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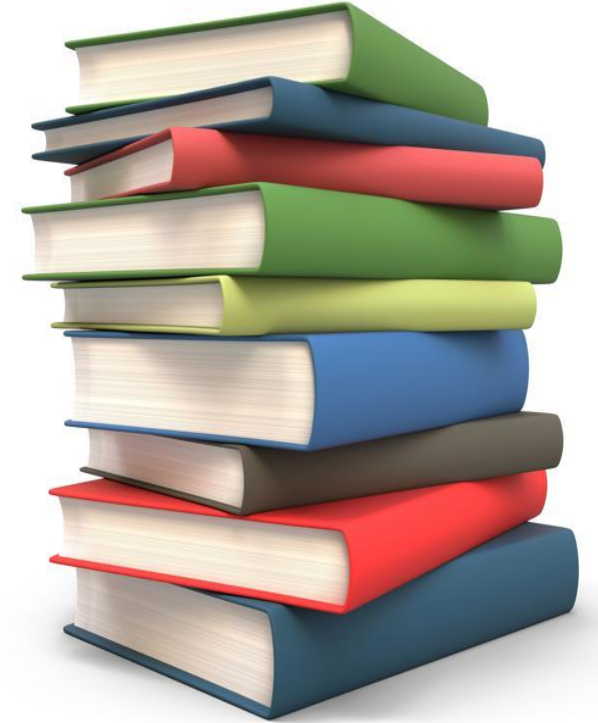
Creative Management of the Research Process – Paradigm for Knowledge Development

**The 16th International Conference on Management of Science and
Engineering Management**

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Creative Management of the Research Process – Paradigm for Knowledge Development

- The Research and Development Process Evolution: Governance and Reforms
- Research Development and Innovation for Education and Business
- The EU Framework Programs for Research and Innovation
- The Resource of Creativity for the Research and Development Processes Management
- Conclusions and Recommendations



Evolution of science in RM

1930: Faculty of the Agriculture Sciences

1933: University from Tiraspol

1946: State University of Moldova,
Medical and Pedagogical Universities

1946: Moldovan Branch of the Academy of Sciences of USSR

1961: Academy of Sciences, including a network of scientific institutes

1998: Law of R&D reform

2000: Law of Academy of Sciences

2004: Code of Science and Innovation

2017: Modification of CSI

2022: Absorption of the research institutions by the universities



R&D reforms in the Republic of Moldova

Reform 1 = 1998 – 2000

Reform 2 = 2004

Reform 3 = 2017

Reform 4 = 2022 (?)



Research institutions and universities, financial means from 1990 to 2016

R&D in 1990	R&D in 2004	R&D in 2009	R&D in 2016
Institutes and labs - 156	Institutes - 101	Institutes - 58	Institutes - 32
Universities - 8	Universities - 48	Universities - 36	Universities - 24
Financing – 1 mln rubles	Financing – 68 mln lei / 3.5 mln euro	Financing – 361 mln lei / 18 mln euro	Financing – 500 mln lei / 25 mln euro
Average salary - 400 rubles	Average salary – 500 MDL / 30 euro / PhD allowance 50 MDL (15 euro)	Average salary – 5000 MDL / 250 euro / PhD allowance 700 MDL (30 euro)	Average salary – 5500 MDL / 270 euro / PhD allowance 700 MDL (30 euro)
Source: Developed by the authors			

