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Restructuring Higher Education Sector in the Republic of Moldova: Draft Legislative Proposals

(Work Package 4: Consolidated Report)

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Executive Summary

This report proposes legislative proposals for restructuring and modernization of Higher Education (HE) in Moldova. It is based on (1) the analysis of the institutional university autonomy in Moldova; (2) the benchmark analysis of institutional university autonomy in Denmark, Lithuania, Romania, Scotland and Sweden; (3) the on-going analysis of the current situation of institutional university autonomy in Moldova, including the on-going analysis and review of the Code of Education; and (4) the European Commission agenda for the modernization of higher education.

This report has been developed by the EUniAM Lead Task Force team: Ala Cotelnic, Vice-Rector Academy of Economic Studies, Angela Niculita, Vice-Rector State University of Moldova, Daniela Pojar, Head of HR and Planning Department Balti State University, Petru Todos, Vice-Rector Technical University of Moldova, Larisa Bugaian, Vice-Rector Technical University of Moldova, and Romeo V. Turcan of Aalborg University.

The report identifies the *objectives* of the legislative proposals; discusses *risks and challenges* that HE in Moldova faces today and in the next 10-15 years; identifies expected *outcomes*; identifies *basic principles* on which the process will be founded; proposes a *new structure for the HE sector*; offers an example of a *rationalization process*, incl., a *road map*, recommending that there should be 7 universities in Moldova: 3 regional universities and 4 universities in Chisinau (capital); following the principle of clear demarcation between state regulation and institutional university autonomy, specifies *universities powers and responsibilities*; suggests a distinct separation between *governance and management*; suggests *teaching and research funding formulae* based on inputs and outputs; and outlines a new *National Qualifications Framework*.

The urgency of the situation in HE in Moldova dictates that the restructuring and modernisation process should commence in 2015. The road map put forward in the report identifies key activities, milestones as well as key outputs in relation to the rationalization process, integration and modernization processes. It suggests a 3-4 year implementation plan, in three periods: (1) preparing rationalization (max 9 months), (2) implementing rationalization (max 12 months) and (3) integrating and modernising (24-30 months).

It is expected inter alia that the restructuring, rationalization and modernization of the higher education sector will produce larger, stronger public universities, which will provide a basis for more multi and interdisciplinary learning and teaching in all cycles; strengthen regional and national links with employers; reinvigorate public universities with effective, new governance and management structures committed to relevant student centred education; and ensure fuller more cost effective utilisation of capital resources releasing funds for learning and teaching, research and knowledge transfer.

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Glossary

Academic refers to teaching, research and knowledge transfer activities performed by academic staff

Academic work-load is the amount of teaching, research and knowledge transfer work that is performed by a member of academic staff in a given period (e.g., semester). When a member of academic staff takes on an administrative position (e.g., head of department or head of faculty), teaching, research and knowledge transfer loads are reduced to ensure the amount of overall work-load is maintained.

Chair (of the university board) chairs the meetings of the university board, provides leadership for the board and has to ensure that the governing body operates effectively and efficiently.

Competence (defining learning outcomes) means the proven ability to use knowledge, skills and personal, social and methodological abilities in work or study situations and in professional and/or personal development. In the context of the European Qualifications Framework, competence is described in terms of responsibility and autonomy (<http://goo.gl/q1qMvA>).

External member (of the university board) is a member who is external and independent of the Institution.

Governance (in Higher Education) refers to and is concerned with the decision making structures and processes for the direction and control of a higher education institution. It answers the questions - who is in charge and what are the sources of legitimacy for executive decision making?

Because of the context in which Higher Education Institutions operate, a distinction may be made between 'internal' governance (the definition above) and 'external' governance which broadly defined relates to the Higher Education rules, regulations, policy and strategy of the Government of the country.

Knowledge (defining learning outcomes) means the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices related to a field of work or study. In the context of the European Qualifications Framework, knowledge is described as theoretical and/or factual (<http://goo.gl/q1qMvA>).

Knowledge transfer involves the processes for capturing, collecting and sharing explicit and tacit knowledge, including skills and competence; it includes both commercial and non-commercial activities such as publication, research collaborations, consultancy, licensing, spin-off creation, and researcher mobility (EUR 22836 EN) (<http://goo.gl/Jf7WJw>).

Learning outcomes are defined as statements of what a learner knows, understands and is able to do upon completion of a learning process. In the EQF, learning outcomes are therefore defined in terms of knowledge, skills and competence (<http://goo.gl/q1qMvA>).

PhD researcher is the term used to describe those registered for the third cycle (Bologna) Doctoral qualification. They are also referred to in the European Union as 'Early Stage Researchers'

Rector is the senior manager or the chief executive of the Higher Education Institution and is responsible to the University Board for the executive management of the institution.

Research-based learning and teaching is about developing students' independent research skills as well as their ability to reflect on their research-based experience; underpinning study programs with latest research, including that produced by own academic staff.

Skills (defining learning outcomes) mean the ability to apply knowledge and use know-how to complete tasks and solve problems. In the context of the European Qualifications Framework, skills are described as cognitive or practical skills (<http://goo.gl/q1qMvA>).

Student-centred learning and teaching is not limited to certain methodology; it is rather a cultural shift in the institution. Student-centred learning requires empowering individual learners, new approaches to teaching and learning, effective support and guidance structures and a curriculum focused more clearly on the learner in all three cycles (<http://goo.gl/aRWzEE>).

Technical staff is non-academic staff that provides support for teaching and research, e.g., secretariat, IT, library, and genitors.

Tenure is to safeguard academic freedom through a permanent appointment which can only be terminated on the basis of 'just cause'. Academic staff who over a period of between two and seven years have demonstrated their teaching and research competence at a high level should be granted 'tenure'.

University Board is the Higher Education Institution Governing body 'which is unambiguously and collectively responsible for overseeing the Institution's activities'.

University Management is concerned with and responsible for the implementation of the policy and strategy approved by the Governing Body; the efficiency, effectiveness and quality of the services provided for internal and external stakeholders; the day-to-day functioning of the institution.

1. METHODOLOGY AND FRAMEWORK

1.1 Data collection and analysis

These legislative proposals have been agreed by the project Lead Task Force team:

Ala Cotelnic, Vice-Rector Academy of Economic Studies, Angela Niculita, Vice-Rector State University of Moldova, Daniela Pojar, Head of HR and Planning Department Balti State University, Petru Todos, Vice-Rector Technical University of Moldova, Larisa Bugaian, Vice-Rector Technical University of Moldova, who is the national coordinator of the EUniAM project.

These legislative proposals have been evaluated by the EUniAM external expert, John Reilly and the EUniAM project coordinator, Romeo V. Turcan. The feedback from the EUniAM project partners has been taken into consideration in developing the final draft of these legislative proposals.

The legislative proposals are based on:

- The analysis of the institutional university autonomy in Moldova (see WP2 deliverables: <http://www.euniam.aau.dk/work-packages/wp2/wp2-deliverables/>)
- The benchmark analysis of institutional university autonomy in Denmark, Lithuania, Romania, Scotland and Sweden (see WP3 deliverables: <http://www.euniam.aau.dk/work-packages/wp3/wp3-deliverables/>)
- The on-going analysis of the current situation of institutional university autonomy in Moldova, including the on-going analysis and review of the Code of Education (<http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=355156>)

Note: In part the EUniAM project proposals reinforce and complement the Code of Education; in part they introduce new concepts and structures. The report “The relationship between the EUniAM proposals for structural change and reform of Higher Education and the Code of Education” considers in detail the concordance between the two, as well as examines the internal consistency of the Code and the effectiveness of key elements.

- Modernization of higher education/European Commission
 - The European Commission ‘Agenda for the modernisation of Europe’s higher education systems’ (COM (2011) 567 final) stresses that “to maximise the contribution of Europe’s higher education systems to smart, sustainable and inclusive growth, **reforms are needed in key areas:**
 - to increase **the quantity** of higher education graduates at all levels;

- to enhance **the quality and relevance** of human capital development in higher education;
- to create **effective governance and funding** mechanisms in support of excellence; and
- to **strengthen the knowledge triangle** between education, research and business.
- Moreover, the international mobility of students, researchers and staff, as well as the growing **internationalisation of higher education**, have a strong impact on quality and affect each of these key areas.”

The recommendations from the EUniAM project seek to address these key points.

- The Communication from the Commission identifies critical policy objectives for Member States and Higher Education Institutions and the EUniAM project team has been mindful of these in developing its recommendations for Moldova. They include:
 - Encouraging the use of **skills and growth projections** and **graduate employment data** (including tracking graduate employment outcomes) in course design, delivery and evaluation, adapting **quality assurance** and **funding mechanisms** to reward success in equipping students for the labour market.
 - **Encouraging a greater variety of study modes** (e.g. part-time, distance and modular learning, continuing education for adult returners and others already in the labour market), by adapting funding mechanisms where necessary.
 - **Better exploiting the potential of ICTs** to enable more effective and personalised learning experiences, teaching and research methods (eg. eLearning and blended learning) and increase the use of virtual learning platforms.
 - Enhancing the capacity of labour market institutions (including public employment services) and regulations to match skills and jobs, and develop **active labour market policies** to promote graduate employment and enhance career guidance.
 - Introducing **incentives** for higher education institutions to invest in continuous **professional development** for their staff, recruit sufficient staff to develop emerging disciplines and **reward excellence** in teaching.
 - Link funding for doctoral programmes to the **Principles for Innovative Doctoral Training**
 - Stimulating the development of **entrepreneurial, creative and innovation skills** in all disciplines and in all three cycles, and promote **innovation in higher education** through more interactive learning environments and strengthened knowledge- transfer infrastructure.
 - Strengthen the knowledge-transfer infrastructure of higher education institutions and enhance their capacity to engage in start-ups and spin-offs.

