ADOPT BBMRI-ERIC
GRANT AGREEMENT NO. 676550

DELIVERABLE REPORT

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Author(s)	Markus Pasterk

REPORT OF COUNTRY MAPPING IN THE FIELD OF BIOBANKING

Report of country mapping in the field of biobanking

Executive Summary

One of the tasks of WP8 Internationalization of the ADOPT BBMRI-ERIC project is to map countries who in principle would benefit from a membership at BBMRI-ERIC and should therefore be contacted for admission. This work was done by screening all published National Research Infrastructure roadmaps, the ERA roadmaps or other official documents mentioning BBMRI or the field of biobanking. This review revealed that the table of National RI roadmaps published on the EC website http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri-national-roadmaps is actually outdated as many more new roadmaps or updates could be found using simple google approach. All "old" EU member states showing biobanking activities in their National RI roadmaps are already member of BBMRI-ERIC or in the status of applying soon (Ireland). The "missing" countries Spain, Denmark and Portugal do not prioritize Biobanking within their National roadmaps and for Luxembourg and Iceland no roadmaps are published. From the "new" EU members, Bulgaria, Hungary, Slovenia, Lithuania are not yet member but refer to BBMRI in their roadmaps, Poland, Estonia, Latvia, the Czech Republic and Cyprus are already integrated into BBMRI-ERIC.

This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 676550.

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Document log

Issue	Date (yyyy-mm-dd)	Comment	Author/partner
D8.1_Rev1	2017-09-06	Revised according to reviewer's suggestions: "The deliverable lacs sufficient discussion, especially around what ADOPT has done to accelerate and boost BBMRI-ERIC implementation, lessons learned, future work, recommendations etc. Also countries will be contacted through ESFRI contact points – schedule and priorities needed. • Inclusion of copy right notice; • Renaming heading "Description of work and efforts" into "Approaches (Methods)"; • Enlarging section Results with details on how to accelerate the processes. • Changes are marked in green colour	Markus Pasterk

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Approaches (Methods)

Based on the table from the EC website http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri-national-roadmaps a google check was done to identify new RI roadmaps or updated ones. In addition for those countries without RI roadmaps, ERA roadmaps were identified and assessed.

Schedule

This report was delivered in time on Sept 20, 2016

Results

See presentation in Appendix I with all results presented during the EBW2016 – BBMRI- LPC Forum in Vienna on September 15, 2016. In summary several EU Member States, who are not yet a Member of BBMRI-ERIC, quote the importance and/or list BBMRI on their National Roadmaps. These countries are: Ireland, Latvia, Hungary, Slovenia and Bulgaria. These will be the priority countries for the near future.

Next Steps

The countries identified will be contacted through ESFRI contact points and representatives of the scientific community to start negotiation processes. It is planned to hold a special Forum workshop with representatives of those countries during the Stockholm based "Global Biobanking Week 2017". Indeed, representatives were identified and invited during summer 2017.

With Ireland, the BBMRI-ERIC HQ is direct contact (Department of Health) and an application is foreseen to be submitted towards the end of 2017. Current plans with Slovenia is a joint Interreg application during September to identify Structural Funds for the establishment of a biobanking network in Slovenia, which will be the basis for the Ministry of Education of Slovenia to negotiate admission. During Bulgarian EU Presidency, a special Conference will be held on the Sustainability of RIs. Prof. Zatloukal, Austrian National Node Director, is a member of the Scientific Advisory Body. We are in contact with the Permanent Representation of Bulgaria in Brussels to organize a joining event. Latvian Ministry of Sciences has already requested the details for the joining procedures and we await the formal letter in the coming weeks. Hungary has recently stopped its National Roadmap approach but first contacts with Ministry of Human Capacities, Department for Higher Education and Research Strategy have been made.

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Appendix I

Include MP presentation from EBW2016

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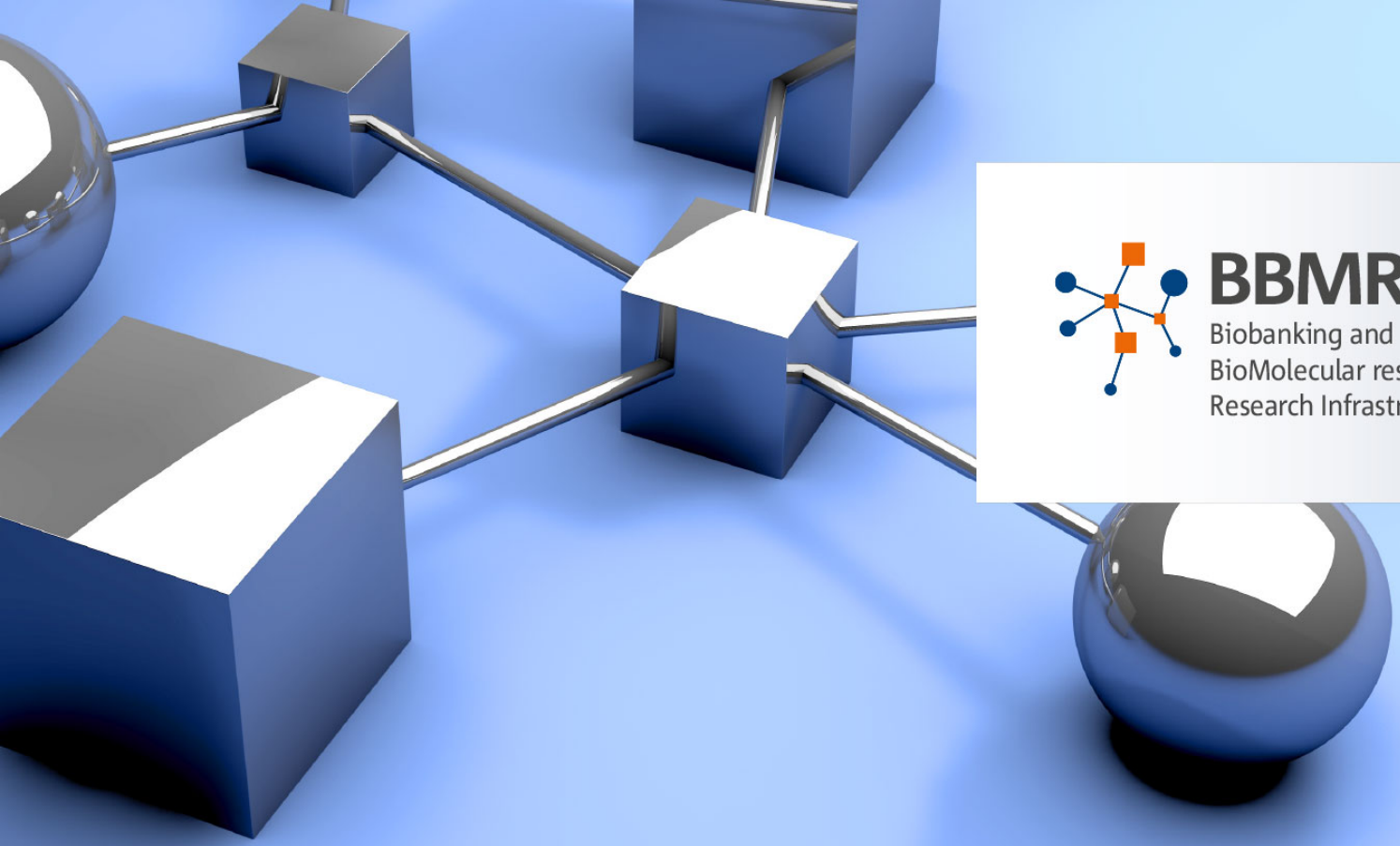


