Gheorghe DUCA*

SCIENCE FOR SUSTAINABLE DEVELOPMENT OF SOCIETY

Abstract: The proliferation of the role of science in Moldova is related to the answer of the simple question „How will we build the future?" A question frequently asked by public officials and politicians in the current political crisis. The problem of power, a stringent problem nowadays, cannot be answered alone; it has to be regarded in relationship to science and education. The question can always be answered by a following question „What kind of science and education do you need?"

From the late 20th (twenty) century, a special commission of the United Nations has been calculating the so called Human Development Index, which includes the level of education of population, development of health services and economical development of the country.

In its classical sense *science — is the process of obtaining new knowledge about the laws of nature and society.* In reality, science is *multifunctional*. It has three functions — *sociocultural* (science — part of the culture of the society), *educational* (impact on the level of education) and the function of the *influence on the economy.* The performance of each of these functions require different amounts of funding. Moreover, to achieve a permanent impact at least *1.5–2% of GDP is required*. It is for this reason, the European Union decided to bring the level of funding of up to *3% of GDP* to achieve the goal of becoming the leader of the world economy. At a lower level of funding there is no relevant direct influence of science on the economy, such an impact will be indirect, because the level of development of science determines the level of education in the society and the level of general knowledge.

In order to give the correct course of action the Code on Science and Innovation of Moldova, adopted in 2004, installed a rate of funding from the state budget to 1% of GDP. Indeed, in the period from 2005 to 2008, there was a constant increase in funding, but it only managed to bring up to 0.75% of GDP. After 2009, this figure declined steadily.

It seems clear that this level of funding does not allow hope for the ability to perform the functions of the Moldovan science to impact the economy. For this, the Moldovan research community has aspired to associate to the EU Framework Programme on Reasearch and Innovation.

Following the aforementioned association, the Academy of Sciences of Moldova has drafted a new law in order to amend the Code on Science and Innovation, which provides for reform of the current management of the area of science and innovation, by adjusting its legal status to the rigors of the European Research Area.

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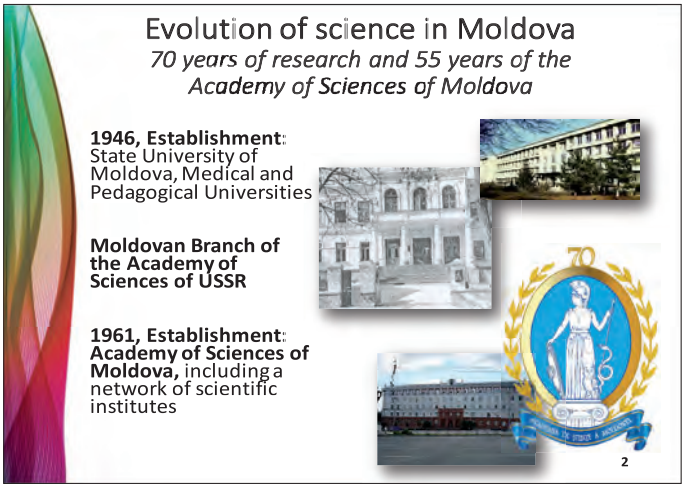
* President of the Academy of Sciences of Moldova

President acad. Momir Djurovic,

Dear presidents of academies, fellow academicians and professors,

My report will follow the slogan of UNESCO for 2015 – ***There can be no development without science*** and will mark the importance of research for Moldova.

In contrast to Europe and Russia, where science and higher education originate much earlier, in Moldova, the beginning can be attributed only to the period after the Second World War.

