Strengths and bottlenecks of Moldova's R&I framework

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General national framework

Transition to an efficiency-based economy and EU integration

+ Moldova's rapprochement with the EU (Association agreement and DCFTA, Visa free travel, EU – biggest trade partner, Horison 2020);

+ Tradition of Education & Science.

- A small country with 12% uncontrolled territory (Transnistria);
- The lowest GDP per capita in Europe ($ 2,234 in 2014);
- High emigration (about 30% of labour force);
- Remittances make 26,1% of GDP (2014);
- Unstable political situation;
- Corruption as an important problem.

R&I strategic vision

Research-development Strategy of the Republic of Moldova until 2020 (2014);

Innovation Strategy of the Republic of Moldova for the period 2013-2020 (2013);

+ First strategies in R&I in the Republic of Moldova;

+ Elements of a more strategic, coherent and integrated framework for R&I

- Documents do not met the requirements of S3 strategies (neither as strategic approach nor as identified priorities);

- Lack of regional / thematic specialisations and of actions for maximising the social and territorial cohesion.

Thematic priorities

In R&D Strategy **the six societal challenges of Horizon-2020** are mentioned as priorities;

Five strategic directions of science and innovation for 2013-2020, approved by Parliament:

1) Materials, technologies and innovative products;
2) Energy efficiency and use of renewable energy;
3) Health care and biomedicine;
4) Biotechnology;
5) National heritage and development of the society.

+ An explicit orientation towards addressing major societal challenges in R&I strategies

- Priorities are formulated rather broadly and it is not clear how its were identified;
- Lack of the well-defined science and technology areas to focus financial efforts.

Framework for regional development

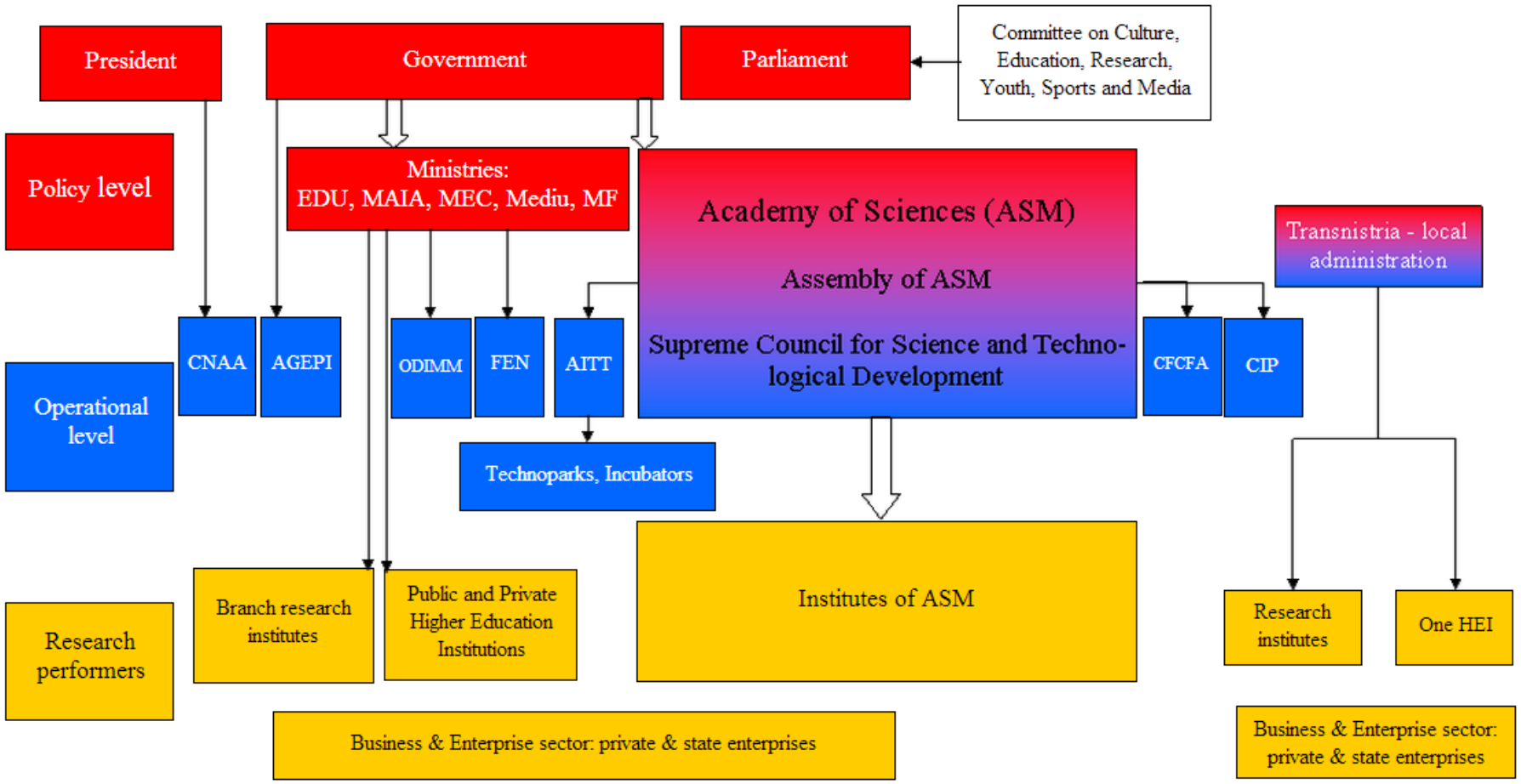
Great difference in the R&D governance and activities between the capital Chisinau and the rest of the country

