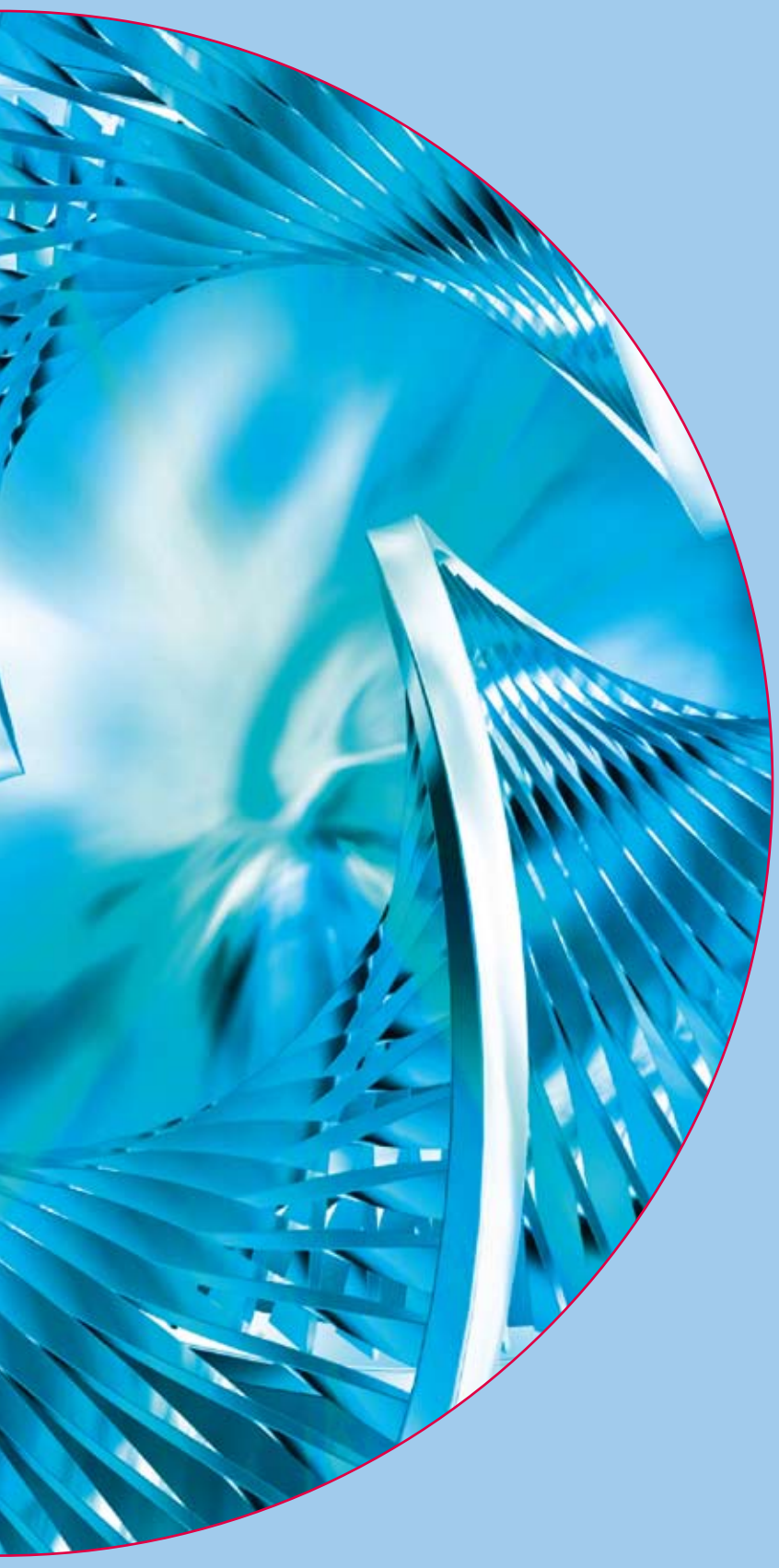
Annual Report 2008



ACADEMY OF FINLAND

60 YEARS IN THE BEST INTERESTS OF SCIENCE

2008 IN BRIEF

- Research funding by the Academy of Finland accounted for 16.5 per cent of central government R&D expenditure.
- The Academy made research funding decisions to a total value of 287 million euros.
- The Academy had eleven ongoing research programmes.
- There were two ongoing Finnish Centre of Excellence programmes (CoEs), in which funding was provided to 41 CoEs: 23 CoEs in the 2006–2011 programme and 18 CoEs in the 2008–2013 programme.
- The Academy had national responsibility for two specific programmes and six sub-programmes under the EU's 7th Framework Programme for Research.
- The Academy was involved as a partner in 14 ERA-NETs and it was coordinator of one.
- The Academy was involved in four Nordic NORIA-nets and it was coordinator of two of these.
- The Academy's Administration Office had a staff of 159.
- The Academy had 307 tenured researchers: 40 Academy Professors and 267 Academy Research Fellows.
- There were 28 FiDiPro Professors who received funding from the Academy.

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The Academy's six decades

1940–1950

The Act regarding the Academy of Finland and on state grants for promoting cultivation of the mind at the highest level entered into force on 15 October 1947. The Academy of Finland was charged with the advancement of science and the arts, and for this purpose it was accorded an autonomous status. In their position as Academicians, the eight prominent scientists and scholars and four artists who made up the Academy had the freedom to concentrate on their creative endeavours.

The Academy of Finland was officially inaugurated by President of the Republic **J. K. Paasikivi** at a ceremony held at the University of Helsinki Great Hall on 29 November 1948.

The Research Council for the Humanities, the Research Council for the Natural Sciences and the Central Board of Research Councils were founded in 1950.

1960

Appointed with the support of President **Urho Kekkonen**, the committee on the organisation of scientific research under the chairmanship of Edwin Linkomies published three reports that laid the foundations for the systematic pursuit of science policy in Finland, the reorganisation of the Research Councils and the establishment of a research profession.

The committee's major proposals were adopted almost without change in new legislation on the organisation of scientific research. The two Research Councils were replaced by six research councils following the traditional faculty structure at universities.

The old-style Academy was discontinued in 1969, but the new organisation built around the six Research Councils continued under the reputable name of the Academy of Finland.

1970

The 'new' Academy of Finland started up in 1970. Its mission was to provide funding for high-level research, to oversee the allocation of national research funding and to outline science policy. The Academy consisted of the Central Board of Research Councils, six Research Councils and an Administrative and Finance Office.

Research grants were increased. The posts of Academician were discontinued and Academician became an honorary title. Fixed-term research professorships were created in their stead. Today the Academy has 40 posts for Academy Professors and 267 posts for Academy Research Fellows.

In the 1970s, the title of Academician was awarded to Martti Rapola, **Eino Jutikkala**, Thure Sahama, Ilmo Hela, Ilmari Hustich, Olli Lehto, Tauno Nurmela, Lauri Posti and Valentin Kiparsky.

1980

In the 1980s, Academy research funding was allocated to supporting major long-term projects. The first research unit contract was signed in 1982 with the University of Oulu to support collagen research. In another major project, the Academy signed an agreement with the University of Helsinki to jointly fund the establishment of an institute of gene technology.

In the field of genetic research, a research contract was signed with Adjunct Professor **Leena Palotie** on the study and diagnosis of genetic disease susceptibility using recombinant DNA methods. At the initiative of the Research Council for the Humanities, an agreement was signed for the establishment of a research unit for computational linguistics at the University of Helsinki.

The Academy adopted the concept of research programmes in the late 1980s. This concept was embraced by all the Research Councils.

1990

In 1994, new legislation was passed to streamline the Academy's operation and organisation. The Central Board of Research Councils was replaced by the Academy Board, which is chaired by the Academy President under the appointment of the President of the Republic. The number of Research Councils was reduced to four.

The Academy is committed to advancing scientific research and the application of its results, to promoting international scientific cooperation, to contributing its expertise in science policy issues and to awarding funding for research and other ways of promoting science.

Peer reviews of applications submitted to the Academy, whether for funding or for research posts, have been at the heart of the Academy's operation since the 1990s. Today, the Academy receives and reviews more than 4,000 applications a year.

2000–

The Academy of Finland celebrated its 60th anniversary on 28 November 2008. Speaking at the anniversary gala, President of the Republic **Tarja Halonen** observed that the Academy has contributed significantly to the advancement of science: "Science policy has included a commitment to maintain a broad-based science foundation and to achieve breakthrough results. The Academy of Finland has succeeded extremely well in this task."

The President also compared the Academy to a lighthouse. "This is still a good comparison, so long as we remember that a lighthouse can only shed light on part of the world around us. The role of the Academy of Finland is to show the way ahead for science, and that includes contributing to the debate on the values of science and to other public debate in society."

60 YEARS IN THE BEST INTERESTS OF SCIENCE

Markku Mattila
President

The year 2008 marked the 60th anniversary of the Academy of Finland. The celebrations culminated in three major events: the awards gala for the Academy's annual science competition for senior secondary students early in the year, a seminar on the impact of research work held in early autumn, and the main ceremony in November that was attended by the country's highest leadership and the scientific and research community.

These events and the anniversary year were a great showcase for the Academy's significant role in implementing national science policy and in providing the necessary support for scientific research. Science is increasingly important to individuals and to society. Humankind is currently faced with a series of urgent questions – climate change, environmental degradation, health hazards, welfare shortfalls, the elimination of poverty, the prevention of conflicts and crises as well as economic problems. These cannot be understood and controlled without the input of sound scientific research.

During the Academy's 60 years of existence, Finland has developed into a prominent science power with strong research expertise. The Academy has been instrumental in driving this development. The Academy is the most important source of external research funding for universities and creates the necessary framework conditions for sustained scientific work.

During 2008, planning for a major overhaul of the national research system reached completion, and the project is now in the starting blocks. Many of the changes will be reflected in the Academy's work and will require considerable rearrangements. New challenges also emerged in the science policy debate to which the Academy can help respond. These include infrastructure policy and its administration, the content of sectoral research, scientific support for Finnish Government policy programmes and the changes implied to the innovation system by the Government's Innovation Policy Report to Parliament.

In its review of this report, the Academy stressed the importance of scientific research as a central foundation for innovation. Sustained scientific research is paramount to gaining an in-depth knowledge and understanding of the phenomena studied and to inspiring the individual creativity that lies behind all innovations.

A major focus during the past year was the deployment of the Academy's new strategy. New strategic lines of work were adopted for international operations, research programmes, communications and human resources policy.

One of the key priorities in Finnish science policy is to promote and mainstream internationalisation. Research collaborations were launched with Latin American countries, and new contacts were made to strengthen scientific cooperation with India, China and Japan, Asia's leading research nations. The new memorandum of understanding signed between the Academy of Finland and the Republic of Korea provides further support for this Asian connection. In line with the Government's science policy stance, steps were taken to strengthen scientific cooperation with all neighbouring countries and particularly in the Baltic Sea region.

The Academy of Finland is clear about its position on the need to further strengthen the framework conditions for science and research in Finland. As regards its own development, the Academy will continue to draw on its existing unique strengths. One of these strengths is the independent influence that the Academy, from its scientific community background, can exercise over science policy. It is ideally positioned to identify the current development challenges facing science and to ensure the freedom of research.

The Academy of Finland – a responsible partner

The fundamental task of science, which at once provides the justification for doing science, is to enhance human knowledge and push out its boundaries. These were the words with which President of the Republic Tarja Halonen described the responsibilities of Finland's major research funding agency at the Academy's 60th anniversary gala in November 2008.

President Halonen stressed the duality of this mission. On the one hand, research is expected to provide answers and solutions to global problems: climate change, the energy crisis, the lack of clean drinking water, poverty and diseases. Other areas where new knowledge is constantly needed include questions of social justice, learning and culture. Science and research can serve both country and humanity. On the other hand, science is increasingly recognised as crucial to the economy and to national competitiveness.

The mission of the Academy of Finland is to foster high-quality research on a long-term basis and to promote the application of its results. The Academy has been carrying out this mission for 60 years now. This Annual Report provides an overview of the Academy's priorities and activities in 2008.

Work to produce new scientific knowledge and to develop new ideas is increasingly an international collaborative effort. In the past few decades, the Academy has invested heavily in developing international scientific cooperation. In line with its international strategy, the Academy is committed to be a responsible partner in international cooperation. It carefully selects the countries and partners that will deliver the greatest added value to both Finnish research organisations and researchers and to their counterparts (see page 15).

As the President noted in her speech, there has always been relative consensus in Finland about the content of national science policy, or at least its general direction. The Academy is a well-respected expert in science policy issues. It recognises its responsibility to ensure that national science policy in Finland takes account of the concerns and interests of academia, the aspirations and needs of society as well as global changes and obligations. According to the Chairs of the Academy's four Research Councils (see interviews on pages 12, 17, 18 and 21), this sense of responsibility is well reflected in the Councils' funding decisions (page 11, Figure 6).

President Halonen stressed that it is necessary for researchers and the scientific community to be responsive to citizens' legitimate demands when science is expected to provide answers to society's burning problems, or when society expects research to find ways of improving the well-being of people and the environment. The Academy's responsibility for addressing social, human, environmental and other burning problems is reflected in its portfolio of research programmes (see page 10) and in its appointments of Centres of Excellence (see page 13).

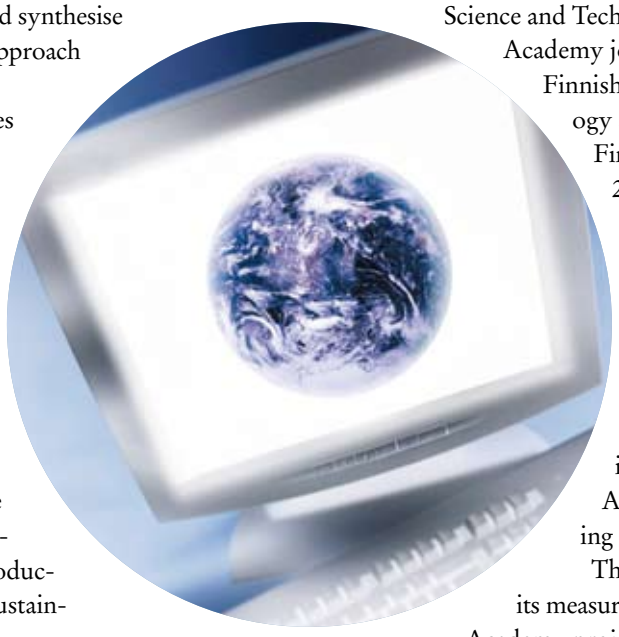
> *"It is necessary for researchers and the scientific community to be responsive to citizens' legitimate demands when science is expected to provide answers to society's burning problems, or when society expects research to find ways of improving the well-being of people and the environment."*
>
> *President of the Republic Tarja Halonen*

Responsibility has many facets. Adherence to good scientific practice is a shared responsibility for the whole scientific community: every individual scientist and scholar has an obligation to make ethically justifiable choices. The ethics of social responsibility makes it the primary duty of the researcher to promote human values. This is reflected in the funding applications received by the Academy (page 10). Funding agencies, too, are expected to demonstrate social responsibility.

The Academy has always fostered good scientific practice and enhanced the ethical sustainability of the research it finances. Problems of research ethics take on a different cast in different disciplines and fields of research, such as medicine, nanoscience or the social sciences. And all the time, new kinds of ethical problems are emerging that need to be addressed. These include the challenges surrounding commissioned research and the commercial use and publicity value of research results, which were discussed at the Academy's 60th anniversary seminar in the autumn.

