

# Moldovan science and innovation sphere – building country's European future

**Academician Gheorghe DUCA**

President of the Academy of Sciences of Moldova



# The Republic of Moldova



Capital	Chisinau
Form of Government	Parliamentary republic
Area	33.846 km <sup>2</sup>
Population	3.567.500

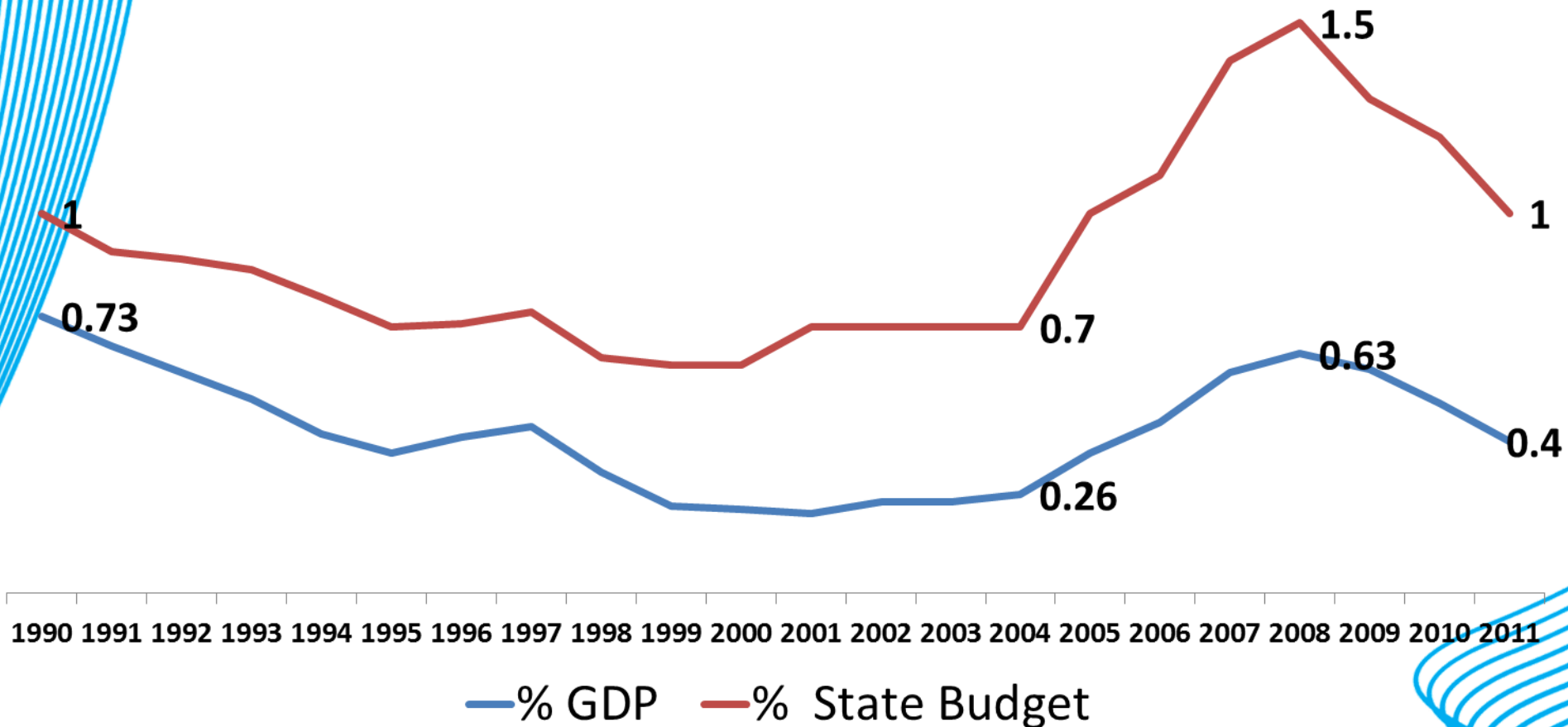
# Historical Background

- Moldova inherited advanced Research Infrastructure, with more than 100 research institutions
- State Policies implemented immediately after 1991 did not encourage development of the R&D sector in Moldova:
  - 1991 marked the establishment of the Ministry of Science and Education of Moldova
  - During 1994 – 1998 the role of science has significantly diminished
  - In 1998 Ministry of Education and Research was reestablished
  - In the 2001-2004 timeframe, the government of Moldova did not have a specialized structure dealing with R&D policy
  - In 2004, a Code on Science and Innovation was adopted and the Academy of Science of Moldova was empowered with competences of the government in the field of research and innovation

