

Academy of Finland Annual Report 2001



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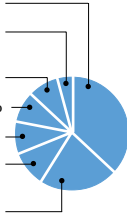
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RESPONDING TO THE CHALLENGES OF INTERNATIONAL COOPERATION

Finland has come to lead the way in many areas of science policy. At the same time the challenges of international cooperation have become much greater. Among the key challenges now are to make Finnish research environments more attractive and competitive and to promote international networking among researchers. In this Annual Report we have included some examples of research that is funded by the Academy, with six Finnish and foreign researchers and experts giving their own views on what internationalism means to them.

2001 in a Nutshell

Research projects 37%
Other support 5%
Centre of excellence programme 9%
International cooperation 9%
Research posts 9%
Researcher training 10%
Research programmes and targeted calls 21%



EUR 183.7 million for high-quality research. In 2001 the Academy of Finland made decisions on research funding worth EUR 183.7 million. Most of the funding went towards individual research projects and other support outside research programmes. During the year some 5,000 persons were involved in Academy-funded projects.

New Board and new Research Councils begin their three-year terms.

The Academy's new Board and Research Councils began their three-year terms in January 2001: the former is responsible for the Academy's science policy line, the latter for decisions on research funding. The Board members are (from back left) Markku Karlsson, Senior Vice President, Metso Corporation; Professor Eero Vuorio, University of Turku; Professor Arto Mustajoki, University of Helsinki; (front left) Professor Riitta Keiski, University of Oulu; Dr Vappu Taipale, Director General of Stakes, the National Research and Development Centre for Welfare and Health; Reijo Vihko, President of the Academy of Finland (Chair); and Professor Terttu Vartiainen, National Public Health Institute.

Equality Plan takes effect.

Quotas for minority representation, as laid down in the Academy's Equality Plan, were well met in new appointments to research posts, but there still remains a shortfall of women in top research positions. The situation is closely monitored on an ongoing basis by an equality working group set up under the Academy's Administrative Office at the beginning of 2001.

Science competition for senior secondary students.

Essi Kainonen from Turku was winner of the Academy's third annual science competition for senior secondary students. The total number of entries was 122, with the ten best winning a prize. In addition, separate awards went to three schools for their successful and active participation.

Anneli Pauli nominated as the Academy's Director of Research.

Docent Anneli Pauli, Doctor of Science in Agriculture and Forestry, was appointed to the position of Director of Research at the Academy of Finland for a five-year term as from the beginning of 1 April 2001. The Director of Research has responsibility for science policy planning and the development of research funding.

New national and international centre of excellence programmes.

In 2001 the Academy's Board took the decision to launch a new centre of excellence programme in 2002–2007. A total of 16 units representing different disciplines are involved. Recent examples of international funding cooperation include the Academy's involvement in the Nordic Centre of Excellence Programme and the new funding agreement signed with China.

Second national science review.

The Academy's second national science review was organised under the heading Culture 2001 – Finland in a Multicultural World. During the year there were more than 70 events at universities and research institutes around the country aimed at giving an insight into the field of cultural and social research. The three-day main event was arranged in September at Media Centre Lume in Helsinki. Liisa Karlsson, Doctor of Philosophy in Education, gave an interesting talk on children's own story-telling at an exploratory workshop intended for researchers.

Mathematician Arto Salomaa receives honorary title of Academician.

The title of Academician was granted to Academy Professor Emeritus Arto Salomaa by President of the Republic Ms Tarja Halonen and President of the Academy Reijo Vihko at an official ceremony hosted by the Academy of Finland in September.

Public confidence in science remains high.

In autumn 2001 the Finnish Society for Scientific Information published an attitude survey which shows that science is a matter of great public interest in Finland. There is also strong confidence in science and science organisations. Three in four respondents believe that Finnish science is of a high international standard and that it will be increasingly important to the future success not only of society at large but also individual citizens.

Research.fi is a new science and technology information service.

A new website launched towards the end of 2001 (www.research.fi) provides international comparisons, statistics and current information on Finnish science and technology. The service is jointly produced by the Ministry of Education, the Ministry of Trade and Industry, the Science and Technology Policy Council of Finland, the Academy of Finland, the National Technology Agency Tekes, Statistics Finland, the Finnish Council of University Rectors and CSC – Scientific Computing Ltd.



President's Review

Working together towards the highest level of human civilisation



Up to half of the growth of national economies today is attributable to research and technology. Europe accounts for one-third of all the research knowledge produced in the world. Research creates jobs not only in the immediate process, but later as well. All these are positive, encouraging facts.

The worrying thing is that Europe is spending no more than some 1.8 per cent of its GDP in research. The figures for the United States and Japan are considerably higher at 2.7–3.1 per cent, and the gap is growing. It is quite clear that the scarcity of research potential is hampering the development of our continent. Indeed there is growing recognition within the European Union that something now needs to be done.

The EU initiative for the creation of a European Research Area (ERA) is based on a vision of higher quality, more open and more effective international collaboration. We have in fact had in place such an area for centuries, but ERA is about a more collective reorganisation and streamlining effort. In a sense the EU provides the structural platform on the basis of which we can now go ahead with this project. Working together in a concerted effort, Member States will be aiming to raise the quality standards of research, to support the economy, to promote employment and to improve the quality of life. Finland has been actively involved in the search for solutions with which all this can be achieved.

So what action are we prepared to take? In our view the primary strategy is to promote closer networking among national research programmes and to open up these programmes to reciprocal researcher exchange. In addition, our 42 centres of excellence in research constitute a solid foundation for generating added value in the process of strengthening European research. We also have fresh and predominantly positive experiences of organising researcher training and believe that these experiences can create European added value. We have centuries of experience of researcher mobility across national borders – and there is no reason not to continue accumulating that experience in the future. Forecasting the future, evaluating research and research ethics are all issues of current concern both nationally and internationally. The challenge presented by individual citizens and society at large, the constant questioning of the legitimacy and benefits of research, is also ever more demanding. Again, the best way to respond to this challenge is by working more closely together.

Viewed from a Finnish perspective, it is fair to say that what we have been doing here over the past few years is closely consistent with the EU's new research policy lines.

Even in the context of what is described as European research, it is still the national agents, i.e. the researchers and funding bodies that play the most pivotal role. The new EU Framework Programme for Research (2002–2006) is an important, but by no means the only common instrument and resource with which the idea of a European Research Area can be strengthened. During 2001 the EU established the European Research Advisory Board, an independent, high-level advisory board for science, technology and innovation in Europe to support the work of the Commission. The European Union Research Organisations Heads of Research Councils (EUROHORCs) has also become an increasingly active forum for agreeing on how the common research policy efforts of different countries could best be coordinated. The European Science Foundation (ESF) with its own secretariat comes closer than any other of these organisations to being directly involved in research implementation, even though it does not have very much money at its disposal. In the future we might well see the formation of a European research council system.