BBMRI-ERIC
Biobanking and
BioMolecular resources
Research Infrastructure

National RI roadmaps

Markus Pasterk

EBW16-LPC Forum, Vienna, September 15, 2016

Summary

- Why a national roadmap?
- EU and beyond
- “old” part of the EU
- “new” member and beyond

Why a national roadmap?

To quote the UK:

“Unlocking research opportunities requires both highly technical and often expensive infrastructure. Continued investment is therefore essential to enable the UK to maintain its world-leading position in research and to continue to make vital contributions to economic growth and social wellbeing.”

Cont´.

or Estonia:

“The general goal of research, development and innovation activities is to create favourable conditions for improving productivity and living standards, for achieving high quality education and culture, and the sustainability and development of Estonia. In order to reach these goals, researchers need good conditions to conduct their work. Without a modern research infrastructure we cannot have a globally competitive economic environment. Research infrastructure is the means (laboratories, equipment, devices, collections, etc.), knowledge, methods, material, and the related activities and used for the creation of new knowledge and the transfer, mediation and storage of knowledge.”

Which countries do have published roadmaps?

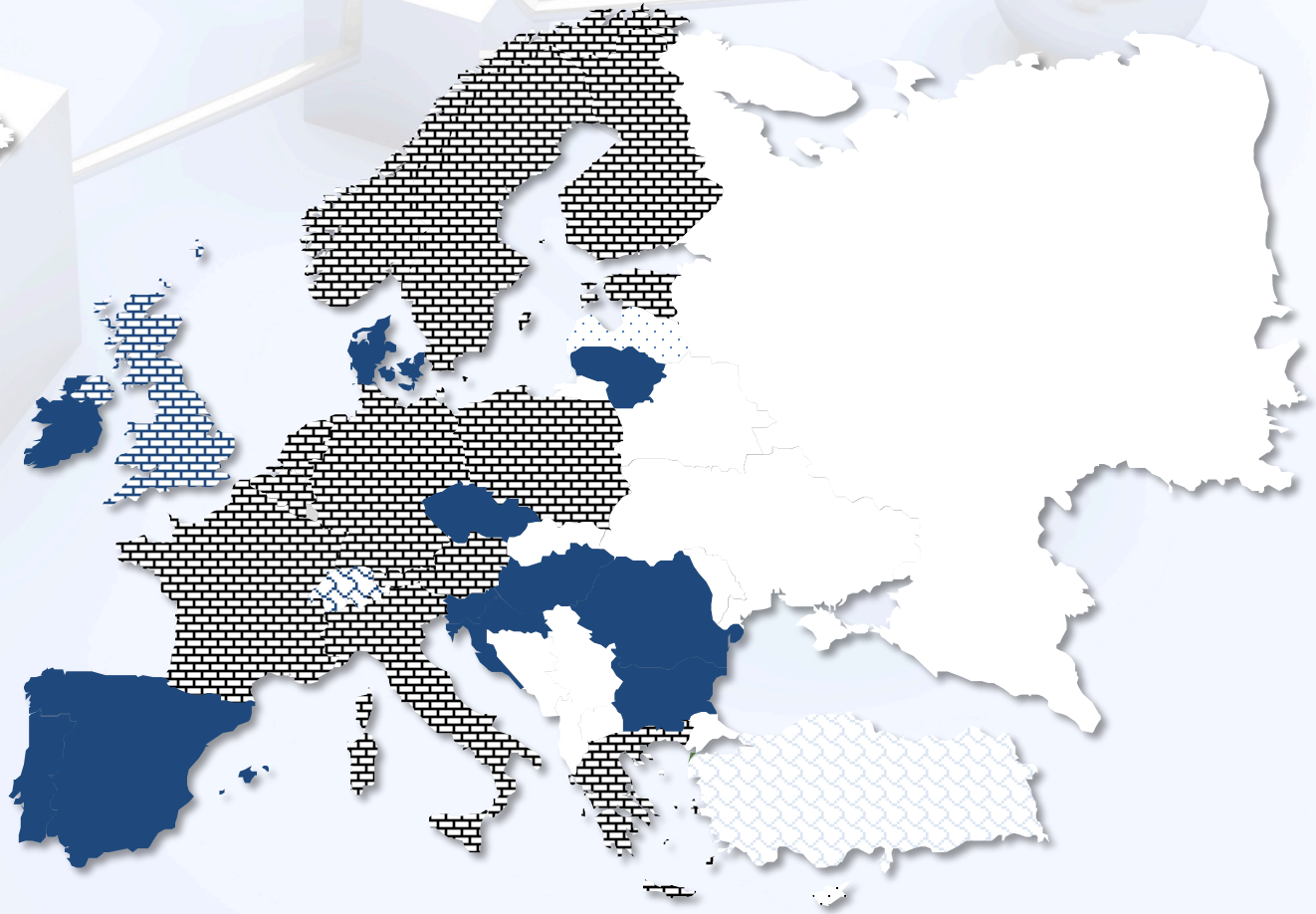
Source:
http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri-national-roadmaps

