Investing Strategically in Higher Education

Aligning Public Funding with Policy Objectives

June 2016
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Acknowledgements

This policy note provides an overview to guide and inform how higher education finance can become more strategic in Central European and Baltic countries. It complements a workshop held in April of 2016 in Zagreb, Croatia on the topic of higher education financing, at which nine country delegations from Central Europe and the Baltic countries were present. Given the multitude of experiences and familiarity with the issues of higher education finance, this document was prepared by the World Bank to serve as a foundation upon which new ideas and thinking can be developed.

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**Abbreviations**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>£</td>
<td>British Pound</td>
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<tr>
<td>€</td>
<td>Euro</td>
</tr>
<tr>
<td>$</td>
<td>Dollar</td>
</tr>
<tr>
<td>BEEPS</td>
<td>Business Environment and Enterprise Performance Surveys</td>
</tr>
<tr>
<td>BG</td>
<td>Bulgaria</td>
</tr>
<tr>
<td>CZ</td>
<td>Czech Republic</td>
</tr>
<tr>
<td>DKK</td>
<td>Danish Krone</td>
</tr>
<tr>
<td>EC</td>
<td>European Commission</td>
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<tr>
<td>ECTS</td>
<td>European Credit Transfer and Accumulation System</td>
</tr>
<tr>
<td>EE</td>
<td>Estonia</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
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<tr>
<td>EUA</td>
<td>European University Association</td>
</tr>
<tr>
<td>EUR</td>
<td>Euro</td>
</tr>
<tr>
<td>GBP</td>
<td>British Pound</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>GR</td>
<td>Greece</td>
</tr>
<tr>
<td>HEFCE</td>
<td>Higher Education Funding Council for England</td>
</tr>
<tr>
<td>HEI</td>
<td>Higher Education Institution</td>
</tr>
<tr>
<td>HR</td>
<td>Croatia</td>
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<td>HU</td>
<td>Hungary</td>
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<td>Lithuania</td>
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<tr>
<td>LV</td>
<td>Latvia</td>
</tr>
<tr>
<td>MoES</td>
<td>Ministry of Education and Science, Latvia</td>
</tr>
<tr>
<td>MoSES</td>
<td>Ministry of Science, Education and Sports, Croatia</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic Cooperation and Development</td>
</tr>
<tr>
<td>PFO</td>
<td>Public Funding Observatory</td>
</tr>
<tr>
<td>PL</td>
<td>Poland</td>
</tr>
<tr>
<td>RESAVER</td>
<td>Retirement Savings Vehicle for European Research Institutions</td>
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<tr>
<td>RO</td>
<td>Romania</td>
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<tr>
<td>SES</td>
<td>Socio-economic status</td>
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<td>SI</td>
<td>Slovenia</td>
</tr>
<tr>
<td>SK</td>
<td>Slovak Republic</td>
</tr>
<tr>
<td>STEM</td>
<td>Science, Technology, Engineering and Match</td>
</tr>
<tr>
<td>STINT</td>
<td>Swedish Foundation for International Cooperation in Research and Higher Education</td>
</tr>
<tr>
<td>TEC</td>
<td>Tertiary Education Commission, New Zealand</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
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<tr>
<td>US</td>
<td>United States</td>
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<tr>
<td>USD</td>
<td>US Dollar</td>
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</table>
Executive Summary

Linking higher education finance and policy, referred to as strategic financing, is increasing in popularity throughout Central Europe and the Baltic Countries. Strategic financing essentially implies that public funding mechanisms are aligned with specific higher education policy objectives. Can funding formulae, for instance, be modified strategically to help realise certain policy objectives? If a government is seeking to enrol more science, technology, engineering and math (STEM) students, for example, could allocating a premium to higher education institutions (HEIs) per STEM student help achieve the policy objective? Like many countries around the world, Central European and Baltic countries are exploring how different financing modalities can provide additional leverage in steering their higher education sector towards specific policy objectives.

In recent years, many Central European and Baltic countries are facing common economic, socio-political, and demographic issues. These common challenges can broadly be categorised into three main themes: challenging economic environment; increasing European integration; and declining demographic trends. First, the region still faces fiscal constraints as it emerges from the global economic slowdown. Such economic trends have placed downward pressure on public higher education budgets and increased the call for collaboration between higher education and the labour market. Second, national higher education policies across Central Europe and the Baltic countries are impacted by a broader European policy environment, including the European Higher Education Area. Supranational initiatives, such as the EU’s Education and Training 2020 Strategy, Horizon 2020, and its Modernisation Agenda for Higher Education, as well as the intergovernmental Bologna Process, strongly influence national higher education policies. Third, a declining population in Europe is shrinking the number of working- and student-age people. After decades of growth in the higher education sector, the number of new students participating in higher education is slowly declining.

In response, many of the Central European and Baltic countries are pursuing a similar set of higher education policy objectives. For the purposes of this Policy Note, these common policy objectives are summarized in Table 1, which indicates the specific countries that have included a similar policy objective in their national strategic documents.

Table 1: Common Higher Education Policy Objectives throughout Central Europe and Baltic Countries

<table>
<thead>
<tr>
<th>Objective</th>
<th>HR</th>
<th>LV</th>
<th>SI</th>
<th>RO</th>
<th>LT</th>
<th>GR</th>
<th>EE</th>
<th>PL</th>
<th>CZ</th>
<th>SK</th>
<th>HU</th>
<th>BG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assuring and Enhancing Quality</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Improving Links Between HE and the Labour Market</td>
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<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Boosting Knowledge Generation and Technology Transfer</td>
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<td></td>
<td>X</td>
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<tr>
<td>Consolidating and Diversifying the Sector</td>
<td></td>
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<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Optimising HEI Finances</td>
<td></td>
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<td>X</td>
</tr>
<tr>
<td>Fostering Internationalisation and Collaboration</td>
<td></td>
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<td>X</td>
</tr>
<tr>
<td>Increasing Equitable Participation</td>
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<td>X</td>
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</table>

*For the sake of comparability, the table uses generic policy categories, which may be articulated differently in national strategic documents.*
Since the majority of higher education funding comes from public resources, governments in Central Europe and the Baltic countries are exploring how their financing approaches can be modified to support these policy objectives. Though allocated differently in each country, public funding plays a major role in the region, accounting for (see Figure 1) between 50 and 90 percent of the universities’ income in the region (Pruvot, Claeys-Kulik & Estermann, 2015).

**Figure 1: Public Funding Represents the Majority of Higher Education Funding in the Region**

There are a number of ways that financing can flow to support these policy objectives, conditional upon the local context. International experience shows that strategic financing is not a ready-made concept, but a broad label that offers a menu of design options that can be tailored to country-specific conditions. Figure 2 below provides a typology of available allocation mechanisms, each of which can be strategically aligned with policy objectives.

**Figure 2: Public Funding Allocation Mechanisms**

While these different allocation mechanisms provide a promising set of tools that can be aligned with policy objectives, identifying the most effective funding mechanism for achieving a country’s policy objectives, given its unique context, can be challenging. Table 2 below highlights which funding mechanisms are used in countries across the region. While many of these governments have indicated a trend towards more innovative and strategic funding approaches, the historical precedent of allocating funding according to study places and other inputs remains the most common approach.

**Table 2: Input-oriented Formulae Remain the Most Common Allocation Method in the Region - Percentage of total public expenditure on HEIs per allocation mechanism**
<table>
<thead>
<tr>
<th>HR</th>
<th>GR</th>
<th>RO</th>
<th>SI</th>
<th>PL</th>
<th>EE</th>
<th>CZ</th>
<th>LV</th>
<th>LT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negotiation and/or Historically Determined</td>
<td>70%</td>
<td>5%</td>
<td>15%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input-Oriented Funding Formula</td>
<td>90%</td>
<td>70%</td>
<td>50%</td>
<td>50%</td>
<td>74%</td>
<td>80%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output-Oriented Funding Formula</td>
<td>7.5%</td>
<td>5%</td>
<td>50%</td>
<td>95.33%</td>
<td>26%</td>
<td>6%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Performance Agreements/Contracts</td>
<td>2.5%</td>
<td>45%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competitive Funds</td>
<td>10-20%</td>
<td>20%</td>
<td>3.2%</td>
<td>31%</td>
<td>24%</td>
<td>9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excellence Schemes</td>
<td>5%</td>
<td>1.47%</td>
<td>9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Alternatives</td>
<td>10-15%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NB: The figures in this table are approximations only, calculated based on a pre-workshop survey, World Bank workshop, Zagreb, April 2016

A growing number of European countries are recognising the need to take risks with their funding approaches, and are increasingly revising their mix of allocation mechanisms. The governments of Latvia and Croatia, for example, have recently undertaken reviews of their higher education financing systems to see how they can better leverage funding to achieve the government’s strategic goals.

In addition to leverage, strategic financing can offer other potential advantages. It can enhance the strategic dialogue between the state and HEIs as well as provide more and better information on policy goals and priorities. It can also clarify for HEIs how they can contribute towards the realisation of national policy objectives and signal to them what is and is not working. Transparency can be improved by providing greater and more useful information and indicators. This focus on key indicators can improve the quality, relevance, productivity, and efficiency of the higher education sector by sharpening the focus on key, measurable outcomes. This also encourages a greater emphasis on strategic planning and assists in aligning institutional strategic plans with national higher education strategies.

While those advantages are appealing, any exploration of strategic financing should also take note of several important caveats. First, an underfunded higher education system will be limited in its abilities regardless of the allocation mechanisms. Second, specific funding mechanisms may reinforce certain objectives, while simultaneously hindering others. Third, certain preconditions, such as a certain degree of institutional autonomy or a well-functioning quality assurance system, are important for the introduction of strategic funding. A higher education sector functions like an ecosystem, so policy makers must be cognizant of how certain components work with or against one another when designing or reforming higher education funding systems.

While the alignment of policy and financing is easy to understand in theory, implementation can be challenging. This policy note uses a high-level implementation framework to discuss the common activities, challenges, and recommendations associated with the usual phases of implementing higher education funding reforms. The successful implementation of higher education financing reforms begins with a well devised plan. With that developed, a good diagnostic of the current situation, based firmly on evidence, is essential. Diagnosis requires a careful review of the existing funding mechanisms and the identification of options, taking into account specific country and sector context. The third stage is to design the reform package(s). Higher education financing reforms and the introduction of new mechanisms require complex design questions due
to the often qualitative character of the objectives. A pilot or shadow phase can test the reform at a smaller scale while providing an opportunity for dialogue, feedback, adaptation and adjustment. The funding model can then scale up based on the experiences of the pilot phase. On a periodic basis, the stakeholders should evaluate the approach to financing and make adjustments according to evolving circumstances and policy priorities.

Figure 3: Framework for Implementation

In summary, strategic financing has the potential to influence the realization of different higher education policy objectives. While anecdotal evidence in Europe suggests this is a promising practice, a solid research base is lacking. The current body of research on the impacts of strategic financing is scarce, inconclusive and focused primarily on the United States; further research, therefore, is needed, especially in Europe where the context is different and the prevalence of strategic finance is on the rise. Specifically, quantitative research (e.g. multivariate studies with extensive controls to isolate variables and their impacts) that investigates possible shifts in HEI performance and their relationship to strategic financing policies would be useful to inform policy makers.

Even without such research, the challenges facing higher education systems throughout Central Europe and the Baltic countries, and around the world for that matter, require governments to be increasingly strategic and to take more risks. Either the same financing approach can be maintained or new strategic approaches can be tested in the hopes of identifying more effective ways to pursue important policy objectives. A greater degree of multilateral governmental cooperation would also allow policy makers across the region to benefit from the transparent sharing of ideas, experiences and results. In this regard, there is a case for international organizations, like the World Bank and European Commission, to continue supporting governments in their design and implementation of funding systems that support their policy objectives.
1. Introducing Strategic Financing: Aligning Allocation with Policy

To optimize their investment in higher education, many governments are strategically re-evaluating their mechanisms for financing higher education and their alignment with the sector’s objectives. Strategic financing essentially implies that public funding mechanisms are informed by and aligned with specific higher education policy objectives. Funding then becomes a key incentive for change.

