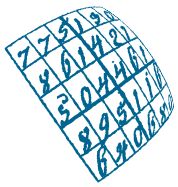

# ANNUAL REPORT 2014

SLOVENIAN RESEARCH AGENCY



SLOVENIAN RESEARCH AGENCY

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# Foreword

Prof Dr József Györkös

> On the basis of the excellent insight into all the parameters of scientific activities, the engagement in European institutions and the knowledge held by its colleagues the Agency can and should point out to policy makers the need for sound systemic solutions, such as regulation and sustainable funding at least at the level of 2009.

The Slovenian Research Agency (Agency) performs a challenging task in the public interest defined by law by providing permanent, professional and independent decision-making on the selection of programs and projects financed from the national budget. However, the Agency is not an isolated island. It supports a wider context with the impact of research results and their (undoubtedly) international impact. In recent years, the exposure of the Agency has increased significantly due to the variability of funds from the national budget, which undermines the achievement of the objectives set out in the strategic documents. The Agency's implementation of activities impacts or could impact considerably the attainment of these objectives.

Audacious Slovenia is the title of a brochure from 2011. In it, the ministry responsible for science and higher education published the texts of the Research and Innovation Strategy and the National Program of Higher Education. Both strategic documents, dealing with the situation until 2020, were adopted as the resolutions of the National Assembly of the Republic of Slovenia. Have we completely given up our audacity, which means the development, in the interim period marked by austerity measures? And when will dealing with mainly survival financing show negative long-term effects? The Slovenian Research Agency must do its job regardless the increasingly harsh external conditions. Gradual stabilization of the operations in the last ten years is of great help. Yet the Agency is not free from the continuous need for improvements and increased transparency of the public funding of science.

In the report for 2014 we would like to highlight the reflections of the members of the most important professional bodies of the Agency. There are at least two reasons for having asked the representatives of these bodies to share their thoughts with us. The first is undoubtedly the fact that the current term of office of the Scientific Council of the Agency and of the councils of individual scientific disciplines expires in 2015. The second is substantive in nature. All members of professional bodies have great insight into the functioning of the Agency which is closely monitored by the professional public and as a result often criticised as well as praised and provided with many ideas to improve the performance. Their very rich insights into the functioning of the Agency are rich in content but unified at least regarding one fact - multiannual subsequent decrease in the budgetary funds for science is a problem. Therefore, let's be direct. In the Agency, there are no savings left for systemic financing of science. The curve of available budget funds has been moving downwards ever since the first sharp decline in assets in 2012. The Resolution on Research and Innovation Strategy of Slovenia until 2020 is about two pillars of financing – the basic and development pillar. The resources available today which declined again compared to 2014 can only fund science at the basic level, which is far from being comparable to the upper third of the Member States of the European Union.

In the introductory part of the annual report, some authors highlight the need for systemic changes such as the relationship between public research institutes and universities, the importance of science for social development and the economy, and, finally, the eternal dilemma of the measurement of recorded scientific excellence. However, the question of whether "to measure or not to measure" science is not the right one or may not be the only one. We must ask ourselves how to measure and what to do with the results. When the European Science Foundation in its report on the functioning of the Agency mainly praised its operations it also drew the attention to over-mechanicistic approach to measuring scientific developments. This finding got to the essence of the current situation regarding the evaluation of scientific work. There is no doubt that it is necessary to evaluate all three categories: scientific excellence, the impact of scientific papers and the integration of results in society. It is important to support the evaluation by qualitative assessments which should be equally important when selecting and evaluating, finally or periodically, projects and programmes.

Thinking about science raises systemic issues which cannot be resolved by the Agency on its own. However, on the basis of the excellent insight into all the parameters of scientific activities, the engagement in European institutions and the knowledge held by the Agency's colleagues it can and it should point out to policy makers the need for sound systemic solutions, such as regulation and sustainable funding at least at the level of 2009. The results in science are the result of long-term work and organizational soundness. For better or for worse. Therefore, the year of 2015 may be a turning point for Science in the Republic of Slovenia.

Prof Dr József Györkös

# A great deal of work is still ahead of us.

Prof Dr Rado Bohinc, President of the Management Board

A growing number of publications and citations is an important success of research activities in Slovenia. However, this quantitative aspect can not be the exclusive or the main objective of the Slovenian research policy. The Agency should implement tools to promote quality and excellence in scientific research while supporting social and economic development, thus the usefulness of research in economic and social environment. It must develop tools of research policy to promote and measure these types of effects. It should also strive for greater focus and reduced fragmentation of scientific research, global competitiveness and international integration of Slovene research.

Unfortunately, today we can still see that lasting research and development ties have not been woven between public higher education and research organizations and commercial companies on research and development projects that are vital to the national development priorities. The research policy should more directly promote the objectives of the Resolution on Research and Innovation Strategy of the Republic of Slovenia 2011-2020 and the Slovene Industrial Policy 2014-2020, for example smart specialization, or create and increase value-added activities, where we have a comparative advantage and where there are market (export) opportunities. Investments in science should be planned, socially and environmentally responsible and focused on areas where we have the capacity, competence and innovation environment.

Research system does not allow universities to develop and create research policy aimed at integrating programme groups with the development of study programmes, i.e. in research creation of new knowledge, which is the cornerstone of quality in higher education. Higher education and research legislation divided the employees at the university into two parts: to the minority of university researchers who get a temporary shelter in programme groups, and the majority of higher education teachers who are not researchers or are researchers only partly or temporarily. We all know that the long-term is "sine qua non" of quality research and that research is a necessary condition for quality pedagogical work. Fixed-term employment, i.e. for the duration of a research project, places researchers in a socially weaker position in relation to their fellow academics, which is unacceptable.

> Long-term is "sine qua non" of quality research and research is a necessary condition for quality pedagogical work.
>
> Prof Dr Rado Bohinc

However, there are grounds for some optimism since researchers eagerly discuss the reform of criteria for the evaluation of science and responsible work of the Agency on this project. This fills us with hope that in future the quality of science is more important than quantity.

There is a number of other nuts of our research system and policy not cracked yet but unfortunately they are not under the domain of the Agency. It is necessary to change the law, especially the higher education and research law. In the last 10 years, Slovenia has not been capable of political judgment or responsibility for fundamental restructuring, which is more than necessary. Not only to improve the efficiency of research policy but also for better and more modern corporate governance of public research organizations and socially stronger position of researcher.

In 2014 despite initially good prospects for new higher education and research legislation again it was a year of missed opportunities. Everything is done the old way, even though we all know what is not good. However, the hope remains that the system deadlock will soon be exceeded; together with the commitment that we all continue to act with due diligence, responsibility and ethics.

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# Researcher in the spotlight: Dr Maša Filipovič Hrast

> In Slovenia, special attention should be placed on a high level of poverty and unemployment of the youth and the related topic of increasingly frequent precarious jobs.
>
> **Dr Maša Filipovič Hrast**

We would like to turn the spotlight on Dr Maša Filipovič Hrast who was successful as the leader of a Slovene research group with the project Our Children's Europe which won the NORFACE tender Welfare States Future.
Dr Maša Filipovič Hrast is an assistant professor at the Faculty of Social Sciences, University of Ljubljana, within the Chair for Organisational and Human Resources Management and Development and the Centre for Welfare Studies. She carries out research of quality of life, social exclusion and housing and social policies.

This year, I am starting the international project titled Welfare State Futures: Our Children's Europe which won the NORFACE tender. It is led by Professor Peter Taylor-Gooby, one of the leading authors in the field of social policy. The consortium also brings together researchers from Germany, Denmark, Norway and Belgium. The project addresses an important dilemma of contemporary societies, namely the future of the development of welfare states. A welfare state is based on a social contract on the basis of which individuals are willing to support the measures and objectives focused on the reduction of social inequalities, assistance provided to vulnerable groups and strengthening of social solidarity. It deals with the key risks which individuals are faced with, for example old age, poverty, unemployment, disease and parenthood. These risks are addressed by various systems such as the pension system, the system of health and social care, the system of parental and sick leave and unemployment benefits, as well as various services such as preschool child care. The welfare state endeavours to ensure equal opportunities and reduce social inequalities and the transfer of these inequalities from generation to generation where a key role is also played by a widely accessible education system.

Modern welfare states face numerous pressures such as globalisation, economic crisis, demographic changes (especially ageing population) and the changes in the family sphere. In a modern discourse, the focus is often on the question of the reform of a welfare state and its systems with a lack of funds frequently characterising its functioning. The withdrawal of a state as an agent providing welfare can be observed in targeted measures replacing more universal ones, the shift from unconditional to conditional welfare and a greater role of the private sector in the provision of different services.

Slovenia is no exception. Some systems of the welfare state have undergone a thorough reform. Irrespective of whether the reforms are carried out with the greater or lesser social consensus, it is crucial to maintain a focus on the situation of the most vulnerable groups. In Slovenia, special attention should be placed on a high level of poverty and unemployment of the youth and the related topic of increasingly frequent precarious jobs. Economist Thomas Piketty and lawyer and philosopher Alain Supiot draw attention to the increasing inequality in Europe and to the changes in the attitude to the issues of social justice. The important questions which are raised are how social justice is understood in modern societies and to what extent the welfare state enjoys the support of its citizens as well as what the views on the reform and development of welfare states are.

The project which will be implemented within the NORFACE programme will seek for the answers to exactly these questions, namely what the views of individuals on the future of the welfare state are and how they see the existing economic and financial constraints of modern welfare states. The answers to these questions are important for the development of the welfare state in the future in the broader European context as well as in Slovenia.

## NORFACE

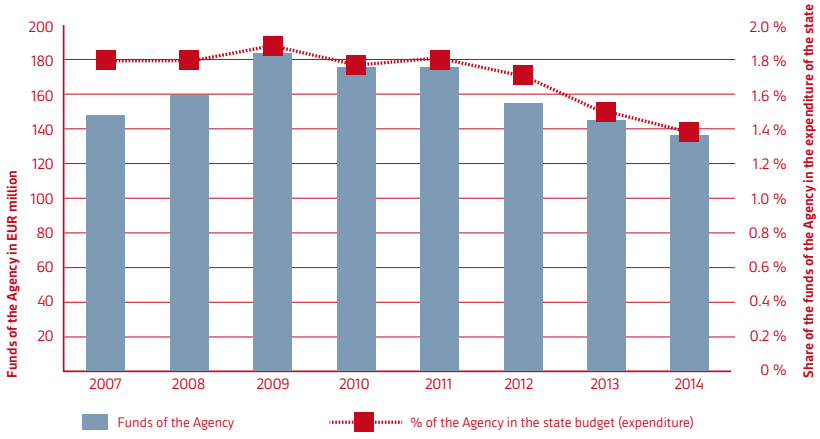
The Agency is a partner in the European network NORFACE (New Opportunities for Research Funding Agency Co-operation in Europe). The NORFACE Network comprises 15 agencies from various states coordinated by the Netherlands Organisation for Scientific Research (NWO). The main goal of the participation in the NORFACE Network is a Joint Call of the International Research Programme which is an opportunity for researchers in social sciences and humanities to obtain funding. The funding of successful projects is provided by the member agencies and the NORFACE Network also competes for additional funding of the ERA-NET Cofund of the European Union.
The NORFACE calls for proposals are always theme-oriented and promote interdisciplinary research. The applicants are international consortiums engaging at least three Member States being members of the NORFACE Network. In 2014, the third call for proposals within NORFACE was completed focusing on the Welfare State Futures within which 15 projects were funded.
In recent years, the Agency has placed much attention to close cooperation with potential applicants or research groups that are active in the fields of the tendered topics. The activities include the consultations on the topics of the international programme, information days and expert advice.

# Structure of financing

From the budget of the Republic of Slovenia through the Agency EUR 136.5 million was provided in 2014 for funding the scientific-research activities, which is slightly over EUR 8 million or approximately 6% less than the previous year. About a half of this difference is represented by the funds for information infrastructural service for Slovenian science whose funding was transferred to the competent ministry.

The level of the Agency's budget as the main source of budgetary funds for science in Slovenia has been reduced for the fifth year. From 2009 to 2014 the Agency's budget decreased from EUR 183.9 million to EUR 136.5 million, which means a drop of 25.8%. The share of the Agency's funds in the budget of the RS accounted for 1.88% whereas in 2014 it equalled 1.39%.

**Movement of the Agency's funds and a share of the Agency's funds in the budget of the RS**




**Allocation of the Agency's funds**

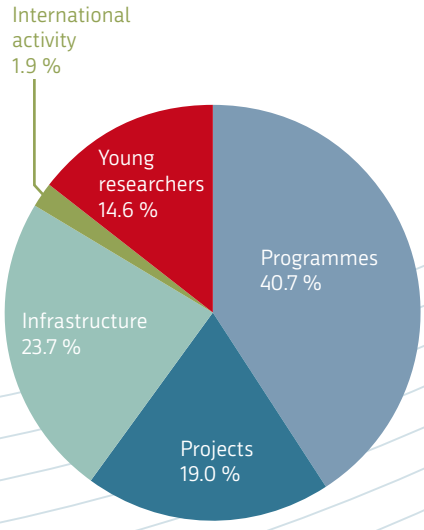
**Research programmes:** long-term financing of research expected to be topical and useful over an extended period of time.

**Research projects:** co-financing of basic, applied, postdoctoral projects and targeted research programmes.

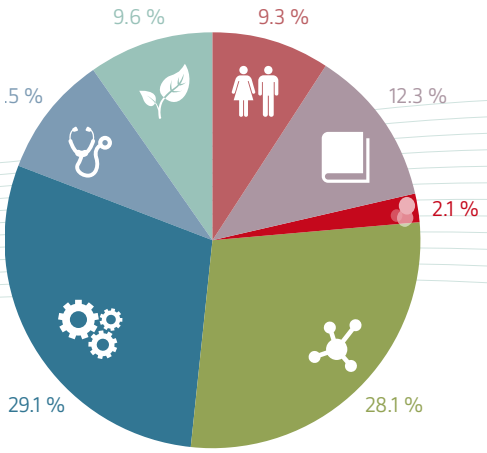
**Young researchers:** financing of postgraduate studies and research training for young researchers.