- Encouraging **partnership and cooperation with business as a core activity of higher education institutions**, through reward structures, incentives for multidisciplinary and cross-organisational cooperation, and the reduction of regulatory and administrative barriers to partnerships between institutions and other public and private actors.
 - Promoting the systematic involvement of higher education institutions in the development of integrated local and regional development plans, and **target regional support towards higher education-business cooperation** particularly for the creation of regional hubs of excellence and specialisation.
 - Encouraging a better identification of the real costs of higher education and research and the careful targeting of spending, including through funding mechanisms linked to performance which introduce an element of competition.
 - Targeting funding mechanisms to the needs of different institutional profiles, to encourage institutions to focus efforts on their individual strengths, and develop **incentives to support a diversity of strategic choices** and to develop **centres of excellence**.
 - Facilitating access to **alternative sources of funding**, including using public funds to leverage private and other public investment (through match-funding, for example).
 - Supporting the development of strategic and professional higher education leaders, and ensure that higher education institutions have the **autonomy to set strategic direction**, manage income streams, reward performance to attract the best teaching and research staff, set admissions policies and introduce new curricula.
 - Encouraging institutions to modernise their **human resource management**
- In all its work the EUniAM project has been conscious that Moldova is a signatory to the Bologna process, wishes to play an active role in the European Higher Education Area (EHEA) and is seeking eventual membership of the European Union. Its recommendations are designed to help in the full implementation of the Bologna process and to address the European Union expectations for the modernisation and reform of Higher Education. It is conscious too of the statement by Ministers in the Bucharest Communiqué in 2012 that:
- “Higher education is an important part of the solution to our current difficulties. Strong and accountable higher education systems provide the foundations for thriving knowledge societies. Higher education should be at the heart of our efforts to overcome the crisis – now more than ever.”
- At the EHEA Bologna Process meeting in Yerevan in May 2015 Ministers will be invited to:
- “Include short cycle qualifications in the overarching framework of qualifications of the European Higher Education Area (QF-EHEA) based on the Dublin

descriptor for short cycle qualifications and quality assured according to the ESG”.

The EUniAM recommendations respond to this development by recommending that in the restructured (merged) sector of Higher Education in Moldova, the six (+1) universities should incorporate all cycles of higher education including the short first cycle. In our view this will strengthen the HEIs, facilitate educational pathways for students with more qualification exit points, improve links with the employment world and encourage HEIs to develop more innovative, relevant, student-centred curriculum based on learning outcomes.

- The development of the Doctoral cycle and doctoral schools requires a viable critical mass of Doctoral candidates as well as qualified and motivated doctoral candidate supervisors. Larger more integrated universities will facilitate this and provide a larger pool of staff to act as supervisors, synergies in the training of Doctoral candidates across subject fields, more interdisciplinary opportunities for doctoral research, and the integration of doctoral candidates in the research mission of the institution. In this context, we see the full incorporation of the current Academy of Science Institutes in the reconfigured universities as vital both for the revitalisation of university research and for doctoral education.
- We have noted that the **‘Principles for Innovative Doctoral Training’** Directorate-General for Research & Innovation Brussels, 27/06/2011) **are based on:**
 - *Research Excellence; Attractive Institutional Environment; Interdisciplinary Research Options; Exposure to industry and other relevant employment sectors; International networking; Transferable skills training; (Business involvement in curricula development and doctoral training); Quality Assurance*

Commenting on Doctoral education the EHEA Bologna process Structural Reform working group in its report for Ministers in Yerevan state:

- “From the perspective of doctoral candidates, the issue of employability is also at stake, even if from a different point of view. Only a small number of future doctorate holders can expect a career in academia, while the majority should be equipped to be employable in research-intensive labour market fields or to be self-employed. This is even more of a challenge for economic systems where small and medium sized enterprises, often not based on research and innovation, are the prevailing actors in the market. It is not enough to ensure that doctorate holders have adequate resources to be employable. In some countries, there is a problem of awareness in society of how doctoral candidates can contribute to social progress, to the advancement of knowledge, and to innovation and productivity across sectors. ...employers, both public and private, should consider the competences and skills acquired as well as the time spent to

achieve them as doctoral candidates and/or in postdoctoral fellowships as a part of applicants' professional experience and could also take this period of time into account for the purpose of calculating seniority”

The EUniAM team consider that this is particularly relevant in Moldova and that one of the objectives of the reconfigured (merged) universities proposed in this report will be to strengthen regional and national links with employers in their development of Doctoral education in ways which are not only relevant to academia but also, as the report quoted above indicates, to the wider employment market.

- As well as addressing national structural change and reform the EUniAM project recognises that universities in Moldova need themselves to initiate urgent internal reform and review with particular emphasis on curriculum reform and methods of learning and teaching designed to invigorate **student-centred learning based on learning outcomes**. Learning outcomes are commonly understood as describing what learners know, understand and are able to do at the end of a unit of learning and a qualification. As the Bucharest Communiqué indicated:
 - “We reiterate our commitment to promote **student-centred learning** in higher education, characterised by innovative methods of teaching that involve students as active participants in their own learning. Together with institutions, students and staff, we will facilitate a supportive and inspiring working and learning environment”
 - “To consolidate the EHEA, meaningful implementation of **learning outcomes** is needed. The development, understanding and practical use of learning outcomes is crucial to the success of ECTS, the Diploma Supplement, recognition, qualifications frameworks and quality assurance – all of which are interdependent. We call on institutions to further link study credits with both learning outcomes and student workload, and to include the attainment of learning outcomes in assessment procedures.”

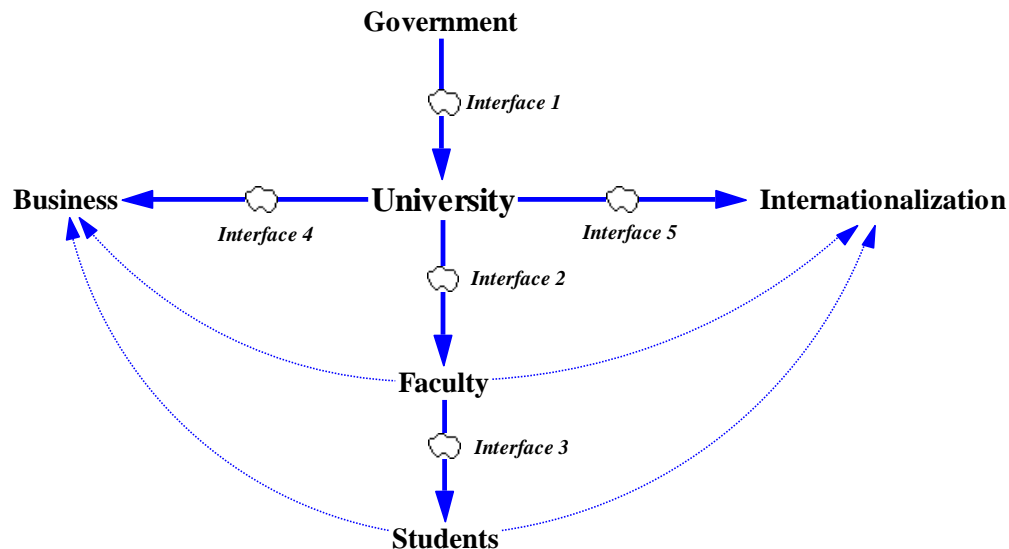
The stimulus provided through the proposed integration of the higher education sector in Moldova into fewer (6+1) but stronger Universities will be a basis for promoting a universal adoption of student-centred learning and research-based teaching in which the best practices from Moldova and other European countries noting especially the Tuning methodology will play a part.

1.2 Framework

These legislative proposals are based on the framework of institutional university autonomy (Figure 1) that brings together the traditional four pillars – organisation, finance, human resource, and academic – and five interfaces:

- Government–university
- University management–university staff
- Academic staff–students
- University–business
- University–internationalisation

Figure 1: Institutional university autonomy framework



Each of these interfaces that characterize external and internal points of interaction between modern universities and their key stakeholders not only map on to the four pillars, but also relate to and influence one another, hence reinforcing and equally pulling in opposite directions.

Government – university interface is about state policies towards higher-education; role of central and regional governments in issuing regulations for the structure of university governance; governance vs. management: are governance structures fit for purpose, effective, accountable (to whom); advocacy of higher education institutions; need and role of accreditation; models of financing research and teaching; accountability and public responsibility; implications for the mission of an university; understanding the interface vs. practicing the interface; role in the appointment or approval of senior staff; policy on admissions and curriculum; external accreditation and Quality Assurance.

University management – university staff interface is about governance, leadership and management models of a modern university; power sharing in strategic and operational decision making; implications of top-down, bottom-up or flat organization; incentive and evaluation mechanisms; external vs. internal appointment and promotion policies; staff mobility; research, teaching, and contribution to community vs. university mission;

understanding the interface vs. practicing the interface; accountability and public responsibility.