The Academy acknowledges its responsibility for promoting equality and career opportunities among researchers (pages 14–15).

The Academy and its Research Councils have seriously taken on board their responsibility for sustainable development. The Academy recognises that science and research have a huge responsibility to carry in that the knowledge and innovations they generate become part of everyday practice over the following decades. Sustainable development can be promoted through political and administrative decisions at the local, national and international level, and research needs to support that decision-making by providing reliable information and new frameworks of thinking and practice. Climate change and other questions related to the sustainability of society, for instance, have to be approached from a variety of perspectives. It is necessary to have a multidisciplinary knowledge base, an ability to analyse and synthesise information and an ethical approach to the search for answers.



Research that contributes to sustainable development should be promoted and supported particularly in those sectors where the goals of sustainable development are clearly unattainable within the next few years. Two good examples of incorporating the principles of sustainable development in research are the Academy's research programmes on Sustainable Production and Products and on Sustainable Energy (page 11).

For reasons of social acceptance, it is essential that research benefits society. According to the Academy's own impact assessments, the social, industrial and commercial impacts of Academy projects have materialised in new products and processes, patents, theses and dissertations, research career advancement, methodological competence, new business ventures, technological and social innovations, regional or environmental impacts as well as in improvements in education, health and well-being. (See also page 28.)

The Academy's and the research community's sense of responsibility towards the Baltic Sea is reflected in their efforts to identify the research and social factors that have most contributed to the success of the protective and conservative measures: the Baltic Sea research programme (BONUS) in 2003–2005, the coordination of the BONUS ERA-NET in 2004–2007, and most recently the decision to provide funding for the joint European Baltic Sea research programme.

The Academy's most important responsibility is to maintain and enhance the high level of Finnish science

Scientific knowledge is a crucial prerequisite to preventing the various threats that exist to social development. In accordance with the recommendations of the Science and Technology Policy Council, the Academy joined forces with Tekes, the Finnish Funding Agency for Technology and Innovation, to conduct the Finnsight 2015 project in 2005–2006, exploring the outlook for Finnish science, technology and society. The purpose was to identify areas of competence where research and innovation can most significantly contribute to promoting social welfare and business and industry competitiveness. The Academy and Tekes are continuing their work in this area.

The social impact of research and its measurement is the focus of an ongoing Academy project under the title Sight2009. As part of this project, the Academy and Tekes published a report in 2008 on the impact framework and indicators for science, technology and innovation. This report provides the necessary groundwork for a comprehensive impact assessment of the Finnish research and innovation system.

The Academy's commitment to social responsibility is reflected in the work of Strategic Centres for Science, Technology and Innovation, which benefit from Academy funding. (See page 26).

The Academy's most important responsibility is to maintain and enhance the high level of Finnish science. This responsibility is grounded in the Academy's mission as prescribed in the law.

Operating environment

A whole host of reforms and structural changes are underway in the Finnish research and innovation system. The most significant among these changes will affect the status and operating environment of universities. A major restructuring is also taking place in the field of sectoral research with a view to improving intersectoral cooperation and the collaboration of government research institutes with universities. New Strategic Centres for Science, Technology and Innovation are being created in fields that are critical to the future of Finnish society and business and industry.

The changes to the role and status of different players in the research and innovation system will inevitably be reflected in their forms of cooperation, too.

The Government Programme includes a commitment to prepare a national innovation strategy. The Government communication on the development of innovation policy and the innovation environment in Finland was adopted in October 2008.

Convening under the chairmanship of the Prime Minister, the Science and Technology Policy Council of Finland adopted the education, science, technology and innovation policy report "Review2008", which outlines the national strategy and development programme for the next few years. From the beginning of 2009, the Council will be known under its new name, i.e. the Research and Innovation Council. The Academy's President is a member of the Council.

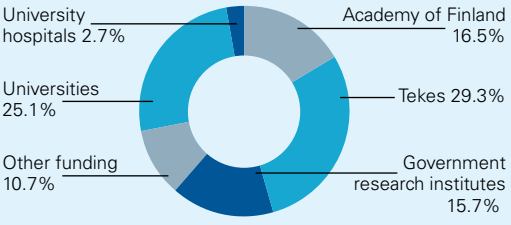
One of the most important challenges for high-level research in Finland is how to increase the attraction of research as a career so that the best Finnish and foreign talents can be persuaded to pursue research as a living. At the same time, it is paramount to maintain and further improve the infrastructures of research.

Finnish R&D expenditure in 2008 is estimated at 6.4 billion euros, up by about 200 million euros from the previous year (Table 1). R&D expenditure as a proportion of GDP is down from 3.5 per cent in previous years to 3.37 per cent.

Figures for the period before the downturn in 2008 showed robust growth. With real growth rates in excess of 5 per cent, the fastest growth was recorded right after 2000. Business R&D expenditure increased by more than 400 million euros. In the university sector the increase reached almost 90 million euros.

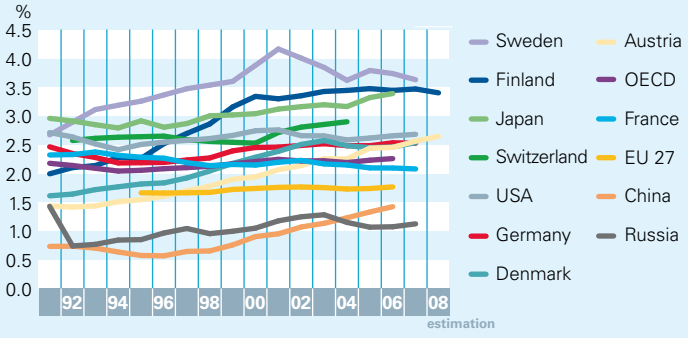
Photo: Finnish CoE in Interdisciplinary Music Research.

Figure 1. Breakdown of central government R&D expenditure in 2008



Source: Government R&D funding in the State Budget 2008, Statistics Finland 2008

Figure 2. R&D expenditure in selected OECD countries and in China and Russia (R&D expenditure as a percentage of GDP)



Sources: Main Science and Technology Indicators, OECD 2008
Government R&D funding in the State Budget 2008, Statistics Finland 2008

Central government R&D expenditure in 2008 amounted to 1.8 billion euros (Table 2), up 68 million euros from 2007. Research expenditure increased nominally by 3.9 per cent and in real terms by an estimated 0.7 per cent. R&D spending as a proportion of central government expenditure, excluding debt servicing costs, was 4.4 per cent. Public R&D expenditure as a proportion of GDP dropped to 0.95 per cent.

The Academy of Finland comes under the administration of the Ministry of Education. R&D expenditure by the Ministry of Education increased from 2007 to 2008 by 27 million to 778 million euros. R&D spending by the newly formed Ministry of Employment and the Economy totalled 673 million euros; this is the administrative sector of Tekes, the Finnish Funding Agency for Technology and Innovation. R&D expenditure also increased significantly in the administrative sector of the Ministry of Defence, whereas a decrease was recorded for the Ministry of Agriculture and Forestry, the Ministry of Social Affairs and Health, and the Ministry of the Environment.

The Academy's share of central government R&D spending climbed to over 16.5 per cent, amounting to 297 million euros. The figures for Tekes funding were 526 million euros and 29.3 per cent.

In terms of socio-political goals, the single biggest expenditure category was the general promotion of science: allocations under this category were up 25 million euros, most of which consists of research funding awarded by the Academy.

Table 1. R&D expenditure by sector and as a percentage of GDP in 2001–2007 and estimate for 2008

Year	Private business sector		Public sector***		Higher education sector		Total	R&D spending as % of GDP**
	€ million	%	€ million	%	€ million	%	€ million	%
2001	3,284.0	71.1	500.9	10.8	834.1	18.1	4,619.0	3.30
2002	3,375.1	69.9	529.7	11.0	925.6	19.2	4,830.3	3.35
2003	3,527.9	70.5	515.4	10.3	961.7	19.2	5,005.0	3.43
2004	3,683.5	70.1	530.1	10.1	1,039.8	19.8	5,253.4	3.45
2005	3,876.9	70.8	554.7	10.1	1,042.1	19.0	5,473.8	3.48
2006	4,107.8	71.3	574.2	10.0	1,079.2	18.7	5,761.2	3.45
2007	4,513.4	72.3	564.7	9.0	1,164.6	18.7	6,242.7	3.47
2008*	4,661.3	72.3	559.5	8.7	1,225.2	19.0	6,446.0	3.37

* Estimate based on survey responses and other calculations
** GDP 2006 and 2007 preliminary Statistics Finland data, GDP 2008 forecast by the Ministry of Finance
*** Including PNP (private non-profit sector)

Source: Research and development 2007, Statistics Finland 2008

Table 2. Central government expenditure and R&D expenditure in 1998–2008

Year	Central government expenditure	Central government expenditure excluding debt	R&D expenditure	R&D expenditure as % of central government expenditure	Central government expenditure, real change	Central government expenditure excluding debt, real change	R&D expenditure, real change
	€ million	€ million	€ million	%	%	%	%
1998	32,677.6	27,676.0	1,249.7	4.5	1.0	-2.5	2.7
1999	35,607.6	27,309.2	1,275.2	4.7	7.5	-2.6	0.2
2000	38,472.0	28,141.0	1,295.9	4.6	4.9	0.1	-2.1
2001	36,072.0	29,672.0	1,352.4	4.6	-9.2	2.1	0.7
2002	35,511.0	30,877.0	1,388.7	4.5	-4.1	1.4	-0.3
2003	36,897.0	32,258.0	1,452.8	4.5	1.6	2.2	1.6
2004	36,320.0	33,939.0	1,535.1	4.5	-3.8	2.8	3.1
2005	41,247.0	35,204.0	1,614.1	4.6	11.7	2.0	2.3
2006	40,870.6	37,136.0	1,694.3	4.6	-2.8	3.5	2.5
2007	40,517.2	38,135.0	1,730.0	4.5	-3.0	0.5	-0.1
2008	45,080.0	40,704.7	1,798.0	4.4	7.5	3.1	0.7

Source: Government R&D funding in the State Budget 2008, Statistics Finland 2008

The Academy's year

Academy funding for research increased. In 2008, the Academy awarded a total of 287.2 million euros to promote high-quality research and research careers. The corresponding figure in 2007 was 264 million euros.

The Academy's key funding instruments were project funding, programme funding (research programmes, Centre of Excellence programmes), research posts (Academy Professors and Academy Research Fellows), Postdoctoral Researcher's projects and the Finland Distinguished Professor (FiDiPro) programme.

Funding for research projects represented the single biggest category of Academy funding, accounting for 49 per cent of the total (Figure 3). Funding for research programmes accounted for 6 per cent and for Centres of Excellence 12 per cent.

Research programmes focus on carefully selected themes to reform and strengthen research in that field

81 per cent of Academy funding went to universities (Figure 5). The breakdown by university is shown in Table 4 (page 31).

The Research Council for Natural Sciences and Engineering accounted for the largest share of Academy research funding (Figure 6).

The Academy received a total of 4,228 funding applications worth 1.2 billion euros: the figure for 2007 was 4,824 applications. In the May 2008 call for general research grants, for example, 28 per cent of applications were approved, and funds awarded amounted to 22 per cent of the total value of applications (Table 5, page 31). The figures in 2007 were 27 per cent and 21 per cent, respectively.

Academy research programmes continued to work actively on a wide range of subjects. A major focus in 2008 was to mainstream internationalisation and to promote dialogue with society. The Academy's research programmes enjoyed high visibility both nationally and internationally.

The Academy had eleven ongoing research programmes (for a full list, see page 33). It invited applications for two new research programmes, opened several international calls under current research programmes, conducted reviews of applications received and issued decisions on which projects would receive funding. Final evaluations were completed for five research programmes, and four final evaluation reports were published in 2008.

The Academy's research programme strategy was revised to accommodate the changes taking place in the national and international environment. With the world's emerging science nations presenting ever-tougher competition and shifting the geographical focus of international competition, it is essential that Finland step up its cooperation both nationally and internationally. Faced with this changing landscape, the Academy has to devote increasing effort to strengthening long-term scientific research and to developing the national research system.

Research programmes focus on carefully selected thematic areas in a concerted and coordinated drive to reform and strengthen research in that field. They are designed to address society's needs by means of long-term research. The added value of research programmes comes from the collaboration and exchange between

Figure 3. Academy of Finland research funding decisions in 2008

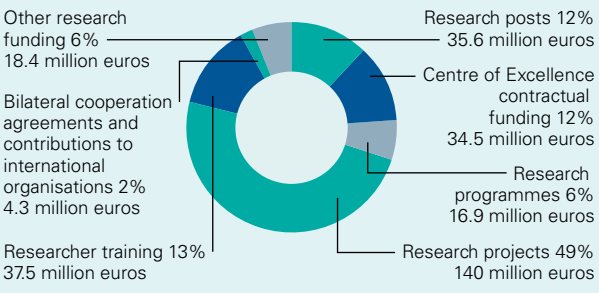


Figure 4. Development of Academy of Finland research funding 1998–2008

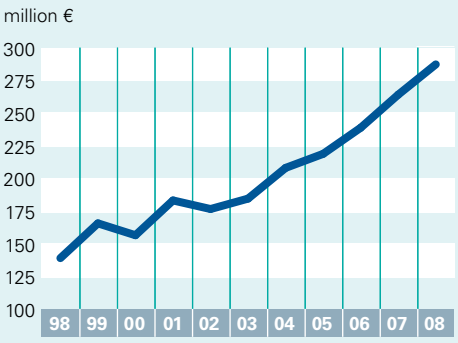


Figure 5. Breakdown of Academy of Finland research funding decisions by site of research in 2008

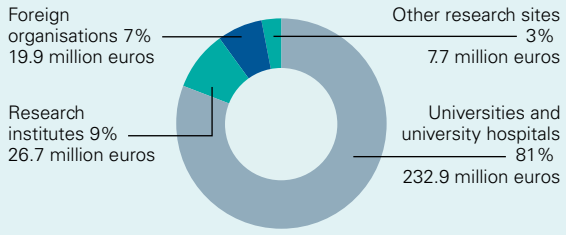
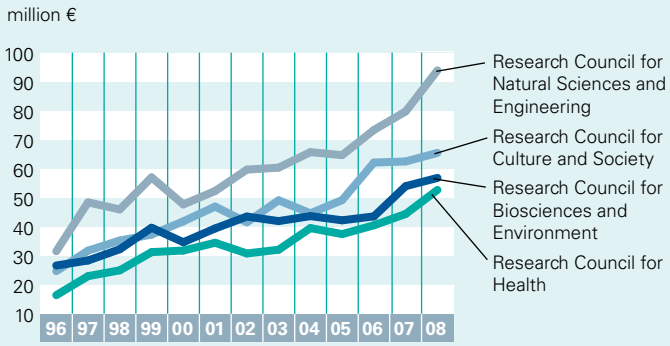


Figure 6. Academy of Finland research funding by Research Councils in 1996–2008



scientists and scholars working in different disciplines, the end-users of research results and research funding bodies.

The Academy's research programmes received wide coverage in the media and researchers contributed actively to public debate in society. The Power and Society in Finland Research Programme hosted a civic event in Kajaani on the subject of networks of power in the local region and citizens' experiences of power and powerlessness. The Research Programme on Nutrition, Food and Health took part in the Health 2008 fair, highlighting the everyday importance and relevance of its research.