Strategic financing encompasses both performance-based and other allocation mechanisms that connect public funding with policy objectives. Input-oriented funding formulae, for instance, can also be used strategically to realise certain policy objectives. Providing more funding based on the number of STEM graduates or the number of low-income students can be examples of strategic financing if the government was seeking to enrol more such students. A competitive fund for proposals aimed at improving labour-market linkages could also be strategic without necessarily being performance-based (since the money may be allocated according to the proposal and not based on the actual outcome). Performance-based funding modalities, in particular, can provide governments with additional leverage in influencing the behaviour of HEIs and, therefore, greater strategic utility.

In addition to leverage, strategic financing can offer other potential advantages. Table 3 summarises both the advantages of strategic financing as well as some important caveats for consideration.

Table 3: Potential Advantages and Caveats for Strategic Financing of Higher Education

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Caveats</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To enhance the strategic dialogue between the state and HEIs</td>
<td>1. An underfunded higher education system will be limited in its abilities regardless of the allocation mechanisms</td>
</tr>
<tr>
<td>2. To provide more and better information on goals and priorities</td>
<td>2. In order for certain outcomes to be attributed to a particular funding mechanism in a causal manner, more research is needed</td>
</tr>
<tr>
<td>3. To clarify how institutions can contribute towards the realisation of policy objectives</td>
<td>3. While specific funding mechanisms may reinforce certain objectives, they may simultaneously hinder others</td>
</tr>
<tr>
<td>4. To signal what is and is not working</td>
<td>4. Certain preconditions are important for the introduction of strategic funding mechanisms in terms of the overall functionality of public institutions and governance arrangements</td>
</tr>
<tr>
<td>5. To improve the quality, relevance, productivity and efficiency of the system by sharpening the focus on measurable indicators</td>
<td></td>
</tr>
<tr>
<td>6. To encourage a greater emphasis on planning</td>
<td></td>
</tr>
<tr>
<td>7. To improve transparency by providing greater and more useful information and indicators</td>
<td></td>
</tr>
</tbody>
</table>

This policy note synthesises the literature on higher education financing, draws on The World Bank’s experience advising governments on the topic and utilises data and insights obtained during a recent workshop with global higher education experts and policy makers from nine Central European and Baltic countries on the topic of the strategic financing of higher education. It provides an overview of how strategic financing is being implemented to support the realisation of policy objectives. Chapters 2 and 3 describe and present the topic of strategic funding in the context of Central Europe and Baltic countries, and Chapter 4 deals more directly with specific funding strategies and how these can be applied to tackle common policy objectives. Chapter 5 provides a high-level framework for implementation that policy makers can use as a foundation to be adapted, manipulated and customised according to the unique context of the state and its proposed reform. The intention is to provide a concise and usable reference resource for those embarking on higher education financing reforms.

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1. The workshop occurred on April 26, 2015 in Zagreb, Croatia with attendees from Croatia, Czech Republic, Estonia, Greece, Latvia, Lithuania, Poland, Romania and Slovenia.
2. Policy Context

In order to understand the impetus for strategic financing, it is pertinent to first look at the economic, socio-political, and demographic dynamics and drivers throughout Central Europe and the Baltic countries, whilst recognising the specificity of circumstances in individual countries. These changing circumstances are generating a number of similar and country-specific higher education policy objectives. As governments contend with these circumstances and set new policy aspirations for the future, there is a need to examine, adapt, align and leverage public funding for higher education to achieve ambitious policy objectives.

2.1. System Dynamics and Drivers

At a regional level, the dynamics influencing higher education systems can be broadly categorised into three main themes: economic environment; European integration; and demographic trends.

First, the region still faces fiscal constraints as it emerges from the global economic slowdown. High levels of unemployment remain widespread, and economic growth remains sluggish. Although it began in early 2010, the recovery remains fragile, uneven, and slower than in other parts of the global economy, especially in comparison to other high and upper middle-income countries such as Korea or Malaysia.

Such economic trends have, in turn, placed downward pressure on public higher education budgets. Around half of the countries in Europe have reduced their higher education spending since 2008, with negative funding trends particularly acute in EU-10 countries (see Table 4). This trend is not uniform across Europe, however. Between 2008 and 2014, for example, Norway, Sweden, Belgium, France, the Netherlands, Germany and Austria all increased the amount of public expenditure for higher education (EUA, 2015).

Table 4: Evolution of Public Funding for Higher Education between 2008 and 2014

<table>
<thead>
<tr>
<th>Changes in Public Funding 2008-2014</th>
<th>Country/System (Change adjusted for inflation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between 20% and 40% increase</td>
<td>Germany, Norway, Sweden</td>
</tr>
<tr>
<td>Between 10% and 20% increase</td>
<td>Austria, Belgium (fr and fl), Denmark, Poland</td>
</tr>
<tr>
<td>Between 5% and 10% increase</td>
<td>---</td>
</tr>
<tr>
<td>Between 5% increase and -5% decrease</td>
<td>France (+), Netherlands (+), Portugal (-)</td>
</tr>
<tr>
<td>Between 5% and 10% decrease</td>
<td>Croatia, Slovakia, Slovenia</td>
</tr>
<tr>
<td>Between 10% and 20% decrease</td>
<td>Czech Republic, Spain, Iceland, Italy, Serbia*</td>
</tr>
<tr>
<td>Between 20% and 40% decrease</td>
<td>Ireland, Lithuania, United Kingdom</td>
</tr>
<tr>
<td>Decrease greater than 40%</td>
<td>Greece, Hungary, Latvia</td>
</tr>
</tbody>
</table>

Source: EUA, 2015; *Inflation data is sourced from the World Bank; Source: EUA, 2015

Underfunding is not a new challenge in Central Europe and the Baltic countries, where, in absolute terms, higher education receives significantly less money—per student, per faculty and per researcher — compared to their Western European neighbours (and even more starkly so compared to the United States and East Asia). In noting the “orders of magnitude differences between different regions of the world, resulting in a large geographical imbalance in financing scientific research at universities, with the least favourable situation in the post-communist countries,” Keszei (2015) highlights the challenges Central Europe and Baltic countries face in trying to compete with their western neighbours on budgets that are shrinking instead of growing. Given the pressures being placed on higher education to provide more relevant teaching and research outcomes, these fiscal constraints inherently dampen the region’s global competitiveness and potential.

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2 The EU-10 includes Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic, and Slovenia.
To fuel the recovery, many governments are attempting to improve the match between the skills of graduates and labor market demands. Although internationally comparable data on the relevance of higher education graduates’ skills and competencies for the job market remain scarce, several regional and business studies have shown widespread perceptions of skills shortages and mismatches even in contexts of strong educational achievement. For instance, skilled labour shortages were the second most commonly reported constraint to growth across all sampled countries in the BEEP (Business Environment and Enterprise Performance) survey in 2008. While the economic downturn may have provided something of a respite, skilled labour shortages remain important, especially in the Baltic countries (BEEPS, 2015).

Skills mismatches also threaten innovation capacity. The supply of human resources for innovation (e.g., scientists, researchers and engineers) in Central European and Baltic countries is insufficient. Tighter and more effective links between the three sides of the “knowledge triangle” — education, research, and innovation — can fuel the development of entrepreneurial, creative and innovative skills within and across academic specialities. Such linkages also promote more interactive learning environments and contribute to growth and job creation.

The second theme, European integration, refers and situates national higher education policies across Central Europe and the Baltic countries in the broader European policy environment, as exemplified by the establishment of a common European Higher Education Area. Supranational initiatives, such as the EU’s Education and Training 2020 Strategy, Horizon 2020, and its Modernisation Agenda for Higher Education, as well as the intergovernmental Bologna Process, have strongly influenced national higher education policies (see Box 1). Although non-binding, these agendas influence national policy makers (Czarniawska-Joerges & Sevón, 2005; Zgaga, 2013) and shape higher education policy development, but countries across the region are integrating these agendas into their policies to differing degrees and at different speeds.

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### Box 1: EU Policy Priorities and the Focus of the Bologna Process

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3 The knowledge triangle is a concept endorsed by the European Commission as a key driver of a knowledge-based society, which is a goal of the EU’s Lisbon and EU2020 strategies.
The European Commission fixes five key priorities for higher education in the EU, namely:

- increasing the number of higher education graduates;
- improving the quality and relevance of teaching and learning;
- promoting mobility of students and staff and cross-border cooperation;
- strengthening the "knowledge triangle", linking education, research, and innovation; and
- creating effective governance and funding mechanisms for higher education.

The Bologna Process is a collective effort of public authorities, universities, teachers, and students, together with stakeholder associations, employers, quality assurance agencies, international organisations, and institutions, including the European Commission. The main focus is:

- the introduction of the three cycle system (bachelor/master/doctorate);
- strengthened quality assurance; and
- easier recognition of qualifications and periods of study.

In Yerevan in May 2015, the Education Ministers identified four key priorities for the future:

1. enhancing the quality and relevance of learning and teaching;
2. fostering the employability of graduates throughout their working lives;
3. making our systems more inclusive; and
4. implementing agreed structural reforms.

Third, a declining population in Europe is shrinking the number of working- and student-age people. The demographic decline stems from low fertility rates (not exceeding 1.5 in EU-10 countries), rapid aging, and net emigration.

Consequently, after tremendous growth in the higher education sector in Europe that started in the 1980s (resulting in the average tertiary education attainment rate\(^4\) across the EU reaching 37.9 percent), the number of new students participating in higher education is slowly declining, particularly across Central Europe and the Baltic countries (see Figure 5). These demographic challenges and fiscal limitations are pushing countries in the region to rethink their higher education financing and policy.

---

\(^4\) those between the ages of 30-34 who have successfully obtained a tertiary qualification
Coupled with a decrease in the number of young people, higher education in the region appears to be at a turning point: a transition from a ‘growth’ to a ‘mature’ sector. With significant growth in the number of students, institutions, programmes and faculty over the past 20 years, higher education is now facing steady or even dwindling demand, entering a more “mature” phase. The maturation means that governments raise their expectations of HEIs regarding efficiency, productivity, and effectiveness. Long accustomed to being viewed as a ‘growth’ sector, higher education must now compete with other compelling claims on the nation’s resources, such as healthcare, transportation and prisons, for instance (Leontiades, 2007). The government typically reduces HEIs’ autonomy, increases regulation and demands greater accountability (Levine, 1997). One need look no further than the proliferation of quality assurance agencies in Europe and to the increasing quantification of outputs for evidence of this transition. Given England’s very mature system, for example, HM Treasury (2015) continues to place a strong emphasis on improving the productivity and performance of the higher education sector.

Even with these three common themes, it is important to realise that these dynamics and drivers manifest themselves differently in different countries; the idiosyncratic nature of a country’s higher education environment should not be underestimated. For example, the skills shortage and the decline in the number of relevant-age youth is much more acute in the Baltic countries, which have experienced high levels of emigration in recent years (BEEPS, 2015).

2.2. Common Policy Objectives
Given these common regional drivers and acknowledging that certain country-specific dynamics exist, the national higher education strategies or development plans are targeting similar policy objectives. Table 1 presents some examples of common strategic policy objectives that can be discerned across Central Europe and the Baltic countries, indicating in which countries they are currently evident. These objectives will be used later in the document to illustrate opportunities for strategic financing to promote and/or enforce key government policies.
Table 1: Common Higher Education Policy Objectives throughout Central Europe and Baltic Countries

<table>
<thead>
<tr>
<th></th>
<th>HR</th>
<th>LV</th>
<th>SI</th>
<th>RO</th>
<th>LT</th>
<th>GR</th>
<th>EE</th>
<th>PL</th>
<th>CZ</th>
<th>SK</th>
<th>HU</th>
<th>BG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assuring and Enhancing Quality</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Improving Links Between HE and the Labour Market</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Boosting Knowledge Generation and Technology Transfer</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Consolidating and Diversifying the Sector</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Optimising HEI Finances</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fostering Internationalisation and Collaboration</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Increasing Equitable Participation</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

*For the sake of comparability, the table uses generic policy categories, which may be articulated differently in national strategic documents.

3. Public Funding: An Instrument for Pursuing Policy Objectives Strategically

With the majority of higher education funding in the region coming from public resources, governments are increasingly exploring how financing can promote policy reforms and help steer the sector towards specific strategic goals and objectives.

3.1. The Importance of Public Funding

Central European and Baltic countries are heavily reliant upon public funding for higher education (see Figure 1). Public funding represents between 50 and 90 percent of the universities’ income (for institutions with available data—see Pruvot, Claey-Kulik & Estermann, 2015). These funding norms are likely to remain important, given the political climate, the high share of personnel and fixed costs within higher education institutions (HEIs) and the lack of readily available and/or viable alternatives for funding (*ibid*). In some countries, governments are reaffirming their commitment to sufficiently fund higher education. In Slovenia, for example, the government is committed to increasing and retaining funding for higher education at 1 percent of GDP.