University staff – students interface is about students' role in university governance and management, as well as in learning and teaching with the new learner centred paradigm and research processes; staff as teachers vs. staff as facilitators; changing the mind set about relations with students; models of student admissions (e.g., linked to overall higher-education state policies); students' evaluation models; students' mobility; problem based learning; understanding the interface vs. practicing the interface; accountability and public responsibility.

University – businesses interface is about the role of business in university governance and management, as well as in curriculum development, learning, teaching and research processes; models of knowledge transfer (e.g., financing, ownership, spin-outs, intellectual property rights) and knowledge sharing (e.g., staff exchange programs, student internships, promoting entrepreneurship); career development, and innovation; life-long learning; role in work placements and work based learning; understanding the interface vs. practicing the interface; accountability and public responsibility.

University – internationalization interface is about university internationalization policies; university strategies for internationalization; staff and student mobility; in-ward and out-ward internationalization modes and models; partnership models and their implication for accreditation related to the process of internationalization; compatibility of internationalization and university autonomy; internationalization and university mission; understanding the interface vs. practicing the interface; accountability and public responsibility.

1.3 Legislative proposals outline

The rationale for legislative change is considered under the following headings:

- Objectives
- Risks and outcomes
- Basic principles
- New structure of HE sector
- University rationalization, including the process of rationalization
- Universities powers and responsibilities
- Organizational autonomy
- Financial autonomy
- Academic autonomy
- HR autonomy
- Road map

2. OBJECTIVES

The *objectives* of these legislative proposals are:

- The development of a stronger, integrated, relevant, quality assured higher education sector focusing on student centred learning in all cycles
- Continued implementation of the EHEA and the Bologna reforms
- Reform and modernization of the higher education sector through increased autonomy in line with communications from the European Commission and the Council of Ministers
- Contributing to the case for Moldova to become a member of the European Union
- Strengthening the research base of Moldova Universities to help support the development of doctoral schools and doctoral education and in line with the Bologna process and Communications from the European Union
- Quality assurance and enhancement
- Collaboration with business and industry
- University internationalization

3. RISKS AND OUTCOMES

3.1 Risks:

- Dramatic decline in student numbers (www.demografie.md):
 - in 2014 the number of students had declined by 25%, compared with 2009, on average by over 4% % per annum; this trend is forecast to continue
 - in 2014 35% of the planned places in all Universities were not filled; this trend is expected to continue unless radical steps are taken to halt the decline
 - From 1995/1996, the number of 18-19 year olds has been constantly decreasing; in the last 10 years (as of 2014), the number of 18-19 year olds decreased by 45,000
 - By 2016, the number of 18-19 year olds is expected to fall to 90,000 compared with 103,000 in 2014.
 - In 2020, the number is predicted to be 75,000, a drop of c.27% in six years.
 - A number of factors drive this decline, increasing the pressure for urgent action now before HE sector goes into terminal decline:
 - Demographic - the birth-rate in 1996-1997 was 50% lower than in the 1970s
 - c.1 million people have emigrated since 1992, and emigration continues
 - c.5000 scholarships a year for students from Moldova to study abroad funded by other countries;
 - Dual citizenship, e.g., Romanian, allows access to **tuition-free** high quality EU education
 - Increase of high-middle class parents who can afford (and prefer) to send their children to study in EU
 - Visa liberalization (with short-medium term impact)
 - Accession to EU (with medium-long term impact, 5-7 years)
 - Non returning students who go on work-travel (500-600 per year)
- Lack of understanding of the mission of a modern university by key stakeholders
- Ageing academic staff (on average more than 60-65% of academic staff are over 60 years)
- Low quality and employability of graduates; according to IMF 2013 Country Report No. 13/269, only 22% of young people found a job immediately after graduation in 2010Low European and international competitiveness
- Poor research, development and innovation in universities

- Inefficiency:
 - Over- capacity which means wasteful, inefficient and ineffective use of capital resources (buildings, laboratories) and staff arising from the decline in student numbers
 - Duplication of programmes of study with low numbers of students and consequent impact on quality and performance
 - The need to develop high quality research and doctoral schools
 - Low level of funding for teaching and research
 - Inefficient use of resources
 - Lack of economies of scale in e.g. in administration
 - Poor teaching/research infrastructure
 - Lack of integrated university platforms, both teaching and research
 - Low impact research due to thinly spread funding
- Competition with businesses (private sector) for academic and high level technical, administrative and other support staff
- Low quality and insufficient quantity of high level technical, administrative and other support staff, that constitute 55-60% of staff of a modern university
- Speed of technological change
- Weak regions and regional development
- General and effective resistance to institutional change by university management, academic staff, students, other key stakeholders

3.2 Outcomes: if status-quo is maintained

Maintain the status quo - 20 public universities, 11 private universities, and 15 research institutes - with research and research funding still monopolized by the Academy of Science of Moldova, with the following results in public HE institutions:

- by 2020 the number of students would drop to c.50,000-55,000 - an average of c.1,700 students per university;
- Closure or bankruptcy of universities, academic and technical staff dismissal, student and parent revolt;
- no effective student centred, research-based learning and teaching and continuing low quality of majority of graduates;
- low rate of employment after graduating;

- virtually no research;
- no effective knowledge transfer;
- marginal contribution to the social and economic life.

Our strong recommendation is that to maintain the status quo is **NOT** an option and that the only route possible in the current crisis is to implement the EUniAM plan.

3.3 Outcomes: if EUniAM proposals are implemented

The following *outcomes* are expected if the legislative proposals are implemented:

- The funding for public universities will be fully maintained
- The funding will be used in more efficient ways by the restructured (merged) public universities (6+1) to develop institutions committed to modernisation and improvement in learning and teaching, research, and knowledge transfer
- Ensure full more cost effective utilisation of capital resources releasing funds for learning and teaching, research and knowledge transfer
- The restructuring of the higher education sector will produce larger, stronger public universities, which will provide a basis for more multi and interdisciplinary learning and teaching in all cycles
- The integration of the ASM research institutes in the restructured (merged) public universities will help to establish a research culture which will imbue research based learning and teaching in all cycles, strengthen doctoral education and enhance doctoral schools, and enhance knowledge transfer
- End inappropriate subject duplication and provide a critical mass of students and staff for key subjects allowing wider student choice in electives
- Strengthen regional and national links with employers
- Reinvigorate public universities with effective, new governance and management structures committed to relevant student centred education
- Provide a basis for inter-institution collaboration through a more effective Rectors' Council
- Incentivise the autonomous (merged) public universities to develop human resource strategies and policies which focus on professional development and recognition of high quality success in learning and teaching, research and knowledge transfer.

4. BASIC PRINCIPLES

The legislative proposals are based on the following principles:

- A clear distinction between the roles and responsibilities of the Government and the Universities reflected and enforced through regulation and institutional university autonomy
- Clear separation between university governance, leadership and management
- The mission of a contemporary university is:
 - Student-centred, research-based learning and teaching based on learning outcomes
 - Research - fundamental and applied
 - Knowledge transfer
- An **integrated** Higher Education sector in which public universities offer programmes in all cycles, including the short cycle
- Full cost, performance-based funding:
 - for research and knowledge transfer
 - for learning and teaching
- The government funds public universities on the following basis:
 - 100% funding for learning and teaching in the form of a block grant allocated on the basis of a transparent, published performance driven formula
 - Universities are free to allocate the block grant in ways determined by the university Governing Body subject to the requirements of the contract with the Government and respecting principles of accountability
 - Funding for research should be allocated on the basis of a transparent, published formula in the form of 'core' funding to cover basic institutional research infrastructure
- The Government provides maintenance scholarships to all students who are citizens of Moldova and enrolled in public universities. Maintenance scholarships are differentiated according to students' place of residence
- Quality assurance of teaching and learning and research and knowledge transfer – which is subject to periodic external independent review
- The details of data to be collected and reporting requirements will be determined by the Ministry of Education, Research and Innovation in consultation with the sector and other relevant stakeholders. It is expected that as well as the standard range of student, staff, research and financial data the Ministry and universities will be

