



# **Science governance in an intertwined historical perspective of Moldo- Romanian academic cooperation**

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Scientific academies play an important role in the advancement of sciences and development of society. Due to historical circumstances, two Romanian academies are currently functioning, one with its headquarters in Bucharest, Romania and another in Chisinau, Republic of Moldova.

# Who are we?



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## Importance of science

Nations produce science and technology to support their social power, leadership and wealth in the international system.

Science and technology are driven by an organized social effort of nations for strategic purposes, whether social, economic and political interests of nations in competitive environments.

Science and technology are directed to take advantage of important opportunities and to cope with environmental threats, as well as increase the reputation of nations in the international system.

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An abstract geometric network diagram composed of numerous interconnected nodes and lines, forming a complex web of triangles and polygons. The nodes are represented by small black dots, and the lines are thin, light gray. The overall structure is dense and interconnected, with some nodes having multiple connections. The diagram is positioned in the upper right and lower right areas of the page, partially overlapping the text area.

# Scientific academies

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Since their inception in the seventeenth-century Europe, scientific academies have dealt with the production, reward, and dissemination of scientific knowledge, the training of practitioners, the evaluation of patent applications, and the advising of state and political authorities on scientific and technical matters

# Academy types

It is possible to identify at least three phases in the genealogy and the role of academies within the broader ecology of the social system of science:

## patronage-based princely academies

without statutes and corporate protocols up to the end of the seventeenth century

## peer-based academies

with statutes, publications, and, in many cases, formalized relations with the state since the late seventeenth century, and mostly during the eighteenth century

## New forms

dramatic increase of the scale and complexity of the social system of science associated with the multiplication of more specialized scientific institutions taking up most of the traditional roles of scientific academies (since the early nineteenth century).



# The two romanian academies



**Academy of Sciences of Moldova**



**Romanian Academy**

Role of scientists in Romania and Moldova consists in producing knowledge, estimating situations and presenting recommendations to be used by decision makers. Proprietarily the academies are responsible for supporting and developing fundamental sciences, which results in new discoveries, implementation of which leads to rethinking of certain global processes. A priority function of the two academies is to offer solutions to societal problems, to offer added value or, in popular terms – *science for the benefit of society*.

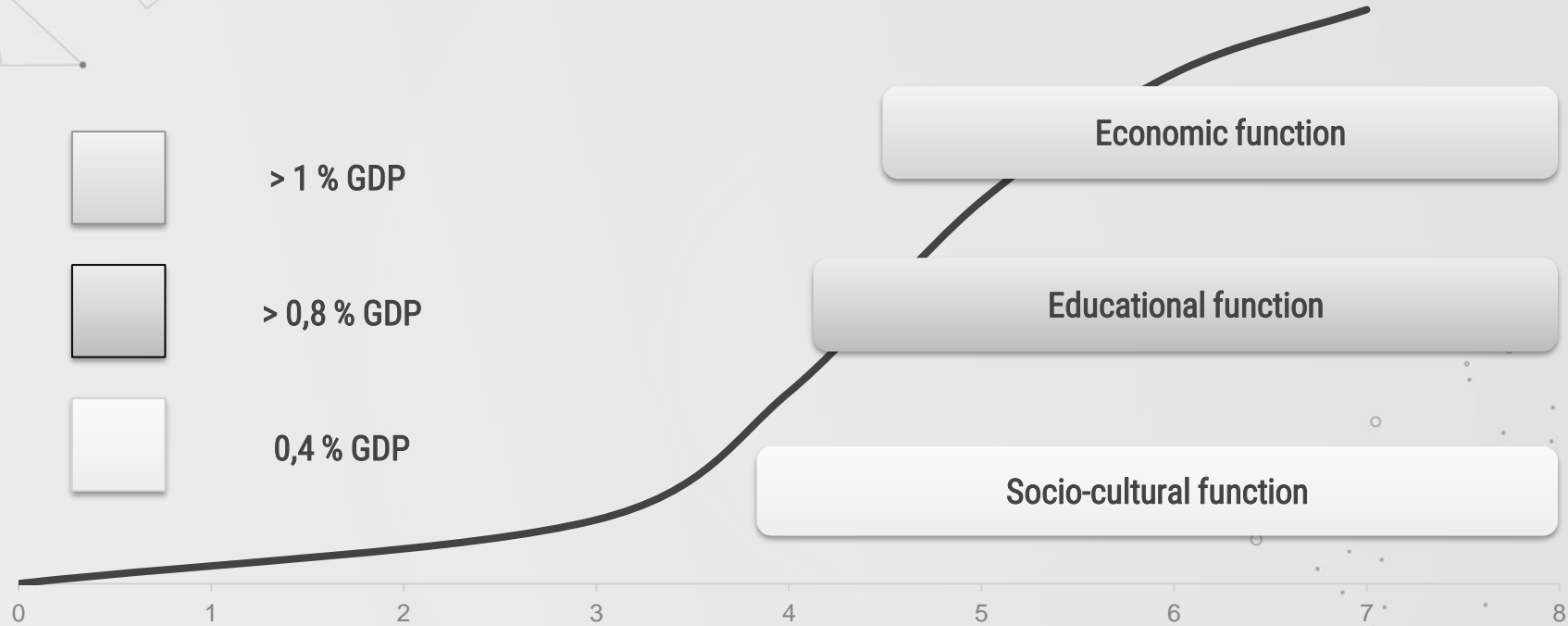


# Role of academies

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In a complex environment where science is oriented towards sustainability, there are no simple formulas for constructing and safeguarding salience, credibility and legitimacy