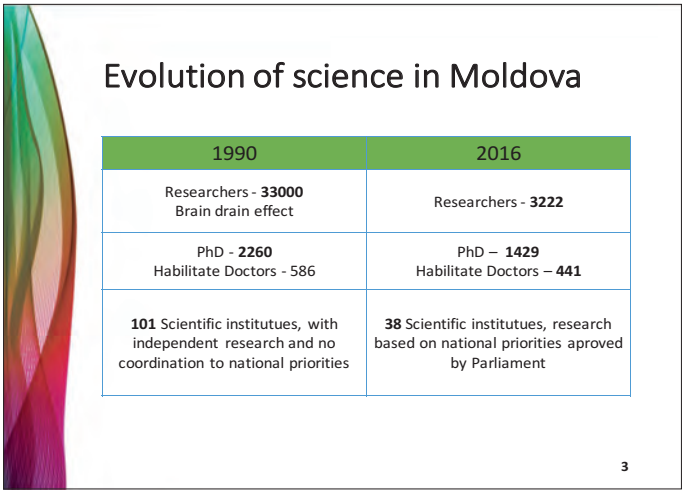


The creation of the Moldova State University, medical and pedagogical institutions, the Moldavian branch of the Academy of Sciences of the USSR, and later in 1961 the Academy of Sciences of Moldova and a network of research institutions have served as the foundation, which provided the development of the economy, culture and health of Moldova.

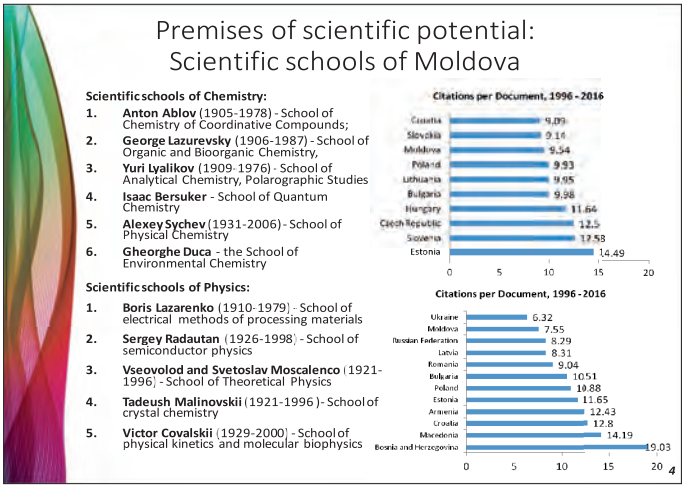
This year marks the 70 year aniversary for research and 55 years of the Academy of Sciences of Moldova.

In this period the infrastructure of the scientific community was optimized, which corresponds to the possibilities of the country.

The scientific community was affected by brain drain and the number of researchers decreased, as presented on the slide.

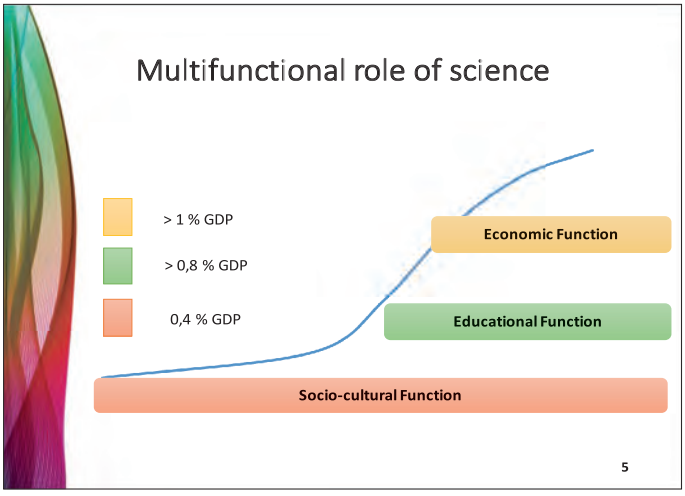


In retrospective, along with the establishment of the first research institutions, the continuation of scientific schools has been one of the strong points of Moldovan research. Many of the scientific schools are represented by former and current members of the Academy of Sciences of Moldova.



The contribution in the field of chemistry and physics, 7th and 13th, respectively, in the Eastern and South-Eastern Hemisphere Countries has been at a high level.