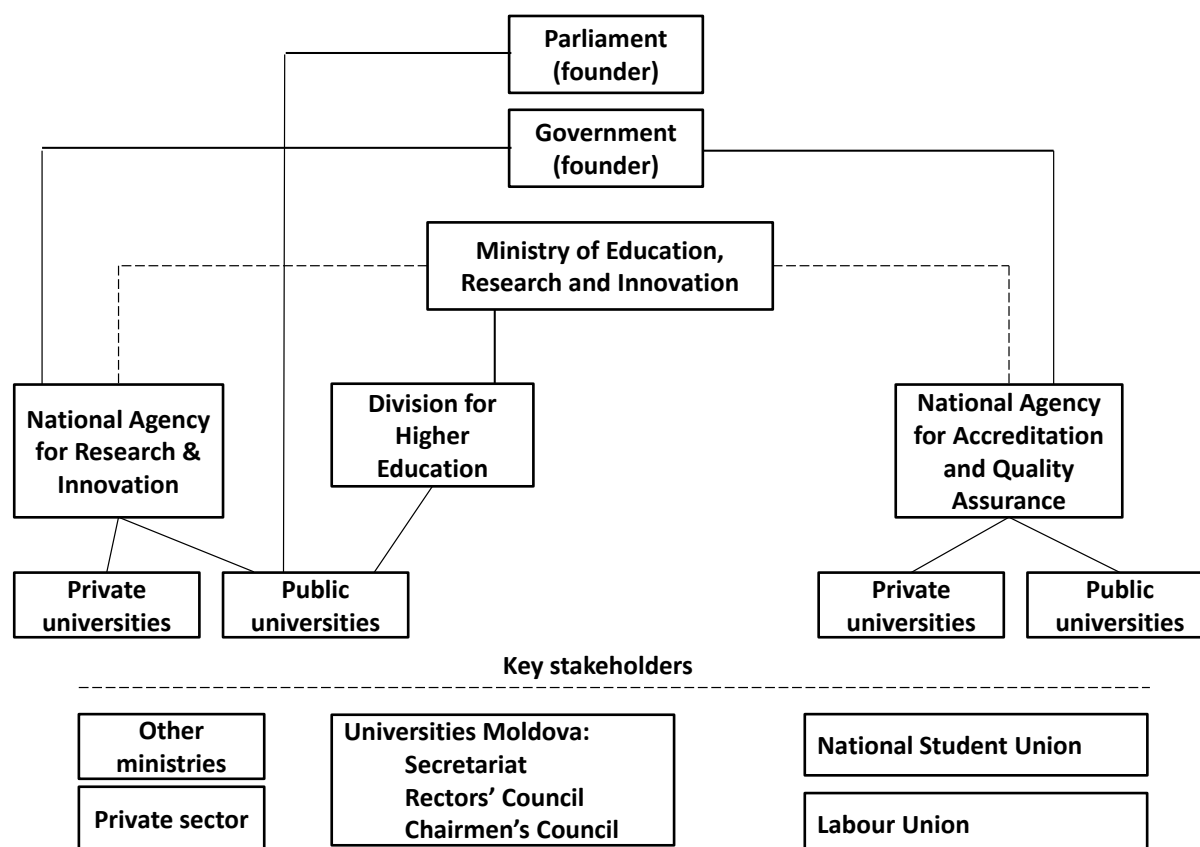
mindful of the recommendation in the Bucharest Communique that: “data collection and referencing against common indicators, particularly on employability, the social dimension, lifelong learning, internationalisation, portability of grants/loans, and student and staff mobility” will constitute part of the data to be collected.

- Universities will be required to report, in a common format, solely to the Ministry of Education, Research and Innovation on all aspects of their work at times and for periods determined by the Ministry and respective agencies after consultation with the sector. Such reporting will include inter alia -finance, student numbers and outcomes, staff, teaching, research and other areas such as those indicated above
- Distribution of academic work-load between (i) learning and teaching and (ii) research and knowledge transfer to support the mission of university
- Student-centred learning based on learning outcomes (knowledge, understanding, ability), research based teaching, employability competences
- Student admission managed by the universities

5. STRUCTURE OF HE SECTOR

The proposed structure of HE is presented in Figure 2 below.

Figure 2: proposed structure of HE sector



Explanation of the proposed structure of the HE sector:

- The **Parliament of the Republic of Moldova** becomes the founder of public universities
- The Ministry of Education becomes: **The Ministry of Education, Research and Innovation** (MERI) to reflect the mission of the Ministry
 - MERI shall be the sole ministry for relations with universities relating to learning and teaching, research, and knowledge transfer
 - All funding for higher education and research to be managed by MERI
 - MERI to establish a high level Higher Education Division (as part of MERI) with terms of reference/responsibilities as set out below

- The Division for Higher Education must be provided with adequate (number, quality, level) staff resources to manage the range of responsibilities.
- The **Higher Education Division** will be responsible inter alia for:
- The development of a five year strategic plan for higher education in Moldova
 - Consultation with the Higher Education sector on a systematic and regular basis
 - The allocation of recurrent and capital funds for learning and teaching to public universities on the basis of contracts and a transparent and published funding formula based on student numbers and outputs (see Figure 3);
 - The definition of consistent and coherent Higher Education data fields.
 - Collection, collation, analysis and publication of management and performance data,
 - The commissioning of a high level, integrated MIS (student/learning and teaching /FTE and academic and technical staff)
 - The establishment of financial and audit report requirements for public universities
 - Arranging for periodic audit and review visits to universities to test the quality, effectiveness reliability of financial and data management systems
 - Review of university strategic plans and other matters to be determined by MERI
 - Establishing sector performance indicators related to learning and teaching
 - Seeking reimbursement of any unused funds resulting from under recruitment of students and/or lower student outputs than specified in the contract with the university or in the event of the detection of misuse of funds
- **National Agency for Accreditation and Quality Assurance:** the Government to establish an autonomous and independent National Agency for Accreditation and Quality Assurance (NAAQA) which shall be subject to external periodic review.
- The twin roles of the National Agency for Accreditation and Quality Assurance to be clearly distinguished
 - **Both state and private HEIs will be subject to the requirements of NAAQA**
 - **Accreditation** will involve:
 - Responsibility for establishing and publishing criteria for the recognition of HEIs
 - Recognition shall grant the HEI the right to offer higher education programs in all cycles and award qualifications which will be recognized nationally.

- Normally accrediting the HEI as a whole but partial accreditation may be awarded to a named program or programs if the HEI as a whole is judged not to meet the criteria for institutional accreditation.
 - Periodic review of HEIs to ensure that they continue to satisfy the national accreditation criteria
- **Quality Assurance** will entail:
 - The establishment and publication of standards and codes of practice for Quality Assurance in HE in Moldova in conformity with the Standards and Guidelines for Quality Assurance in the EHEA endorsed by the Bologna meeting of Ministers in Yerevan in May 2015.
 - Procedures for the periodic external review of University Quality Assurance in conformity with the Standards and Guidelines for Quality Assurance in the EHEA.
 - Policy and procedures for the quality assurance and enhancement of its work.
 - Registration as a member of the European Association for Quality Assurance (ENQA) at the earliest opportunity
- **External Examiners Secretariat**
 - To guarantee/safeguard the quality of performance in final examinations at public universities the MERI in consultation with the NAAQA will establish an External Examiners Secretariat (EES).
 - EES will establish standards and guidelines for external examiners
 - EES will be responsible for recruiting, training and certifying and reviewing a national team of external examiners
 - External examiners may be recruited from academia, business and/or public sectors
 - External examiners will be selected on a random basis by the EES
 - The external examiners will have the following duties:
 - Reviewing the requirements for the degree programme examinations, including where appropriate reviewing question papers for written exams, to ensure that they are consistent with the learning objectives and outcomes defined in degree regulations/curriculum
 - Ensuring that exams are conducted in conformity with current rules
 - Ensuring that the assessment and grading of examinations is consistent, equitable, conforms to best practice and respects the published assessment and grading criteria. This may involve random selection of examination scripts for review,

attending meetings of internal examiners, arbitrating in the event of a dispute between internal examiners

- Providing an evaluation report on standards and procedures at the end of the examinations for which they are appointed
- Overseeing that students are given a fair and uniform treatment and that their performances are reliably assessed in conformity with the assessment rules

➤ **National Agency for Research and Innovation:** The Government to establish a National Agency for Research and Innovation (NARI, see Figure 3)

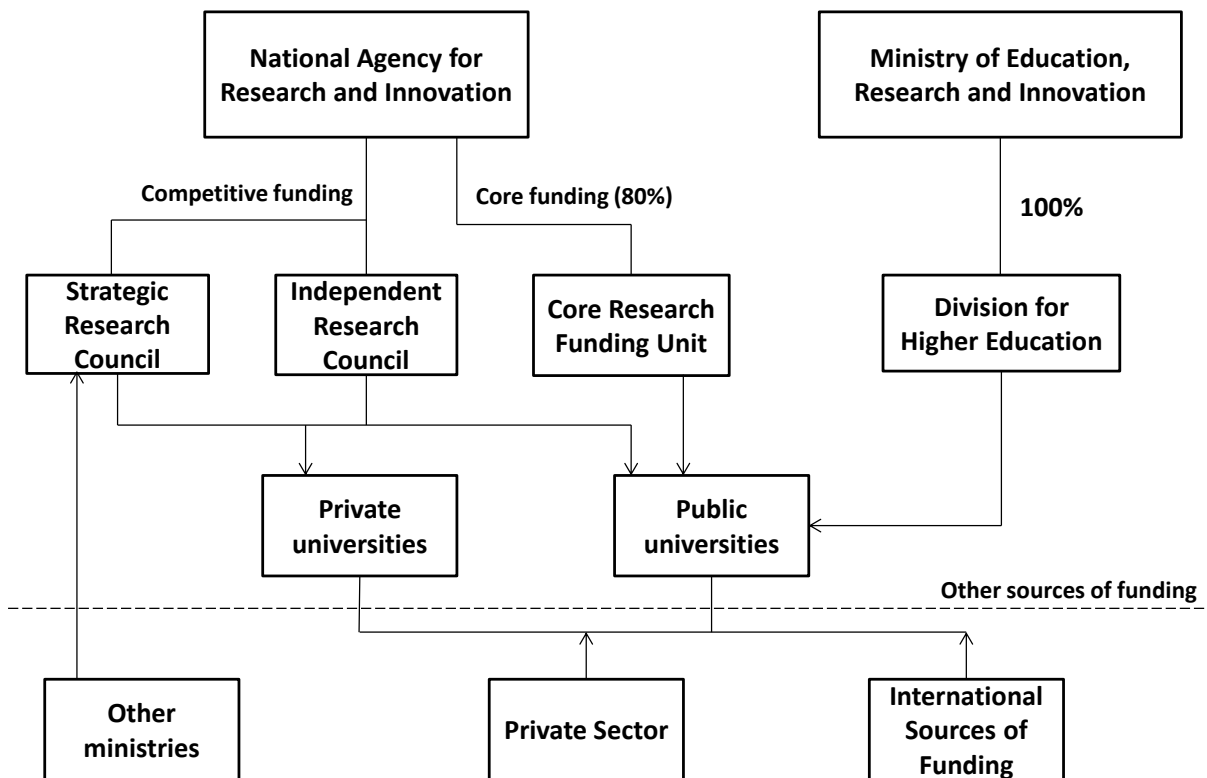
- The Government to **disestablish the Academy of Science of Moldova** and allocate **ALL** its research institutes to appropriate public universities