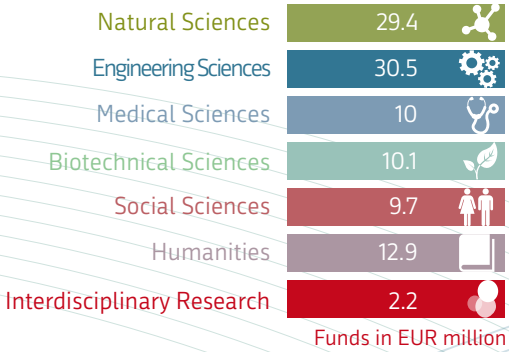
**International activities:** the programmes of international scientific cooperation, bilateral cooperation, the EU Framework Programme, the promotion of international cooperation with the EU and complimentary schemes.

**Research infrastructure:** co-financing of founding obligations and infrastructure programmes, COBISS and other library and information activities and infrastructure, foreign periodicals, databases, scientific and popular scientific publications.



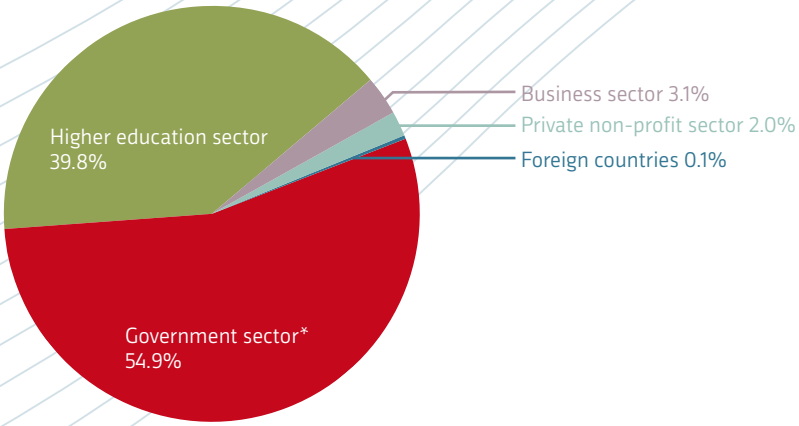
## Allocation of funds by scientific discipline[1]




[1] Funds for founding obligations, infrastructure programmes and similar that cannot be classified by discipline are not taken into consideration.

## Allocation of funds by sector of activity




[2] Public research institutes and other public institutes

**Prof Dr Maja Ravnikar**
is a full professor and the Head of Department of Biotechnology and Systems Biology at the National Institute of Biology. In the Scientific Council she covers biotechnology.

**Prof Dr Franc Strle**
Prof Dr Franc Strle is a full professor, Head of the Clinic for Infections Diseases and Febrile Illnesses at the University Medical Centre and a member of the Slovenian Academy of Sciences and Arts. In the Scientific Council he covers medical science.

**Prof Dr Anuška Ferligoj**
is a full professor at the Faculty of Social Sciences, University of Ljubljana, within the Chair of Social Informatics and Methodology. In the Scientific Council she covers social sciences.

# Scientific Council of the Agency

The Scientific Council of the Agency is the highest professional and advisory body of the Agency. It consists of six members representing all scientific disciplines according to the qualifications of the Agency. The current membership of the Scientific Council of the Agency started in 2010 and its five-year term of office expires in 2015.

**Prof Dr Vito Turk**
is the President of the Scientific Council of the Agency covering natural sciences. He is a researcher in biochemistry and molecular biology and a member of the Slovenian Academy of Sciences and Arts. In 2014, Prof Dr Vito Turk received Zois' Lifetime Achievement award.

**Prof Dr Rado Riha**
is a full professor of philosophy and the Head of the Philosophy Institute of the Scientific Research Centre of the Slovenian Academy of Sciences and Arts. In the Scientific Council he covers humanities.

**Prof Dr Denis Đonlagić**
is a full professor at the Faculty of Electrical Engineering and Computer Science, University of Maribor, where he is the Head of the Electro-optical and Sensor systems Laboratory. In the Scientific Council he covers technology and engineering.

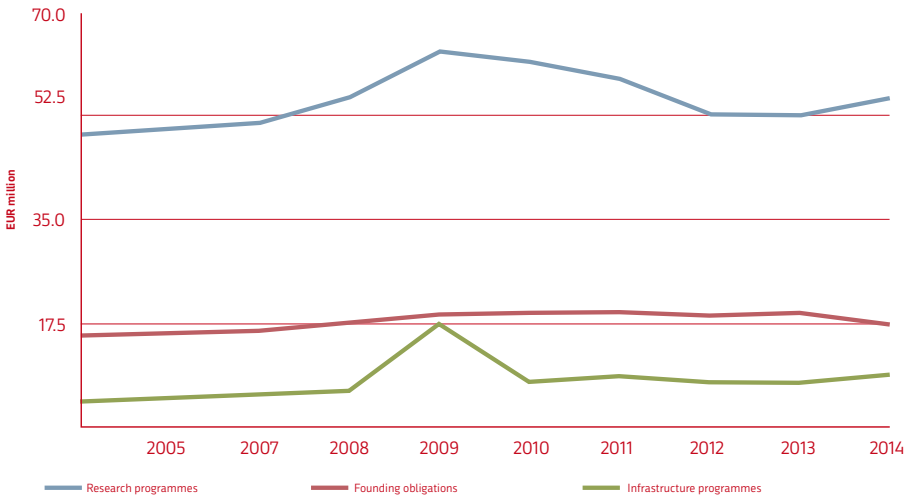
# Institutional financing

## Research programmes: EUR 55.6 million
## Founding obligations: EUR 17.7 million
## Infrastructure programmes: EUR 8.9 million

Research programmes, infrastructure programmes and founding obligations represent the stable part of the financial support to research activities. It is called institutional funding.

In 2012, the funding of programmes dropped by 10% compared to the previous year due to the austerity measures. In order to strengthen long-term stable financing, the Agency slightly increased the funds for research programmes in 2014 and thus mitigated the 2012 drop of funds.

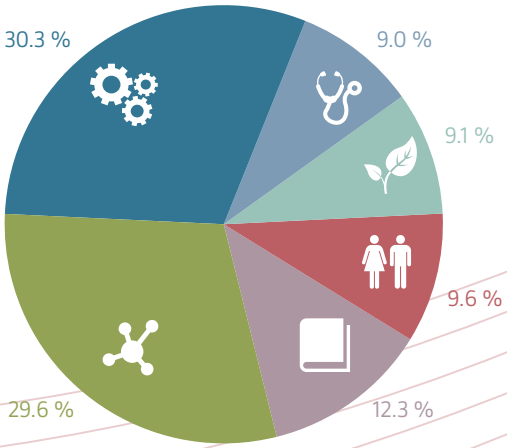
**Movement of funds for institutional funding**



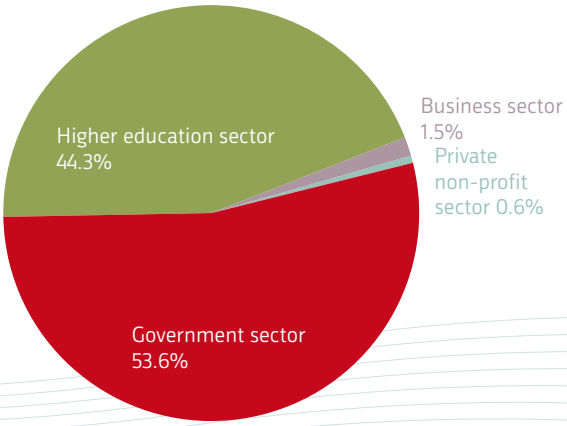

## Research programmes

In 2014, the funds allocated by the Agency to co-finance research programmes amounted to EUR 55.6 million, which equalled 40.7% of the total budget of the Agency. There were 294 research programmes financed, namely: 88 projects in engineering sciences, 62 in natural sciences, 44 in social sciences, 43 in humanities, 36 in medical science and 21 in biotechnical sciences.

Allocation of funds by scientific discipline



Allocation of funds by sector of activity




Compared to 2013, the funds for research programmes increased by 5.3% or four percentage points of the total budget of the Agency.

Natural sciences: 5.9% more than in the previous year;
Engineering sciences: 5.1 % more than in the previous year;
Medical science: 7.3 % more than in 2013;
Biotechnical sciences: 6.3 % more than in 2013;
Social sciences: 2.7 % more than in 2013;
Humanities: 4.6 % more than in 2013.

**Funding for research programmes and shares for those managed by female researchers**

| SCIENTIFIC DISCIPLINE | FUNDS (IN EUR MILLION) | SHARE OF FUNDS |
|---|---|---|
| Natural Sciences | 16.5 | 23.3 % |
| Engineering Sciences | 16.9 | 13.9 % |
| Medical Sciences | 5.0 | 30 % |
| Biotechnical Sciences | 5.1 | 44.7 % |
| Social Sciences | 5.3 | 38.3 % |
| Humanities | 6.8 | 20% |
| **TOTAL** | **55.6** | **24.1%** |

## Call and invitation in 2014

On the basis of a public call for applications in 2014 the Agency increased funding of 122 research programmes totalling EUR 3 million. In addition, it approved the extension of funding equalling EUR 40.6 million of 176 research programmes: 44 in natural sciences, 52 in the field of engineering, 19 in medicine, 12 in biotechnical sciences, 21 in social sciences and 28 in humanities.

# Prof Dr Vito Turk

President of the Scientific Council of the Agency, representative of natural sciences

We are witnessing a series of changes that are dependant on the progress of science and new forms of economic and social relationships. Science in conjunction with technology is becoming the engine of the development of modern society and, consequently, it is also an indicator of the culture of the nation and the state. This can be observed especially in recent years when tremendous and continuous technological development of the developed countries and some developing countries can be seen. These countries are aware that any lagging behind in scientific and technological progress has a devastating impact not only on the quality of life but can cause the loss of economic and political power.

> Modern industry with the most advanced innovative products requires excellent science and the resulting knowledge.
> Prof Dr Vito Turk

In Slovenia which can be characterised by a shortage of funds, it is considered that applied research will allow for a quick exit from the economic crisis. At least in the short run. Such position is rejected by a number of documents and studies which establish that only the investment in excellent basic research in science and technology have contributed most to economic growth. Modern industry with the most advanced innovative products requires excellent science and the resulting knowledge. Where there is no such knowledge, there is neither foreign investment nor competitive products. This is where the Horizon 2020 programme should help; however, the success at calls for application again depends on our excellence.

When searching for solutions, we are still not aware that we urgently need to take care of excellent science, which is the main condition for success in international calls. There is a lack of awareness that we risk further brain drain. The facts show that over the last five years the investments of the state in science have fallen by 25%, which means that currently science is allocated less than 0.5% of GDP. Part of the criticism is aimed at the economy because it permits this to its own detriment. The explanations that we are successful in science with respect to scarce resources are simply not serious.

The Agency has been working in these difficult conditions. Its activities will have to immediately focus on the change of the whole evaluation system of projects and programmes as well as other documents so that they will be comparable to the developed countries in order to overcome irrational fragmentation of research, focus on excellent and strategic research and priorities, achieve the modernization of research equipment, enhance its activities for raising funds, make effort to increase the salaries of researchers and thereby prevent brain drain. We need ambitious approach to raise funding for research.

In conclusion, let me emphasize that we must make every effort to make science excellent and integrated into the international arena. In January 2015, the members of the Young Academy of Europe addressed an open letter to the European Parliament: "Basic research is at the forefront of modern culture: It helps us understand who we are."

# Prof Dr Denis Đonlagić

Representative of engineering sciences in the Scientific Council of the Agency

The well-being of citizens is proportionate to the level of economic development of the country. Although the latter is measured by various indicators there is a clear link between the level of economic development of the country and technological development of its economy. A technologically developed economy creates new, challenging, environmentally friendly and competitive products and services with high added value, which ensures continuous economic growth, stable development of businesses and a leading and distinctive position of the country on the world map. Developed countries with technologically developed economies have adequate systems of health care, education, sports and other tertiary activities.

Almost a quarter of a century ago, Slovenia set an ambitious goal: to become a leading, highly developed European country with a high level of social and private standard, and definitely one of the leading countries among the new European democracies. Today it seems that we have not pursued these objectives, at least not in the development of science or technology. Without the latter, the set of broader socio-economic objectives will not be achieved.

Slovenia does not have big companies at world level. This results in limited opportunities and financial resources necessary for successful technological development of the country and its economy. In such a situation, the combination of research and development potentials in Slovenia is necessary and the synergistic effects of the interaction between the economy and research sphere are urgent not only for the economy, but for all citizens. Systemic support links such as a technology agency which would deal with the support of the development work, innovation and networking of various stakeholders in the country are missing. Even the distribution of European funds in the past missed clear objectives and did not connect stakeholders across Slovenia.

Slovene research sphere has a significant research and development potential and can act as an active supportive partner of the Slovene economy. In some areas and in research institutions such cooperation is almost exemplary and well-established, yet, such an example of good practice should be replicated elsewhere.

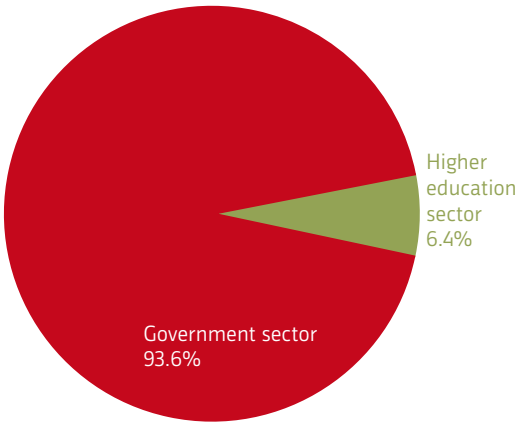
The promotion of the creation of new and useful knowledge and its transfer into the economic environment must therefore continue to be the Agency's priority. Despite limited financial possibilities the excellent basic and applied research in the field of advanced and breakthrough technologies that can be applied in new solutions, products and services should continue to be supported. Only then will we move towards the goals set at the time of the creation of our country.

