both MIT and Singaporean institutions. Zhejiang University (ZJU) from China is identified as the second key partner in the founding of the institution to ensure that best practices from the East and West are used. In terms of accreditation, SUTD’s three core programmes have been accredited by ABET in the USA and the Engineering Accreditation Board in Singapore. The qualifications offered are both double degrees and a single degree from SUTD. The essential feature of this 3rd generation international university is the full participation of its partners in the initial conceptualisation of the institution through the development of the core and elective courses, to the implementation of the teaching and research priorities (See [www.sutd.edu.sg/](http://www.sutd.edu.sg/))

### ***The German University of Technology in Oman***

The German University of Technology in Oman (GUTech) is another fascinating, but quite different example of a 3rd generation international university. In 2007, by special decree from the Sultanate of Oman, GUTech was

established as a privately owned Omani university. Its primary partner in the planning of the university was RWTH Aachen from Germany. The approach to teaching and research is firmly based on the German Humboldt model of higher education. The university and its programmes have been accredited by the Oman Academic Accreditation Agency, while the programmes that have originated from Germany have been accredited by the German quality assurance and accreditation agency. Joint research between GUTech and RWTH plus local industrial partners is underway. This model is unique as one would expect from the name of the university that it would be more like a branch campus of RWTH Aachen. This is not the case. It is Omani owned and accredited and offers Omani degrees only. Significant support is offered by the German government in terms of supporting RWTH's role in programme design and delivery, by offering scholarships for Omani students to continue graduate studies in Germany, and providing resources for German language teaching in the university. This 3rd generation model is referred to as a binational university model (Geifus and Kammeuller, 2014) given that the two governments worked closely together and expertise from both countries was instrumental in the design and establishment of this institution (see [www.gutech.edu.om/](http://www.gutech.edu.om/)).

### ***Nazarbayev University, Kazakhstan***

Nazarbayev University (NU) was established in 2010 as the flagship university of Kazakhstan. It bears the name of the president of the country and has received generous government support. Nazarbayev University is the only university in Kazakhstan that has the status of an autonomous educational organisation. NU considered several different models of international collaboration: the branch campus model, the binational model, and the education city model. The approach they adopted is based primarily upon partnerships with well-known universities around the world. Partner universities from the United States, England and Singapore were carefully selected to collaborate on developing the undergraduate and graduate programmes for the seven different schools that make up NU. Each collaboration is different, but the primary role of partners is to provide advice on curriculum design and faculty recruitment, not to deliver the programmes. The senior management team have been recruited from universities and organisations from all regions of the world. It is the intention of the Ministry of Education that NU serve as a model of innovation and good practice for the other universities in the country. This is an example of a co-developed institution, not a co-founded international university (see <http://nu.edu.kz>).

### ***Sino-British College, China***

The Sino-British College (SBC), established in 2006, represents yet another approach. The University of Shanghai for Science and Technology (USST) has collaborated with a consortium of nine British institutions to establish a new legal entity called the Sino-British University, which is approved by the Ministry of Education in China. The college is housed on the Fuxing Campus of the University of Shanghai for Science and Technology. It offers a wide variety of programmes that are taught in English and offer a British credential. The staff include local teachers (including USST staff), fly-in faculty from the nine British universities, as well as other international professors located in Shanghai. It appears that the nine UK institutions act much like a branch campus of their home institutions, but what makes the college different from regular international branch campus set-ups is that a new legal entity has been created between one Chinese university and a consortium of nine British HEIs. For further information, see [www.sbc-usst.edu.cn/en/](http://www.sbc-usst.edu.cn/en/).

### ***Xi'an Jiaotong Liverpool University***

The Xi'an Jiaotong Liverpool University (XJTLU), established and approved by the Ministry of Education in China, is another independent university established by two existing partner institutions: Xiaotong University of China and Liverpool University in the UK. Established in 2006 and located in Suzhou Dushu Lake Higher Education Town in the Shuzhou Industrial Park, it shares common academic and service facilities with other institutions located there. Established at a time when the branch campuses were popular, this was an early experiment for a new model of a co-founded international university. Since then, a number of other co-

founded independent institutions have been developed. These include the Duke Kunshan University, which is a joint project between Duke University and Wuhan University with Kunshan providing the funding and campus. Another example is New York Shanghai, which was co-founded between East Normal University and New York University. Important to note are the Chinese government regulations that require a foreign university to collaborate with a domestic higher education institution. This is a key factor, influencing the development of international co-founded universities in China.

### ***Transnational University Limburg***

Another, rather interesting but not new approach is the establishment of the Transnational University Limburg (tUL). Note the use of Transnational in the name of the university. It is a partnership of two universities located in neighbouring countries: the Universiteit Hasselt (UHasselt) of Belgium and Maastricht University (UM) in the Netherlands. Discussions for the development of this joint institution started in 1988 and it was officially established in 2001. The university is described as an independent institution separate from its two founders. One of the more interesting features is that tUL does not have an independent campus. The university is located within each of the founding institutions and has a rather complex management structure. More than a decade later, the university is still operational, but with rather small enrolment numbers (see: [www.tul.edu/](http://www.tul.edu/)).