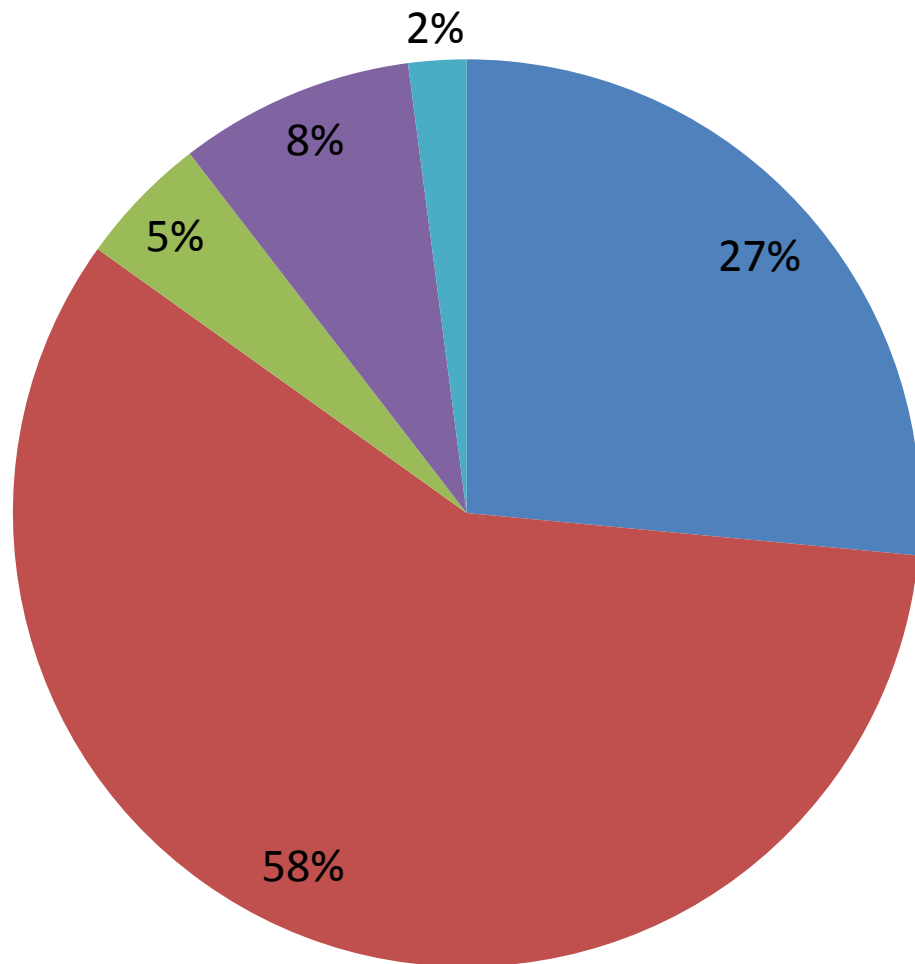
# Historical Background

1990	2011
Researchers- 33000 Severe <i>Brain Drain</i> phenomenon	Researchers – 5425
Doctor titleholders – 2260 Habilliate Doctor titleholders – 586	Doctor titleholders – 1453 Habilliate Doctor titleholders – 450
101 Research institutions, which conducted independent research, no coordination to national needs	48 Research institutions, activity based on national research priorities (strategic directions), adopted by Moldova Parliament

# Funding of research and innovation in Moldova (%, GDP)

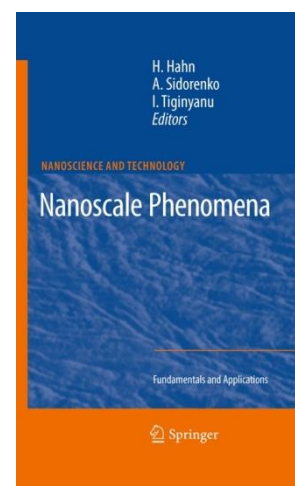
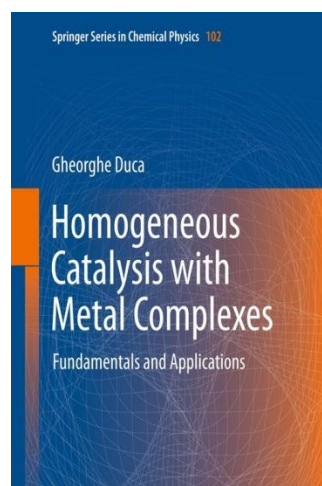
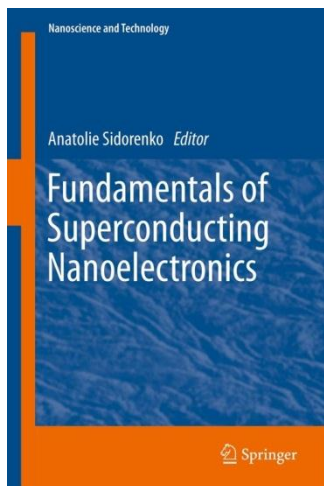
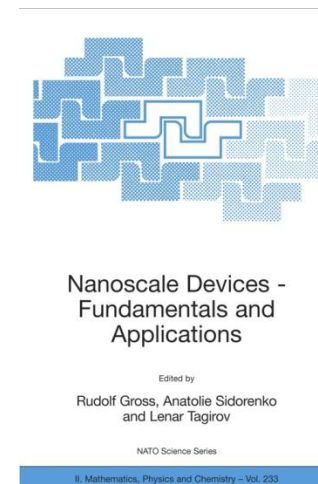
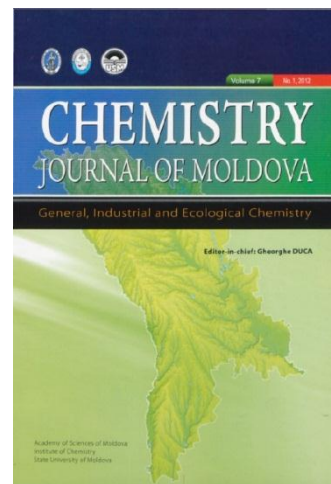
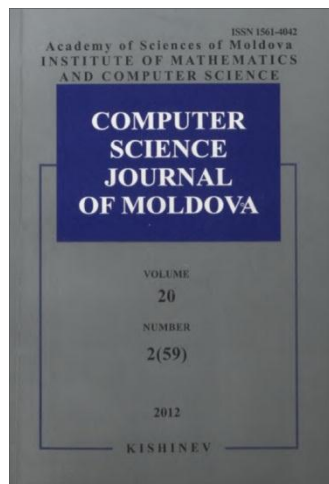


