

INFORMATION SESSION ON RESEARCH
INFRASTRUCTURES IN THE DANUBE MACRO-REGION
DIMITRIE CANTEMIR STATE UNIVERSITY, MOLDOVA
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Current country challenges of Moldova with regard to RI developments

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Current state of play of research in Moldova*

Main governing and policy body – Ministry of education, culture and research (until 2018 was Academy of Sciences of Moldova)

Main executive body – National Agency for Research and Development (since 2018)

Main evaluation body – National Agency for Evaluation of Quality in Education and Research

Performing bodies – Academy of Sciences of Moldova consisting of 80 members, around 12 public universities from existing 38, around 48 public research organisations + nongovernmental sector + business sector (no qualitative or quantitative data)

Number of projects – 457 (335 national, 55 bilateral, 67 international)

Human resources – 2912 (371 habilitate doctors, 1338 PhD's, 601 or 20,6% of all personnel are young researchers up to 35 years old)

Financing – 500 million lei (25 million euro) or 0.34% of GDP

Average salary of a researcher – around 6500 lei (300 euro)**

Publications – 8000 scientific papers (1280 national peer reviewed papers, 346 papers with impact factor, 926 international peer reviewed papers, 2688 communications at events)

Intellectual property – 116 patents (research community produces 61% of all IP and constitute 54% of all requests for new IP)

Efficiency – every researcher produces 2,7 papers or 0.88 peer-reviewed articles

* - publicly open information, mainly Academy of Sciences Report on the state of science in 2017

** - salary according to new law on unitary system of public sector (salary was raised from 4800 lei in 2017 to 6500 lei, while compensating the raise with a reconfiguration of publicly available positions)

Main stakeholders of RI

For policy development – Ministry of education, culture and research

For policy implementation – National Agency for Research and Development

For knowledge and expertise – Academy of Sciences of Moldova (Acad. Ion Tighineanu, president of the Academy is national representative in ESFRI and in H2020 ERI Configuration)

For execution – mainly public research organisations

PRO`s with extensive background in RI: Institute for the Development of Information Society, RENAM (connection to GEANT and European e-Infrastructure), Institute of Mathematics and Informatics, Technical University of Moldova, Medical University `N. Testemitanu`

Funding of R&D

Overall financing of R&D is low.

The panel would like to emphasize that the proposed reforms can only work in practice if they are accompanied by adequate funding to allow Moldova to make the most of its knowledge capacity, for sustainable economic growth. The panel proposes that **the country gradually increases its R&D intensity to reach the level of 2007 as quickly as possible from the current level 0,40%**, which is considered an absolute minimum. Although this increase is not seen as optimal and is far below the national target of 1% by 2020, it would be perceived as sending the right signal in terms of political commitment to the proposed reforms.

** Peer Review of the Moldovan Research and Innovation system. Horizon 2020 Policy Support Facility*

Funding of Research Infrastructures (RI)

Projects for procurement of equipment are granted since 2007. Purchased equipment is supposed to be used by several organisations. The amount allocated from the state budget for projects funded in this programme reached **€2m in the period 2007-2014** (these data are calculated by the author on the basis of decisions on the allocation of funds, as this type of projects is not indicated separately in the budgets and official reports). Researchers can propose in a bottom-up approach equipment for purchase to the ASM.*

**Background Report of the Peer Review of the Moldovan Research and Innovation system. Horizon 2020 Policy Support Facility*

Positive traits of Moldova R&D

- Moldova has led the Eastern Partnership in integration and deepening connection with the European Research Area – in 2012 Moldova associated to FP7 – in 2014 Moldova associated to H2020
- In 2014 Moldova concluded the Association Agreement with the EU and established a Deep and Comprehensive Free Trade Area (DCFTA). Visa free travel to the EU was agreed for Moldova citizens (great enabler for research mobility)
- Research community is dynamic, strive for internationalization and cooperation abroad has been on the rise since 2012 (great cooperation portfolio)
- R&D framework is flexible and decision impact can be traced and monitored with relative ease
- Moldova R&D system has succeeded in preserving a certain research capacity under very difficult conditions (ASM managed to play a relevant role in achieving an increase in R&I funding from 2004 onwards and in the Association of Moldova to FP7 and H2020)



Peer Review of the Moldovan Research and Innovation system. Horizon 2020 Policy Support Facility

The PSF expert panel arrived at seven Policy Messages, supported by twenty-four detailed recommendations presented in the report.