➤ NARI will be responsible to MERI for:

- Allocation of core and competitive research funding based on objective published criteria
- Instituting calls for research proposals
- Establishing eligibility and evaluation criteria
- Organization of external objective and quality assured evaluations of applications
- Organization of audit of research grants
- NARI would have three major units: for Independent Research, for Strategic Research, and for Core Funding:
 - The **Unit for Core Funding** provides core research funding for public universities;
 - Allocations of funding will consider doctoral training (number of PhDs), publications and external funding as key performance indicators
 - The collection of management and performance data (staff, publications, grants, doctoral students, funding), requiring a high level, integrated MIS (VBN, VPN) across the sector
 - The **Unit for Independent Research** provides research grants on the basis of a competitive Call for applications in all fields that are based on the researchers' own initiatives, subject to a high quality objective assessment of applications, including international assessment
 - To support independent research based on the researchers' own ideas, within and across all main fields of science, the Independent Research Unit of NARI will have five research councils (see Appendix 1), offering funding for respective disciplines on a competitive basis

- The **Unit for Strategic Research** funds strategic research on the basis of a competitive Call for applications in the fields specified by MERI, subject to a high quality assessment of applications, including international assessment
- Private universities may apply for competitive-based ‘independent’ and ‘Strategic’ research funding
- NARI will provide a separate budget for investment in high-cost equipment on a competitive basis for public universities

Figure 3: Proposed funding structure of HE sector



➤ Key HE sector stakeholders:

- **Other ministries** may initiate research projects, allocating earmarked research funding to the Strategic Research Unit of NARI;
 - In consultation with NARI other ministries may publish Calls for research applications, and establish relevant and equitable eligibility and evaluation criteria. The evaluation/assessment of other Ministry

applications will be conducted in close consultation and cooperation with the NARI

- **Private sector organizations** may initiate research projects directly with universities
- Establish **Universities Moldova** (UNIMD) as a not-for-profit organization brings together the universities aiming to:
 - Advocate the best possible environment for Universities to carry out their mission of: research, learning and teaching, and knowledge dissemination with politicians, ministries and other key stakeholders
 - Enhance their cooperation, visibility and impact
 - UNIMD will have an effective secretariat that will facilitate public hearings and inform the Rectors' council and Chairmen's council inter alia on issues related to university autonomy, government-university relationships, university-business relationships, and university internationalization
 - UNIMD will be financed on the basis of subscription paid by the member universities
- **National Student Union:** an effective and active involvement of students in the fulfilment of university mission is key to the success of HE sector
 - It will be financed by the Student Unions of universities

6. UNIVERSITY RATIONALIZATION

6.1 Rationalization principles

The process of rationalization and institutional mergers is based on the following principles/needs:

- That it should produce a dynamic restructured higher education sector which will be committed to a more effective, efficient, productive, quality driven use of all the current resources in the sector
- That the total resource allocated to higher education should be maintained and increased on an annual basis at least in line with other public budgets and as circumstances in the economy permit at a higher level in recognition of the fundamental role of higher education in economic growth and development
- That the process of rationalisation and merger should be based on the principle of safeguards for individuals – recognising that the natural wastage occurring in the system will provide opportunities for restructuring.
- That research institutes transferred from the Academy of Sciences of Moldova and integrated in universities will be strengthened in the process and play a key role in the transformation of the universities' research base
- That any capital funds which may be realised through the sale of buildings, land or other assets will be retained by the sector for investment which may including buildings, infrastructure, facilities and staff
- That there is a need to strengthen the university profiles and mission (student-centred, research-based learning/teaching, research and knowledge transfer)
- That there is a need to establish strong regional universities which will be major direct contributors to the economy and will work with public and private employers in the development of the regional economy
- That there is a need to establish strong competitive, viable sized universities comparable in size to peers in other European countries (benchmarked size: 10,000-15,000 students);
- That subject areas should be strengthened by increasing their range and depth and thus offering students a wider choice of modules
- That there should be Increased opportunities for interdisciplinary and multi-disciplinary programmes

- That wasteful duplication (duplication of subjects - non-sustainable in small economy) should be reduced
- That a critical mass is essential for high quality doctoral programs (larger integrated institutions can offer better facilities and training and critical mass for doctoral school education)
- That research-based learning and teaching should be integrated in all cycles
- That inefficient use of public funding, which has resulted in low quality teaching, ineffective low quality research, ineffective utilization of facilities/buildings; small HEIs with a high ratio of management costs to student numbers, should be eliminated
- That efficiency savings should be used to improve and develop, effective, adequate services to students
- That failure to reform, modernize and to grant universities real autonomy will compromise the implementation of the Bologna process and application for EU membership

6.2 Rationalized number of universities

Based on the principles above, and the benchmark data (see e.g., WP3 and Appendix 2), it is recommended that there should be 7 (6 + 1) universities in Moldova: 3 regional universities and 4 universities in Chisinau:

- *Regional universities:*
 - Balti State University (BSU)
 - Cahul State University (CSU)
 - Tiraspol State University (TSU) [for political reasons, TSU is not considered in this report as part of rationalization process of]
- *Universities in Chisinau:*
 - University of Economic and Business Studies (UEBS)
 - Medical University of Moldova (MUM)
 - State University of Moldova (SUM)
 - Technical University of Moldova (TUM)

Why 2 + 1 regional universities:

- Effective regional development needs dynamic, relevant, effective universities of sufficient scale to make an economic impact and with a sufficiently wide subject spread to cater for the needs of the region
- Universities of significant size which themselves will be major players in the regional economy will be in a position to influence and collaborate with regional stakeholders to boost economic and social development
- An aspect of the wider European agenda is to strengthen and boost regional development, in which universities play a key role
- In the Moldovan context, this means having a strong, viable university in the North, South, and East, namely BSU, CSU, and TSU

Why these 4 universities:

- Specialized universities
 - TUM and MSU
- Focus on social and business/economic studies
 - UEBS
- Comprehensive university (broad generalist university), offering basic sciences, humanities, pedagogical science
 - SUM

6.3 Rationalization and integration process: A road map

A road map is presented in Appendix 3. It identifies key activities, milestones as well as key outputs in relation to the rationalization, integration and modernization processes. It is divided into 3 major periods:

- Period 1: Preparing rationalization process
- Period 2: Implementing rationalization process
- Period 3: Integrating and modernising process

Period 1: The aim of period 1 – max 9 months – is to prepare legal and regulative ground to commence major restructuring and rationalization of Higher Education sector. The new structure of the sector, new funding principles, including teaching and research funding formulae, the rationalization and integrating and modernising processes will be part of a new, higher education restructuring law.

The urgency of the situation (see section 2) dictates that the rationalization process should commence within a short time frame – 9 months, during which inter alia the necessary legal framework to support the rationalization process will be developed and approved.

To support and facilitate the process, the Rectors' Council and Chairmen's Council should immediately establish:

- a small working group with appropriate administrative and clerical support to facilitate the process and the project management and report on the progress to the Minister on a monthly basis, and
- two small working groups to identify Management Information Systems student/teaching and learning/FTE data and research data (e.g., publications, research grants, number of PhDs and respective performance), and implement an integrated Management Information System/Virtual Business Network system across the sector.

By the end of this period (max 9 months), the following *key outputs* are envisaged:

- New HE sector restructuring and rationalization law is published in 'Monitorul Oficial'
- HE funding formulae (for research and teaching) is approved
- Division for Higher Education is up and running
- NARI is up and running
- NAAQA is up and running
- Universities Moldova is up and running
- Governance and management are clearly separated
- Academy of Science of Moldova is disestablished

Period 2: The aim of period 2 – max 12 months – is to commence, implement and finalize the rationalization process. 20 public universities and 15 public research institutes of Academy of Science of Moldova will be subject of the rationalization process following the rationalization principles identified in section 6.1 above.

Ministry of Finance will allocate funding to MERI to facilitate and support the process of rationalization and integration. Funds from the sale of assets will go to newly merged universities to support their integration and modernisation.

These public institutions concerned: 20 public universities and 15 research institutes of Academy of Science of Moldova should be invited to negotiate and agree integrated mergers within 10, maximum 12 months. If the institutions do not agree the Minister of Education will impose a new merger and structure plan

If there is an evident lack of progress or unwillingness to engage in meaningful negotiation the Minister should intervene at an earlier stage than envisaged above.

It is expected that by the end of this period (max 12 months), the following *key outputs* are envisaged:

- Mapping is finalized leading to the formation of 6 universities
- Data needs for teaching are formalized

- Software integrating all sector teaching data is purchased (through a public tender)
- Data needs for research are formalized
- Software (VBN) integrating all sector research data is purchased (through a public tender)
- Accreditation criteria and procedures are established
- Quality assurance criteria and procedures are established

Period 3: Following the rationalization process, there will be an integration process of 2 years (max 3 years), during which the organizational and operational structures of the newly formed universities will be established. Further rationalization may take place as necessary.