# Public R&D expenditures



- Basic research
- Applied research
- Training of scientific staff
- Other costs
- Administration

# Scientific outcomes of Moldovan researchers



# Contribution to the world wide information process

(1996-2010, [www.scimagojr.com](http://www.scimagojr.com)) Eastern European Countries, All Sciences

	Country	Documents	Citations	Citations per Document	H index
13	Macedonia	3.149	17.162	7.04	48
14	Bosnia and Herzegovina	2.669	8.694	6.66	36
15	Romania	63.809	282.393	6.04	117
16	Croatia	41.951	215.609	5.99	118
<b>17</b>	<b>Moldova</b>	<b>3.663</b>	<b>20.568</b>	<b>5.83</b>	<b>51</b>
18	Russian Federation	480.665	2.456.003	5.21	285
19	Belarus	20.498	92.872	4.61	90
20	Ukraine	88.707	344.658	3.98	121



# Innovation Efficiency Index Top 10 Rankings

INSEAD

The Business School  
for the World\*



## The Global Innovation Index 2012

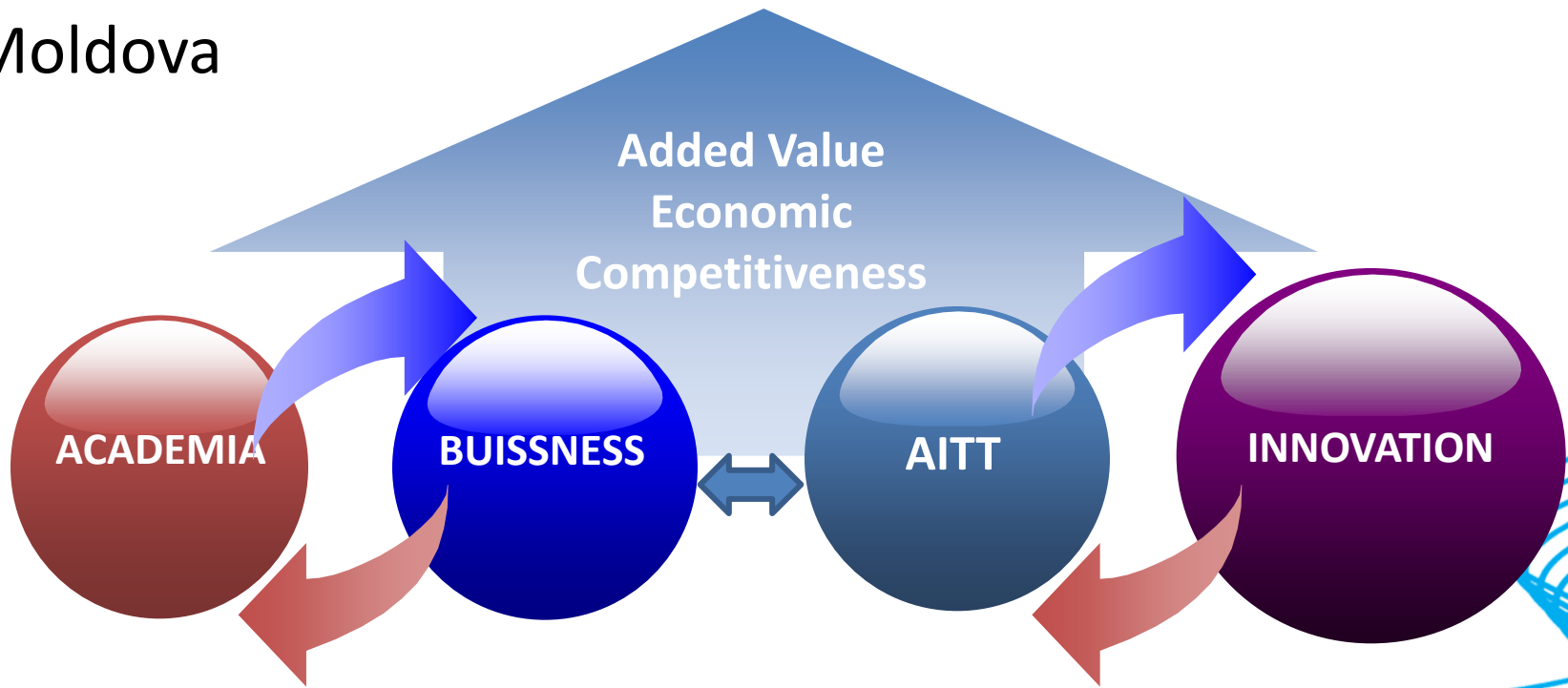
Stronger Innovation Linkages for Global Growth