# The Multifunctional Role of Science





# Transitions

## Science reforms

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the last decades of the 20th century, many countries made state-initiated moves towards reforming research institutions and their funding mechanisms. At the same time, some systems have become public and university research exemplars, especially the US system.



# The Fading Role of Academies



## Education

the restructuring of the university led to an increased representation of the sciences in its curriculum and, more importantly, to a slow but steady trend toward research.



## Innovation

with the slow but progressive rise of science-based industry, the private sector provided more niches for research and for the employment for fast-growing cadres of scientists



## Expertise

establishment or growing role of state or military technical agencies and schools greatly reduced the role of scientific academies as providers of technical and scientific expertise to the state.



## Dissemination

with the branching of science in increasingly numerous disciplines, new professional associations emerged and, with them, increasingly specialized journals.



## Restructure

the creation of national agencies for the promotion and funding of science and the growing role of private foundations in the patronage of science

# Russia



## Reframing science

it has been established that the Russian government has taken a course towards a university-based model, and has largely eschewed the Academy.



# China

## Reaffirming science

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despite criticisms of some of its practices, the Academy of Sciences has successfully accomplished a transformation to remain an integral part of China's heterogeneous research landscape and adjusted to imported approaches that highlight university research. Reinvigorated models of public scientific research organizations may continue to be central to the research systems of some transitional economies, as in the case of the Chinese Academy of Sciences, paralleling the situation in established mature research systems with leading state-funded non-university research organizations, such as France's CNRS and Germany's Max-Planck Society



# Academy of Sciences of Moldova

The Romanian Bessarabians, in the XIXth century and during the interwar period, have measured their intellectual values, creative capacity, taking from the mother Academy the organizing talent and European vocation. Academic links between Bessarabia and other historical Romanian provinces during the 19th century are shaped through the memory of generations.

**June 12, 1946**

Moldovan Scientific Research Base of the USSR Academy of Sciences

**September 7, 1949**

Moldovan Branch of the USSR Academy of Sciences

**August 2, 1961**

Academy of Sciences of the Soviet Socialist Republic of Moldova





# Remarkable Decisions of the Academy of Sciences of Moldova

*Argumented opinion of philologists  
from the country and abroad, on the  
correct name of the state language  
(official) of the Republic of Moldova  
being the Romanian language*

**Decision of the Moldovan  
Academy dated September 9,  
1994**

*The act of June 28, 1940 (Soviet  
occupation of Bessarabia and  
northern Bukovina) is a direct  
consequence of a soviet-nazi deal of  
August 23, 1939 which partitioned  
the world into „spheres of influence”  
between the two totalitarian regimes  
of the XXth century.*

**Decision of the Moldovan  
Academy dated July 7, 2010**



# International surge in Moldova

## Internationalization and capitalization

Since 2009, the reformed framework combined with concentration of potential within the Moldovan Academy of Science, sustained by the Romanian Academy have fueled a surge in internationalization and capitalization of cooperation opportunities. The Academy coordinated international scientific collaborations and represented the scientific community of the Republic of Moldova internationally.



# Romanian Academy

Romanian Academy has also faced, like other institutions, the hardships of a totalitarian communist regime, the consequences of which were strongly felt

**1/13 April 1866**

The Romanian Academy was founded under the name of the Romanian Literary Society

**1879**

through a special law, the Romanian Academic Society was promulgated a national institution with the name of Academia Româna - The Romanian Academy

**1948-1989**

Academy suffers purges and retaliation from socialist regime. Is stripped of rights and properties

**January 5, 1990**

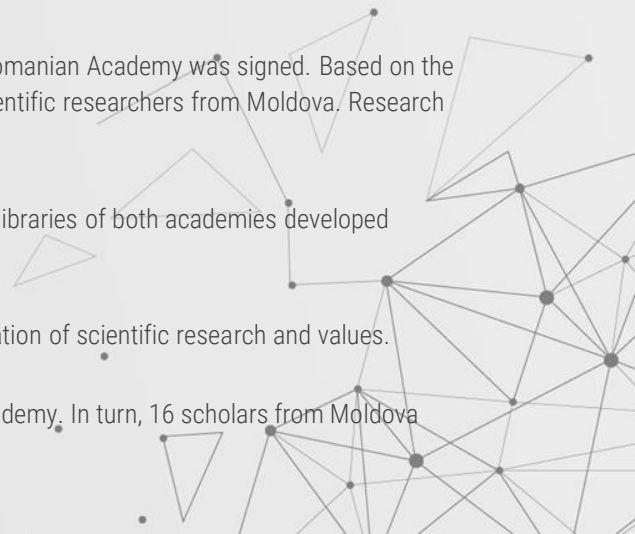
Recovered its name, its status as the highest scientific authority in the country, bringing together the worthiest personalities.