> Slovene research sphere has a significant research and development potential and can act as an active supportive partner of the Slovene economy.
> Prof Dr Denis Đonlagić

# Infrastructure programmes and founding obligations

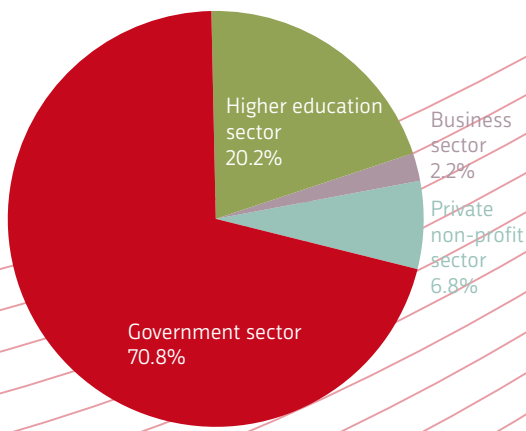
EUR 17.7 million was allocated to founding obligations, which is 9.4% less than in 2013.

Allocation of funds by sector of activity




EUR 8.9 million was allocated to infrastructure programmes, which is 14.7% more than in 2013.

Allocation of funds by sector of activity



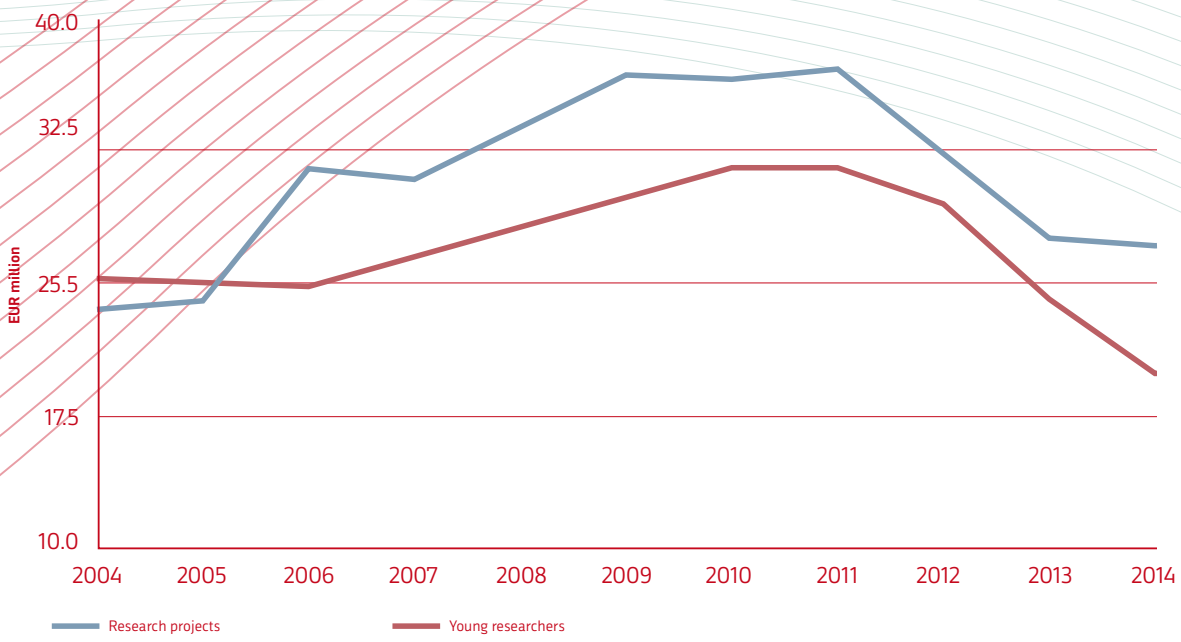
# Competitive financing

## Research projects: EUR 25.9 million
## Young researchers: EUR 19.9 million

In the period from 2011 to 2014, the funds for research projects decreased by 27.1%. A significant drop was recorded in 2012 when the Agency, due to the austerity measures did not start funding new projects.

Funding for training young researchers has been on the decrease since 2010. Among other things, the drop in 2014 was the result of the fact that in 2013 training was completed by two generations (the last generation prior to the Bologna reform and the first generation after it).

**Movement of funds for research projects[3] and young researchers**




[3] Funds for ESF and ERC projects are included

# Prof Dr Franc Strle

Representative of medical sciences in the Scientific Council of the Agency

> Especially clinical research which is linked to the integration of patient volunteers is usually considered to be long-term since the obtaining of samples often takes several years.
>
> Prof Dr Franc Strle

At the end of the term of office of the Scientific Council of the Agency where I represent medicine, I would like to expose three findings which will probably be challenges also in the future. At the same time, I would add some proposals for their resolution. Listing problems does not in any way imply that unresolved issues prevail and does not change the fact that numerous solutions of the Agency are very good.

The problems of financing research in medicine are a reflection of at least three factors. Firstly, public funds for research in Slovenia are relatively scarce. Secondly, a share of funds allocated for the financing of medicine in Slovenia is lower than the European average. Thirdly, there is an increasing number of applicants in the field of medicine coming from the fields which are similar to medicine but do not belong to it. Applicants of these projects usually have no research achievements in the field of medicine. The reviewers who are not familiar with the specificity of the situation or believe they assess a project of a broader filed of "life sciences" thus often support projects which have no direct impact on the work and development of medicine.

If we want to revitalize the research in medicine, it is necessary to increase a relatively small portion of funds which the Agency allocates to research in this field. The allocated funds need to be kept in this field which implies that it needs to be distinguished between medical research and those similar to medicine. The application to a tender must match the content of an individual area and the applicants should have research achievements in the area they apply for.

I should like to stress the importance of stable financing. Especially clinical research which is linked to the integration of patient volunteers is usually considered to be long-term since the obtaining of samples often takes several years. The research can not be conducted without stable financing due to the fact that in the three-year project financing research results are normally not yet provided. Also in medicine, similarly to other sciences, the purpose of research is to generate new knowledge and findings, and the objective is excellence which is manifested in different ways and which must be measurable.

In addition to excellence and direct research achievements, research and the application of research approaches also enable increasing level of the quality of basic clinical work. In Slovene medical dictionary, research is defined as “planned collection or acquisition and compilation of information on something”, which is a description of the approaches crucial for ensuring the quality of clinical work. Therefore, less support to research work in (clinical) medicine does not only imply less knowledge and fewer achievements but also leads to decreasing the quality of basic research work.

## Prof Dr Maja Ravnikar

Representative of biotechnical sciences in the Scientific Council of the Agency

> If the Agency's budget remains at the current level, we will record a considerable stagnation and even regression of science and the quality of available staff, which will have long-lasting effects on education, science, economy and society at large.
> Prof. dr. Maja Ravnikar

Over the last ten years, the Slovenian Research Agency established itself as a modern European agency with internationally comparable criteria and well-structured mode of operation, which is the greatest merit of the quality of work of the employees under the leadership of Director, Dr Franci Demšar. In this way, the Agency provided professional performance and efficient use of public funds earmarked for science despite the fact that it functions with a small number of employees. The evaluation of research work is well defined and internationally comparable. The system of the evaluation of scientific excellence which in addition to the assessment of excellent scientific publications and their citations also includes the assessment of the acquisition of funds through international projects, and cooperation with industry and work for the state is particularly important since it enables the assessment on the basis of clear criteria. In order to strengthen efficient integration of projects to be financed, it would be reasonable to introduce a consensus grades provided by the reviewers of projects and programmes.

Until 2012, the quality of research work experienced above-average increase, which includes the number of papers and the most cited publications. The promotion of the latter undoubtedly remains one of the tasks in the future. The same applies to the stimulation of high-tech applications. We cannot ignore the fact that especially in 2012 and in the following years the Agency's funds were unreasonably reduced to less than 0.5% of GDP at the level of the annual budget and are no longer sufficient for normal funding of science. This is reflected in the complete absence of funds for research equipment and project calls every other year. As the Agency is short of at least 50% of the funds for a single project tender, many of the excellently evaluated researches and projects remain without funding.

Despite the fact that almost half of the funds is intended for younger researchers, this does not stop their erosion from the research groups. If the Agency's budget remains at the current level, we will record a considerable stagnation and even regression of science and the quality of available staff, which will have long-lasting effects on education, science, economy and society at large. In the last three years, the amount of resources for science decreased continuously, namely every other day by more than 1.7 FTE. Since the Agency funds the majority of research, including those that support professional policies of other ministries and ensure the safety of food, water, health, environment and technological progress, a fall in funds will mark the state in the longer term. In the current reality, no renewal of the evaluation system, the criteria and rules, reallocating people and resources will help improve the situation, because there is nothing to be distributed. The only possible measure is to increase the funds in accordance with the Resolution on Research and Innovation Strategy of Slovenia 2011-2010 to a level comparable with Europe, and the introduction of stable funding of science by the state, which is currently among the lowest in Europe.

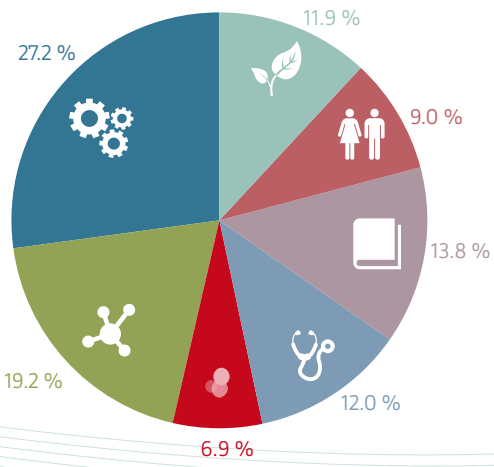
# Research projects

## Basic research projects: EUR 15.6 million
## Applied research projects: EUR 7.9 million
## Postdoctoral research projects: EUR 1.8 million

## Target research programmes: EUR 609,000

In 2014, the funds allocated by the Agency to co-finance research projects amounted to EUR 25.9, which equalled 19% of the total budget of the Agency.

Allocation of funds by scientific discipline




Compared to 2013, the funds for research projects decreased by 1.6%.

Natural sciences: 1.8 % less than in 2013;
Engineering sciences: 0.5 % more than in 2013;
Medical science: 2.4 % less than in 2013;
Biotechnical sciences: 1.5 % more than in 2013;
Social sciences: 0.4 % more than in 2013;
Humanities: 15.5 % less than in 2013;
Interdisciplinary research: 22.3 % more than in 2013.

The Agency promotes the integration of young scientists into research activities. According to methodology at least 40% of the selected projects should be managed by younger researchers (up to 10 active years after earned their PhD)[4].

[4]Call for proposals to receive (co)financing for research projects in 2014 – call in 2013

# Basic projects

In 2014, the Agency co-financed 307 basic research projects with the funds from the national budget totalling EUR 15.6 million. Compared to 2013, the level of funds was maintained. Younger researchers who earned their PhD up to 10 years ago were holders of 79 projects.

**Funds for basic projects with shares for projects managed by younger researchers (male & female)**

| SCIENTIFIC DISCIPLINE | FUNDS (IN EUR MILLION) | SHARE OF FUNDS younger |
|---|---|---|
| Natural Sciences | 3.4 | 28.3 % |
| Engineering Sciences | 3 | 33.7 % |
| Medical Sciences | 2.4 | 21.8 % |
| Biotechnical Sciences | 1.3 | 26.9 % |
| Social Sciences | 1.8 | 12.7 % |
| Humanities | 2.8 | 32.4 % |
| Interdisciplinary research | 0.9 | 34.4 % |
| **Total** | **15.6** | **27.6 %** |

**Share of funds for basic projects managed by female researchers and younger female researchers**

| SCIENTIFIC DISCIPLINE | SHARE OF FUNDS | SHARE OF FUNDS younger |
|---|---|---|
| Natural Sciences | 24.0 % | 6.5 % |
| Engineering Sciences | 16.4 % | 0 % |
| Medical Sciences | 38.4 % | 10.2 % |
| Biotechnical Sciences | 30.6 % | 11.6 % |
| Social Sciences | 32.6 % | 5.7 % |
| Humanities | 23.8 % | 11.7 % |
| Interdisciplinary research | 30.6 % | 4.7 % |
| **Total** | **26.7 %** | **7.0 %** |

# Prof Dr Anuška Ferligoj

Representative of social sciences in the Scientific Council of the Agency

> Women often have to choose between family and career, therefore, there are many academic women around the world with no family. In terms of legislation, this is an area which is relatively well regulated, but the fact is that in the period when women have small children, they are not competitive with men.
>
> Prof Dr Anuška Ferligoj

The Scientific Council of the Slovenian Research Agency which I participate in operates in a very difficult time for the research community. When we started our term of office in 2010, the funds available to the Agency amounted to EUR 176 million. In 2014 they decreased to only EUR 136.5 million. Also in 2015 the situation is not much better. We must be aware that the Agency distributes research funds to the intellectual elite of our society. Due to limited resources, numerous younger colleagues look for jobs abroad. Many young researchers who have successfully completed their thesis only get 50-percent employment in various institutes and universities because there are simply no funds to employ them full-time. The situation is really dramatic.

The Scientific Council which worked in such tough times did what it could. In this group, I met excellent colleagues. On the other hand, I also got familiar with the work of the Agency. We, researchers often criticise the work of professional services within the Agency. However, I came to realise that these services are extremely burdened and carry out their activities in rather difficult conditions.  During my work in the Scientific Council, it was revealed to me that the employees of the Agency are agile and honourable professionals.

Of course, the methodologies and rules can be improved and brought closer to global standards. We were more or less successful in these endeavours. Let me mention two of my reflections. The first relates to applied research in social sciences which do not only connect technical disciplines with the economy but deal with research questions that touch upon the functioning of society as a whole. The research in social sciences can help the academic sphere so that the state and society work better. This applies to health-care, financial and social fields. Health care is a typical example. We have excellent doctors and a lot of knowledge, but the system lacks appropriate organization. The necessary knowledge about this is available nowhere else, but at the faculties of social sciences.

The second reflection addresses female researchers. Women often have to choose between family and career, therefore, there are many academic women around the world with no family. In terms of legislation, this is an area which is relatively well regulated, but the fact is that in the period when women have small children, they are not competitive with men. There are possibilities to further stimulate women who would nevertheless receive projects. This could be achieved for example by introducing women's quotas. This was already done for young scientists for whom there are milder criteria in the methodology when compared to well-established older scientists. Similar concrete solutions could also be found for women.