Figure 1: Public Funding Represents the Majority of HE Funding in the Region

![Figure 1: Public Funding Represents the Majority of HE Funding in the Region](image-url)
Given this reliance on public funding, there is also a recognition that HEIs must diversify their income streams to non-state sources, such as industry. This is particularly important in Central Europe and the Baltic countries, where the ongoing financial and economic challenges continue to constrain public budgets.

3.2. Options for Allocating Public Funds to Higher Education

There are a number of ways that financing can be allocated to support policy objectives. International experience shows that strategic financing is not a ready-made concept, but a broad label that offers a menu of design options that must be tailored to country-specific conditions. Figure 2 provides a typology of the various mechanisms that governments typically utilize to allocate funding to HEIs, each of which can be strategically aligned with policy objectives.

Figure 2: Public Funding Allocation Mechanisms

In Central Europe and the Baltic countries, the most popular approaches are allocating line-item funding (i.e., separate, non-fungible amounts for salaries, operations, and other expenditure types) or block grants (i.e., funding that is fungible across expenditure types). The amount apportioned to each higher education institution can be determined in multiple ways. The amount could be based on history, where last year’s amount is adjusted up or down according to some inflation factor, or based on negotiations between the government and the institution. In many instances, a funding formula which distributes the public budget according to (quantitative) measures of institutions’ past activity, typically utilizing input-oriented drivers, is employed. A more performance-based approach would be to use a performance contract or employ outcome-oriented indicators in the funding formula (e.g., using the number of graduates instead of the number of students). For many Central European and Baltic countries, funding is primarily allocated according to the number of study places and other input-oriented indicators (see Table 2 below for a breakdown of allocation mechanisms in the region).

Table 2: Input-oriented Formulae Remain the Most Common Allocation Method in the Region - Percentage of total public expenditure on HEIs per allocation mechanism

<table>
<thead>
<tr>
<th></th>
<th>HR</th>
<th>GR</th>
<th>RO</th>
<th>SI</th>
<th>PL</th>
<th>EE</th>
<th>CZ</th>
<th>LV</th>
<th>LT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negotiation and/or Historically Determined</td>
<td>70%</td>
<td>5%</td>
<td>15%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input-Oriented Funding Formula</td>
<td>90%</td>
<td>70%</td>
<td>50%</td>
<td>50%</td>
<td>74%</td>
<td>80%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Output-Oriented Funding Formula | 7.5% | 5% | 50% | 95.33% | 26% | 6% | 20%
--- | --- | --- | --- | --- | --- | --- | ---
Performance Agreements/Contracts | 2.5% | 45% |
Competitive Funds | 10-20% | 20% | 3.2% | 31% | 24% | 9% |
Excellence Schemes | 5% | 1.47% | 9% |
Other Alternatives | 10-15% | | | | | 11% |

**NB:** The figures in this table are approximations only, calculated based on a pre-workshop survey, World Bank workshop, Zagreb, April 2016

**Funding formulae can be calibrated to promote specific policy objectives.** The choice of indicators is paramount not only to reinforce policy objectives, but also to ensure that unintended consequences are avoided. Careful consideration must be given to the choice and weightings of indicators to offset potential negative side-effects. An allocation system that rewards increases in the number of students or graduates, for example, might lead to concerns about quality; therefore, a robust quality assurance system would be necessary to mitigate such risk. Moreover, while performance indicators in funding formulae (and other instruments) can provide powerful and necessary incentives to strategically influence the quality and behaviour of HEIs, such criteria may also be seen to encroach upon the autonomy of these institutions. The involvement of HEIs and other stakeholders in the definition of these indicators, and indeed at all stages of the funding reform process, is therefore crucial.

**Performance agreements or contracts,** negotiated bilateral contracts between the government and an individual HEI, offer an opportunity to define mutual objectives that align with national strategic priorities and institution-specific missions. The amount of money attached to such agreements differs, and can determine the degree to which performance agreements incentivise certain objectives (or not). Currently, performance agreements are used in approximately 15 out of 22 European systems (Pruvot, Claeys-Kilik & Estermann, 2015), with the majority of public funding for HEIs allocated via such agreements in countries such as Austria, the Netherlands, New Zealand, Colombia, Hong Kong and Chile.

As with all allocation mechanisms, performance agreements come with some risk, including the perception that such contracts may be punitive, the potential for high transaction costs and the risk that the wrong kinds of behaviours may be encouraged. If agreements have ‘hard’ mechanisms that result in sanctions or decreases in funding for HEIs should they fail to meet goals, they could be viewed in some instances as punitive rather than as an incentive (Salmi & Hauptman, 2006), which could deter HEIs from engaging in constructive negotiations with the government. Additionally, the design, negotiation, monitoring and evaluation of performance agreements require significant input from various actors: governments, institutions, agencies and independent experts. The transaction costs can therefore be substantial (de Boer et al., 2015). Finally, the incentive structures contained in agreements may actually encourage unintended and overtly negative behaviours, such as intentional underperformance in order to set low benchmarks that will be used to measure future performance. One example is the lowering of academic standards (or inflation of grades) to improve progress toward graduation (Pruvot, Claeys-Kilik & Estermann, 2015a).

**Competitive funds - central funds with defined purposes - can act as a stimulus for institutions to focus their activities on areas conducive to certain policy objectives,** such as improving quality and relevance, promoting innovation, and fostering institutional improvement and profiling, all of which are difficult to achieve through funding formulae or categorical funds. The criteria against which proposals are peer-reviewed and selected

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5 Only two Central European and Baltic countries (Croatia and Estonia) use this mechanism.
can be defined in a way to encourage HEIs to focus their strategic planning efforts on such policy priorities, which not only furthers such objectives but also helps HEIs to develop proposals based on a solid identification of needs and a rigorous action plan (Salmi & Hauptman, 2006). Competitive funds have been effective incentives in Argentina, Bulgaria, Chile, Denmark, Finland, Ghana, Hungary, Indonesia and the United States.

**Competitive funds may, however, exacerbate hierarchies between HEIs, favoring already strong institutions and disadvantaging others**, which is counterproductive if the goal is to boost the overall performance of the higher education system. To address (and encourage) the heterogeneity of institutions, several funding windows can be opened with different eligibility criteria, alleviating imbalances between HEIs. In Indonesia, for example, three levels of competition were set up so as to cater to differing institutional capacities. This decision helped to prevent the strongest institutions from winning all of the funding over the weaker institutions. To provide support to smaller institutions, funding could also require partnerships between stronger and weaker HEIs (e.g., in China) and/or assistance could be provided to some HEIs to help with the development of their systems, human resources and proposal development (e.g., in Chile) (Salmi & Hauptman, 2006, p. 21-22).

**Excellence schemes**, in which funding is directed towards large-scale and strategically concentrated initiatives, are another funding allocation mechanism that can align with policy objectives. By concentrating resources in defined areas or institutions, the intention is to promote certain outcomes. Whatever the intended objectives of the excellence scheme - be it to improve quality or international competitiveness, increase internationalisation, or restructure the higher education system - it is important that the selection criteria and administration modalities are aligned to these objectives. While excellence schemes have proved successful in countries such as Germany, Ecuador, Malaysia and New Zealand, one limitation is that they tend to benefit only certain HEIs or academic fields (STEM subjects, for instance) while sacrificing support to others (such as the humanities). Indeed, the funding of excellence schemes does not extend to all participants within the higher education sector equally. Rather, the strategic concentration of public funding creates a kind of institutional or thematic hierarchy. This drive towards specialisation has the potential to create tensions within comprehensive universities particularly, which have traditionally sought to maintain a balance between academic fields. Policy makers and institutional leaders should also establish an exit strategy to allow the universities to sustain new and heightened level of activities and collaborations (Pruvot, Claey-Kulik & Estermann, 2015a, p. 96).

**While these allocation mechanisms provide a promising set of tools that can be aligned with policy objectives, identifying the most effective funding mechanism for a country's unique context can be challenging.** Although formula-based allocations are the most prominent way of delivering public funding in almost two thirds of European systems, negotiated allocations or historically-determined allocations remain important in France and Italy, as well as in a few smaller systems.

**A growing number of European countries are recognising the need to adapt their funding regimes, and are experimenting with strategically reforming their mix of allocation mechanisms.** The governments of Latvia and Croatia, for example, have recently undertaken reviews of their higher education financing systems to better reflect the government's strategic goals. Table 5 provides an overview of allocation mechanisms across selected European countries and illustrates how countries are increasingly using multiple approaches to finance their higher education system:

<table>
<thead>
<tr>
<th>Funding formula</th>
<th>Performance contracts</th>
<th>Negotiated or historically-determined</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary mechanism</strong></td>
<td>Brandenburg (Germany), Catalonia (Spain), Czech Republic, Denmark*, England (UK), Finland, Flanders and</td>
<td>Austria</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Denmark**, Estonia, France, Italy, North Rhine-Westphalia (Germany), Norway,</td>
</tr>
</tbody>
</table>
While many countries in Central Europe and the Baltics have begun introducing aspects of strategic financing, further adaptation to their systems of financing higher education could help meet shifting demands and new aspirations. Further shifts towards strategic financing may prompt both government and institutions to be more dynamic, responsive and proactive in their operations. Line-item allocations promote stability, but do not encourage innovation and academic entrepreneurial behaviour.

### 4. Strategic Financing by Policy Objective

This section provides examples of allocation methods that can be matched to policy objectives, highlighting some promising practices from around the word with a specific focus on Europe. It is organised according to the common higher education policy objectives outlined in Section 2.2 and are not presented in any order of preference.

A selection of relevant indicators and a description of the associated risks and the requisite enabling conditions are also provided for each policy objective. Alongside allocation methods, there is a clear interest among policy makers across the region to identify and define indicators related to their strategic objectives. Careful consideration must be given to the appropriateness of these indicators in light of local context. Indeed, while data is generally available throughout the region, recent national and European-level projects, such as U-multirank, have demonstrated that using quantitative indicators to capture quality in teaching, innovation and engagement remains more challenging than measuring research performance. Experience from EU member states indicates that using a combination of proxy indicators is a promising way of achieving desired outcomes (such as quality in teaching and learning), while caution is urged when it comes to using indicators over which HEIs may have little influence (such as graduate employment outcomes) (EC, 2014).

Likewise, for each financing strategy, there are associated risks (see Section 3.2.) and enabling conditions that need to be in place to ensure their efficacy. For example, in order to use the graduate employment rate as a criterion in funding mechanisms, appropriate graduate tracer data need to be available.

#### 4.1. Assuring and Enhancing Quality

Enhancing quality is a primary policy objective for most governments throughout Central Europe and the Baltic countries. Definitions and indicators of quality vary widely, however, ranging from ensuring high standards of excellence to achieving value for money and fitness for purpose (Harvey & Green, 1993). Quality

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*Teaching funding only; **Research funding only; NB: Slovenia and Lithuania were not analysed. Source: Pruvot, Claey-Kulik & Estermann, 2015

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U-multirank is a user-driven, multidimensional, world ranking of universities and colleges covering many aspects of higher education: research, teaching and learning, international orientation, knowledge transfer and regional engagement. It provides data on a diversity of indicators for over 1,300 HEIs, 3,250 faculties and 10,700 study programmes from more than 90 countries.
can also refer to educational, research, and administrative activities, and can be tied to processes and outcomes.

The focus of quality assurance and enhancement initiatives has distinctly shifted in recent years from research to teaching and learning. In Europe in particular, teaching and learning have received considerable attention from policy makers, as evidenced by the recent Yerevan Communiqué (2015) issued by the EHEA Ministers, in which the first priority is to enhance the quality and relevance of learning and teaching.

While funding can support quality, a well-developed quality assurance system at both the national and institutional level is the foundation for assuring and enhancing quality. A robust quality assurance system can also be used as a prerequisite for obtaining funding (i.e., HEIs must be accredited to receive any resource transfers from public funding bodies).

