World Bank Reimbursable Advisory Service on Higher Education Financing in Latvia

Assessment of Current Funding Model's 'Strategic Fit' with Higher Education Policy Objectives

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List of Abbreviations

EC	European Credit(s)
EU	European Union
ESF	European Social Fund
EUA	European University Association
HE	Higher Education
HEI	Higher Education Institution
MoES	Ministry of Education and Science
MoE	Ministry of Economics
RAS	Reimbursable Advisory Services
RTA	Reimbursable Technical Assistance
R&D	Research and Development
SEDA	State Education Development Agency
STEM	Science, Technology, Engineering and Mathematics

Executive Summary

This report is the second in a series of three papers prepared by the World Bank's Latvia Higher Education Team as part of its Reimbursable Advisory Services on Higher Education Financing in Latvia. The aim of this paper is to identify the main policy objectives for Latvia's higher education system and then assess how the current funding model fits or aligns with those objectives. The assessment is based on a review of key strategic documents for Latvia's national and sectoral development, international practices for higher education financing, and feedback from select stakeholders in Latvian higher education.

Based on the team's expertise and experience[1] advising different higher education systems on this issue, the report assumes the alignment of strategic goals and funding mechanisms is a crucial success factor to promote national strategies. Though other policy instruments provide considerable support, the national funding system can create incentives to steer the sector in a desired direction.

For the purposes of this assessment, the strategic objectives for higher education identified in the key policy planning documents were clustered into the following nine thematic goals:

1. Increase the quality of education and link with the national economy
2. Increase the quality and (international) competitiveness of research
3. Increase sector efficiency
4. Enhance technology, innovation, creativity, and entrepreneurship
5. Renew and develop the human resources of higher education institutions
6. Stimulate participation in and access to higher education
7. Stimulate internationalization in higher education
8. Enhance funding base of higher education
9. Establish a new and transparent approach to quality assurance

Consistent with the Bank's first report, this paper also explores the current funding model for Latvian higher education through four components (instruments of state funding, diversification of financial resources, financial autonomy, and student funding) to determine how each aligns with the thematic goal. The following table summarizes the overall assessments regarding the strategic fit of the four components of the funding system with each of the nine Thematic Goals. The scores vary from a strong positive strategic fit (indicated with "++") to a strong negative fit (indicated with "--"). A neutral relationship is indicated with "0".

[1] The Bank's Latvia Higher Education Financing team consists of World Bank staff as well as international and local experts bringing together expertise from a range of countries (Finland, Germany, the Netherlands, Latvia, the wider European area, and the United States) and contexts.

THEMATIC GOALS	State Funding	Resource Diversification	Financial Autonomy	Student Funding
1. Quality of education	- -	+	+	-
2. Quality of research	- -	+	+	+
3. Sector efficiency	- -	-	+	+
4. Technology, innovation, creativity and entrepreneurship	-	- -	0	0
5. Human resource development	-	+	+	0
6. Participation and access	- -	++	0	- -
7. Internationalization	-	0	0	-
8. Funding base	- -	-	0	+
9. Transparent quality assurance	+	0	0	0

As the table demonstrates, the overall funding model, particularly the basic funding for teaching and research, does not align well with the Thematic Goals for Latvian higher education. In general, this does not mean the policy objectives cannot be met, since other policy instruments can also be effective. However, the structural underfunding of the system together with the current model's emphasis on inputs (i.e., enrollment), and its lack of a performance orientation actually appear to work against the spirit of quality education and research. Increases in state investment in higher education, in accordance with current legislation, could go hand-in-hand with the introduction of more performance-driven and innovation-oriented funding instruments that provide incentives for the system to move in the desired direction of enhanced teaching and research quality.

Though the strong reliance on tuition fees and on EU structural funds should, in theory, steer higher education towards greater relevance to societal and economic needs, the incentives are not strong enough. Both tuition fees and EU funds are currently relied upon to maintain the functioning of the system and support the status quo, so they are unable to work effectively as instruments that guide towards greater quality, creativity, innovation, and entrepreneurship, especially in light of current economic and quality assurance realities.

While financial autonomy is high in Latvia, some institutions have not utilized their full potential in this respect. Certain institutions are being creative in developing alternative revenue sources, but the resultant funds are necessary to offset the low level of state investment in the system, so there is not much ability to reinvest in new opportunities, partnerships, or innovation. Additionally, some other institutions do not appear to be fully aware of their autonomy. The system would benefit from financing instruments that allowed it to incentivize, for example, partnerships with the private sector for revenue-generating research or training collaborations.

Finally, Latvia's current approach to student funding appears to have a slight misalignment with the Thematic Goals, particularly as it relates to internationalization and expanding access. Latvia would be well advised to reconsider how student financing could better align in a more supportive way with key policy objectives.

With these Thematic Goals identified, the report also provides alternative ways to align the funding model and examples of how other countries utilize their funding instruments to support comparable policy objectives. These alternative approaches introduce a variety of alternatives the World Bank team will consider as it prepares recommendations for a reformed approach to financing higher education in Latvia. The recommendations will be the foci of the third and final report expected to be delivered in the fall of 2014.

This report is organized into three chapters with multiple appendices. Chapter 1 outlines the main policy documents reviewed as part of this process and illustrates how the policy objectives for Latvian higher education were clustered into the nine Thematic Goals. Chapter 2 contains the assessment of whether or not the current funding mechanisms for Latvian higher education are aligned with the clustered policy objectives for the higher education system. Finally, Chapter 3 provides alternative approaches for how the funding mechanisms could better align with the policy objectives or themes, including some references to how other countries have utilized components of their funding model to support similar policy objectives.

Introduction

The report at hand is the second in a series of three papers prepared by the World Bank's Latvia Higher Education Team as part of its Reimbursable Advisory Services on Higher Education Financing in Latvia. The primary objective of this paper is to assess to what degree the current higher education funding model aligns with or supports the strategic objectives of Latvia's higher education system. Alignment is considered a highly desirable feature of higher education and research funding systems, since all levers (i.e., financial incentives, policy directives, etc.) are working to help the system realize its goals.

This second report builds on several foundational elements included in the first report, Higher Education Financing in Latvia: Analysis of Strengths and Weaknesses, 2014. The first report, inter alia, articulated the strengths and weaknesses of Latvia's current approach to funding higher education in light of recent European trends and according to criteria for "good funding models" as agreed to with Latvia's Ministry of Education and Science (MoES). This second report builds on the prior analysis by identifying the main policy objectives, with a focus on those that are mid- and long-term, for Latvian higher education and then assessing how the current funding model fits those objectives.

The findings and observations of this assessment result from (a) a review of guidelines, priorities and goals contained within key strategic documents related to Latvia's national development or its education sector, specifically seeking topics related to higher education; (b) the World Bank team's international experience assessing or reforming systems of higher education financing; and (c) feedback from select stakeholders (e.g., rectors, academic staff, students, etc.) in Latvian higher education.[2]

This report is organized into three chapters with additional support in the Appendices. Chapter 1 provides a brief overview of the main policy documents reviewed and, for the sake of this assessment only, clusters the policy objectives for Latvian higher education referenced within those documents. A more extensive summary of the documents incorporated into this analysis and their specific higher education goals, guidelines, and objectives are included in the Appendices. Chapter 2 then contains the assessment of whether or not the current funding mechanisms for Latvian higher education are aligned with the objectives of the higher education system. As was done in the prior report, the mechanisms of funding for higher education in Latvia are explored according to the following four elements: state funding for teaching and research, diversification of financial resources, financial autonomy, and student funding. The chapter includes an assessment of how these different elements of the funding model align with each of the nine thematic goals identified in Chapter 1. Finally, Chapter 3 provides alternative approaches or suggestions for how the funding mechanisms could better align with the policy objectives or themes, including some reference to how other countries have utilized components of their funding model to support similar policy objectives.

[2] On 12 March, the World Bank and MoES hosted a workshop at the European Commission's office in Riga for stakeholders in the higher education system. As part of the workshop, participants were divided into small groups to discuss how the current funding model aligns with different policy objectives and to brainstorm alternative ways in which better alignment could be achieved.

Based on the team's expertise and experience advising different higher education systems on this issue, the report assumes the alignment of strategic goals and funding mechanisms is a crucial success factor to promote national strategies. With a well-aligned funding model, policy objectives are more likely to become reality; whereas without reference to strategic goals, a funding system lacks orientation. However, it must also be stressed that funding is not the only instrument that determines the outcome of strategies. Funding can create incentives to steer the sector in a desired direction, but other policy instruments and elements must also provide support.

1 Strategic Priorities of Higher Education in Latvia

1.1 Strategic Papers for the Latvian Higher Education Sector

Although Latvia's higher education sector is not currently governed by a comprehensive strategic plan, several programs, guidelines, and plans offer a vision for the sector and medium- and long-term goals or objectives. The documents listed below, which account for both national and sectoral development strategies, were reviewed either for specific higher education strategic objectives or for context in interpreting the identified objectives.

- **Growth Model for Latvia: the Man in the First Place** (adopted by the Parliament of Latvia on October 26, 2005)
- **Sustainable Development Strategy of Latvia until 2030** (adopted by the Parliament on June 10, 2010)
- **National Reform Programme of Latvia for the Implementation of Europe 2020 Strategy** (endorsed by the Cabinet of Ministers on April 26, 2011)
- **National Development Plan of Latvia for 2014–2020** (adopted by the Parliament on December 20, 2012)
- **Latvia Convergence Programme 2013 to 2016** (endorsed by the Cabinet of Ministers on April 29, 2013)
- **Information Note on the Development of the Smart Specialization Strategy** (endorsed by the Cabinet of Ministers on December 17, 2013)
- **Partnership Agreement for the 2014 – 2020 EU Funds Programming Period** (submitted to the European Commission on January 15, 2014)
- **Operational Programme "Growth and Employment" for the 2014 – 2020 EU Funds Programming Period** (submitted to the European Commission on March 4, 2014)
- **Declaration of the Intended Activities of the Cabinet of Ministers headed by Laimdota Straujuma** (endorsed by the Parliament on January 22, 2014)
- **Guidelines for Development of Science, Technology and Innovation 2014–2020** (endorsed by the Cabinet of Ministers on December 28, 2013)
- **Guidelines for the Development of Education 2014–2020** *(project)* (endorsed by the Cabinet of Ministers on January 7, 2014)

- **Action Plan for the Development of Higher Education and Science for the Time Period from November 1, 2013 until December 31, 2014** (adopted by the Cabinet of Ministers on November 22, 2013)
- **The Concept of the Development of Higher Education and Higher Education Institutions for 2013 to 2020** (established in accordance with the Higher Education Law)
- **Law on Higher Education Institutions** (in force since December 1, 1995)

For more information on these documents, please refer to the Appendices of this report.

1.2 Clustering the Strategic Objectives into Thematic Goals

For the purposes of this document, the strategic goals for higher education that were identified in the aforementioned documents were clustered into nine Thematic Goals. Importantly, this clustering of policy objectives is wholly the work of the World Bank's team and done to facilitate a more succinct assessment of the degree to which the funding model aligns with Latvia's broader strategic objectives for higher education. At the level of the Thematic Goals, occasional comparisons can subsequently be drawn to how other countries utilize their funding model in support of similar objectives.

In the following tables, each of the nine Thematic Goals is presented along with examples of the specific strategic objectives and their source document. The objectives clustered under Thematic Goals include aspirational targets, new initiatives, and areas of focus. Since the strategic objectives were largely identified from a review of key documents, it should be noted that this list is not intended to reflect any weighting or prioritization. Also, virtually all of these could have a relation to funding, but sometimes non-financial incentives and instruments may be just as or even more effective.