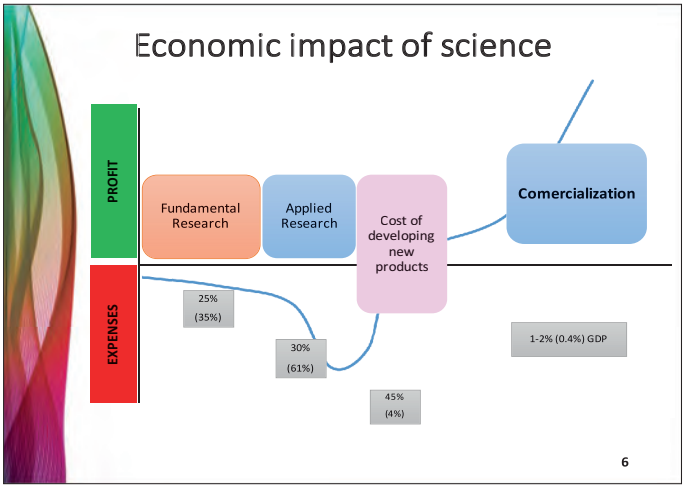
In its classical sense **science – is the process of obtaining new knowledge about the laws of nature and society.** In reality, science is **multifunctional**. It has three functions – **sociocultural** (science – part of the culture of the society), **educational** (impact on the level of education) and the function of the **influence on the economy**.

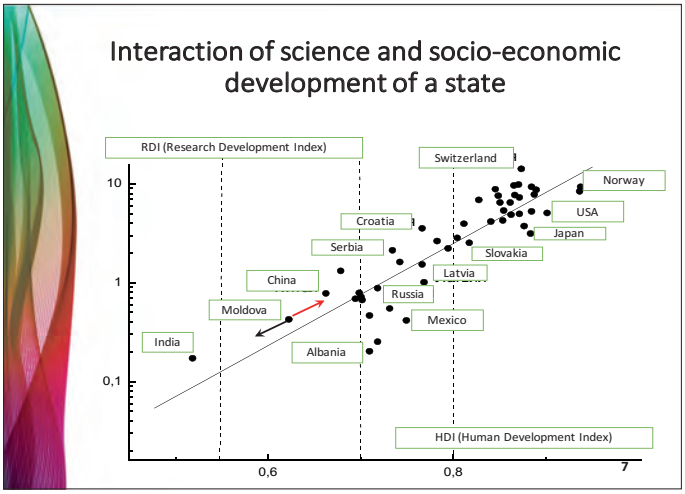


The performance of each of these functions require different amounts of funding. And to achieve a permanent impact at least **1.5-2% of GDP is required.**

In order to obtain economic effect, funding has to be distributed to fundamental and applied researh as well as into technology transfer for developing new products.

In this paradigm science can have a direct effect on society.





At a lower level of funding there is no relevant direct influence of science on the economy, such an impact will be indirect, because the level of development of science determines the **level of education in the society and the level of general knowledge**.

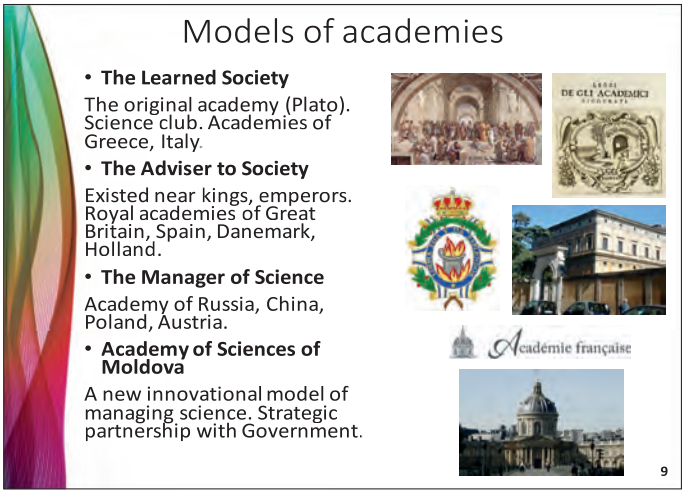
Following this model and in order to give the correct course of action **the Code on Science and Innovation of Moldova**, was adopted in 2004. The Academy of Sciences of Moldova offered its infrastructure for the scientific community and became coordinator of science in the country.