# Prof Dr Rado Riha

Representative of humanities in the Scientific Council of the Agency

> The system of various sciences needs to be organically present at all the levels of society: from everyday life, public research institutes and education to economy and culture.
>
> Prof Dr Rado Riha

My participation in the Scientific Council where I represent humanities was also an opportunity to directly follow and get familiar with how other members experience, understand and form the field of their sciences. For me, this opportunity was the confirmation of how important is something which appears to be taken for granted at first sight for the country and for its scientific strategy and scientific policy, so that the science really functions the way it should. Modern science is a complex system of various sciences. And this system can only function well and successfully when all its elements and sub-elements are equally treated and developed. Nowadays, the system of various sciences needs to be organically present at all the levels of society: from everyday life, public research institutes and education (can a university today be anything else than a research university?) to economy and culture.

Why am I saying this? In my experience, this happens when there is too much "day-to-day business" and this is what the Scientific Council went through: When discussing and adopting different rules, norms and standards that deal with public funding and implementation of the research work one cannot see the forest for the trees. In other words, I believe it would be useful for the Scientific Council to occasionally include also more strategic discussions and decisions about what science is and how this system works in the world and in Slovenia.

When I talk about strategic decisions, of course, I have to mention valuable strategic initiative by the colleagues in the Scientific Council for the Humanities. I refer to the initiative for stable long-term funding of basic scientific-research work.

Not only in public debates but also within the scientific community, there is ever-increasing discussion about science which is merely focused on its usefulness, usability and profitability. Such a view of science must be opposed by, and the humanities can play a very important role in this, what is an absolute necessity of scientific research and the existential condition of high quality, pervasive science: the ability of basic research and of resolving basic scientific problems. The obtained fundamental results can then serve as the material and base for diverse forms of application and use.

# Applied projects

In 2014, the Agency co-financed from the national budget 135 applied research projects totalling EUR 7.9 million EUR, which is 2.1% less than in 2013. Younger researchers were holders of 41 applied projects.

**Funds for applied projects with shares for projects managed by younger researchers (male & female)**

| SCIENTIFIC DISCIPLINE | FUNDS (IN EUR MILLION) | SHARE OF FUNDS younger |
|---|---|---|
| Natural Sciences | 1.2 | 37.3 % |
| Engineering Sciences | 3.7 | 16.9 % |
| Medical Sciences | 0.6 | 42.3% |
| Biotechnical Sciences | 1.1 | 28.3 % |
| Social Sciences | 0.3 | 100 % |
| Humanities | 0.4 | 29 % |
| Interdisciplinary research | 0.7 | 40.7% |
| **Total** | **7.9** | **29.2%** |

**Share of funds for applied projects managed by female researchers and younger female researchers**

| SCIENTIFIC DISCIPLINE | SHARE OF FUNDS | SHARE OF FUNDS younger |
|---|---|---|
| Natural Sciences | 51.4 % | 26.7 % |
| Engineering Sciences | 21.6 % | 3.9 % |
| Medical Sciences | 51.2 % | 8.7 % |
| Biotechnical Sciences | 58.4 % | 4.7 % |
| Social Sciences | 42.8 % | 42.8 % |
| Humanities | 46.3 % | 11.6 % |
| Interdisciplinary research | 13.7 % | 6.9 % |
| **Total** | **34.4 %** | **9.8 %** |

# Post-doctoral projects

## Methodology for evaluating applications for research project proposal stipulates that within each scientific field, at least 10% of post-doctoral projects need to be selected.

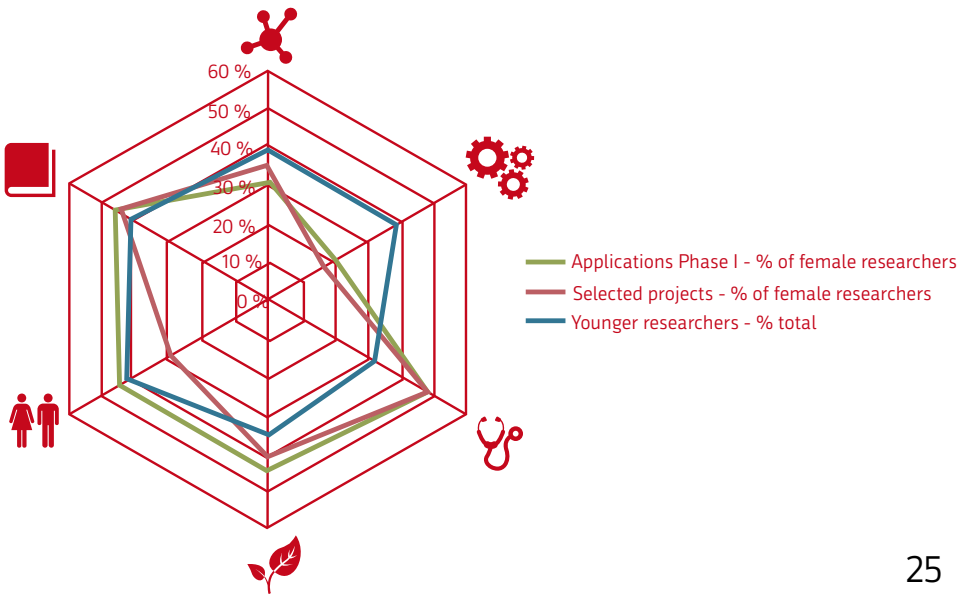
The Agency financed with funds from the national budget in 2014 a total of 51 post-doctoral projects in the amount of EUR 1.8 million, which is by 1.1% more than in 2013.

**Funds for post-doctoral projects with shares for projects managed by female researchers**

| SCIENTIFIC DISCIPLINE | FUNDS IN EUR | SHARE OF FOUNDS |
|---|---|---|
| Natural Sciences | 368,409 | 4.8 % |
| Engineering Sciences | 379,500 | 28.1 % |
| Medical Sciences | 79,892 | 33.3 % |
| Biotechnical Sciences | 220,342 | 51.7 % |
| Social Sciences | 252,990 | 57.9 % |
| Humanities | 364,339 | 63.5 % |
| Interdisciplinary research | 138,310 | 61.5 % |
| **Total** | **1,803,782** | **40.3 %** |

## Call in 2013 for co-financing in 2014

In 2013, the Agency carried out a call for proposals to receive (co)financing for research projects in 2014. The graph below shows a structure of submitted and selected projects according to the gender of a research manager and a share of younger researchers among the selected ones.



# Prof Dr Branko Stanovnik

In Slovenia, there are numerous fields of science where critical mass is not achieved (or is hardly achieved). The situation is even worse because of the fragmented research, as can be seen from a large number of programmes and projects. There should be more connections between researchers not only within the same institution but also between different institutions (universities, institutes). The administrative management of science should be simplified. One act would be needed for higher education (research universities) and research institutions which would exclude all those regulations that fragment research work. At the university, the inverted pyramid is the result of past practice. This means that we have more full professors than assistants.

Since Slovenia is a small country with relatively limited natural resources it should support the development of low-polluting fields with high added value. Such areas are for example the pharmaceutical and chemical industries, processing of wood mass, water supply in the karst and coastal areas etc. The strength of Slovenia lies in the fact that the education system at the university level is extremely flexible given the relatively small size.

Unfortunately, young people suffer from lethargy feeling helpless and with no prospects. This is why the mindset of people needs to change. Young, capable and creative people educated at the best universities abroad should be given the opportunity to return to Slovenia and create in the appropriate intellectual and material environment. Universities and research institutions should choose people primarily on the basis of international competitions where these people would be able to send their applications.

In the past, the scoring system for articles introduced a number of positive changes into financing. Nowadays, this still provides some general information on work; however this is insufficient. The current system of financing scientific programmes and projects is primarily based on the scoring of articles which depends on the impact factor of journals although the quality of an article is not directly related to the quality of the journal, and on the assessments by reviewers which may differ significantly. In such cases, only a professional and not an administrative body can judge who is right.

## SCIENTIFIC COUNCILS OF THE DISCIPLINES

Scientific Councils of disciplines are professional bodies appointed for a period of five years by the Scientific Council of the Agency so that their number and scientific expertise enable coverage of all scientific areas of the Agency's classification.
The Scientific Councils of individual disciplines consist of six to twelve members. The operation is guided by the President. The Scientific Councils of individual disciplines in the current composition started their work in 2010. Their five-year term of office expires in 2015.

> Young, capable and creative people educated at the best universities abroad should be given the opportunity to return to Slovenia and create in the appropriate intellectual and material environment.
>
> Prof Dr Branko Stanovnik

Prof Dr Branko Stanovnik, President of the Scientific Council for Natural Sciences and Mathematics, is a member of the Slovenian Academy of Sciences and Arts. With comprehensive international bibliography he is one of the most influential Slovenian scientists in the field of chemistry.

# Projects within target research programmes (CRP)

The research activity within the projects of target research programmes is performed in the public interest to achieve the goals of the national development. The projects are thematic with regard to the contents of research put forward by the ministries in charge of individual areas of public interest. Projects within target research programmes represent the only thematic-oriented mechanism of the Agency.

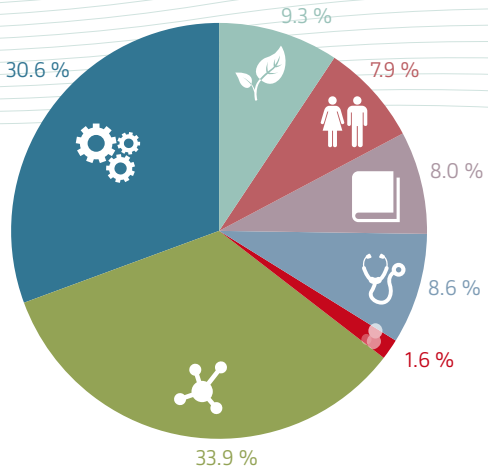
Co-financing of the CRP projects received EUR 0.6 million in 2013, representing a 29% drop compared to 2013. The user of CRP projects is the Ministry of Agriculture; therefore the largest part of funds (90%) was earmarked for research in biotechnical sciences. In 2014, 62 projects were financed (55 in biotechnical sciences, 4 in the field of live science, 2 in the field of social sciences and 1 in engineering).

The subject of the public call within CRP in 2014 was »Securing Food for Tomorrow«. The following topics were included:

- Food security of Slovenia – 6 approved projects
- Competitiveness of food production and renewable natural source – 19 approved projects
- Sustainable management of natural sources – 14 approved projects.

# Young researchers

Allocation of funds by scientific discipline




A total of 1059 young researchers were financed by the Agency in 2014. The funds amounted to EUR 19.9 million representing 14.6% of the Agency's total budget.

Compared to 2013, the funds decreased by 17.5%.

Natural sciences: 19.5 % less than in 2013;
Engineering sciences: 16.6 % less than in 2013;
Medical science: 16.2 % less than in 2013;
Biotechnical sciences: 21.3 % less than in 2013;
Social sciences: 10.8 % less than in 2013;
Humanities: 18.4 % less than in 2013;
Interdisciplinary research: 0.1 % less than in 2013.

## Fifteen young researchers received the bonus for early completion of training in 2014.

**Funds for young researchers and shares for young female researchers (excluding the prize) financed in 2014**

| SCIENTIFIC DISCIPLINE | FUNDS (IN EUR MILLION) | SHARE OF FOUNDS |
|---|---|---|
| Natural Sciences | 6.8 | 51.4 % |
| Engineering Sciences | 6.1 | 33.5 % |
| Medical Sciences | 1.7 | 78.2 % |
| Biotechnical Sciences | 1.9 | 68.9 % |
| Social Sciences | 1.6 | 61.8 % |
| Humanities | 1.6 | 59.7 % |
| Interdisciplinary research | 0.3 | 28.2 % |
| **Total** | **19.9** | **51.0 %** |

# Prof Dr Igor Emri

On the basis of the EU document "Empowering Researcher to Provide Societal Value" where Science Europe establishes that the scientific sphere of the European community must increase its socio-economic contribution we can claim that the same applies to Slovenia. On the one hand, it is necessary to strengthen research activities in the fields which support leading Slovenian companies (Key Enabling Technologies – KET) in terms of scientific and professional work and thus ensure and consolidate their competitiveness in the global market. At the same time, the system of financing the other basic research is to be adjusted and changed so as to stimulate researchers to think and work towards the implementation of research results in concrete products, technologies and/or services (Future Emerging Technologies – FET). In this process, scientific publications and other existing instruments of the evaluation research work should only be regarded as the evidence of the excellence of the research result on which the product, technology and/or services are based. This step requires the participation of researchers from various techno-socio-economic sectors and the spontaneous creation of innovation communities in the appropriate infrastructural environment (the infrastructure hub). It is necessary to go beyond the limits of national borders and follow the strategy of smart specialization which dictates that the research activity of the region should gradually adjust to its strategic direction. Thus, the national and European research resources (financial, human and infrastructural) will be largely utilised.

The realization of the presented vision calls for a radical reform of the assessment methodology of research work and in particular of the allocation of resources earmarked for research. In the past, the Scientific Council for Engineering actively addressed the analysis of the existing situation and prepared specific proposals for changes that would need to be further harmonized with those planned at the European level within Science Europe. The research area covered by the Scientific Council for Engineering is extremely diverse and professionally strong and serves as a good base for the implementation of the aforementioned vision (KET and FET). Slovenia could become one of the leading regions in Europe in the implementation of the ERA strategy.

The Council also discussed the necessary transition to financing major projects which are clearly a prerequisite for the creation of innovation communities. The existing instruments of post-doctoral projects, young researchers and research projects should be linked and the cooperation between various disciplines should be enhanced. The "demolition" of barriers between scientific disciplines and the integration into the European sphere is certainly a task which the Scientific Council of the Agency will need to face during the next term of office.

## SCIENCE EUROPE

The Agency is one of the founding members of Science Europe which is the European umbrella association of research funding and research performing agencies. Science Europe cooperates with the European Commission and national ministries competent for science and in formulating the European research policy. It represents common positions of the funding and research performing agencies focusing on the needs of the research community.