1. Increase the quality of education and its link with the national economy

Example Objectives for this Thematic Goal	• Transform the education system and improve its content to focus on employability (competencies, entrepreneurship, and creativity) • Increase role and availability of (good) internships to facilitate the transition to labor market and reduce unemployment (18 months after BA, MA, or PhD graduation reduce unemployment from 7.5% to 5.2% in 2020) • Develop a register of graduates—a system for monitoring and assessing the graduates' paths in the labor market • Stimulate excellence through sufficient "critical mass" or economies of scale to ensure intellectual collaboration and spillovers, resource consolidation, and efficiency
Source Documents	National Development Plan 2014–2020 Information Note on the Development of the Smart Specialization Strategy Guidelines for the Development of Education 2014–2020 Guidelines for the Development of Science, Technology and Innovation 2014–2020 Action Plan for the Development of Higher Education and Science 2013–2014

2. Increase the quality and (international) competitiveness of research

Example	• Improve quality of research, especially in areas of Smart Specialization, and

Objectives for this Thematic Goal	strengthen its collaboration with business to generate new, innovative, and competitive products and services • Promote the development of a system of joint research-based and industry-oriented doctoral studies • Increase the number of doctoral students, encourage their involvement in research projects • Establish joint doctoral study centres at universities and scientific institutions to focus on topical socioeconomic issues • Improve international competitiveness and participation in European Research Programmes and Infrastructures • Invest in modern research infrastructure
Source Documents	National Reform Programme of Latvia for the Implementation of Europe 2020 Strategy National Development Plan 2014–2020 Operational Programme "Growth and Employment" for the 2014 – 2020 EU Funds Programming Period Guidelines for the Development of Science, Technology, and Innovation 2014–2020 Action Plan for the Development of Higher Education and Science 2013–2014

3. Increase sector efficiency

Example Objectives for this Thematic Goal	• Strengthen the integration of higher education with science, research, and industry to help promote knowledge transfer • Encourage strategic specialization of HEIs through differentiation of institutional profiles • Improve education infrastructure through consolidation of study programmes , reduce programme fragmentation and duplication, especially through regional collaboration • Stimulate institutional research excellence by resource efficiency and concentration to form critical masses
Source Documents	National Reform Programme of Latvia for the Implementation of Europe 2020 Strategy Information Note on the Development of the Smart Specialization Strategy Operational Programme "Growth and Employment" for the 2014 – 2020 EU Funds Programming Period Declaration of the Intended Activities of the Cabinet of Ministers Headed by Laimdota Straujuma Guidelines for the Development of Science, Technology, and Innovation 2014–2020 Action Plan for the Development of Higher Education and Science 2013–2014 Concept of the Development of Higher Education and Higher Education Institutions for 2013–2020

4. Enhance technology, innovation, creativity, and entrepreneurship

Example Objectives for this Thematic Goal	• Strengthen position of STEM to reduce the disproportion of labour market (increase the proportion of state-funded places from 44% to 55% and proportion of graduates in STEM areas from 19% to 27% in 2020) • Increase proportion of college students in the system (from 18% to 24% in 2020) • Modernize infrastructure in the higher education institutions implementing study

	programs in STEM areas, especially at college and doctoral level • Increase funding for science and innovation, including co-funding by private business • Stimulate market-oriented (societal relevant) research, enhance commercialization of research results
Source Documents	National Development Plan 2014–2020 Guidelines for the Development of Education 2014–2020 Information Note on the Development of the Smart Specialization Strategy Operational Programme "Growth and Employment" for the 2014 – 2020 EU Funds Programming Period Guidelines for the Development of Science, Technology and Innovation 2014–2020 Concept of the Development of Higher Education and Higher Education Institutions for 2013–2020

5. Renew and develop the human resources of higher education institutions

Example Objectives for this Thematic Goal	• Increase proportion of academic (university) staff with a doctorate from 54% to 65% in 2020 • Increase number and proportion of foreign staff (from 0.5% to 7% in 2020) • Attract younger staff (proportion of 30–49 year olds from 45% to 55% in 2020) • Increase basic salary levels of academics, create transparent remuneration structures, and introduce performance incentives (bonuses and rewards) • Renew the principle of joint pedagogic and research work to facilitate the engagement of academic staff in research and vice versa
Source Documents	National Development Plan 2014–2020 Partnership Agreement for the 2014 – 2020 EU Funds Programming Period Guidelines for the Development of Education 2014–2020 Guidelines for the Development of Science, Technology, and Innovation 2014–2020 Action Plan for the Development of Higher Education and Science 2013–2014

6. Stimulate participation in and access to higher education

Example Objectives for this Thematic Goal	• Attract more students from lower socioeconomic backgrounds by developing a support system, including increasing scholarships and grants • Provide more need-based student financial support as opposed to purely merit-based (e.g., introduce 3000 scholarships for students from lower socioeconomic backgrounds) • Stimulate access of mature students, lifelong learning function • Increase proportion of 25–34 year olds holding a HE degree in the labor force from 37% to 40% in 2020
Source Documents	National Reform Programme for the Implementation of Europe 2020 Strategy Information Note on the Development of the Smart Specialization Strategy Operational Programme "Growth and Employment" for the 2014 – 2020 EU Funds Programming Period Declaration of the Intended Activities of the Cabinet of Ministers Headed by Laimdota Straujuma Guidelines for the Development of Education 2014–2020 Guidelines for the Development of Science, Technology, and Innovation 2014–2020

7. Stimulate internationalization in higher education

Example Objectives for this Thematic Goal	• Increase proportion of credit mobility students coming to Latvia for a temporary study visit abroad to obtain some courses in the framework of their studies in the home-country (from 0.8% to 20% in 2020) • Increase proportion of degree mobility students coming to Latvia to obtain a full degree program (from 2.9% to 8% in 2020) • Increase number of graduates that have studied a period abroad (from 13.7% to 20%) in 2020 • Increase number of internationally accredited study programs (from 0 to 20 in 2020) • Attract more foreign staff • Offer more quality study programs taught in official European Union languages (60 in 2020) • Promote international accreditation of study programmes (20 internationally accredited study programmes in 2020)
Source Documents	National Development Plan 2014 – 2020 Operational Programme "Growth and Employment" for the 2014 – 2020EU Funds Programming Period Partnership Agreement for the 2014 – 2020 EU Funds Programming Period Declaration of the Intended Activities of the Cabinet of Ministers Headed by Laimdota Straujuma Guidelines for the Development of Education 2014 – 2020 Guidelines for the Development of Science, Technology, and Innovation 2014 - 2020

8. Enhance funding base of higher education

Example Objectives for this Thematic Goal	• Increase higher education expenditure as proportion of GDP in accordance with the Law on Higher Education Institutions—annual increase of funding for state higher education institutions by a minimum of 0.25% of GDP to reach at least 2%. • Revise the calculation of the costs of education (per study place, per subject area) • Implement performance oriented funding
Source Documents	Guidelines for the Development of Education 2014–2020 Action Plan for the Development of Higher Education and Science 2013–2014 Law on Higher Education Institutions Concept of the Development of Higher Education and Higher Education Institutions for 2013–2020

9. Establish a new and transparent approach to quality assurance

Example Objectives for this Thematic Goal	• Set up a database of accredited higher education study directions, programs, and institutions for external and internal assessment of quality • Set up a database of higher education study quality assessment experts • Ensure the availability of quality assessment and accreditation results to foster informed decisions as to the choice of the study programs and institutions • Establish and maintain a national agency for higher education quality assessment • Establish Study Boards to ensure objective evaluation of the institutional and study

	quality, oversee the allocation and effectiveness of study places, and enhance strategic partnership with entrepreneurs
Source Documents	Operational Programme "Growth and Employment" for the 2014 – 2020 EU Funds Programming Period Guidelines for the Development of Education 2014–2020 Action Plan for the Development of Higher Education and Science 2013–2014 Concept of the Development of Higher Education and Higher Education Institutions for 2013–2020

2 Assessment of the Fit between Funding and Thematic Goals

Consistent with the organizing structure of the first report, each of the Thematic Goals will be assessed against four elements of Latvia's current funding model for higher education:

- *State funding for teaching and research* (allocation of state budget via study places and public research funding)
- *Diversification of financial sources* for higher education institutions (EU funds, tuition fees, market revenues, external research income, transfer activities, etc.)
- *Financial autonomy* of higher education institutions (lump-sum versus line-item allocations, freedom to spend money flexibly and build financial reserves, financial regulations, discretion to set salaries, etc.)
- *Student funding* and support (the individual financial situation of the student, loans, scholarships, etc.)

The tables that follow are organized according to the Thematic Goals. The four elements of Latvia's funding model are then assessed to determine the degree to which the funding model aligns with the Thematic Goals. The question to be answered is: How do these four instrumental elements align with this specific Thematic Goal of Latvian higher education? For example, for the Thematic Goal 'Increase the quality of education and link with the labor market', the tables provide an assessment of the degree to which Latvia's current instruments of state funding for teaching and research align with and support this objective. The same is analyzed for the diversification of financial sources, financial autonomy, and student funding.

Sections 2.1 through 2.9 present a table for each of the Thematic Goals to assess the extent to which it is promoted by all components of the funding system. In section 2.10, a summary of the alignment will be shown the other way round: for each funding component, a short summary of the alignment with the overall with the different goals is provided.

The assessment draws primarily from the description of Latvia's current funding model as described in Appendix 1 of the first report, the Strengths and Weakness of the existing model provided in Chapter 4 of the first report, and feedback from representative higher education stakeholders who participated in a related exercise facilitated by the World Bank team during its March 12 workshop at the European Commission's office in Riga.

For each of the four dimensions, an 'overall alignment' is provided based on the authors' opinion for the reasons outlined beneath it. For the purposes of this report, a subjective weighting scheme was developed, so both the 'overall alignment' and the individual assessments reflect the authors' opinion on how the funding model does or does not provide incentives to achieve the Thematic Goals. The relative "alignment scores" of the current funding mechanisms with the Thematic Goals are assessed on a five-point scale: "strongly aligned", "aligned", "neutral", "misaligned", and "strongly misaligned". The "strongly" categories mean that (almost) all the arguments point in the same direction or that there are extremely strong issues. "Aligned" or "misaligned" suggests that there are arguments in both directions

but one direction is regarded as stronger. "Neutral" suggests that either the alignment and misalignment are somehow balanced, or there are no effects at all. The plusses and minuses will also be used for each of the assessment statements in order to indicate the impression for each observation on the relative alignment between the funding instruments and Thematic Goals.

Strongly Misaligned	Misaligned	Neutral	Aligned	Strongly Aligned
- -	**-**	**0**	**+**	**++**

Alignment between goals and funding systems is an important success factor of funding. Therefore, where misalignment is identified, the funding system, in general, should be reconsidered to improve alignment. However, there are areas where it is difficult to reach alignment and other instruments (e.g., new policies) may be sufficient. At the end of the assessment for each Thematic Goal, a brief summary is provided to suggest ways in which changing the funding components could increase alignment is provided.

2.1 Increase the quality of education and its link with the national economy

Dimension 1: State Funding for Teaching and Research	
Overall Alignment	***STRONGLY MISALIGNED***
Assessment	• The current amount allocated per study places is significantly less than the cost of the education, which negatively affects the quality of education. (- -) • The study place system is input-oriented, so it does not incentivize the performance of HEIs. The use of output-oriented indicators, such as the number of graduates, in the current performance contracts does not produce sufficient incentives, because they are not stated explicitly and are not perceived to have considerable financial impacts. (- -) • Since new study places are a zero-sum game for the universities, the system lacks performance-based financial incentives to further stimulate the achievement of excellence. (- -) • A positive performance incentive is set on the side of the students who, because of the merit-based (rotation) system at some institutions, have a strong incentive to perform well. (+) • The negotiation and planning of study places allow the MoES to consider ways to align with the labor market. Through stakeholder consultations, the MoES obtains a reasonable projection of labor market needs, so the number of places allocated is based on informed decisions. This helps to realign the distribution of study places by discipline with national labor market needs. Admittedly, future labor market

	projections are difficult, so there are limits to the amount of 'labor force planning' possible in the current system. (+) • Since adjustments in the allocation of study places are centrally planned, there is no real incentive for the universities to develop bottom-up initiatives to change program structures or develop innovative programs; in other words, there is little to no demand-orientation as part of the study place model. This is different, of course, for fee-paying students. (-) • Although a funding model is not meant to promote the development of a register of graduates, such a register can help inform the funding model. The development of a register of graduates is often a precondition to creating financial incentives towards labor-market orientation and employability. With a register of graduates, tracer studies are possible and are important instruments in assessing employability and informing student choice (by asking, for instance, how long it takes graduates to secure their first job or the unemployment rate as of a certain number of months after graduation). This allows the construction of labor market-oriented indicators to be used in financial incentive models. (- -) • The study-places model can also adjust to differences in "regional labor markets". (+)
Dimension 2: Diversification of Financial Resources	
Overall Alignment	***ALIGNED***
Assessment	• Willingness to pay tuition fees by a high number of students leads to substantial revenues that support teaching quality. (++) • One can expect that students paying full fees will be more conscious about choosing studies with better labor market prospects. (+) • The existence of a considerable private higher education sector could, in principle, lead to professionally-oriented programs and stimulate diversity of study options. In many countries, private providers particularly offer relatively low-cost programs, so the quality assurance mechanisms must function well.) (+) • Relying on two major sources of income (tuition fees and EU funds) instead of further diversifying, creates quality concerns, poses financial risks, and endangers long-term developments (particularly due the current demographic decline). (-)
Dimension 3: Financial Autonomy	
Overall Alignment	***ALIGNED***

Assessment	• Financial autonomy is a basic condition for quality of education, allowing the development of specific profiles, flexible realization of innovations, and reaction to market demands. (++) • Financial autonomy also allows institutions to better respond to changes in the labor market. (+) • The positive effect would become even stronger if all actors were aware of the autonomy they have. (+)
Dimension 4: Student Funding	
Overall Alignment	***MISALIGNED***
Assessment	• Because many students have to pay substantial tuition fees, there will be a (strong) voice demanding value for money which is likely to have a positive impact on quality. (+) • The limited number of scholarships available and the strict conditions for taking up loans (the guarantor condition) prevent many students from borrowing. Instead, they work to cover the cost of fees and living expenses and so reduce the time spent on study, which negatively affects quality. (-) • The competitive merit-based nature of the available scholarships stimulates study success and quality. However, since so few scholarships are available, the quality incentive will only affect the best 20% of students on state-funded places (maximum 10% of all students). (-) • Overall underfunding, which harms quality, also applies to fee-based places because some institutions/programs charge tuition fees at the level of state subsidies or lower. (- -) • The ongoing decline in the college-aged demographic decreases the tuition revenue base of HEIs, which may reduce the viability and quality of programs and institutions. (-) • Because a full complement of need-based student support is not offered, some well-qualified students from lower socioeconomic backgrounds may not enter higher education. (-) • Limited information about study choices may prevent students from entering higher education or lead to wrong study choices and drop out as a result. (- -) • Having student loans and graduate debt may make prospective students more conscious about their study choices, study success, and future labor market prospects. (+)

From the analysis above, the following elements can be regarded as very important for the alignment of funding instruments with the goal of increasing educational quality and its relevance to the national economy:

- Implementing the intended increase in public funding for higher education appears to be a crucial prerequisite to enhance higher education quality.
- Introducing performance-orientation in the funding instruments can also substantially enhance quality.
- Creating financial space to invest in innovative initiatives can further enhance quality.
- The diversification of resources should be expanded to also further diversify the quality "demands".
- Financial autonomy is strong, but some institutions could be made more aware of and active with their autonomy.
- To increase alignment, student loans could include some more performance orientation; for example, instead of the current "grantor requirement" and bonuses on child birth and public jobs, one could think of remitting part of the debt in case of completion of studies within the nominal duration, or in case of being among the top-10% graduates, or cancelling the interest in such cases.