<table>
<thead>
<tr>
<th>Supporting Funding Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>V Competitive Funds</td>
</tr>
<tr>
<td>V Performance Contracts</td>
</tr>
<tr>
<td>V Excellence Schemes</td>
</tr>
<tr>
<td>V Other Alternatives - Merit-Based Scholarships</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Potential Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Research publications/citations</td>
</tr>
<tr>
<td>• Graduate employment</td>
</tr>
<tr>
<td>• Didactical qualifications of teachers</td>
</tr>
<tr>
<td>• Exams passed</td>
</tr>
<tr>
<td>• Number of graduates</td>
</tr>
<tr>
<td>• Number of Nobel laureates</td>
</tr>
<tr>
<td>• Student satisfaction</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Exacerbating differences between HEIS and academic fields</td>
</tr>
<tr>
<td>• High transactions costs</td>
</tr>
<tr>
<td>• Reduced autonomy for HEIs</td>
</tr>
<tr>
<td>• Stimulation of unintended, negative behaviours</td>
</tr>
<tr>
<td>• A robust quality assurance system</td>
</tr>
<tr>
<td>• Clear and transparent criteria and processes for the evaluation of proposals and performance</td>
</tr>
<tr>
<td>• Exit strategies in place for Excellence Schemes</td>
</tr>
</tbody>
</table>

Competitive funds can target specific areas that have been identified as a priority for quality improvement and can be customised for specific sectors or types of institutions. Eligibility can be linked to participation in or recognition by national quality assurance and accreditation programmes (e.g., such as done in Poland, Argentina and Chile), or quality improvement (whatever the definition) can be a specific goal of the funds and a key criterion in the evaluation and selection of proposals.

Performance contracts are also an effective strategy for promoting quality. Given that contracts are negotiated bilaterally between the government and individual institutions, they can be customised to address specific aspects of quality, as related to institutional needs. Performance indicators that relate to quality vary based on how quality is defined but could include completion rates, qualifications of teachers, student satisfaction, number of citations, etc. In the Netherlands, for example, 7 percent of teaching funds are based on quality-oriented performance agreements.

Excellence schemes are another tool intended to boost quality. In this context, quality is defined as “exceptional”. Therefore, the funding of excellence schemes does not extend to all participants within the higher education sector equally. Rather, the primary intention is to foster excellence via large-scale and
strategically concentrated initiatives, where public funding is directed to HEIs (see Example 1), creating a kind of institutional or thematic hierarchy.

**Example 1: Centres of Research Excellence in New Zealand**

The Centres of Research Excellence (CoREs) Fund was established in 2001 to encourage the development of excellent tertiary education-based research that is collaborative, strategically focused and creates significant knowledge transfer activities.

CoREs are inter-institutional research networks, with researchers working together on commonly agreed work programmes. CoREs make a contribution to New Zealand’s development and link to user groups. They also build research capacity and capabilities through post-graduate programmes and the training of new researchers.

The CoREs Fund is allocated in accordance with the Minister for Tertiary Education, Skills and Employment’s funding mechanism issued under section 159L of the Education Act 1989. Funding from the CoREs Fund is determined through a fully contestable process. Funding is allocated and monitored through a funding arrangement with the Tertiary Education Commission.

Finally, while not as strong a funding mechanism as the three previous supply-side examples, student funding can be calibrated to enhance quality. Merit-based scholarships that reward the best students are the most obvious example. Merit-/ performance-based criteria can also be extended to student loans, as is the case in German BAFöG loans and Estonian student loans, for example.

### 4.2. Improving Links between Higher Education and the Labour Market

Performance contracts and funding formulae (utilizing both input and output indicators) can support greater alignment between higher education and the needs of the labour market. Priority-based formulae, in which governments distribute funds to HEIs to promote enrolment in high priority fields of study, provide a strong incentive for HEIs to shift resources and attention to these areas. In Finland, for example, the funding of student places is supply-driven and allocated according to forecast labour market demands.

<table>
<thead>
<tr>
<th>Supporting Funding Mechanism</th>
<th>Potential Indicators</th>
<th>Risks</th>
<th>Enabling Conditions</th>
</tr>
</thead>
</table>
| V Funding Formula            | • Graduate employment rate  
                              | • Length of time to graduation  | • Employment rates can be impacted by factors beyond the control of HEIs  
                              | • ECTS attained  | • Student choice is motivated by a multitude of factors in addition to funding  
                              | • Number of students in priority fields | • Labour market forecasts are complex and reactions are delayed  | • Robust graduate and labour market data  
                              |                                   |                                   | • Capacity and flexibility for HEIs to incorporate employment data and employer feedback into curriculum revisions  |
| V Performance Contracts      |                       |       |                     |

An indicator related to the graduate employment rate can also be introduced into the funding formula to encourage HEIs to consider how their programmes contribute to their graduates’ employment prospects, as
used in the Czech Republic, Finland, Hungary, Italy, Portugal, Romania and Slovakia (Pruvot, Claeys-Kulik & Estermann, 2015). Caution is urged here, as final employment in any given field is not guaranteed and can be outside the control of universities. Employment depends very heavily on the robustness of the local economy, which can be particularly challenging in developing economies. In such cases, it is useful to know whether jobs are being left vacant due to a lack of appropriately skilled workers.

Some countries (e.g., Denmark and Finland) also aim to shorten the length of time that students spend studying so that graduates can enter the labour market sooner and at a younger age. In addition to completely restructuring degree cycles, throughput indicators can be utilised in funding formulae that aim to increase the rate and number of graduates and their time to graduation.

Targeted capacity funding is another mechanism to improve links with the labour market, which can be included as part of a performance contract or allocated separately. Governments and HEIs agree on how many students specific HEIs will teach (input) and/or how many graduates they will “produce” (output) within specific disciplines and against what tariffs. Such funds can also be awarded on a competitive basis, whereby improved labour market outcomes, for instance, can be a key criterion in the selection of winning proposals (see Example 2).

Such allocation mechanisms require accurate and appropriate labour market data, which, being volatile and changeable, can be difficult to obtain and even more difficult to project into the future. Employment depends very heavily on the robustness of the local economy, which can be particularly challenging in developing economies. Moreover, the implementation of strategic financing for this policy objective is also muddied by the fact that there is a time lag between the data and the response in terms of redirecting resources to specific fields (i.e., governments and institutions are not reacting in real time to data and thus the response may not be as targeted as hoped for). In any case, it is useful to know whether jobs are being left vacant due to a lack of appropriately skilled workers. Labour-market projections can, for those countries that allocate state-funded budget places to students, help guide the allocation process of study places by discipline.

### Example 2: England’s Economic Challenge Investment Fund

The Higher Education Funding Council of England (HEFCE) established the ‘Economic Challenge Investment Fund’ following the Global Financial Crisis to help the higher education sector address rapidly some of the labour market challenges. The primary purpose of the funding was to enable HEIs to support individuals and businesses affected by the recession.

Following this, support for undergraduate and graduate internships has been an ongoing funding priority. The scheme aims to assist an increased number of unemployed graduates and to support the Government’s priority sectors for economic growth, including small businesses.

Overall, students and graduates reported strong development of employability skills and an increase in confidence directly attributable to their internship experience. The majority of employers reported that interns brought new energy and fresh insights to their business, and that the value of the intern exceeded expectations.

**Source:** HEFCE, 2011

A number of mechanism can be used to encourage students to attain skills needed in the labor market, including: grants and scholarships in priority fields of study; favourable terms and conditions for loans made to students enrolling in higher priority fields of study; tuition waivers for enrolment in priority fields; loan forgiveness for employment in high priority fields or public service; bonus payments; and bonded scholarships (i.e., scholarships that require recipients to work for a particular employer for a specified period of time or to
work in rural or remote areas; otherwise they may be required to repay the value of the support they received from the scholarship. The U.S. Work-Study Program, for example, subsidizes the wages for undergraduate and graduate students holding part-time jobs, allowing them to earn money to help pay education expenses. Such a program could be adapted to encourage work related to a student’s course of study for students enrolled in certain priority fields. This would support greater linkages between HEIs, students and employers. However, it is important to note that students’ choices are driven by a multitude of considerations, such as personal preferences, family background, etc., of which public subsidies are only one element.

4.3. Boosting Knowledge Generation and Technology Transfer

Funding formulae and/or performance contracts can use output indicators to boost knowledge generation and technology transfer. Such indicators could include bibliometric criteria, the amount of external funding obtained, and the number of contracts with business and industry. Catalonia in Spain, the German state of Hesse, and the Czech Republic all allocate funds as part of their funding formulae based on the amount of income HEIs receive from science and technology transfer activities, for example.

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<th>Supporting Funding Mechanism</th>
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<tr>
<td>V Output-Oriented Funding Formula</td>
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<td>V Competitive Funds</td>
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<td>V Performance Contracts</td>
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<td>V Other Alternatives – Innovation Vouchers</td>
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<tr>
<th>Potential Indicators</th>
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<tbody>
<tr>
<td>• Bibliometric criteria</td>
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<tr>
<td>• Amount of external funding obtained</td>
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<tr>
<td>• PhD candidates</td>
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<tr>
<td>• Number of contracts with business and industry</td>
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<td>• Patent applications</td>
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<table>
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<tr>
<th>Risks</th>
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<tr>
<td>• Exacerbation of differences between HEIs</td>
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<tr>
<td>• Preferencing applied research over basic research or, for example, STEM over humanities</td>
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<tr>
<th>Enabling Conditions</th>
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<tr>
<td>• Firms must view higher education institutions as a source of value-add technical assistance and have absorptive capacity for university research</td>
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</table>

Output-oriented indicators can, however, reinforce existing funding patterns by allocating money to those research institutions that already perform well and further disadvantaging others. Similarly, applied research is sometimes favoured over basic and high-risk research, particularly if an indicator rewards contract research with external partners (Pruvot, Claeys-Kulik & Estermann, 2015).

Other alternatives include funds that are set up to stimulate demand-based university-industry collaboration. Knowledge or innovation vouchers, for example, are small allocations from the government to eligible business entities for the purchase of services from HEIs, typically for new or enhanced products, processes or services. Knowledge vouchers are simple and therefore easy to adopt, provided that firms have a minimum “absorptive capacity” towards university research and that universities and public research institutions are willing to co-operate with industry. They have been used, for example, in the Netherlands, Ireland, the UK, Denmark, and parts of Germany (see Example 3), with promising results.

Example 3: Innovation Vouchers in Baden-Württemberg (Germany)

In 2008, the German state of Baden-Württemberg introduced an innovation voucher scheme for SMEs called Innovationsgutscheine. The aim of the programme was to strengthen the innovation potential of
**SMEs in selected sectors.**

The innovation vouchers were given to enterprises with fewer than 50 employees that have the potential to make use of R&D services for product, service and process innovation. Each voucher had a value between €2,500 and €6,000 and could be used with public and private providers across Europe. In the period 2008-2010, Baden-Württemberg invested €3 million in this programme.

Preliminary investigation shows that not all potential beneficiaries accessed the scheme in the same way. Larger firms, as well as manufacturing firms (in particular IT firms), were more likely to apply for a subsidy. Firms located in areas with high innovative capabilities were more likely to apply to the scheme than those from less developed regions. Approximately two-thirds of vouchers were used with service providers from the private sector, often engineering companies, while one third were used with public R&D institutions. Despite the openness to national and foreign service providers, more than 90% of the vouchers were used in the region.

Requests for innovation vouchers can be submitted continuously to the Ministry of Finance and Economy and are promptly processed. By March 2013, 2,600 applications for innovation vouchers had been received and 2,000 had been approved.

*Source: Coletti, 2014*

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### 4.4. Consolidating and/or Diversifying the Sector

The organization of the higher education sector and the network of institutions must be continuously adjusted to changes in the demand for higher education in both quantitative and qualitative terms. Diversification requires clearly defined institutional profiles, while comprehensive sector consolidation includes the merger of HEIs and the internal restructuring of others.

#### Supporting Funding Mechanism

| V | Performance Contracts |
| V | Competitive Funds |
| V | Excellence Schemes |
| V | Other Alternatives – Seed Money for Mergers |

#### Potential Indicators

- Mission specific indicators

#### Risks

- Mergers between “equals” may result in power struggles
- Top-down processes reduce autonomy for HEIs and negatively affect motivation to work within the new structures
- Inter-disciplinary tension as a result of profiling/specialisation

#### Enabling Conditions

- A clear communication strategy and specified criteria for potential mergers and profiling activities

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**Performance contracts between the state and individual HEIs can be a useful tool for promoting and differentiating institutional profiles.** By negotiating directly with HEIs, governments can influence institutional missions and reinforce role differentiation – as well as set mutually-agreed targets and incentives accordingly. Examples of higher education systems that use performance contracts to stimulate the development of...
diverse institutional profiles include Hong Kong (where 10% of funding is allocated through the **Performance and Role-related Funding Scheme**), Australia (where universities and the ministry agree in the **Mission Based Compacts** what contribution HEIs will make towards national priorities, like equity targets, quality targets, student satisfaction, etc.), New Zealand, the Netherlands (see **Example 4**) and many German states.