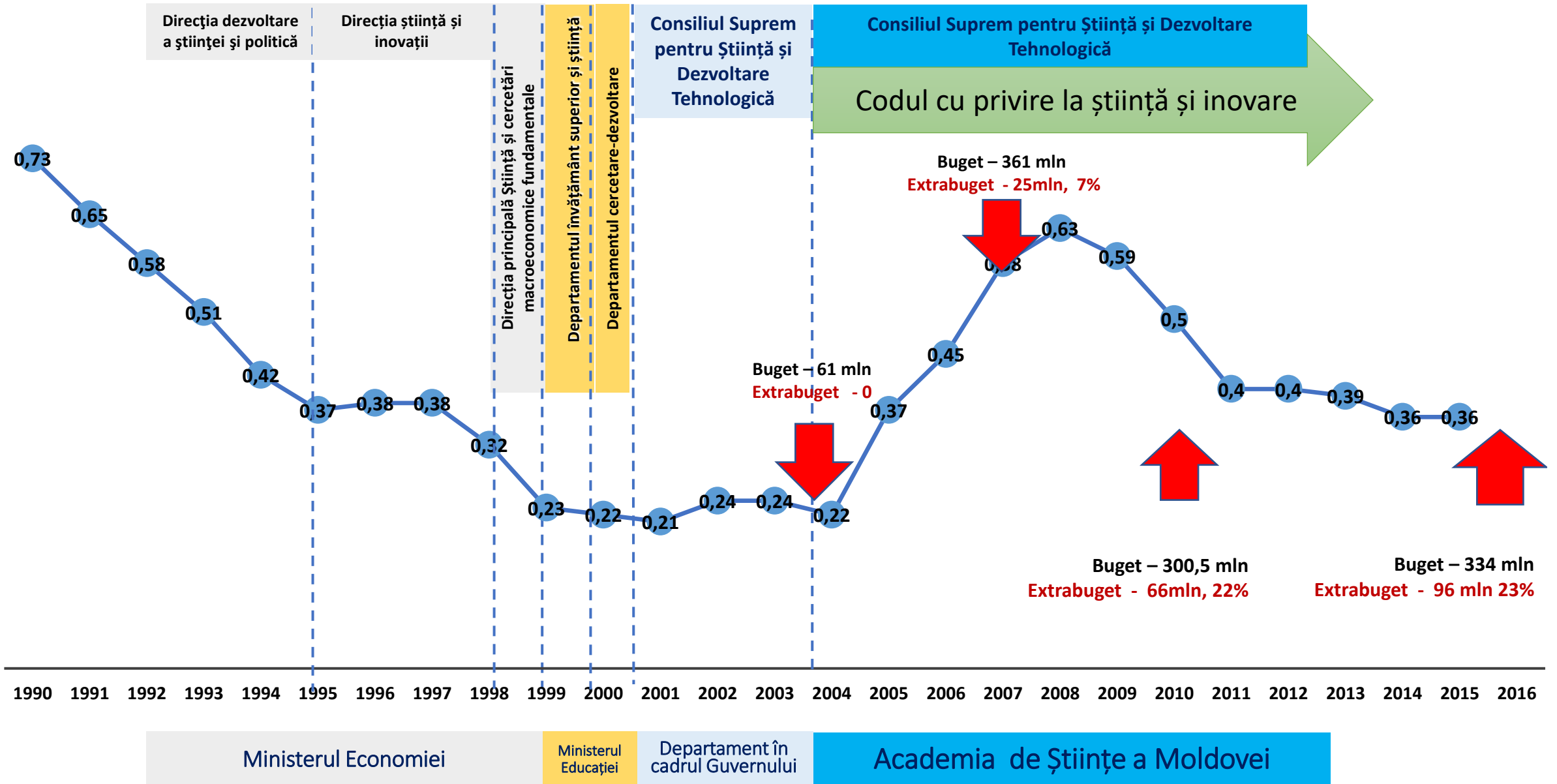
Research dynamics from 1990 to 2021

Indicator	1990	2016	2021
Researchers	33000	3222	2500
PhD	2260	1429	1100
Dr Habilitate	586	441	304
Research Institutions	101	38	32