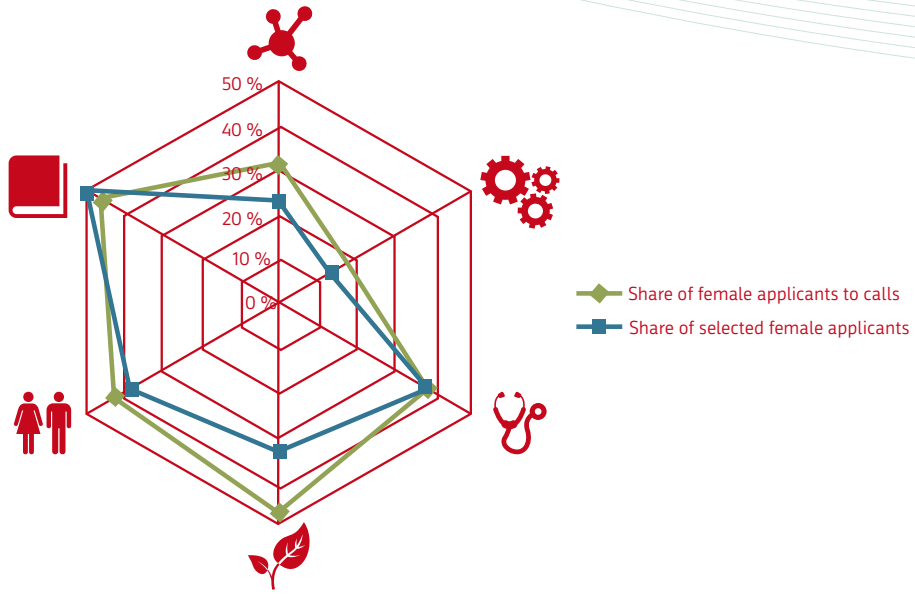
Science Europe is an association which was established in 2011. It succeeded the European Heads of Research Councils (EUROHORCS) and the European Science Foundation (ESF) which will cease its operations in its present form in 2016.

> Slovenia could become one of the leading regions in Europe in the implementation of the ERA strategy.
>
> Prof Dr Igor Emri

Prof Dr Igor Emri, President of the Scientific Council of the Engineering sciences and technologies is a full professor in mechanics, Head of the Department of Mechanics of Polymers and Composites, and the Laboratory for Experimental Mechanics, Faculty of Mechanical Engineering, University of Ljubljana. In the Science Europe he is the Chair of the Scientific Committee for Engineering and Technical Sciences.

## Call in 2013 for mentors in 2014

In 2013, the Agency carried out a call for the selection of mentors for training young researchers in 2014. There were 411 male researchers and 199 female researchers among the applicants, of whom there were 124 male researchers and 44 female researchers selected for mentors.




## 29.5% of young mentors were selected at the call for selection of mentors to young researchers who only started training in 2014.

According to the Agency's rules at least 25% younger mentors must be selected. A candidate for a younger mentor defended his or her doctoral thesis less than ten years ago.

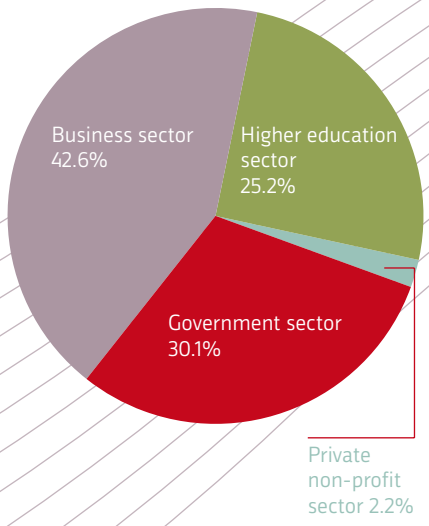
# International cooperation

## Bilateral international projects: EUR 0.7 million

In 2014, there were 425 bilateral projects with 13 countries. The co-financing of bilateral cooperation from the national budget amounted to EUR 0.5 million in 2014. Bilateral international cooperation with third countries was allocated 53.8% of funds, most for the cooperation with the United States of America, Russia and Japan.

The Agency cooperates with French Alternative Energies and Atomic Energy Commission (CEA). Seven joint research projects were funded on the basis of a call for proposals in 2014. The subject of the call was co-financing international scientific research projects related to the areas of new technologies for energy, nuclear energy, adjusting to climate changes, basic research in physics, science of life and research of global security. The co-financing of scientific cooperation with CEA in 2014 amounted to EUR 0.3 million.

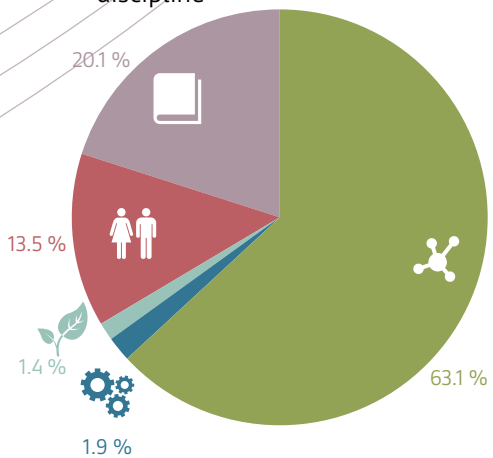
Allocation of funds by sector of activity




## Horizon 2020: EUR 0.4 million

The Agency promotes cooperation of Slovene research organisations at calls for applications of the Horizon 2020. This is provided by continuous open public call for project applicants of the Framework Programme for Research and Innovation of the EU, Horizon 2020. Every Slovene research organisation being the applicant of the Horizon 2020 call and obtaining more than a half of the maximum score in the review procedure is entitled to once-off financial contribution. A once-off financial contribution for the cost of application of a project amounts to EUR 1,000 or EUR 2,500 if the applicant acts as a coordinator in an international consortium.

Allocation of funds by scientific discipline




## Complimentary scheme: EUR 1.2 million

The Agency funds the applicants from Slovenia with projects receiving a positive evaluation in an international review in calls of the European Research Council (ERC) or EUROCORES programmes of the European Science Foundation (ESF) but not selected for co-financing. The mechanism's purpose is to promote quality applications to the most demanding calls in the European research area with an assurance that the projects receiving a positive evaluation would be co-financed nationally.

In 2014, there were 21 research projects co-financed. The largest share of funds was received by the institutions in higher education (78.4%) followed by the public sector.

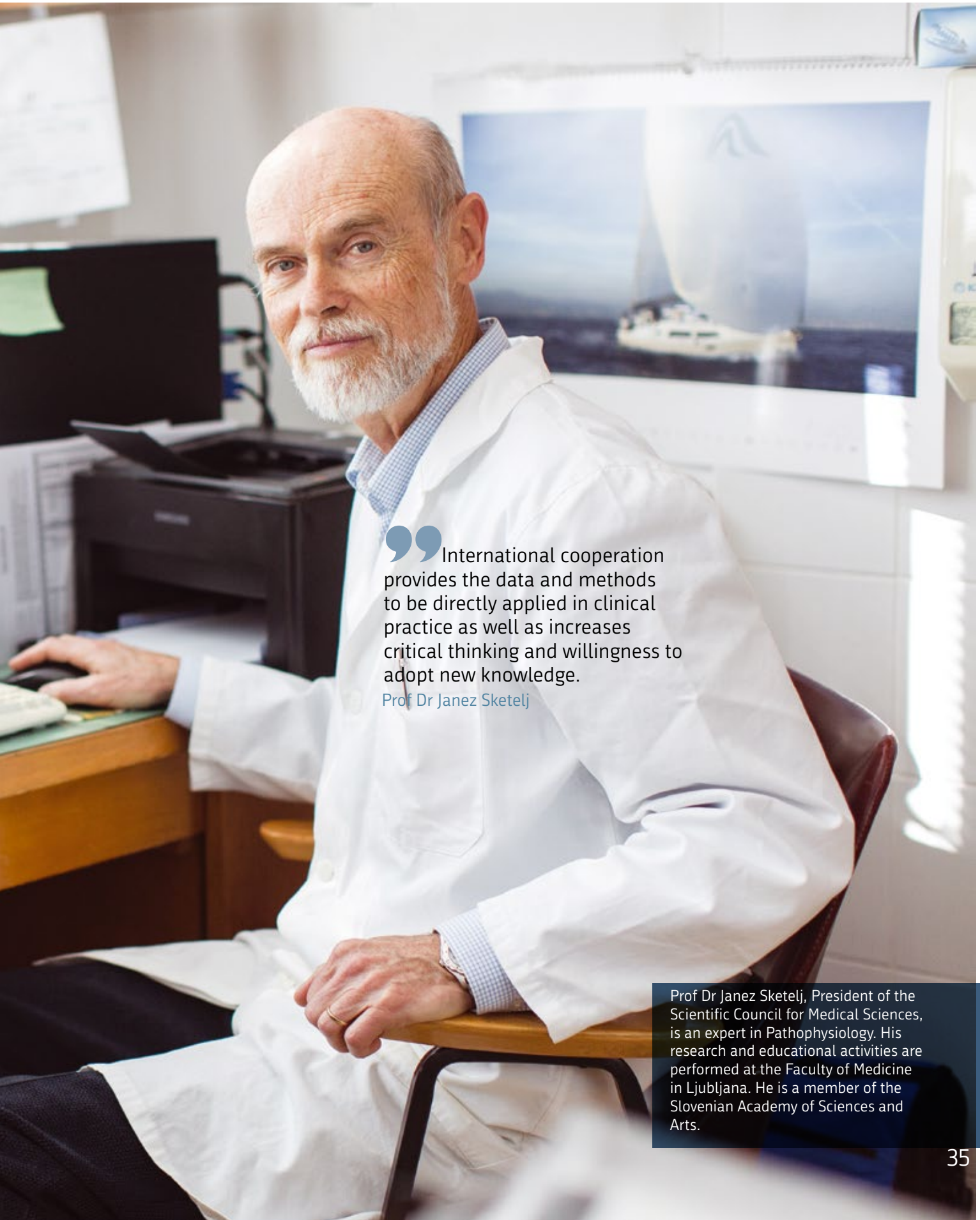
# Prof Dr Janez Sketelj

The scientific-research work in the field of medicine provides versatile benefits to the level of medicine in Slovenia. Truly top researchers contribute world-class scientific achievements to the international medical arena. The participation of a large number of internationally recognised doctors in international research enables constant contacts with the latest medical knowledge and colleagues around the world. International cooperation provides the data and methods to be directly applied in clinical practice as well as increases critical thinking and willingness to adopt new knowledge. Thus, the best young doctors are attracted to top quality medical institutions. These doctors later play a very important role in the development of field and ensure the progress of medical study programmes. It is vital for the medical research to cover the entire range of medical specialities in our country.

The system of the allocation of resources should be maintained until a new one is adopted since the continuity of financing research should not be threatened. The qualifications of a research group whose assessment is based on its past work (the relationship between the funds invested and the results achieved by the research group) and the opinion of the reviewers of the scientific quality of the submitted new programmes should remain the foundation for the ranking of projects and programmes. This is the base for determining funding in the future.

The methodology for assessing the competences of research groups and the way to take into account the opinion of the reviewers should be adapted to individual areas of science according to their characteristics. They should be prepared and adopted by the councils in individual fields taking into consideration the general objectives set to the research sphere by the Slovenian Research Agency. The scientific councils of the disciplines should be given the power to partly decide on the policy and direct research work in their fields in compliance with the general objectives of the Agency, special objectives and importance of research work in the field concerned. Therefore, the scientific councils of the disciplines should be responsible for the allocation of approximately 10-15% of the funds contained in the tender for financing research work in its field. The ranking of the submitted projects/programmes in line with the special methodologies are carried out by the Agency's expert services. This will serve as the basis for the final selection of the funded projects, which is approved by the Scientific Council of the Agency.

It is essential to regulate the status of major health organizations which are also an important base of medical research in Slovenia (University Medical Centres in Ljubljana and Maribor, the Institute of Oncology, University Clinic Golnik and the Psychiatrist Clinic) so that they are equal to public research institutes or the universities and that as concessionaires they are not treated as equivalent to individuals who are also engaged in research.



> International cooperation provides the data and methods to be directly applied in clinical practice as well as increases critical thinking and willingness to adopt new knowledge.
>
> Prof Dr Janez Sketelj

Prof Dr Janez Sketelj, President of the Scientific Council for Medical Sciences, is an expert in Pathophysiology. His research and educational activities are performed at the Faculty of Medicine in Ljubljana. He is a member of the Slovenian Academy of Sciences and Arts.

## Support to international associations: EUR 0.3 million

With the promotion of Slovenian science abroad and in Slovenia, the Agency ensures the cooperation of Slovene research organisations with the researchers from the countries with which Slovenia has yet to conclude relevant international agreements. The programme also provides for opportunities for cooperation with Slovenian research institutions and researchers from the Slovenian minorities across the border as well as with Slovenian researchers working abroad.

The Agency funds the membership fees for international scientific associations to Slovenian scientific associations and the work of Slovenian scientists elected chairs, vice-chairs, secretaries general or members of management bodies of international science associations.

## Lead Agency Scheme

The Agency promotes international scientific research with the Lead Agency Scheme. Based on the agreement on cooperation, two agencies from different countries enable a joint project application submitted to one of the agencies (lead agency) which carries out the review procedure. If the application is successful in the review procedure and the lead agency proposes it to be co-financed, the other agency covers the funding of researchers from its country without any additional review procedure.

The Slovenian research Agency has so far concluded agreements on cooperation with:

Austrian Fund for Scientific Research, FWF
The Research Foundation – Flanders, FWO
Hungarian Scientific Research Fund, OTKA

Two projects were carried out in 2014 where the FWF acted as the lead agency; and 3 projects with the FWO agency as the lead partner. Four projects were in the field of live science and 1 from humanities. In the evaluation procedures of the call by the Slovenian Research Agency for co-financing the projects in 2014 funding was granted to a Slovene-Austrian project in live science.

# Libraries and scientific literature

## Scientific literature: EUR 1.4 million
## Foreign periodicals and databases: EUR 4.1 million

The Agency co-finances the purchase of foreign scientific literature and electronic access to the latest databases in the world in order to ensure the necessary inflow and accessibility of foreign scientific and professional information to meet the needs of research, educational and development activities. Literature is publicly accessible in all libraries of research organisations and via the COBISS system.

On the basis of a call, the Agency co-finances the publication of popular science periodicals.  Thus, it wishes to support the publications in printed or electronic form of those popular-science publications which are important to promote the interest of general public and especially the youth in natural sciences and technology.