	Bulgaria	Roadmap published in 2010	BU EN
	Czech Republic	Roadmap published in 2010, updated in 2015	EN | CZ
	Croatia	Roadmap published in April 2014	EN
	Cyprus	Roadmap under preparation	
	Denmark	Roadmap published in 2011, updated in 2015	EN | DK
	Estonia	Roadmap published in 2010, updated in 2014	EE-EN
	Finland	Roadmap update published in 2014	FI | EN
	France	Roadmap published in 2008, updated in 2012 and 2016	FR
	Germany	Roadmap published in 2013	DE | EN
	Greece	Roadmap updated in 2014	EN
	Hungary	Unified national report and programme for the development of RI (2012) updated 2014	HU | EN
	Iceland	No roadmap available	
	Ireland	Roadmap published in 2007	EN
	Italy	Roadmap published in 2011 (update under preparation)	IT
	Latvia	No roadmap available	
	Lithuania	Roadmap published in 2011, update 2015	EN
	Luxembourg	No roadmap available	
	Malta	No roadmap available	
	The Netherlands	First Roadmap published in 2008. Updated in 2013	EN
	Norway	Roadmap published in 2012. Updated in 2014	EN Projects on the Norwegian Roadmap for RI 2014 (In Norwegian)
	Poland	Roadmap published in 2014	PL
	Portugal	Roadmap published in 2014	EN
	Romania	Roadmap published in 2008. Updated version under preparation	EN
	Slovak Republic	No roadmap available	
	Slovenia	Roadmap published in 2010-2011	EN
	Spain	Roadmap updated in 2013	EN | ES
	Sweden	Roadmap published in 2011 (3rd edition)	EN
	Switzerland	Roadmap published in 2015	EN
	United Kingdom	Roadmap published in 2010 Updated in 2012. See 'Investing for growth: Capital Infrastructure for the 21st Century':	EN Update version
	Turkey	Roadmap under preparation	

- Roadmap under preparation
- Roadmap available

European landscape of published RI roadmaps

BBMRI-ERIC membership



Western Europe

All “old” EU member states showing biobanking activities in their National RI roadmaps are already member of BBMRI-ERIC or in the status of applying soon (Ireland). The “missing” countries Spain, Denmark and Portugal do not prioritize Biobanking within their National roadmaps and for Luxembourg and Iceland no roadmaps are published.

Bulgaria

Translation from Bulgarian language

THE REPUBLIC OF BULGARIA
COUNCIL OF MINISTRES

Copy

RESOLUTION No. 692
21 September 2010

FOR ACCEPTANCE OF NATIONAL ROADMAP FOR RESEARCH INFRASTRUCTURE

THE COUNCIL OF MINISTERS TOOK THE FOLLOWING RESOLUTION:

1. Accepts the National Roadmap for Research Infrastructure according to the appendix in the proposer's report.

2. The Minister of Education, Youth and Science shall form a Coordination Council committed to implementation and monitoring of the National Roadmap for Research Infrastructure.

3. Expenditure on the implementation of the National Roadmap for Research Infrastructure, paid by the state budget shall be within the bounds of the approved budgets for a relevant year of institutions concerned.

FOR PRIME MINISTER: /signature/ Simenon Diankov

CHIEF SECRETARY TO
THE COUNCIL OF MINISTERS: /signature/ Rossen Zhelyazkov

According to the recommendations of the international panel of experts Bulgaria should participate in five European projects. PRACE Project is validated by the Ministry of Transport, Information Technology and Communications and will be predominantly coordinated by them.
Any future expansion of Bulgarian presence in the European strategy for research infrastructure will be possible on the grounds of external assessment according to the current national roadmap. The Ministry of Economy, Energy and Tourism will take part in the review of effectiveness and advantages of our participation in new projects in reference to item 5.5.
There is a specific consortium of national organizations corresponding to each infrastructure. The accession of new members is recommendatory and will be possible after filing a request and motivation letter addressed to the attention of the Ministry of Education, Youth and Science or in the case of **PRACE** Project to the attention of the Ministry of Transport, Information Technology and Communications as well as the Ministry of Education, Youth and Science.

Name of infrastructure	Biobanking and Biomolecular Resources BBMRI
Infrastructure coordinator and location	Medical University, Graz, Austria. BBMRI is a distributed infrastructure and participating countries insure modern equipment and information infrastructure on a national and regional level
Bulgarian consortium	**Financial coordinator for Bulgaria:** Ministry of Education, Youth and Science **Scientific coordinator:** Medical University - Sofia **Participants:** Local medical universities, Регионални медицински университети в страната, Institute of Microbiology, Bulgarian Academy of Sciences, university hospitals; Sofia University "St. Kliment Ohridski", National Supercomputing Center
Development stage	Establishment of a network of national biobanks, development of quality standards at all operative stages of the research infrastructure. It is expected to enter in exploitation during 2012.
Necessary financial resource	Development of national infrastructure (see part 6 – National Research Infrastructure) Operative costs: 200 000 BGN per annum after 2013

A working group of experts coming from various organizations – Bulgarian Academy of Sciences, universities, National Council for Scientific Research, non-governmental organizations, ministries and Bulgarian delegates in the European Forum – classified the received applications in thematic fields, consolidated, where that was possible, overlapping institutions and suggested the following networks for validation by international experts:

- Regional Astronomy Center for Scientific Research and Training;
- Distributed infrastructure[7] for conservation, access and e-preservation of artifacts (archeological, folklore);
- Social Research of the Balkans – a network in the sphere of social research of regional importance;
- Distributed Infrastructure for sustainable development and risk management in the sphere of sea research;
- Distributed Infrastructure for Alternative and Renewable Energy Sources
- Distributed Infrastructure of centers for production and research of new materials and their application
- Network for Delivery and Analysis of plant and genetic resources for the development of sustainable agriculture in the region;
- Regional center for purification and analysis of biologically active substances in herbs for medical application;
- Center for Genome, Proteome and Metabolome Research of rare genetic diseases in the various ethnic groups in Central and Eastern Europe;
- Regional center for computer simulation and projection of candidates for medicines (proteome analysis);
- Center for methods and approaches for Internet protocol security;
- Virtual network for digitalized written cultural and historical heritage.