# Moldo-Romanian Cooperation: *Win-Win Scenario*

- Since 1991, Romania, through a large program of cooperation with the Republic of Moldova has offered scholarships for bachelor, masters, doctoral studies, exchange opportunities for teachers and researchers in universities and research centers of Romania.
- The Romanian Academy, in the framework of cooperation with Moldova, offers access to 60 institutes and research centers within its system that contribute to the development of science, letters and arts in Romania
- In 2005 an Agreement of scientific cooperation between the Academy of Sciences of Moldova and the Romanian Academy was signed. Based on the aforementioned agreement, about 200 scientific researchers were delegated from Romania, and 250 scientific researchers from Moldova. Research periods lasted from 5 up to 14 days
- Exchange of scientific publications is intensified. Benefiting from the joint linguistic space, the scientific libraries of both academies developed relationships. Through the Romanian Academy, cooperation was established with new partners
- The Romanian Academy is one of the largest book donors in Moldova, in this way ensuring the dissemination of scientific research and values.
- In the timeframe of 1991-2016, 40 Romanian scientists became Honorary members of the Moldovan Academy. In turn, 16 scholars from Moldova became Honorary members of the Romanian Academy.



# Academy decline in Moldova



## Science reform

In 2017, following the reform of the central public administration, taking over the structure and content of the reform project developed by the scientific community of Moldova, Government enacts a new reforms that moves Moldova into a university centered system, stripping the Academy of its properties.

# Science reform effects in Moldova

Researchers – **33000**

Brain drain effect

PhD – **2260**

Habiliate Doctors – **586**

**101** Scientific institutes with independent research and no coordination to national priorities

**1990**

Researchers - **3222**

PhD – **1429**

Habiliate Doctors – **441**

**58** Scientific institutes subordinated to the Academy of Sciences of Moldova

**2016**

Researchers – **2767**

PhD – **1199**

Habiliate Doctors – **346**

**58** Scientific institutes based on national priorities approved by Government

**2020**

# Status of the Academy in Romania



## Resilience

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While both academies have transitioned into newer forms of governance we can attest that the Romanian Academy is more resilient to change, maintaining a conservative or reserved hold towards reform processes. This is on the backdrop of frequent changes in leadership at the ministry responsible for research, since 2016, six ministers took office, and lack of predictable research and development policies.

# Key issues for scientific academies for Moldova and Romania

In order to move forward both system must address the central issues that are plaguing the systems, while learning from the experience they face

- **Insufficient science funding.** The continually lowering science funding has established Romania (0,51% of GDP in 2018) as the European Union's lowest public research budget as well as weakest innovator. Due to its meagre research budget (0,35% of GDP in 2018), Moldova is struggling to maintain infrastructure integrity and critical mass of researchers.
- **Diminishing interest of youth in research and ageing of current generation of researchers.** This is particularly stringent for Moldova. In the last 10 years in Moldova the number of students has decreased by approx. 50%. If in 2008 in higher education institutions there were 115 000 young people, in 2018 this number was 60 000. The number of young people involved in scientific projects is approx. 650 (20%) of 3054 researchers certified in 2018. This indicator is in decline compared to 2014, when young people made up 27% of the whole community.
- **Demographic decline.** In the near future, countries facing such demographic decline will need to rationalize their higher education systems to adapt to the low number of students, but also to make more efficient use of available funding. Romania has one of the highest share of researchers working abroad. Skills shortages exist in the information technology sector, health professionals, teachers, skilled trades, engineering, transport and distribution
- **Adoption of a feasible and evidence based vision for the systems,** as well as a coherent and predictable national research and innovation policy mix. The research and innovation governance of Romania is characterized by excessive and burdensome bureaucracy, predisposition to overregulation, frequent legislative and institutional changes, lack of human resources.
- **Consolidation of the role of higher education in research** is recommended as well as a considerable effort to modernize available research infrastructure. The latter is particularly valid for Moldova



# What the future holds

It is imperative that both systems continue to build on past synergies within the international area, including the European Research Area. Instruments must be put in place in order to ensure the deepening and enrichment of the cooperation in this area.

Joint tackling challenges has proven to be a *win-win* scenario for both parties.

Full paper can be accessed here:

[https://link.springer.com/chapter/10.1007/978-3-030-49889-4\\_41](https://link.springer.com/chapter/10.1007/978-3-030-49889-4_41)