Under the Code on science and innovation, the Academy had to reform in order to become relevant for international competition. What was the role and impact of the Academy of Sciences of Moldova?

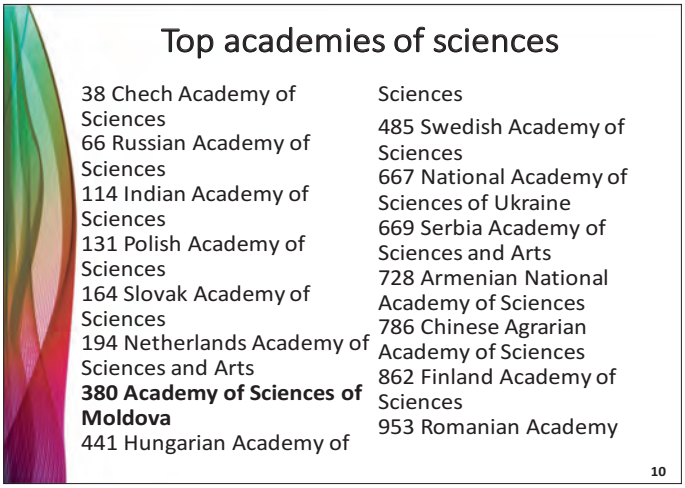
History has established many models for managing research by academies. **The Learned Society —**

The original academy of Plato), **the Adviser to Society and the Manager of Science**

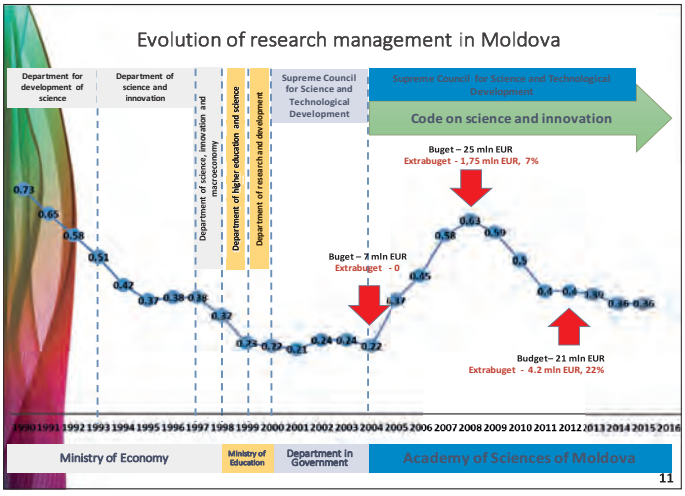
The Academy of Sciences of Moldova under the code of science and innovation created a new innovational model of managing science by a strategic partnership with Government.