2.2 Increase the quality and (international) competitiveness of research

Dimension 1: State Funding for Teaching and Research	
Overall Alignment	***STRONGLY MISALIGNED***
Assessment	• Quality of research benefits from an integrated funding system of university and non-university research, leading in general to competition within the whole research sector (which is not very intensive due to incremental allocation of funds). On the other hand, collaboration between universities and research-performing institutions is not incentivized. (- -) • While the recent research evaluation has identified units with international competitive potential, per-capita funding is spread out in an 'egalitarian' manner across research units. Funding is, thus, not used strategically to support promising research initiatives. (- -) • As is the case of the study place model, performance indicators are used "implicitly" for research and without substantial effects on distribution of funds. Again, basic funding and performance oriented components are implemented in a mixed way, supporting stability at the expense of performance orientation. (-) • Supporting research with EU funds can have a positive impact, as the funds have

	helped support young researchers, increase the number of doctoral students, and modernize infrastructure. They are, however, the only source at the moment actively promoting international competitiveness and research excellence. As a non-permanent funding source, they can only be planned to have short- to mid-term impacts. There is also no coherent coordination between state and EU funding, leading to what is likely a suboptimal use of research infrastructure. (0) • The current allocation criteria for research funds from the EU structural funds are not fully transparent and lead to a relatively equal distribution of funds. This leads to suboptimal competition and performance orientation. (-) • Instruments to fund important elements of research strategies, such as funding of post doc positions, are missing. The problem of underfunding also negatively impacts research in quantity and quality (more than in the case of teaching it is also a matter if there is any chance to conduct research activities, since at some universities almost no research is done). (- -) • A research strategy also needs ideas about specific research priority areas, identified in a joint process with bottom-up and top-down inputs by the government and the universities. In the strategic documents reviewed, such a research strategy cannot be identified (if there is no strategic research portfolio then there can be no strategic fit with funding). (- -)
Dimension 2: Diversification of Financial Resources	
Overall Alignment	***ALIGNED***
Assessment	• EU structural funds were most relevant to sustaining and developing research quality during the last years. In general, diversification of research funds is an important precondition for competitiveness in research. (++) • It appears, however, that EU structural funds have, in a way, replaced part of the basic state funding for research. (-) • Relying on two major sources of income (including EU structural funds related to research) instead of further diversifying (e.g., from industry or EU research funds such as Framework Programs, ERC, etc.), creates quality concerns, poses financial risks, and endangers long-term developments. (-)
Dimension 3: Financial Autonomy	
Overall Alignment	***ALIGNED***

Assessment	• Financial autonomy is a basic pre-condition for quality of research, allowing the development of specific profiles, flexible realization of innovations, and reaction to market demands. (++) • Financial autonomy can also stimulate institutions to collaborate with other research partners, to create critical mass, and to attract funds from private sources like industry. This opportunity, however, appears under-leveraged thus far. (+) • Again, the positive effect would become even stronger if all actors were aware of the autonomy they have. (-)
Dimension 4: Student Funding	
Overall Alignment	***ALIGNED***
Assessment	• Student financing for bachelor and master students has little to do with research. (0) • The support available to PhD students, particularly through the EU structural funds programs PhD students are offered tuition-free student places and scholarships for living expenses. As such, these scholarships provide a substantial contribution to attracting young talented academics into academia which supports the longer term research base and research quality as well. (++) • The substantial number of fee paying students may in some cases lead to cross-subsidies from teaching resources to research and thus support research quality. Due to the structural underfunding and often not fully cost-covering tuition fees, this "research quality impact" will be very limited. (0)

From the analysis above, the following elements can be regarded as very important for the alignment of funding instruments with the goal of enhancing research quality:

- For research, the intended increase in public funding for higher education also appears to be crucial.
- Integrating explicit performance-orientation in the funding instruments can also substantially enhance research quality.
- The diversification of resources should be expanded and stimulated beyond the EU structural funds components, particularly to integrate with industry.
- Financial autonomy is very good but could be used more proactively.

2.3 Increase sector efficiency

Dimension 1: State Funding for Teaching and Research	
Overall Alignment	***STRONGLY MISALIGNED***
Assessment	• The study place model and research funding do not contain clear and transparent incentives for differentiation of institutional profiles. (- -) • The allocation of study places is partially fragmented and in some cases appears to run counter to the wish for consolidation of programs/institutions. (-) • There is no mechanism to analyze and carefully promote desirable forms of sector consolidation for study programs, taking into account the trade-off between efficiency (e.g., economies of scale) through centralization and access and competition through decentralization. While a reduction in the number of programs is no goal in itself, the analysis of the trade-off is not sufficiently promoted in the current system. (- -) • State research funding does not promote 1) collaboration between research organizations or with external partners (e.g., industry), 2) realization of critical mass, or 3) research excellence. (- -) • The totally divided funding streams for teaching and research impede an integration of the university's core missions of teaching and research. (- -)
Dimension 2: Diversification of Financial Resources	
Overall Alignment	***MISALIGNED***
Assessment	• There are some logical links between the consolidation issue and diversification. First, diversification in terms of tuition fee revenues may lead to more competition rather than to a reduction of programs, especially in the context of private-public competition. Sufficient numbers of full-tuition paying students will enable to maintain a situation of program duplication. (-) • Second, diversification of research income in a more local context could lead to a situation of fragmented research instead of critical mass. However, diversification through attracting EU funds requires international competitiveness and critical mass in the respective research topic which could only come from (inter-)national collaborations. (-) • The fact that research funds are broadly allocated across institutions (vs. pooled

	according to performance criteria) together with the fact that institutions have substantial tuition revenues, enables them to sustain quite a number of small study programs and research groups. (-)
Dimension 3: Financial Autonomy	
Overall Alignment	***ALIGNED***
Assessment	• Financial autonomy is a basic precondition for strategic specialization of HEIs and thus, for the creation of scale efficiencies and the construction of critical mass; autonomy alone, however, will not be sufficient in achieving these aspects without adequate incentives). (++) • However, financial autonomy may also maintain a situation of a suboptimal and fragmented research system. (-)
Dimension 4: Student Funding	
Overall Alignment	***ALIGNED***
Assessment	• The potential for enrolling students on a full-fee paying basis and supporting them with student loans allows institutions to enroll more students than on the basis of state-subsidized places only. This situation affords them the opportunity to optimize the size and capacity of their study programs. (++) • On the one hand, a reliance on fee-paying students can stimulate institutions to offer interesting (niche) programs that distinguish them from their competitors, which further supports the benefit of program diversity. However, the absence of a significant financial support system for low-income students may lead fee-paying students to prefer (and thus institutions to offer) low-cost programs, which could lead to an unproductive fragmentation of similar programs. (+) • Having a substantial number of full-fee paying students induces a market mechanism in the HE system whereby students "vote with their feet". In the longer run, this can create more efficiency in the system. While in principle this is a good element, it occasionally requires interventions to correct undesired market outcomes (e.g., students preferring low-quality programs or programs with fewer requirements due to ease of studies or lower costs). (+) • Because students want to study more efficiently to keep costs down, they will stimulate an internal dynamic that also creates more efficient study processes within the study programs and institutions. (+)

From the analysis above, the following elements can be regarded as very important for the alignment of funding instruments with the goal of increasing sector efficiency:

- To increase sector efficiency, incentives should be considered that base consolidation decisions on an analysis of trade-offs between critical masses and competition (instead of fragmentation or not sufficiently analyzed reductions of programs).
- The integration of teaching and research funding criteria is a promising approach to better integrate planning for the core missions of the university.
- Tuition fees provide institutions some extra financial space, but one has to be careful the competition for fee-paying students does not to lead to a fragmented market.
- Financial autonomy is important to initiate external collaborations or to consolidate activities as well.

2.4 Enhance technology, innovation, creativity, and entrepreneurship

Dimension 1: State Funding for Teaching and Research	
Overall Alignment	***MISALIGNED***
Assessment:	• The study place model in general is a good approach to increase STEM study places, as the Ministry could just decide to focus study places on desired fields. It also allows steering towards an increase in the proportion of college students by providing relatively more free places there. However, there is concern among stakeholders regarding the preparedness of prospective STEM students and drop-out tendencies in STEM studies in general. (0) • There is no funding mechanism to support creative and innovative curriculum of new study programs. (-) • There are no targeted incentives and funding systems to promote innovation and market-oriented research. (-)
Dimension 2: Diversification of Financial Resources	
Overall Alignment	***STRONGLY MISALIGNED***
Assessment	• The higher education market may not be able to provide sufficient STEM study places or students adequately prepared to fill all vacant places. Public intervention

	is required. (- -) • There are no "innovation funds" granted to invest in promising innovative study programs or research priorities. (- -) • Income from private sources, such as industry or local communities, is underdeveloped, leading to a situation where the potential to promote market-oriented research and academic entrepreneurship may not be sufficiently utilized. (-)
Dimension 3: Financial Autonomy	
Overall Alignment	***NEUTRAL***
Assessment	• Financial autonomy could lead to situations where specific governmental targets are not sufficiently taken into account. For instance, the intended increase of STEM studies and the relative shift to the college sector could not be guaranteed by just granting financial autonomy; interventions for very specific decisions by setting frameworks could be necessary. (-) • On the other hand, creativity and market orientation are promoted by financial autonomy. Interventions need to ensure that the advantages of autonomy are preserved. (+)
Dimension 4: Student Funding	
Overall Alignment	***NEUTRAL***
Assessment	• The ability to enroll students on a full fee-paying basis beyond the limited number of state-funded study places allows more students to enter higher education. In other words, a larger portion of the population is educated without state support, which, in theory, allows more resources to be available for innovative programs. In reality, however, the fee-paying model is mostly used to fill the teaching capacity in regular programs, so this rather indirect effect on innovation is not exploited. (0) • The fact that fees differ according to the costs of study leads to higher fees for STEM which would allow a stronger position for STEM. However, the fact that relatively few fee-paying students are in STEM programs, this potential impact is very small. (0)

From the analysis above, the following elements can be regarded as very important for the alignment of funding instruments with the goal to enhance technology, creativity, innovation, and entrepreneurship:

- The ability to allocate state-subsidized study places to various disciplines is a strong instrument to secure participation in STEM.
- More should be done to attract and retain sufficient numbers of well-qualified students to fill these places.
- To stimulate innovation, creativity, and entrepreneurship, public-private partnerships could be better stimulated, perhaps through something like innovation funds, but while still maintaining a high level of financial autonomy for institutions.
- The fee-paying mechanism appears to have limited impact on innovation, though one could study what happens in private higher education in this respect.

2.5 Renew and develop the human resources of higher education institutions

Dimension 1: State Funding for Teaching and Research	
Overall Alignment	***MISALIGNED***
Assessment	• There are no funding incentives to attract staff with doctorates or foreign staff or incentives to train staff to obtain their doctorate degrees. (- -) • The current remuneration system with strong variation between institutions and individual academics is not transparent. There is a general perception that many academics are underpaid which runs counter to the idea of the thematic objective. (- -) • The recent initiatives to attract young talented academic staff with EU structural funds are good, and similar initiatives should examine the high dropout rates among young PhD candidates. (+)
Dimension 2: Diversification of Financial Resources	
Overall Alignment	***ALIGNED***
Assessment	• EU structural funds are used to enhance professional capacity, especially to attract younger staff. They make a substantial contribution to increasing the number of PhDs in Latvia, especially by offering scholarships. (++) • EU structural funds are not used to attract foreign academic staff. (0)

Dimension 3: Financial Autonomy	
Overall Alignment	***ALIGNED***
Assessment	• Financial autonomy does not always align with such policy goals as the desired proportion of staff with a PhD or foreign academic credentials. In this case, policy objectives and regulations exist that relate to institutional autonomy (e.g., required percentages of staff with PhD as clear policy target) without presenting conflict. Also, the minimum compensation for academic staff is regulated; the ability to meet this objective is likely more a matter of funding level and not of autonomy. (+)
Dimension 4: Student Funding	
Overall Alignment	***NEUTRAL***
Assessment	• Student financing has no immediate impact on the professional capacity of teachers and researchers. (0) • However, by increasing the funding base through full-fee paying students, institutions may, in theory, have better opportunities to attract additional (young or international) academics or to increase wages (which is again a rather weak and indirect aspect).(0)

From the analysis above, the following elements can be regarded as very important for the alignment of funding instruments with the goal to develop the human resources of higher education institutions:

- There could be more policy attention paid to attracting staff with doctorates or foreign staff utilizing state funding.
- Utilization of the EU structural funds to attract and retain young talented researchers is a very good initiative in this respect.
- Institutional autonomy could help here, but one has to realize that the academic labour market should be transparent to be attractive to young scholars.