1. Embed Research and Innovation (R&I) policy in the overall economic policy strategy of the country.
2. Improve the governance of the national R&I system by strengthening the political responsibility for R&I with a dedicated Ministerial responsibility
3. Create an independent, transparent and accountable R&I implementation Agency
4. Redress the *binary* research and education system of Moldova
5. Safeguard the public R&I capacity of Moldova
6. Take resolute action to improve the employment and funding opportunities, working conditions and career perspectives of researchers
7. Urgently review the framework conditions for innovation by putting in place a coherent set of policy measures

Premises of RI in Moldova Strategy for Research and Development until 2020

The Moldovan R&D Strategy has the aim to create a stimulating environment for R&D and innovation activities in Moldova. It defines challenges for the period 2014-2020, based on a state of play and SWOT analysis. It includes a detailed Action Plan on measures for its implementation. Enacted by Government Decision Nr. 920 of 7th of November 2014

1. Governing the R&D sector based on a consensual model, and focused on performance and excellence
2. **Developing human, institutional and infrastructure capacities**
3. Defining and managing research priorities
4. Ensuring permanent dialogue between science and society, disseminating knowledge and implementation of the research results
5. Internationalizing research, ensuring integration in the European Research Area and enhancing international visibility.

Premises of RI in Moldova Strategy for Research and Development until 2020

(continuation)

Specific issues/ measures concern:

1. investing in young talent (increasing wages) and creating a well trained human capital according to international standards;
2. strengthening the collaboration between education and research by promoting joint projects at national and international level, and by organizing joint doctoral schools;
3. **making appropriate research infrastructure available and establishing national technology platforms in fields of major importance for economy and/or society;**
4. modernizing curricula and involving the private sector to this end;
5. using financial and tax incentives for stimulating R&D in the private sector.

Premises in National Strategy of integration of Moldova into the European Research Area (2019-2021)

Enacted by Government Decision Nr. 1081/2018

In order to achieve integration, 5 + 1 priorities were set and actions aimed at achieving lasting changes were made in order for the Republic of Moldova to achieve the level of performance and effectiveness of European research:

Priority 2: Optimal Transnational Cooperation and Competitiveness:

2a. planning and implementing transnational cooperation

2b. linking research infrastructure at European level

Financing of research and innovation activities out of the state budget will be managed by the National Agency for Research and Development, based on a competitive system through: research projects, projects for young researchers, bilateral and multilateral projects, **infrastructure projects including e-Infrastructures**), innovation and technology transfer projects, etc.

Code of science and innovation of Moldova

As modified by LP190 of 21.09.17

Article 25. Infrastructure of the research and innovation domain

All organizations contributing to the scientific and innovation activities: Academy of Sciences, other research and innovation organizations, financial institutions, funds and agencies, business incubators, parks innovation (scientific, technical-scientific and technological), enterprises and other specialized organizations.

Article 53. Objectives of the research and innovation activity are:

d) Infrastructure in the fields of research and innovation.

Article 57. Functions of public authorities in promoting research and innovation policy

j) developing research and innovation infrastructure;

Common access to RI in Moldovan Framework

Article 13. Institutional funding

(4) Access to public infrastructure of research and innovation is ensured to any scientific researcher and is used for the implementation of projects under national research and innovation mechanism established by this Code.

Article 59. Government responsibilities in Research and innovation

d) supports the establishment and optimization of infrastructure in research and innovation;

Article 61. Responsibilities of the National Agency for Research and Development

j) creates, maintains and grants broad public access to research, innovation and development databases, including national databases of national and international researchers participating in project evaluation, national databases with all the material components of public infrastructure in research and innovation fields and related specialized equipment;

Constraints and bottlenecks of Moldova R&D

- Limited knowledge and experience on RI (majority of expertise is concentrated at the Academy of Sciences. This experience needs to be used along with international assistance in order to enhance RI knowledge)
- Improve governance of Moldova R&D, especially regarding RI (Ministry is relatively new and National Agency has completed its roster recently. Both entities require support in RI management)
- Statistical data or measurements of science activities (especially in non-governmental and business sector), including RI, is compulsory moving forward. This data can be used for evidence-based policy-making and funding.
- Insufficient emphasis on RI development as well as correlation among policy statements and executive decisions is needed
- Relatively small scientific community, with low interest from youth (although youth constitutes 20% of all the community, incoming youth into the system is low, on the backdrop of brain drain and low admittance in higher education (bachelors, masters, doctoral programmes – connected to research)
- No clear priority to establish state of the art or new RI, majority of infrastructure is maintained and requires renewal (scientific-technical base as it is described by R&D framework need considerable improvement). Current research infrastructure does not match fully societal needs or envisioned needs of future times
- Insufficient overall financing of R&D, efficiency of funding use is a issue (70-75% of funding goes to ensuring salary payments, while just maintenance of RI is around 5-7%. Also correlation between institutional and competitive funding needs to be addressed) No incentives for R&D
- Lack of instruments for building and consolidating RI (specific calls for RI are lacking)