It is impossible to conceive of any point in the history of a nation when its civilisation has not come about through interaction with other nations. In addition, every nation must always work towards the highest level of human civilisation within that era: this is the only way a nation can retain its independence in relation to others. These thoughts by Finnish philosopher and statesman Johan Vilhelm Snellman 160 years ago still have great currency today, even in the context of science and research. There can be no doubt that international cooperation and high quality will remain key aspects of science policy in the future as well. It is also clear that the horizon in research cooperation is always global.



REIJO VIHKO
President

Academy of Finland in 2001 Towards stronger internationalisation

Operating environment

FINNISH RESEARCH POLICY MAKES GOOD PROGRESS

Finland is continuing to develop into a knowledge-based society and economy: knowledge and know-how based on research and education are key areas of the national development effort. These are considered the main building blocks of economic growth, employment and social welfare.

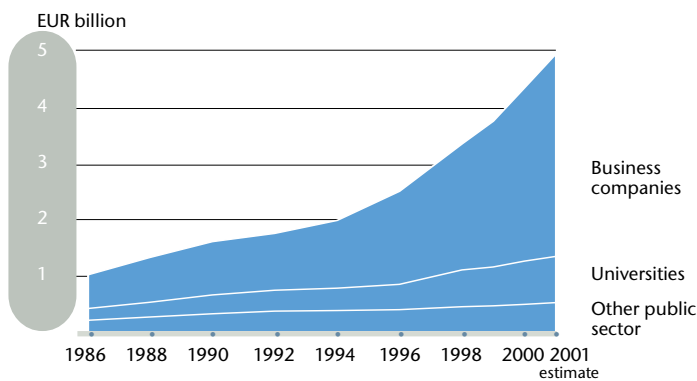
Today more than 70,000 people are employed in research and development at universities, research institutes and business companies around Finland.

Finland is one of the world's leading countries in terms of its R&D investment as a proportion of GDP. Funding for research and development increased in Finland throughout the 1990s. Whereas in 1991 R&D accounted for 2.1 per cent of GDP, by 2001 the figure was estimated at 3.6 per cent.

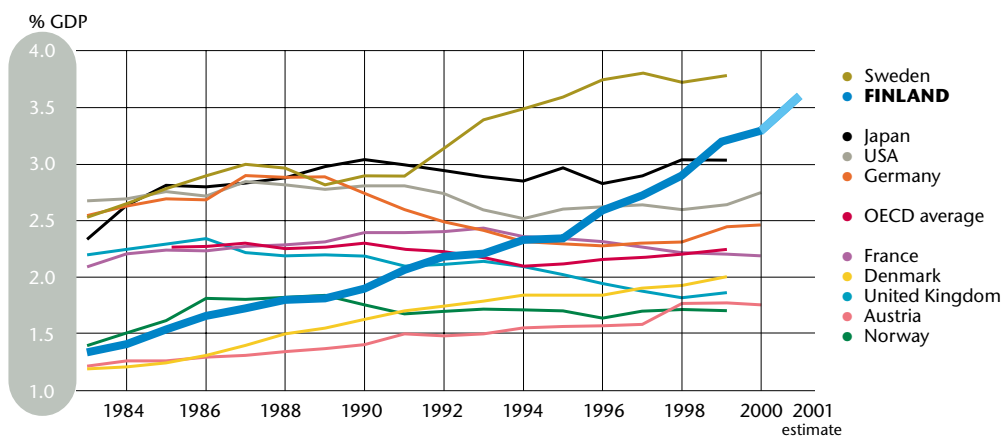
The increase is chiefly explained by increased R&D investment in the business sector. Investment has also grown in the public sector, but its share of Finland's total R&D investment has dropped to less than 30 per cent. In 2001 the government spent around EUR 1.4 billion on research and development.

Finland ranked very highly in a number of international comparisons that were published during 2001. The country took the top spot in the World Economic Forum's rankings of future growth prospects and current competitiveness. The Institute for Management Development rated Finland as the world's third most competitive economy. Likewise, Finland's research policy was rated alongside Sweden's as the most successful in the EU Commission report that came out in the summer: this comparison on 35 factors included all the EU countries, Japan and the United States.

R&D expenditure in Finland by agent



R&D investment in selected OECD countries



Mission statement

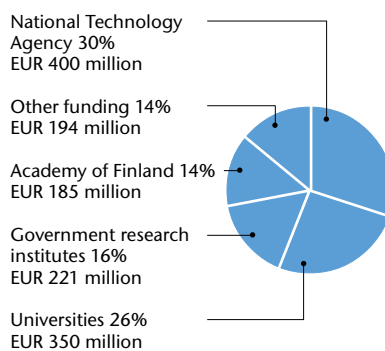
AIMING TO RAISE THE QUALITY AND ESTEEM OF RESEARCH

The Academy of Finland is an expert organisation on research funding, dedicated to promoting high-quality research by means of long-term funding based on scientific quality, science policy expertise and by strengthening the position of science and research.

The wide range of high-quality basic research funded by the Academy generates new knowledge that provides a solid foundation for innovative applied research and for the use of knowledge. The research system also produces highly trained and internationally competitive experts for positions in both the public and private sector.

The Academy of Finland's operation covers all scientific disciplines. The Academy operates

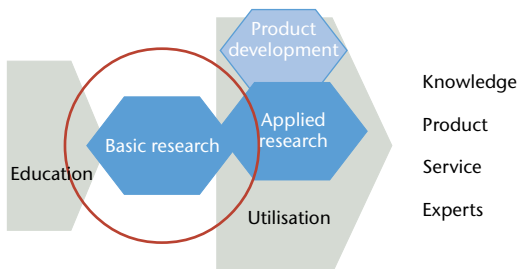
Government R&D expenditure in 2001, total EUR 1.4 billion



Source: Government R&D expenditure in the Budget for 2001. Academy of Finland publications 1/01

within the administrative sector of the Ministry of Education and is funded through the state budget. In 2001, some 14 per cent of all government research funding was channelled through the Academy.

The Academy's role in the Finnish innovation environment



Source: Academy of Finland

Science policy line

RESEARCH CAREER, RESEARCH ENVIRONMENTS AND INTERNATIONAL COOPERATION

The Academy's science policy is aimed at improving the career opportunities of professional researchers, and women and young researchers in particular; at developing high-quality research environments; and at making the best possible use of global opportunities for cooperation in all areas of research, research funding and science policy.

In 2001 the Academy of Finland continued to pursue the science policy agenda that was adopted during the previous year.