Rank	Country/Economy	Efficiency Score	Input Rank	Output Rank	Income Group	Rank	Region Group	Rank	Population (US\$ millions)	GDP per capita (current PPPs)	
1	China	1.13	55	19	UM	1	SEAO	1	1,348.1	8,394.1	■
2	India	1.10	96	40	LM	1	CSA	1	1,206.9	3,703.5	■
3	Moldova, Rep.	1.08	79	30	LM	2	EUR	1	3.6	3,383.0	■
4	Malta	1.03	27	4	HI	1	EUR	2	0.4	25,782.7	■
5	Switzerland	1.01	4	1	HI	2	EUR	3	7.8	43,508.6	■
6	Paraguay	0.94	103	62	LM	3	LCN	1	6.5	5,548.9	■
7	Serbia	0.93	65	36	UM	2	EUR	4	7.4	10,661.3	■
8	Estonia	0.93	24	8	HI	3	EUR	5	1.3	20,182.1	■
9	Netherlands	0.92	15	3	HI	4	EUR	6	16.7	42,330.7	■
10	Sri Lanka	0.92	115	76	LM	4	CSA	2	20.5	5,609.4	■

Note: World Bank Income Group Classification (April 2012): LI = low income; LM = lower-middle income; UM = upper-middle income; and HI = high income. Regions are based on the United Nations Classification (20 September 2011): EUR = Europe; NAC = Northern America; LCN = Latin America and the Caribbean; CSA = Central and Southern Asia; SEAO = South East Asia and Oceania; NAWA = Northern Africa and Western Asia; and SSF = Sub-Saharan Africa.

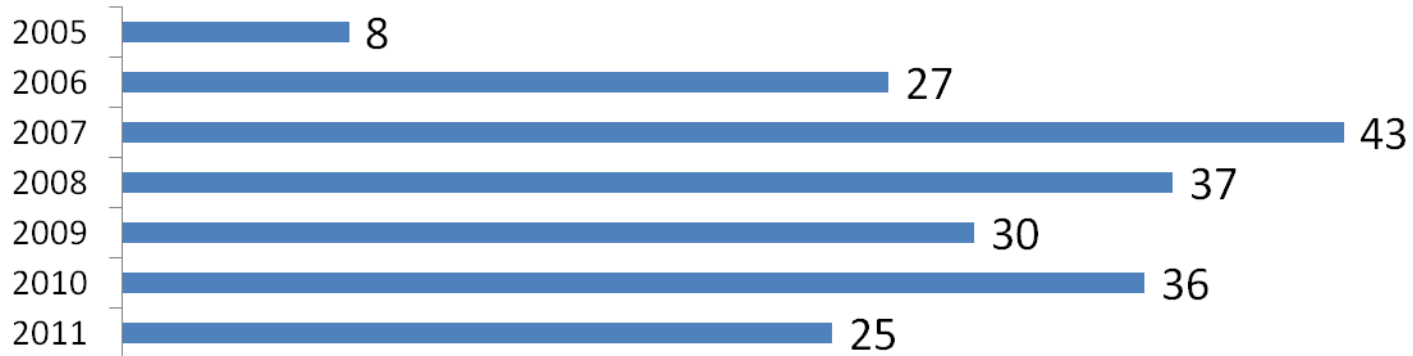
# Agency for Innovation and Technology Transfer (AITT)