Academy research programmes had a strong presence on the international stage, too. The Neuroscience Research Programme, the Research Programme on Substance Use and Addictions, and the Research Programme on the Health and Welfare of Children and Young People all attended Neuroscience 2008 in Washington, DC, one of the world's biggest neuroscience conferences. They successfully showcased the high level of basic research in Finland, the Academy's contribution to these high standards and the Academy's international funding cooperation.

The Sustainable Energy Research Programme was launched at the beginning of 2008. This programme has a strong international orientation. Funding is provided to eleven consortia and three individual projects through the national call; three consortia through the N-INNER call jointly funded by Nordic funding agencies and a German partner; one consortium through the MATERA ERA-NET call; two consortia through the joint call with the National Natural Science Foundation of China (NSFC); and four consortia through the joint call with the Chilean National Commission for Scientific and Technological Research (CONICYT).

International funding cooperation under the programme was further extended when a joint call for project applications was opened with the Brazilian National Council for Scientific and Technological Development (CNPq).

The Research Programme on the Future of Work and Well-being began with an opening seminar in March. The research programme involves five consortia and 12 individual projects that are jointly funded by the Academy, the Ministry of Education and the Finnish Work Environment Fund. Together with the Power and Society in Finland programme and the Austrian Federal Ministry of Science and Research, the programme hosted a Finnish-Austrian seminar on immigration.

The programme themes and issues gained increasing currency during the year as the global financial crisis continued to unfold. The accelerating pace of structural change in the labour market and the impact of these changes on people's health and well-being is a matter of vital social importance that calls for scientifically well-founded solutions. There is a strong social demand for the line of research conducted in the programme.

The first round of applications for the *Research Programme on Ubiquitous Computing and Diversity of Communication* attracted 73 letters of intent, 37 of which were invited to submit full applications.

Professor Paavo Pelkonen, Chair of the Research Council for Biosciences and Environment:

"Tackling major environmental challenges is the responsible thing to do"

Professor Paavo Pelkonen from the University of Joensuu says there are two aspects to the social responsibility of the Research Council for Biosciences and Environment. The first and most important aspect is to maintain and develop science and research and to oversee the quality of research:

"The Academy of Finland and its Research Councils have a shared responsibility to ensure that Finnish research meets the highest international standards. Policy makers in our society have made clear their expectation that we should establish our position among the world's leading research nations, at least in certain selected fields," Professor Pelkonen says.

With regard to the second aspect of social responsibility, i.e. that of thematic responsibility, the Research Council aims to fulfil its mission by allocating funding to research that is socially relevant and by supporting researcher training.

The main focus of biosciences and environment research today is on climate change. This is such a complex and diverse subject that all the disciplines under the Council's aegis from the environmental sciences to biosciences are involved in one way or another. "Climate change is not going to go away over the next few decades, but it will remain a permanent feature on the research agenda," Professor Pelkonen says.

The Academy is currently in the process of preparing a research programme to focus on basic research questions about how to control, mitigate and adapt to climate change. Climate change and its impacts also figure prominently in EU's 7th Framework Programme for Research, and there is much international collaboration on this subject more generally.

The Research Council for Biosciences and Environment is also committed to provide funding for research in the forest cluster, i.e. the Strategic Centre for Science, Technology and Innovation for the forest industry. "Our contribution to the reform of the forest sector is through basic research. We're not interested in such aspects as business development or new industry innovations."

The Baltic Sea, biodiversity, basic ecology, food, food safety and pharmaceutical research and other work at the interface of health research – these are just some examples of other research areas that reflect the Research Council's social responsibility.

Professor Pelkonen says there have been no changes over time in how the Research Council has understood and carried its responsibilities: it has always aimed to address the challenges of the day.

What has changed is that biosciences and environment research have gained much greater importance and significance compared to the situation just a couple of decades ago.

He describes the current research topics as very extensive and highly topical. "It's a typical feature of this field that both the Research Council and individual researchers are prepared to take on even bigger challenges. This is social responsibility at its best!"

A Finnish-Chinese and a Finnish-Russian joint call were opened in connection with the second round of applications; both of these calls attracted ten applications.

Under the programme, funding is provided to 15 Finnish projects (11 consortia projects and four projects by individual research teams), one joint project with Russia (with funding from the Russian Foundation for the Humanities RFH) and two joint projects with China (with funding from NSFC). Academy funding for the programme totals nine million euros.

The projects funded under the programme umbrella provide good coverage of the programme's themes. They cover such questions as how communications and ubiquitous information technology are shaping the realms of work and leisure, and contribute to developing new technological solutions. The programme is divided into four thematic areas: human interaction, impacts of communication, products and services, and human-machine interaction. The four-year projects start up at the beginning of 2009.

The call for proposals under the *Responding to Public Health Challenges Research Programme* attracted 48 consortium applications, eleven of which were selected for participation. Academy funding for the programme amounts to around 9.3 million euros.

The consortia cover all four thematic areas of the programme: health-protecting and health-promoting factors, life-course approaches and critical periods of life, health inequalities and the clustering of health risks, and predicting future public health challenges.

The programme is jointly funded with the Canadian Institutes of Health Research (CIHR), the UK Medical Research Council (MRC) and the Norwegian Research Council (Forskningsrådet). This broad funding foundation was reflected in the final selection of projects, which included one consortium project with Finnish, Canadian and British partners; one consortium with Finnish and Canadian partners; one with Finnish and British partners; and one with Finnish and Norwegian partners. The four-year projects start up at the beginning of 2009.

Preparations got underway for the *Computational Science Research Programme* – models and applications from social sciences to natural sciences. An exploratory workshop in August attracted an attendance of 110 researchers from different fields.

Under this programme, the Academy will pursue international funding cooperation in connection with the ERA-NET Plus call (ERASysBio+) in the field of systems biology, and with the Chinese NSFC in the fields of signal processing and computational sciences.

Preparations for the *Research Programme on Photonics and Modern Imaging Techniques* were completed in 2008. Science and technology projects in the fields of optics and optoelectronics, or photonics for short, have great social significance. As in many other countries, they represent one of the fastest-growing industrial fields in Finland. The programme is multidisciplinary and covers a broad range of themes.

Apart from the projects that will be funded from national sources, the Academy has reached tentative agreement on funding cooperation with research agencies in Brazil (CNPq), China (NSFC), Japan (Japan Science and Technology Agency JST) and Russia (Russian Foundation for Basic Research RFBR).

During preparations for the *Research Programme on the Health and Welfare of Children and Young People*, the Academy hosted an exploratory workshop in winter 2008 in order to further sharpen the focus of the programme. The workshop attracted an attendance of around 140. Through its three thematic areas, the programme will aim to give as broad coverage as possible of the research challenges associated with children's and young people's health and well-being.

The research programme has agreements in place for international funding cooperation with Canadian funding bodies coordinated by CIHR; and for national cooperation with the Finnish Ministry of Education and the Signe and Ane Gyllenberg Foundation.

The Academy Board granted negotiation authority for the preparation of two research programmes in 2009, i.e. Climate Change Management, Mitigation and Adaptation, and The Future of Living.

Final evaluations were conducted on five completed research programmes: Systems Biology and Bioinformatics, Environmental, Societal and Health Effects of Genetically Modified Organisms, Russia in Flux, Social Capital and Networks of Trust, and Health Services Research.

Final evaluation reports were published on four programmes: Social Capital and Networks of Trust, Environmental, Societal and Health Effects of Genetically Modified Organisms, Health Services Research, and Future Electronics.

There are two ongoing Centre of Excellence programmes.

Funding is provided for 41 Centres of Excellence (CoEs), 23 in the 2006–2011 programme and 18 in the 2008–2013 programme.

The Academy continued its active efforts to develop the CoE programme

The Academy signed agreements on the specified tasks and funding for the latter three-year term of the 2006–2011 CoE programme. Academy funding for the 23 CoEs in 2009–2011 will total 34.5 million euros. This comes to an average of 1.5 million euros per CoE, which is 16 per cent of their total funding. The CoE programme will continue to receive funding from Tekes, the CoE host organisations and Nokia.

Assessments were conducted of the social impact of the CoEs in 2000–2005 and 2002–2007. The recommendations of this report and the feedback from the programmes will provide important guidance for the revision of the CoE strategy in 2009.

The Academy continued its active efforts to develop the CoE programme. Journalists were invited to visit CoEs in order to give greater visibility to science and to bring research results to bear more closely on social debate and decision-making. CoEs are major centres for research training, providing an avenue for the transfer of newly acquired research knowledge and competencies into society.

The research work done at CoEs comprises a wide range of disciplines that are a major focus for current social debate. The areas of research addressed include the preservation of natural biodiversity, climate change, energy issues and the treatment of Alzheimer's disease.

Nordic Centre of Excellence (NCoE) Programmes.

The Academy provided funding for all four programmes.

Under the NCoE Food, Nutrition and Health programme (2007–2011), funding is provided for three units, one of which is coordinated from Finland and the two others of which involve Finnish research teams. Organisations from all the Nordic countries are involved in funding the NCoE programmes. Total programme funding amounts to around 11.5 million euros. The Academy's contribution in 2008 was around 225,000 euros.

NCoE Welfare (2007–2011) involves two units, one of which is coordinated by Finnish partners while the other involves Finnish research teams. Programme funding totals 9.3 million euros; the Academy's contribution in 2008 was 287,000 euros.

The transfer of the graduate school system to the Academy marked a major change

In the NCoE Molecular Medicine programme (2004–2009, NOS-M), funding is provided for three units, one of which is coordinated by Finnish partners, while the two others involve Finnish teams. Total funding for the programme amounts to around six million euros, with the Academy accounting for some 120,000 euros in 2008.

In NCoE Humanities and Social Sciences (2005–2010, NOS-HS), funding was made available to four units, all of which involve Finnish researchers. Total programme funding comes to around 8.5 million euros. The Academy's contribution in 2008 was 229,000 euros.

The final evaluation of NCoE Global Change (2003–2007) was completed in 2008.

The transfer of the graduate school system

to the Academy marked a major change in the area of research career promotion. Decision-making and responsibility for the development and monitoring of the graduate school system were transferred from the Ministry of Education to the Academy of Finland from the beginning of 2008.

The Academy opened the ninth call for national graduate schools in April. Applications were invited for 901 graduate school positions, 20 coordinator posts and graduate school operating grants for 2010–2013. A total of 154 applications were received by the August 30 deadline. They were reviewed in the appropriate Research Councils, which requested opinions from other Councils where necessary. The reviews gave special consideration to the scientific quality and overall performance of the graduate school, the school's national and international cooperation and the demand for PhDs in the sector concerned. In December, the Research Councils submitted their recommendations to the graduate school subcommittee, which is appointed by the Academy Board.

The Academy contributed to the planning and implementation of the Finnish National Seminar on the Internationalisation of the Third Cycle. At the turn of September and October, the Ministry of Education organised an international Bologna seminar.

Photo: Ingemar von Ossowski (left) and Justus Reunanen, researchers of the ELVIRA research programme.

A working group on research career paths appointed by the Ministry of Education completed its assignment and submitted its recommendations. The report describes a four-tiered research career system and puts forward several proposals on how to create this system. The Academy was actively involved in the working group and continues to support the promotion of research careers.

The Academy has representation on the EU Steering Group Human Resources and Mobility. It is also involved in the ESF Member Organisation Forum on Research Careers that is aimed at finding ways of promoting research careers through research funding. Furthermore, the Academy has contributed actively to the work of the European Network on Research Careers (ENRC), a body that consists mainly of research funding agencies and that convenes twice a year to discuss researcher mobility and career issues.

Tenured research posts are among the Academy's most important funding instruments for supporting research careers. These positions give researchers the independence they need to concentrate longer term on their scientific work. The Academy has 267 posts for Academy Research Fellows and 40 posts for Academy Professors.

The Academy awarded 169 three-year grants for Postdoctoral Researcher's projects. Furthermore, seven of the most talented among these young researchers were awarded a total of 641,500 euros to set up their own research teams.

The Academy of Finland awards were given to two Academy Research Fellows: Hille Koskela and Minna Halme. Hille Koskela works at the University of Helsinki and is an internationally recognised scholar in power relations surrounding the surveillance of urban space and experiences of safety. Minna Halme from the Helsinki School of Economics specialises in researching business that can help reduce poverty.

The Finland Distinguished Professor Programme (FiDiPro) allows universities and research institutes in Finland to hire non-Finnish or expatriate-Finnish professor-level researchers on a fixed term basis. The programme is jointly funded by the Academy and Tekes. In 2008, the Academy published its decisions on the second programme call, selecting 13 projects involving 12 top-level researchers. There are currently 28 Academy-funded FiDiPro professors (see page 33). Academy funding for FiDiPro projects totals 19.6 million euros.

The Academy's annual science competition for senior secondary students is designed to stimulate interest among young people in science and research careers. In 2008, the Academy received 128 entries to the competition from 156 students in 34 secondary schools. The winners of the 2007 competition were awarded in spring 2008.

The Academy is committed to promoting gender equality and preventing discrimination in all its activities. A key instrument in this respect is the Academy's Equality Plan, which is periodically revised and updated.

In 2008, the Academy Board took the decision to extend the validity of the Equality Plan adopted in 2005 through to 2010. The position taken by the Board emphasises the role and responsibility of all Academy staff and other professionals in promoting equality of opportunity and preventing discrimination. The Academy's Equality Plan comprises almost 40 recommendations concerning both research funding and the work of the Administration Office. The main areas of emphasis are the prohibition of discrimination and harassment, recruitment and advancement of the research career, the reconciliation of work and family life and various measures related to research funding and research careers (science communication, experts, funding instruments, international cooperation).

Following instructions issued in 2007 whereby the Research Councils were urged to take special account of the Equality Plan when nominating candidates for tenured research positions, the proportion of women appointed as Academy Professors and Academy Research Fellows in 2008 increased to 40 per cent and 49 per cent, respectively. At year-end 2008, 13 per cent of Academy Professors and 40 per cent of Academy Research Fellows were women.

In the disciplines under the aegis of the Research Council for Natural Sciences and Engineering, for example, a woman was appointed to the post of Academy Professor for the 2009–2013 term for only the second time. Close to 30 per cent of the 18 Academy Research Fellowships under the Research Council for Natural Sciences and Engineering were awarded to women.

International activities were focused on Europe. The European Research Area (ERA) is currently undergoing a period of intense development. For this reason, and in line with its international strategy, the Academy is continuing to play an active science policy role in Europe.

The European Commission published five communications and initiatives to support the building of the ERA. The EC initiatives provide important direction for Finnish science policy as well. The objectives of the Joint Programming Initiative, for instance, are integrated in the Academy's new research programme strategy. One of the new EC initiatives concerns the international dimension of the ERA.

Working closely with the EC and funding agencies from the Nordic and Baltic states, the Academy hosted the first-ever workshop on the prospects of regional cooperation with countries outside Europe. The purpose was to discuss the international strategies of Nordic funding agencies in the light of the newly published EC communication "A Strategic European Framework for International Science and Technology Cooperation".

The European Strategy Forum on Research Infrastructures (ESFRI) ties in closely with the ERA ambitions to create in Europe high-level research environments that will persuade the best European researchers to stay and attract talented researchers from outside Europe. One important way of strengthening the ERA is through investment in European research infrastructures, which can either be single-site research infrastructure (e.g. CERN, ITER), distributed research infrastructure (networks of observation stations) or virtual infrastructure (data networks).