2.6 Stimulate participation in and access to higher education

Dimension 1: State Funding for Teaching and Research	
Overall	***STRONGLY MISALIGNED***

Alignment	
Assessment	• Experiences from European countries show that the provision of free study places to students on merit-based criteria implies the risk that primarily students from higher socioeconomic backgrounds benefit, whereas many students from lower socioeconomic backgrounds have to pay high tuition fees. This results from the tendency of students from higher socioeconomic backgrounds to achieve better marks at school.[3] (- -) • Leaving out part-time students in the study place model discriminates against and impedes access of mature students and low-income students who have to work to pay for the costs. (- -) • The rotation system may lead to higher dropout rates among students from disadvantaged backgrounds who fail to stay on previously earned state-subsidized study places (as they have to work and can spend less time on their studies). (- -)
Dimension 2: Diversification of Financial Resources	
Overall Alignment	***STRONGLY ALIGNED***
Assessment	• The substantial number of full fee-paying students in public HEIs and the substantial private higher education sector increases choice for students and provides access opportunities beyond the scope of public budgets. (++)
Dimension 3: Financial Autonomy	
Overall Alignment	***ALIGNED***
Assessment	• There is little to no systematic influence of autonomy on this goal area, except that HEIs themselves select students for scholarships and student loans. (+) • The decentral system of allocating scholarships makes it less transparent to prospective students whether or not they are eligible. This may hinder some students from entering higher education. (-) • HEIs can decide freely on tuition fees. Though some institutions have kept their fees low to ensure access, autonomy in deciding on fees has ensured greater access for many students who are not entitled to state-subsidized study places. (+)

[3] Vossensteyn, J.J. (2009), Challenges in student financing: State financial support to students – a worldwide perspective, in: *Higher Education in Europe*, Vol. 34, No. 2, pp. 183-199.

Dimension 4: Student Funding	
Overall Alignment	***STRONGLY MISALIGNED***
Assessment	• The widespread use of tuition fees in a country with wide income disparities may have a negative impact on access. The dual track system with merit based selection of students for state-funded study places is likely to subsidize students from better socioeconomic backgrounds. Therefore, students from lower socioeconomic backgrounds are more likely to pay full tuition fees (see above). The perceived unfairness of this system is likely to negatively impact access and participation in higher education. (- -) • The limited availability of scholarships does not have a positive impact on access. In particular, the merit-based allocation makes scholarships most likely to benefit high-achieving upper-middle students who would most likely attend higher education without student support. However, the scholarships will hardly benefit those who most need them: students from lower socioeconomic backgrounds. This stimulates a perception of unfairness and thus negatively impacts access. (- -) • Debt aversion and the guarantor restriction make student loans less available to students from lower socioeconomic backgrounds and have a negative impact on access. (- -) • Altogether, the limited availability of scholarships and student loans for students who need them most from a financial perspective may leave quite some talent under leveraged. (-)

From the analysis above, the following elements can be regarded as very important for the alignment of funding instruments with the goal to stimulate participation in and access to higher education:

- The strong risk that the study place model supports students from already advantaged backgrounds should be mitigated.
- However, the dual track system provides higher education opportunities for students who are less academically prepared students.
- Student financial support programs should be available to students in need, either as a way to complement or replace the funding available to the most academically prepared talented students.

2.7 Stimulate internationalization in higher education

Dimension 1: State Funding for Teaching and Research	
Overall Alignment	***MISALIGNED***
Assessment	• There are no incentives for internationalization, though it is also not hampered by the system). (-)
Dimension 2: Diversification of Financial Resources	
Overall Alignment	***NEUTRAL***
Assessment	• In general, diversification offers the potential to increase income from abroad and therefore contribute to internationalization. Because there are no requirements with regard to internationalization connected to the application for or use of EU structural funds, this potential appears under-utilized. (-) • Latvian higher education does not strongly use its position as a low-tuition country for non-EU students compared to many Western European countries (e.g., with Sweden and Finland also recently introducing fees for non-EU students). (0)
Dimension 3: Financial Autonomy	
Overall Alignment	***NEUTRAL***
Assessment	• There is little to no systematic influence of autonomy on this goal area, although institutions can take up their own initiatives to become a stronger international player. (0)
Dimension 4: Student Funding	
Overall Alignment	***MISALIGNED***
Assessment	• The wide reliance on tuition fees in Latvian higher education may stimulate some students to go abroad and study in countries without tuition fees. This may stimulate internationalization in terms of outbound student mobility. However, other costs related to international mobility are very likely to compensate for the differences in tuition costs. The perception of quality is an even more plausible reason to go abroad rather than differences in tuition fee levels. (-)

	• The reliance on tuition fees in Latvian higher education may prevent some foreign students to study in Latvia, particularly those from countries with tuition free higher education. For non-EU students, however, the Latvian fees are low compared to studying in, for example, the UK, the Netherlands, and some Scandinavian countries. (-) • The fact that higher education institutions administer the scholarships and loans means that Latvian students who want to study abroad cannot use Latvian student support for degree mobility. (- -) • However, Latvian students who spend only a period abroad for studies in the framework of their own program (credit mobility), can use their scholarships and loans to study abroad and may also apply for Erasmus grants. This has a positive impact on internationalization. (++)

From the analysis above, the following elements can be regarded as very important for the alignment of funding instruments with the goal to stimulate internationalization in higher education:

- Though it is difficult to stimulate internationalization through basic funding, it could be incentivized in the form of innovation funds or in formula funding.
- The relatively low tuition fees in Latvia could be used to attract foreign students who now may have to pay higher tuition fees in other European countries.
- Student grants and loans allow short term study abroad but do not further stimulate internationalization.

2.8 Enhance the funding base of higher education

Dimension 1: State Funding for Teaching and Research	
Overall Alignment	***STRONGLY MISALIGNED***
Assessment	• As this objective is directly related to intended changes in the funding system, the assessment has to be negative—teaching and research are underfunded, cost calculations are outdated, and performance oriented funding is not (or only implicitly) implemented. (- -) • The promised public funding increase, even stipulated by law, has not been implemented in 2013–2014. (- -)

Dimension 2: Diversification of Financial Resources	
Overall Alignment	***MISALIGNED***
Assessment	• Revenues from tuition fees and EU structural funds substantially help to keep higher education and research investments at least at a minimum level. (+) • However, basic state funding should not be replaced by these types of revenue as this would endanger the objectives of a solid long term funding basis. (- -) • Income from private sources such as industry or community services appears to be underdeveloped. (-)
Dimension 3: Financial Autonomy	
Overall Alignment	***NEUTRAL***
Assessment	• The goals mentioned here are not related to autonomy, though HEIs are allowed to attract various funding sources and spend the revenues according to their own discretion. (0)
Dimension 4: Student Funding	
Overall Alignment	***ALIGNED***
Assessment	• The strong reliance on full-fee paying students has substantially increased the funding basis for HEIs as well as overall investment in higher education compared to a situation in which HE would only be available to students on state-funded places. (++) • The strong reliance on tuition fees together with the practice to charge tuition paying students the same amount as the state subsidy may stimulate HEIs to push collectively for more realistic funding levels to be paid by both the government and students. (+)

From the analysis, above the following elements can be regarded as very important for the alignment of funding instruments with the goal to enhance the funding base of higher education:

- It is very desirable to have the Latvian government really achieve its ambitions and prove itself to be a reliable partner that makes the promised higher education and research investments.

- Linking the promised investments to requirements that institutions invest in innovation and collaboration with science, society, and industry may further enhance the funding base of higher education. This new, targeted financing strategy may be something in which the government is interested in investing.
- The tuition revenues are currently a good source of supplemental income, but the declining demographic projections for Latvia call for new strategies to maintain high-levels of (paid) participation as a key revenue source.

2.9 Establish a new and transparent approach to quality assurance

Dimension 1: State Funding for Teaching and Research	
Overall Alignment	***ALIGNED***
Assessment	• There is no direct relationship between funding and quality assurance in the system. However, study programs and institutions need to be accredited in order to be eligible for state-funded study places and for awarding official degrees. This guarantees a minimum quality standard for state-funded study places and a push to have a well-functioning quality assurance system. (+)
Dimension 2: Diversification of Financial Resources	
Overall Alignment	***NEUTRAL***
Assessment	• There is no direct relationship to quality assurance mechanisms. Indirectly one can expect that tuition paying students will require a well-functioning quality assurance system to guarantee they get "value for money". Such pressure does not appear at present (yet). (0)
Dimension 3: Financial Autonomy	
Overall Alignment	***NEUTRAL***
Assessment	• There is little to no systematic influence of autonomy on this goal area. (0)
Dimension 4: Student Funding	
Overall	***NEUTRAL***

Alignment	
Assessment	• Student financing has no linkage to the quality assurance system, except through the effects mentioned above. (0)

From the analysis, above the following elements can be regarded as very important for the alignment of funding instruments with the goal to establish a new and transparent approach to quality assurance:

- Financial instruments are yet relatively unrelated to quality assurance (and there is not much to do about this). However, to stimulate more competition, one could consider that a more transparent quality assurance system can substantially contribute to where fee-paying students would like to study.

2.10 Overview on strategic fit by Thematic Goals

The following table summarizes the overall assessments regarding the strategic fit of the four elements of the funding system with the nine Thematic Goals. The scores vary from a strong positive strategic fit (indicated with "++") to a strong negative fit (indicated with "--"). A neutral relationship is indicated with "0".

THEMATIC GOALS	State Funding	Resource Diversification	Financial Autonomy	Student Funding
1. Quality of education	- -	+	+	-
2. Quality of research	- -	+	+	+
3. Sector efficiency	- -	-	+	+
4. Technology, innovation, creativity and entrepreneurship	-	- -	0	0
5. Human resource development	-	+	+	0
6. Participation and access	- -	++	0	- -
7. Internationalization	-	0	0	-
8. Funding base	- -	-	0	+
9. Transparent quality assurance	+	0	0	0

As the table demonstrates, the overall funding model, particularly the basic funding for teaching and research, does not align well with the Thematic Goals for Latvian higher education. In general, this does not mean the policy objectives cannot be met, since other policy instruments can also be effective.

However, the structural underfunding of the system together with the current model's emphasis on inputs (i.e., enrollment), and its lack of a performance orientation actually appear to work against the spirit of quality education and research. Increases in state investment in higher education, in accordance with current legislation, could go hand-in-hand with the introduction of more performance-driven and innovation-oriented funding instruments that provide incentives for the system to move in the desired direction of enhanced teaching and research quality.

Though the strong reliance on tuition fees on EU structural funds should, in theory, steer higher education towards greater relevance to societal and economic needs, the incentives are not strong enough. Both tuition fees and EU funds are currently relied upon to maintain the functioning of the system and support the status, so they are unable to work effectively as instruments that guide towards greater quality, creativity, innovation, and entrepreneurship, especially in light of current economic and quality assurance realities.

While financial autonomy is high in Latvia, some institutions have not utilized their full potential in this respect. Though some institutions are being creative in developing alternative revenue sources, the resultant funds are necessary to offset the low level of state investment in the system, so there is not much ability to reinvest in new opportunities, partnerships, or innovation. Other institutions do not appear to be fully aware of their autonomy. The system and its institutions would benefit from financing instruments that allowed it to either reward or invest in partnerships with the private sector, as an example, for revenue-generating research or training collaborations.

Finally, Latvia's current approach to student funding appears to have a slight misalignment with the Thematic Goals, particularly as it relates to internationalization and expanding access. Latvia would be well advised to reconsider how student financing could better align in a more supportive way with the policy objectives.

3 Potential further Alignment of Funding and Policy Objectives

In Chapter 2, it became clear that—despite some of the strengths of the current system—there are many areas where the strategic fit is not given, or even where there could be negative impact on strategic goals. The focus now is what can be done to improve "strategic fit", and this surfaces two underlying questions:

1. Which are the target areas where funding models could help the most or the least? Not all of the targets mentioned in the policy planning papers can or should be equally addressed by funding instruments.

The objective of the development of quality assurance and accreditation cannot be easily promoted by funding instruments. The basic link in the study place model is already there. Further links, such as the integration of evaluation outcomes in performance-oriented funding, are not recommended. Program evaluations are an instrument of internal learning and self-steering and should remain a separate complementary element to funding mechanisms. However, one could include some quality related issues in performance agreements with higher education institutions (e.g., the implementation of course evaluation or the implementation of "teacher qualifications" for academic teaching staff). Also, research evaluations can be linked to funding models with targeted funding having the potential to promote high quality research; this is addressed in the research quality goal area.

The other objective that plays a special role is "to stimulate the funding base of higher education". The goals mentioned there do not imply an output, outcome, or a specific reform that is influenced by funding, but they do imply targets for the funding models themselves. The very direct consequence from this goal area is to increase the funding level, revise the cost calculation for study place prices, and introduce performance-oriented funding instruments.

Therefore, the following analysis focuses on the other seven objectives discussed above. They could be addressed by funding arrangements in multiple ways.

2. Which are the funding instruments (based on European experiences) from which we could expect positive contributions to the strategic objective?

This chapter explores a number of different funding practices utilized in various European countries. In sum, these alternatives present a menu of funding approaches Latvia could consider to support its own higher education system and policy objectives. At this stage in the project, the alternative models presented are only intended to stimulate thinking and debate about possible funding options for Latvia.