Chisinau: 21% of population; 50% of GDP; 94% of accredited R&D organisations; more than 90% public R&D funding and of R&D personnel

+ Development of a framework for regional development in the last years.

- Documents relating to R&I poorly take into account social, economic and territorial disparities;
- Framework for regional development includes insufficiently innovation and smart specialisation aspects.

Organogram of the Moldovan R&D system



Abbreviations:

AGEPI - State Agency on Intellectual Property of the Republic of Moldova
CNAA - National Council for Accreditation and Attestation
CFCFA - Center for Fundamental and Applied Research Funding
CIP - Center of International Projects
AITT - Agency for Innovation and Technology Transfer
FEN - National Environmental Fund
ODIMM - Organization for Small and Medium Enterprises Sector Development
HEI - Higher Education Institution
EDU - Ministry of Education
MAIA - Ministry of Agriculture and Food Industry
MEC - Ministry of Economy
Mediu - Ministry of Environment
MF - Ministry of Finance

Organisation of R&I system

R&I system is centralised and has a rather academic character

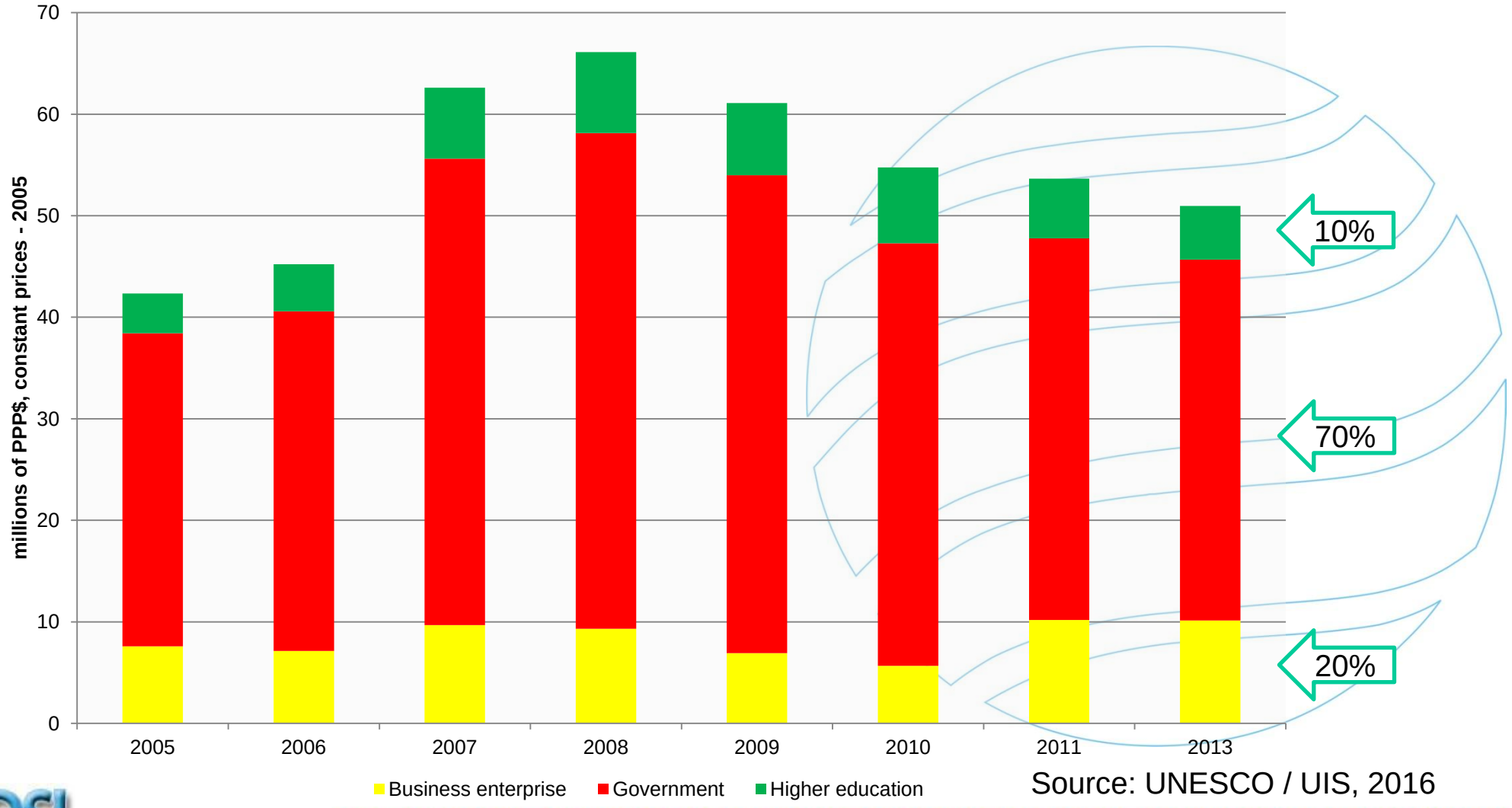
+ A stable framework for promoting R&I policies;
+ Autonomy of research community, „protection" against political changes;
+ Possibility of pro-science lobby by the president of ASM.

- The current model of governance does not ensure the involvement of all relevant stakeholders;
- Innovation policy coordination is generally at a fairly low level;
- It is difficult to effectively manage conflicts of interest;
- Inefficiency of governance model is mentioned in international (OECD, UNESCO, EECA Policy mix…) and national (Expert Group…) reports.

R&I Funding

GERD – 0,35% of GDP (€23m**)** in 2014**;** financing of R&I de facto is not a national priority