ERA initiatives can provide important direction for Finnish science policy

It is no longer feasible for any single country to finance international research infrastructures all on its own; instead this requires long-term commitments from several countries. During 2008, ESFRI updated its original roadmap for important future research infrastructures in Europe. The revised 2008 roadmap includes 44 projects. Finnish researchers are actively involved in ongoing discussions on the need for new infrastructures and major reform projects and on how to implement and finance these projects. In 2008, the ESFRI Roadmap Working Group in the environmental field was chaired by Senior Science Advisor Eeva Ikonen from the Academy of Finland, and four Finnish experts contributed to various other Roadmap Working Groups.

In Finland, a national review of research infrastructures and a roadmap project were undertaken by the Ministry of Education.

The EU's 7th Framework Programme for Research (FP7) has started up very well from a Finnish perspective. The Academy has national responsibility for two specific programmes and six sub-programmes under FP7:

- Cooperation: Health, Environment and climate change, Socio-economic sciences and humanities
- Ideas: European Research Council (ERC)
- People: Marie Curie
- Capacities: Research infrastructures, Science in society, International cooperation.

Information briefings on the programmes under the Academy's auspices were held at a number of Finnish universities. Information was also distributed through bulletins, e-mail circulars and websites. Together with the Finnish EU Secretariat, the Academy held a series of seminars related to the People specific programme, which toured eight towns and cities. The Academy also supported the preparation of Finnish applications by awarding grants to 22 projects.

The Academy is involved in two FP7 INCO-NET networks, which are charged with identifying common research topics for the framework programme and developing R&D dialogue between the EU and third countries. The Academy is contributing to the work package of the EULARINET project, which is aimed at increasing business and science cooperation between the EU and Latin America. Furthermore, the Academy is involved in the INCO-NET EECA project, in which the aim is to improve cooperation and dialogue on R&D issues between the EU, Eastern Europe and Central Asia.

ERA-NETs have played a major role in networking European national research programmes and in opening joint calls for applications since 2003. They have also significantly paved the way for European Joint Programming.

The Academy is coordinator of one ERA-NET project and has contributed as a partner to a further 14 ERA-NETs. (For a full list of ERA-NETs, see page 33.)

In 2008, virtually all ERA-NET networks had advanced to the stage where they were implementing European research programmes through joint calls or other forms of cooperation. The Academy's Research Councils awarded a total of around 14 million euros to support international ERA-NET calls and Finnish research teams that were successful with their applications.

The BONUS ERA-NET project (BONUS for the Baltic Sea Science – Network of Funding Agencies), previously under the Academy's coordination, came to a conclusion

Professor Eila Helander, Chair of the Research Council for Culture and Society:

"We acknowledge our responsibility to increase knowledge about culture and society"

"We fulfil our social responsibility by working in line with the broader objectives adopted by the Academy of Finland and by investing public funds to support only the highest-quality research," says Chair of the Research Council for Culture and Society, Professor Eila Helander from the University of Helsinki.

Council funding for research is spread widely rather than targeted at certain selected disciplines. And what is most important, the Council is keen to give a chance to new researchers and new projects, even those that are higher risk.

To ensure that its funding goes to the very best projects, the Research Council has worked consistently to improve and develop its review process and increased the number of foreign reviewers. Rather than rely on the assessments of individual reviewers, the Council prefers to appoint review panels.

"This gives us a more objective assessment of the applications submitted and helps to put Finnish research in a broader international perspective."

The Research Council uses the instruments of programme initiatives and strategic funding to direct the focus of research on issues that have social and cultural relevance. That's another indication of our responsibility, Professor Helander says.

Among the research subjects that received funding in 2008 were business ethics and its philosophical foundations, the recognition of immigrants' skills and knowledge and employment opportunities, the health and lifestyle of young men and the early detection and rehabilitation of language disorders.

Another important line of research promoted by the Academy is development research. According to Professor Helander, the Research Council's sense of global responsibility is clearly in evidence in these projects: examples include studies of microlending, education research in southern Africa and research surrounding the planning and implementation of projects concerning renewable energy in developing countries.

The Research Council considers it important that the research it finances helps to build up cultural capital. "For instance, the Pompeii Exhibition at the Amos Andersson museum in Helsinki was put together by researchers funded by the Academy," she says.

"Research knowledge is crucial to creating civilisation and culture. By making funding available to researchers, we're delegating to them responsibility for producing new knowledge."

Professor Helander says that the Research Council's area of responsibility has continued to expand as a result of the growth of multidisciplinary and international research collaboration and the rise of ethical issues.

Another aspect of ethics that Professor Helander is keen to emphasise is the researcher's freedom and self-determination: "Every scientist and scholar must have the freedom to choose their research topics and to report their results without fear of losing their livelihood."

in 2008. The European Economic Interest Grouping BONUS EEIG, which was created to take over as coordinator of the Baltic research programme, continued with preparations for the launch of a joint research programme in keeping with Article 169 of the EC Treaty. BONUS EEIG is an independent organisation in which the Academy remains a regular partner together with several other funding agencies in the Baltic Sea area. The BONUS EEIG Secretariat is located in Finland.

The first call for the Baltic Sea BONUS research programme was opened with the launch of the so-called ERA-NET Plus scheme, which is funded by the Baltic Sea states and the European Commission. Funding worth a total of 22 million euros were awarded to 16 research projects involving more than 100 research institutes and universities from around the Baltic Sea. Four of these projects are coordinated by Finnish partners. The projects are multidisciplinary and are interested, among other things, in exploring economic and social means to mitigate the environmental risks in the Baltic Sea region and in filling the gaps in the natural science knowledge needed for the effective prevention of those risks. Academy funding under this first call amounts to four million euros.

Professor Erkki Oja, Chair of Research Council for Natural Sciences and Engineering:

"We ensure that the economy and technology in Finland have the support of high-quality basic research"

Chair of the Research Council for Natural Sciences and Engineering, Professor Erkki Oja from Helsinki University of Technology says that the natural sciences and engineering disciplines are central to the national economy and national competitiveness.

"Our Research Council feels a deep sense of responsibility for ensuring that the country's technological and economic infrastructure has every possible support from basic research. The natural sciences and engineering are crucial to the success of export industries, for example."

Research funded by the Council often leads directly to practical applications. In 2008, the Council provided funding for research in basic natural sciences, for work supporting the information industry as well as for energy, climate and environmental research.

One key area of responsibility that Professor Oja is keen to emphasise is the network of Strategic Centres for Science, Technology and Innovation: in all CSTIs, research has close ties with the natural sciences and engineering.

"Innovative applied research requires a strong foundation of skills and knowledge, and that can only come from high-quality basic research. Our Research Council feels a special responsibility for securing those foundations," he explains and continues:

"It's hard to know in advance what information will eventually prove to be significant. Innovations often emerge from unexpected sources."

Another indication of the Council's responsibility is its commitment to constantly monitor the quality and impact of research and to take account of these results in its funding decisions. As a case in point, he mentions the 2008 assessment of the discipline of mechanical engineering.

Based on the results of the assessment, the Research Council decided to announce a dedicated call aimed at strengthening basic research in this field.

One important source on the social impacts of research is the periodic review of the state and quality of scientific research in Finland. Work is currently underway at the Academy to compile such a review. "The workshops provided some very useful deep insights into individual disciplines. The results will certainly affect our funding decisions."

"The work that is done by scientists and researchers with Council funding has a certain measurable impact. We bear an indirect responsibility for how these funds are spent and what they help to achieve, but we also have a responsibility towards individual researchers: they must be treated fairly and equitably," Professor Oja points out.

"I feel a great sense of responsibility towards graduating students. The number of PhDs granted in Finland in the natural sciences and engineering is quite high, but so far a very high proportion of PhD graduates have managed to find jobs commensurate with their qualifications."

Doctoral training also involves an element of responsibility towards society. "Society must have access to the kind of PhDs that it needs."

Some ERA-NETs applied to the Commission for further funding in order to open ERA-NET Plus calls. Under this scheme, ERA-NET countries provide funding for research consortia together with the Commission, or continue efforts to further develop their research collaboration. Some ERA-NETs have announced joint calls for proposals without separate funding from the Commission.

The Commission decided to make funding available for a completely new ERA-NET: ERA.Net.RUS is intended to promote research collaboration between the EU and Russia and will be launched during 2009. The Academy will be contributing to this project by developing a framework for the coordination of EU and Russian science, technology and innovation programmes.

The Academy joined the New INDIGO ERA-NET as an observer member. The purpose of this ERA-NET is to strengthen and develop cooperation with India on a European level. Nordic-Asian Research Funding Cooperation NORIA-net/Asia NORIA-net, launched under the Academy's coordination at the beginning of 2008, is aimed at creating Nordic added value in cooperation with India and China.

NORFACE (New Opportunities for Research Funding Agency Co-operation in Europe), the ERA-NET coordinated by the Academy, is charged with developing research funding cooperation among 15 research organisations that provide funding for research in the social sciences. NORFACE opened a call for research programme applications concerning migration. The programme's overall budget is around 29 million euros. The bulk of this, some 23 million, comes from the research organisations involved in NORFACE. In addition, NORFACE has applied to the European Commission for six million euros in ERA-NET Plus funding. The Academy's contribution to the research programme is about one million euros.

The programme call elicited 240 outline proposals, of which 45 were invited to submit full proposals. Among these projects that went through to the second stage, 17 research teams were from Finland. The final funding decisions will be made in June 2009.

European Research Council (ERC). Researchers based in Finland had excellent success with their applications submitted to the first calls announced by the ERC. Seven Finnish research projects were awarded ERC Starting Grants. In addition, two Finnish researchers are working on their ERC projects in the UK. All successful applicants have close connections with the Academy. Five of the young researchers who received ERC Starting Grants funding hold Academy Research Fellowships, one of them is a Postdoctoral Researcher and one has an ongoing Academy-funded research project. In all there were 9,167 applications for ERC Starting Grants; no more than some 300 projects were accepted for funding.

Nine projects based in Finland received funding through the call for ERC Advanced Grants. These researchers, too, have enjoyed significant funding from the Academy. Five of them are Academy Professors and five are in charge of CoEs, one is in charge of a CoE research team. In addition, the successful applicants include one FiDiPro Professor and one has held an Academy Research Fellowship. In this call the ERC received 2,167 applications, and funding will be made available to 275 projects.

Three personnel from the Academy's Administration Office took part in reviewing the applications submitted under the ERC calls in Brussels.

European Science Foundation (ESF). The Academy contributed to the work of the ESF through European science policy, cooperation among research funding agencies and the allocation of research funding. The chairs of ESF Standing Committees are appointed for three-year terms, and in 2008 new appointments were made for the term commencing in 2009. Finnish Professor Mats Gyllenberg was appointed as chair of the Standing Committee for Physical and Engineering Sciences.

The Academy also took part in various ESF Member Organisation Fora, which provide a useful platform for discussion of current and important science policy and science administration issues at European level, and for the development of common good practices. The Academy has contributed to five fora: Promoting Internationalisation of Social Sciences in Central and Eastern Europe, Peer Review, Research Careers, Evaluation of Funding Schemes and Research Programmes, and Research Integrity. The Academy contributed to funding several research programmes and research networks launched by the ESF and to improving funding cooperation. Application procedures for EUROCORES programmes were accelerated both at ESF and the Academy.

The application and review process for EUROCORES funding is conducted by the ESF. The Academy's Research Councils provide funding worth around two million euros a year for Finnish research teams involved in successful consortia. In addition, the Academy's Research Councils contribute to a total of some 40 ESF Research Networking Programmes.

In 2008, the Academy decided to join five new EUROCORES programmes.

The Department of Biotechnology (DBT) under the Indian Ministry of Science and Technology joined forces with the Academy to organise a researcher seminar on

the subject of biomarkers and diagnostics. At the same time, the five projects that received funding in the 2005 medical biotechnology call held a half-way seminar.

The Academy and the DBT decided to provide funding for two three-year projects responding to the joint call opened in October 2007 in the field of environmental biotechnology. Furthermore, the Academy awarded grants for a few researchers to work in India. In December 2008, the Academy, Tekes and the DBT announced a joint call for applications in medical diagnostics.

Cooperation between Japanese and Finnish funding agencies. Active efforts were made to develop and increase cooperation. Together with the Japan Society for the Promotion of Science (JSPS), the Academy launched a joint call for Core programme proposals. Funding was awarded to four Finnish-Japanese projects. The themes of this call were closely related to those addressed in the Research Programme on Ubiquitous Computing and Diversity of Communication.

The Academy signed a memorandum of understanding of trilateral cooperation with the Japan Science and Technology Agency (JST) and Tekes. In accordance with this agreement, the first joint call for project proposals was announced in the field of research in functional materials. Joint calls will be repeated during the next two years. These calls for proposals interface with the themes of the Academy's Research Programme on Photonics and Modern Imaging Techniques.

In response to applications received in the January 2008 call, the Academy provided funding for eight Finnish researchers working at Japanese universities and for the travel costs of eight Finnish seminar speakers to Japan. In addition, the Academy provided funding for the organisation of three Finnish-Japanese seminars.

The Academy maintained regular contact with the Finnish Institute in Japan and took part in the various events it arranged to showcase the funding cooperation between the Academy and Japanese partners. The Finnish Institute in Japan has responsibility for implementing the Finnish-Japanese science, technology and culture programme in 2007–2011. The Academy will closely monitor the programme's progress and contribute to its implementation. The Academy has representation on the Institute's Delegation and Board.

Cooperation with Latin America continued to intensify. In spring 2008, the Academy and the Chilean Commission for Scientific and Technological Research (CONICYT) hosted a workshop on learning and education. Chilean researchers were invited to share their experiences with Finnish learning researchers at different universities. Working closely with CONICYT, the Academy started preparations for a joint call to be announced in 2009 in the field of education and learning research.

During a visit by Prime Minister Matti Vanhanen to Brazil, Academy President Markku Mattila signed an agreement with the National Council for Scientific and Technological Development (CNPq). The first concrete act of this cooperation was to announce a joint call as part of the Academy's Sustainable Energy research programme.

In its capacity as partner in the EULARINET-INCO-NET project, the Academy took part in the networking and priority setting workshops that were held in Argentina and Mexico between the EU and Latin America and between the EU and Central America.

The Academy and the National Natural Science Foundation of China (NSFC) announced a joint call on the subject of ubiquitous computing and diversity of communication. It was agreed that in 2009, a similar call will be opened in the field of signal processing and computational sciences. It was also agreed that the Academy and the NSFC will jointly fund a seminar on energy research. The Academy entered into talks with the Chinese Academy of Social Sciences (CASS) on plans to organise a joint seminar on comparative jurisprudence in 2009. Furthermore, based on its agreements with the NSFC, CASS and the Chinese Academy of Sciences (CAS), the Academy

Professor Kalervo Väänänen,
Chair of the Research Council for Health:

"Fairness and equity are key elements of responsibility in health research"

"In the process of making decisions on research funding, the Academy's Research Councils also perform the crucial function of pushing and prodding the quality of research. In each discipline, only the very best and most innovative research plans get the go-ahead in a rigorous review process. Indeed, it's fair to say that the weight and responsibility carried by the Academy is greater than the sum total of the grants it awards in euros," says Chair of the Research Council for Health, Professor Kalervo Väänänen from the University of Turku.

At the same time as the Research Council works to assess and maintain the quality of research, it is crucial that it provides fair and equitable treatment to all disciplines.