In 2014, the Agency allocated EUR 1.1 million to co-finance scientific publications including domestic scientific and popular science periodicals, and EUR 0.3 million for scientific monographs.

# Prof Dr Hojka Kraigher

> Research activities in biotechnical sciences are highly interdisciplinary and allow for a set of social and environmental impacts.
> Prof Dr Hojka Kraigher

Biotechnical sciences are primarily applicative. With the development of the knowledge base the results and outcomes are focused on the development of forestry, wood processing, paper industry, plant and animal production and processing, veterinary science, biotechnology and people- and nature-friendly development of the environment and the sustainable use of natural resources. Research activities are highly interdisciplinary and allow for a set of social and environmental impacts.

The area which contributes to a healthy environment and self-sufficient and healthy food supply has grown in importance in the European programmes over the last decades; however the Slovenian national programme has experienced a reduction of financial resources compared to other sciences. The latter is most evidently reflected in a fall in the number of young researchers in biotechnical sciences in comparison with other disciplines (in 2007, 37 jobs were approved of a total of 262 (14%) whereas in 2014, only 14 were tendered of a total of 160 jobs (8.7%)). The loss of funding for young researchers in individual fields poses a threat to the preservation of research capacities in these fields.

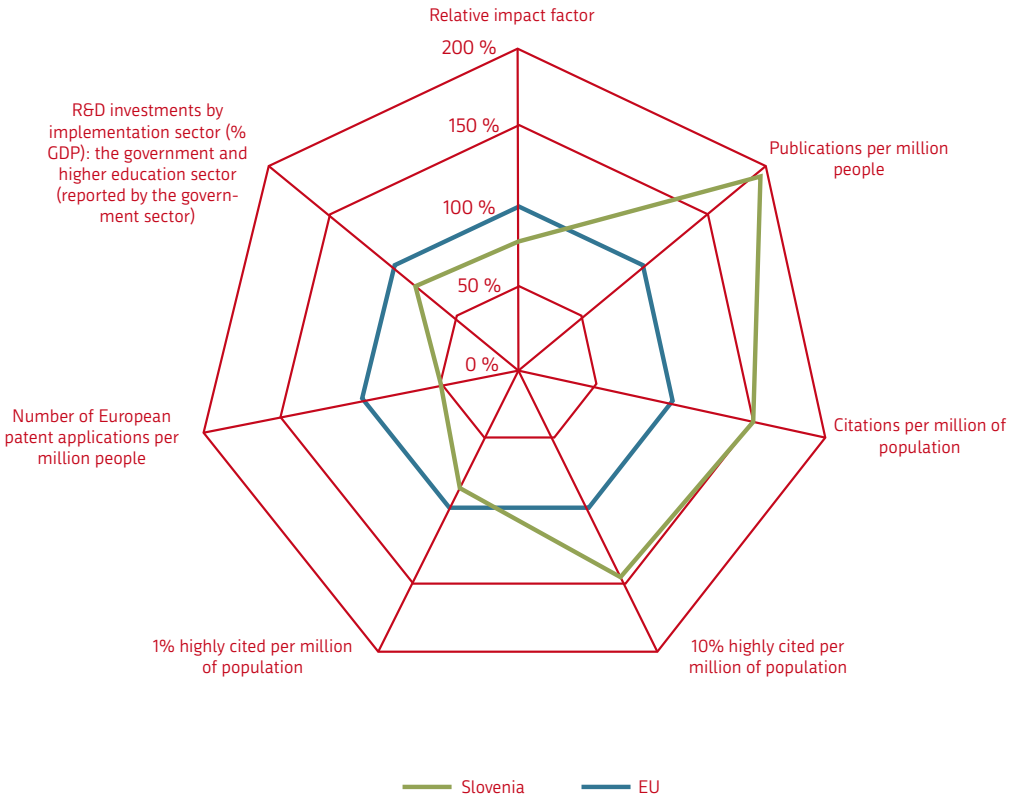
The traditional research activities in the context of biotechnical sciences are usually tied to a longer observation, long life and the complexity of the processes. In all areas, the problem of boundaries between the traditional fields and modern biotechnological approaches enabling faster acquisition of quantitative indicators relevant to the assessment of research work and the integration of the fields that fall within the biotechnological and biomedical or natural sciences is evident. Interdisciplinarity is mirrored in the definition of research programmes where two or more fields are recorded within biotechnical sciences, and between other sciences. The importance and a range of inter-institutional and transnational cooperation continue to increase and the same applies to the importance of addressing large databases.

Within the Scientific Council for biotechnical sciences we discussed the procedures for assessment, pointed out the difficulties in the selection of competent reviewers and proposed to prepare a draft of the passing of information to evaluators and a coordinated report ('briefing' and 'consensus'), and completed the evaluation form which will support the evaluators to have a better understanding of their role and the evaluation process and avoid possible duplication of research proposals. The possibility of commenting on the assessment of annual and final reports and the cooperation of the Scientific Councils in assessing the importance of research were proposed.

In order to maintain the classical fields of biotechnical sciences, support young and younger researchers and contribute to the development of knowledge base for sustainable rational use and the preservation of natural resources and the provision of self-sufficient and healthy food supply more support to biotechnical sciences is expected. Trends of financing them in the last decade should also change.

Prof Dr Hojka Kraigher, President of the Scientific Council for Biotechnical Sciences, is an associate professor and researcher at the Slovenian Forestry Institute where she is the Head of the Department of Forest Physiology and Genetics. In the Science Europe she is a member of the Scientific Committee for Life, Environmental and Geo Sciences.

# International comparisons and bibliometric data

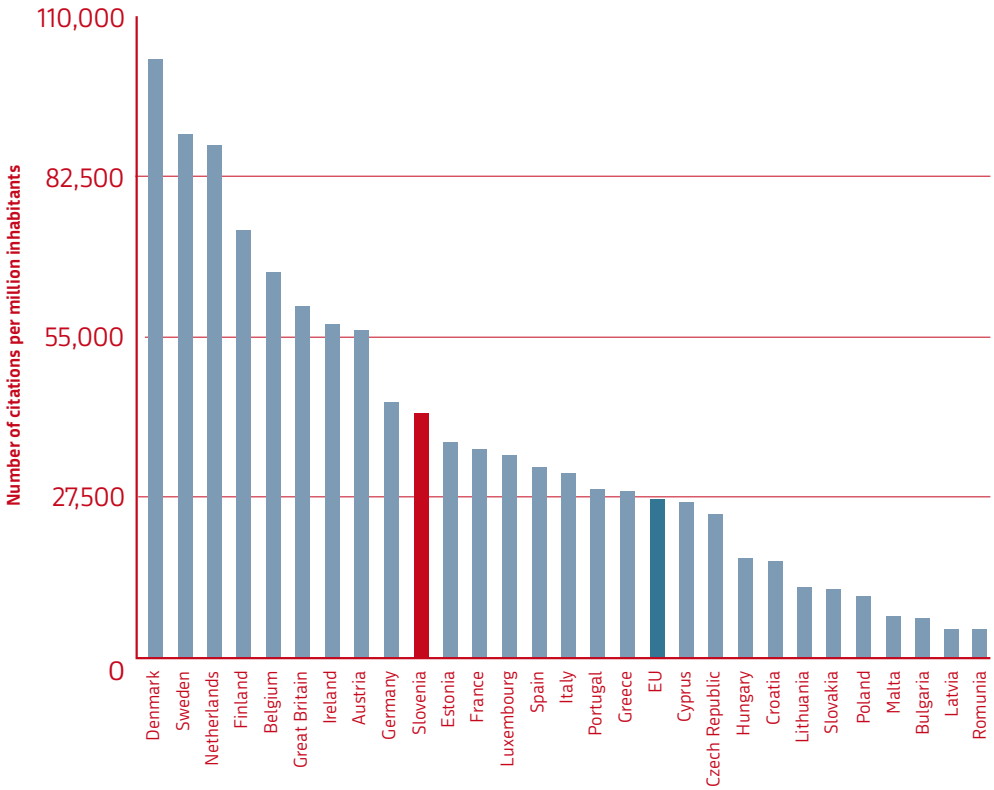



The diagram shows the majority of standard bibliometric indicators which are globally used for monitoring research activities. These indicators are also used in the Resolution on Research and Innovation Strategy of Slovenia 2011 – 2020.

# Citations

According to the number of citations per million of population, Slovenia comes tenth among the EU Member States with 42,000 citations in the period 2009-2013. In the same period, Denmark is the country with most citations per million of population followed by Sweden, the Netherlands and Finland.

Number of citations of the EU Member States in the period 2009-2013




Source: Web of Science

According to Web of Science, the growth of citations per million of population significantly strengthened for Slovenia after 2003. Slovenia exceeded the EU average with regard to the number of citations per million of population. The recent data show that the growth trend has continued.

# Prof Dr Janez Kranjc

Prof Dr Janez Kranjc, President of the Scientific Council for Social Sciences, is a full professor at the Faculty of Law, University of Ljubljana. In 2010, he received Zois's award for significant achievements in the field of law.

As a permanent body, the Scientific Council for Social Sciences covers diverse fields. We have often addressed the issue of the definition of the basic fields of the social sciences. The question applies not only to the potential division (or merging) of the fields (according to the Scientific Council for Social Sciences, economics should be divided into the economic and business field) but also to the allocation of fields among scientific disciplines (e.g. the reasonableness of ranking anthropology into the humanities, sports and urban planning into the social sciences, and communicology among political sciences, etc.). Current allocation based on the code book of the Agency (e.g. Frascati Manual), is sometimes problematic in the terms of the content, especially when tendering, since the entry thresholds for various areas differ and the scoring of similar publications is generally discriminatory towards the social sciences.

The basic problems which the Scientific Council for Social Sciences has been facing are associated with the position of the social sciences within other disciplines whose research is funded by the Slovenian Research Agency. Although it is reasonable that the research efforts in modern science are focused on natural sciences, medicine and technology which are subject to the fastest development, we should nevertheless be aware that without serious social sciences it is difficult to determine the right direction of the development of society and its priorities. If the humanities are to preserve the cultural and overall independence, social sciences are the ones that can adequately evaluate the situation in society and define the direction of its future development.

The Scientific Council for Social Sciences strives to eliminate unreasonable and unjustified deviations in the evaluation of publications in the fields of social sciences and humanities, to take into account the specifics of social sciences which are limited to our country in terms of their effects and its studies, and to include more young researchers in these fields. This is the only way to strengthen their research potential in the long run. With regard to the selection of mentors to young researchers the Council points out that the criteria should be reconsidered because they have become too formal and unrealistic.

It is otherwise in favour of the abolition of unnecessary bureaucracy in the procedures of the Agency, which will allow for a more substantive approach in addressing various issues. The objective of the assessment within the call for tenders is not and should not be to reduce the number of applications but to select the best and the most promising. The first stage of the selection should not only be the stage of elimination but a thorough substantive review of applications, their significance and research potential. The formal criteria should be applied to ensure the principle of equality; however, they should not replace the substantive evaluation of applications.

The Scientific Council for Social Sciences in general notes that its voice in the Agency's decision-making process is not taken into consideration sufficiently and that the response time and receptiveness of the Agency to new ideas and initiatives are poor. The Council is hoping for a clearer and more decisive role in shaping the research policy of the Agency in the field of social sciences.

> We should be aware that without serious social sciences it is difficult to determine the right direction of the development of society and its priorities.
>
> Prof Dr Janez Kranjc

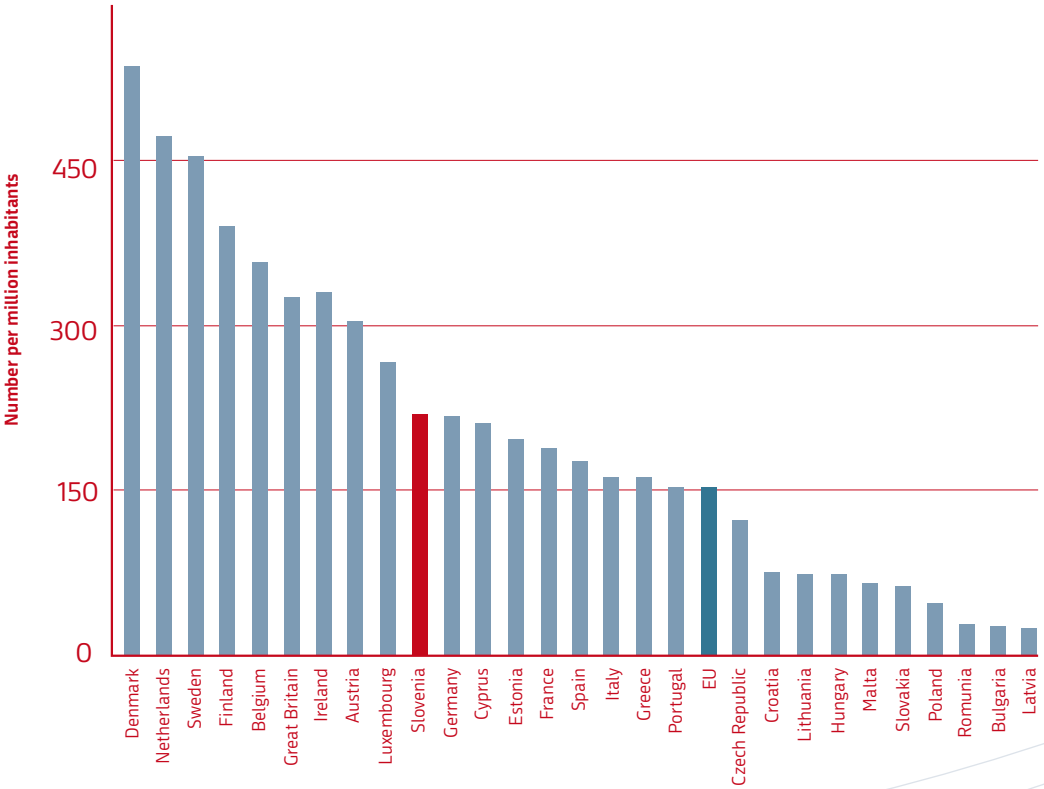
# Highly cited scientific publications

**10% of highly cited**

The established bibliometric indicator used for international comparison is the number of publications of researchers in a particular country who are ranked among the 10% of highly cited publications globally in a specific scientific field. This includes the publications in journals indexed in the Scopus bibliographic database. A four-year period including the year of publication is taken into consideration.