The approaches presented have been selected because they have proven or are regarded to be positive or successful in advancing certain objectives within their respective higher education systems, even though international analyses that try to link system or institutional performances to funding reforms, often cannot find direct effects, neither positive nor negative. This often is the case because system

performance generally is related to a multitude of factors, developments, and policies that can be measured in different ways (e.g., quality, completion, research outputs, etc.).[4]

In the third report of this project, the World Bank's project team will further elaborate on some of the mechanisms that appear to be attractive alternatives for Latvian higher education. To be clear, this paper does not argue at this stage which instruments should be adopted by Latvian higher education.[5] It also does not suggest that all instruments should be implemented at once as this may lead to too radical changes (or some instruments could have a quite similar function). The paper addresses a number of alternative funding possibilities per strategic objective and proposes opportunities for state funding for teaching and research, resource diversification, autonomy, and student financing under each heading. When presenting alternative financing instruments, the paper primarily looks at the conceptual opportunities but also indicates some examples from international practice (in text boxes) regarded as good practice.

3.1 Funding opportunities that may enhance quality of teaching

The current funding mechanism in Latvian higher education for teaching is predominantly input- or process- oriented, namely based on the number of allocated state funded study places with different prices attached per discipline.

State funding

- ***Funding formula with competitive and performance oriented elements***

  One alternative would be based on a funding formula for teaching that includes one or multiple competitive elements as drivers. This would possibly make the funding per institution more dynamic than the current fixed number of student places against a particular price that is annually negotiated between the Ministry and the individual HEIs. Under a funding formula, the amount of funding per institution depends on the relative share of the total number of students or new entrants they absorb, usually with different weights attached for various disciplines. One could also integrate performances or outputs of HEIs (and/or programs) in the formula, such as the number successfully completed study credits or bachelor's and master's degrees. Focusing on outputs provides incentives to care about the reduction of drop-outs. Examples of this type of funding can be found all over Europe.

The Netherlands: Performance based funding

Since January 1, 2011, the funding model for teaching in universities and universities of applied

[4] Jongbloed, B., H. De Boer, J. Enders and J. File (eds.) (2010), *Progress in higher education reform in Europe, Funding Reform*, Volume 1: Executive summary and Main report, Report for the European Commission, Enschede: CHEPS, IoE, Technopolis.
[5] The World Bank team will provide recommendations for reforming Latvia's funding model for higher education in its final report, which is scheduled for delivery in the fall of 2014.

sciences is similar and comprises two parts: one part related to the number of students and degrees conferred and one called "education provision".

- **Number of students and degrees conferred: This part of the funding, which defines 65% of the teaching budget, is the product of a weighted student price and weighted number of enrolments (within the nominal duration of a program) and diplomas. The weighted student price is determined as the total budget divided by the total number of weighted enrolments and diplomas. The weights are 1, 1.5, and 3 for low, high, and top studies—humanities & social sciences, science & engineering, and medicine respectively. These weights are the same for bachelor and master students.**
- **Education provision: This part is further divided into two sections. First, the government provides a basic budget to each university, which in total makes up about 7% of all teaching funds available. This is based on the quality of teaching, for specific programs or facilities. Second, the remaining funds are distributed among higher education institutions according to institution-specific percentages.**

Previously, the Dutch funding model also included the number of new entrants recruited by institutions. This could add another incentive component: whereas output indicators incentivize efficient studies, this indicator makes institutions compete for attracting first-year students to increase market shares.

- ***Capacity funding***

In this option, the funding of teaching is (also) based on an agreed number of students, graduates, or successfully completed study credits rather than study places. This would stimulate institutions to focus on study success rather than on the teaching process. This is partially done in Latvia, however, there could also be a performance dimension in such a model, which could also potentially reward or sanction the fact that the agreements are (not) fulfilled. This brings more uncertainty and performance incentives for the institutions. Such a model is partially applied in Sweden.

Sweden: Capacity funding

Direct government funding, in terms of operational grants for education, takes the form of state block grants. The allocations are based on per capita amounts per student (full-time equivalents or FTE) and the performances achieved by students. These amounts per student and per study result in different tariffs for different disciplines/study fields. The study performances are calculated in terms of annual performance equivalents for the students in terms of the numbers of credits obtained (1 FTE student = 60 EC).

Every year the Parliament decides on the budget ceiling of each HEI, of which 30% is allocated based on performance. The HEI reports at the beginning of the fiscal year (January or February) how many FTE students and FTE study achievements they realized by December 31 of the previous fiscal year. In addition, the HEI's monitor their student numbers and study achievements throughout the year,

and based on the monitoring results, they report an intermediary estimate of their total budget required (shortages versus surpluses) three times per year. They also forecast this for the coming few years to enable longer term planning of the budgetary requirements for the coming 3 years.

Funding amounts per FTE student and per FTE study result vary between different educational disciplines/areas. There are 15 funding levels, of which some comprise two or more subject areas. The humanities and social sciences have the lowest revenue levels, while the fine arts has the highest (media studies has a weight a 14 times that of humanities).

The centrally determined funding cap per higher education institution is an absolute limit and therefore the Swedish funding mechanism can be regarded as capacity funding. Within the framework of the funding process, each HE institution engages annually in a dialogue with the Ministry of Education and Research. In this dialogue, each HEI agrees with the ministry on its targets or aims in terms of realized student numbers and study achievements that will be rewarded. There is a maximum budget which constitutes the highest aggregate compensation of FTE students and annual performance equivalents permitted for the fiscal year.

When the budget is allocated to the HEI, then the HEI itself decides on the distribution of funds among faculties and other units. Universities and university colleges receive provisional funds at the beginning of each budget year and the final amount is determined at the end of the year taking into account student numbers and accomplishments presented in the annual report for the previous budget year.

If an institution does not reach its funding ceiling because of fewer enrolled students and/or their performance outcomes not achieving agreed targets, it does not receive the full funding. If an institution enrols a greater number of students than indicated as the agreed ceiling amount, no additional compensation is paid. Thus fluctuations in the number of students directly affect the funding of the institution, even in the same year. Practice shows that each institution has to deal with some fluctuations and they cannot exactly predict the total volume of students and study results. Annual budgetary changes are normal. In order to mitigate these effects, institutions are allowed to carry over 10% of the ceiling amount to the following years, in case they then attain less or more than the ceiling amount. That means that institutions that do not meet the budgetary ceiling can use their previous surpluses to cover the deficit. The same is valid if a HEI has had students enrolled which sums up to less than the ceiling amount. In future years the HEI might then use previous deficits in years when it exceeds the ceiling amount. In 2010, 8 higher education institutions (out of 35) had to return some of their budget to the ministry (exceeding 10% of their ceiling amounts respectively and reflecting in total 0.25% of the total ceiling amount for all HEIs).

Capacity funding is quite similar to “voucher models”, where all eligible students (e.g., all with a higher education entrance qualification or above threshold scores in a central entrance exam) will receive a number of “credits” or “vouchers” which they can trade in for specified units of education (a course, a module, a year or a full program) at any accredited higher education institution or program. As soon as they run out of vouchers, they will have to pay full-cost covering tuition fees. If institutions

do not deliver "value for money", students will move to other programs or HEIs. The added value of the voucher system is related to the transparency and cost-awareness on the student side. This type of model is applied in Australia, through the *learning entitlements system*. Of course, a voucher system can vary on many dimensions, including who is eligible, the number of subsidized educational units, the period in which they can be used, and the potential requirement of top-up fees from students. An overview of a voucher system is provided later under the policy objective for sector efficiency.

Resource diversification

There are not many direct links between resource diversification and quality of teaching (or offering other types of programs, like short cycle programs) except for introducing general tuition fees.

- ***General tuition fees***

  An option is to charge tuition fees to all students. This would complement the current funding base of HEIs with an additional income. This can be used to invest in various ways that enhance the quality of teaching, including upgrade teaching infrastructure, professionalization of staff, better reward staff to attract better academics, attract more teaching staff, and provide academics with more research time. General tuition fees usually do not imply full-cost tuition as in the dual track model, but lead to certain percentages of public-private cost-sharing. Students' contributions should not lead to diminished public investments. In various German *Länder,* general tuition fees were implemented in the period between 2007 and 2013, connected with a guarantee that public funding will not be reduced, and helped to improve teaching infrastructures considerably. However, increasing a system's reliance on tuition and fees often carries with it political challenges and implementation risks.

Financial autonomy

Quality of teaching can be stimulated through output/performance funding, quality assurance and, potentially, performance agreements, but not by limiting autonomy. Spending autonomy stimulates institutions to use resources where they are most needed and effective at a given moment in time. So there are no relevant options to change the state of autonomy.

Student funding

Student financing can be related to the quality of teaching. There are a couple of options.

- ***General tuition fees***

  A first option is to charge tuition fees to all students (see above).

- ***Link scholarships to study progress and achievements***

Current scholarships in Latvia are already strongly merit based. Students who do not perform at the highest level will not be awarded any further scholarships. If the Latvian government decides to also introduce need-based scholarships for students from lower socioeconomic backgrounds, one could imagine linking such scholarships to study success (e.g., transferring grants into loans if particular performance requirements are not met). Such systems are used in Norway and the Netherlands.

The Netherlands: Performance-related grants

Every student enrolled in an accredited full-time study program in higher education who satisfies the applicable conditions is entitled to financial assistance. Under the current system, financial assistance includes a basic grant, a means-tested supplementary grant (for the 30% most needy students based on parental income), a tuition fee loan, and a voluntary loan.

The basic grant and supplementary grant are initially paid out in the form of a loan. If the student graduates within ten years, the loan is converted into a non-repayable grant. Therefore these grant parts are called a performance-related grant. Students receive performance-related grants for the nominal duration of their study program and may take up a loan until 36 months after the nominal duration of their program.

- ***Link student loans to performance***

  Instead of linking eligibility for student loans to family wealth, such as through the grantor requirement, student loans could be made available for students which demonstrate sufficient academic results. Also, instead of waiving student debt in case of becoming a parent or a securing a "useful job", debt could be waived (in full or part) for students who are among the best performing graduates or who graduate within a nominal duration of studies. This practice is, for example, being applied in the German BAFöG loans and the Estonian student loans.

3.2 Funding opportunities that may enhance quality of research

The current funding mechanism in Latvian higher education for research is to a large extent based on historic allocations and input oriented. The study places funding model is also assumed to support research, though to a rather limited extent. Research funding and the study place system are separated instruments. In addition to that, the national Science Council allocates some funds.

State funding

- ***Funding formula with competitive and performance oriented elements***

  In this option, the funding model is based on a funding formula for research that includes one or more competitive elements. This would make the funding per institution a bit more dynamic than

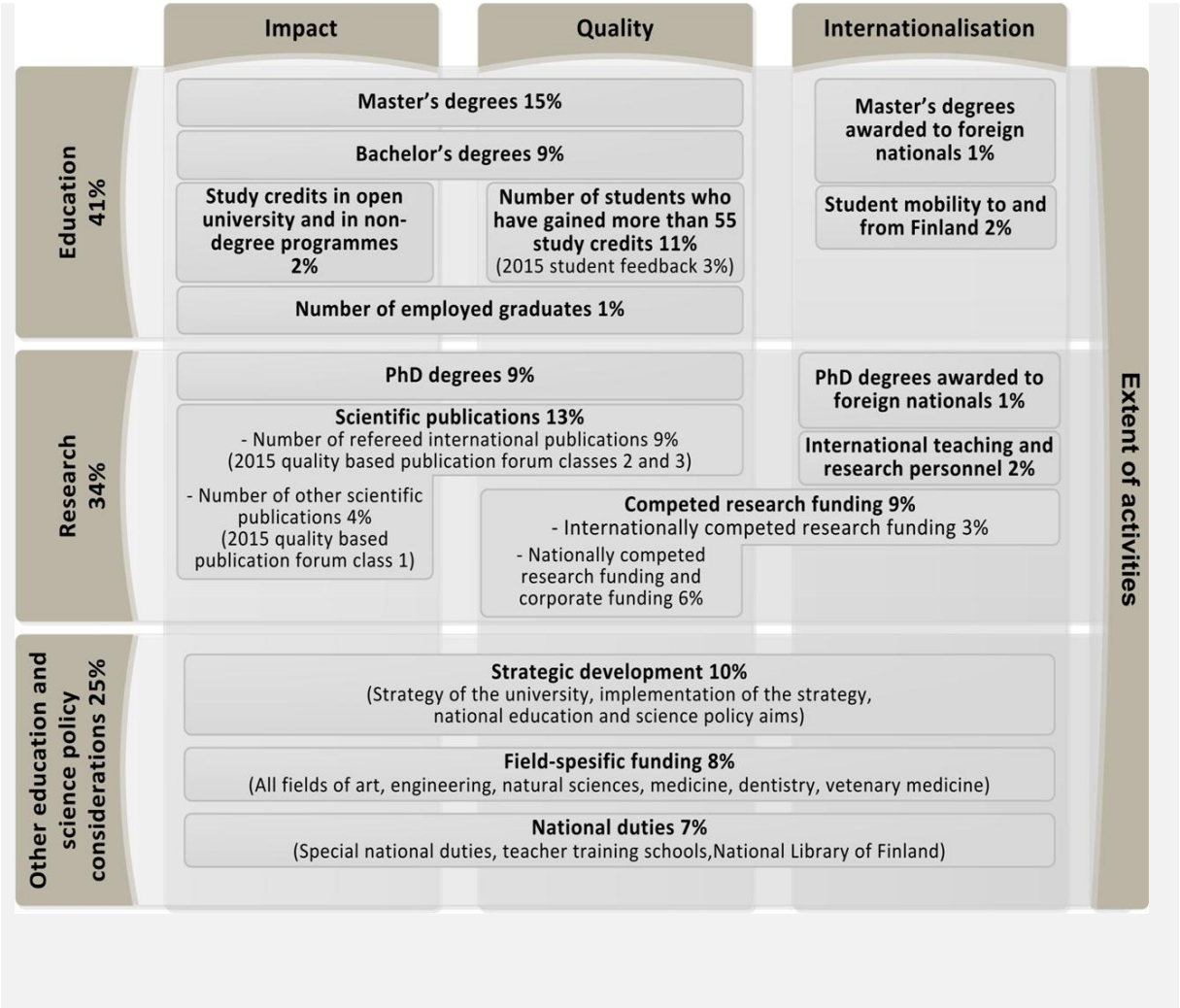
the current history-based model. In addition, the model can be altered to be more input based or more performance oriented. In an input oriented funding formula, one could include the number of FTE researchers, whereas an output oriented model distribute funds based on the relative share of the total number of PhD degrees conferred or other research outputs (e.g., refereed journal articles, books, grants won in competitions such as from Research Councils and EU funds like ERC grants, Horizon 2020 grants, Erasmus+ grants, etc.). Of course different weights can be attached to inputs and outputs attached for various disciplines.