For instance, if the small and young discipline of nursing science were assessed by the same parameters as biomedicine, the allocation of research funding would be different from what it is now. Every new discipline needs special support to get off the ground, otherwise it will easily be overlooked.

Another discipline that enjoys special status is clinical medicine, because research in this field is done as part of the health-care system.

"In health care the priority concerns and objectives are different than they are in research. It's the Council's job to take part in debates and discussions and to make sure that research can retain its vitality within the health-care system."

Social relevance is a hugely complex question, especially in the context of basic research, Professor Väänänen says. "I think that the insistence on research having social impact, as it has come across in the general debate, has now gone slightly too far. Before we know what has happened, we may find that all criteria and decisions on what counts as socially relevant are dictated by the power structures in society – and that is a worrying scenario indeed."

Health research, however, is in the fortunate position that basic research in this field is geared to practical applications: in most cases its aim is to improve the detection, prevention and treatment of diseases.

Professor Väänänen says that basic research may have high social relevance even in the case that there's no application in sight. Knowledge has intrinsic value all its own.

"All good and high-quality research is relevant. If it isn't today, it will be tomorrow," he says.

Professor Väänänen is convinced that research has increasing weight and significance in society and that it has become an integral part of decision-making. This in turn has increased the responsibility of research funding agencies, or at least that responsibility is more immediate than it was before.

Questions of ethics are likewise more prominent than before. There are growing calls that funding sources should assume greater responsibility. In the 1980s, the treatment of experimental animals or patient data was still largely a matter of individual discretion by the scientist. Today, before making a funding decision, the Research Council conducts a comprehensive review of each case to ensure that the criteria established are met. The introduction of new legislation has also imposed more rigorous procedures.

provided funding for 13 Chinese researchers working in Finland and 14 Finnish researchers working in China.

NordForsk (Nordic Research Board). Finland and the Academy are represented on the NordForsk Board by Riitta Mustonen, Vice President for Research. The Academy is closely involved in funding NordForsk and in planning and conducting its work.

The NORIA-net call announced by NordForsk in 2007 for joint projects sponsored by Nordic research funding agencies was followed up with a new call in 2008. NordForsk awards two-year funding for these projects, which involve all the major basic research funding agencies in the Nordic countries. The Academy is involved in four of the projects that were launched in 2008 on the basis of the first call. It coordinates two of these

projects, i.e. Nordic-Asian Research Funding Cooperation and Development of Peer Review in the Nordic Context, and is involved in two others, The Use of Bibliometrics in Research Policy and Evaluation Activities, and The Nordic eScience Initiative.

In the 2008 call for applications, the Academy took part in two new projects: Nordic Research Infrastructure Network and the Nordic Network for International Research Policy Analysis. These two projects are starting up in 2009.

The Academy is expecting that the initiative by the Nordic prime ministers in June 2007 for a joint frontier effort in climate, energy and environmental research will receive the go-ahead. The initiative is administered by NordForsk, the Nordic Innovation Centre (NICe) and Nordic Energy Research (NEF).

The research initiative is intended as a response to the enormous challenges brought about by globalisation. With a remit extending from climate research and climate policy to energy industry innovations, systems solutions and clean fuels, the programme's main focus would be on climate problems and on ways of addressing those problems. It would seek to integrate research at the frontiers of science with innovation, and to this end work closely with business and industry. The proposed funding package is 680 million euros over a five-year period.

The Academy's Research Councils contributed to the work of Joint Committees of the Nordic Research Councils (Nordiska samarbetsnämnden, NOS). The Joint Committee for Nordic Research Councils for the Humanities and Social Sciences (NOS-HS) announced a call and awarded a total of 500,000 euros to 14 joint Nordic exploratory workshops. Finnish researchers are involved in six of the projects that received funding. Two-thirds of the funding went to exploratory workshops in the humanities, 15 per cent to the social sciences and 20 per cent to projects involving both disciplines.

NOS-HS announced a call for research project proposals. Funding will be awarded to approximately ten four-year projects. The funding decisions will be made in early 2009. Working under the auspices of NOS-HS, the Nordic Board for Periodicals in the Humanities and Social Sciences (NOP-HS) provided funding for 30 joint Nordic publications.

The Academy and the Russian Foundation for the Humanities (RFH) announced a joint call in the field of linguistics research, focusing on the role and place of the Finnish and Russian languages in a multicultural world. Funding is provided to four projects. The Academy's contribution comes to 1.2 million euros. In addition, the Academy and the RFH opened a joint call in connection with the Academy's Research Programme on Ubiquitous Computing and Diversity of Communication. Funding was awarded to one consortium project. The Academy's contribution is 679,000 euros. In October, the Academy joined forces with the RFH and the Russian National Addiction Research Institute to organise an international conference on addiction research.

The Academy entered into negotiations with the Russian Foundation for Basic Research (RFBR) to discuss plans for joining the BONUS+ project and for cooperation in the years ahead (see page 16).

The Academy's evaluation activities are mainly focused on the national research system and the Academy's own organisation and processes. Another major focus is to review the funding applications received from researchers. The research programmes and CoE programmes funded by the Academy are evaluated by outside experts once they have been completed. In 2008, final evaluations were completed on five research programmes, and four evaluation reports were published (see page 10).

The Academy has conducted assessments of individual disciplines and fields of research since 1983. Since 1998, a total of 16 such assessments have been completed. As well as serving to stir debate and dialogue, discipline assessments are an important tool for research and science policy development. In 2008, an assessment was conducted of research in the field of mechanical engineering, and the findings of the 2007 international evaluation of water research were published. Work was started on an evaluation of research in the arts and in clinical medicine.

Discipline assessments are an important tool for research and science policy development

A major review of the state and quality of scientific research in Finland is underway with the Sight2009 project. Major focal themes include the structural development of the national research system, the internationalisation of Finnish science and research, and science in society. For the purposes of this review the Academy's Research Councils are charged with weighing the strengths and weaknesses of Finnish science in their respective fields.

The Academy and Tekes completed an evaluation project (VINDI) which identified the major indicators describing the impact of science, technology and innovation.

Academy personnel

The Academy is fully committed to the safety, health and well-being of its personnel. In particular, well-being in the workplace is recognised as an increasingly important but also as an increasingly challenging task.

The Academy's Administration Office had a staff of 159; women accounted for 73 per cent and men for 27 per cent.

Ongoing changes in the operating environment are reflected in many ways in the daily work of Academy personnel. With the central government productivity programme in full swing, job tasks and expectation levels have increased. The introduction of the service centre concept in financial and human resources management, various changes in information systems and general procedures as well as ongoing reforms in the university and research sector are all creating new challenges for personnel and management.

During 2008, the Administration Office produced a new personnel strategy in close collaboration with employees. The aim of the strategy is to ensure employee well-being in the workplace and to provide an exciting and inspiring atmosphere in which to work. The Academy is committed to staff development. Management is fair and equitable. Key areas of development in the personnel strategy are staff competencies and human resources planning, well-being in the workplace as well as management and supervision.

The Academy's commitment to developing staff competencies was reflected in common training and personnel exchange schemes. In addition, to maintain and develop personal competencies, Academy employees attended scientific conferences and other outside training.

Staff turnover rates have been relatively high. This is due to the facts that much of the work in the Administration Office is organised in project teams, leaves of absence to allow employees to accept other jobs are granted quite readily, and the frequency of family leaves is high. The number of new recruitments has been high and they have gained increasing significance. The staff recruitment process has been upgraded with the adoption of the Heli online recruitment system for central government agencies.

In line with its personnel strategy, the Academy is committed to ensure that temporary staff are put in as equal a position as possible with permanent staff.

Changes were made to the Administration Office's wage system with a view to increasing its incentive effect and fairness. Particular focus in the wage settlement was given to advisory positions, executive advisory positions (including management functions) and demanding professional positions. The aim of these changes and salary increases was to facilitate the recruitment and retention of qualified staff.

Another goal of the Academy's personnel strategy is to develop flexible practices for changing life situations. For example, new guidelines were issued for telework. Active efforts were also continued to promote physical and mental well-being in the workplace.

High-quality management and supervision supports staff well-being. The Academy also attaches great importance to the well-being of superiors, to supporting their work and to clarifying the relationship between advisory and supervisory functions. Round-table discussions were held for superiors on current personnel issues in order to ensure the consistency of supervision and to support the well-being of superiors. Job supervision is also provided for superiors, either one-to-one or in group situations. The performance of superiors was evaluated using 360-degree feedback.

Academy employees feel valued and safe at work

The Academy's personnel is willing to assume responsibility for creating a stimulating atmosphere in the workplace and for ensuring their own as well as their colleagues' well-being at work. This is clearly reflected in their proactive and creative input in personnel issues.

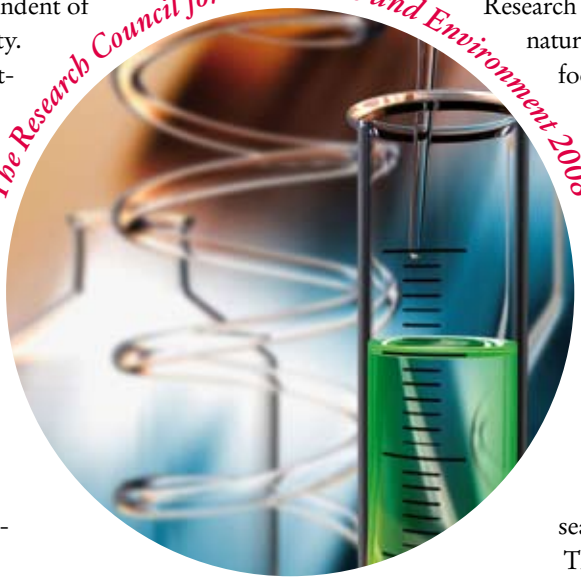
Research Councils

The Research Council for Biosciences and Environment aims to ensure that research has the greatest possible impact by providing funding to the most outstanding projects in the disciplines under its umbrella. The selection of these projects relies on rigorous peer reviews by panels of international experts who are entirely independent of the Finnish scientific community.

In 2008, applications submitted for general research grants were approved at an average of 82 per cent of the amount applied for. This is consistent with the Research Council's long-term policy of giving researchers adequate financial resources to successfully carry out their research plans.

In 2008, research funding awarded by the Council totalled 57 million euros. (See Figure 6, page 11.)

The Research Council awarded a total of 20 million euros in general research grants to 61 projects, most of which were scheduled to run for four years. The bulk of these research grants came from non-earmarked sources, and all the projects funded were based on initiatives by the researchers themselves. The Research Council complied with the Board policy of declining funding to applicants currently in receipt of general research grants from the Academy.



Environmental issues continued to gain prominence internationally, particularly in science policy. Research surrounding climate change, natural biodiversity and energy and food production has assumed increasing importance at all levels.

The international evaluation of water research in Finland was completed in 2008. The panel of experts concluded that the standard of research in the country is extremely high. Their final report laid the foundation for the submission of a national water research programme.

The Research Council was highly active in promoting Baltic Sea research. It continued to provide funding for this research and hosted a major Baltic Sea seminar with workshops. Discussions at the seminar focused on ways of extending and facilitating the application of scientific knowledge in administration and political decision-making. The seminar was attended by over 80 research and administration representatives. The Research Unit for Biosciences and Environment commented on the Finnish international water strategy, the EU maritime research strategy and the EU Baltic Sea strategy.

The Research Council held nine Sight2009 workshops in which the best experts discussed the strengths and weaknesses of their respective fields and identified potential future research needs (see page 22).

The Research Council placed special emphasis on research careers, researcher training and researcher mobility, which is considered important for career development. The Council supported international mobility by granting additional funding to 16

Fields of research hosted by the Research Council for Biosciences and Environment:

- biochemistry
- microbiology
- genetics
- ecology, biosystematics and biophysiology
- forest sciences
- agricultural sciences
- food sciences
- research into substances hazardous to the environment
- research relating to the state of the environment and to environmental protection
- geography and regional studies
- research relating to environmental policy, environmental economy and environmental law
- biotechnology, molecular biology, cell biology, biophysics, bioinformatics and economic and technological research related to the above fields

Photo: Director Laura Raaska, Biosciences and Environment Research Unit.

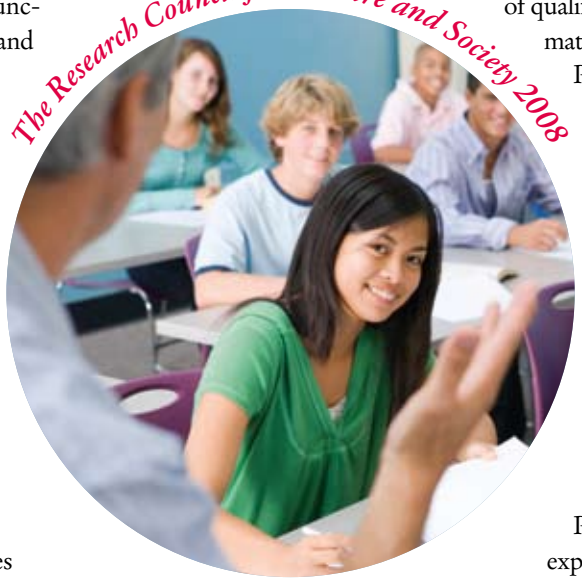
Postdoctoral Researchers, who will carry out part of their research at a foreign university or research institute.

Eight of the 40 Academy Professorships come under the Research Council for Biosciences and Environment. The Council's ninth Academy Professor, Johanna Mappes, started in her new position on January 1, 2009.

The Research Council took an active part in international cooperation. It supported Finnish-Indian cooperation in environmental technology and the creation of research networks by providing funding for two projects in the fields of bioremediation and conservation biology.

The Research Council decided to join three new EUROCORES programmes: Membrane Architecture and Dynamics (EuroMEMBRANE), Ecological and Evolutionary Functional Genomics (EuroEEFG) and Synthetic Biology: Engineering Complex Biological Systems (EuroSYNBIO). The Council is also involved in three earlier EUROCORES programmes. Furthermore, it decided to join the Euroglycosciences Forum, a research networking programme designed to promote European cooperation. At the end of 2008, the Council was involved in eleven ESF Research Networking Programmes (see page 19 and 34).

The Research Council for Culture and Society 2008



The Research Council for Culture and Society provided funding worth 65 million euros to support research within its field. (See Figure 6, page 11.) Most of this funding went to projects applying for general research grants. All in all, the Research Council made funding available to 68 projects in 14 different fields of research. The Council dedicated special focus to research on questions of social security, which is an area of topical interest both with regard to basic research and needs for social reform. In 2008, the Research Council received a total of 279 project applications.

The Research Council is keen to ensure the diversity of the research themes covered and the methods and approaches applied, since this is seen as crucial to the ability of research to constantly renew itself. The choice of research topic is itself a significant statement: it captures the focus of attention and conceptualises the theme. In recent years, the research focus in many disciplines has turned to emotions and everyday practices, which has helped to diversify conceptions about people and communities.

Researcher training has contributed to improve methodological knowledge and skills and to diversify the range of methods used. Old datasets and research questions can be approached from new angles. Research on spoken language and dialects has been very much influenced by the development of methods for studying social interaction. Information technology has greatly facilitated the critical editing of old texts as well as the processing and modelling of large and complex data sets.

A question of long-standing interest in the disciplines under the Research Council is the placement of qualified researchers. It has been estimated that around 40 per cent of PhD graduates come to hold professorships or lectureships at universities or research institutes. There is certainly much demand for scientific knowledge and research competencies, but no new jobs are being created.