From 2004 onwards, Slovenia has exceeded the average growth in the EU within the top 10% of highly cited publications per million of population. According to the available data, the growth trend has continued. Among the EU Member States, Slovenia is ranked tenth.

Number of publications within the top 10% highly cited in 2010 per million of population in the EU Member States



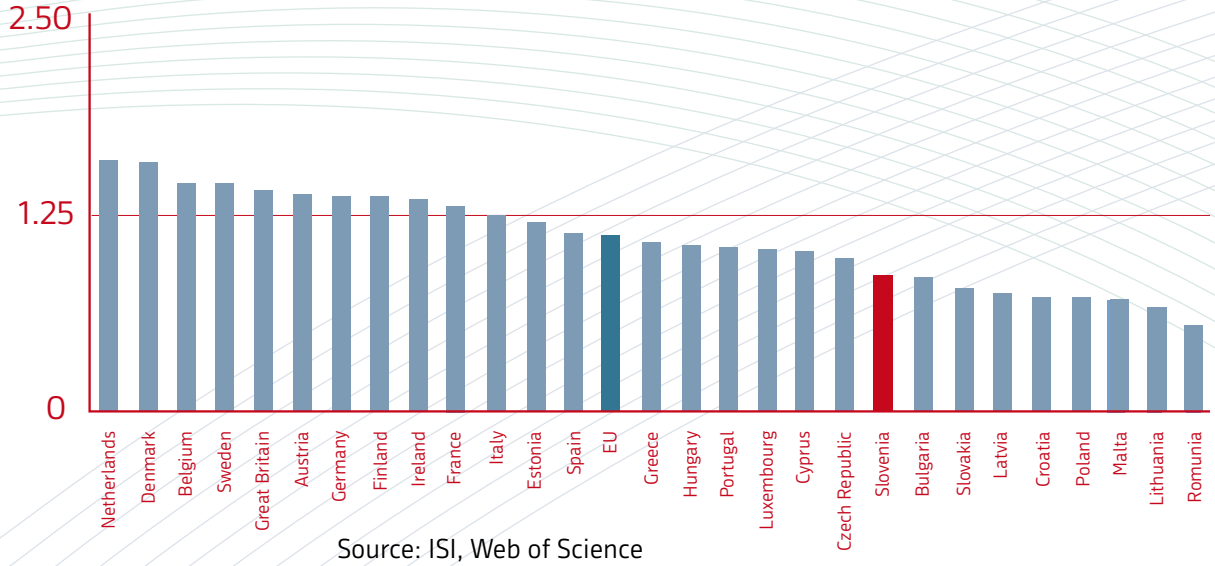

Source of the data: Science Metrix, 2014

# Relative impact factor

The relative impact factor is a standard international bibliometric indicator measuring the ratio between the received citations and the number of publications in a particular country according to the worldwide average impact factor in a particular scientific field.

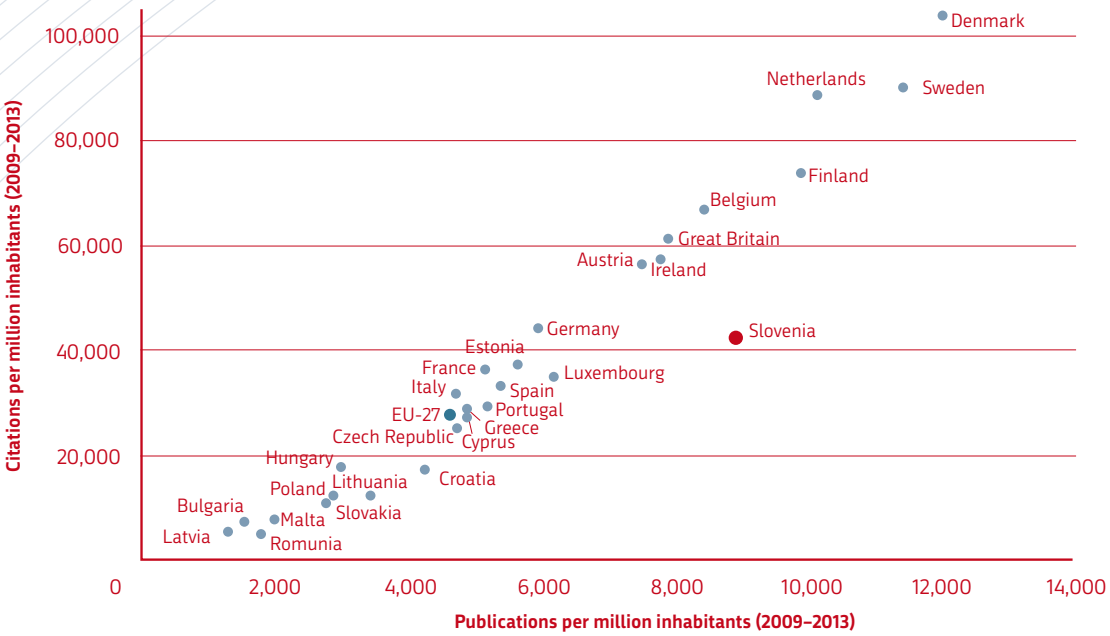
Among the EU Member States, Slovenia is ranked twentieth based on the relative impact factor. The value of this indicator is still below the EU average despite the above-average growth of the relative impact factor

Relative impact factor for the EU Member States in the period 2009-2013




Source: ISI, Web of Science

Publications and citations by EU Member State




Source: Web of science

# Assist Prof Dr Barbara Murovec

The members of the Scientific Council of the humanities come from twelve fields, namely archaeology, anthropology, ethnology, philosophy, geography with karstology, linguistics, culturology, literary sciences, musicology, theology, art history and historiography. In addition to regular tasks, the members dealt primarily with how to change financing and evaluation so that these two mechanisms will be able to recognise and promote knowledge, quality, understanding of the past and human creativity, basic research of the (national) heritage and other important and long-term tasks which can only be tackled by Slovene humanities. We prepared a Call for the introduction of the basic funding of research activities in the Republic of Slovenia, as the current system is unique in the world since the institutions of humanities established by the state are not provided with the financial resources necessary for the operation or systematization of posts. Equality in funding would encourage cooperation between universities and institutes and not the exclusion due to the fight for basic funds.

The aim of Slovenian research policy should be to apply criteria for each individual science on the basis of which it is possible to actually recognize the quality and social significance of individual fields. None of the currently applied key criteria such as the impact factor of the journal in which the article is published, citations and assets acquired outside the Slovenian Research Agency, say anything about the (lack of) quality of researchers in the field of humanities. Moreover, humanities are directed away from the (long-term) basic research, from the extensive and time-consuming field work, in-depth studies and from desideratums to trendy and rapid production of semi-finished products. Consequently there is no one to set example to the younger researchers who have no possibilities either.

In the future, it would make sense to pay greater attention to the substantive questions of how to design support to research priorities, how to make humanities and its research of the heritage of Slovenia useful for the economic development of the country, for example cultural tourism as one of the most important industries in Europe, and how to connect the development of the information society with humanist contents of quality and relevance to society (digital humanities). This will only be possible when the method of financing humanistic sciences is similarly stable to the methods in the rest of Europe and the United States, and when they are properly evaluated according to their mission, research and tasks they perform. The Slovenian Research Agency is facing a challenge since it needs to design appropriate criteria; however, with the new Rules on the Procedures of the (co)financing and Monitoring of Research Activities and the methodology it moved in the opposite direction.

> In the future, it would make sense to pay greater attention to the substantive questions of how to make humanities and its research of the heritage of Slovenia useful for the economic development of the country, for example cultural tourism as one of the most important industries in Europe.

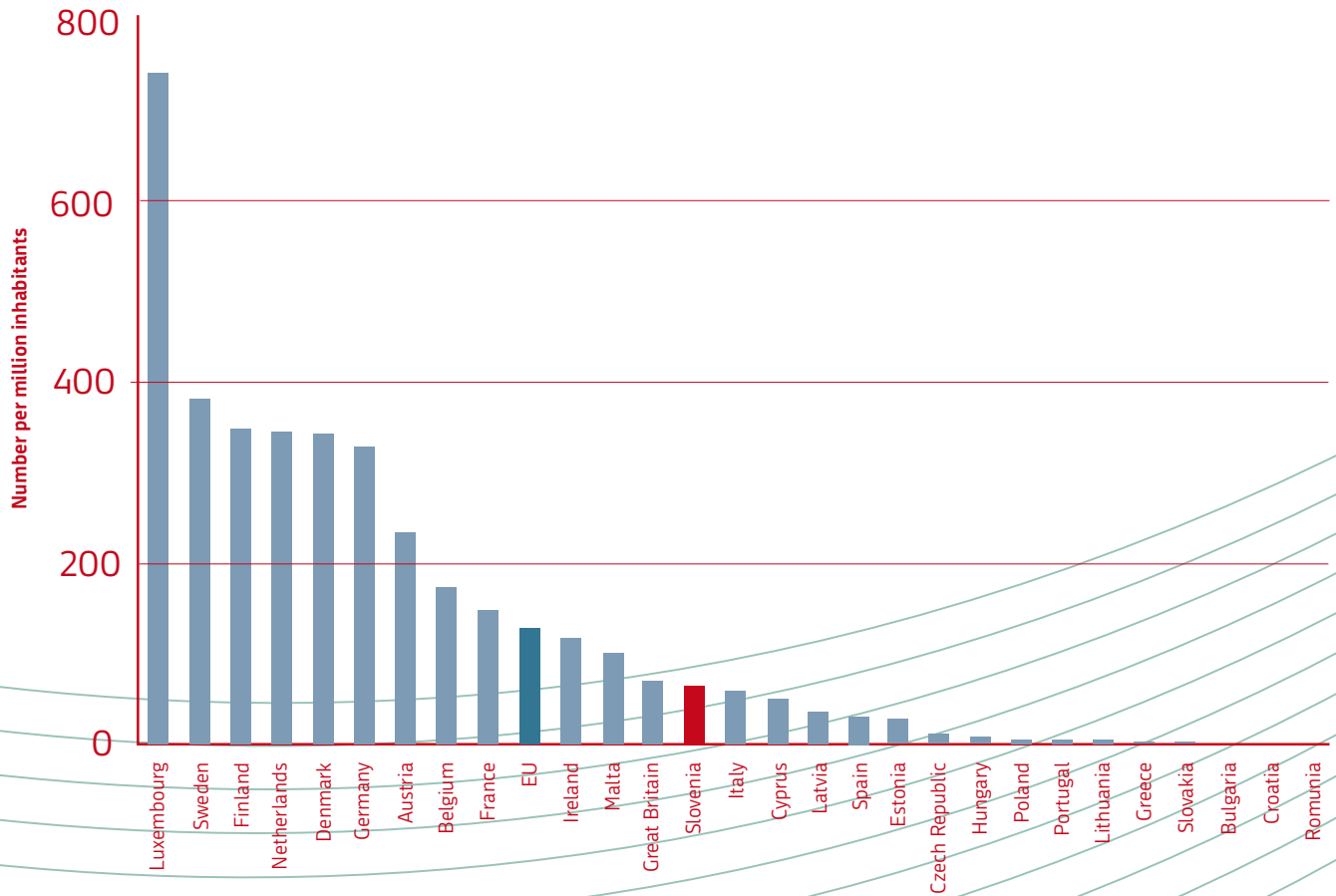
Assist Prof Dr Barbara Murovec

Assist Prof Dr Barbara Murovec, President of the Scientific Council for Humanities, is a researcher in art history and the Head of the France Stele Institute of Art History, Research Centre of the Slovenian Academy of Sciences and Arts.

# Patent applications filed by the European Patent Office (EPO)

With respect to the number of patent applications filed with the EPO per million of population in 2013, Slovenia is ranked thirteenth with 66 applications, which is still far below the value of the EU average. Recently, the list of countries ranked highest has not changed significantly. These are: Luxemburg, Sweden, Finland, the Netherlands, Denmark, Germany, Austria, Belgium and France.