	…TUTE FOR GENOME, PROTEOME AND …E RESERACHES, COMPUTER SIMULATION …TION OF CANDIDATES FOR MEDICINES, IN …E WITH BULGARIAN PARTICIPATION IN
	…ingle site: Medical University - Sofia …dination: …rsity - Sofia
	…agement: …ucation, Youth and Science
Bulgarian consortium	Molecular Medicine Center, Medical University – Sofia; Medical University - Sofia; Medical University – Pleven. Faculty of Physics, Sofia University "St. Kliment Ohridski"; Genome center of diseases of social significance, Bulgarian Consortium in Structural Genomics and In Silico Drug Design; Institute of Microbiology, Bulgarian Academy of Sciences Institute of Information and Communication Technologies, Bulgarian Academy of Sciences Aleksandrovska University Hospital AD; Tokuda Hospital; National Genetic Laboratory, University Hospital of Obstetrics and Gynecology "Maichin Dom".
Development stage	There are established distributed centers for high research competence in the sphere of molecular medicine; drug design, pharmacogenomics, cellular and targeted therapy.
Necessary financial resource	Preparatory phase: 4 million BGN Construction and Modernization Phase: 15 million BGN Operative costs (2013-2020): 2 million BGN per annum

Croatia

BBMRI is **not** mentioned; the biggest cohort in the country – "10001 Dalmatians – The Croatian National Biobank" – is **not** mentioned!

but:

h) *Center of Competence for Translational Medicine Srebrnjak*

The Center of Competence for Translational Medicine operates within the Srebrnjak Children's Hospital in Zagreb, and should enable an increase in capacities of the existing hospital with the purpose of establishing a competitive and innovative infrastructure for a new research paradigm that would conjoin clinical and basic research with practical application. The center aims to integrate different areas of top pediatrics and clinical trials with basic biomedical research units in order to help alleviate chronic childhood illnesses and develop innovative medicines and diagnostic procedures. The project is listed on the indicative list of of research infrastructure project proposals for the European Regional Development Fund 2014-2020.

i) *Upgrading the Capacities for Research in Translational Medicine at the Faculty of Medicine University of Rijeka (TransMedRi)*

The project Upgrading the Capacities for Research in Translational Medicine at the Faculty of Medicine of the University of Rijeka (TransMedRi) is conceived to bring together quality research groups, as the framework for the development of translational medical research, in the following priority areas: immunology, cancer research, regenerative medicine and functional neuroresearch. The project will also connect other institutions within the University of Rijeka, such as the Department of Biotechnology, Department of Informatics, Faculty of Humanities and Social Sciences, Science and Technology Park (SteP-Ri) and the Clinical Hospital Center Rijeka (the future University Hospital). The project is listed on the indicative list of research infrastructure project proposals for the European Regional Development Fund 2014-2020.

Hungary

Research infrastructures in Hungary

About the Hungarian participation in the European research infrastructure large projects that are, where appropriate, included in the Roadmap of the European Strategy Forum on Research Infrastructures and the development of the national research infrastructures

03 November 2014

NEMZETI INNOVÁCIÓS HIVATAL

In regards to **medical sciences**, it can be concluded that:

- the general and
  terms of assets in
- the level of buildi
  field of general m
- significant constru

Life sciences

The major trends relevant from the perspective of RI development in the field of life sciences are as follows:

- The high-throughput and high-resolution measurement technologies have begun to develop rapidly.
- The genome sequence of an increasing number of species becomes known.
- The systematic collections of biological specimen sources (e.g., biobanks, genetically modified model organisms, ecological and biodiversity databases) are widely used.
- The development of the technologies and biological model schemes has resulted in the explosion of data and information, the systematisation and analysis of which necessitated the establishment of a high number of specialised databanks and analysis systems, namely, the creation of a new discipline, bioinformatics, and the birth of "computational biology and medicine".
- It can be evaluated as a significant change that, while the vast majority of the new RIs appearing in the life sciences used to be developments based on the earlier results of physical sciences (see the line of RIs applying electronic and chemical basic research), there have been more and more RIs since the early 2000s, which established new scientific areas linked to the life sciences already at the level of the basic idea (see the molecule sequencers applied in genetics or the new tools in nanobiology).

All these launched a paradigm shift in the life sciences: in addition to and relying on the "hypothesis-driven" research, "data-driven" research, namely research based on the collection and analysis of large amounts of data has become prevalent, and systematic approach and network research are becoming dominant in all branches of biology, including, in particular, medical biology, pharmaceutical research and development, as well as clinical research. The practical application of the results of frontier research has significantly accelerated particularly in clinical practice, biotechnology and the agriculture.

Research infrastructures functioning as local, regional and international service centres, which often operate successive complex instrumentations, have become more widespread. They also prepare the sample corresponding to the workflow, and also help in processing and analysing the data. These research infrastructures often perform these activities in the form of services.

The foreign infrastructures recommended for participation – i.e., the subject for the opinion of the RI Working Group – broken down by discipline and type are the following:[3]

Table 1

Discipline	Recommendation for the further use of infrastructures	Participation costs	ESFRI recommendation for participation	Participation costs	Recommendation for participation in non-ESFRI programmes	Participation costs
Life and Medical Sciences			BBMRI	40 k euro/year		
Life and Medical Sciences			EuroBioImaging	65 k euro/year		
Life and Medical Sciences			ECRIN	100 k euro/year		
Life and Medical Sciences			INSTRUCT	1,130 k euro/year		
Life and Medical Sciences			EU-OPENSCREEN			

BBMRI

There will be an ever increasing opportunity in the already existing, and, particularly in existing, but officially not registered and accredited biobanks. These biobanks – with direct fundraising – also constitute an essential background of basic (e.g. systems biology) and translational (e.g. genomic pharmaceutical engineering) scientific research.

The participation of the Hungarian biobank system in BBMRI ERIC generates considerable income (sales of biological samples) and enables the accession to major European competitions (EU7, EU8) due to special national population materials (e.g. Roma communities).