**Policymakers must consider how best to stimulate the willing involvement of HEIs.** Experience indicates that ‘softer’ agreements, such as letters of intent, are a promising approach to improve interaction and to create common ground for aligning agendas and seeking consensus (e.g., as in Scotland and Ireland). On the other hand, in countries like the Netherlands, the perception is that for ‘real impact’ more focused tools (e.g., linking the agreements to money) are required (de Boer et al., 2015, p.14).

The amount of money attached to such agreements also differs and can determine the degree to which **performance agreements incentivise profiling (or not)**. Performance contracts may constitute a small percentage of the overall funding of HEIs or they may constitute the main public funding allocation mechanism, such as in Austria, New Zealand and in some U.S. states. Indeed, the experience of some European countries suggests that too great a percentage of performance-based funding may be counterproductive (EC, 2014).

**Example 4: Diversifying the Sector - Institutional Profiling in the Netherlands**

Performance agreements between the ministry and individual HEIs have been established in which institutional profiling is a key criterion. As a first step, HEIs were asked to draft a strategic plan with their objectives for 2012-2016, in which the strengthening of their education and research profile was a priority (e.g., portfolio of educational offerings, priorities in research response to strategic priorities in national innovation policy and grand challenges, etc.).

The universities were free to choose the format of their strategic plan as well as develop their own objectives, but it had to include targets for 2015 in relation to seven educational indicators, some of which related to profiling.

Seven percent of the block grant was used to foster quality and profiling separated into two streams: (i) 5 percent is conditional funding (for universities to obtain their share of this stream they have to have a performance agreement with the ministry), and (ii) 2 percent is selective funding (this stream includes a competitive element as those universities which have achieved a higher score in the assessment of their strategic plan receive relatively more money).

In 2016, the review commission will evaluate the performance of HEIs with regard to their targets. If a HEI does not reach its targets related to the seven educational indicators in 2015, the HEI would receive a smaller share of the conditional funding for the period 2017-2020.

**Sources:** Pruvot, Claeys-Kulik & Estermann, 2015a; Ministry of Education, Culture and Science of the Netherlands

**Competitive funds also act as a stimulus for institutions to develop idiosyncratic profiles.** In order to deal with (and indeed encourage) the heterogeneity of institutions, several financing windows can be opened with different eligibility criteria and funding ceilings (Salmi & Hauptman, 2006, p. 21). This also helps to alleviate imbalances between HEIs. In Indonesia, for example, three different windows of competition were set up so as to cater to differing institutional capacities.

**Excellence schemes are another tool that can influence the diversification of the sector.** While they are primarily intended to create “hubs” or “centres of excellence” (i.e., hierarchical rather than horizontal differentiation) in response to evolving economic and social demands, participating institutions are
nevertheless encouraged (obliged even) to identify, strengthen, and capitalise on their strengths and assets. This drive towards profiling and specialisation, however, has the potential to create tensions within comprehensive universities, which have traditionally sought to maintain a balance between academic fields. The pressure to focus on a limited number of flagship disciplines or even niches requires concerted and effective governance (Pruvot, Claeys-Kulik & Estermann, 2015, p. 164).

Governments can provide seed funding to promote bottom-up sector consolidation processes, in which HEIs receive funds with the aim of finding mutually acceptable “marriages” by themselves - rather than government simply mandating mergers (see Example 5). Bottom-up processes may garner greater ownership and support among HEIs, by enabling them to realize their own plans without too much external interference. Such a decentralised approach to consolidation is likely to result in a more careful analysis of potential efficiency gains. In such instances, funding acts as a stimulus, which provides incentives to institutions to plan potential mergers, to build joint units or to collaborate to increase sector efficiency. Such stimulus funds tend to be allocated on a competitive basis.

In order to retain some degree of strategic coordination, the government should ensure a clear communication strategy and specify criteria for potential mergers. Experience also suggests that the most successful mergers are not between equals, where competition and power struggles may result in negative attitudes and behaviours, but between HEIs that are dissimilar.

Example 5: Denmark’s comprehensive sector consolidation

The Danish government believed that the Danish higher education and research sector (universities and non-university research institutions) was too fragmented, and wanted it to be reorganized by forming critical mass and merging institutions. The political message was very clear, but the government did not regulate which institutions should merge.

A financial pool to support merger processes was provided, the institutions came up with plans and the ministry approved. The program combined a clear policy objective with respect for the autonomy/ownership of HEIs to provide financial incentives for action.

The outcome is a major restructuring of the sector by mergers, plus substantial internal restructuring of the newly built units (for instance the University of Aarhus, which is well-known in Europe for the comprehensive change process induced by the mergers).


4.5. Optimising HEI Finances

Optimising the financing of higher education has a twofold agenda: cost containment and income diversification for HEIs. In a time of constrained public resources, HEIs’ incomes are squeezed, especially given the reliance of public funding in Europe. As such, HEIs cannot rely solely on the public purse, and must diversify their income streams to include non-state sources, such as industry, households and the non-profit sector. At the same time, maximising what limited resources they do have requires doing more with less.

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<td>V  Output-Oriented Funding Formula</td>
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<td>V  Performance Contracts</td>
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<td>V  Other Alternatives – Matching Funds, Innovation Funds, Demand-side Vouchers</td>
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Potential Indicators
Funding formulae and performance contracts have the potential to contain costs. One way in which they can do so is by stimulating productivity, including the more efficient and selective delivery of core services. A range of throughput and output indicators can be employed, depending on the specific policy context; for example, ECTS/credits attained, years to completion, patents received, graduate numbers and/or rates.

One concern with incentivising efficiency is that HEIs may sacrifice quality to boost the quantity of their outputs and thus qualify for more performance-based funding. Standards may be lowered (or grades inflated) to improve progress toward graduation, or academics may publish the same or similar academic papers in multiple journals and repeatedly cite the same authors (who likewise cite them) to increase the number of publications and citations (Pruvot, Claeys-Kulik & Estermann, 2015). To address these concerns, it is advisable not to allocate too much funds based on quantitative results or to balance input, throughput, and outcome indicators (Salmi & Hauptman, 2006, p. 60) and to ensure that a robust quality assurance system is in place.

Using normative or standard costs per student (differentiated by discipline) within formulae and performance contracts can encourage HEIs to more closely monitor and optimise their expenditure. By contrast, mechanisms that are based on actual costs may encourage inefficient institutions to either spend more or restrict enrolments to increase their expenditure per student (Salmi & Hauptman, 2006, p 58). In additional to promoting internal efficiency, the use of normative costs can also be more equitable, mitigating historical inequalities in the amount of funds HEIs have traditionally received.

Additionally, specific innovation funds can be established to stimulate the sharing of ideas, good practice, and resources between faculties and HEIs to improve operational efficiency and value for money. Through collaboration, HEIs can drive down costs through more efficient procurement, asset sharing, shared services, better use of ICT and organisational restructuring (see Example 6). Of course, such initiatives need to be reinforced by other strategic government and institutional measures.

Example 6: Improving Value for Money in the United Kingdom

A structured dialogue between public authorities and universities about efficiency has developed in the UK and Ireland, where universities themselves work as agenda-setters and have proactively started communicating about the topic.

The Higher Education Funding Council of England’s (HEFCE) £1 million Innovation and Transformation Fund is dedicated to supporting strategically important projects to improve operational efficiency and are designed to provide examples of good practice for the benefit of the sector as a whole. In particular, its
Objective is to improve higher education shared services in UK's HEIs.

Areas of focus include: costing activities, a strategic approach to benchmarking costs, simplifying and improving internal processes, working with the private sector, and the national co-ordination of procurement in higher education.

Importantly, the fund is complemented by bottom-up and top-down initiatives with similar goals to improve the operational efficiency of the sector. In February 2015, Universities UK produced the Efficiency, Effectiveness and Value for Money report (the Diamond Review) with specific recommendations for the sector to become financially and environmentally sustainable. Additionally, the government has set up the Embracing Efficiencies and Shared Services in Higher Education forum to analyse progress made in striving for shared services and discuss the future challenges of securing further shared services that can lead to major efficiencies in the higher education sector. And the Efficiency Exchange is an online ‘one-stop shop’ for anyone interested in learning more about efficiency and innovation in higher education, helping universities and colleges to discover and share ideas, good practice and resources.

Sources: HEFCE, 2015; Universities UK

Demand-side (student) vouchers can also be an effective tool for containing costs. They can encourage student choice and, correspondingly, competition among institutions for funds. This kind of competitive mechanism should, in theory, lead to greater efficiency and lower costs per student (Salmi & Hauptman, 2006, p. 59), on the condition that, like funding formulae, the vouchers are based on normative costs per students. The use of normative costs can drive down student costs at HEIs and minimise the potential for exploitative pricing strategies.

In terms of diversifying funding sources, funding mechanisms can encourage the inclusion of private actors (mainly business and industry), particularly in the funding of research. These mechanisms tend to create a direct link between external funding coming from private sources and core public funding, which incentivises universities to actively develop partnerships and strengthen their income diversification strategies. Specifically, premiums can be awarded for attracting external funding (within funding formulae or performance contracts), or external funding can be matched with public contributions. In 2010, for example, the Danish government established a so-called “Matchfund”, setting aside US$17 million to reward HEIs that obtain a high proportion of external funding compared to their public funding, which they can use at their own discretion.

Finally, auxiliary enterprise services can provide another stream of income for HEIs, which can be supported by one-off innovation/stimulus funds. Auxiliary enterprise services are self-supporting activities that provide non-instructional support primarily to individual students, faculty, and staff upon payment of a specific user charge or fee for the goods or services provided. Such services include dining facilities, bookstores, parking and transportation services, print shops, etc. Throughout the United States, for example, many HEIs engage in public-private partnerships to help ensure the cost-effectiveness of these various auxiliary services. Although such activities are primarily the domain of HEIs, governments can provide one-off innovation/stimulus funds in order to create the necessary capacity for HEIs to develop and establish sustainable auxiliary commercial services.

4.6. Increasing Equitable Participation

Funding formulae or performance contracts can be used to increase the enrollments and success of disadvantaged or underrepresented populations. Under such a system, HEIs are rewarded for enrolling and graduating disadvantaged and non-traditional student populations. Croatia, for example, piloted performance contracts to: a) increase the share of students from underrepresented groups in the total number of enrolled and graduated students and b) facilitate access for non-traditional students (i.e., +25 years’ old).
### Supporting Funding Mechanism

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<tr>
<td>V Input-Oriented Funding Formula</td>
<td>V Other Alternatives – Scholarships, Loan Subsidies, Special Funds, Tax Breaks</td>
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<td>V Performance Contracts</td>
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<td>V Competitive Funds</td>
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### Potential Indicators

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<tbody>
<tr>
<td>Number of disadvantage/non-traditional students enrolled</td>
<td>Number of disadvantage/non-traditional students graduated</td>
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### Risks

- Admissions are increased at the expense of quality
- Students default on loan repayments; increased costs to guarantor (presumably the government)
- Funds are spent on students who do not complete their studies

### Enabling Conditions

- Verification of student’s financial need
- Strong taxation and administrative systems for repayment collection of income-contingent student loans
- HEIs are autonomous to determine student numbers
- Sufficient institutional capacity (e.g., academic and student services) to accommodate more and/or more diverse students

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When attracting more students, there needs to be sufficient institutional capacity to ensure that HEIs can provide the requisite quality of education and support timely completion. Moreover, increasing study places requires a system in which universities are free to decide on their student numbers, which is only the case in eight out of 29 systems in Europe included in EUA’s Autonomy Scorecard (Denmark, Ireland, Italy, Latvia, Luxembourg, Norway, Poland and Sweden).