**Mission** – coordinate, stimulate and implement mechanisms that enable technology transfer in Moldova

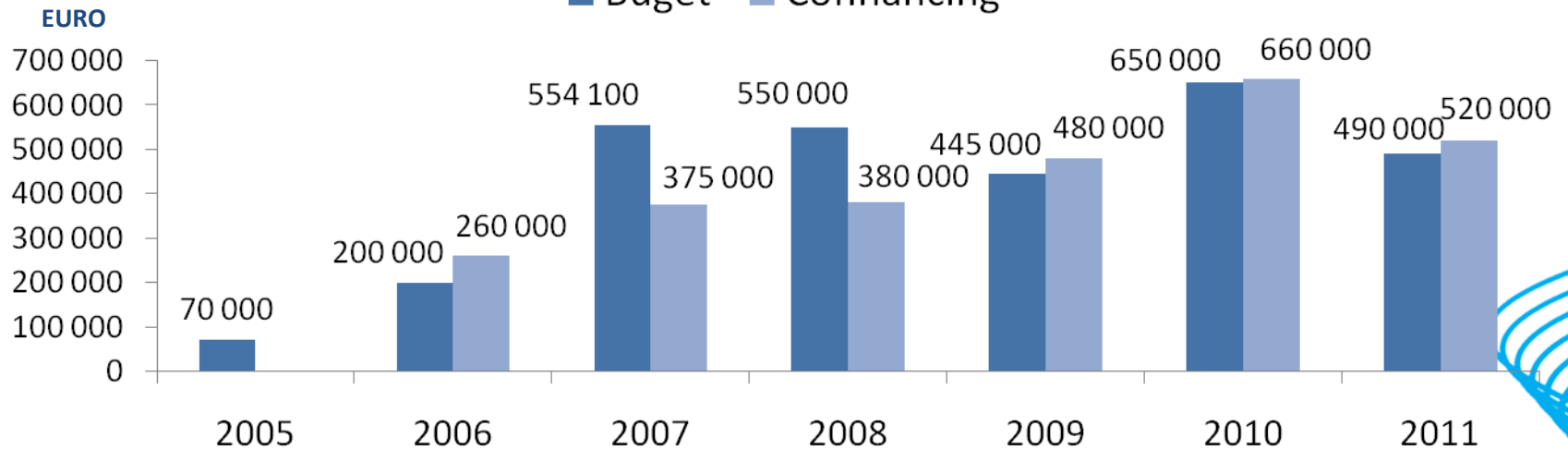


# Innovation and Technology Transfer Activity Output

■ Number of projects



■ Budget ■ Cofinancing



# Innovation Infrastructure

## Innovation Infrastructure

- “ACADEMICA” Science & Technology Park (2007)
- “INAGRO” Science & Technology Park (2008)
- “MICRONANOTEH” Science & Technology Park (2009)
- “INOVATORUL” Innovation Incubator (2007)
- “UNIVERSCIENCE” Innovation & Education Incubator (2011)
- “POLITEHNICA” Innovation Incubator (2012)
- “ITEH” Innovation Incubator (2012)
- “INNOCENTER” Innovation Incubator (2012)
- “INVENTICA-USM” Innovation Incubator (2012)
- “NORD” Innovation Incubator (2012)

## Subordinated infrastructure

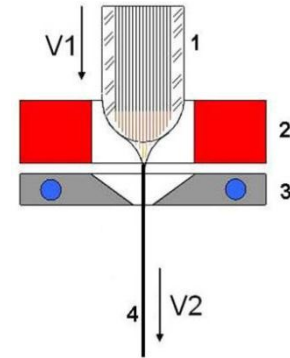
- “Izomer” State Enterprise
- “Aseteh” State Enterprise



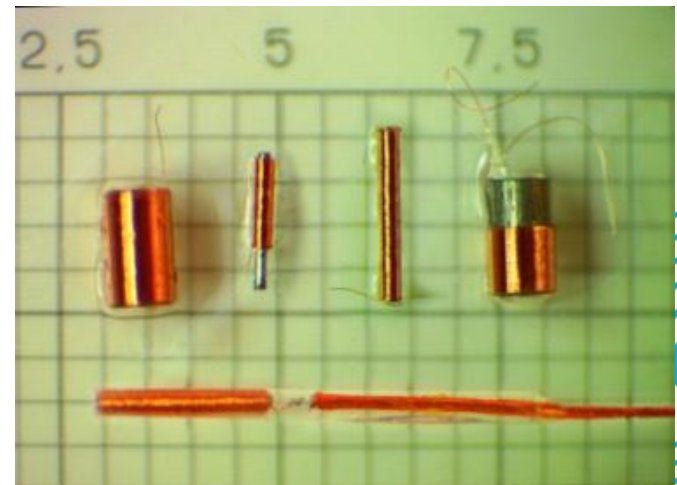
# Millions of nanowires integrated in a glass micro-fiber



Technology and equipment for production of advanced featured nano and micro-conductors for radio-absorbent materials of very high frequency radiation and micro-sensors for medical and biological investigations.