The advantages of using a funding formula for research is that it makes the research funding more transparent by demonstrating how universities can earn money. It can also bring more dynamics and such is an incentive for orientation towards high quality research. However, this approach may provide less stability for the institutions and potentially for individual research units within them. Such systems are used for example in Norway and the Netherlands.

As this rationale of a funding formula is the same as in the case of teaching quality, it becomes clear that a funding formula could integrate state funding with teaching and research criteria within one system. Such an integration, especially in funding formula systems, is a widely used approach and usually is seen as a contribution to flexibility and quality. The Finnish system is a good example for an integrated approach. It also allows explicit weights between teaching and research incentives as an effect of strategic goals.

Finland: University funding

From 2013 onwards Finnish universities are funded including several performance criteria for teaching and research. This is expressed in the picture below.



- ***Program funding for research***

  In this option one could think of a funding model that provides funds for particular national research priority lines on the basis of competition.

- ***Research excellence programs***

  Many European countries set up financial programs to promote research excellence during the last years. The main idea always is to focus investments in research. To build research excellence on an internationally competitive level funding could not be spread over the whole sector but clusters have to be found which have the potential to compete and get extra funding for this. Such programs, again to be sorted into the third pillar of state funding, usually are related to (international) peer review-based evaluation processes. They differ in terms of funding volumes, duration and specific targets. Usually one of the major criteria to succeed is collaboration with academic and private sector partners and critical mass, so such programs could directly contribute to sector efficiency.

Germany, Denmark, France: Excellence initiatives

German set up a huge research program during the last years, the "excellence initiative". It funds research excellence in the forms of graduate schools, research cluster and institutional plans to promote excellence. Especially the research cluster part strongly promotes collaboration between universities, but also between universities and the non-university research sector. The clusters are selected in highly competitive international peer reviews. A problem is the unclear perspective how long the funding would last: There are two five-year periods of funding, and institutions hope that it will be continued, but it is not sure. In a similar program Denmark treated this issue differently: it was clear from the beginning that funding will be limited to several years and will then be stopped. Part of the selection process and of the interaction university-ministry was a business plan how to ensure financial sustainability after the state funding period. In France the program to create research excellence was closely connected to build the "poles", which are regional research clusters of institutions within a specific region.

- ***Research assessment exercise***

  In this option, research funds are linked to the outcomes of the national research evaluation exercise. In such a system, research organizations within or outside universities can be awarded research funding if their research quality is perceived to be above a certain level. The research evaluation could include various quality indicators, like relative amount of research output, perceived quality (by peers), societal relevance and impact, success in attracting third party funding and/or from international resources or from acknowledged research councils. One example is the English Research Assessment Exercise and the 2014 Research Excellence Framework (http://www.ref.ac.uk/).

Resource diversification

- ***Stimulate university-industry collaboration***

  In this option, one could think of a central research fund to which research organizations can apply for funding if they propose scientific research in which private companies or non-profit organizations (including governmental organization) are also willing to invest (e.g., cost sharing 25% or 50% of the total research costs).

- ***Premiums for attracting EU-funds, matching funds***

  In this option, a central research fund provides research organizations with a premium if they successfully attract funds from industry support or some other no EU funds source. This could be in the form of a small proportion of the volume of the total sum awarded by the external sponsor, or one could provide a fixed amount per FTE-research time funded through the project (e.g., a top-up of €2,500 or €5,000 per annum).

Autonomy

Quality of research can be stimulated by providing sufficient levels of autonomy to research organizations and units in order to use resources where and the way they are most needed and effective at a given moment in time.

Student financing

There are relatively no links between research funding and student financing, except that HEIs could use revenues from tuition fees, for example, to also support their research infrastructure and research activities.

3.3 Funding opportunities that may enhance sector efficiency

State funding for teaching and research

- ***Target agreements***

  Target agreements are an adequate instrument to link the objective of strategic specialization with performance-oriented funding. If ministries negotiate and sign target agreements with HEIs, the agreement could be similar to the following: The ministry commits funding and expects in return that the university and the ministry agree on the objectives that have highest priority according to the university profile. These targets are measured and controlled by performance indicators. The difference compared with a funding formula is that the indicators are measured ex ante and could be set individually for each HEI, according to the specific profile. Target agreements usually are multi-period arrangements, after their expiration the attainment of the targets is measured and rewarded or sanctioned. Target agreements could include objectives for all kinds of HEI's missions. Hence they could create a funding component which integrates state funding for teaching and research. They are applicable in the first pillar of a funding model (justifying a basic funding component) or especially in the third pillar to pre-fund profile-oriented developments.[6]

  An important implication of target agreements could be the promotion of horizontal diversity. The sector's culture tends to see a vertical reputational difference between "research excellent" universities and universities with other priorities in missions, for example in the regional context or interaction with industry. Target agreements of the described kind send the message that an excellent higher education sector needs research excellence as well as other profiles, so there is a horizontal differentiation of profiles with equal importance for society.

  Target agreements are mentioned here, as they are an instrument closely related to institutional profiling. But it has to be stressed that target agreements could be used quite flexibly for all kinds of

[6] For practical purposes, this report adopts the categorization of Ziegele (2013) who has identified three typical pillars of funding models: (i) basic funding; (ii) performance funding; and (iii) innovation-/profile- oriented funding. Regardless of the diversity throughout higher education systems and funding models in Europe, these three pillars can, to a certain extent, be identified in most systems.

objectives, also teaching and research quality, internationalization, innovation, international research collaboration, etc. The principle of providing ex ante funding of future performance within the third pillar of public funding could be very flexibly applied for different purposes. It always creates a balance to the ex post mechanisms of formula funding.

Examples of a relationship between target agreements and public funding of universities can be found in:

- Hong Kong (where 10% of funding allocated through the *Performance and Role-related Funding Scheme*),
- The Netherlands (where 7% of teaching funds is based on quality-oriented performance agreements on developments in completion rates, didactical qualifications of teachers, student satisfaction, etc.),
- 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 with three-year profile funding and
- Germany with the target agreements applied in many German states (see box below).

In such agreements, agreements can be made on various issues, including performance levels or performance development (to adjust for different starting positions and conditions of different HEIs).

Germany: Target agreements in North Rhine-Westphalia

Like in a couple of other German states, North Rhine-Westphalia has introduced target agreements in the third pillar of the state funding model. The ministry, the universities, and the universities of applied sciences negotiate on 3-year-agreements. The ministry makes clear which targets should appear in the agreements from their perspective, but the HEIs could prioritize and add specific targets, taking into account their intended profile. There have to be measurable indicators. The agreements are linked to funding from an innovation pool. The ministry uses a template for target agreements, indicating chapters and aspects that have to be included in a standardized way, but the format leaves substantial leeway for the HEIs to develop their own texts. The specific goals and performance indicators are suggested by the HEI first and then negotiated with the ministry.

- ***Sector consolidation programs***

Governments could promote sector consolidation by financial incentives. Competitive funding could be provided which is given to HEIs that have plans to merge, to build joint units or to collaborate to increase sector efficiency. The idea would be a bottom-up development of models for collaboration and consolidation, stimulated by financial incentives. The assumed advantage of this strategy—compared to a consolidation planned and organized by the ministry—is the creation of ownership:

HEIs realize their own plans and are not forced by external decisions. One could also expect that such decentralized decisions about consolidation are triggered by a careful analysis of potential efficiency gains, avoiding consolidation for consolidations' sake.

Denmark: Comprehensive sector consolidation

The Danish government had the clear idea that the Danish higher education and research sector (universities and non-university research institutions) was too fragmented, and they 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. So it was a mixture of clear political will and autonomy/ownership of HEIs in terms of operationalization and realization, supported by financial incentives. 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).

Resource diversification

Financial diversification can, in some instances, lead institutions to pursue unique specializations or profiles that align with new or expanded funding opportunities. The development of a regional profile could, for example, be related to regional income sources.

Autonomy

- ***Planned sector reorganization***

  Strategic specialization could of course also be done with a centrally planned process, reducing autonomy. Strategic specialization of HEIs could be organized by defining a typology of HEIs, mergers could be imposed by the government, and the reduction of study program duplication could be realized using the study place system in this way, again balancing it with the sustainability of competition and the need to serve the regions with study options.

  Experiences have shown that consolidation efforts could work as a one-time focused intervention (as long as it is a participative process taking the HEIs on board). A ministry could make decisions to reorganize the sector at a certain point in time, outside of state funding systems, and then get back to financial and decision-making autonomy of the HEIs. The risk is that this will be seen as externally imposed and motivation to work within the new structures will be low for some time (because of a lack of "ownership" of the reforms within the HEIs). Quite problematic is the permanent use of funding systems to continuously influence sector structures, because this would reduce autonomy through permanent micro-steering and create dangers for the positive effects of autonomy.

Germany: Consolidation process in Lower-Saxony

The German state of Lower Saxony runs a three-pillar state funding model, with stable basic funding connected to target agreements, a funding formula and various specialized pools in the third pillar. Financial autonomy is high. Nevertheless some years ago the ministry started a one-time process with the objective to reduce duplications and increase efficiency. The ministry collected comprehensive quantitative and qualitative data (the latter especially from a state-wide process of research evaluation). Based on the data there were intensive talks and negotiations with all HEIs, the institutions could make proposals. In the end the ministry decided on an overall plan to consolidate, which was still tough for some institutions, but had a basic acceptance because of the participative process and because it was clear that this was just a one-time restructuring and not a permanent restriction of autonomy.

Student financing

There is no real potential to promote sector consolidation and efficient reorganization by student funding instruments. It should rather be taken into account that the reduction of duplications in study programs could lead to reduced competition, also reducing the efficiency incentives from a competitive, fee-based system. All instruments used in the context of state funding should avoid the creation of monopolies and the effect that instead of creating competitive units the competition is being destroyed.

3.4 Funding opportunities that may enhance technology, innovation, creativity, and entrepreneurship

State funding

- ***Innovation fund: third pillar funding***

  In a balanced funding model, next to stable basic funding and competition, performance and quality oriented funding systems also require space for innovation and creativity. New initiatives that are perceived as a value added to the teaching or research system and that are regarded financially viable from a mid- to long-term perspective, often require seed money. An innovation fund can provide the financial space for such initiatives, of course on the basis of sound project and business plans and in competition with other creative and innovative ideas.

- ***Targeted STEM funding***

  In order to support STEM, a technology and innovation fund could be established that particularly supports a selective number of innovative projects in science and engineering disciplines. In the same direction, the model could offer similar funding for teaching and research programs in disciplines or subject areas that are not very popular but anyhow regarded as a national (cultural, economic, etc.) priority.

Resource diversification

- ***Program funding for research or special funds but in collaboration with private sponsors***

  The options under state funding can also be extended with elements that reward only projects that also involve societal partners, being for profit or non-profit organizations.

- ***Knowledge and innovation vouchers***

  This option concerns a program that stimulates industry or SME's to get engaged with knowledge institutions, like higher education and research organizations. This can be stimulated with vouchers that allow them to "buy" a limited amount of knowledge or advice in the hope that—or under the condition that—they will invest to a larger extent themselves in such knowledge collaboration. One example is mentioned in the following text box.

The Netherlands: Knowledge vouchers

Dutch higher education institutions have a legal obligation to be engaged regionally, particularly when it comes to producing graduates for the labour market and to develop innovative collaborations with industry. One policy initiative is to stimulate regional collaboration between public authorities, business and higher education through concentrating resources on excellent research that can be applied and commercialised in innovative areas. Since 1997, Knowledge Vouchers are available to Small and Medium Sized companies (SMEs) in order to purchase free advice or services from large knowledge intensive organisations like companies, research or teaching institutions, including universities and UAS. Knowledge Vouchers are paid by public authorities (ministries, provinces or regions) or through the EU Interreg III program (http://www.kennisvoucher.nl/?p=&t=en).

Autonomy

In order to take innovative initiatives, like setting up new study programs or research lines (in STEM domains), institutions at least need the autonomy to allocate funds to such projects or initiatives and to take it from other areas. In addition, keeping regulations at as low as possible is also important to create space for an innovative atmosphere—whether it is in STEM or any other discipline.