Instruments

DIFFERENT MEANS FOR DIFFERENT PURPOSES

The Academy has different forms of research funding for different purposes. For instance, the Academy provides funding for research projects, research programmes, centre of excellence programmes, research posts for Academy Professors and Academy Research Fellows, researcher training and international cooperation.

The Academy's second main function is to serve as science and science policy expert. The Academy drafts science policy lines, issues statements, compiles science policy reports and makes suggestions for the further development of research activities in Finland. It also evaluates the state and quality of

MUSIC KNOWS NO BOUNDARIES – EVEN IN SCIENCE



Päivi Järviö has completed the degree of Licentiate of Arts in Music at Sibelius Academy Helsinki and a degree in baroque music at the Academy of Early Music in Bremen, Germany. She is now working on her doctorate in the Graduate School of Performing Arts in Finland, studying early Italian baroque vocal music and the style of its performance.

Järviö says her research has nothing to do with Finland at all. For instance, very little is known about the existence of Finnish baroque music.

‘This whole field is still very much in its infancy in Finland, so I have had no other option than to try and locate researchers and literature from beyond our borders. On the other hand I do still feel I am pretty much on my own, although I have been able to turn to closely related studies in other arts.’

‘Song disappears and its instruments tend to deteriorate with the passage of centuries,’ Järviö points out. ‘No musical instrument can be duplicated. Even today there are so many different ways of using the voice; just consider the song of uighurs, Italian opera and rock’n’roll.’

‘I want to say something new about reading sources. My experience as a performer will be an important part of my work; without that experience I could never do this research.’

Järviö says she is working to build up an international network around this subject. One of the key things she wants to do is learn how to communicate her thoughts to others as clearly and concisely as possible.

EFFICIENT RESEARCHER TRAINING PRODUCES COMPETITIVE EXPERTS

- Graduate schools run by the Ministry of Education are selected on the basis of open scientific competition. Students are enrolled on a full-time basis so that a doctorate can be obtained in four years.
- Graduate schools are reviewed by the Academy of Finland, while decisions on appropriations are made by the Ministry of Education.
- The Academy supports graduate schools by providing funding for researcher training positions, courses and study trips.
- At year-end 2001 there were 94 graduate schools in Finland with a total of some 4,000 full-time students.
- Graduate schools also have foreign postgraduate students. The Ministry of Education is looking to double the number of foreign postgraduate students: the target is set at 15 per cent by the year 2010.
- For further details, go to www.aka.fi/eng > Researcher training

Finnish scientific research and individual research fields as well as the research programmes it supports.

Working closely with other agencies active in this field, the Academy's third main function is to raise public awareness about science, to increase the esteem of scientific research and to improve the use of research results. The Academy is involved in a host of joint projects and additionally organises an annual science competition for senior secondary students, science reviews focusing on one research field or research theme of topical interest, nominates candidates for the honorary title of Academician that is awarded by the President of the Republic, and submits to the Ministry of Education its candidate for the Finnish Science Award.

Organisation

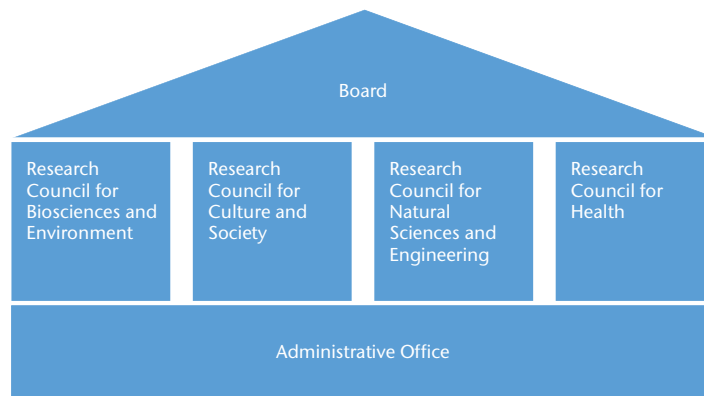
EXPERTISE GROWS OUT OF COOPERATION

The Academy of Finland owes its expertise to the shared input of its Board, Research Councils, other science experts and the Administrative Office.

The Academy's Board and the members of the Research Councils are appointed by the Council of State for a three-year term at a time. The year under review marked the first year of the term of the Board and the Research Councils that were appointed at the beginning of 2001.

The Academy of Finland is committed to the best interests of

Academy of Finland organisation in 2001



scientific research. In all its operations the Academy aims at reliability, impartiality, transparency, interactivity and at making use of the best expertise available.

The objectives for the Academy's operation and the resources made available to the Academy are decided on an annual basis in talks between the Academy of Finland and the Ministry of Education. The Academy's President makes the corresponding agreements on target outcomes with the Research Councils and the Administrative Office.

The Academy's main objectives and its performance in relation to these objectives in 2001 are described on pages 11–21.

BOARD DECIDES ON THE ACADEMY'S SCIENCE POLICY LINE

The highest executive organ of the Academy of Finland is its Board, whose seven members are responsible for the Academy's science policy line and the allocation of research appropriations to Research Councils. In addition, the Board decides for instance on the appoint-

ment of Academy Professors and on new research programmes.

In 2001 the Board was chaired by the Academy's President, Professor Reijo Vihko. The Vice-Chair was Dr Vappu Taipale, Director General of Stakes, the Research and Development Centre for Welfare and Health. The other Board members were the chairs of the four Research Councils: Professor Riitta Keiski, Professor Arto Mustajoki, Professor Terttu Vartiainen, Professor Eero Vuorio, and Mr Markku Karlsson, Senior Vice President, Metso Corporation.

RESEARCH COUNCILS AND SUB-COMMITTEES DECIDE ON RESEARCH FUNDING

The Academy has four research councils: the Research Council for Biosciences and Environment, the Research Council for Culture and Society, the Research Council for Natural Sciences and Engineering, and the Research Council for Health. The key events for each council in 2001 are described later on.

Each Council has a Chair and

MODERN OPTICS MEETS INFORMATION TECHNOLOGY IN FINLAND



Having earned her doctorate at Saitama University in Japan, Kanae Miyazawa moved to the Department of Computer Science at the University of Joensuu where for the past year she has been doing colour research. The two universities have had close collaboration and researcher exchange programmes in modern optics and information technology for more than ten years. Dr Miyazawa received her grant through the Postdoctoral Fellowship programme between the Japan Society for the Promotion of Science (JSPS) and the Academy of Finland.

Different countries and different universities have their own strengths and areas of expertise. The merging of these strengths inspires new innovations. Saitama University has advanced expertise in the field of optics, the University of Joensuu for its part is at the cutting edge of computer science.

‘Interdisciplinary cooperation is easier in Finland than it is in Japan. The close links between science and business are also an important asset as far as the researcher is concerned,’ Dr Miyazawa says. She is impressed by the strong position of women in Finland: in the research community everyone is equal.