GERD by sector of performance in R.Moldova



Source: UNESCO / UIS, 2016

R&I funding schemes from public budget

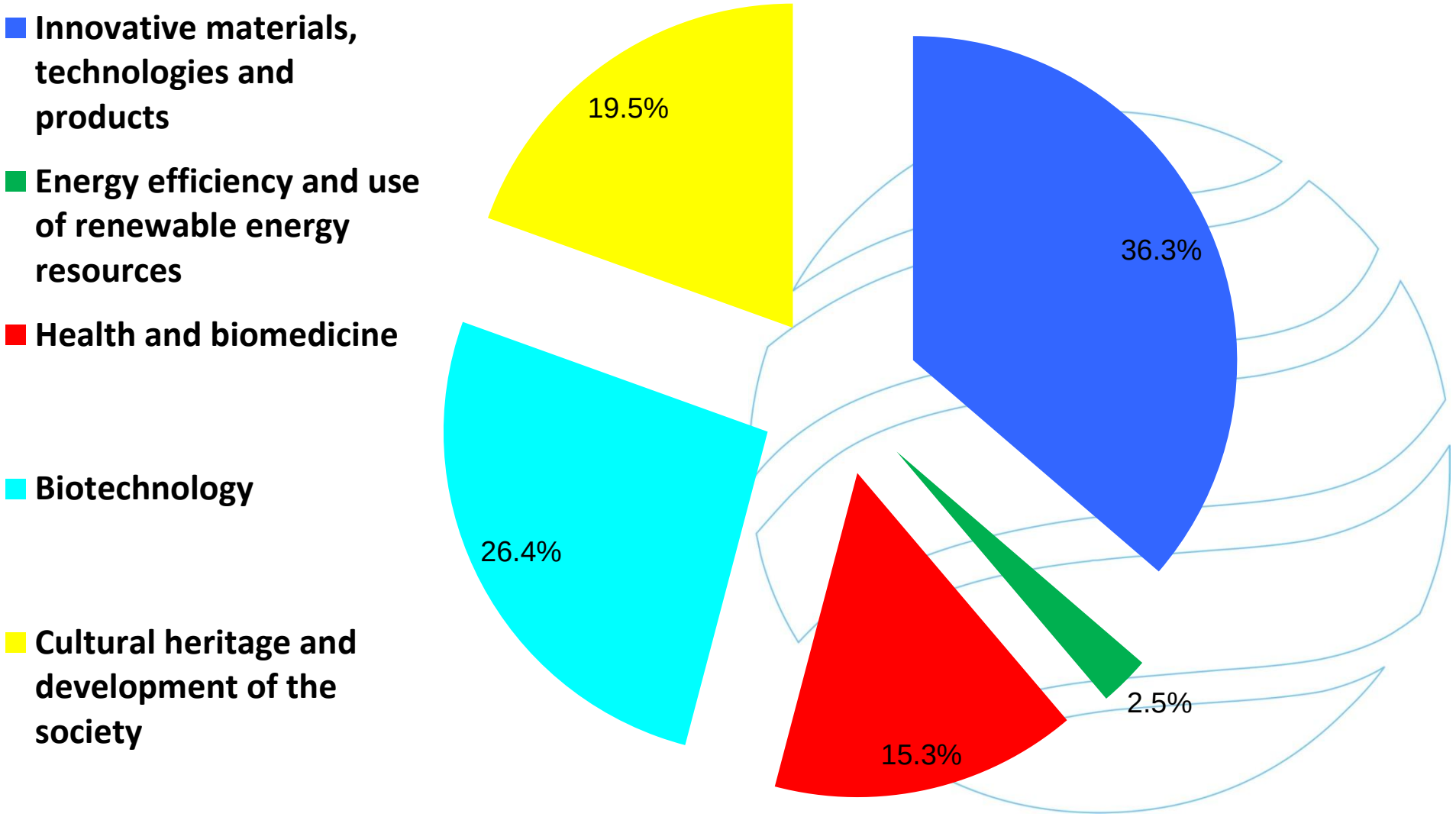
Institutional Projects – semi-competitive

	2006	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*
Institutional projects, million €	6.9	10.6	13.3	12.6	13	13	13.8	12.7	13.2
Share of governmental GERD, %	63.0	60.8	59.4	63.7	66.6	73.7	72.8	76.0	74.8

Main competitive funding schemes and amounts of funding allocated (million €):

	2006	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*
State programmes for R&D	0.68	1.25	1.11	1.10	0.61	0.36	0.34	0.08	0.20
Independent projects*	0.08	0.13	0.27	0.28	0.32	0.31	0.38	0.18	0.16
International projects	-	0.33	0.41	0.52	0.48	0.42	0.28	0.36	0.35
Innovation and Technology Transfer Projects	0.19	0.52	0.72	0.75	0.86	0.69	0.62	0.45	0.54

Distribution of public R&D funding on thematic priorities in 2014



Financing framework for R&D activities

R&D Strategy fixed a financial target of R&D investments only to 1% of GDP, by 2020

+ Current legal framework provides distribution of R&D public funding on a competitive basis;

+ Variety of financial instruments that address different policy objectives;

+ International collaboration was intensified and financing from abroad plays an important role.