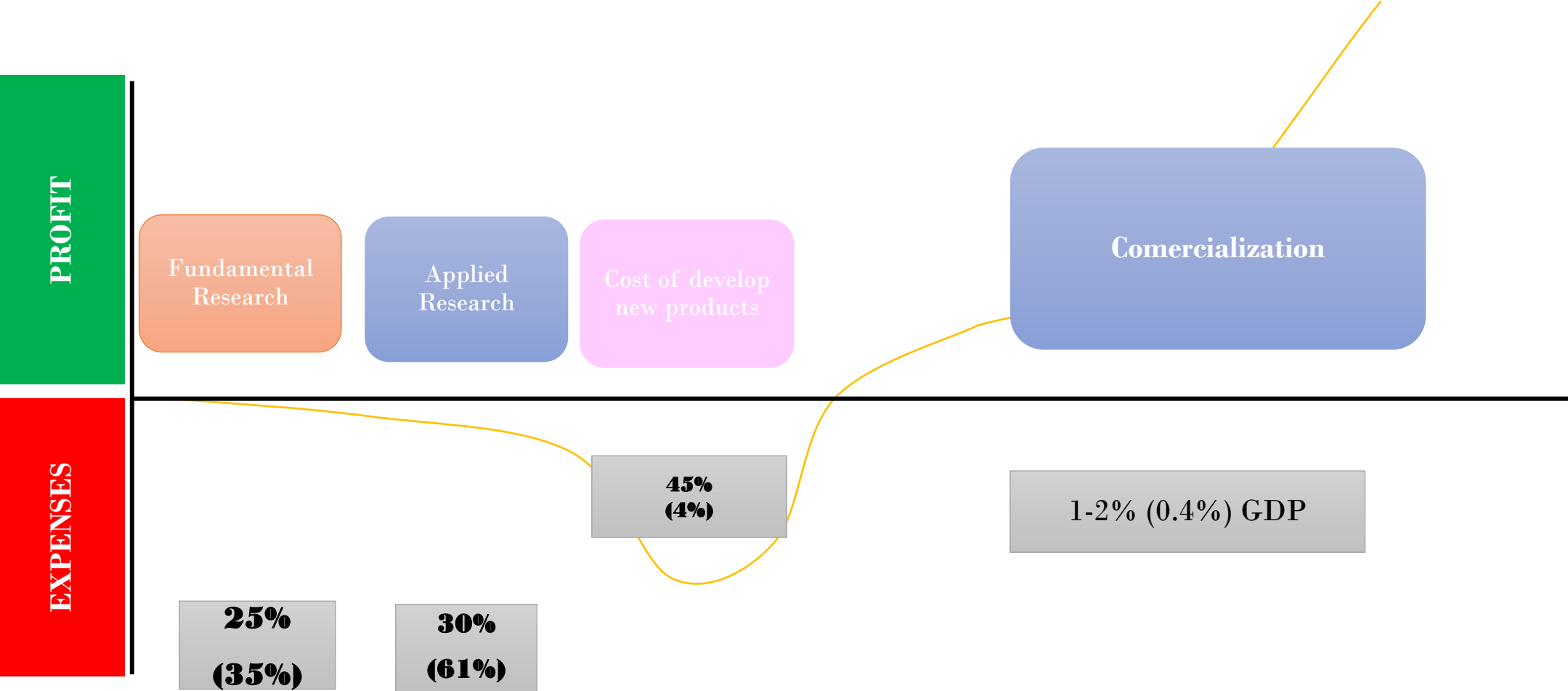
Source: Developed by the authors



Development of public financing



Funding of Science



The achievements of the scientific community in 2016, before the reform in 2017

- A research system led by the researchers themselves was created based on scientific performance
- Conditions were created to capitalize the experience of academicians, established scientists, as well as the creative drive of young people.
- Researchers' salaries have 10 times increased
- Allowances for holders of scientific degrees 20 times increased
- Scholarships for doctoral students have 11 times increased
- University funding has increased in 10 times
- New centres and laboratories have been created in the universities and institutes
- Young people employed in research made 30% of all researchers
- The infrastructure and the technical-material base have been renovated
- The share of extrabudgetary sources (co-financing) reached 27% of total science funding
- Integration in the European Research Area, through FP7 and HORIZON 2020

R&D and Innovation for Education and Business

- Efficient policies with the direct involvement of researchers and scholars = the value added component for both
- Creative approaches to combine theory with applicability component
- Individuals and personalities prepared for life = future professions = future researchers and scientists
- Formation of a knowledge based society
- Economic growth