Dr Miyazawa especially appreciates being able to concentrate entirely on her scientific work: there is so much staff in supportive roles.

‘In Japan I was not only researcher but also secretary, engineer and cleaner at the same time.’

Dr Miyazawa stresses the importance of international contacts for any young researcher. When she returns to Japan in 12 months’ time, she believes she will be a more competent scientist and a more open and active person as well as a better teamplayer.

RESEARCHER MOBILITY IS TWO-WAY TRAFFIC

- The Academy of Finland supports international researcher mobility in the context of various research projects and bilateral exchange agreements.
- The Academy has bilateral researcher exchange agreements with 37 science organisations in 25 countries and regions.
- In 2001 a total of 216 Finnish researchers worked abroad for variable periods, the number of foreign researchers working in Finland was 552.
- For further details, go to www.aka.fi/eng > International activities > Researcher exchange grants

ten members. The Councils decide on research funding within their respective fields and act as experts in science policy issues.

Decisions on research funding are made not only by the Board and the Research Councils, but also by sub-committees appointed by the Board: sub-committees are called upon in situations where funding decisions concern two or more Research Councils. Funding decisions in sub-committees may only be made by Board and Research Council members.

All funding decisions made by the Academy are based on scientific assessment of the applicants and their research plans. In this process the Academy consults domestic and foreign experts in their respective fields of research.

ADMINISTRATIVE OFFICE PREPARES AND EXECUTES

The Administrative Office has responsibility for the Academy's administration and its development. It does all the necessary groundwork for official decision-making by the Board and Research Councils, and on the other hand executes their decisions. In addition, the Office conducts various science policy surveys and drafts related plans.

The Administrative Office is headed by the Director of Administration, who is responsible for the Academy's administration and its development. The Director of Research is responsible for the Academy's science policy planning and the development of research fund-

ing. In 2001 the Academy's Director of Administration was Mr Heikki Kallio and Director of Research Dr Anneli Pauli. Mr Kallio retired at the end of January 2002; the Academy's new Director of Administration is Mr Juha Sarkio.

The Administrative Office is also the first point of contact for the Academy's clients, i.e. researchers working at universities, research institutes and business companies. The Administrative Office is organised into research units that correspond to the Research Councils and into support functions; in 2001 these included the units responsible for ADP, administration, international relations, finances and communications.

The Academy's science policy library is part of the Communications Unit. Specialising in science and technology studies and science policy, its collections consist of some 25,000 publications and 270 journals and newsletters. The library is mainly intended for purposes of supporting decision-making in science policy and for use by the Administrative Office, but it is also open to outside researchers and students.

During the year under review six persons were involved in the Academy of Finland history project that started up in 1999. The three volumes retracing the Academy's history will be completed in 2003.

During 2001 there were also several working groups in the Administrative Office that cut across

unit boundaries. The purpose of these groups is to support the implementation of key science policy objectives in the whole of the Academy of Finland.

Administrative Office experts were involved in the work of dozens of domestic and international working groups in domestic and international organisations.

At year-end the Administrative Office had a permanent staff of 133. In 2001 a total of 23 new staff were hired in either permanent or temporary posts. Compared to the previous years the number of personnel in the Administrative Office remained virtually unchanged.

Over half (58%) of the staff had an academic degree. The proportion with a researcher training remained at around one-fifth (19%). The gender breakdown of the staff remained almost unchanged: women accounted for 76 per cent of the staff, men for 24 per cent.

In 2001 the payroll costs of the Academy's Administrative Office amounted to EUR 5.3 million.

Among Administrative Office staff 60 per cent were in expert and supervisory positions (including unit heads). The proportion of women in different task groups increased compared to one year previously.

In December 2001 the mean age of Administrative Office staff was 44.4 years (men 42.8 and women 44.9 years). This was slightly higher than the figure for 2000.

Research funding

RESEARCH PROJECTS AND UNIVERSITIES RECEIVE THE BULK OF FUNDING

In 2001 the Academy of Finland spent EUR 183.7 million on supporting high-quality basic research, EUR 26.7 million more than in 2000. The total figure was inflated by funding decisions made for the 2002–2007 centre of excellence programme as well as by the introduction at the beginning of the year of a 12.5 per cent overheads share in connection with funding decisions for research projects and research posts.

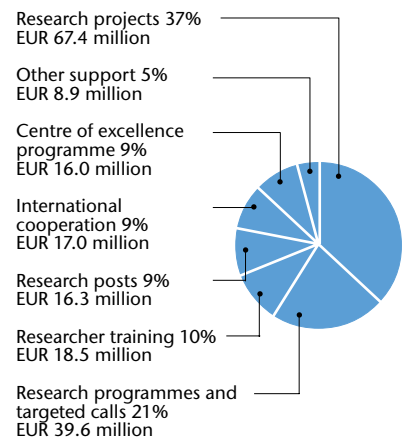
This overheads share is intended to cover basic infrastructure costs, such as those related to research premises, equipment and material, laboratory and mailing costs. In 2001 the overheads share included in the Academy's funding

decisions amounted to EUR 18.9 million.

Competition for Academy research funding is intense. In 2001 the Academy received applications worth around EUR 690 million, while the total amount of research funding awarded was EUR 183.7 million (27%). The total number of applications received was 4,929, of which 2,488 were successful (50%).

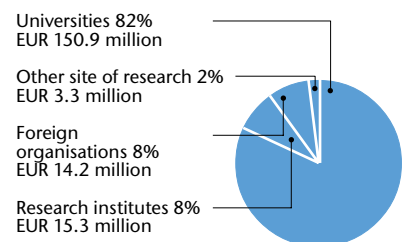
Most of the Academy's funding went to research projects proposed by individual researchers and research teams (37%). The next-biggest funding categories were research programmes and targeted calls (21%) and researcher training (10%). International cooperation, research posts and contractual funding for centres of excellence in research each received roughly the same amount (9%). Other research support,

Breakdown of Academy of Finland research funding decisions by type of funding in 2001, total EUR 183,7 million



Source: Academy of Finland

Breakdown of Academy of Finland research funding decisions by site of research in 2001, total EUR 183,7 million



Source: Academy of Finland

Applications filed with the Academy of Finland and funding decisions by research council in 2001

Research council	Applications				Funding decisions			
	2001		2000		2001		2000	
	EUR million	Number	%	%	EUR million	Number	%	%
Research Council for Biosciences and Environment	149.6	988	20	22	39.7	433	17	19
Research Council for Culture and Society	183.2	1 604	33	32	47.8	893	36	36
Research Council for Natural Sciences and Engineering	218.5	1 425	29	28	60.6	795	32	29
Research Council for Health *	134.6	908	18	18	35.3	363	15	16
Board	0.3	4	0	0	0.3	4	0	0
Total	686.2	4 929	100	100	183.7	2 488	100	100

* Includes also plans of intent.