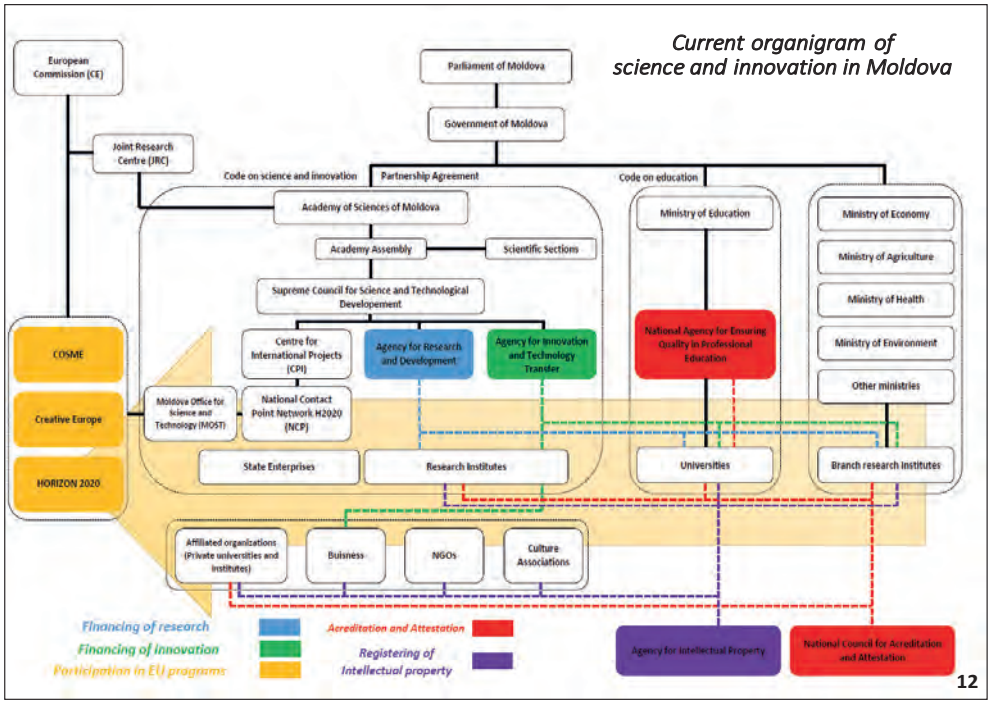


The new model became relevant and according to webometrics is rated 380 in the world.



The viability of the current model can of science management can be seen on the slide. Science in Moldova had many administrators but the result was the same – decrease in funding. Following the adoption of the Code on science and adoption of the new model this paradigm was reversed.

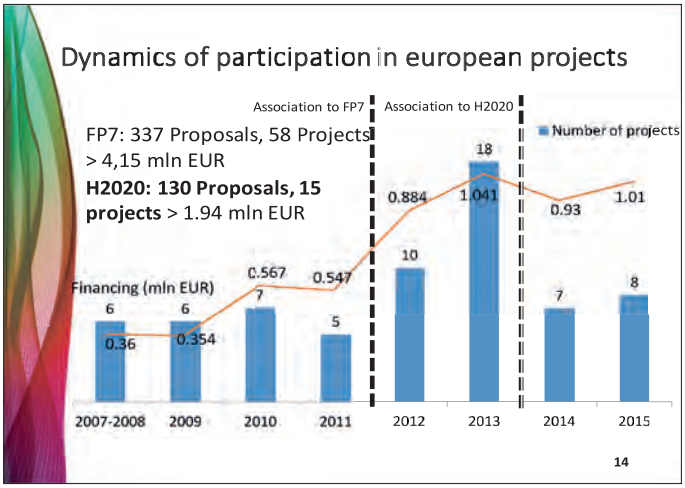




On the slide you can see the current science and innovation organigram.

The new model of science managment permitted the association of Moldova to the European Research Area. On the slide you can see the association to FP 7 and Horizon 2020.

What are our results in european projects? In total, more than 300 research proposals were submitted, 53 of them were accepted, total funding of 3.7 million euros. In H 2020 we submitted more than 130 proposals, 15 were accepted, total funding of almost 2 million euros.



Being stimulated by the European Research Area, the Academy of Moldova has asked for an international peer review exercise from the European Commission., that will help bring Moldova closer to european research.

What are the results that we are expecting? They are based on the following priorities:

Research performance;

Atracting talented youth into research;

Ensuring a positive financing trend for research, 1% of GDP untill 2020.

Next, I will present shortly the main reform actions.

Establish the National Agency for Research and Innovation which will be the central authority responsible for elaboration and realization of research, development and innovation policy and will distribute financing in project based competiton.

The Agency will organize the whole proces of selection, evaluation and financing of projects in public competitions.