An intuitive approach to support equitable participation is to increase the availability of financial support to targeted student groups. Governments and/or institutions can set aside a particular portion of funding or tuition revenues to be used for attracting students from underprivileged groups through scholarships, loans and tuition waivers. Means-tested, needs-based grants and scholarships that provide support for tuition fees and living expenses can provide participation opportunities to all segments of the population, particularly underrepresented and disadvantaged groups and lifelong learners. There are many examples in Europe and beyond of such programmes, such as the German Bundesausbildungsförderungsgesetz (BaFöG), the English National Scholarships Programme, the Dutch Supplementary grants, the Australian Commonwealth Grants Scheme and the New Zealand Student Allowance Scheme.

Such need-based grants can also be performance-related, as has been done in the Netherlands and Norway. In both countries, student financial support is paid out as a loan, but can be (partially) converted into a grant afterwards if certain conditions are met, such as getting a degree within a limited period of time (as in the Netherlands), or if the student passed all exams and her/his graduate income is below a certain threshold (as in Norway) (World Bank, 2014b, p. 51).

Mechanisms to support and encourage lifelong learning include the introduction of tax benefits for workers enrolled in higher education programmes and the supply of study vouchers. The new Dutch student financing model, for example, provides first-time students with a ‘voucher’ worth 2000 euros, to incentivise retraining in their future lives (lifelong learning). The voucher can be used to fund retraining 5-10 years after obtaining a degree.
Some countries choose to establish a fund for widening participation (see Example 7). Such funds are directed towards HEIs to help them cover the extra costs associated with supporting the recruitment, education and other services for students coming from disadvantaged or previously underrepresented backgrounds.

**Example 7: Widening Participation in England**

The Higher Education Funding Council in England (HEFCE) provides specific funding to support universities and colleges to undertake long-term, strategic work across the student lifecycle to ensure that all students from under-represented groups can successfully participate in HE – including progression into further study or employment.

The Student Opportunity Fund is the main way it supports widening participation. The allocations do not take the form of funds for individual students, but rather support the extra cost to institutions of recruiting and supporting students from disadvantaged backgrounds or with disabilities. The funds can be used to widen access, improve retention and student success, support progression to further study and/or employment, or provide financial support to students in hardship.

The funds are allocated as one of the targeted allocations within the overall teaching funding. In 2015-16, HEFCE will allocate £364.2 million under the Student Opportunity fund.

*Source: HEFCE, 2015*

Governments can also increase the level of cost sharing (usually via student and household contributions) alongside the mixed provision of student funding to offset any potentially adverse effects of higher fees and student debt. Countries that have achieved much higher levels of participation by pursuing this approach include the United States and Canada over the past quarter century and Australia and New Zealand since the late 1980s (Salmi & Hauptman, 2006, p. 47).

Student loans are an important instrument to support access and equitable participation under such an approach. In essence, they provide students of all backgrounds access to finance. A key distinction in the design of student loan schemes is how the loan is to be repaid. There are basically two models: fixed-schedule, mortgage-type loans and income-contingent student loans.

**Publically-subsidized fixed-schedule loans** involve fixed repayments with a set time period as, for example, with a house mortgage. This type of loan can be found in the United States and Canada, for instance (Salmi & Hauptman, 2006). However, issues concerning defaulting on the loan mean potential students may be reluctant to borrow, and those that do may find themselves in a weakened financial position later in life if they are unable to meet repayment obligations (Chapman & Sinning, 2011). To reduce the risk of default, government interest-rate subsidies are required, as the repayment burden may otherwise be cost prohibitive.

**Income-contingent student loans**, such as those in Australia (see Example 8), the United Kingdom, Ghana and the Netherlands, are an increasingly attractive alternative to mortgage-type loans, and can be designed to avoid certain problems, particularly around the risk of default. Repayment is calculated based on the amount borrowed and as a percentage of graduates’ income, which allows students of all ages to repay on the basis of their situation after they complete their education. The advantages of income-contingent loans are that the risk of default is substantially reduced and because repayments depend on income, there should be less concern for students with respect to capacity to repay the debt or hardships associated with repayments (Chapman & Sinning, 2011, p. 8-9). Income-contingent loans depend on an efficient collection mechanism, usually done via the tax administration, which may not exist in all countries.
Example 8: Income-contingent Loans in Australia and New Zealand

Australia and New Zealand, which both charged little or no fees at their public institutions until the late 1980s, adopted income-contingent loans as part of a strategy to increase cost sharing. They raised fees but the student loan programmes enabled students to pay the higher fees over an extended period of time based on their income after graduation. The two countries, however, took somewhat divergent approaches:

- In 1988, Australia adopted an innovative approach to cost sharing through its Higher Education Contribution Scheme (HECS). Faced with prospective widespread student opposition to tuition fees, Australian policy makers decided to use public funds to pay the fees while students were enrolled. All students participating in HECS were then obligated to repay these fees after completing their tertiary education with a percentage of their incomes. Students with below average incomes were exempted from repayment. HECS applies only to fees and not living expenses.

- Beginning in 1990, New Zealand took the more traditional approach of imposing tuition fee increases that students and their families had to pay upfront. Beginning in 1992, students could borrow to cover the cost of tuition fees and living expenses. Repayment of these loans occurred through the income tax system based on a percentage of a student’s income upon graduation.

New Zealand and Australia have moved in different directions since they first adopted their income contingent student loan schemes. New Zealand began with a more market-based approach in which virtually all borrowers (who then constituted a small share of students) repaid on the basis of their income, with interest rates slightly below market levels. Over time, New Zealand has moved away from market-based principles by increasing subsidies, including exempting more low-income students from making repayments and forgiving interest on most loans. As a result, borrowing has grown substantially over time. The overriding policy concern now is that high debt levels are leading an increasing number of graduates to emigrate from New Zealand to avoid their loan repayment obligations. The government responded by making repayments for borrowers who remain in New Zealand interest-free beginning in 2006.

Australia’s HECS system, on the other hand, created a public expenditure challenge at first, as a growing number of students enrolled in higher education without having to pay fees upfront. To reduce pressure on the budget, Australia reduced HECS subsidies in 1997, introduced three bands of HECS tuition fees (each with a fixed rate of student contribution), and reduced the level of income exempted from HECS repayment. In addition, more market-based loan programmes have been developed for students who do not participate in HECS, including growing numbers of foreign students and domestic students enrolling in fields of study not covered by HECS.

In both Australia and New Zealand, the income-contingent loan system has contributed to significant increases in coverage and improved equity.

Sources: Chapman et al. (2014); Salmi & Hauptman (2006)

4.7. Fostering Internationalisation and Collaboration

Borders between national systems and between traditional academic disciplines are increasingly permeable, which demands greater collaboration, mobility, and new kinds of knowledge, skills and competences. The implication is that governments must strategically allocate funding to facilitate these goals.

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<td>V Performance Contracts</td>
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<td>V Other Alternatives – Targeted Funds</td>
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</table>
Potential Indicators

- Number of domestic students/researchers/faculty going abroad
- Number of inbound international students/researchers/faculty
- Degrees awarded to foreign nationals
- Number of international personnel
- Amount of internationally competed research funds

Risks

- Exacerbation of differences between HEIs and academic fields
- Over-reliance on supranational (EU) funds

Enabling Conditions

- Credit transfer system
- Reciprocity between systems

Targeted funds, which can be allocated competitively or via performance agreements, can provide temporary subsidies to encourage HEIs to implement measures that foster greater internationalisation and collaboration. Such funds (see Example 9) could be used, for example, to develop institutional internationalisation strategies; establish an international office and/or a welcoming center for foreign staff and students; establish additional student residencies; provide scholarships enabling students to study abroad; provide subsidies/scholarships for incoming teachers, researchers and students; or subsidise international sabbaticals for academic staff, etc. (World Bank, 2014b, p. 52). The Swedish Foundation for International Cooperation in Research and HE (STINT), for example, offers Strategic Grants for Internationalisation. The grants are intended to contribute to the renewal and development of internationalisation strategies at the university level.

Example 9: Super Global Universities in Japan

The Super Global Universities Project, launched in 2014, aims to enhance the international compatibility and competitiveness of higher education in Japan. It provides prioritized support for 37 world-class and innovative universities that leads to the internationalisation of Japanese universities. Selected universities are expected to press forward with comprehensive internationalization and university reform.

The programme’s total budget is ¥7.7 billion ($US 77 million). The funds will be used to hire faculty who are either foreigners or Japanese nationals who have graduated from foreign universities. Designated universities will also establish curricula for undergraduate degree programmes, provide financial support for international students, and actively recruit students worldwide.

The Ministry of Education, Culture, Sports, Science and Technology (MEXT) adopted a two-track approach, ranking institutions in one of two categories. Type A is for world-class universities that have the potential to be ranked in the top 100 in world university rankings. Each Type A university will receive ¥420 million ($US 4.2 million) annually. Type B is for innovative universities that lead the internationalisation of Japanese society based on continuous improvement of their current efforts. Each Type B university will receive ¥170 million ($US 1.7 million) annually. The institutions were selected from 104 applicants by a ministry-appointed panel.

Source: MEXT, 2014

Competitive funds can be set up for international, inter-institutional and/or multidisciplinary cooperation projects in strategic (research) areas. This not only contributes to the international engagement of HEIs, but also stimulates internal academic integration (i.e., the creation of new interdisciplinary programmes and structures). Such competitive funds are perhaps best exemplified in Europe by Horizon 2020 funding.
Funding formulae, though not currently common practice, can also be designed to reward internationalisation. Both Finland and Denmark provide examples of this approach (see Example 10 below).

### Example 10: Supporting Internationalisation Through Funding Formulae

#### Denmark: Internationalisation Taximeter

As part of the funding formula for teaching, universities in Denmark are rewarded for their internationalisation efforts based on the number of Danish students going abroad and international students coming to Denmark. For every incoming and outgoing student who either studies or carries out an internship linked to their studies, a university receives a fixed amount of 5,000 DKK (roughly €670).

#### Finland: Rewarding Internationalisation

Finland takes into account the universities’ international teaching and research personnel in its funding model, and all internationalisation-related criteria (including competitive international research funding) account for 9% of the public funding. Indicators include:

- Master’s degrees awarded to foreign nationals: 1%
- Student mobility to and from Finland: 2%
- PhD degrees awarded to foreign nationals: 1%
- International teaching and research personnel: 2%
- Internationally competed research funding: 3%

*Source: Pruvot, Claeys-Kulik & Estermann, 2015a, p. 31; Finnish Ministry of Education and Culture*

An alternative, demand-side approach includes making loans and scholarships portable for study abroad. This can apply to credit mobility or degree mobility. While outgoing degree mobility might be viewed by governments with caution, it is important to keep in mind that international student mobility often requires some degree of reciprocity between participating institutions. Indeed, one-way mobility streams may lead to a gradual disappearance of student exchange practices (World Bank, 2014a, p. 52).

Some innovative funding instruments have also emerged at the European level that support internationalisation. Schemes like the Erasmus+ Master Loans and the Retirement Savings Vehicle for European Research Institutions present opportunities to boost internationalisation within Europe. Policy makers and higher education leaders in EU member states can therefore take steps towards participating in these programmes.
5. Framework for Implementation

While the alignment of policy and financing is easy to understand in theory, implementation can be difficult. The proposed implementation framework (see Figure 3) enables a sequenced discussion of the common activities, challenges and recommendations associated with the usual steps of implementing higher education funding reforms – acknowledging, of course, that implementing strategic financing is largely dependent upon a country’s unique context. The framework is derived from a review of existing literature, discussions with experts in the area, and the World Bank’s experience supporting the implementation of higher education finance reforms.

Figure 3: Framework for Implementation

**PLAN:** To begin, the successful implementation of higher education financing reforms requires a well devised plan, based on thorough analysis. Policy makers, in conjunction with an array of relevant stakeholders, should have a clearly articulated strategy, with priorities and definitions taking into consideration the budget environment, the resources that are available to work on implementation, and a timeline for potential reforms.

Aside from the usual planning issues related to project timeline, (internal and/or external) expertise and resource assessment, developing a solid implementation plan should consider the following questions: Are there clear and specific policy objectives to guide the redesign of funding strategies and the course of action? What is the anticipated reaction of different stakeholder groups? Could any mitigation strategies be incorporated into the implementation plan? What are the trends for public financing of higher education and what impact will those have on the implementation strategy? Admittedly, some of issues will not surface until the next phase, Diagnose, is complete, which is why “Manage” is a cross-cutting theme wherein the project plans are updated as circumstance evolve. The Plan phase, however, is an important first step in thoughtfully setting any reform up for success. In managing the project, the initial project plans and assumptions are continuously updated based on the best available information at the time.