The Research Council's decisions on four-year project funding are measured in such a way that projects can recruit not only PhD students but also more experienced senior researchers. On average, funding for a four-year project comes to 400,000 euros.

Among the Research Council's various funding instruments, competition is most intense for Academy Research Fellowships. The number of posts available has remained unchanged at 69 for several years, even though the number of applicants is consistently very high and the success rate therefore very low. In 2008, the Council filled 14 vacant posts; the number of applicants was 148. As such the Fellowship has proved a highly effective funding mechanism in that it paves the way for large numbers of researchers to professorships and other significant positions. All of the Academy Research Fellows in the field of culture and social sciences who completed their terms in 2007 were placed in research or teaching jobs at university.

In its funding decisions the Research Council has sought to give balanced consideration both to the applicants' qualifications, the quality of their research plans as well as the researcher's track record of social and scientific activities.

The ERA-NET funding schemes (NORFACE and Hera) and ESF research programmes. Finnish research teams showed a keen interest in the European social sciences research programme opened on the subject of migration: 17 Finnish researchers submitted applications as principal investigators and 51 as research partners. Other steps taken to promote international cooperation have included the announcement of a bilateral call with Russia and preparations for a joint call with Chile.

The Research Council has sought to promote researcher mobility between universities and other workplaces. However, the funding available has not been enough to appeal to researchers. To date the Research Council has funded a few applications, among others one for a move from administration to university and one for a move from university to a communications corporation.

Mobility funding is an ideal instrument for the dissemination of research knowledge: this way the knowledge travels with the researcher. End-users and appliers of knowledge can play a key role in designing and implementing research, and therefore it is important to invest in this kind of cooperation. In some fields these contacts with end-users are traditionally well established; two cases in point are provided by research in social work and environmental policy.

Research and scientific knowledge is disseminated throughout society in many ways. Culture and society researchers publish their work in both international journals and domestic academic publications. Other channels of publication include books for the general public, academic and school textbooks as well as newspaper articles. And there are many other routes of information dissemination. An example is the Pompeii Exhibition in Helsinki that was based on Academy-funded research and attracted tens of thousands of visitors.

Fields of research hosted by the Research Council for Culture and Society:

- philosophy
- theology
- history and archaeology
- cultural studies
- arts research
- philology and linguistics
- law
- psychology
- logopedics
- education
- social sciences
- economics
- political science
- mass communication and library science

Photo: Director Pirjo Hiidenmaa, Culture and Society Research Unit.

The Research Council for Natural Sciences and Engineering used its funding to promote new scientific breakthroughs, develop creative research environments and support research collaboration. The main areas of focus were electronics, electrical engineering and computer sciences, all of which are central to the information industry, as well as energy, environmental and climate change research. Research infrastructures and research that supports basic industries also received special focus. Research subjects covered by Strategic Centres for Science, Technology and Innovation (CSTIs) were funded through all the funding instruments available to the Council. The funding decisions made by the Council can be seen on page 11, Figure 6.

The Council awarded 31.6 million euros in research grants for researcher-driven projects. Individual grant sums were higher than in previous years. One in six of the research grants awarded were worth over 400,000 euros, and more than 40 per cent of them went to a research consortium. The proportion of research plans rated as scientifically highly ambitious was significantly higher in consortium applications than in individual applications. One-third of the projects funded were considered to have innovation potential.

The Research Council allocated two million euros to support research on process architectures in embedded systems and methods of software development. The purpose of this funding is to help achieve new research breakthroughs, to support the creation of networks of competence and cooperation and to advance high-quality research training. The current importance of this subject area in Europe is highlighted by the Joint Technology Initiative (JTI) on Advanced Research & Technology for Embedded Intelligence and Systems under EU 7FP.

The Research Council awarded 9.3 million euros to fund basic research projects that were judged to support the work done by CSTIs in the areas of Energy and the Environment, Metal Products and Mechanical Engineering, Forest Cluster, and Information and Communication Industry and Services. In addition, the Council decided to participate in the European WoodWisdom-Net2 and MATERA+ calls that are coordinated by Tekes, and to allocate a

total of three million euros to these programmes in 2010. WoodWisdom-Net2 supports the ambitions of Forest Cluster CSTI for greater international engagement. The strategic research agendas of the Energy and the Environment and Metal Products and Mechanical Engineering CSTIs share certain themes in common with MATERA+.

The Council applied all its funding instruments to support the careers of young and women researchers. Around one-quarter of the project leaders who received general research grants were aged under 40 and another quarter were aged between 40 and 50 years (see page 15 about equality).

The future of the EISCAT radar system, which includes facilities in Finland, Sweden and Norway, was the focus of special attention as plans for building a new radar facility (EISCAT 3D) were put forward for inclusion in the European Roadmap on Research Infrastructures (ESFRI). On Sweden's initiative, and with Norwegian and Finnish support, the proposal was indeed included in the ESFRI Roadmap together with nine other projects. For the time being, EISCAT is continuing to operate using its existing facilities, providing a continuous stream of measurement results for studies of the structure of the stratosphere. In all, there are seven EISCAT Associates, i.e. Finland, Sweden, Norway, the UK, Japan, China and Germany. In 2008, Finland's share of the EISCAT budget was around 15 per cent. The membership due is paid by the Research Council for Natural Sciences and Engineering.

Finland has a 30 per cent share of the Nordic Optical Telescope (NOT) in the Canary Islands. NOT has been highly instrumental in the training of young Finnish astronomers in particular. In order to bolster the operation and finances of NOT, Finland joined Sweden, Norway, Denmark and Iceland in paying an increased membership due for 2009. The Research Council also decided to allocate funding for updating the Nordic secondary ion mass spectrometer (NORDSIM) in Sweden.

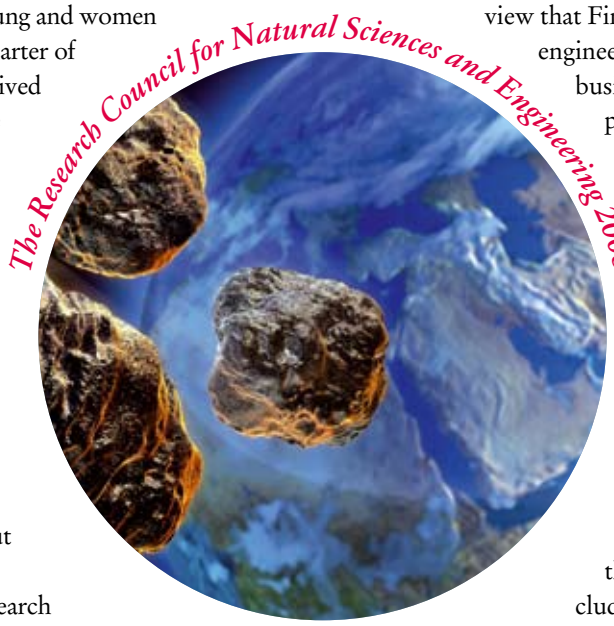


Photo: Director Susan Linko, Natural Sciences and Engineering Research Unit.

The series of discipline assessments in the engineering field in 2006–2008 was continued with an evaluation of research in mechanical engineering. The international panel of experts who conducted the assessment took the view that Finnish research in mechanical engineering is too heavily oriented to business-driven, short-term R&D projects. This is reflected in the scarcity of articles published by Finnish researchers in scientific journals and in the low number of PhD graduates compared to other countries.

The panel anticipates that the lack of ambitious scientific research in Finland will be reflected in future industry competitiveness. Its report recommends that research units seek to include basic and visionary research projects in their portfolio. Similarly, it is recommended that research funding be allocated to support these types of projects. Based on these recommendations, the Research Council decided to allocate 2.5 million euros to support basic research in mechanical engineering in its January 2009 call.

Fields of research hosted by the Research Council for Natural Sciences and Engineering:

- space research and astronomy
- geosciences
- mathematics and statistics
- physics and technical physics
- chemistry and chemical engineering
- information processing sciences
- telecommunications and automation technology
- electronics and electrical engineering
- medical engineering
- materials and process technology
- mechanical engineering and manufacturing technology
- architecture and construction and municipal engineering
- biotechnology, biophysics and bioinformatics relating to the above fields of research

In connection with the Sight2009 project (page 22), the Research Council hosted ten workshops to discuss development needs in natural sciences and engineering fields, to assess future researcher training needs and to identify key areas of future research. The workshops were attended by leading scientists and researchers from each discipline as well as representatives of business and industry, various ministries and other funding bodies. All in all, more than 100 stakeholder representatives were involved in these workshops. The Research Council will take on board the recommendations emerging from these discussions in its operational planning and in its future funding decisions.

One of the most significant impacts of the projects funded by the Research Council has been the growth of new knowledge and competencies in society and within the scientific community. According to research reports published in 2008, projects funded through general research grants produced on average 2.4 PhDs, 0.4 Licentiate's degrees and 3.1 higher university degrees per one million euros awarded by the Academy. Projects with Council funding showed a high publishing rate: one million euros of funding produced on average 58 articles in scientific journals and 30 articles in edited volumes or conference proceedings. PhDs graduating from these projects were reported to have good success in finding employment commensurate with their qualifications.

Research teams working with Council funding were well networked. Over 80 per cent of the projects were engaged in international research collaboration. Exchange visits were undertaken frequently, and researcher exchange was most active with American, Canadian, French, German and Japanese research teams.

One in four projects had cooperation with private business companies. All projects promoted the transfer of new research knowledge into business and industry in that many PhDs and other graduates from these projects moved to jobs in companies that had been involved in the research. Business cooperation was most common in engineering fields.

One measure of the commercial potential of these projects' research findings is provided by the number of patent applications and invention disclosures. On average, the projects filed 0.3 patent applications and 0.3 invention disclosures per one million euros of Academy funding. Researchers in the fields of physics, electrical engineering, electronics and computer sciences submitted the largest number of patent applications and invention disclosures.

External communication is crucially important to the public image and perception of research and to inspiring young people to study natural sciences and engineering.

The Research Council for Health 2008

The Research Council for Health gives strong prominence to biomedical sciences. In 2008, over half or 55 per cent of applicants for Academy Research Fellowships, Postdoctoral Researcher's projects and general research grants represented biomedicine; 15 per cent represented clinical medicine, 12 per cent public health research and the remaining 17 per cent either nutritional science, dentistry or some other smaller discipline.

The Research Council is involved in several national and international programmes. Projects under the Academy's Future of Work and Well-being Research Programme and Sustainable Energy Research Programme started up in 2008. In addition, the Research Council published its decisions on the projects to be funded under the Responding to Public Health Challenges Research Programme. The Council awarded funding for neurosciences research through the ERA-NET call under EU FP6, and for research on stress and mental health under the EUROCORES EuroSTRESS programme.

The Research Council hosted a consensus meeting with the Finnish Medical Society Duodecim on rehabilitation after acute brain injury. Delegates at the consensus meeting offered overviews of recent research on brain injury and on post-injury rehabilitation. The evidence from this research was compared with current practices and with existing social support systems.

The discipline assessment of dental research in 2007 recommended that separate funding be allocated to support dental research. A targeted call for applications was

announced in connection with the Academy's general call in October 2008. The Research Council received 30 applications, a very strong response when compared to the ten dental research applications submitted for general research grants over the past three years. The dedicated call announced by the Research Council clearly had the effect of inspiring researchers in this field.

The Council decided to award a total of over one million euros to support four research projects dealing with facial deformities, oral cancer, the attachment of dental implants to bone and oral human papilloma virus infection. The Council also took the decision to award funding to a few other dental research project applications.

Research careers of doctors working in clinical practice were supported by the Research Council. It received 21 applications, eight of which were awarded funding. This was the third time that clinical research career funding was awarded, and as in the previous year the Council was disappointed by the number of applications filed. More detailed conclusions about the Academy's targeted funding will be available in a couple of years' time as the three-year funding terms of the first funding round expire in December 2009.

The current state and development of clinical research careers were also discussed at a seminar organised in the autumn in collaboration with the Finnish Medical Society Duodecim.

The Research Council joined forces with the Swedish Research Council to launch a discipline assessment of clinical medicine. Covering all five Finnish and six Swedish medical faculties, the evaluation will be conducted by a panel of 15 international experts. Their remit includes the evaluation of data provided by universities as well as publishing performance. The panel members have visited all the universities concerned. The assessment is carried out simultaneously in the two countries and will be completed in spring 2009.

The evaluation of the Academy's Health Services Research Programme was completed in late 2008. The programme process and its scientific quality and social impact were discussed at a separate seminar held in connection with the Social Medicine Congress.

The Health Services Research Programme provided funding for projects concerned with health care provision in local municipalities, cost effectiveness, questions of health care equality and management and the organisation of work in health care. Although there are obvious benefits to having a broad and inclusive research programme, the evaluation panel would have preferred to see a more carefully and rigorously defined research agenda. Some of the projects demonstrated high scientific quality, but others remained more modest. On the other hand, a true assessment of scientific quality can only be made some years after the programme has been completed. Furthermore, some research projects had less funding than they had applied for, and difficulties accessing patient register data, for instance, are bound to have affected or at least delayed the research.

Health services research lends itself more easily than most fields to immediate application, for instance in health policy decision-making or the practical development of health care. This was recognised and applauded by the evaluation panel. The researchers involved in the programme wrote a book that highlighted a number of practical applications. The studies published under the programme and other commentaries by individual researchers included proposals for the national harmonisation of school health care, the development of health care for the unemployed, end-of-life living arrangements for older people, the development of psychiatric patient services, the improvement of cooperation between informal care and municipal home care services and for the use of information technology in psychiatric nursing.

The funding decisions made by the Council can be seen on page 11, Figure 6.

Fields of research hosted by the Research Council for Health:

- biomedicine
- veterinary medicine
- pharmacy
- dental science
- nursing science
- public health science
- clinical medicine
- sport sciences
- nutrition
- occupational and environmental medicine
- biochemistry, genetics, microbiology, biotechnology, molecular biology, cell biology, biophysics and bioinformatics relating to the above fields of research

Photo: Director Mikael Fogelholm, Health Research Unit.