Contracts with Russia, Israel, Germany, China, South Korea, USA



# Implementation of technological equipment for producing steam cars with increased energy intensity

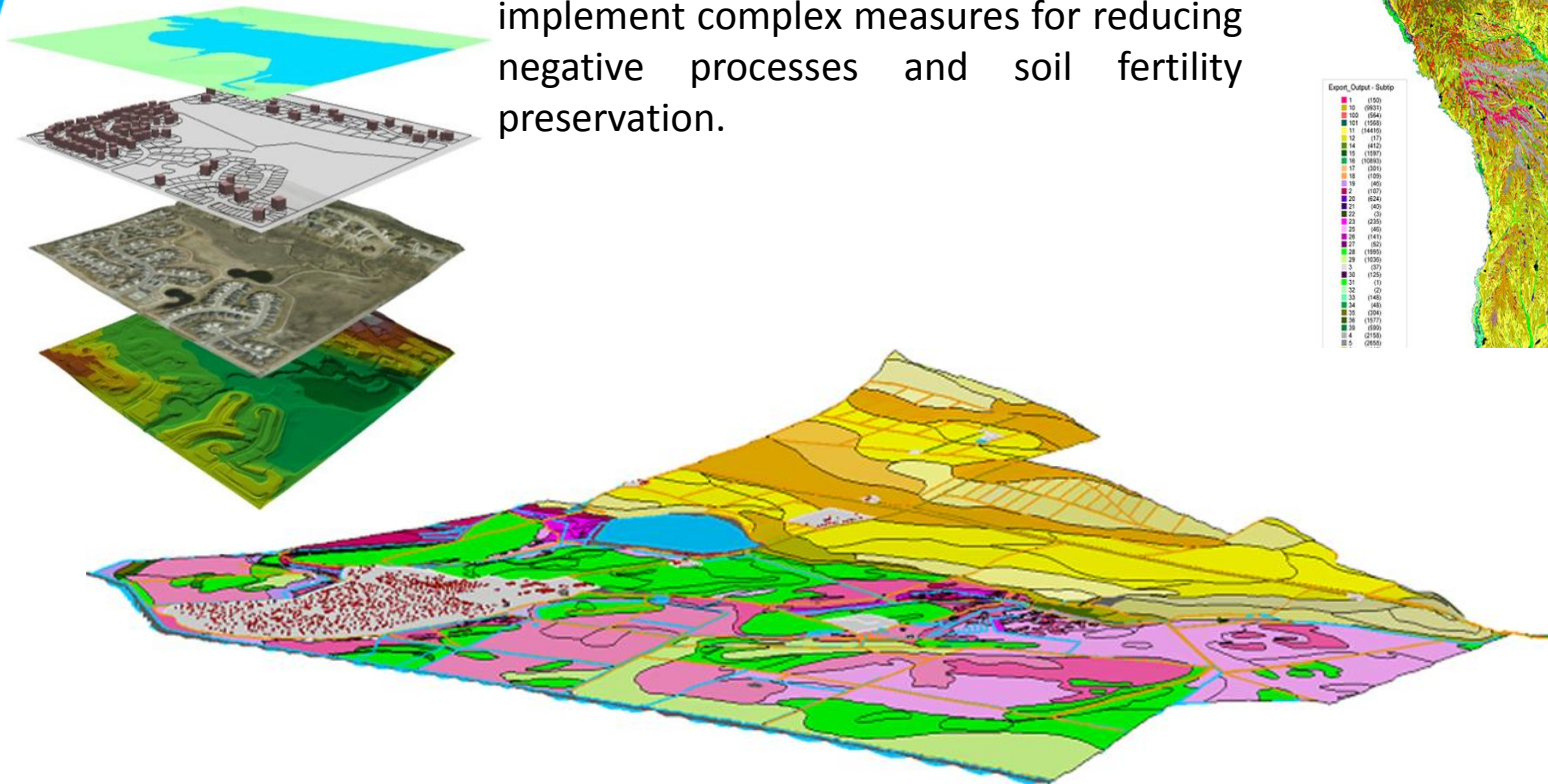


New technology with increased energy intensity, that increases dimension accuracy of manufacturing parts, decreases the cost of production, increases quality and reduces of raw material consumption, increases the working term of the steam.

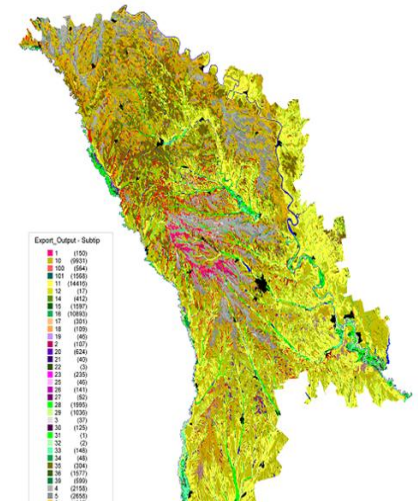


# Elaboration of geoinformational system of soil quality for modern agriculture in Moldova

GIS Information system that monitors Moldova's soil, provides the ability to disseminate information about the quality and degradation level of soils in order to implement complex measures for reducing negative processes and soil fertility preservation.