**DIAGNOSE:** A good diagnostic of the current situation, based firmly on evidence, is essential, as it will inform all other phases, from planning to optimization. Diagnosis requires a careful review of the existing funding mechanisms and the identification of options, taking into account specific country and sector contextual factors. This phase is typically grounded in extensive stakeholder engagement to document: 1) the strengths and weaknesses of the existing approach to financing as well as some international comparisons; 2) an

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The authors particularly drew upon The World Bank’s Global Delivery Initiative (GDI), which looked at data from approximately 2000 World Bank projects, including approximately 200 projects in the education sector, to obtain a more systematic understanding of the implementation challenges. Using a general inductive approach, broad analytical categories have been identified, accompanied by sub-categories, from which the GDI team can also gauge the frequency and estimated likelihood that such challenges occur. GDI partners also contribute to building a coherent knowledge base in the form of a library of case studies of complex implementation processes.
assessment of how the system aligns with key policy priorities for the higher education sector; 3) criteria for evaluating potential alternatives; and 4) alternative scenarios and recommended changes to the funding model.

**Box 2: Latvian Case Study: Part 1**

The government of Latvia decided to embark on reforming its funding model for higher education following a recommendation from the EU Council, which suggested a funding model that would better reward quality, strengthen the links with market needs and research institutions, and avoid fragmentation of budget resources.

During a plan phase, Latvia’s Ministry of Education and Science (MoES) identified the need for external support and contracted the World Bank for Reimbursable Advisory Service on Higher Education Financing. Consequently, between December 2013 and September 2014, the World Bank collaborated with MoES to evaluate the country’s existing approach to financing higher education and recommend a new model.

As part of the diagnosis, the World Bank and MoES team analysed the strengths and weaknesses of Latvia’s current approach to financing higher education from public funds, as well as how it aligned with the government’s specified policy objectives. Ultimately, the report found that the current higher education system had been largely underfunded in comparison to other European countries, as well as vis-à-vis the Latvian Government’s objectives. In addition, contrary to many other European systems, Latvia’s system did not offer significant incentives for greater performance. The recommended models took into account jointly developed criteria, good international practice and stakeholder consultations.

**DESIGN:** The third stage is to design and develop the reform package(s). Higher education financing reforms and the introduction of new mechanisms require complex design questions due to the often qualitative character of the objectives (Vossensteyn, 2015). There is a myriad of design considerations that will contribute to the success of any new funding regime, summarised in Table 6 below.

**Table 6: Overview of Design Considerations**

| Strategic Orientation | Promote national strategies  
<table>
<thead>
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<tbody>
<tr>
<td></td>
<td>Promote institutional profiles</td>
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| Incentive Orientation  | Provide clear, non-fragmented incentives  
|                       | Avoid undesired effects  
|                       | Create performance rewards and sanctions  
|                       | Create a competitive environment |
| Sustainability        | Guarantee continuity in funding mechanisms  
|                       | Allow long-term planning*  
|                       | Take into account cost differences  
|                       | Promote risk-spreading and management* |
| Legitimization        | Provide unambiguous and balanced funding structures  
|                       | Make funding transparent  
|                       | Support the perception of fairness  
|                       | Allocate lump sums*  
|                       | Guarantee academic freedom |
| Autonomy and freedom  | Implement an adequate level of regulation  
|                       | Guarantee autonomy of internal resource allocation*  
|                       | Promote accessibility of diverse income sources* |
| Practical feasibility | Use available data  
|                       | Ensure administrative efficiency  
|                       | Respect methodological standards  
|                       | Ensure coherence with funding levels and steering approaches |
While each of these considerations is important, the choice of indicators requires careful technical analysis to avoid an overly complex design and to ensure that selected indicators reflect their strategic intent. Each type of indicator often represents a trade-off between accountability and measurability. An indicator should preferably meet the following requirements: (i) easy to calculate; (ii) difficult to manipulate; (iii) provide a reliable estimate of the institution’s value added; and (iv) not be easily influenced by other factors (Thorn, Holm-Nielsen & Jeppesen, 2004, p. 10). Policy makers should avoid making funding instruments overly burdensome by focusing first on a limited number of items (those minimally required for success) and to keep funding mechanisms simple in order to avoid system overload. In terms of choosing the most strategically relevant indicators, adequate proxies must be identified and indicators that were originally not developed for funding purposes (such as rankings) should be avoided, as this may lead to a deterioration of the system. Furthermore, indicators on which universities have little influence, including certain employability and labour market measures, should be used with caution (Pruvot, Claey-Kulik & Estermann, 2015a, p. 16).

A stable and continuous financial base can support the sustained freedom and quality of teaching and research, and also ensures that HEIs can engage in long-term planning. Early in implementation, it is advisable to limit the share of performance-based funding to avoid volatility in the amount of funding that HEIs receive. In the Czech Republic, for example, a new funding formula resulted in a significant variation of funding between HEIs. As a result, some HEIs struggled financially, which limited their ability for strategic planning and strained both inter-institutional and governmental relations. The government is now revising the funding model to ensure a more stable financial base for HEIs.

The implementation of new funding mechanisms will inevitably result in unforeseen and unintended consequences. Consideration should be given to the weighting and amount of funding attached to various performance-based indicators to ensure that the incentives and sanctions are appropriately calibrated.

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Box 3: Latvian Case Study: Part 2

For the design phase, the MoES developed a “Conceptual Note on the Implementation of a New Higher Education Funding Model in Latvia” which described the new higher education funding model and the implementation solutions.

The new funding architecture seeks to find a balance between maintaining the stability of funding for HEIs, while providing the necessary mechanisms and incentives to shift the system towards a greater performance orientation. As such, a three-pillar model was proposed, which integrates funding for research and teaching. Under pillar 1, study places and staff costs remain the basic criteria to maintain stable funding. Pillar 2 seeks to reward HEIs for performance via the introduction of output indicators, such as the amount of industry-funded, international research and the total number of students and researchers who have recently obtained the degree and are engaged in research projects (per full time equivalent). The amount of performance-related funding remains modest, at €6.5 million, relative to the overall budget for higher education (€121.5 million), however the share of performance-related funding is planned to gradually increase. Pillar 3 allocates funding for development and strategic specialization, including profile-oriented target agreements, primarily funded via EU Structural Funds Programmes.

On June 29, 2015, the new, three-pillar higher education funding model was formally adopted by the government. The government subsequently passed regulations that introduced new elements in the financing system according to the new model; these included criteria for performance-based financing under pillar 2, as well as regulations to strengthen the alignment of studies and research under pillar 1.

Source: Tremaine, 2016
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**PILOT:** A pilot or shadow phase, in which the reform is tested at a smaller scale, improves the likelihood of success of financing reforms. Successful reform processes – such as those in Chile, the Netherlands, Croatia, etc. – are typically instituted in stages and in a proper sequence, as opposed to implementing one abrupt change. Staging allows sufficient time for dialogue, feedback, adaptation and adjustment. Building a funding system without perverse incentives or unintended consequences requires not only careful consideration of design options, but trial and error during implementation (Thorn, Holm-Nielsen & Jeppesen, 2004).

The choice of where and how to test new funding allocation mechanisms is important and can include setting up a shadow phase in which reforms can be modelled and compared to the incumbent system. In this way, the negative fallout is limited should the new funding model turn out to be untenable for the sector or specific HEIs. Small and/or young HEIs tend to be more flexible and innovative in responding to new funding mechanisms, while large, traditional HEIs often struggle. Another option is to test the new model using only new or additional funds. In this way, HEIs would have sufficient time to adjust to the new model, which can gradually be expanded to cover a larger percentage of the overall higher education budget. Experimentation and “learning by doing” help policy makers form better conclusions and better prepare for likely scenarios (Vossensteyn, 2015).

Throughout the pilot phase and especially at its end, stakeholder meetings should be convened to obtain feedback on what worked well and what did not. While piloting in itself is an absolutely critical step, it can lead to a variety of different policy or implementation changes (see Example 11).

**Example 11: Piloting Performance Agreements in Croatia**

The Croatian Ministry of Science, Education and Sports (MoSES), with the assistance of the World Bank through a Reimbursable Advisory Service on Higher Education Financing, initiated a pilot to introduce performance agreements within public universities. The pilot phase took place between 2012-2015.

The pilot agreements covered expenditures related to employees, materials and tuition/students. Universities had the opportunity to choose the objectives and indicators that were to be included in their individual agreements. Given the specificity of the agreements, intensive dialogues between HEIs and MoSES were required, which provided an opportunity for constructive communication about the new system.

The pilot provided valuable feedback and insights that will inform the re-development of performance agreements before they are scaled-up and fully implemented in 2017. First, feedback indicated that goals should be defined at a national level, rather than on an ad-hoc basis by the universities. Second, the indicators should be simplified and measurable. Third, data needs to be more reliable and comparable, which will require improvements to data management systems with greater central coordination.

*Source: Krznar, 2016*

**SCALE-UP:** The funding model can then be scaled up based on the experiences of the pilot phase. Given the heterogeneity of institutions in terms of profiles/missions, resources and capabilities, consideration must be given to how the reform will may impact institutions differently and not exacerbate inequalities between HEIs.

To provide support to smaller institutions during a scale-up, for example, funding could require partnerships between stronger and weaker HEIs (e.g., in China) and/or assistance could be provided to some HEIs to help with the development of their systems, human resources, and proposal development (e.g., in Chile) (Salmi & Hauptman, 2006, p. 21-22).

A ‘readiness assessment’ is a common tool used to inform the scaling-up of a strategic funding reform (Kusek & Rist, 2002), as has been initiated or completed in Croatia, Latvia, Chile and many other countries. Performing such an assessment provides the agency leading the reform with an understanding of what capacity (e.g.,
financial, human resource, technological, etc.) the sector has for the reform and what gaps may need to be addressed to foster success.

**OPTIMIZE:** Even once the reform has been scaled-up across the sector, the approach to financing should be revisited periodically and adjusted according to evolving circumstances and policy priorities. To determine the effectiveness and impact of the new model, policy makers must evaluate how the new system can be improved, or whether/what new policy solutions might be needed in the future. For example, two years after implementing performance contracts, Ireland convened a review to determine what was working well and what could be improved. Evaluation criteria and international comparisons should be built into the reform from its beginning and then revisited. Revising the approach to financing higher education is an ongoing, never-ending process. The optimize phase helps identify potential improvements that then lead policy-makers back to the plan phase and through the cycle once again.

**Such monitoring systems could include,** for example: management information systems (“early warning systems”); value-for-money reviews; audits and evaluations; parliamentary commissions; and post-implementation studies (World Bank, 2010). Such policy monitoring and evaluation systems are particularly pertinent to higher education, where there are a number of large institutions whose performance may not be uniform. It is therefore important to document variability in performance as the basis for learning what works and why.

**Box 4: Latvian Case Study: Part 3**

Following the adoption of the new funding model, Latvia’s MoES continues to optimize its higher education funding system.

It has been noted, for example, that the overall amount of funding for higher education remains insufficient. The low level of funding partially stems from a decision in 2009 to lower the cost of a study place from €1800 to €1333 despite the number of study places remaining the same. New regulation, therefore, is in preparation to return the basic study cost to pre-2009 levels and ensure full funding per study place.

Additionally, the EU Council has recommended that Latvia “ensure that the new financing model of the higher education rewards quality Better target research financing and incentivize private investment in innovation on the basis of the Smart Specialization Framework.” As such, the MoES and the World Bank have planned related assessments to continue optimizing the new higher education funding model and to ensure that the institutional governance and financing systems align with the principles of the new financing model. The cooperation project will include:

- Phase 1: University internal governance and performance-based financing in Latvian HEIs;
- Phase 2: Selection, promotion and remuneration of academic staff;
- Results: Recommended models for Latvian HEIs internal governance, financing and HR policies in light of best international practice. Proposal for policy planning and further investment for the development of human capital in higher education, research and innovation in Latvia according to the Smart Specialization Strategy goals and priorities.

*Source:* Tremaine, 2016

**Cross-Cutting Issues**

**During all phases of implementation, there are a number of cross-cutting themes that will impact the success of the reform initiative.** These include: engagement, capacity and skills, changes to government
administration, transparency and accountability, identity, culture and norms, access to information, and many more.