In parallel the newly formed universities will undertake a comprehensive review of study programs in all cycles "to promote **student-centred learning based on learning outcomes** , characterised by innovative methods of teaching that involve students as active participants in their own learning in a supportive and inspiring working and learning environment" (Bucharest Communique)

It is expected that by the end of this period (max 24 months), the following key outputs are envisaged:

- New internal structures are established
- Study programs are modernized
- Doctoral schools are established
- Internal quality assurance criteria/procedures are established
- MIS for teaching are installed, integrated, and operational
- VBN for research are installed, integrated, and operational

6.4 Rationalization mapping: An example

As of 2015, there are 20 universities and 15 research institutes of Academy of Science of Moldova (ASM). These 35 public institutions will be subject of the rationalization process following the rationalization principles identified in section 6.1 above.

The Academy of Science of Moldova will be disestablished and its research institutes (15) allocated to appropriate universities.

Appendix 4 provides an example of mapping, of how the merger – rationalization process might operate, but it should be understood as an example which will be subject to development in the period of negotiation between the institutions. We reiterate that the process must be instituted immediately.

7. UNIVERSITIES POWERS AND RESPONSIBILITIES

Following the principle of clear demarcation between state regulation and institutional university autonomy, universities will be responsible for:

- Fulfilling the requirements of MERI
- Establishing effective internal organizational and management structures and keeping these under review to ensure that they remain fit for purpose
- The admission of students
- Once an institution has been formally accredited by the National Agency for Accreditation and Quality Assurance, it shall establish degree programs in all three cycles (short cycle/Bachelor, Master and Doctoral), which are student centred, based on learning outcomes and develop competences for employability .
- Such degree programmes and other qualifications shall be subject to rigorous quality assurance procedures established by the institution and formal approval by a designated university committee but shall not be subject to any further external scrutiny or approval
- Establishing and publishing a policy and procedures for quality assurance, enhancement and periodic review of programmes of study in conformity with National and European Guidelines
- Developing, encouraging, promoting a variety of modes of study including distance and blended learning, part- time study, work based learning, continuous professional development and other forms of life- long learning
- Recognition of prior formal and informal learning and experience
- Effective student involvement in management structures and decision-making including the curriculum and teaching/learning process
- The appointment, review and evaluation of academic and non-academic staff
- Establishing titles, levels, career path, including procedures for tenure, and conditions of appointment including remuneration subject to national legal requirements for all staff (academic and technical)
- Deciding on the normal workload distribution between teaching-learning and research/knowledge transfer
- Establishing effective staff development and training programs
- Quality Assurance and Enhancement of all University procedures and work

- International relations: partnership and other cooperation agreements, mobility (staff/students), joint programs in all cycles, joint research, consortia/networks, international students, branch creation
- Effective liaison with business and industry: internships, work-based learning, consultancy, knowledge transfer, R&D, funded research, industrial PhDs, long life learning, consultation on curriculum
- Supporting regional economic and social development
- The promotion of research (applied and fundamental), innovation and knowledge transfer
- Developing an effective research strategy and encouraging and supporting staff to undertake research
- Promoting knowledge transfer, the development of innovation hubs, science parks, spin-off companies and appropriate entities to support the university mission
- The allocation of funds to its subdivisions on a transparent basis, based on processes and methods arising from the strategy and policy, which apply in each university.
- Diversifying income generation from sources in addition to public funding (e.g., tuition fees, R&D contracts with businesses, European project and research funding, training, entrepreneurial activities, spin-offs, renting, interest rates)
- Establishing tuition fees for certain categories of students and programs: foreign students, students wishing to obtain a second degree, MBA, joint programs
- Managing university financial accounts, as well as accumulating an operating surplus
- The Government will transfer the land and real estate to universities
- Universities will have the power to purchase property, and to sell real estate/assets with the consent of the Ministry
- Universities will have the power to invest revenue from the sale of real estate for the development of the university
- Subject to the approval of the Minister (the Division for Higher Education) to borrow money to facilitate the development process, in accordance with the university's mission and purpose
- If applicable, select an international Quality Assurance Agency listed in the European Quality Assurance Register for Higher Education to undertake an external audit.

8. ORGANIZATIONAL AUTONOMY

Implementing the principle of a clear separation between university governance and management the University will establish an effective organizational and management structures, which will include a university governing body and the appointment of the Rector.

The University will keep the organisational and management structures under review to ensure that they remain fit for purpose.

University governing body (University Board):

- Composition 9 -15 members internal and external (majority external)
- Chaired by an external member
- Rector member ex officio
- Clear terms of reference
- Subject to external periodic review
- Code of practice and training for members
- Period – 4 years (members could be re-elected for second term of 4 years)[
- The process should ensure a rotation of membership to ensure continuity, i.e., this would mean that normally 25% of the members would retire each year

University Board (governing body) is unambiguously and collectively

- Responsible for overseeing the university's activities and will ensure that the responsibilities and powers outlined above are exercised in accordance with the contract with the Division of Higher Education and Core Research Funding Unit and to fulfil the mission of the university
- It will establish a code of practice and ethics for its members
- It will establish a medium term – four year strategic plan and monitor the delivery of the plan
- It will establish a system for risk management and control which will include the prevention and detection of all forms of corruption and action which undermine the integrity of the university

- It will ensure that there is an effective annual external audit of the university accounts
- It will ensure that the university has established procedures to ensure the quality of learning and teaching, research and knowledge transfer
- It will establish appropriate performance indicators for all aspects of the university work
- It will monitor performance and value for money

University Board is responsible to MERI for the sound performance, financial management, and operation of the university and for ensuring that the terms of the contract with the Division for higher Education are fulfilled

- It will provide an annual financial report in the form and at the time specified by the Higher Education Division
- It will provide annual data reports and management information in the form and at the time specified by the Higher Education Division
- It will present its strategic plan to the Division of Higher Education
- It will present the annual report of the external auditors to the Division for Higher Education after it has been reviewed by the Governing Body
- It will report to the Division for Higher Education any cases of fraud or corruption that are detected with a statement of the action to be taken
- On a three (four) year cycle, it will provide a comprehensive review report to the Division of Higher Education on the achievements of the university with particular reference to the strategic plan
- It will ensure that the university complies with all agreed audit and financial reporting
- It will ensure that the university estate is developed, enhanced and maintained for the benefit of the whole university community

Appointment of the rector:

- Rector is the Chief Executive appointed in open competition by the University Board
- Fixed term appointment - five years term renewable for a further three years term (maximum 2 terms eight years per HEI)

- Clear job description and performance criteria
- The Rector is responsible to, reports to and is evaluated by the University Board

Rector is responsible to University Board for:

- Establishing the internal management and academic structures agreed by the Governing Body
- The overall leadership and management of the university
- The implementation of the strategic plan throughout the university
- Ensuring the development and sustainability of the academic, organizational, financial and human resource autonomy of the university
- The management of all the university resources
- The development and public presentation of the university and all aspects of its work
- Representing the university and promoting its interests nationally and internationally
- Establishing and leading a high quality, performance driven, senior management team
- Ensuring that the Governing Body is provided with detailed accurate timely data on university performance in all areas of its work
- Providing an annual performance report
- Developing effective communication and integration of students and staff in the work of the university
- Diversifying the sources of income and generating an operational surplus
- Appropriate delegation of responsibilities and authority
- Leading the preparation of the University strategic plan for submission to and approval by the Governing Body

9. FINANCIAL AUTONOMY

Following the basic principles of HE sector as well as universities powers and responsibilities (for more details see sections 3 and 6), funding of HE shall be transparent and published based on formulae that are based on inputs and outputs.

9.1 Funding higher education

Higher Education Division will implement the following performance- and outputs-based formula (1) for funding learning and teaching (higher education):

$$T_{i,t} = \sum_{j=1}^6 (Nsf_j \times k_1 + \frac{C_j}{60} \times k_2) \times P_j, \quad j = 1, \dots, 6 \quad (1)$$

Where $T_{i,t}$ teaching and learning budget for HEI 'i' in year 't'

j number of study domains (see Table 1)

k_1 price ratio as a function of number of physical students

k_2 price ratio as a function of number of FTE (3),

$$k_1 + k_2 = 1 \quad (2)$$

C_j total number of ECTS accumulated at HEI 'i' in the domain 'j'

60 number of ECTS needed to be accumulated per year

$$FTE_j = \frac{C_j}{60} \quad (3)$$

Nsf_j number of physical students per domain 'j' in HEI 'i'

$$Nsf_j = Nlf_j + 0.5 \times Nlfpt_j + 1.25 \times Nm_j \quad (4)$$

Where Nlf_j number of full time students of cycle 1 in domain j

$Nlfpt_j$ number of part time students in cycle 1 in domain j

Nm_j number of full time students of cycle 2 in domain j.