R&D and Innovation for Education and Business

Low motivation and willingness to invest in R&D



Moldova exported massively talented Creative Brains

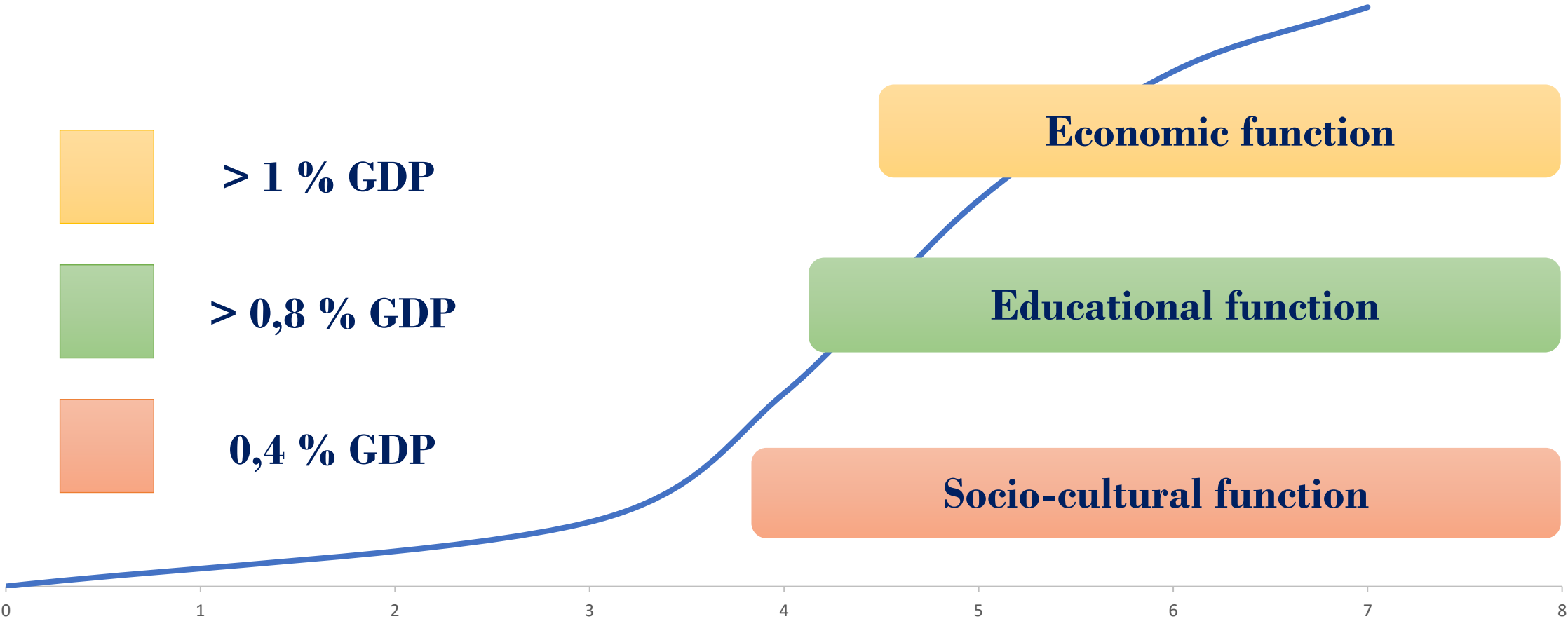


Part of them do science in western or eastern parts of the world



DRIVER / ENGINE to motivate the young to study, do research and work in the country need to be identified

The Multifunctional Role of Science



Association of Moldova to the EU Framework Program for science and innovation

Program	Number of proposals	Number of projects	EU Contribution
FP7 2007 - 2013	58	45	€ 4.15 million
Horizon 2020 2014 - 2020	86	68	€ 7.4 million