Latvia

Research infrastructures roadmaps – LATVIA

- Roadmap has not been accepted yet
- 9 National Research Centers selected in frame of ERDF project
- Recommendations for roadmap and ESFRI has been prepared by Latvian Council of Science

ESFRI *Road Map IR*	Scie
BBMRI	LBMC
EU-OPENSCREEN	LOSI
INSTRUCT	LBMC LOSI
MIRRI	LU
European Social Survey	LU
ELIXIR	LVAI LBMC LU MII
PRACE	RTU LU MII
European Spallation Source	LU FI
CLARIN	LU MII LU LLI

Copied from J. Klovins "the high-level group in RI in Baltic countries" 2014

Lithuania

INFRASTRUCTURES INCLUDED IN THE ROADMAP FOR RESEARCH INFRASTRUCTURES OF LITHUANIA 2014

No.	Acronym and name of the RI	Institution acronym	Relation with the ESFRI
1.	**E-lingua (CLARIN-LT)** – Electronic Resources of the Lithuanian Language	VDU	CLARIN ERIC
2.	**ESS LT** – European Social Survey	KTU	ESS ERIC
3.	**LIDA** – Lithuanian Data Archive for Humanities and Social Sciences	KTU	CESSDA ERIC
4.	**HUMRE*** – Research Infrastructure for Human Well-Being and Development	VU	SHARE ERIC
5.	**PITI Aruodai** – Heritage and History Research Infrastructure Aruodai	VU	DARIAH ERIC
6.	**AEROINFRA** – Aerobiological Research Infrastructure	ŠU	COPAL (ex-EUFAR)
7.	**MEDWAN** – Biomedicine Data Warehousing, Standardization and Analysis Research Infrastructure	KTU	EATRIS ERIC, BBMRI ERIC
8.	**REIA** – Research Infrastructure of Experimental Animals	LSMU VA, IMC	INFRAFRONTIER
9.	**CossyBio** – Centre for Computational, Structural and Systems Biology	VU, LSMU VUOI	ELIXIR, INSTRUCT
10.	**INECOM** – Infrastructure for Ecological Metabolimics	GTC, VU	EMBRC
11.	**Consortium Biobank-LT** – National Networks of Biobanks	SMJA	BBMRI ERIC
12.	**INOCHEMAS*** – Centre of Innovative Chemistry	FTMC	Neutron ESS
13.	**LitGrid-HPC** – Lithuanian Grid Infrastructure for High-performance Computing	VU	PRACE ERIC, CERN
14.	**Mechatronika** – Research Infrastructure of Mechatronics	KTU	
15.	**MNAAPC*** – Micro-, Nanotechnology and Analysis Open Access Centre	KTU	
16.	**MAO** – Molėtai Astronomical Observatory	VU	E-ELT
17.	**Laser RI** – High-intensity and Broad Spectral Range Ultrashort Pulse Laser Research Infrastructure of National and International Access	VU, FTMC	ELI ERIC
18.	**PTC** – Centre of Semiconductor Technologies	VU, FTMC	
19.	**SPECTROVERSUM** – Centre of Spectroscopic Characterization of Materials and Electronic/molecular Processes	VU	EUROFEL ERIC
20.	**AChePha*** – Centre for Applied Chemistry and Biopharmaceutical Research (Cluster)	KTU	INSTRUCT ERIC
21.	**ULTRATEST** – Ultrasonic Non-destructive Testing, Measurement and Diagnostics centre	KTU	
22.	**AGBC*** – Centre for Plant Genetics and Biotechnologies	LAMMC	

Research Council of Lithuania
ROADMAP FOR RESEARCH INFRASTRUCTURES OF LITHUANIA

Consortium Biobank-LT

Hosting institution: **Association of Santariškės medical institutions, P. Baublio St. 5, 08406 Vilnius**

Website: **http://www.biobank-lt.eu/**

Participating institutions:

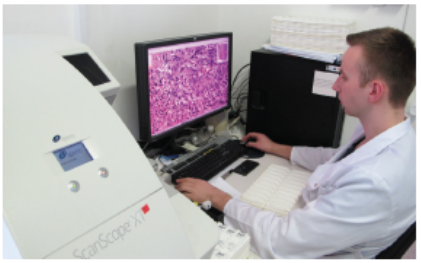
- Association Santaros slėnis;
- Innovative Pharmaceutical Industry Association;
- Association of Crohn's Disease and ulcerative Colitis of Lithuania;
- Association of Oncohematology Patients Kraujas;
- Oncology Hospital, Kaunas Clinical Hospital of the Hospital of the Lithuanian University of Health Sciences;
- Association of Santariškės medical institutions;
- Lithuanian University of Health Sciences;
- Kaunas Clinical Hospital of the Lithuanian University of Health Sciences;
- UAB Kamieninių ląstelių tyrimų centras;
- Children' Hospital, PI Vilnius University Hospital Santariškių klinikos;
- State Research Institute Centre for Innovative Medicine;
- National Centre of Pathology, PI Vilnius University Hospital Santariškių klinikos;
- Vilnius University;
- PI Vilnius University Hospital Santariškių klinikos.

RI type: network.
The Biobank-LT consortium replaced the Human Biological Resource Centre that was presented in 2010, and in 2011 was included in the Roadmap of Lithuania.

ESFRI and international cooperation: planned membership in BBMRI ERIC.

Modern fundamental and applied biomedical research requires high quality biological substances – human tissues, samples of body fluids, cells and genetic material. The consortium Biobank-LT is a national RI operating on an open network principle and uniting healthcare and research institutions, patients' organisations and the business sector. This research infrastructure will ensure access to large volumes of high-quality biological samples, and to documents required for good performance of biobanks, promote knowledge economy in the country and enhance the competitiveness of Lithuanian researchers in the international arena.

RIS IN BIOMEDICAL SCIENCES



THE NEED FOR AND THE PURPOSE OF THE RI

The life and biomedical research infrastructure is sufficiently developed in Lithuania. There is a number of highly qualified specialists working in the area; however, the test material available is inadequate to engage in different research activities. A biological resource infrastructure in Lithuania is required in order to ensure the successful collection of large volumes of biological material, and the preparation and preservation of samples suitable for research.

The new national network of biobanks under development will become a national centre for biological resources to be used in biomedicine, bio-pharmaceutical and biotechnology studies. The Biobank-LT consortium will bring together not only the resources (biobanks), but also the users of biobanks (scientists, pharmaceutical and biotechnology companies), as well as the final product users, i.e. patients (personalised medicine). The Biobank-LT consortium will engage in the promotion and publicity of the activities of Lithuanian biobanks, seek to attract international partners and investors, participate in international projects and fill the gap in the Lithuanian life science system.

ACTIVITIES AND SERVICES

For researchers, the Biobank-LT consortium will provide access to a wealth of high quality biological samples, based on sound principles, both on the national and international scale.