Table 3. Academy of Finland research funding decisions by discipline 2006–2008, €

Discipline	2006	2007	2008
Natural sciences	**94,068,516**	**102,818,690**	**120,381,740**
Space research and astronomy*	4,048,780	5,656,630	5,874,310
Biology, environmental sciences	30,870,300	37,136,330	43,414,480
Physics**	28,208,090	25,665,290	30,399,830
Chemistry	10,092,540	9,334,080	9,744,580
Mathematics	5,506,645	7,085,320	7,463,510
Information processing science	10,241,341	9,470,310	14,095,870
Geography	1,905,960	3,457,770	1,187,030
Geosciences, meteorology	3,194,860	5,012,960	8,202,130
Engineering	**25,238,690**	**30,679,052**	**30,352,490**
Architecture	638,550	202,000	165,000
Construction engineering, community planning and municipal engineering	1,399,860	1,410,300	778,560
Electronical engineering	10,732,910	15,396,170	13,537,060
Energy technology	351,820	1,499,150	0
Metallurgy and extractive engineering	916,810	557,080	7,290
Mechanical engineering	1,421,450	1,510,610	961,260
Process and materials technology	3,753,930	1,997,030	2,394,240
Chemical engineering and chemical process technology	1,694,780	3,278,290	3,204,330
Wood processing technology	737,910	176,960	1,094,120
Biotechnology and food engineering	2,352,410	3,824,792	2,334,080
Other engineering	1,238,260	826,670	5,876,550
Medicine and health sciences	**45,264,520**	**53,037,113**	**59,887,400**
Biomedicine	22,548,310	24,737,620	30,385,720
Clinical medicine	9,383,600	13,841,350	11,939,410
Nutrition science	1,334,420	736,960	1,734,990
Public health science	6,661,340	5,607,765	9,688,910
Dental science	970,080	275,280	2,510,710
Sports sciences	361,790	987,620	270,300
Pharmacy	2,500,170	3,658,498	3,177,070
Nursing science	85,820	10,000	136,900
Veterinary medicine	1,418,990	3,182,020	43,390
Agriculture and forestry	**7,009,340**	**6,916,840**	**6,160,260**
Agricultural sciences, food sciences	4,237,790	2,915,850	2,206,770
Forest sciences	2,771,550	4,000,990	3,953,490
Social sciences	**39,069,610**	**40,166,072**	**40,272,150**
Economics	2,937,360	3,037,160	2,436,200
Business economics, economic geography	6,320,010	5,365,460	5,144,460
Law	3,871,260	3,020,110	2,500,590
Social sciences	11,432,090	12,683,669	9,833,280
Psychology	3,510,270	4,799,550	6,325,400
Education	4,746,040	2,862,533	3,357,180
Political science and administration	4,914,870	6,318,600	6,134,820
Communication, library science and information science	1,225,650	1,699,550	4,525,020
Statistics	112,060	379,440	15,200
Humanities	**24,964,878**	**24,940,240**	**28,205,420**
Philosophy	2,601,150	2,793,190	4,146,200
History and archaeology	7,307,510	5,860,100	7,314,050
Philology and linguistics	6,196,460	5,192,080	8,934,320
Arts research and literature	2,465,960	5,752,390	4,166,420
Theology	2,239,308	4,039,970	1,978,460
Cultural studies	4,154,490	1,302,510	1,665,970
Others* **	**3,084,980**	**5,471,370**	**1,930,000**
Total	**238,700,534**	**264,029,377**	**287,189,460**

* The figures include the ESO annual membership dues (€1,936,800 in 2008).
** The figures include the CERN membership dues (€9,329,440 in 2008).
*** To the Federation of Finnish Learned Societies for discretionary government transfers of learned societies (€920,000), for support to international scientific conferences and national scientific seminars (€820 000) and for scientific publishing (€190,000).

Table 4. Academy of Finland research funding decisions by research site 2006–2008, €

Site of research	2006	%	2007	%	2008	%
Universities	**195,238,354**	**81.8**	**208,789,577**	**79.1**	**232,003,510**	**80.8**
Helsinki School of Economics	3,168,320	1.3	2,078,150	0.8	1,196,140	0.4
University of Helsinki	61,941,460	25.9	66,896,560	25.3	76,895,010	26.9
University of Joensuu	6,724,490	2.8	8,362,790	3.2	6,635,870	2.3
University of Jyväskylä	15,357,215	6.4	18,764,813	7.1	22,414,390	7.8
University of Kuopio	8,453,030	3.5	10,594,722	4.0	9,003,620	3.1
Academy of Fine Arts	180,000	0.1				
University of Lapland	1,420,890	0.6	967,090	0.4	797,640	0.3
Lappeenranta University of Technology	3,069,260	1.3	3,233,860	1.2	1,126,270	0.4
National Defence College	900	0.0				
University of Oulu	18,079,800	7.6	15,653,840	5.9	21,561,530	7.5
Sibelius Academy	788,020	0.3	233,420	0.1	202,840	0.1
Hanken School of Economics	118,130	0.0	1,399,280	0.5	599,420	0.2
University of Art and Design Helsinki	329,070	0.1	491,000	0.2	1,834,200	0.6
Tampere University of Technology	8,620,530	3.6	6,854,920	2.6	9,432,290	3.3
University of Tampere	15,915,220	6.7	13,286,815	5.0	15,817,510	5.5
Theatre Academy	180,000	0.0	317,020	0.1		
Helsinki University of Technology	18,761,471	7.9	21,544,290	8.2	27,689,810	9.6
Turku School of Economics	1,864,880	0.8	1,172,270	0.4	907,010	0.3
University of Turku	22,984,740	9.6	27,410,300	10.4	22,764,910	7.9
University of Vaasa	241,510	0.1	891,880	0.3	797,190	0.3
Åbo Akademi University	7,039,418	2.9	8,636,557	3.3	12,327,860	4.3
University hospitals	**2,083,700**	**0.9**	**2,661,050**	**1.0**	**898,780**	**0.3**
Research institutes	**15,944,370**	**6.7**	**19,952,430**	**7.6**	**26,670,420**	**9.3**
Foreign organisations	**21,791,090**	**9.1**	**23,125,860**	**8.8**	**19,874,930**	**6.9**
Scientific societies	**1,440,420**	**0.6**	**1,762,390**	**0.7**	**2,490,070**	**0.9**
Polytechnics	**19,080**	**0.0**	**385,900**	**0.1**	**664,740**	**0.2**
Business companies	**373,250**	**0.2**	**626,500**	**0.2**	**748,730**	**0.3**
Other site of research	**1,799,830**	**0.8**	**6,725,670**	**2.5**	**3,833,720**	**1.3**
Individual researchers	**10,440**	**0.0**			**4,560**	**0.0**
Total	**238,700,534**	**100.0**	**264,029,377**	**100.0**	**287,189,460**	**100.0**

Table 5. Success rate of applications submitted for general research grants 2004–2008

Research Council	2004			2005			2006			2007			2008		
	Of applications		Of funding applied	Of applications		Of funding applied	Of applications		Of funding applied	Of applications		Of funding applied	Of applications		Of funding applied
	no.	%	%	no.	%	%	no.	%	%	no.	%	%	no.	%	%
Biosciences and Environment	37	16	14	29	12	10	40	15	14	69	26	23	61	26	23
Culture and Society	46	17	9	47	17	9	64	22	13	66	23	17	73	25	17
Natural Sciences and Engineering	88	20	12	82	18	11	119	25	15	122	27	22	133	31	25
Health	48	27	15	38	22	11	46	23	14	70	32	21	59	31	23
Total	**219**	**19**	**12**	**196**	**17**	**10**	**269**	**22**	**14**	**327**	**27**	**21**	**326**	**28**	**22**

Research Council members 1 Jan 2007–31 Dec 2009

Research Council for Biosciences and Environment

Chair
Professor Paavo Pelkonen
University of Joensuu

Professor Jaana Bamford
University of Jyväskylä

Adjunct Professor
Marina Heinonen
University of Helsinki

Professor Hely Häggman
University of Oulu

Professor Jouni Häkli
University of Tampere

Professor Jaakko Kangasjärvi
(17 Jan 2008–31 Dec 2009)
University of Helsinki

Professor Juha Kämäri
Finnish Environment Institute

Professor Reijo Lahti
University of Turku

Adjunct Professor Jyrki Luukkanen
Turku School of Economics

Professor Liselotte Sundström
University of Helsinki

Agricultural Counsellor Leena Vestala
(1 Jan 2007–31 Dec 2007)
Ministry of Agriculture and Forestry

Professor Karl Åkerman
University of Helsinki

Research Council for Culture and Society

Chair
Professor Eila Helander
University of Helsinki

Professor Pertti Haapala
University of Tampere

Research Professor Matti Heikkilä
National Research and Development Centre for Welfare and Health, Stakes (until 20 Jul 2008)

Professor Pauli Niemelä
(as of 12 Sep 2008)
University of Kuopio

Research Director
Päivi Hovi-Wasastjerna
University of Art and Design Helsinki

Professor Anne Kovalainen
Turku School of Economics

Professor Jaakko Pehkonen
University of Jyväskylä

Professor Lea Rojola
University of Turku

Professor Pekka Ruohotie
University of Tampere

Professor Katariina Salmela-Aro
University of Jyväskylä

Professor Marja Tuominen
University of Lapland

Professor Jan-Ola Östman
University of Helsinki

Research Council for Natural Sciences and Engineering

Chair
Professor Erkki Oja
Helsinki University of Technology

Professor Helena Aksela
University of Oulu

Professor Jaakko Astola
Tampere University of Technology

Research Professor Johanna Buchert
VTT Technical Research Centre of Finland

Professor Hannu Hänninen
Helsinki University of Technology

Professor Timo Jääskeläinen
University of Joensuu

Professor Pertti Mattila
University of Helsinki

Professor Jarmo Partanen
Lappeenranta University of Technology

Research Professor Tuija Pulkkinen
Finnish Meteorological Institute

Professor Kaisa Sere
Åbo Akademi University

Professor Pirjo Vainiotalo
University of Joensuu

Research Council for Health

Chair
Professor Kalervo Väänänen
University of Turku

Professor Anssi Auvinen
University of Tampere

Professor Helena Gylling
University of Kuopio

Research Professor
Kirsti Husgafvel-Pursiainen
Finnish Institute of Occupational Health

Professor Marja-Liisa Hänninen
University of Helsinki

Professor Tatu Juvonen
University of Oulu

Professor Jorma Keski-Oja
University of Helsinki

Professor Mikael Knip
University of Helsinki

Professor
Anna-Elina Lehesjoki
University of Helsinki

Professor Tuula Salo
University of Oulu

Professor Pia Vuorela
Åbo Akademi University

Academy Professors 2008

Lauri Aaltonen
1 Jan 2008–31 Dec 2012
TumorGeneResearch Program; Registry-based Identification of Novel Cancer Susceptibility Phenotypes and Genes
University of Helsinki

Risto Alapuro
1 Aug 2005–31 Jul 2009
Spaces of Democracy, Association and Political Culture in Finland in a Comparative Perspective
University of Helsinki

Rauno Alatalo
1 Aug 2004–31 Jul 2009
Individual Performance – Inheritance, Maternal Effects and Sexual Selection
University of Jyväskylä

Kari Alitalo
as from 1 Aug 1993 with tenure
Molecular Biology of Cancer
University of Helsinki

Eva-Mari Aro
1 Aug 1998–31 Jul 2008
Dynamics and Signaling in Photosystem II
University of Turku

Kari Astala
1 Aug 2006–31 Jul 2011
Geometric Analysis and Applications
University of Helsinki

Ilkka Hanski
1 Aug 1996–31 Jul 2011
Metapopulation Biology
University of Helsinki

Olli Ikkala
1 Aug 2005–31 Jul 2010
Functional Materials Based on Hierarchical Self-Assembly of Synthetic and Biological Polymers
Helsinki University of Technology

Howard Jacobs
1 Aug 2006–31 Jul 2011
Mitochondria, Ageing and Disease
University of Tampere

Kalevi Järvelin
1 Aug 2004–31 Jul 2009
Multi-lingual and Task-Based Information Retrieval
University of Tampere

Simo Knuuttila
1 Aug 2004–31 Jul 2009
1) The History of the Philosophy of Mind, 2) From Philosophy to Science, 3) Medieval Trinitarian Theology
Studies in Philosophy of Religion
University of Helsinki

Erkki Koskela
1 Aug 2006–31 Jul 2011
Equilibrium Unemployment, Optimal Taxation and Forest Economics
University of Helsinki

Martti Koskenniemi
1 Aug 2005–31 Jul 2010
The Limits of International Law
University of Helsinki

Juha Kostamovaara
1 Aug 2006–31 Jul 2011
Design of High-Speed Integrated Circuits and Devices
University of Oulu

Jussi Kukkonen
1 Aug 2005–31 Jul 2010
Ecotoxicology of Natural Organic Material (nom) in Aquatic Systems: Characterization and Effects on Contaminants and Organisms
University of Joensuu

Markku Kulmala
1 Aug 2004–31 Jul 2009
Formation and Growth of Atmospheric Aerosols
University of Helsinki

Antti Kupiainen
1 Aug 1999–31 Jul 2009
Mathematical Physics
University of Helsinki

Markku Laakso
1 Aug 2005–31 Jul 2010
Identification of New Genes for Type 2 Diabetes
University of Kuopio

Markku Leskelä
1 Aug 2004–31 Jul 2009
Nanomaterials and Nanostructures via Metalorganic Synthesis and Deposition of Thin Films
University of Helsinki

Heikki Mannila
1 Aug 2004–31 Jul 2009
Algorithmic Pattern Discovery and Theory of Data Mining
Helsinki University of Technology

Juha Merilä
1 Aug 2006–31 Jul 2011
Evolutionary Genetics of Adaptation in the Wild
University of Helsinki

Uskali Mäki
1 Aug 2006–31 Jul 2011
Trends and Tensions in Intellectual Integration: Studies on Inter-disciplinary and Inter-theoretic Relations in the Social Sciences, with Special Attention to the Role and Credibility of Economics
University of Helsinki

Risto Nieminen
1 Aug 2003–31 Jul 2008
Computational and Theoretical Materials Physics
Helsinki University of Technology

Kevät Nousiainen
1 Aug 2004–31 Jul 2009
Egalitarian Contentions. Minna Canth Academy Professorship (Women's Studies and Gender Research)
University of Helsinki

Hannu Nurmi
1 Aug 2003–31 Jul 2008
Studies on Models of Political Institutions
University of Turku

Hannu Oja
1 Jan 2008–31 Dec 2012
Nonparametric and Robust Multivariate Methods with Applications
University of Tampere

Anssi Paasi
1 Jan 2008–31 Dec 2012
Region-building, Boundaries and Identity in a Globalizing World
University of Oulu

Kari Palonen
1 Jan 2008–31 Dec 2012
The Politics of Dissensus. Parliamentarism, Rhetoric and Conceptual History
University of Jyväskylä

Kari Rissanen
1 Jan 2008–31 Dec 2012
Self-Assembly of Nano-sized Supramolecular Assemblies
University of Jyväskylä

Riitta Salmelin
1 Aug 2006–31 Jul 2011
Neural Organisation of Language Function
Helsinki University of Technology

Ari Sihvola
1 Aug 2005–31 Jul 2010
Electromagnetics of Geophysical, Composite and Metamaterials
Helsinki University of Technology

Lea Sistonen
1 Aug 2004–31 Jul 2009
Regulation of the Heat Shock Transcription Factors HSF1 and HSF2
Åbo Akademi University

Kaarina Sivonen
1 Aug 2000–31 Jul 2010
Cyanobacteria and Their Bioactive Compounds
University of Helsinki

Jussi Taipale
1 Jan 2008–31 Dec 2012
Growth Control and Cancer
National Public Health Institute

Jari Turunen
1 Aug 2005–31 Jul 2010
Foundations of Wave-Optical Engineering
University of Joensuu

Jari Valkonen
1 Aug 2006–31 Jul 2011
Molecular Mechanisms of Resistance to Potyviruses
University of Helsinki

Kim Wallin
1 Aug 2006–31 Jul 2011
Micromechanism-based Modelling of Fracture with Emphasis on Structural Integrity Assessment
VTT Technical Research Centre of Finland

Seppo Ylä-Herttuala
1 Aug 2005–31 Jul 2010
Biology and Applications of Therapeutic Vascular Growth
University of Kuopio