Source: Developed by the authors



Promoting the participation in the EU Framework Programmes

- Elaboration of the Roadmap of Moldovan scientific community integration to the ERA (2015-2017)
- Development of EURAXESS activities in Moldova (National portal, three service centers, 29 local contact points, 6 institutions with logo “Excellence in research”, etc.)
- National contact points (NCP) network establishing and supporting
- Nomination of national experts and official representatives to the EU Programming and Strategic Committees (ERAC, ESFRI, JRC, JPI, COST, etc.)
- Establishing of Moldovan Office for Science and Technology (MOST/IGLO) in Brussels
- Development and implementation of Bilateral Cooperation with Germany, France, Italy, Romania, Ukraine, Belarus, etc.
- Development and implementation of multi-lateral cooperation based on ERA.Net, Cofund, JPI, CSA, etc.
- Organization of promotional information campaigns on opportunities offered within the EU Programmes (trainings, summer schools, practical seminars, how to write proposals, funding, reporting and auditing, trainings abroad in Romania, Brussels, Estonia, etc.)
- Elaboration of supporting specific programmes for participation in the EU Programmes:
 - European Bonus – to stimulate participation in the EU Programmes
 - Mobility grants for researchers to participate at the Projects Preparatory Meetings
 - Connection of the Moldovan Centres of Excellence to the EU Research Infrastructure
 - Modernization of the Moldovan Research Infrastructure

The Resource of Creativity for R&D Processes Management

- The resource of creativity → pre-innovation element = indispensable value to apply principles that could be combined in a coherent way to generate ideas !!!
 - Source of innovation → essential for successful R&D
- creative class → driving force for economic growth !!!

GLOBAL CREATIVE INDEX report

GLOBAL CREATIVE INDEX

	TECHNOLOGY	TALENT	TOLERANCE
104 TUNISIA	-	72	131
105 MOLDOVA	85	57	128
106 SRI LANKA	100	96	61

GLOBAL TECHNOLOGY INDEX

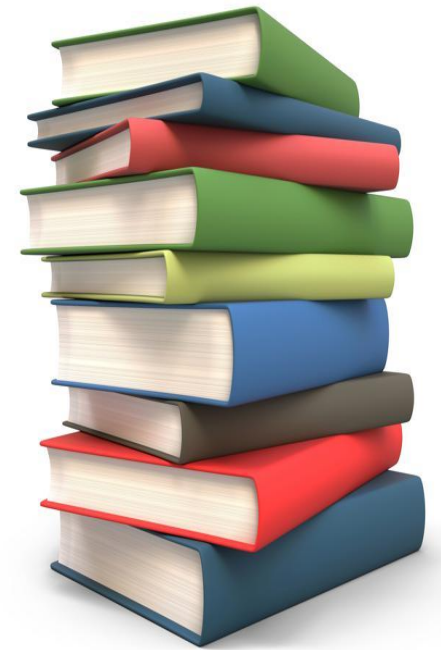
	RESEARCH & DEVELOPMENT	PATENT PER CAPITA	TECHN. INDEX
ARMENIA	59	60	83
MOLDOVA	51	69	85
YEMEN	-	95	86

GLOBAL TOLERANCE INDEX

	RACIAL AND ETHNIC MINORITIES	GAYS AND LESBIANS	TOLERANCE INDEX
JORDAN	128	-	127
MOLDOVA	117	97	128
ZAMBIA	101	116	129

Key priorities:

- Stop neglecting the importance of science and innovation, stop humiliating the scientists;
- GIVE the status of a National Priority to Science;
- Revise the R&I policies to strengthen efforts for effective use of research infrastructure;
- Facilitate Business involvement in the R&D sector;
- Allocate immediate resources to strengthen the capacity integration into the European Research Area and participation in Horizon Europe.



Practical Proposals

1. Creation of the National Council for Research and Development as the consultative entity of the Prime-Minister;
2. Consultation with the scientific community in decision making processes at the inter-sectorial levels;
3. Transfer of NARD under the subordination of MEC, which should be responsible for R&D policies, and NARD for the execution / implementation;
4. Academy has to analyse the current status of science, implementation of policies and strategies, and where needed to promote correlation;
5. National R&D policy should be in line with new ERA priorities and strategic orientation within HORIZON Europe;
6. Ministry of Economy, together with Ministry of Education and Research should consider the analysis and submit initiatives to ensure following the Creativity indicators in the pertinent policy documents.
7. Increase the institutional financing by 5% annually, to reach up to 60% increase;
8. Increase by 0.1% the annual public financing of R&D so that in 2027 it will reach 1% of the GDP, along with 0.2% co-financing;
9. Up to 2027, 50% of project should be submitted by the teams from inter-sectorial clusters “research institutions-universities-business”.

Thank you for attention !