Positive developments of RI in Moldova (1)

Grants for consolidation of centers of excellence (research infrastructure)

The Ministry of education, culture and research launched the call for the connection of Centers of Excellence of Moldova to the European Research Infrastructure (ERI)

Call was launched in accordance with the provisions of Grant Agreement ENI 2017/ 386/980 of 23.08.2017

National entities must demonstrate connection to ESFRI of ETP type infrastructure; capacity to consolidate research teams; experience in FP7 and H2020.

Source: <https://mecc.gov.md/ro/content/apeluri-de-concursuri-2019>

Positive developments of RI in Moldova (2)

Promoting and implementing open science

The Horizon 2020 Policy Support Facility (PSF) gives Member States and Associated Countries the opportunity to request and take part in **mutual learning exercises (MLE)** addressing specific research and innovation policy challenges. The transition to **Open Science** represents such a policy challenge which is best tackled in close cooperation with all stakeholders and on an international scale.

Moldova is represented in Open Science MLE by dr. hab. Aurelia Hanganu, rector of USDC

Source: <https://rio.jrc.ec.europa.eu/en/policy-support-facility/mle-open-science-altmetrics-and-rewards>

Open Science in the Republic of Moldova



OPEN ACCESS

National R&D Strategy 2020



all national research journals
are in OA till 2017

Instrumental Bibliometric
Național



www.ibn.idsi.md

biggest national database
of research publications
in OA

JOURNALS registered in IBN

104
registered journals

65
accredited journals

16
journals in

DOAJ
DIRECTORY OF
OPEN ACCESS
JOURNALS

over
51000
articles
registered in IBN

✓ OA Week

- organised annually since 2009
- leader – *Electronic Resources for Moldova Consortium (REM Moldova)*

✓ OA policies

- adopted by 7 institutions (2012, ASEM)
- 8 OA policies included in [ROARMAP](#)

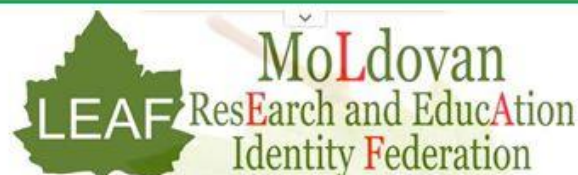
✓ Institutional Repositories

- established in 8 universities & 1 research organisation
- 7 repositories registered in [OpenDOAR](#)
- 8 repositories registered in [ROAR](#)



Coalition for **Open Educational Resources in Moldova**

established in 2016
(14 member-organisations)
<http://red.prodidactica.md>



<http://federations.renam.md/>

Source: <https://idsi.md/en/open-science-in-moldova>

Positive developments of RI in Moldova (3)

Implementation of Smart Specialisation with the Joint Research Centre

Under its Enlargement and Integration Action (E&IA), the JRC provides scientific and technical support to Horizon 2020 Associated Countries. Within this action S3 platform helps Moldova to identify economic competitive advantages and exploit the innovation potential, building on a process of entrepreneurial discovery for smart specialisation.

Since 2016 Moldova is S3 Platform's member.

Sources:

<http://s3platform.jrc.ec.europa.eu/moldova>

<http://s3platform.jrc.ec.europa.eu/regions/MD/tags/MD>

Positive developments of RI in Moldova (4)

Most of the challenges and opportunities arising from development and consolidation of research infrastructure are linked to integration into policy of RI and effective implementation of said policy.

Currently the Ministry of education, culture and research is developing the National Programme for Research and Innovation.

RI's must be included in the Programme as well as support for all the describe positive development linked to RI's (Open Science, future MLE and PSF participation, Smart Specialisation)

RESINFRA@DR could facilitate the initiation of a knowledge sharing exercise between Moldova (Ministry and National Agency) and Bosnia (Ministry) in drafting RI roadmaps.