Student financing

There are no links between student financing and innovation, except that HEIs could use revenues from tuition fees to also support their innovative initiatives—e.g., to establish new study programs—or to (cross-) subsidize the more expensive investments required for activities in the STEM domains, entrepreneurial activities, and the like. But one should acknowledge that currently the Latvian fee-income is at maximum similar to public funding of teaching and thus cannot bring in substantial investment funds, particularly now demographic decline pushes down expected tuition revenues.

3.5 Funding opportunities that may enhance professional capacity of academics

Enhancing the professional capacity of Latvian HE is regarded as increasing the number of academic staff with a doctorate and the proportion of foreign staff, attracting younger staff, and improving salary conditions.

State funding

State funding can contribute to the above mentioned objectives by either creating new funds that are dedicated to such issues or through an increase in basic funds under the condition of meeting particular targets.

Resource diversification

In the area of resource diversification, involving industry in (jointly) funding PhD positions could be a valuable instrument.

Autonomy

Also in this area, a high degree of autonomy can help achieve the envisaged objectives. However, the funds need to be made available for this specific purpose. With full spending autonomy and conflicting demands, the HEIs may not immediately spend their money for this purpose.

Student financing

Student financing is not related to the professional capacity and development of academic staff, except for the fact that additional revenues from tuition fees can be used to improve salary conditions, to attract foreign staff, to attract new young staff members and to create additional PhD positions.

3.6 Funding opportunities that may enhance access and participation

State funding

- ***Funding formula based on new entrants***

  In this option one could think of a funding formula that is particularly focused on attracting large numbers of new entrants. This will stimulate HEIs to recruit new students and thus also to better target previously underserved groups, such as students from disadvantaged backgrounds, etc. However, beyond attracting them, there may not be enough incentives to really educate and help them towards graduation after a few years.

Resource diversification

- ***Establish a fund for widening participation***

  Similar to the UK, one can imagine either the government or institutions to set aside a particular proportion of funding or tuition revenues to be used for attracting students from underprivileged groups through scholarships, loans and tuition waivers. Many British universities have their own widening participation offices that provide support to various disadvantaged students who would like to enter the institutions.

Autonomy

No link with access, except for setting selection criteria and using tuition revenues to provide financial support to underprivileged students.

Student financing

- ***Provide need-based scholarships***

A first instrument to support access and participation, particularly from lower socioeconomic backgrounds is to offer means-tested need-based scholarships to students from lower income families. There are many examples in Europe and beyond with such scholarship programs; e.g., 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 (like in the Netherlands), or if the student passed all exams and her/his graduate income is below a certain threshold (Norway).

- ***Provide need-based student loans***

  A second instrument to support access and participation, particularly from lower socioeconomic backgrounds is to offer means-tested need-based loans to students from lower income families. An additional characteristic could be to make debt repayment also dependent on graduate income. This would mean that only graduates earning an above social-minimum salary would repay their debt (i.e., a form of income-contingent loans).

3.7 Funding opportunities that may enhance internationalization

State funding

It is not common practice to put internationalization indicators into a funding formula. This would burden a funding formula too much with “temporary” issues and make funding formulas too complex. In general, it is better to have them relatively simple. This implies that internationalization is one of the

topics that can be better addressed with temporary stimulation funds of in performance/target agreements.

- ***Internationalization fund***

  In case of an internationalization fund, one can think of "temporary" stimulation subsidies that encourage HEIs to implement internationalization strategies. These could be used, for example to develop an internationalization strategy, 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, subsidize international sabbaticals for own academic staff, etc. Such a fund could be related to target agreements.

Resource diversification

One can think of a limited stimulation fund, maybe linked to the one above, for academic staff to subsidize travel and accommodation in case one collaborates with foreign partner academics to jointly apply for international funding such as EU grants.

Autonomy

Like before, sufficient levels of autonomy that HEIs can develop their own internationalization strategies and activities.

Student financing

- ***Portability of scholarships and loans for study abroad***

  To stimulate internationalization one can make loans and scholarships portable for study abroad. This can apply to credit mobility or degree mobility. In Latvia, stimulating outgoing degree mobility might not be considered desirable and it may be complex to organize because the HEIs administer and allocate the current scholarships for students. However, international student mobility often requires some degree of reciprocity between participating institutions, because one-way mobility streams often lead to a gradual disappearance of student exchange practices. However, the situation is different concerning administration of loans. With regards to loans, one only has to arrange that debt will be repaid in case mobile students stay abroad for a professional career.

- ***Targeted scholarships for incoming students***

  A second option can be scholarships that can cover part of the tuition fees and living costs of incoming students; e.g., master students in particular areas with labor market shortages in Latvia.

3.8 Other opportunities to stimulate teaching and research

As discussed before, not all ambitions can be stimulated with money alone. This could make the funding process too complex and difficult to understand. Therefore, many countries often choose to include only a few core parameters in the funding for teaching and research to stimulate HEIs to concentrate predominantly on those areas; e.g., graduates, PhDs, and successful students.

Other instruments to make HEIs more responsive to the needs of society include the following items:

- System wide strategies based on mutual agreements about the direction a system should go with regard to specific policy areas, such as staff development, research priority areas, internationalization, public-private partnerships, etc.
- Underpinning such strategic priorities, specific targeted funds—as discussed above —can be a powerful instrument to make HEIs and other stakeholders move in the desired direction.
- Another strong and more frequently used instrument concerns performance or target agreements in which ministries and individual HEIs agree on a number of issues that are considered of strategic importance to the system and the institutions. It is presented as a funding option above, but it could also remain unrelated to funds and work as an instrument within the strategic process.
- Implement a tough but fair quality assurance system for teaching and research. There usually are separate quality assurance systems for teaching and research.

In conclusion, this paper is not intended to argue which alternative financing instruments should be adopted by Latvian higher education to align with the national strategic objectives for higher education. Instead, the paper has identified those important policy directions for Latvian higher education and assessed how aligned the current funding model is with those objectives. In the final section of this report, alternative funding instrument were described and references to other countries with respected approaches were provided for consideration. In the third report of this project, which is tentatively scheduled for delivery in the fall of 2014, the World Bank's project team will recommend what, from the World Bank team's perspective appears to be attractive alternatives for Latvian higher education.

Appendices

Appendix 1 Description of National and Sectoral Policy Planning Documents

The policies for higher education along with science and innovations are formulated in a number of official documents, as well as project documents that form the strategic framework for its development. Higher education funding reform should pursue the goals, objectives and targets defined in these documents. The documents listed below, which account for both national and sectoral development strategies, were reviewed either for specific higher education strategic objectives or for context in interpreting those identified objectives.

Growth Model for Latvia: the Man in the First Place (adopted by the Parliament of Latvia on October 26, 2005)

The long-term conceptual document Growth Model for Latvia establishes the general principles for Latvia's development in the following 20–30 years with an emphasis on knowledge and wisdom transformed into skills as a resource for economic growth. The driving force of growth is educated society. Accumulation, transfer and application of knowledge are the process at the basis of social and economic development and the warrant of labor force quality, use of the capital and development of technology.

Sustainable Development Strategy of Latvia until 2030 (adopted by the Parliament on June 10, 2010)

The long-term national development planning document Latvia 2030 recognizes the need for a paradigm change in education. Life-long education oriented towards creativity that responds to global competition and demographic challenges is one of the pre-requisites for changing the economic model. The areas for long-term policy include increasing accessibility of education and introducing changes in the organization of the educational process, efficient use of financial and human resources in education, a closer link of the education system with the economic and public processes, as well as a link between the formal education and further education for adults.

National Reform Programme of Latvia for the Implementation of Europe 2020 Strategy (endorsed by the Cabinet of Ministers on April 26, 2011)

The National Reform Programme is a part of economic policy coordination and surveillance at the European Union level in the framework of the European Semester. It defines the objectives and measures for national development in the context of Europe 2020 Strategy including modernization of higher education by improving the study and research efficiency, quality and international competitiveness, as well as by ensuring conformity of the obtained qualification and skills to the labor market requirements, modernization of the material-technical base of higher education institutions and raising the efficiency of resources use, ensuring equity of higher education.

National Development Plan of Latvia for 2014–2020 (adopted by the Parliament on December 20, 2012)

National Development Plan 2014–2020 (NDP2020) is the national medium-term planning document that sets the vision of Latvia in 2020 "Economic Breakthrough—for the Greater Well-being of Latvia" and defines the priorities for the growth of national economy, human security, and regional development. NDP2020 lays emphasis on advanced research, innovation and higher education to be achieved by establishing a culture of innovation supported by a specially tailored and effective system of innovation. This system integrates legislative, educational, scientific, research-related and financial conditions for a successful commercialization of research results and a continuous collaboration between science and industry sectors, and one that secures an increase in private investment in science and research funding.

Latvia Convergence Programme 2013 to 2016 (endorsed by the Cabinet of Ministers on April 29, 2013)

In order to achieve the overall objectives of the government budget, while ensuring the conditions for economic growth in the medium term, the Latvian government defines its objectives to continue the implementation of structural reforms, including those in education and science. The document emphasizes the need to ensure the accessibility of basic and secondary education, structural changes in vocational education, higher education modernization and increasing the number of graduates, attracting foreign students and consolidating public research institutions.

Information Note on the Development of the Smart Specialization Strategy (endorsed by the Cabinet of Ministers on December 17, 2013)

A conceptually new and complex strategy is being developed that entails a balanced and complementary set of instruments to support economic transformation and knowledge-driven growth. The strategy aims at not only enhancing the development of technological innovation, but also that of non-technical innovation, entrepreneurship and creativity in economics and society. Such a strategy is related with certain challenges, among which there is the current system of education which does not meet the labour market needs, as well as the low capacity of research and underdeveloped scientific and research infrastructure. Thus, among the priorities of the implementation of Smart Specialization Strategy is modern education system that promotes the development of competencies, entrepreneurship and creativity at all levels, as well as developed knowledge base and human capital in fields of science in which Latvia has a comparative advantage and which are significant for the economic transformation. Based on the decision of the Cabinet of Ministers currently the Action Plan for the Implementation of the Smart Specialization Strategy is in progress.

Partnership Agreement for the 2014 – 2020 EU Funds Programming Period (submitted to the European Commission on January 15, 2014)

The objective of the EU funds investment is to strengthen the economic, territorial and social cohesion in Latvia, to promote the rural development and the development of agriculture, forestry and fishery with smart specialization, sustainable and inclusive growth that is based on balanced macroeconomic and fiscal policy. The EU funds investment strategy is based on the national development axes, defined

needs and challenges that are outlined in the Latvia 2030, NRP and NDP2020 strategies, taking into account the EP recommendations to Latvia within the framework of the guidelines on economy and employment policy, as well as the general Baltic Sea region development directions proposed in the EU Strategy for the Baltic Sea Region. Investment in higher education envisages the improvement of study quality in cooperation with employers, offering study programmes in EU languages to attract EU students, consolidation and concentration of higher education and science resources, modernization of higher education and science infrastructure, especially in STEM areas.

Operational Programme "Growth and Employment" for the EU Funds Programming Period 2014 – 2020 (submitted to the European Commission on March 4, 2014)

Operational Programme sets out the strategy of EU funds investment for smart, sustainable and inclusive growth. It provides a detailed description and argumentation for investment priorities as a response to the challenges Latvia's economy faces. The defined priorities include effective education system integrated with high quality science, research and innovations. In light of the national Smart Specialization Strategy which emphasizes the concentration of resources of science and research and European Council recommendation on the implementation of effective research and innovation policy, the objectives stated in the Programme include improvement of education system to reduce the disproportion of labour market, concentration and consolidation of intellectual and material resources in HE and science to reduce fragmentation, especially in STEM, modernization of the material basis and infrastructure, especially at the college and doctoral level, development of joint thematic doctoral centres at universities and scientific institutions to focus on topical social and economic issues.

Declaration of the Intended Activities of the Cabinet of Ministers headed by Laimdota Straujuma (endorsed by the Parliament on January 22, 2014)

The current Government's priorities and policy measures until the parliamentary elections in October 2014 include the development of the model of an institutional network in higher education by implementing the principle of strategic specialization of the state founded higher education institutions, preventing duplication of programs within one region and motivating the regional higher education institutions to participate in ensuring regional development. The Government's program envisages introducing proposals for the development of a higher education funding model that promotes, inter alia, accessibility of higher education in regions of Latvia, labor market needs, and competitiveness at the international level.

Guidelines for Development of Science, Technology and Innovation 2014–2020 (endorsed by the Cabinet of Ministers on December 28, 2013)

Guidelines for the Development of Science, Technology and Innovation form a part of the Smart Specialization Strategies and contribute to the achievement of objectives stipulated in the national long-term and medium-term policy planning documents. Smart Specialization Strategies anticipate the

transformation of Latvia's economy by investing in three strategically important directions: (i) production and export structure change in the traditional sectors of the economy, (ii) growth in sectors creating products and services with high added value, and (iii) industries with significant horizontal impact and contribution to economic transformation, as well as by identifying seven priorities which include high value-added products, productive innovation system, energy efficiency, modern ICT, modern education, knowledge base, and polycentric development.