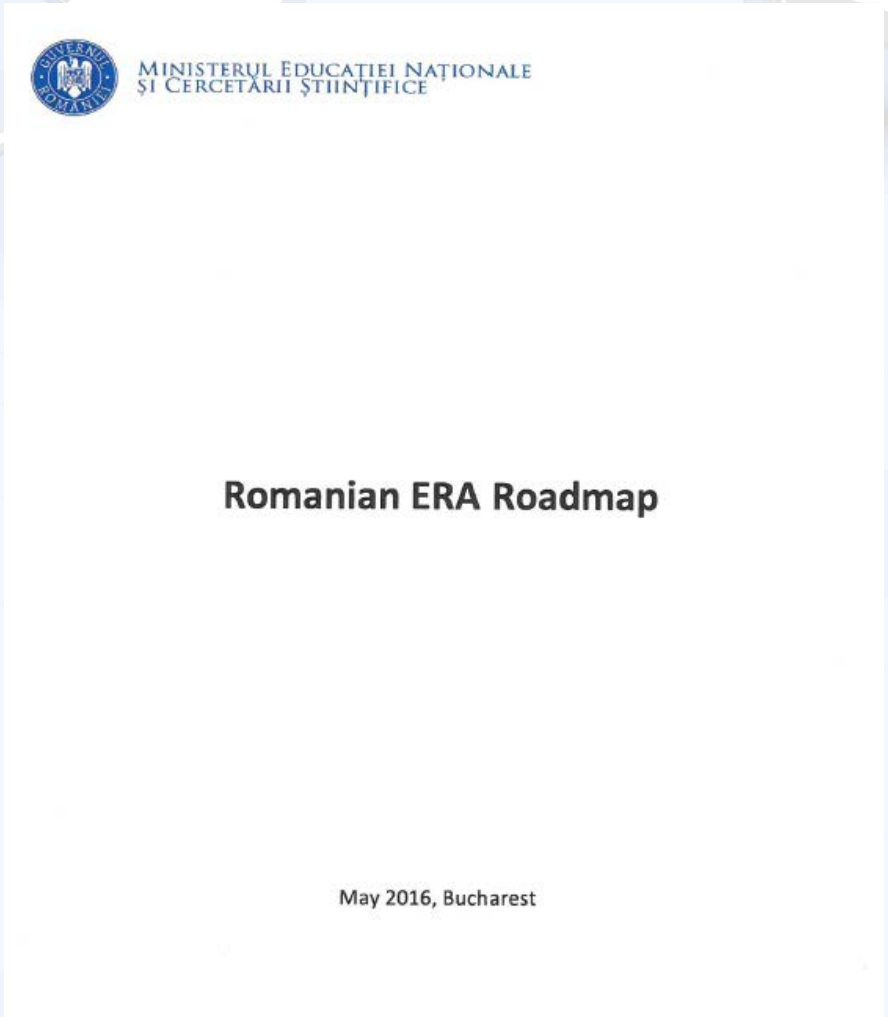
The consortium will follow the best practice of European and global network structures of the type. The Biobank-LT consortium will integrate the biobanks operating in Lithuania into a single network, ensure universal access to the shared information system of biobanks, develop an integrated quality management system compliant with the international standards, ensure integration with local and national healthcare sector information systems, and represent the interests of Lithuanian biobanks at national institutions and international organisations.

STRUCTURE AND INTERNATIONAL COOPERATION

The consortium Biobank-LT is a network infrastructure with no legal personality, incorporated under a joint activity agreement signed by clinical hospitals of Lithuanian universities, higher education and research institutions, biotechnology business entities, patients' organisations and medical associations.

The Biobank-LT consortium intends to join the European biological research infrastructure BBMRI ERIC. The membership in the European research infrastructure will provide Lithuanian researchers with access to the collections of human biological resources and other high quality data accumulated at the biobanks of BBMRI ERIC network partners. Joining BBMRI ERIC will enable the national network of biobanks to adopt the best operational practice, the relevant standards, quality management systems, legal regulations, information technology solutions, and create the conditions conducive to international integration of science.

Romania


MINISTERUL EDUCAȚIEI NAȚIONALE
ȘI CERCETĂRII ȘTIINȚIFICE

Romanian ERA Roadmap

May 2016, Bucharest

Priority 2b. Optimal use of public investments in research infrastructures

Context

In the last decade Romania has invested significant amounts in building up or upgrading research infrastructures (RIs), as one of the main tool used to increase research performance as well as strengthen participation in EU R&D programs. In this respect, both the National Plan for R&D (2007-2013) and EU Structural Funds (2007-2013) had particular lines of funding for RIs.

At European level, Romania has increased its role in pan-European infrastructures, by participating in several consortia dedicated to setting up world-class RIs in different scientific areas.

Specific attention was paid to RIs included in the previous ESFRI Roadmaps[2] (e.g. FAIR, EPOS, EMSO, LIFEWATCH, ELI etc). In particular, Romania is hosting one of the three ELI pillars, namely the ELI-Nuclear Physics (ELI-NP). Its construction is jointly funded by the Romanian Government and the European Commission through Structural Funds (Sectoral Operational Program – Increase Economic Competitiveness 2007-2013 and the Competitiveness Operational Program 2014-2020). The construction of ELI-NP is well on track and it is expected to be fully operational in the next few years.

In the last period, Romania has continued to be an important player in European RI landscape. In the recent update of the ESFRI Roadmap that was publicly presented in Amsterdam on 10 March 2016, Romania is mentioned as the coordinator of the "active project" entitled "International Centre for Advanced Studies on River-Sea Systems" (DANUBIUS-RI). Several European countries are prospective members of DANUBIUS-RI, while the number of participants is even larger. It has to be mentioned that DANUBIUS-RI is not a singular Romanian participation to the new entries of the ESFRI Roadmap 2016, where Romania is playing an important role (e.g. ACTRIS -Aerosols, Clouds and Trace Gases Research Infrastructures).

Furthermore, Romania is participating in other more projects labeled as "emerging projects". (e.g. METROFOOD, in food & health area). This type of initiative is closely followed by the national authorities and supported in order to strengthen their maturity and become "active projects".

In parallel, the existing RIs are encouraged to actively participate in pan-European RIs (e.g EU OPENSCREEN and MIRRI).