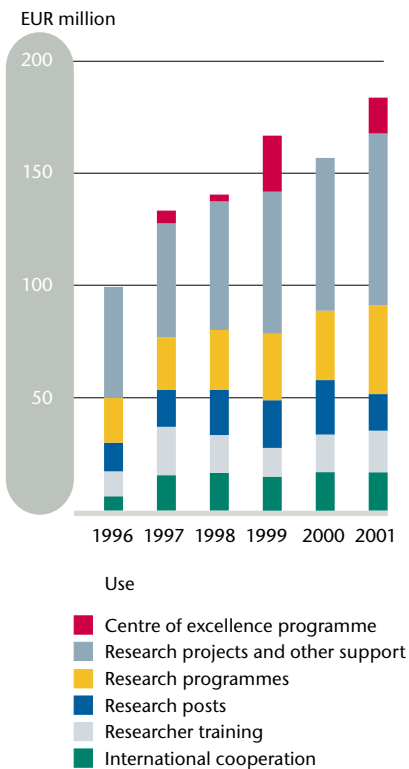
Source: Academy of Finland

The figures include the costs of research posts, converted into euros.
The figures also include the membership dues paid by the Academy of Finland to international organisations.
Funding decisions regarding centre of excellence programmes are not made every year.

for instance for purposes of hiring senior scientists, organising national seminars or supporting returning researchers, accounted for 5 per cent.

Over 5,000 persons with a total of 2,951 person-year were involved in Academy-funded projects at universities and research institutes in 2001. Of all Academy research funding 82 per cent went to researchers working at universities.

Academy of Finland research funding decisions by type of funding in 1996–2001



Source: Academy of Finland

Steering model

AGREEMENTS ON PERFORMANCE TARGETS PROVIDE DIRECTION

The objectives for the Academy's operation and the resources made available to the Academy are agreed on an annual basis in talks between the Academy of Finland and the Ministry of Education. The Academy's President makes the corresponding agreements on target outcomes with the Research Councils and the Administrative Office, and the Director of Administration with the units within the Administrative Office.

In 2001–2003 the Academy's main objectives are to:

1. secure the high level of scientific research in Finland, its diversity and capacity for renewal;
2. improve the quality and efficiency of researcher training and promote a competitive professional research career;
3. increase the Academy's impact on Finnish society; and

4. develop the Academy's organisation and operation.

The following overviews the Academy's performance in these four areas during 2001:

Main objective 1

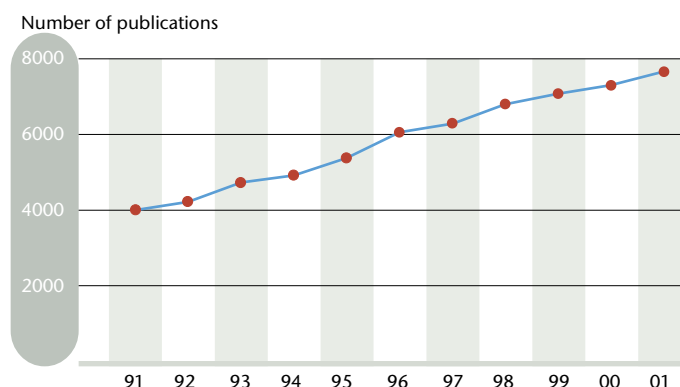
SCIENTIFIC RESEARCH IN FINLAND: QUALITY, DIVERSITY AND CAPACITY FOR RENEWAL

FINNISH RESEARCH INTERNATIONALLY RESPECTED

Finnish research enjoys greater international visibility and esteem in more fields of research than ever before. This emerged clearly in a EU Commission report which described Finland's research policy along with Sweden's as one of most successful in a comparison that comprised 35 factors. In the light of publication and citation analyses, too, the international visibility of Finnish research has developed favourably during the 1990s in all fields of research.

The Academy of Finland was actively involved in making inter-

International publications by Finnish researchers 1991–2001



Source: ISI Web Science

MULTICULTURAL PERSPECTIVES ON GERIATRIC RESEARCH



Anneli Sarvimäki, Research Director at the Center for Gerontological Training and Research Kuntokallio and Professor at the Nordic School of Public Health in Gothenburg, Sweden, is in charge of a research project concerned with the daily life of older Finnish immigrants in Sweden and in Finland after their return. This is one of 17 research projects in the research programme Interaction across the Gulf of Bothnia, which is funded from sources in both Finland and Sweden.

‘Not only information but the research process itself has become internationalised,’ Professor Sarvimäki observes.

‘The Scandinavian welfare society, solidarity, gender equality, the strong public sector and public health care are some of the areas where the rest of Europe could certainly turn to us for some valuable lessons.’

Professor Sarvimäki points out that there are large numbers of people over 65 in Europe who have moved to countries in which they were not born and in which they didn’t grow up. What is their identity, the meaning of their own culture and mother tongue, what kind of services do they need and want? The results of the ongoing research project will also be useful outside the Nordic countries.

INTERNATIONAL FUNDING COOPERATION IN RESEARCH PROGRAMMES

- Interaction across the Gulf of Bothnia is the Academy’s first research programme that involves international funding cooperation.
- In the funding of research programmes, targeted calls and centres of excellence in research, the Academy’s aim is to increase national as well as international cooperation among funding bodies.
- The Academy of Finland will be joined by other European funding bodies in all its research programmes and targeted calls that are due to start up in 2002.
- One of the strategies adopted by the Academy of Finland to strengthen the European Research Area (ERA) is to promote networking among national research programmes.
- For further details, go to www.aka.fi/eng > Research programmes

national science and research policy. Academy experts took part in dozens of working groups at the European Union, the European Science Foundation and many other Nordic and international organisations.

The European Union Research Organisations Heads of Research Councils (EUROHORCs) convened in Helsinki in May to discuss issues related to the European Research Area (ERA) and the Sixth EU Framework Programme for Research. EUROHORCs is chaired by the Academy's President.

The Academy's President was the other of the two Finnish members appointed by the EU Commission to the European Research Advisory Board (EURAB) for the next three-year term. EURAB is an independent, high-level advisory board for science, technology and innovation which supports the work of the Commission.

The Academy of Finland, the National Technology Agency Tekes and the Japanese National Institute of Science and Technology Policy (NISTEP), an organisation specialising in technology evaluations and forecasting, signed an agreement of cooperation in October. The Finnish National Fund for Research and Development, the Technical Research Centre VTT and Helsinki University of Technology are also involved.