Guidelines for the Development of Education 2014–2020 *(project)* (endorsed by the Cabinet of Ministers on January 7, 2014)

Endorsed by the Cabinet of Ministers and submitted to the Parliamentary Committee of Education, Culture and Science, the status of the document is still that of a project under discussion. Nevertheless, the Guidelines serve as the main medium-term policy planning document stating the principles of education development and viewing education system as a whole with higher education being an integral part of the education circle. The measures and targets in education are grouped under three main policy directions: (i) to increase the quality of education environment by improvement of contents and development of appropriate infrastructure; (ii) to facilitate value-education based development of an individual's professional and social skills for life and competitiveness in the work environment; and (iii) to improve the efficiency of resource management through development of institutional excellence of education institutions and consolidation of resources.

Action Plan for the Development of Higher Education and Science for the Time Period from November 1, 2013 until December 31, 2014 (adopted by the Cabinet of Ministers on November 22, 2013)

Action Plan for the Development of Higher Education and Science stipulates the short-term policy perspective on higher education and science and measures to be implemented by the end of 2014. The document states the main goal—to ensure quality, internationally competitive and science-based higher education implemented by efficiently managed institutions with consolidated resources—and envisages the relevant measures and targets grouped under three main policy directions: improvement of quality of studies and scientific activity; efficient use of the resources of higher education and science sector and integration thereof with science; and internationalization and increase of international competitiveness of higher education and science.

The National Concept of the Development of Higher Education and Higher Education Institutions for 2013 to 2020 (established in accordance with the Higher Education Law)

The National Concept for the Development of Higher Education and Institutions of Higher Education of Latvia for 2013–2020 have been developed by the Council of Higher Education pursuant to the Law on Institutions of Higher Education. The framework of the National Concept defines the strategic goal of higher education in Latvia—the development of a system of higher education that ensures competitive development of Latvia, national economy, and higher education system in the common European area based on the cooperation among public, private, and academic environments.

Law on Higher Education Institutions (in force since December 1, 1995)

As the main law regulating higher education sector, the Law on Higher Education Institutions serves as the basis for higher education development policy. It stipulates the principles of autonomy of higher education institutions and their co-operation with the state institutions for the interest of society and the state. As an important objective it stipulates the gradual increase of the expenditure on state-funded higher education institutions as a proportion of the GDP.

Appendix 2 Stated Policy Objectives and Targets in Higher Education, Science and Innovations

A. National Development Plan of Latvia for 2014–2020

The vision of Latvia in 2020 "Economic Breakthrough—for the Greater Well-being of Latvia"

[…] Latvia has internationally competitive colleges and universities employing internationally recognized and qualified academic staff. Higher education has become a widely coveted export service of Latvia. Study programs are provided in accordance with the language policy of Latvia as a national state: primarily in Latvian and in one of the official languages of the European Union. The graduates of Latvian colleges and universities demonstrate a competitive advantage both in domestic and foreign labor markets. Furthermore, a growing number of graduates continue their careers in research in Latvia.

Latvian science is concentrated in research institutes that are competitive globally. A significant proportion of the research is co-founded by private businesses; academia and the private sector work together to create new and globally competitive products. It is the collaboration of science and business that continues to generate new, innovative and creative products and services that are competitive in the world markets […].

Priority: Growth of the National Economy
Strategic objective: Advanced Research, Innovation and Higher Education

Goal 1: Increase investment in research and development to 1.5% of the gross domestic product in 2020, with targeted efforts to attract human resources, develop innovative ideas, improve the research infrastructure, facilitate cooperation between higher education, science and the private sector, as well as the transfer of research and innovation to business.

Measurable Outcomes for the Goal	Base value (year)	2014	2017	2020	2030
Private sector investment in research and development in 2020 reaches at least 48% of the total investment in research and development (private sector investment in research and development, as a percentage of the total investment)	37 (2010)	42	46	48	51
Number of researchers employed in the private sector, as a percentage of the total, full-time equivalent	16.2 (2010)	18	21	23	27
Number of students obtaining degrees or qualifications at universities and colleges, thousands	24.8 (2011)	23.9	24.1	24.6	28.6
Higher education (percentage of the population aged 30 to 34 with higher education)	36 (2012)	37	38	40	>40

European patents granted, applied for by researchers residing in Latvia	11 (2011)	13	18	26	35

Goal 2: Through the commercialization of knowledge, promote the creation of innovative and internationally competitive products with high added value as well as their introduction into production, increasing the share of output of such products in the national economy.

Measurable Outcomes for the Goal	**Base value (year)**	**2014**	**2017**	**2020**	**2030**
Turnover of innovative products (as a percentage of the total turnover)	5.9 (2008)	8	9	11	>14
Proportion of innovative businesses (as a percentage of all companies)	20.1 (2008)	22	25	30	>40

The individual measures to be applied within the Strategic Objective "Advanced Research, Innovation and Higher Education" in regard of higher education (and science) include:

- Qualitative and quantitative renewal of science and implementation of fundamental and applied research projects, particularly in the priority research field.
- Ensuring access to higher education.
- Establishment and development of the cooperation platform for higher education, science and the private sector of the Baltic countries in the following areas: (i) biopharmaceuticals and organic chemistry, (ii) nano-structured materials and high-energy radiation, (iii) smart technologies and engineering.
- Measures to support higher education export (combining of outstanding programs and creation of joint programs in other EU languages in no fewer than 10 fields of study; international publicity of the programs and development of support centers for foreign students; recruitment of foreign instructors).
- Competitiveness and consolidation of higher education, development of material and technological provision (equipment), improvement of the internal quality system, encouraging a higher rate of scientific publication by university staff, launching of international journals, increased effectiveness of the governance system.

Responsible institution: MoES; indicative sources of financing: Cohesion Policy funds and private and state budget funding.

B. Guidelines for the Development of Science, Technology and Innovation 2014–2020

In the context of National Development Plan 2020 the Guidelines for Development of Science, Technology and Innovation place a strong emphasis of the integration of education with science, ensuring the transfer of knowledge created by education into the industry for the development products of high added value. Thus, one of its stated priorities is the transformation of education system to serve as the foundation of the national competitiveness—modern education system that complies

with the labor market needs and facilitates the development of competences, entrepreneurship and creativity at all levels of education. This entails modernization and integration of education sector with research by increasing its capacity to respond to the future challenges in research, technology development and innovations, and by increasing the mobility of education.

The policy directions and measures for the integrated development of higher education, science, technology and innovation to be implemented by 2020 include:

Integration of education, science, technology and innovation

- Fostering the cooperation of higher education institutions, research centers and entrepreneurship and attraction of young scientists to research.
- Development of technology transfer centers at higher education institutions and formation of creative center of innovations.
- Development of a model of institutional integration to ensure internships for higher education students in state and municipality enterprises.
- Formation of innovation grants for students and academic staff, especially in STEM, to strengthen the cooperation with industry and support excellence in studies and research; and development of innovative solutions for the industry.

Support for research in higher education and increase the contribution of higher education institutions in science

- Development of regulations on funding principles and establishment of criteria that foster the investments of higher education institutions in research and motivate the HEIs to commercialize the knowledge and invest in research.
- Defining the criteria according to which higher education institutions plan investments in scientific research upon the accreditation and licensing of higher education study directions and programs.
- Renewal of remuneration principles for the engagement of academic staff in research. Introducing the principle of joint pedagogic and research work according to which academic staff is engaged in research while scientists working at scientific institutions are engaged in pedagogic work in higher education institutions.

Improvement of doctoral studies and promotion system

- Improvement of promotion process.
- Involvement of the doctoral students in scientific projects.
- Establishing scholarships for excellent doctoral students with high research potential.
- Preparation of Master students and Doctoral students for specific industrial partners; allocate the state budget subsidy for respective Master and Doctoral studies as priority areas.
- Moving towards a joint system of doctoral studies (common quality principles).
- Strengthening the link between doctoral studies and research and industry, formation of doctoral centers in Latvia, support for the renovation of infrastructure, etc.

C. Guidelines for the Development of Education 2014–2020 *(project)*

In the context of the National Development Plan 2014–2020 and in light of the Guidelines for the Development of Science, Technology and Innovations 2014–2020, the Guidelines for the Development of Education 2014–2020 stipulate a number of policy directions with specific indicators and measurable targets in regard of higher education (and science) to be reached by 2017 and 2020.

Policy Direction: Improvement of Education Contents focused on Competences required by Knowledge Society and Facilitating Creativity, Innovative and Healthy Lifestyle

Policy result	Performance indicator	Base value (year)	2017	2020
Restructured state support to HE and science sectors (study directions) according to medium-term labor market forecasts	Proportion of study places financed by the state budget in STEM (%) of the total number of study places financed by the state budget	44% (2013)	50%	55%
	Proportion of students in the 1st level professional higher education programs (college level programs) (%)	18% (2013)	21%	24%
Ensured education process according to the changing requirements of labor market	Level of unemployment of graduates (Bachelors, Masters and Doctors) 18 months after graduation, as a percentage of the level of unemployment of graduates of all education institutions	7.5% (2013)	6.5%	5.2%

	Proportion of graduates (ISCED-5/6) in the STEM areas of the total number of graduates (%)	19% 4028 (2012)	25%	27%

Policy Direction: Increase of the Motivation and Professional Capacity of Teachers and Academic Staff

Policy result	**Performance indicator**	**Base value (year)**	**2017**	**2020**
Improved professional competence of teachers and academic staff according to modern education requirements	Proportion of academic staff (excluding colleges) with a doctoral degree (%)	54% (2012)	60%	65%
Increased capacity of human resources in education	Proportion of the number of foreign teaching staff at the ISCED 5-6 level of the total number of academic staff (%)	0.5% (2012)	5%	7%
Increased professional competitiveness of academic staff	Age structure of academic staff (proportion of those of 30–49 of age (% of the total academic staff)	45% (2012/ 2013)	50%	55%
	Proportion of academic staff having obtained a doctoral degree (%) of the total number of those having a degree or qualification	1% (2012/ 2013)	2%	3%
	The proportion of the lowest salary level of professors of institutions of higher education to the amount of average monthly work remuneration of employees in the country during the year before last, published in the official statistical report of the CBS, multiplied by a certain coefficient	1.5 (2012)	2.5	2.8

Policy Direction: Ensuring Education Environment and Education Process Compliant with the 21st Century

Policy result	Performance indicator	Base value (year)	2017	2020
Improved infrastructure of institutions of higher education for the implementation of modern study process	Number of doctoral students in the joint doctoral study programs	138 (2012)	200	405
	Increased number of students in the STEM programs of the first level vocational higher education in colleges	5270 (2012)	5480	6060
	Proportion of institutions of higher education (%) of the total number, where the equipment and technical infrastructure have been modernized using EFRD resources	45% (December 31, 2012)	10%	50%

Policy Direction: Improvement of the Monitoring System of Education Quality

Policy result	Performance indicator	Base value (year)	2017	2020
Improved state information systems	Established and maintained a unified database (study program database, expert database, etc.) necessary for the assessment of external and internal quality of higher education	0 (2013)	1	1
	Established a system for monitoring the professional experience of graduates of institutions of higher education	0 (2013)	1	1
	Established unified higher education information system, which includes registers of academic an scientific staff, student, diploma registers, as well as the database required for accreditation	0 (2013)	1	1

Established national study quality assessment agency registered with EQAR	Established and maintained national agency for higher education quality assessment	0 (2013)	1	1

Policy Direction: Efficient Management of Education Financial Resources

Policy result	**Performance indicator**	**Base value (year)**	**2017**	**2020**
Increased investments of financial resources in education	Annual state expenditure for education as % of GDP	ISCED-0 0.8% ISCED-1 1.4% ISCED-2-4 1.9% ISCED-5-6 0.6% (2010)	3.7%	5%
Developed and implemented a new model for financing of higher education	Amendments to the technical regulation in the Law on Institutions of Higher Education and other regulatory enactments	-	1	1
	Sustainable model for financing higher education allowing to attain the goals of NDP 2020	-	1	1
Support to improvement of HEIs study direction management, including in colleges, and to establishment/ development of the system for monitoring the introduction of efficient HEIs policy and ensuring education quality, which is aimed at the development of policy analysis capacity in HEIs and scientific institutions	Established and operating study direction councils	-	20	40

Policy Direction: Adjustment of the Network of Education Institutions

Policy result	Performance indicator	Base value (year)	2017	2020
Increased accessibility of education services	Higher education (percentage of the population aged 30 to 34 with higher education)	37.2% (2012)	38%	40%
Provided support for acquiring higher education to socially less protected groups of inhabitants, including scholarships and grants for covering tuition fee	Total number of recipients of financial aid	-	1500	3000

Policy Direction: International Competitiveness of Education

Policy result	Performance indicator	Base value (year)	2017	2020
Ensured internationally competitive higher education environment	Proportion of foreign students (within the framework of mobility) of the total number of students (%)	0.8% 736/94474 (2012)	1.5%	2%
	Proportion of foreign students studying for obtaining a degree, qualification of the total number of students (%)	2.9% 2757/94474 (2012)	6%	8%
Ensured possibility to be involved in the internationally recognized accreditation of higher education	Number of study programs that have acquired documents proving quality at international level (international accreditation)	n/a	10	20

Attracted foreign students	Number of scholarships provided to foreign students, per annum	80 (2012)	150	150
Ensured professional perfection and international exchange of experience of teachers, academic staff, adult education personnel	Number of academic staff that have participated in the mobility activities	1035	1035	1345
Ensured international practice for learning and studies	Number of students of HEIs that have participated in the mobility activities	1960	1960	2548
	Proportion (%) of graduates of HEIs who have studied or have had internships abroad of the total number of graduates	13.7% (2012)	15%	20%