0.5 & 1.25 benchmarked coefficients and shall be adjusted based on new (after rationalization), actual historical data

P_j price per Nsf student per domain j

Table 1: Draft configuration of study domains

Domain	Composition	Adjustment Coefficient*
Domain 1	humanities, social sciences, business and economics, law, services (hotel), educational/pedagogical sciences	1
Domain 2	natural sciences, computer science and mathematics, astronomy, physics, chemistry, mathematics, molecular biology, biochemistry and -physics, biology, geology, software development, as well as the natural science aspects of geography	1.65
Domain 3	Engineering, ICT (excluding software development), manufacturing technologies, agriculture, pharmacy, sport	1.75
Domain 4	Medical sciences, architecture and design, and construction	2.5
Domain 5	Art, musicology (excluding opera singing), dramaturgy	3.0
Domain 6	Theatrical arts, opera singing, visual arts	6.0

* These are benchmarked adjustment coefficients and could be adjusted based on newly emerging historical data

9.2 Funding research and innovation

The Funding Unit within ARI will implement the following performance based formula (5) for funding research and innovations in state universities:

$$Rit = Fc + Fb \quad (5)$$

Where: Fc - competitive funding and Fb - basic, core funding, aimed to cover inter alia salary for technical staff in labs, equipment maintenance, supplies and services procurements

Funding Unit within ARI will provide 80% for base funding and allocate up to 20% of the research budget on a competitive basis based on the following performance criteria:

- Publications
- External research grants
- Number of PhD students

State and private universities may apply for research and innovation funding on a competitive basis to the Independent Research and Strategic Research units.

10. ACADEMIC AUTONOMY

In conformity with the basic principles of the HE sector and the powers and responsibilities of Universities defined above (for more details see sections 3 and 6) University Academic Autonomy:

- Will grant – subject to formal accreditation - the power to award degrees in all cycles, (short cycle/Bachelor cycle, Master and Doctoral), which are student-centred, based on learning outcomes and develop competences for employability, established by universities in line with Quality Assurance and Enhancement guidelines set by NAAQA
- Will grant the power to manage the Admission of students
- Will grant the power to regulate Academic work-load between (i) learning and teaching and (ii) research and knowledge transfer to support the mission of university
- Will establish internal quality assurance of teaching and learning, and research and knowledge transfer

10.1 National credit and qualifications framework

The proposed national credit and qualifications framework is presented in Table 2 and explained below:

- **‘Short cycle’ qualification:** higher education study programs lasting 1-2 years/60-120 ECTS. The learning outcomes correspond to the qualification level 5 of EQF and ISCED-2011.
- **Bachelor degree:** a first cycle degree should be an acceptable and normal exit qualification equipping graduates for the labour market. It may be 180-240 ECTS (3-4 years of full-time education), depending on the general field of study. Studies are finalized with the granting of the bachelor’s degree diploma and title in the scientific field defined in the program. Programs correspond to the qualification level 6 of EQF and ISCED-2011 (see also EHEA QF and the Dublin descriptors).
Graduates may also be awarded a certificate of practical training.
- **Master degree:** these study programs may be 90-120 ECTS. The total credits for study programs in cycles I and II will not normally be less than 300 ECTS. The programs correspond to the qualification level 7 of the EQF and ISCED-2011, containing elements of scientific research (see also EHEA QF and the Dublin descriptors).
- **Doctoral degree:** these study programs correspond to cycle III of higher education, corresponding to the qualification level 8 of EQF and ISCED-2011. The duration of studies is normally three years- 180 ECTS.

- **Integrated study programs** are provided by universities in fields regulated at European level (medicine, veterinary medicine, architecture), normally these will amount to at least 300 ECTS, and are finalized with the granting of the diploma and title equivalent to the master's degree.

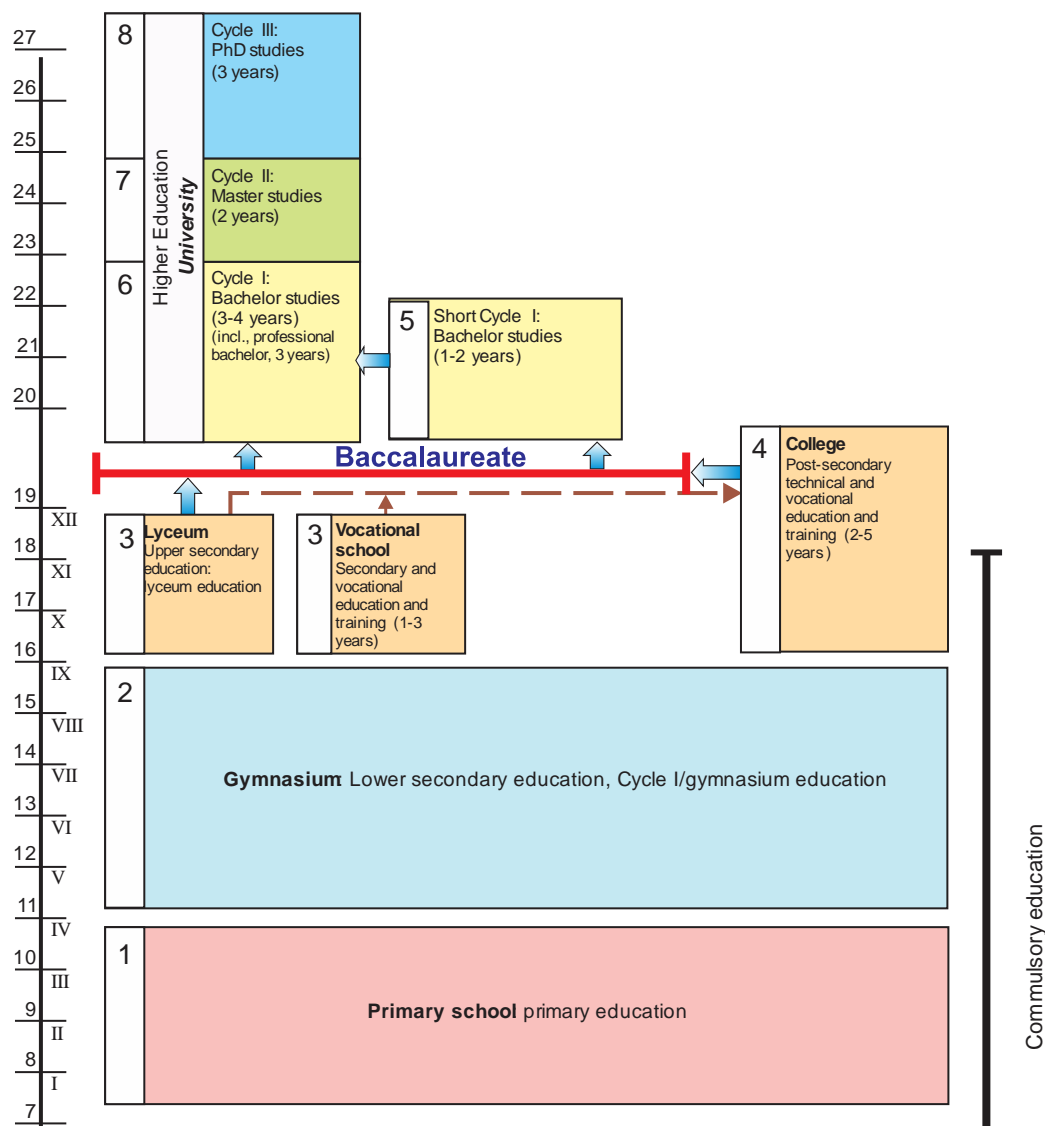
Table 2: National credit and qualifications framework

Studies	ISCED- 2011, EQF NQF OF RM Qualification level	Institution offering the programme	EHEAQF (Bologna)	Duration in ECTS	Education document, title offered
Primary education	1	Primary school			Certificate
Lower secondary education, cycle I	2	Gymnasium			Certificate of gymnasium studies, Certificate of profession
Upper secondary education, cycle II (lyceum education) or secondary technical and vocational education and training (2-3 years)	3	Lyceum, vocational school			Baccalaureate diploma; Certificate of vocational secondary education
Non-tertiary post-secondary technical and vocational education and training	4	Colleges			Diploma of vocational secondary education
Higher education „short cycle“	5	Universities	Short cycle	120	Short cycle
Bachelor's studies	6	Universities	Cycle I	180 -240	Bachelor's degree
Master's studies	7	Universities	Cycle II	90-120	Master's degree
Doctoral studies	8	Universities	Cycle III	180	Doctoral (PhD) degree

The General Qualifications Framework of the Republic of Moldova will be changed with regard to qualification levels 3, 4 and 5 and brought in line with the European Qualifications Framework and ISCED 2011.

Figure 4: Access to different levels of education

Age/Grades



10.2 Education level progression and exits

The education levels 1, 2, and 3 are obtained through primary, gymnasium, and lyceum education or secondary technical and vocational education and training (vocational school). In college the duration of studies is 4 -5 years after gymnasium or up to 2 years after lyceum or vocational school of 3 years. Baccalaureate examinations can be also passed in the college. Studies are finalized with a diploma of qualification of vocational secondary education, corresponding to the qualification level 4 of ISCED-2011.

Holders of Baccalaureate diplomas or other equivalent documents have access to higher education (short cycle, bachelor's degree degree).

Candidates may apply to several study programs simultaneously in several universities.

- One of the requirements for admission to doctoral programs will be the advanced knowledge of English.
- The Nomenclature of doctoral training areas will be brought in line with the classifier ISCED-F-2013 and the approved Nomenclature for bachelor's and master's degree studies.