Academy-funded FiDiPro Professors and host universities

Erik Aurell, Sweden,
Helsinki University of Technology

Jan Blommaert, Great Britain,
University of Jyväskylä

Hsiu-Hsi Chen, Taiwan,
University of Tampere

Elizabeth Couper-Kuhlen,
Germany, University of Helsinki

Kalyanmoy Deb, India,
Helsinki School of Economics

Edward Delp, USA,
Tampere University of Technology

Jacek Dobaczewski, Poland,
University of Jyväskylä

Ari T. Friberg, Sweden,
University of Joensuu,
Helsinki University of Technology

Stephan Fritzsche, Germany,
University of Oulu

Scott F. Gilbert, USA, Institute of Biotechnology/Biomedicum Helsinki,
University of Helsinki

Jussi Hanhimäki, Switzerland,
University of Tampere

Rikard Holmdahl, Sweden,
University of Turku

Dan Hultmark, Sweden,
University of Tampere

Matti Hämäläinen, USA,
Helsinki University of Technology

Tadeusz Iwaniec, USA,
University of Helsinki

Ghassan Jabbour, USA,
University of Oulu

Antti-Pekka Jauho, Denmark,
Helsinki University of Technology

Peter Kivisto, USA,
University of Turku

Mark Nuttall, Canada,
University of Oulu

B. Matija Peterlin, USA,
University of Helsinki

Josef Rauschecker, USA,
Helsinki University of Technology

Günter Steinmeyer, Germany,
Tampere University of Technology

Bo Stråth, Italy,
University of Helsinki

Roger Säljö, Sweden,
University of Turku

Joe Terwilliger, USA,
University of Helsinki

David Thomas, Great Britain,
Finnish Institute of Marine Research

Kai-Yun Wang, China,
University of Joensuu,
University of Kuopio

Douglas Worsnop, USA,
University of Helsinki

List of Tekes-funded FiDiPro Professors is available at www.fidipro.fi

Academy research programmes 2008

Business Know-how, LIIKE2
2006–2009

Environment and Law, ENVLAW
2005–2008

Information Technology in Mechanical and Automation Engineering, KITARA 2005–2009

Nanoscience, FinNano 2006–2010

Neuroscience, NEURO 2006–2009

Nutrition, Food and Health, ELVIRA 2006–2010

Power and Society in Finland, VALTA 2007–2010

Substance Use and Addictions, ADDIKTIO 2007–2010

Sustainable Energy, SusEn
2008–2011

Sustainable Production and Products, KETJU 2006–2010

The Future of Work and Well-being, WORK 2008–2011

ERA-NET projects 2008

Coordination

NORFACE, New Opportunities for Research Funding Co-operation in Europe – A Strategy for Social Sciences, 2004–2008

Partner

BONUS+ and BONUS A169, BONUS for the Baltic Sea Science – Network Funding Agencies, 2008–2016

ERA-CHEMISTRY, Implementation of joint bottom-up European programmes in chemistry, 2004–2008

ERA-AGE, European Research Area in Aging Research, 2004–2009

ERA-PG, European Research Area Plant Genomics, 2004–2009

WoodWisdom-Net, Networking and Integration of National Programmes in the Area of Wood Material Science, 2004–2008

MarinERA, National and regional marine RTD activities in Europe, 2004–2008

Pathogenomics, Trans-European cooperation and coordination of genome sequencing functional genomics of human-pathogenic microorganisms, 2004–2009

NanoSci-ERA and NanoSci-ERA+, NanoScience in the European Research Area, 2005–2012

CIRCLE, Climate Impact Research Coordination within a Larger Europe, 2005–2009

CO-REACH, Co-operation of Research between Europe and China, 2005–2009

HERA, Humanities in the European Research Area, 2005–2009

Matera and Matera+, Material Science and Engineering in Europe, 2005–2009

ERASysBio, Towards a European Research Area for Systems Biology, 2006–2009

ERA Neuron, Network of European Funding for Neuroscience Research, 2007–2010

NORIA-nets 2008

Coordination

Nordic-Asian Research Funding Cooperation, 2008–2009

Development of Peer Review in the Nordic Context 2008–2009

Partner

The use of bibliometrics in research policy and evaluation activities, 2008–2009

The Nordic eScience, 2008–2009

The call for letters of intent in October 2008
(the deadline for full applications is April 2009)

Nordic Research Infrastructure Network

Nordic Network for International Research Policy Analysis

Finnish Centres of Excellence in Research 2008

Finnish Programme for Centres of Excellence in Research 2006–2011

Adaptive Informatics Research
Helsinki University of Technology

Ancient Greek Written Sources
University of Helsinki

Cancer Biology
University of Helsinki

Complex Disease Genetics
National Public Health Institute, University of Helsinki and Folkhälsan

Computational Complex Systems Research
Helsinki University of Technology

Computational Molecular Science
University of Helsinki

Computational Nanoscience
Helsinki University of Technology

Evolutionary Genetics and Physiology
University of Turku and University of Helsinki

Evolutionary Research
University of Jyväskylä

Global Governance Research
University of Helsinki and University of Turku

Inverse Problems Research
University of Helsinki, University of Kuopio, Helsinki University of Technology, University of Oulu, Lappeenranta University of Technology

Learning and Motivation Research
University of Jyväskylä

Low Temperature Quantum Phenomena and Devices
Helsinki University of Technology and VTT Technical Research Centre of Finland

Metapopulation Research
University of Helsinki

Nuclear and Accelerator Based Physics
University of Jyväskylä

Plant Signal Research
University of Helsinki and University of Turku

Political Thought and Conceptual Change
University of Jyväskylä

Process Chemistry
Åbo Akademi University

Signal Processing
Tampere University of Technology

Study of Variation, Contacts and Change in English
University of Helsinki and University of Jyväskylä

Systems Neuroscience and Neuroimaging Research
Helsinki University of Technology and University of Helsinki

Translational Genome-scale Biology
VTT Technical Research Centre of Finland, University of Turku, University of Helsinki

Virus Research
University of Helsinki

Finnish Programme for Centres of Excellence in Research 2008–2013

Algorithmic Data Analysis Research
University of Helsinki

Analysis and Dynamics Research
University of Helsinki

Cardiovascular Diseases and Type 2 Diabetes Research
University of Kuopio

Foundations of European Law and Polity Research
University of Helsinki

Functional Materials
Åbo Akademi University

Generic Intelligent Machines Research
Helsinki University of Technology

Host Defence Research
University of Turku

Integrative Photosynthesis and Bioactive Compound Research at Systems Biology Level
University of Turku

Interdisciplinary Music Research
University of Jyväskylä

Microbial Food Safety Research
University of Helsinki

Molecular and Integrative Neuroscience Research
University of Helsinki

Molecular Imaging in Cardiovascular and Metabolic Research
University of Turku

Philosophical Psychology, Morality and Politics: Human Conduct in the History of Philosophy
University of Helsinki

Physics, Chemistry, Biology and Meteorology of Atmospheric Composition and Climate Change
University of Helsinki

Public Choice Research
University of Turku

Research on Mitochondrial Disease and Ageing (FinMIT)
University of Tampere

Smart Radios and Wireless Research (SMARAD)
Helsinki University of Technology

White Biotechnology – Green Chemistry Research
VTT Technical Research Centre of Finland

Nordic Centres of Excellence in Research 2008

Nordic Centres of Excellence on Molecular Medicine 2004–2009

Disease Genetics
University of Helsinki

Neurodegeneration
Lund University

Research in Water Imbalance Related Disorders
University of Oslo

Nordic Centres of Excellence for the Humanities and Social Sciences in 2005–2010

Cognitive Control
Umeå University

Empirical Labor Economics
Uppsala University

NORMS – Microcomparative Syntax
University of Tromsø

The Nordic Countries and Medieval Expansion of Europe. New Interpretations of a Common Past
University of Bergen

Nordic Centre of Excellence Programme on Food, Nutrition and Health 2007–2011

HELGA: Nordic Health – Wholegrain Food
Danish Cancer Society

MitoHealth: Centre for Bioactive Food Components and Prevention of Lifestyle Diseases
University of Bergen

SYSDIET: Systems Biology in Controlled Dietary Interventions and Cohort Studies
University of Kuopio

Nordic Centre of Excellence Programme on Welfare Research 2007–2012

Reassessing the Nordic Welfare Model
Norwegian Institute for Research on Welfare and Aging

The Nordic Welfare State – Historical Foundations and Future Challenges
University of Helsinki

EUROCORES programmes

In 2008, a decision was made to participate in five new EUROCORES programmes

Maximizing the Impact of Graphene Research in Science and Innovation (EuroGRAPHENE)

Ecological and Evolutionary Functional Genomics (EuroEEFG)

European Collaborative Research on Cooling in Acute Ischemic Stroke (EuroCOOLS)

European Comparisons in Regional Cohesion, Dynamics and Expressions (EuroCORECODE)

Synthetic Biology: Engineering Complex Biological Systems (EuroSYNBIO)

EUROCORES programmes in which the Academy has participated from 2001 onwards

European Collaborative Research Projects, ECRP 2001–

The Origin of Man, Language and Languages 2002–2005

Self-organised Nanostructures, SONS 2003–2006

Development of a Stem Cell Tool Box, EuroSTELLS 2005–2008

Pan-European Clinical Trials, ECT, EURAMOS 2005–2009

Climate Variability and the Carbon Cycle (past, present and future), EuroCLIMATE 2005–2008

Smart Structural Systems Technologies, S3T 2006–2008

Challenges of Biodiversity Science, EuroDIVERSITY 2006–2009

Histories from the North – Environments, Movements, Narratives, BOREAS 2006–2010

Science of Protein Production for Functional and Structural Analysis, EuroSCOPE 2006–2009

Quantum Cold Matter, EuroQUAM 2007–2010

Inventing Europe (Technology and the Making of Europe, 1850 to the Present) 2007–2010

Friction and Adhesion in Nanomechanical Systems, FANAS 2008–2011

Cross-national and Multi-level Analysis of Human Values, Institutions and Behaviour, HumVIB 2009–2011

Stress and Mental Health, EuroSTRESS 2009–2011

Logical Modelling in Interaction, Communication, Cognition and Computation, LogiCCC 2009–2011

Higher Education and Social Change, HESC 2009–2012

Better Analyses Based on Endangered Languages, BABEL 2009–2012

How Cells Shape and Utilize Their Membranes, EUROMEMBRANE 2009–2012

Board of the Academy of Finland 1 Jan 2007–31 Dec 2009

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Professor Markku Mattila
President of the Academy of Finland

Research Council for Biosciences and Environment
Professor Paavo Pelkonen
University of Joensuu

Research Council for Culture and Society
Professor Eila Helander
University of Helsinki

Research Council for Natural Sciences and Engineering
Professor Erkki Oja
Helsinki University of Technology

Research Council for Health
Professor Kalervo Väänänen
University of Turku

Tiina Mattila-Sandholm,
Senior Vice President
Valio R&D

Pirkko Nuolijärvi, Director
Research Institute for the Languages in Finland

Academy Management and Unit Directors 2008

Markku Mattila,
President

Ossi Malmberg, Vice President,
Administration

Riitta Mustonen, Vice President,
Research

Biosciences and Environment
Research Unit
Laura Raaska, Director

Culture and Society Research Unit
Pirjo Hiidenmaa, Director

Natural Sciences and Engineering
Research Unit
Susan Linko, Director

Health Research Unit
Mikael Fogelholm, Director

International Relations Unit
Raija Hattula, Director

Programme Unit
Ritva Dammert, Director

Administration Unit
Maarit Saarela, Director

Services Unit
Seppo Hongisto, Director

Finance Unit
Mervi Taalas, Director

Information Management Unit
Seppo Raejärvi, Director
(until 3 Sep 2008)
Reino Viita, Director
(as of 4 Sep 2008)

Communications Unit
Maj-Lis Tanner,
Communications Director

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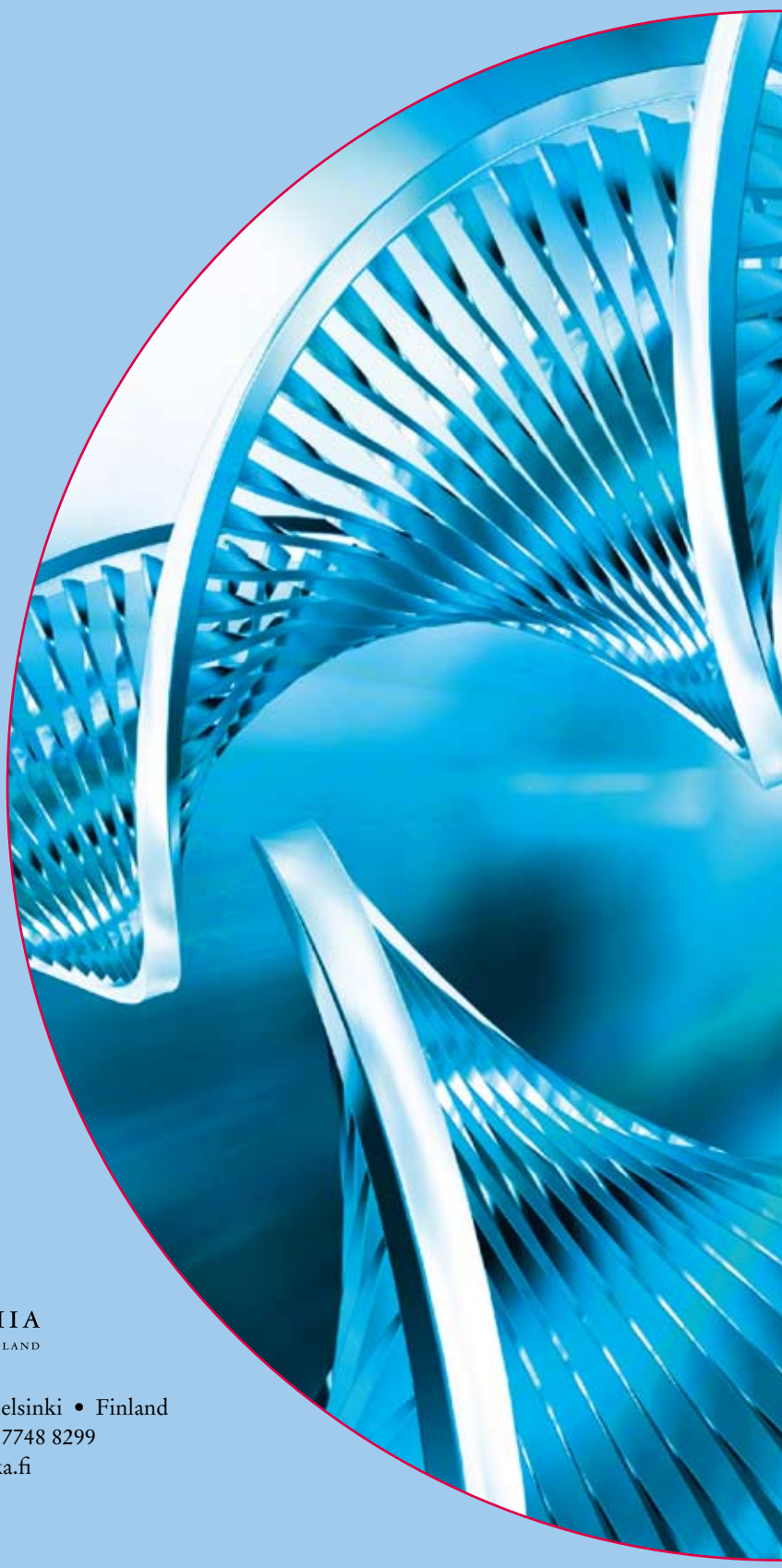

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