These examples of 3rd generation international universities have all been co-founded or co-developed based on international collaborations with universities in different countries, but they differ one from another.

## **Issues and challenges**

Apart from the common challenges most universities face related to funding, improving quality, responding to the needs of the community and labour market, student and staff recruitment, and research funding, there are issues more specific to 3rd generation international universities. These include governance models, intercultural partnerships, accreditation, awarding of qualifications, staffing, language, host country regulations, and sustainability.

There is no doubt that models of university governance differ dramatically from country to country. The role of university governing boards is normally to chart policy and overall direction within the regulatory, cultural, and political context of the host country. When partners from different contexts collaborate to establish a new institution, including an appropriate governance policy and structure, there are bound to be issues that need attention. Not only do host country regulations influence decisions about who sits on the board and how they are appointed, the differences and similarities of values, norms and assumptions of governing a higher education institution can present challenges. The same can be said about the senior management team if it is international in makeup.

Accreditation of programmes is another critical area. If joint/double/multiple degrees are offered, accreditation can become complicated, as quality assurance requirements from each institution/country are involved. Meeting the requirements of two accrediting bodies can mean a heavy drain on human and financial resources as accreditation is becoming more of a cumbersome bureaucratic exercise that can perhaps *assure* quality, but not necessarily *improve* quality. Given the current obsession with world league tables, being ranked highly is very attractive, especially for professional programmes. This can mean yet another round of self and external evaluations for a professional programme accreditation, and the result usually contributes more to status building than capacity building for the institution. In short, accreditation of multiple partner-founded institutions is important, but can also be a major investment in effort and resources.

The question of who awards the qualifications and whether the qualification is single, joint, double or multiple is an increasingly important and controversial issue. While institutions and students alike welcome double/multiple degrees, there are an array of issues involved related to the legal requirements of partner institutions and the host country. Even more important is the ethical issue and integrity of awarding two or

more qualifications for the workload of one programme. The practice of double counting credits resulting in two or more credentials (one qualification from each partner institution) will continue until appropriate legislation and practices that permit joint degrees (one qualification with the names of all partner institutions included on the certificate or in an attachment) are established. The debate on whether double degrees offer double benefits or double counting of credits continues (Knight, 2011). Of course, models exist whereby a double degree accurately represents the workload of two separate programmes and qualifications, but this arrangement is not the norm. The question of whether double degree programmes are becoming known for offering “discount degrees” in the form of double or multiple credentials deserves further attention. The proposal of an “International Affiliation Transcript” warrants serious consideration as a way to continue to promote collaboration among institutions in programme design and delivery while preventing the double counting of credits, courses, or workload. The principal guiding the International Affiliation Transcript is that the student receives one qualification certificate from the primary institution of enrolment. The transcript is attached and indicates the partner institutions involved in co-designing/delivering the programme, including a list of all courses taken, who provided the course, and in which country the course was completed. This provides complete transparency of all international partners and activities, but respects the fundamental integrity of the qualification and avoids double counting of credits towards two or three different qualification certificates (Knight, forthcoming).

A feature and perceived benefit of 3rd generation universities is an international group of academic staff. This includes local teaching staff from the host country, expatriate staff, and fly-in faculty from partner institutions. This culturally rich mix of academic staff (and often student body) offers many opportunities for cross-cultural exchange of knowledge, insights and values. It can also introduce challenges in the classroom when different assumptions and academic practices are in conflict. This relates to group work, plagiarism, attendance, workload and negotiation for grades. While these issues can be successfully addressed, they are often neglected until a problem occurs.

These are only a few examples of academic issues that 3rd generation international universities can face. In addition, there are financial, regulatory, technical, and political issues that need to be addressed. Given the current appetite for international collaboration and the fast pace of internationalisation of higher education, there is a strong will to find appropriate solutions and good practices are emerging. However, it is prudent to continue to monitor the unforeseen issues and unintended consequences, both positive and negative.

### Last words

This article addressed the question – “what is an international university?” There is much confusion as to what an international, binational, transnational, multinational or global university actually means. In fact, the term is less important than the model used to meet the needs and objectives of the participating higher education institutions. There is no standardised model, nor should there be. A “cookie cutter” approach to international universities neglects the critical importance of the cultural, social, economic, political, and academic context of the host country and the nature of the international academic partnerships. This article has suggested three different categories or generations of international universities. Within each approach there are variations. The 1st generation is an internationalised university with a diversity of international partnerships, international students and staff, and multiple collaborative activities. The 2nd generation includes universities who have established satellite offices in different countries of the world in the form of branch campuses, research centres and management/project offices. The 3rd and most recent generation of international universities are co-founded or co-developed by two or more partner institutions from different countries. The proposed taxonomy of three generations of international universities is a work in progress and thus but a first step towards developing a clearer understanding and framework for an analysis of the evolving and innovative models of international universities.



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