Objectives

a) Focus public investment in national R&D infrastructures with high rates of use
Indicator: national roadmap for RIs
Indicator: budget allocated to Romanian participants to pan-European research infrastructures
Indicator: number of R&D infrastructures with quasi-continuous activity

b) Active participation in ESFRI research infrastructures
Indicator: number of Romanian participations to ESFRI work groups

Measures

Update of Romanian roadmap on research infrastructures

Romania is actively participating in the construction of several research infrastructures, at both national and international level. Funds from the national budget and structural funds are used to build up research facilities ("green field" and / or "upgrade"). Romania also participates to the construction of pan-European research infrastructures (e.g. ELI, FAIR) while a new project – DANUBIUS-RI – was included in the ESFRI Roadmap in its most recent edition (2016). Therefore, the Romanian roadmap for research infrastructures (issued in 2008) should be updated.

Support Romanian participants to pan-European research infrastructures listed in ESFRI 2016 roadmap

European integration of research system means, among others, linking Romanian research infrastructures to pan-European ones, sharing resources and obtaining the benefits of works and results generated by the scientific community within a well-regulated framework. The Romanian Government will pay special attention to the "active projects" category in ESFRI 2016, as well as to "emerging projects" that are to be funded via the INFRADEV call launched within H2020. Furthermore, attention will be paid to future projects with Romanian participation that will fit the (updated) roadmap and national research strategy recently adopted.

Further development of the open platform for RI services (ERRIS)

Over the past decade, Romania has substantially improved the state of its research infrastructures, mostly funded through competitive financing schemes including the dedicated RD&I streams of European structural funds. As previously mentioned, this has raised important issues, such as improving access to RIs, the rate of usage and ensuring the sustainability of these resources. Funding should continue to be provided under similar streams by 2020. The recently opened portal for RI services, ERRIS (www.erris.gov.ro) will be employed to expand the service-oriented approach with researcher-attracting information.

Slovak Republic

Partnership Agreement of the SR
for the years 2014 – 2020

ONLY THE SLOVAK VERSION OF THE PARTNERSHIP AGREEMENT IS AUTHENTIC

1.1.2.1.2 Supporting investment in research, development and innovation through smart specialisation

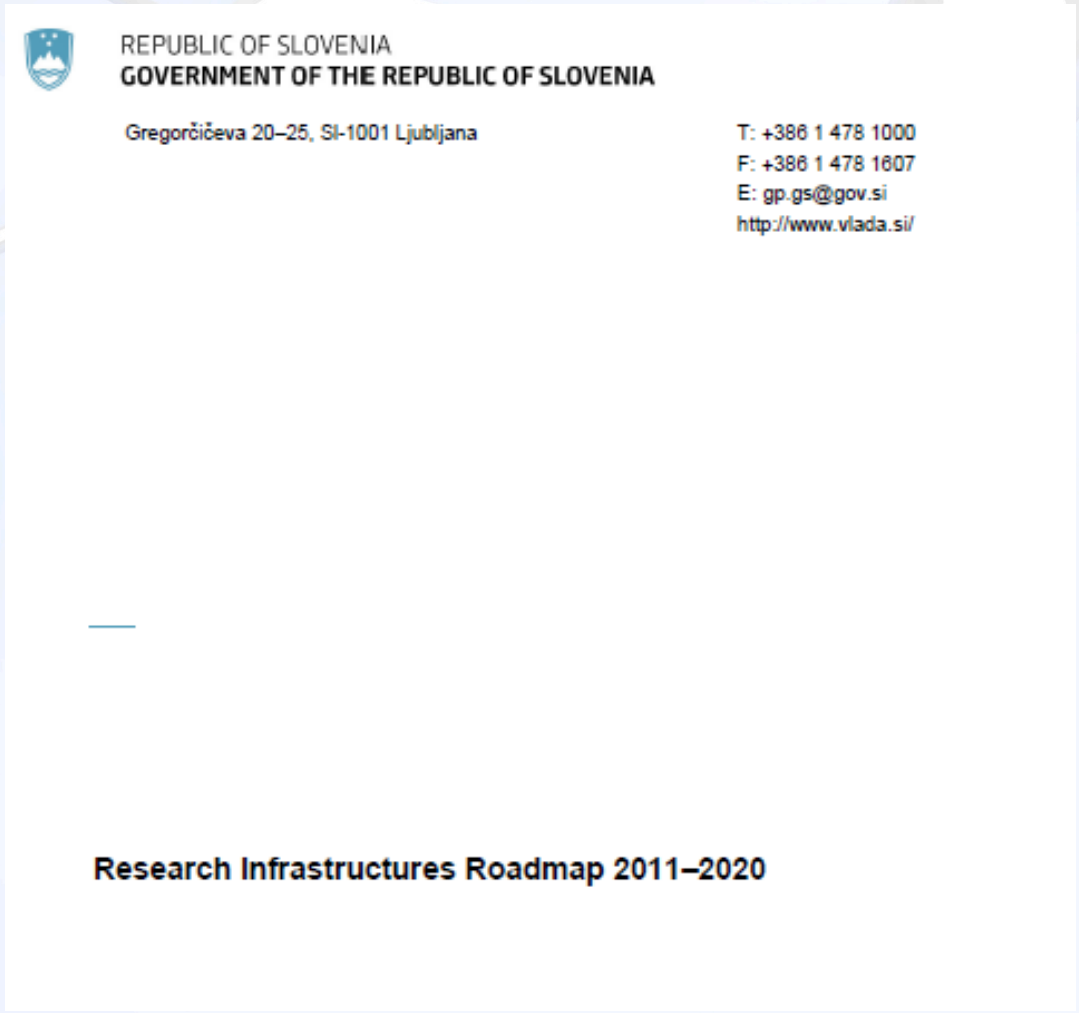
The investments by industries into RD&I cover only about 9 % of public research and mirror the low demand for innovation. This low level, as a consequence of market disintegration in Slovakia, is one of the main reasons behind currently a low innovation performance.

The support for research and active cooperation among businesses, R&D centres and the education sector should lie in the development of products and services, transfer of technologies, innovation of processes, and the creation of information-sharing networks. This should be achieved through smart specialisation and concentration of resources into the RD&I areas stipulated by the RIS3 Strategy. At the same time, support should also focus on creating conditions for the implementation of prototypes and their verification through investments in the most promising areas, taking into account of the R&D base built in the 2007–2013 programming period. The main objective of the RIS3 Strategy is to "induce structural change of the Slovak economy towards growth based on innovation capabilities and excellence in R&I aimed at supporting sustainable growth in income, employment and the quality of life". [19]

From the viewpoint of global excellence and with due regard for local relevance the following priorities have been identified for the purposes of smart specialisation: areas of economic specialisation (automobile industry and mechanical engineering, consumer electronics and electrical devices, ICT products and services, iron and steel manufacturing and processing) and areas of specialisation in terms of available scientific and research capacities (material research and nanotechnologies, information-communication technologies, biotechnologies and biomedicine, agriculture and environment, including modern environmentally-friendly chemical technologies, sustainable energy[20] and energies)[21]. The promising areas of specialisation are defined in a similar level of detail. These areas are accompanied by the identification of key societal priorities: youth employment, social inclusion and problems of marginalised groups, population ageing and quality of life, and a more efficient use of natural resources, including emission reductions and eco-innovations.