**Constant and continuous engagement with stakeholders is crucial.** Indeed, “not enough attention is paid to the political economy of higher education reforms on the assumption that a technically sound reform program is all that is needed for change to succeed. But when it comes to implementation, political reality invariably proves stronger than the technocratic vision” (World Bank, 2010, p. 158). Accordingly, reforms must assess the potential impact on various stakeholders, build consensus, communicate a vision, and take proactive measures to build trust, all of which are crucial to ensure ownership, commitment, and thus the success of any programme of reform. This is particularly true in the field of higher education, a social institution with a long and enduring history, in which faculty and students are particularly astute, vocal and well-organised.

**Box 5: Latvian Case Study: Part 4**

*Stakeholder consultations* played a vital role in all three phases of the development of Latvia’s new funding model for higher education. When reforms where first proposed, there was much public debate on a range of issues from whether higher education is a public or private good to the purpose of higher education.

In response to these difficult public debates, the MoES engaged the World Bank in order to provide independent, unbiased expertise, an international, comparative perspective and experience. As third-party brokers, the World Bank team convened multiple rounds of interviews, round-table discussions and workshops with different stakeholders in the higher education sector over a 10-month period. Stakeholders included government officials, the Rector’s council, the Higher Education Council, university executives, professors, students and employers.

To ensure the commitment of stakeholders, it may be appropriate to mobilise and channel additional resources towards such groups, as recognition that all reforms require efforts over and above the ongoing commitments of stakeholders, particularly HEIs and government funding bodies. In addition to providing additional capacity to deal with the reforms, this can also help to transform what could be viewed as a “destructive” reform into a “constructive” reform. “Grandfather” provisions and transitory funding arrangements can also be put in place, which guarantee amounts of resources equal to those that would have been received under the previous system, at least for some period of time (World Bank, 2010, p. 161).

**Another prerequisite for the successful realisation of funding reforms is the existence of adequate implementation capacity, within both government bodies and HEIs.** One of the most frequently cited implementation challenges is a lack of directly relevant experience or skills. Relevant capacity and skills promote more successful outcomes across a broad range of issues, including; ensuring a strategic approach to planning and resource allocation; the existence of appropriate governance structures; and sufficient planning and management capacity to administer new policies.

In the context of Central Europe and the Baltic countries, many higher education systems stem from organisational legacies that restrict the ability of HEIs to act as strategic, integrated and autonomous entities. Universities have historically been divided into distinct self-managing units - powerful, legally autonomous faculties under the symbolic umbrella of public universities. While in many of these systems the university has been legally integrated (although not in others), this regional idiosyncrasy of fragmentation often continues to challenge the ability of a central entity to steer a federated university of independent faculties in a unified, strategic direction and has resulted in a significant variance in funding and quality among these entities (Zgaga et al., 2013).
The capacity and readiness of HEIs is especially critical for the introduction of performance-based funding mechanisms, which require universities to develop a strategic approach towards their internal funding allocation. A change to the external funding model will have implications and unintended consequences at the institutional level, which therefore necessitates strong financial and strategic management within HEIs to meet these demands (Pruvot, Claey-Kulik & Estermann, 2015a, p. 47). HEIs must develop a strong model for the distribution of funds within the institution, which both counterbalances potentially negative consequences of the external funding model and strengthens the organisation’s capacity to realise its strategic objectives. To do so, HEIs require strong decision-making capacity and appropriate analytical techniques to predict the direction and magnitude of the consequences of reforms (World Bank, 2010, p. 168).

The availability of appropriate* data and an organisation’s ability to collect, analyse and use relevant data is a critical element for the success of performance-based funding mechanisms (see Example 12). An appropriate data/information management system provides knowledge to stakeholders about the status of the higher education system and its constituents, enabling governments to use the data to optimise their investment in higher education. Funding formulae, in particular, require accurate data to produce the appropriate allocation figures. It is inadvisable for a country to move to a formula based on actual costs per student, for example, if those cost figures are not regularly collected or verifiable (World Bank, 2010, p. 167). Rather, formulae based on average or normative costs tend to be easier to manage because they do not require as much detailed information from institutions. Many countries also lack experience collecting and using national statistics on outgoing or incoming students, making it difficult to integrate student mobility in formula funding. Additionally, optimising education provision with labour market requirements requires accurate and appropriate labour market data, which, being volatile and changeable, can be difficult to obtain and even more difficult to project into the future (Santiago et al., 2008). The implementation of such policies is further complicated by the fact that there is a time-lag between the data and the response in terms of redirecting resources to specific fields.

**Example 12: Setting up an Integrated Data System in Argentina**

In Argentina, when the government started to reform the tertiary education system after 1995 and attempted to move to a funding formula, audits revealed that several universities had inflated their enrolment figures to receive more funding.

In the following years, a comprehensive management information system was designed and introduced within the context of a World Bank–supported project to provide the entire university system and the government with adequate and reliable information for monitoring progress in implementation of the reform.

Initiated in 1994 under the Programa de Reforma de la Educación Superior (PRES) the Argentine Government led the design and operation of an internet-based management information and statistical data system that integrates various existing modules needed for decision-making at the ministerial and

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* Data should be comprehensive, relevant, reliable, and timely
decentralized level and provides adequate data and system compatibility with statistical systems of public universities. The SIU consists of five main software modules: (i) accounting and budget; (ii) staff management; (iii) university statistics; (iv) library management and (v) student management. All modules are merged into a single platform and are available through the Internet for all participants. Close consultation with end-users in the development phase has ensured that modules are easy-to-use and compile data of high relevance.

This has brought about a culture of transparency embedded in more rational resource allocation mechanisms (funding formula and competitive grants).


There are a number of components that constitute an effective data management system, namely: the enabling environment (i.e., the sustainable infrastructure and human resources that can handle data collection, management, and access); system soundness (i.e., the degree to which the processes and structure support the components of a comprehensive information management system); quality data (i.e., the degree to which a system accurately collects, securely saves, and produces high-quality, timely information); and utilization for decision making (i.e., the reality of system implementation and utilization of data in decision making).

Implementation challenges may also stem from changes to government administrations that arise from elections or other forms of political transitions. In many countries, the recent financial crisis and, more recently, the sharp influx of migrants has led to growing political instability and more frequent election cycles. In the context of funding reforms, such conditions may result in new ruling parties or coalitions reneging on public funding commitments to HEIs and students (for example, seeking to rewrite the terms and conditions of performance agreements), depending on their policy priorities and the socio-economic climate.

New administrations must, then, consider the continuity of policies and maintain incumbent commitments to HEIs and students for a reasonable period of time before embarking on further reforms. Strong stakeholder engagement that generates sector-wide support for a new initiative can help ensure the proposed reform survives government transitions.

Fairness and transparency should also be maintained. Whatever the strategic funding allocation mechanism, be it competitive funds or performance contracts, the establishment of clear criteria and procedures and the creation of an independent monitoring body are fundamental. This helps not only to define and allocate responsibility, but also to create a level playing field for the beneficiary institutions. Likewise, incentivising institutional behaviour only works if the mechanism is clear and understandable to the universities (Pruvot, Claeys-Kulik & Estermann, 2015a, p. 44).

In countries with a relatively small or isolated academic community, it may be desirable to draw from a regional or international pool of peer reviewers to assess any competitive funding applications, in order to reduce the danger of complacency and subjective evaluation among a limited group of national colleagues. The use of a transnational pool is a long-standing practice in Scandinavian countries and the Netherlands (Salmi & Hauptman, 2006, p. 21), and has also been established in newer EU member states such as Slovenia and Croatia.

It is important to support the perception and practice of fairness (with the above mentioned transparency as a precondition). If discretionary funding decisions are made, everyone should know how these decisions are made, who decides, and based on which criteria. Fairness depends on the perceptions actors have about the criteria. In the case of higher education funding, fairness typically implies that the different situations of institutions have been taken into account when allocating funds (for instance, differences in profiles/subject
structures) and that funding mechanisms should not merely perpetuate the historical distribution of funds among institutions, especially if these distributions were based on decisions made a long time ago with no connection to current circumstances (World Bank, 2014a, p 48). Nevertheless, decisions still have to be made by leaders. Having clear criteria does not remove the burden of setting priorities and being accountable for decisions.

6. Next Steps

More Impact Evaluation of Strategic Financing Mechanisms

Strategic financing, in theory, has the potential to influence the realization of different policy objectives. While anecdotal evidence indicates promising practices as to how policy makers can link funding mechanisms to particular policy outcomes, a solid research base is lacking. The current state of research on the impacts of performance-based funding is scarce, inconclusive and focused primarily on the United States. As such, drawing any sort of generalizable conclusion is impossible.

There is, therefore, an urgent need for further research on the impacts of performance-based funding, especially in Europe where the prevalence of such modalities is on the rise. Specifically, quantitative research (e.g. multivariate studies with extensive controls to isolate variables and their impacts) that investigates possible shifts in HEI performance and their relationship to performance-based funding policies would be useful for policy makers and academics alike. Future research should investigate organisational behaviour related to performance-based funding in order to highlight the connections between incentives, organisational behaviour and performance (Kivistö & Kohtamäki, 2015).

Strategic Risk Taking

The challenges facing higher education systems throughout Europe and around the globe call for governments to be even more strategic and to take even more risks. The content of this report, in terms of both the design and implementation of higher education funding reforms, is thus intended to provide policymakers with a useful overview of alternative ways to address different policy objectives. Though the impact of strategic financing has not been fully determined, many countries do know the degree to which their current approach has helped to realize policy objectives. Either the same financing approach can be maintained or new strategic approaches can be tested in the hopes of identifying effective ways to pursue important policy objectives.

Knowledge Sharing and Multi-lateral Dialogues

Finally, while this policy note seeks to provide a means for policy makers to share their experience and expertise, more such learning fora and channels are needed. Although professional networks and consortia exist, they are predominantly for institutional leaders rather than policy makers. A greater degree of multi-lateral governmental cooperation would allow policy makers across the region to benefit from the transparent sharing of ideas, experiences and results. In this regard, there is a case for the EU and other international organisations, such as the World Bank and the OECD, to assist governments to design and implement the best possible funding systems to support their policy objectives.
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## Appendix: Summary Table Matching Policy Objectives and Potential Financing Methodology

<table>
<thead>
<tr>
<th>Policy Objective</th>
<th>Strategic Funding Mechanism</th>
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| **Assuring and enhancing quality** | • Competitive funds  
• Performance contracts  
• Excellence schemes  
• Other Alternatives  
  o Merit-based scholarships and loans  
  o Student vouchers  |
| **Improving Links between Higher Education and the Labour Market** | • Funding formulae  
  o E.g., rewards for seats in high-priority fields; throughput indicators to hasten students’ entry to the labour market; graduate employment indicator  
• Performance contracts  
• Other Alternatives  
  o Merit-Based Scholarships in priority fields  
  o Loan Subsidies/Forgiveness  |
| **Boosting Knowledge Generation and Technology Transfer** | • Output-Oriented Funding Formula  
  o E.g., rewards for bibliometric criteria, the amount of external funding obtained, the number of contracts with business and industry, etc.  
• Competitive Funds  
• Performance Contracts  
• Other Alternatives  
  o Innovation Vouchers  |
| **Consolidating and/or Diversifying the Sector** | • Performance Contracts  
• Competitive Funds  
• Excellence Schemes  
• Other Alternatives  
  o Seed money for mergers  |
| **Optimising HEI Finances** | • Output-Oriented Funding Formula  
• Performance Contracts  
• Other Alternatives  
  o Matching Funds  
  o Innovation Funds  |
| **Increasing Equitable Participation** | • Input-Oriented Funding Formula  
  o E.g., rewards for numbers of (target) students  
• Performance Contracts  
• Competitive Funds  
• Other Alternatives  
  o Scholarships and grants  
  o Loan Subsidies  
  o Special Funds  
  o Tax Breaks  |
| **Fostering internationalisation and collaboration** | • Competitive Funds  
• Input-Oriented Funding Formula  
• Output-Oriented Funding Formula  
  o E.g., rewards for master’s degrees awarded to foreign nationals, internal and external student mobility, internationally competed research funding, etc.  
• Performance Contracts  
• Other Alternatives  
  o Targeted Funds  |
| **Cost containment** | • Innovation funds to stimulate the sharing of ideas, good practice and resources  
• Funding formulae  
• Use of normative costs  
• Demand-side vouchers (based on normative costs) |