SIXTEEN NEW CENTRES OF EXCELLENCE IN RESEARCH

The centre of excellence programme is one of the Academy's most important forms of research funding for promoting the development of creative research environments. Centre of excellence status may be granted to a research and researcher training unit that comprises one or more high-standard research teams and that is at the international forefront in its field or is well-placed to reach the international forefront. The Academy's policy is to provide long-term funding for centres of excellence in order to secure a solid foundation for their work.

In June 2001 the Academy's Board appointed 16 new centres of excellence for the 2002–2007 term. The programme was jointly prepared with Tekes. The new centre of excellence programme includes a larger number of units that are composed of research teams operating in different parts of the country.

With the new programme up and running there are now 42 centres of excellence in Finland. The previous round of nominations was in 1999, when 26 units were selected for the 2000–2005 term.

FIVE NEW RESEARCH PROGRAMMES

Other important means with which the Academy supports creative research environments is through research programmes and targeted calls.

A research programme consists of several closely related projects. The aim is to network existing research capacities, to create new relations of cooperation and to promote researcher training and the internationalisation of research.

During 2001 the Academy of Finland had 23 ongoing research programmes. The aim has been to try and reduce the number of new research programmes and to increase the amount of larger programmes with bigger budgets. Five new research programmes were started up in 2001. The Academy also decided on the launch in 2002 of four new programmes that will all involve international funding cooperation.

The Academy's current and new research programmes are listed on page 48.

The Academy of Finland may also provide support for specific fields of research for fixed periods of time. The support is channelled through targeted calls to fields of research selected by the Board or Research Councils. In 2001 the Academy funded seven targeted calls.

The Academy also took part in ongoing efforts to develop European research programme cooperation. Within the Fifth EU Framework Programme the Academy is responsible for the national coordination of two thematic and two horizontal programmes: Quality of

GENETIC RESEARCH IN A GLOBAL NETWORK



Professor Howy Jacobs is head of the Finnish Research Unit for Mitochondrial Biogenesis and Disease (FinMIT) at the Universities of Tampere and Helsinki, one of the Academy's national centres of excellence in research. Research at FinMIT is aimed at gaining an understanding of the underlying causes and mechanisms of mitochondrial disorders; for instance, how gene errors give rise to certain diseases.

The unit is made up of three closely related research teams. All team members have moved to Finland from other countries or have received their training in research institutes abroad. Researchers working on their doctorates at FinMIT also go abroad to further develop their research skills.

FinMIT receives part of its funding from foreign sources, including the European Union. Its status as an Academy centre of excellence is an important asset in establishing links of cooperation with foreign-based research teams.

'The funding we have received through the centre of excellence programme has helped us create a unit with true international appeal. Our success attracts top international names to Finland and provides some fantastic opportunities for our own post-graduate students – and of course strengthens Finland's reputation for research excellence,' Professor Jacobs says.

Howy Jacobs is convinced the best way to do science is to pick one's partners from a list that covers the whole world: that way, he says, you can make sure the people you choose have the expertise you need, the right tools and a common interest.

THE FINNISH CENTRE OF EXCELLENCE PROGRAMME IS OPEN TO ALL DISCIPLINES

- A centre of excellence consists of one or more research teams at the cutting edge of international research in their respective field.
- In 2002 the Academy has a total of 42 centres of excellence in research.
- The Academy's Centre of Excellence Programme is open to all disciplines. The primary criterion for selection is the scientific standard of the unit's research work.
- The Nordic Centres of Excellence Programme and the new cooperation agreement signed with China are good examples of the Academy's international funding cooperation.
- For further details, go to www.aka.fi/eng > Centres of Excellence

Life and Management of Living Resources, Environment and Sustainable Development, Improving Human Research Potential and the Socio-economic Knowledge Base, and the International Role of European Research.

SUPPORT FOR INTERNATIONAL RESEARCHER MOBILITY

The Academy promotes the international mobility of researchers in many different ways. Most of the support for mobility is channelled in the form of general research funding. Grants for researcher training and work abroad represent an important source of support.

In addition, mobility is supported through personal researcher exchange grants on the basis of bilateral agreements. In 2001 the Academy had exchange agreements with 37 partners in 25 different countries and regions. Within the framework of these agreements 216 Finnish researchers spent a total of 268 researcher-months working abroad in 2001, while 552 foreign researchers spent 551 researcher-months in Finland.

The Academy also supports the participation of Finnish researchers in international cooperation through the payment of membership fees and research costs to Nordic organisations, the European Science Foundation, the European Organisation for Nuclear Research, the European Molecular Biology Laboratory and certain other organisations.

In 2001 the Academy opened new pages on its website (www.aka.fi/eng) to provide information to researchers on sources of international funding and avenues of cooperation. As well as giving information on funding available through the Academy, the site describes more than 20 Finnish and international organisations that support researcher exchange. There is also a calendar with information on international calls for applications and offers for research cooperation.

Main objective 2

RESEARCHER TRAINING AND PROFESSIONAL RESEARCH CAREER

PROMOTING CAREERS IN RESEARCH

It is the Academy's goal to create in Finland an effective researcher training system of the highest possible standards and to make a professional career in research a more attractive proposition. The Academy supported researcher training primarily through its general research funding and by allocating grants directly to graduate schools for purposes of organising training courses.

Launched in 1995 by the Ministry of Education, the graduate school system aims to raise the quality of postgraduate training; to intensify this training with a view to lowering the age at which students obtain their doctorate; to encourage professional careers in research; and to increase internation-

al cooperation in research and education. In particular, the graduate school system aims to make it easier for young people and women to take up careers in research.

During 2001 the Academy reviewed the scientific standards of the graduate schools as well as the quality of the researcher training provided at these schools on the basis of the applications it received from universities. On the basis of this review the Ministry of Education decided to provide funding for 108 graduate schools in 2002–2005. At year-end 2001 there were 94 graduate schools in Finland with a total of some 4,000 students working full-time towards their doctorate.

MORE THAN ONE-THIRD OF RESEARCH POSTS OCCUPIED BY WOMEN

The Academy is committed to consolidating the system that supports professional careers in research and to promoting researcher training by further developing its research post and employment contract system. To this end the Academy will be increasing the number of its higher research posts, i.e. those of Academy Professor and Academy Research Fellow and accordingly discontinuing lower research posts. The number of vacancies for Post-doctoral Researcher will also be increased so that larger numbers can qualify themselves as professional researchers. These are not research posts proper but are funded from research appropriations.

At year-end 2001 the Academy of Finland had 316 tenured researchers: 37 Academy Professors, 224 Academy Research Fellows and 55 Postdoctoral Researchers. In addition, the number of postdoctoral research positions stood at 290.