Harta digitală a subtipurilor de sol al Republicii Moldova



Scara 1:1400000



# Implementation of advanced microsurgical techniques for the treatment of degenerative diseases of the spine



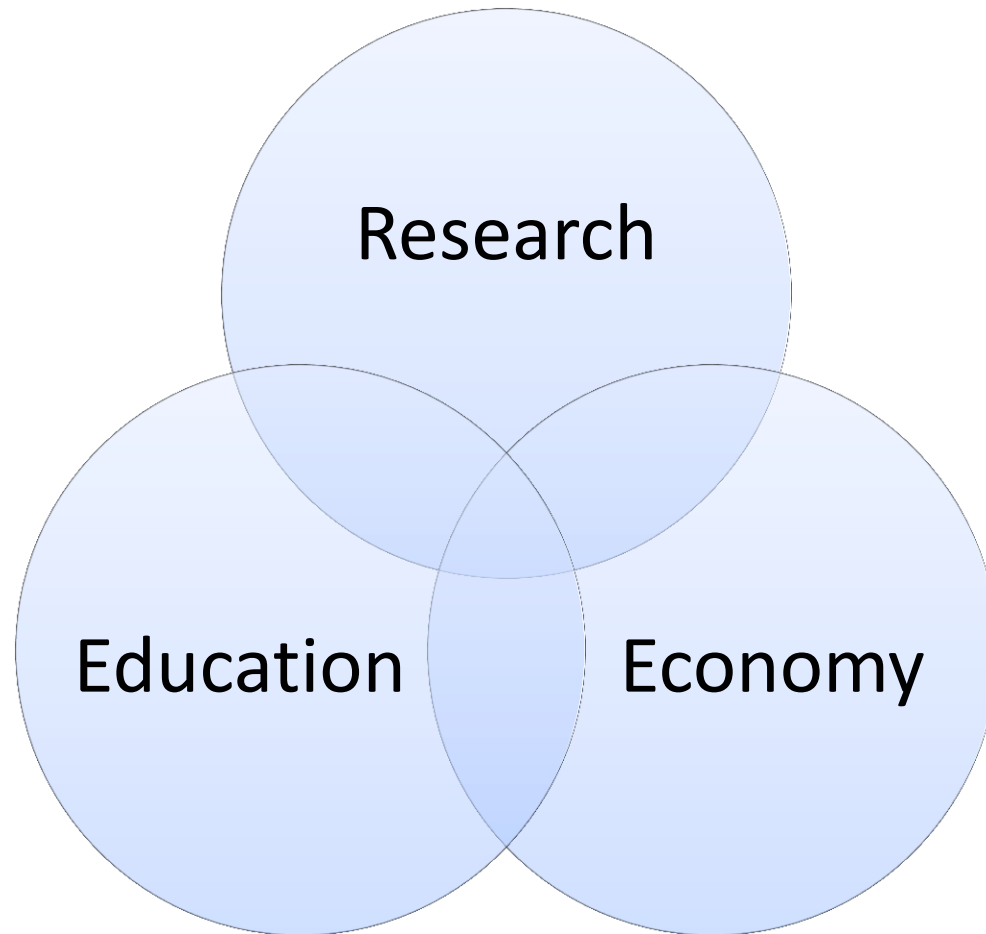
Immunocytochemical diagnosis of HER2/neu status by fine needle aspiration biopsy in patients with breast cancer

**Innovative technology for producing agricultural machines adjusted to local needs**



**Implementation of pilot technologies for the production of biohumus and earthworms through control and adjustment of thermal conditions of the technological process**

# Knowledge based society paradigm



# S&T Policy Mix Peer Review

- **March – June 2012,**

6 experts from Austria, Belarus, Greece, Estonia, Germany. Team leader – Mr Manfred Spiesberger, ZSI, Austria provided a view on the Moldovan national S&T system from the outside

**Report on:**

- the legal framework for research, technology development and innovation (RTDI),
- private sector RTDI,
- funding of RTDI,
- human resources (including higher education),
- internationalisation/FP7 association,
- regional dimension.

# Implementation of the knowledge paradigm

- Foresight exercise For Moldova:
  - Development of a strategic vision for R&D of Moldova
  - Long-term strategy for development of R&D sector of Moldova



- National R&D Strategy until 2020 (launched for public discussions on September 13)

# Vision for 2020



By 2020, the R&D sector in Moldova will be oriented towards performance and excellence with adequate human, institutional and infrastructure capacities. Research policies will target the establishment of an efficient interaction with society, implementation of scientific results and dissemination of knowledge, the internationalization of research and integration of into the European Research Area.