- The distribution of public funds follows more a bottom-up approach, contributing to a weak integration of R&D into innovation system;

- The assessment of institutions and their ranking by the CNAA is not taken into account in the distribution of institutional funding;

- The design of the schemes do not stimulate research within private companies;

- The efficiency schemes to attract R&D investments from business are missing.

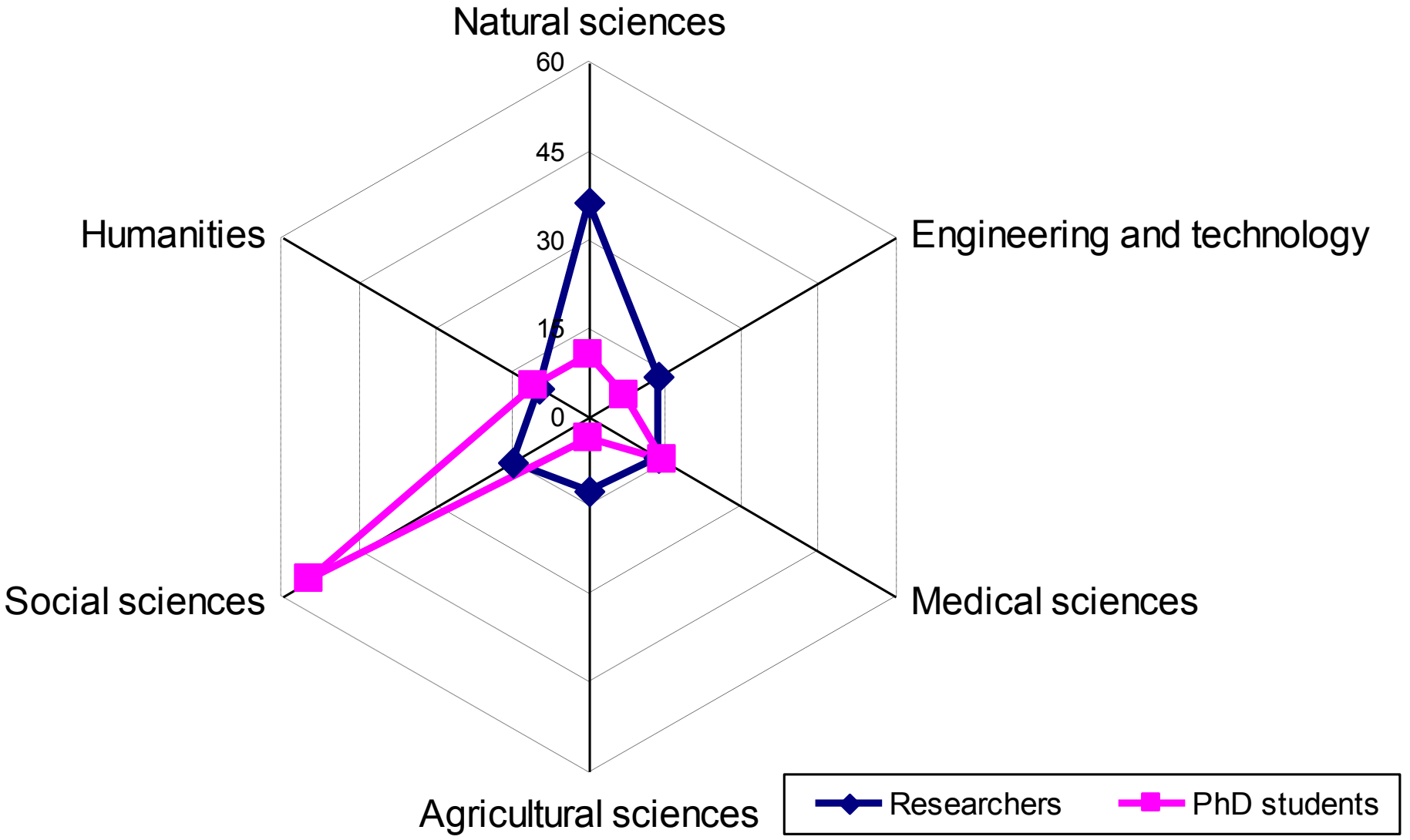
Human resources framework

Shrinking of the R&D personnel (to 3315 researchers, in 2014), ageing, emigration