Create the National Council for Research and Development will be a consultative entity of the Prime-minister, that will have three main tasks:

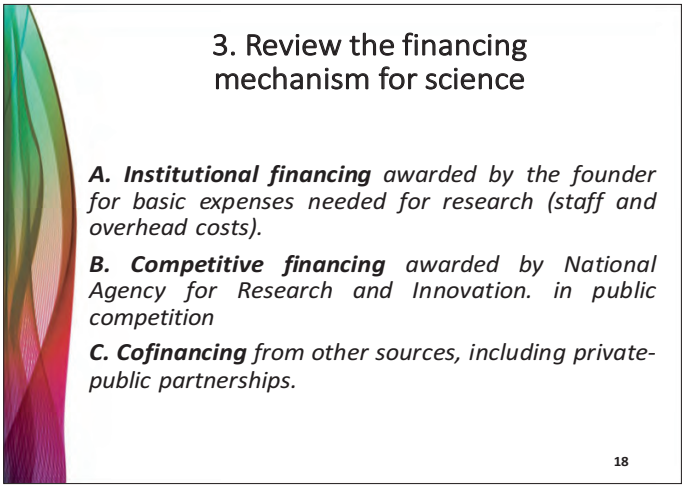
1. Examine research, development and innovation policy
2. Propose Government amount of financing for research
3. Ensure communication and cooperation among main research policy makers: government, buisness and scientific community.

Review the financing mechanism for science:

A. Institutional financing awarded by the founder for basic expenses needed for research (staff and overhead costs).

B. Competitive financing awarded by National Agency for Research and Innovation. in public competition

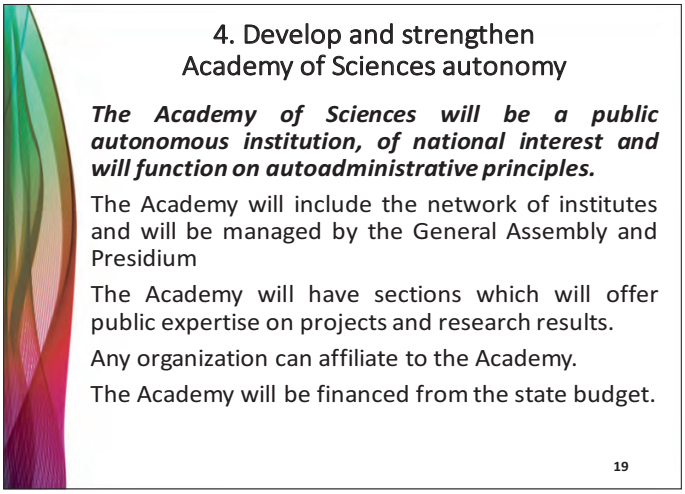
C. Cofinancing from other sources, including private-public partnerships.



The Academy of Sciences will be a public autonomous institution, of national interest and will function on autoadministrative principles.

The Academy will include the network of institutes and will be managed by the General Assembly and Presidium. The Academy will have sections which will offer public expertise on projects and research results.

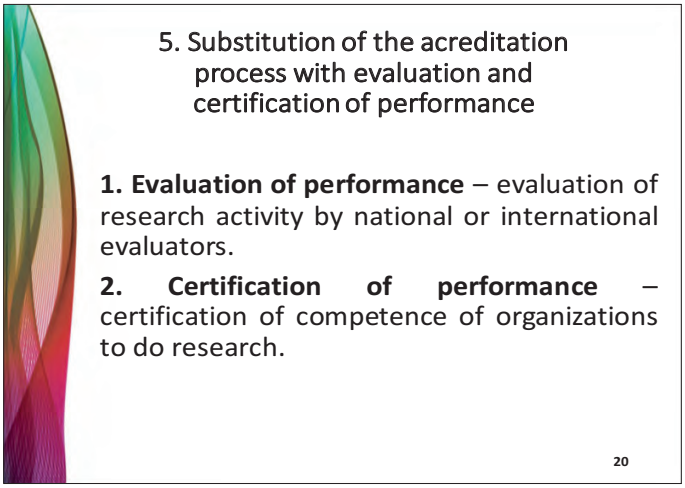
Any organization can affiliate to the Academy. The Academy will be financed from the state budget.