# AXES

## CAPACITY

Human

Institutional

Infrastructure

## PRIORITIES

Global trends

Facing challenges

Channeling efforts

Dialog with partners

## CONECTIVITY

Dialog with society

Implementation of results

Knowledge transfer

Answering to challenges

Transparent reports

Access to research of the private sector

## INTERNATIONALIZATION

International integration

International projects

Accessibility of funds

International visibility

International commercialization

## GOVERNANCE

Optimization

Financing based on performance

Efficient reports

Correctness in evaluation and expertise

Equal participation of the private sector

Implication of local and central authorities

# Resources

**PARLIAMENT OF THE REPUBLIC OF MOLDOVA**  
Approves strategic priorities, sectorial budget, laws

**GOVERNMENT OF THE REPUBLIC OF MOLDOVA**  
Approves R&D policy, partnership agreement, normative acts priorities,

Research and Innovation Consultative Committee of the Prime-minister

Policy elaboration and adoption

Policy coordination

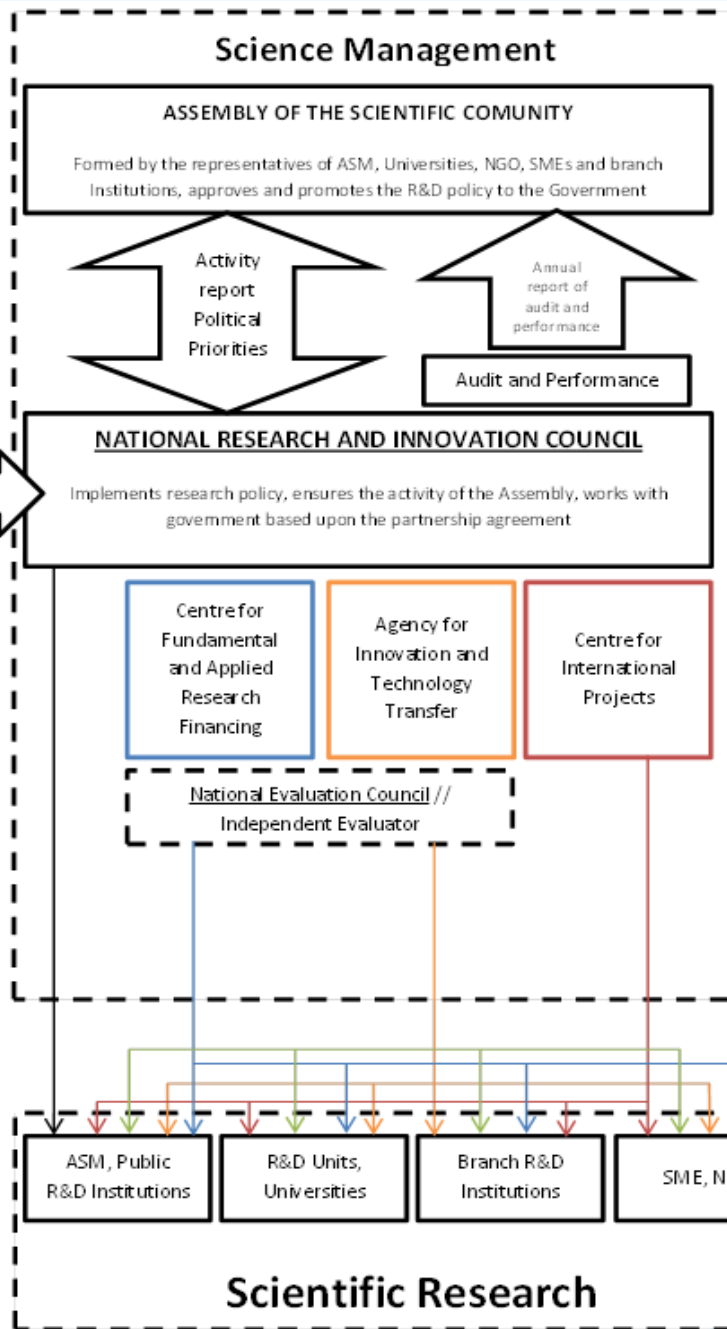
Policy Implementation

Government Funds

International Funds

Private Sector Funds

Qualified Personnel from Universities



# Results

**Economic and Social Potential (ECP)**  
Innovation, materials and new technologies, normative acts, studies and analysis, council, monographs

**Human Potential (CNAA)**  
Doctor, Habilitate Doctor, Associate researcher, professor researcher, professor

**Intellectual Property (AGEPI)**  
Patent, certificates registering industrial drawings and models, developments possible of implementation, which have a commercial value





# Moldova towards ERA

# Chronology of the association of RM to FP7

**2008**

Official request for the status of an Associated country;

**2009**

Creation of the National Association Committee of RM to PC7;

**2010**

Additional protocol - P.C.A. for participation at EU programs;

**2011**

Moldova-EU technical negotiations round (March);

**01.01.  
2012**

***RM – first CIS country associated to FP7.***

**Policy framework**

**Moldova Towards  
“HORIZON 2020”  
Action Plan**

*Action plan for implementing the statute of an  
associated country (2011-2013)*

# NCP Network

- Becoming officially NCP (former NIP) – 15 persons,
- Establishing Regional Information Points in Cahul, Comrat, Balti,
- Full integration within European NCP networks, appointed national experts for PC's,
- Capacity building – TUBITAK experts (Turkey) May,2012,
- ICT tools – webpage [fp7.asm.md](http://fp7.asm.md), mailing lists, videoconferences with EC DGs.

# Joint calls launched in 2012 for 2013-2014

ASM with	Deadline for Submission	Projects to be supported	Type of the Projects	Total Funding, Thous. Lei MD	Reserarch Fields
<b>BMBF, Germany</b>	15.09	10	Mobility	1500	ALL
<b>ANCS, Romania</b>	01.09	20	Research	2000	ALL
<b>CNRS, France</b>	01.09	4	Mobility	200	ALL
<b>CNCI, Italy</b>	01.09	10	Mobility	650	ALL
<b>SFBR, Belarus</b>	01.09	10	Research	750	ALL
<b>SEERA</b>	05.09	5	Research	550	ICT

# Cooptation of scientific diaspora

Connecting the Moldovan scientific diaspora to the scientific and economic development of the country of origin

Tackling brain drain phenomenon and strengthening the Republic of Moldova as a platform for research and development through temporary return of expatriate Moldovan scientists

**MOLDOVAN  
SCIENCE**


*TOWARDS*



*THE*

**EUROPEAN  
RESEARCH  
AREA**



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**Thank you for your attention  
and invite you to Moldova!**