The barriers to effective cooperation among all RD&I actors, which need to be eliminated from the academic sector in the upcoming period, exist mainly as a consequence of the absence of policies, rules and tools to support cooperation between the research and industrial sectors, as well as missing platforms for the development of cooperation.

Slovenia



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Research Infrastructures Roadmap 2011–2020

5. Annex 1: Upgrading the Roadmap

Simultaneously with monitoring the implementation of the Research and Innovation Strategy of Slovenia (RISS) for 2011–2020, the implementation of the Research Infrastructures Roadmap 2011–2020 will be monitored. In accordance with the evaluation process of the impact of RISS measures and its updating in 2015, this Roadmap will also be updated if necessary.

Among the priority international projects that were not proposed during the preparation of the draft of this document, but during the public discussion, which prevented an expert assessment of the proposals under the same conditions and criteria that applied to other priority projects, are also the EPOS and BBMRI projects. An expert assessment of these proposals, from the viewpoint of including them among priority international projects, will thus be performed at the first revision of the Research Infrastructures Roadmap 2011–2020.

Slovenia's activities to date

Slovenia is an associate member in the 2008–2011 preparatory BBMRI period. The tissue bank of neuromuscular diseases of the Institute of Anatomy at the Faculty of Medicine at the University of Ljubljana is a member of the EuroBioBank network, which is a model for the biobank network in the field of rare diseases within the BBMRI. This network provides a critical mass of samples to researchers for research of neuromuscular diseases by combining samples that were dispersed in various biobanks.

Expected benefits of Slovenia's participation in the project

It is of great importance that the biobanks of small countries like Slovenia participate in the BBMRI, because they contain samples of a genetically-specific environment, which is particularly relevant for medicine regarding research and genetic causes of rare diseases or rare types of cancer.

The biological resources in Slovenia are very dispersed and poorly connected; therefore, their integration and technological upgrade is a national priority. Slovenia's link with the BBMRI may significantly contribute to the internationally suitable technical and methodological harmonisation thereof, while providing access to the other samples in the BBMRI.

Financial aspect

The membership fee in the BBMRI in the preparatory period has not yet been specified, but the investments in the upgrade and integration of national research infrastructure have been defined in the chapter on national priorities – 3.4.4 Biotechnology, biomedicine and biological resources.

Other non EU countries

- Serbia
- Montenegro
- Ukraine
- Moldova
- Georgia

Serbia

SERBIA RESEARCH, INNOVATION AND TECHNOLOGY TRANSFER PROJECT

Objectives

The objective of the Project is to stimulate collaboration between public research and development (R&D) sector and the private sector in order to commercialize R&D and promote technology transfer.

This pilot Project will facilitate reorientation of the public research sector toward the needs of the private sector and support a framework for increasing the efficiency of future investments in research and innovation in Serbia.

Components

1. Component 1 – **Technology Transfer Facility**. This component supports the establishment of a centralized Technology Transfer Facility (TTF) within the Innovation Fund, employing international and local experts in order to stimulate and coordinate technology transfer of public R&D organizations. It also provides support services to local Technology Transfer Offices (TTOs), research and development (R&D) and innovation support organizations to enhance their capacity and effectiveness to consummate deals.

2. Component 2 – **Collaborative Grant Scheme**. A new financial instrument designed with the technical assistance from the World Bank, and managed and implemented by the Innovation Fund.

The Collaborative Grant Scheme provides financial assistance in the form of subgrants of up to EUR 300,000 to consortia consisting of at least one Serbian private-sector company and at least one registered Serbian R&D organization, with the aim of bringing together the best potential from the private and public research sectors in implementing activities which will explore research and technological potentials and provide clear prospects for commercial use and exploitation.

3. Component 3 – Development of an R&D and Innovation Strategy, an R&D Infrastructure Roadmap and corresponding Action . This component is led by the Ministry of Education, Science and Technological Development (MoESTD) with technical assistance from the World Bank.

Montenegro

Integration into the European Research Area

The Roadmap for research infrastructure established that the priorities in Montenegrin national roadmap should be determined annually. Next update of the Roadmap has been envisaged after the adoption of the Roadmap of the European Strategy Forum on Research Infrastructures 2016.

The Minister of Science established a working group to draft the Strategy of Innovation 2016-2020, to be adopted by the Government of Montenegro by the end of September 2016. This strategic document will establish a new objective of investment into research, development and innovation by 2020.

Montenegro

Ministry of Foreign Affairs and European Integration

CONTRIBUTION

for the participation of the Montenegrin delegation at the fifth meeting of the Stabilisation and Association Committee

Podgorica, 9 December 2015

The Stabilisation and Association Agreement between the European Communities and their Member States, on the one side, and the Republic of Montenegro on the other side (hereinafter referred to as: SAA), was signed on 15 October 2007 and entered into force on 1 May 2010, after completion of the ratification process.

Ukraine

"We would like to inform you that Ukraine expressed interest for the Horizon 2020 Policy Support Facility (PSF) Peer Review, a new instrument which has been set by DG Research and Innovation to support countries in reforming their R&I systems. The PSF Peer Review of the Ukrainian R&I system is planning to be conducted in the period from April to October/November 2016. The aim of this peer review is to provide external advice to the country authorities in the process of evaluating the R&I system and develop the recommendations in implementing R&I national strategies, in particular, towards successful integration to ERA. We are planning to use these recommendations to develop our national ERA action plan."

from the Report of National ERA actions plans and strategies, Brussels, April 2016

Moldova

Initial interest to join BBMRI-ERIC through the Moldovan Academy of Sciences; after change of Government no further actions

Georgia

Request for collaboration from Batumi Shota Rustaveli State University in setting up a biobank;

Actions to be planned and funding identified!