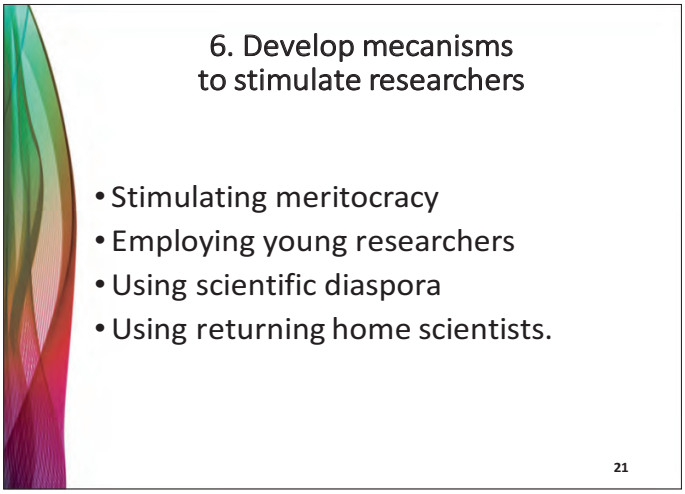
5. Substitution of the acreditation process with evaluation and certification of performance

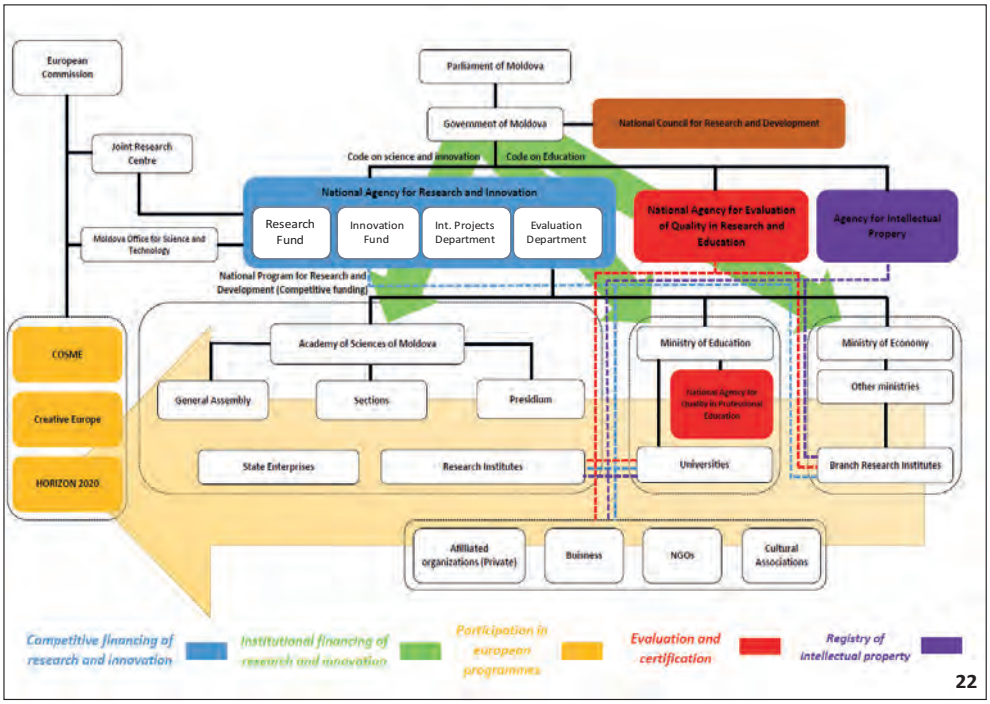
1. Evaluation of performance – evaluation of research activity by national or international evaluators.

2. Certification of performance – certification of competence of organizations to do research.



And last, develop mecanisms to stimulate researchers by stimulating meritocracy, employing young researchers, using scientific diaspora, using returning home scientists.





Following the reform the scientific community of Moldova will have the organigram presented on the slide.

We hope to achive succes in this reform in the benefit of the scientific community and society and not in its detriment. I hope to recieve your opinion and support for this reform. Thank you for your attention.