At the end of the year women occupied 36 per cent of the Academy's research posts. Women accounted for 30 per cent of all Academy Professors, 34 per cent of Academy Research Fellows and 51 per cent of Postdoctoral Researcher posts. The proportion of women remains lowest in the research fields supported by the Research Council for Natural Sciences and Engineer-

ing, even though the figure has risen clearly from 2000. All other Research Councils have very nearly reached or even exceeded the target set out in the Academy's Equality Plan, which says that the minority gender shall occupy at least 40 per cent of all research posts.

All Research Councils appointed more women to research posts than was the share of women among the applicants for these posts.

EQUALITY PLAN TAKES EFFECT

An equality working group was set up under the Academy's Administrative Office in 2001 to implement

the Academy's Equality Plan that was adopted at the end of 2000.

The Equality Plan says that the minority gender is to occupy at least 40 per cent of all research posts, expert positions and working groups. The plan applies to all researchers working with Academy funding.

In its first year the equality working group focused its attention on improving communication, particularly its international information efforts. Over the next few years the group will step up its cooperation with Statistics Finland's experts on equality statistics.

Academy of Finland research posts by gender in 2001 *

	Academy Professor			Academy Research Fellow			Postdoctoral Researcher			Total		
	Total	Women	Women %	Total	Women	Women %	Total	Women	Women %	Total	Women	Women %
Research Council for Biosciences and Environment	8	2	25	48	14	29	11	8	73	67	24	36
Research Council for Culture and Society	10	4	40	58	22	38	16	10	63	84	36	43
Research Council for Natural Sciences and Engineering	11	1	9	68	22	32	13	4	31	92	27	29
Research Council for Health	8	4	50	50	18	36	15	6	40	73	28	38
Total	37	11	30	224	76	34	55	28	51	316	115	36

* The figures also include fixed-term appointments.

Source: Academy of Finland

SCIENCE COMPETITION FOR SENIOR SECONDARY SCHOOL STUDENTS

Apart from supporting research, one of the objectives of the Academy of Finland is to encourage young people to take up careers in research and to raise awareness about scientific research in collaboration with other organisations.

The Academy announced the ten winners of the third annual science competition for senior secondary school students in March 2002. The purpose of the competition is to inspire greater interest among students in science and research. There were 122 entries to the competition, slightly more than one year previously.

SCIENCE REVIEW ON CULTURAL AND SOCIAL RESEARCH

The Academy of Finland organises science reviews that are mainly intended for the general public once every two or three years. The first such review on the biosciences was held in 1999.

In 2001 the Academy organised the second national science review under the title Culture 2001 – Finland in a Multicultural World. A total of 34 partners were involved in staging the review that was coordinated by the Academy. During the year a total of more than 70 events were arranged at universities, research institutes and other organisations to provide an insight into cultural and social research for senior secondary school students, business leaders, decision-makers

and research sponsors.

The three-day main event was arranged at the Media Centre Lume in Helsinki, under the theme ‘Man, Changing Culture, New Technology’.

Main objective 3

SOCIAL IMPACTS

INCREASING INTERNATIONAL FUNDING COOPERATION

The Academy continued to expand its collaboration with other national and international funding bodies, particularly in the funding of research programmes, targeted calls and centre of excellence programmes.

In its ongoing research programmes and targeted calls the Academy had cooperation with 24 domestic and international funding bodies. The partners included ministries, other public sector funding bodies, private foundations and international funding bodies.

The Academy of Finland and the National Technology Agency Tekes have close cooperation both in the field of research funding and in expert tasks on research and research funding. In 2001 the Academy had 12 ongoing research programmes that were funded jointly with Tekes.

In 2001 the Academy took part through its own research programmes in three national cluster programmes that involve a number of partners: the forest cluster

(Wood Wisdom), the environment cluster and the welfare cluster.

The Academy has been in charge of preparations for the joint Nordic Centre of Excellence Programme and actively involved in the start-up of the pilot phase. The decision to launch the programme was made by the Nordic Council of Ministers in June 2001. Funding for the programme amounts to a minimum of EUR 1.4 million a year. The aim of the Nordic Centre of Excellence Programme is to raise the quality of Nordic research, to improve its international visibility and to promote researcher exchange and interdisciplinarity. At its meeting in November the Nordic Natural Science and Engineering Research Councils (NOS-N) decided that for the pilot phase the programme’s secretariat shall be based at the Academy of Finland.

All western countries have shown growing interest in recent years in working more closely with China. The Academy has had many years of good cooperation with China, and in December signed an agreement with the National Natural Science Foundation of China concerning the funding of joint projects among centres of excellence in research.

Five Finnish research projects were elected to take part in the European Science Foundation’s (ESF) first two funding programmes. These projects will be

CERN PAVES THE WAY TO THE FRONTLINE OF RESEARCH



It was 36 years ago that Docent Jorma Tuominiemi first travelled to the European Organisation for Nuclear Research (CERN) in Switzerland, with a newly acquired Master's degree and a grant from the Academy of Finland. Today, he is in charge of a research programme that is looking for answers to questions concerning the basic structure of matter using the world's biggest particle accelerator now under construction.

Finland's membership of CERN facilitates the participation of Finnish particle physicists in the organisation's experimental programmes. There are also Finnish researchers representing other fields working at the laboratory. Tuominiemi confirms that Finnish researchers have a very strong position in CERN. For young scientists the laboratory offers a unique opportunity to work at the very forefront of international research. It is also an excellent place for doctoral and postgraduate training as well as for students working towards their first degrees.

CERN currently has 20 member states. Some 6,000 particle physicists from more than 80 different countries and 500 universities work with the laboratory's research equipment.

'For me, internationalism means above all working with researchers and research coordinators from different countries. That opens up a much broader perspective on knowhow because different countries have different kinds of traditions. Science lends itself easily to international cooperation because it involves no politics. We all share the same values and the same objectives,' Tuominiemi says.

MEMBERSHIP OF INTERNATIONAL ORGANISATIONS INCREASES RESEARCH RESOURCES

- The Academy of Finland is the Finnish partner to a number of international research organisations.
- The Academy also supports the participation of Finnish researchers in international cooperation through the payment of membership fees and research costs to Nordic organisations, the European Science Foundation, the European Organisation for Nuclear Research, the European Molecular Biology Laboratory and certain other organisations.
- Membership of international science organisations provides access to various scientific laboratories, libraries, etc.
- For further details, go to www.aka.fi/eng > International activities

taking advantage of the facilities offered by the ESF Collaborative Research Programmes. A member organisation of the ESF, the Academy has made its own funding decisions on national projects. Within the programme funding is made available for research in both the humanities and the social sciences.