11. HR AUTONOMY

Following the basic principles of HE sector as well as universities powers and responsibilities (for more details see sections 3 and 6), public universities are free to:

- Appoint, review and evaluate academic and non-academic staff
- Establish titles, levels, career path, including criteria for tenure, and conditions of appointment, including remuneration subject to national legal requirements for all staff (academic and technical)
- Establish effective staff development and training programs

Appendix 1: Independent research councils

Council	Disciplines
Humanities	Art history, architecture and design, media science, musicology, ICT in the humanities, comparative literature, dramaturgy, philology, linguistics, communication research,, anthropology, ethnology, archaeology, history, philosophy, history of ideas and science, theology, comparative religion, educational theory, psychology and other related research disciplines within the humanities, such as library research, museology, as well as humanistic research within sports science, public health, urban and physical planning.
Social Sciences	Economics, sociology, political science and legal theory, as well as the societal aspects of various interdisciplinary subjects (e.g. communication studies, development studies, gender studies and cultural geography).
Natural Sciences	Natural sciences, computer science and mathematics, with an epistemological, but not necessarily an applied scientific objective; astronomy, physics, chemistry, mathematics, computer science, molecular biology, biochemistry and -physics, biology, geology as well as the natural science aspects of geography.
Medical Sciences	Basic, translational, clinical and socio-medical research in relation to human health and disease
Technology and Production Sciences	Basic research within technology and production sciences which is: a) motivated by a specific problem or having a clear application-oriented perspective; and b) aimed at solving a specific problem, developing new technologies and production systems or new ways of meeting the needs of society. Epistemological research without any application oriented perspectives and development activities will not be supported by TPS.

Source: Danish Council for Independent Research (<http://goo.gl/zEhQ8d>)

Appendix 2: Case study of rationalization of HE in Denmark

- In 2002, the new law on universities is approved in Denmark. One of its main features was the introduction of Governing Boards to enhance accountability, check and balance, and efficiency.
 - It was recommended the formation of a Chairmen's Council; Anders Knutsen, Chairman of Copenhagen Business School, being elected as the first Chairman of Chairmen's Council. The Chairman of Chairmen's Council will meet the Minister once a month, and once a quarter with the Chairman of Rectors' Council to discuss inter alia the implementation of legislation, financing of HEIs, and study program implementation.
 - In addition to the audit conducted by the state, the newly formed boards asked for independent, private audit of university accounts. The latter allowed identifying a number of inefficiencies in organizational and financial management.
 - A number of board formation principles were institutionalized: majority of members shall be external; the composition of board members (external) should reflect the Danish society, not only business, but also public (central and local) administration, public institutions and governmental structures, renowned international scholars, business persons or public figures from other countries; students, academic and technical staff shall be also members of the boards, respecting the gender principle.
 - As of 2002, rectors will have max 2 terms with same university (irrespective of future changes in legislation); first term of 5 years; second term of 3 years (before 2002, rectors and deans were appointed for unlimited terms).
- In early 2000s, a Globalization Council was formed aimed to address globalization and internationalization pressures/challenges, and identify possible responses to these challenges. This council met with the Prime Minister once a month. One of the outputs of this research/consultation process was that Danish universities need to become more efficient, competitive, and better reflect the needs of business and society at large.
- Following that emergent need to reform/rationalize the higher education sector, in January 2006, the Minister of Higher Education wrote letters to 11 universities and 15 research institutes/centers, asking them to discuss/examine the possibility of merger. Chairmen's and Rectors' councils, as well as academic and technical representatives of universities took part in discussions/rationalization process. The negotiation and rationalization process took place without an external negotiator. Universities were given 12 months to merge; after this period the Ministry would

step to finalize the process for universities/research institutes (this did not happen as the merger/rationalization process was finalized voluntarily in time).

- The first merger took place between University of Pharmacy, University of Agriculture and University of Copenhagen. University of Pharmacy and University of Agriculture were disestablished and joined University of Copenhagen that strengthened its position as a classical university. Some of the rectors of absorbed universities have become deans of faculties.
- Regional universities such as University of Southern Denmark (Odense) and Aalborg University (Aalborg) stayed. A number of research institutes and a research center from Danish Technical University wanted to join Aalborg University (AAU) – located in the Northern part of Denmark – which led to the creation of a large campus of AAU in Copenhagen.
- There was an instance when a university remained unchanged as no perfect merger match was found.
- The Minister suggested that the Pedagogical University (in Copenhagen) mergers with the Copenhagen Business School (CBS); but the Pedagogical University decided to merge with Aarhus University (located app. 200 km north-west of Copenhagen).
- CBS proposed a merger with the IT University or the Aarhus Business School, but the two turned the proposal down. The Minister would prefer a merger between CBS and the University of Copenhagen, but CBS turned that down and in the end stayed independent. So did the IT University; the Aarhus Business School merged with Aarhus University.
- As a result of rationalization/merger process, 8 universities were formed.
- Out of 15 research institutes, 2 stayed independent and the rest joined the newly formed/rationalized 8 universities.
- The rationalization/merger process was finalized in 12 months.
- It went without any bad publicity; Students and labor unions had no objections to the merger/rationalization process, because neither employees (there were no dismissals) nor students were affected, it had only a positive effect.
- The integration process within the merged universities took app3 years.
- In the process of rationalization, state funding was not reduced; in fact constantly increased, including additional 1% of GDP for research.

Key rationale for merger/rationalization:

- Danish universities were becoming less competitive internationally and globally, being constantly ranked low in international standings;
- Inefficient, scattered use of public funding (higher education is publicly funded)
- Lack of synergy in research and low level of research impact
- Growing gap between university and real, business/society world
- No attractive to international scholars (for many reasons explained above)

Appendix 4: Rationalization mapping: An example

	Academy of Economic Studies	Moldova State University	State University of Medicine and Pharmacy	Technical University of Moldova	Balti State University	Cahul State University
1. Academy of Economic Studies	Specialization in Business and Economics	Law		Cybernetics and Computer Science		
2. Moldova State University	International Relations, Political and Administrative Sciences Economics	Specialization in Pedagogy, Education Sciences, Law, Journalism, Art		Computer Science		
3. State University of Medicine and Pharmacy "N. Testemitanu"			Specialization in Medicine			
4. Technical University of Moldova	Economics			Specialization in Technology and Engineering		
5. Balti State University					Regional University	
6. Cahul State University						Regional University
7. Agrarian State University of Moldova	Economics Accountancy	Law	Veterinary medicine	Technology Auto/Transport Cadaster		
8. Institute of International Relations of Moldova	1. International Relations, Political Sciences 2. World Economy and International Economic Relations	1. Law 2. Foreign languages				
9. University of Academy of Sciences of Moldova		1. Natural Sciences 2. Exact Sciences 3. Socio-humanities		Computer Science		

	Academy of Economic Studies	Moldova State University	State University of Medicine and Pharmacy	Technical University of Moldova	Balti State University	Cahul State University
		Sciences				
10. State University of Physical Education and Sports			Kinetotherapy	Protection, Safety and Security	Pedagogy	Sport (Pedagogy)
11. Academy of Music, Theatre and Fine Arts		Instrumental art, composition and musicology Vocal art, directing and music pedagogy Theatre, film and dance Plastic arts				
12. State University of Comrat						Subsidiary of Cahul State University
13. State University of Taraclia						Subsidiary of Cahul State University
14. State University of Tiraspol (based in Chisinau)		Physics Mathematics Biology and Chemistry Geography		Information Technologies	Pedagogy Philology	
15. State Pedagogical University "I. Creanga"		Plastic Arts and Design Exact Sciences History and Geography Psychology and Special Psychopedagogy		Information Technologies	Pedagogy Foreign Languages and Literatures Philology	
16. Institute of Continuing Education	Economics Business	Foreign Languages Law Psychology		Information Technologies		Economics Business
17. Institute of Education Sciences		Mathematics and Sciences Psychopedagogy and Education Management			Preschool Education and Primary Education Language and Communication	Preschool Education and Primary Education (Social, Artistic and Technological)

	Academy of Economic Studies	Moldova State University	State University of Medicine and Pharmacy	Technical University of Moldova	Balti State University	Cahul State University
					Social, Artistic and Technological Education Psychopedagogy and Education	Education Psychopedagogy and Education)
18. Academy "Stefan cel Mare" of the Ministry of Internal Affairs		Criminal Sciences Special Investigation Police and Society Legal Sciences			Sport: Physical Training and (Special) Tactics	
19. Military Academy of Armed Forces "Alexandru cel Bun" If these relates to technology (education), they could be placed at TUM: Infantry Artillery Transmissions Border Guard Carabineers (alternatively – in regional universities)						
20. Academy of Public Administration	Management International relations ICT Management in public administration	Constitutional law Public administration law Anticorruption Public administration			Public administration	
21. Research institutes of the Academy of Sciences	National Institute of Economic Research	Central Scientific Library „A Lupan" Legal and Political	Institute of Physiology and Sanocreatology Microbiology and	1. Institute of Power Engineering 2. Institute of		

	Academy of Economic Studies	Moldova State University	State University of Medicine and Pharmacy	Technical University of Moldova	Balti State University	Cahul State University
of Moldova		Research Institute Institute of Chemistry Institute of Ecology and Geography Institute of Philology Institute of Applied Physics Institute of Geology and Seismology Institute of History Institute of Mathematics and Computer Science Institute of Cultural Heritage Institute Botanical Garden Institute of Genetics, Physiology and Plant Protection Institute of Zoology	Biotechnology	Mathematics and Computer Science (Informatics) 3. Institute of Electronic Engineering and Nanotechnologies		