+ Special schemes of ASM for attracting and retaining young people in science;
+ Schemes of collaboration with scientific diaspora;
+ New framework for doctoral studies and reforms in HE;
+ Efforts for moving closer to European standards (Charter & Code, EURAXESS, HRS4R)

- Mismatch between the educational supply and the needs of labour market, business, R&D;
- The employment and working environment for researchers is not attractive;
- Transparency of recruitment procedures is limited;
- Existing programmes have rather limited impact;
- Research traineeships in companies and intersectoral mobility are not available

Distribution of PhD students and researchers by scientific fields in Moldova, 2014, %



Evaluation and monitoring system of R&I

Need for improving the evaluation and impact assessment culture

+ New instruments used in the last period (Foresight, S&T Policy Reviews by external experts, Erawatch, Think-Thanks evaluations);

+ The assessment of organisations and evaluation of projects are more developed (criteria compatible with those internationally accepted).

- The regular and comprehensive evaluation mechanisms for all elements of R&I (system, policies, organisations, projects etc.) has not yet been established;

- Insufficient interdependence between research performance and financial allocations;

- The international dimension poorly integrated into the evaluation process;

- Lack of reliable and comparable R&I statistics according to the European methodology and standards.

Innovation framework

Competence shared between the ASM and Ministry of Economy; some competition for competence

+ The R&I strategic documents: towards to an open innovation system and to an economic model based on competitiviness (not remittances);

+ Development of elements of the industrial and innovation infrastructure;

+ A relatively well-regulated framework of IP rights

- A linear conception of the innovation;

- Tools to stimulate cooperation in the knowledge triangle education-research-business are weakly developed and only slowly emerging;

- The sectoral policies and its innovation components are not well developed;

- Lack of mechanisms/funding schemes for some measures from R&I documents;

- Weak consideration of other forms of innovation than technological ones;

- Predominance of the supply-side policies.

Access to finance - the challenge for innovation policy

Schemes of public agencies; banking and non-banking instruments

+ Support schemes of AITT (ITT projects, innovation vouchers) and ODIMM (PARE 1+1", "National Economic Empowerment of Youth", Special Guarantee Fund);

+ Funding from abroad has a considerable importance;

- Direct public R&I funding for private entities is not yet available;

- A favourable legal environment for spin-offs and for new start-up firms is missing;

- Innovation funding through venture funds, innovation voucher and other similar are not well developed yet;

- Procedures for public procurement of innovative good and services are missing;

- The limited impact of ITTPs and the difficulty to attract private partners;

- Cancellation of financial incentives for residents of S&T parks;

- Difficulties in accessing bank lending.

Case study: Barriers for demand-side innovation policies

- Limited size of the public economy;
- Relatively low inward-outward FDI;
- Low level of economic development and the industrial structure of the country;
- Lack of awareness among the political and research elite of the relevance of such policies;
- Unsufficient informational and analytical base for demand-side policies;
- Orientation of the academic sector towards basic and applied research activities
- Flaws in the implementation of measures restrain the effects of policies;
- Lack of adequate human resources for such policies.

Instead of conclusion:

5 structural challenges for national R&I system

- Inefficient innovation governance model.
- Lack of human resources for R&I.
- Low R&D investments, especially by private sector, with no clear prioritisation.
- Weak links between R&D institutes, universities and BES.
- Undeveloped evaluation and monitoring system of R&I.

THANK YOU FOR YOUR ATTENTION!

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