Number of patent applications filed with the European Patent Office in 2013 per million of population for the EU Member States

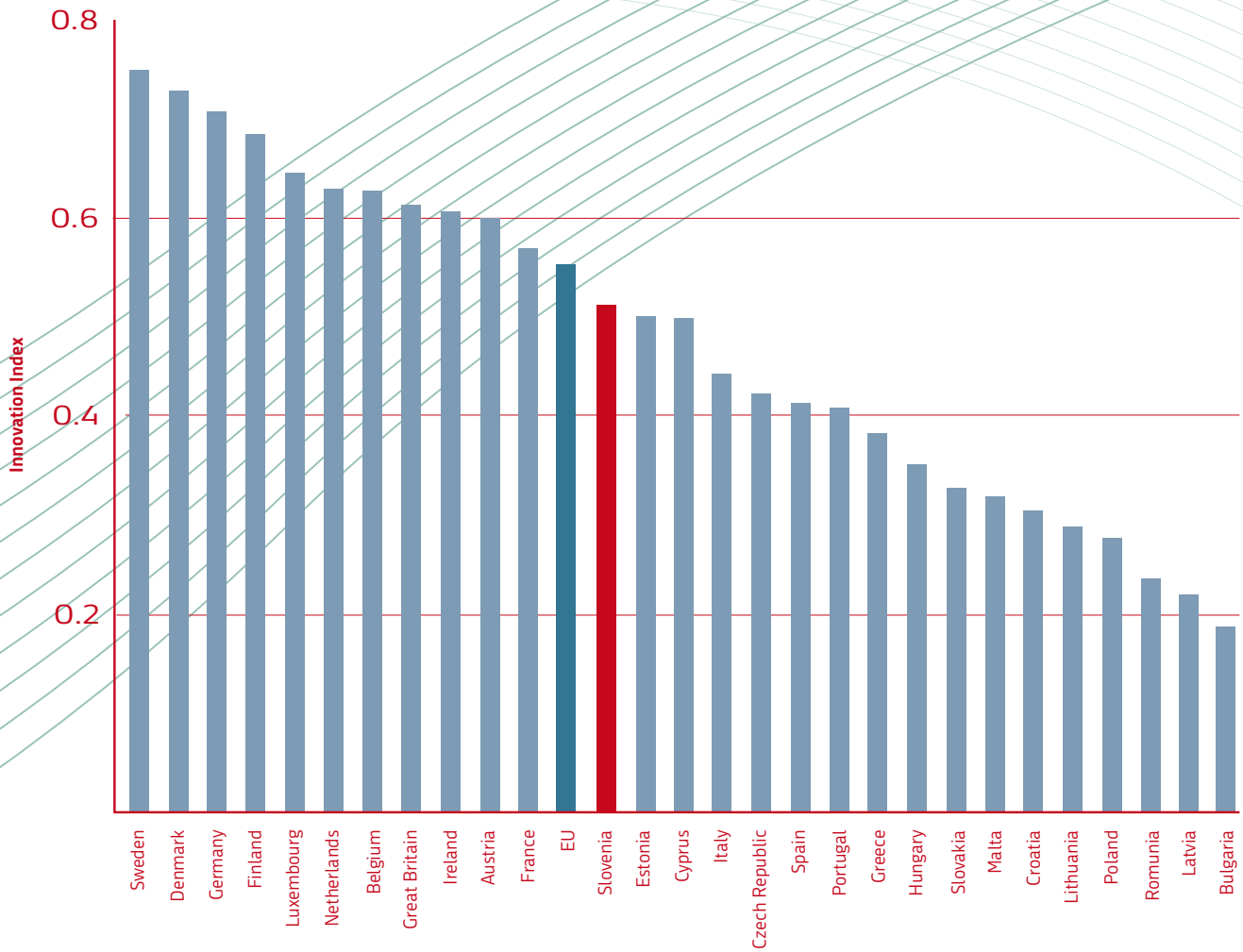



Source: European Patent Office

# Innovation index

The Innovation Union Scoreboard provides a comparative assessment of the innovation performance of individual countries. It is a composite indicator building on data for more than twenty indicators covering the educational structure, openness and excellence of the research system, financing, support to investment, cooperation and entrepreneurship and on the intellectual capital.
The Member States are placed into the four country groups, with the innovation leaders representing the first group. Based on the above mentioned indicators Slovenia is classified into the second group, of the so called innovation followers, among which Slovenia is ranked twelfth.

Innovation index for the EU Member States in 2013




Source: Innovation Union Scoreboard

# Prof Dr Tatjana Avšič Županc

The Scientific Council for interdisciplinary research is composed of established Slovene researchers and experts from various areas of scientific disciplines. The members of the Council assess annual reports and final reports of the projects in the field of interdisciplinary sciences and present the assessments of content. They also prepare, deal with and adopt annual assessments of reports and programmes of activities of infrastructure programmes. In doing so, they are critical about the eligibility and/or appropriateness of the amount of co-financing the costs of individual infrastructure programmes. They proposed to be included in the renewal of the Methodology for evaluating applications for infrastructure programmes. The members also take part in the annual selection of exceptional scientific achievements for individual fields which are presented within half-day conferences by individual fields.

In recent years, the expansion and the growing importance of interdisciplinary research in the Slovene scientific space can be observed. This type of research is carried out in various faculties of Slovene universities and other scientific institutions which include a number of Slovenian companies and foreign research institutions in their research projects. Some influential researchers in Slovenia believe that the field of interdisciplinary research is not needed because modern science is "interdisciplinary" in its very approach. We believe that interdisciplinary research is important because the cooperation between different research disciplines in both basic and applied research leads to more quality, high-profile and particularly useful results. Since this field is worth supporting we propose that the rules of the Agency for classification and evaluation should be clearer to support more successful development of interdisciplinary research. Therefore, members of the Council prepared a package of proposals and concerns regarding the changes of the way of co-financing, evaluation and monitoring of research work in Slovenia at a general level, and focused on the area of interdisciplinary scientific disciplines.

Taking into consideration the reduction of the share of budget funds of the Government of the Republic of Slovenia for science and research every year, it is extremely difficult to maintain any optimistic vision of "Slovene science". However, the renewal of the Resolution on Research and Innovation Strategy of Slovenia 2011-2020 shows the beginnings of new efforts to amend the legislation. We, researchers, hope and wish that this will be in our favour. Closer ties between research and higher education institutions on both sides seems to be very important as well as the introduction of the stable basic funding, and in particular systemization of permanent posts of researchers. I believe that the future of Slovene science is possible primarily through an even greater engagement in international research and development programmes, such as Horizon 2020 and the like. However, more quality research work and scientific development also require greater investment and support of the government.

> We believe that interdisciplinary research is important because the cooperation between different research disciplines in both basic and applied research leads to more quality, high-profile and particularly useful results.
>
> Prof. dr. Tatjana Avšič Županc

Prof Dr Tatjana Avšič Županc, President of the Scientific Council for Interdisciplinary Research, is a full professor and researcher in the field of microbiology. She is the Head of the Laboratory for Diagnostics and Zoonoses and Who Centre at the Institute of Microbiology and Immunology, Faculty of Medicine, University of Ljubljana, and an associate member of the Slovenian Academy of Sciences and Arts.

# NEW IN 2014

## SUPPORT TO INNOVATIVE TOOLS FOR THE PROMOTION OF SCIENCE

### Tromba Agency

www.tromba.si

According to the latest data, more than 20,000 scientists, researchers and developers are active in Slovenia and around 1,400 people are employed in the start-up and some 1,000 in spin-off companies. Tromba offers support to these companies, institutes and various scientific-development groups in the preparation of media presentations and their distribution regardless their organisational form. Interviews, discussions and round tables are organised and papers published. Certain copyright content is available free of charge for publication in any media thus ensuring adequate quality content about developments in the fields of science and research compelling to general public.

Ina Petič, chief and executive editor of Tromba Agency

### Meta znanost (Meta Science)

znanost.metinalista.si

Meta Science is a project of the Institute Metina lista within which we want to join the communication skills and knowledge of the dynamics of media activity with the academic excellence. We want to become a media bridge between universities, faculties, research institutes and general public, namely the readers who would like to know more about what is happening in the fields of science and research. One of our aims is to set up quality public discourse. In the Meta Science section we publish critical views, reports, records and opinion essays, columns and comments, summaries of analyses and research.

Nataša Briški, MA, editor and manager of the Meta Science project

### STAkrog – Znanost

krog.sta.si/znanost

A part of the Slovenian Press Agency's portal STAkrog is also the Science section with news focusing on Slovenian development achievements. The latter regularly publishes the latest news regarding the achievements of Slovenian scientists and other events important for Slovenian science. Selected achievements are presented in a form of multimedia articles which in addition to the text in Slovenian and English languages also include a photo gallery and video clips, and direct links to the web bases VideoLectures.net and ScienceAtlas.si. Video clips are also published within a dedicated section on the portal VideoLectures.net. In the future, this section will be upgraded with new contents that will further enhance the awareness of the general public about the Slovenian scientific achievements.

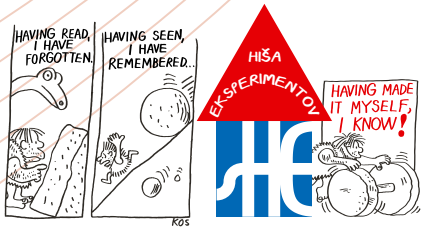
Aljoša Rehar, Head of the Web Portal STAkrog

## Excellent in Science

Excellent in science is a name of a series of annual events, which are usually organized by the Agency in the last months of the year. These events present the most important scientific achievements, proposed by individual Scientific Councils of scientific disciplines. The Excellent in Science project promotes links between experts and the establishment of the junction between science and economy. The events which are always open to the public are organised by the Agency in cooperation with research organisations. In 2014, we cooperated with the Spirit Slovenia agency. We joined the presentation of the achievements in the field of engineering with the 9th Slovene Forum of Innovation. The achievements in biotechnology were presented on 26 September 2014 in the context of a pan-European project Researchers' Night. Excellent in Science is supported by the portal Videolectures.net where recordings of short lectures are available.

## Communicating Science project

In November 2014, the Agency prepared a professional interactive workshop for journalists and editors in collaboration with the Context Company, titled: "How to write an engaging science story?". The workshop was run by the editor of Science of The Guardian, Dr Ian Sample. It was attended by 15 journalists from most of the major Slovenian media houses which cover the areas of science and technology. Dr Sample used practical tasks to shed light on how scientific stories, their selection, research and presentation are approached by the Editorial Board of The Guardian.
The workshop is a part of the project Communicating Science started in 2014 by the Agency aiming at promoting science and strengthening the quality of media reporting on scientific achievements. Within the European project Responsible Research and Innovation Tools which is the European Commission's reference project in responsible research and innovation recognised the Communicating Science project as an example of good practice.




## House of Experiments www.h-e.si

The House of Experiments is a Slovene centre for the promotion of education and science. In 2014, it reached the age of majority. In addition to numerous activity carried out at Trubarjeva Street in Ljubljana and elsewhere, the Sciencetival – Festival of Scientific Events is organised once a year. The aim of Sciencetival is a clear presentation of research results and basic scientific principles to the population of Slovenia and beyond. In 2014, a new activity was introduced called A Little House of Experiments – a Mobile House of Experiments. This is intended to promote the transfer of knowledge and curiosity of primary school pupils.
With the activities of the House of Experiments we want to give people the opportunity to ask questions and seek answers, practice healthy doubt and critical thinking and in particular to remain curious.

Dr Miha Kos, Founder and Head of the House of Experiments

> Curiosity gives birth to creativity and creativity leads to innovation.
>
> Dr Miha Kos

# Public calls and invitations in 2014

## Domestic public calls and invitations

| | Publication date |
|---|---|
| **Research programmes** | |
| Public call for the submission of applications for increased funding of research programmes | 7 Feb 2014 |
| Public call for the submission of research programmes for the next funding period and the reports on the results of research programmes for the 2009-2014 period | 28 March 2014 |
| Public invitation for the awarding of a concession for the performance of a public service in the field of research activities in a form of research programmes | 28 March 2014 |
| **Research projects** | |
| Public invitation for the selection of research projects for the Target research programme "Securing Food for Tomorrow" in 2014 | 28 Feb 2014 |
| Public invitation for (co)financing of research projects in 2015 | 24 Dec 2014 |
| **Infrastructure obligations** | |
| Public invitation for co-financing the publication of domestic scientific periodicals in 2014 | 24 Jan 2014 |
| Public invitation for co-financing the publication of scientific monographs in 2014 | 4 April 2014 |
| Public invitation for co-financing the translation to English and the publication of translations of scientific monographs by Slovene authors in e-publishing in 2014 | 30 April 2014 |
| Public invitation for co-financing the purchase of international scientific literature and scientific databases in 2014 | 5 Sept 2014 |
| Public call for the submission of infrastructure programmes for the 2015-2020 funding period and the reports on the results of infrastructure programmes for the past period | 3 Oct 2014 |
| Public invitation for the awarding of a concession for the performance of a public service in the field of research activity in a form of infrastructure programmes in the 2015-2020 period | 3 Oct 2014 |
| Public invitation for co-financing the publication of domestic popular scientific periodicals in 2015 and 2016 | 14 Nov 2014 |
| Public invitation for co-financing the programmes of activity in central specialised information centres in the 2015-2017 period | 31 Dec 2014 |

## International calls and invitations

| | |
|---|---|
| Public call to Slovene researchers to apply for joint Flemish-Slovene projects with FWO being the lead agency | 10 Feb 2014 |
| Public invitation for co-financing scientific research cooperation between the Republic of Slovenia and India in 2015 and 2016 | 7 March 2014 |
| Public invitation for co-financing scientific research cooperation between the Republic of Slovenia and France - PROTEUS in 2015 and 2016 | 7 March 2014 |
| Public invitation for co-financing scientific research cooperation between the Republic of Slovenia and Argentina in the 2015-2017 period | 7 March 2014 |
| Public invitation for co-financing of the activities regarding the promotion of Slovene science abroad in 2014 | 20 June 2014 |
| Public invitation for co-financing activities in international science associations in 2014 | 20 June 2014 |

| | |
|---|---|
| Public invitation for co-financing scientific research cooperation between the Republic of Slovenia and Japan in the 2015-2017 period | 11 July 2014 |
| Public invitation for co-financing scientific research cooperation between the Republic of Slovenia and Turkey in the 2015-2017 period | 18 July 2014 |
| Public call to Slovene researchers to apply for joint Hungarian-Slovene projects with OTKA being the lead agency | 22 July 2014 |
| Public invitation for co-financing scientific research cooperation between the Republic of Slovenia and Alternative Energies and Atomic Energy Commission (CEA) of the French Republic in the 2015 – 2017 period | 24 Oct 2014 |
| Public invitation for co-financing scientific research cooperation between the Republic of Slovenia and the United States of America in 2015 – 2016 | 19 Dec 2014 |

SLOVENIAN RESEARCH AGENCY

**Full name:**
Slovenian Research Agency

**Abbreviated name:**
ARRS

**Year of foundation:**
2004

**Core activity:**
Performance of professional, development and executive tasks relating to the implementation of the Resolution on Research and Innovation Strategy of Slovenia 2011-2020 and other tasks with statutory duties in public interest in order to ensure permanent, professional and independent decision-making on the selection of programs and projects financed from the national budget.

**Internal organisational units:**
Director's Office
Department of Research Projects
Department of research Programmes, Young Researchers and Analysis
Department of Research Infrastructure and International Cooperation
Department of General Affairs
Department of Finance and Accounting
Department of Information Technology

**Number of employees:**
48

**Funds received from the national budget for scientific-research activities in the 2014 financial year:**
EUR 136.5 million

**Basic documents:**
Research and Development Act (Official Gazette of the Republic of Slovenia, nos. 22/06 – official consolidated text, 61/06 – ZDru-1, 112/07, 9/11 in 57/12-ZPOP-1A)

Decision establishing the Slovenian Research Agency
(Official Gazette of the RS, nos. 123/09 and 105/10)

Resolution on Research and Innovation Strategy of Slovenia 2011-2020 (Official Journal of the RS, no. 43/11)

**Website:**
www.arrs.gov.si/en

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