RESEARCH ETHICS AND INTELLECTUAL PROPERTY RIGHTS

The Academy of Finland is represented on the National Advisory Board on Research Ethics appointed by the Ministry of Education for a three-year term as from February 2001. The Advisory Board drafts proposals and issues statements to the relevant authorities on legislative questions of research ethics, serves as an expert body on problems relating to research ethics, and submits initiatives for the promotion of research ethics.

In spring 2001 the Academy appointed a research ethics working group whose term will end in 2003. The working group is charged with the task of drafting a plan for the promotion of good scientific practice in projects funded by the Academy. It also lays down procedures that shall be applied in cases where a researcher engaged in an Academy-funded project is suspected or found guilty of misconduct, fraud or violation of the principles of good scientific practice, or when there are grounds for such suspicions in applications filed with

the Academy or in other research work.

The Academy published on its website at www.aka.fi/eng a guide on intellectual property rights pertaining to research results. The IPR guide explains to researchers their rights and duties with regard to intellectual property rights, which include copyright and patent rights. The website also provides other information relevant to intellectual property rights.

Main objective 4

DEVELOPING THE ACADEMY'S ORGANISATION AND OPERATION

APPLICATIONS REVIEWED BY PANELS OF EXPERTS

The Academy of Finland continued its efforts to develop the applications review process and the use of outside experts in this process. Applications for research posts and appropriations are increasingly reviewed by panels of experts representing one or more fields of research. The panel system has clearly improved the quality of statements received and in this way provided a more solid foundation for decision-making by the Research Councils. Special attention was paid to increasing the number of women experts on the panels.

The services of foreign experts were used to a much greater extent than previously both in panels and where individual statements were needed.

EVALUATION MAY TRIGGER CHANGE

In 2001 the Academy of Finland launched research field evaluations of women's studies and foreign policy and security issues.

Finland was the first of CERN's 20 member states to carry out an evaluation of the success of its cooperation within the European Organisation for Nuclear Research. The report was published in May 2001. The Academy appointed a working group to carry forward the measures recommended in the report.

Work was started on the third report on the state and quality of scientific research in Finland. Due for publication in 2003, the science policy report provides an overview of scientific research in Finland, its infrastructure and impacts from the vantage-point of the research system as a whole.

The report commissioned by the Academy on research field evaluation provided useful clues for the further development of the evaluation process.

In 2001 the Academy commissioned evaluations of seven research programmes. These were carried out by both foreign and domestic experts. The programmes evaluated were the Research Programme on Russia and Eastern Europe; the Research Programme on Health and Other Welfare Differences between Population Groups; the Urban Studies Research Programme; the Material Science of

FINLAND IS A MODEL COUNTRY OF SCIENCE POLICY



Dr Lea Kauppi, Director General of the Finnish Environment Institute, says that Finland has been highly successful with its science policy: this is another area in which we are very much at the international forefront.

Dr Kauppi knows what she is talking about. She has been closely involved in several working groups appointed by the European Commission to develop guidelines for research within the EU.

‘We have already taken steps that in Europe are still at the blueprint stage. In fact we should be making much more noise in Finland about our research policy. My own experience is that people will listen to us, it’s just a matter of speaking up.’

Dr Kauppi says that other countries are concerned about problems with the application of research results. In Finland we have plenty of examples of how decision-makers consult research results and make good use of them.

‘Our science community is highly innovative and modern in its approach to taking care of business. While many other countries have problems with intersectoral cooperation, we have no such difficulties in Finland.’

Lea Kauppi feels that Finland has been highly successful in its drive to internationalisation in the field of research. She bases her assessment on a comparison of the present situation with that 15 years ago, when she was first appointed to an Academy Research Council.

The biggest problem, Dr Kauppi concludes, remains the question of how attractive Finland appears in the eyes of foreign researchers. It is important that researcher mobility works in both directions.

ACTIVE INVOLVEMENT IN INTERNATIONAL SCIENCE POLICY

- One of the aims of the European Commission in the promotion of the European Research Area is to harmonise forms of research cooperation at the European level and to bring together the strengths of national research systems. Finland has been actively involved in this development effort.
- Academy experts are involved in the work of dozens of working groups in the European Union and the European Science Foundation as well as in various Nordic and other international organisations.
- Finland has contributed actively to the preparation of EU framework programmes for research and to the development of various discussion forums in different areas of research.
- For further details, go to www.aka.fi/eng > International activities

Forest-based Products Research Programme; the Research Programme for Ecological Construction; and the Materials Research and Structures Research Programme. The first phase of the Teleelectronics Research Programme (1998–2001) was evaluated in conjunction with Tekes' ETX and TLX technology programmes.

ELECTRONIC ID CARD INTRODUCED

Introduced in 2000, the Academy's online service was used in every call for applications. Researchers can now file funding applications or progress reports online instead of having to fill out forms, take a number of copies and send them by post. The Academy is planning eventually to move the whole funding process online.

The introduction in April 2001 of an electronic ID card facilitates the use of online services, which can now be easily accessed by authorised users. There still remain a number of services that can be used without the ID card.

INTERNATIONAL COMMUNICATION INCREASINGLY IMPORTANT

The Communications Unit carried out a questionnaire study in connection with the Academy's community image survey. The preliminary results suggest that public knowledge and awareness of the Academy has increased and that perceptions of the Academy in general are more positive than before.

According to the Academy's website user survey in spring 2001, most users are relatively pleased with the service. The highest satisfaction scores were recorded for information related to research funding, current issues, funding decisions and application forms.

Special effort was devoted to the development of international communications. The Academy joined AlphaGalileo Europe, the internet-based news centre for European science, medicine and technology. The project is funded by science organisations in Finland, France, Germany, Greece, Portugal and the United Kingdom through the European Union's Raising Public Awareness programme. The purpose of the service is to increase awareness of European research and to encourage science communities to work more closely with the mass media. The Finnish national office is based at the Academy's Communications Unit.

The Communications Unit invited representatives of the media to science breakfasts about once a month, providing information on research funded by the Academy. The concept has met with a very positive reception and given the Academy considerable visibility in the media.

An intranet user survey was carried out in March with a view to developing internal communications.

The Academy updated the standing exhibition on its operation and the research it supports. It also had its own stand at Educa 2001, the annual fair for professionals in the education field, and took part in Space 2001, an expo mainly intended for the general audience.

The Academy took part in the founding meeting of the European Science Events Association (EUSCEA) in Vienna in December. The meeting was attended by 39 organisations working in science communications from 23 European countries.

Research Council for Biosciences and Environment in 2001

Biosciences and environmental research address global problems

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**
- **as well as biotechnology, molecular biology, cell biology, biofysics and bioinformatics and economic and technological research relating to environmental research**

The bulk of funding from the Research Council for Biosciences and Environment goes to biosciences, including ecology, environmental research, environmental chemistry and social-scientific environment studies. Other research fields supported by the Council include geography, forestry, agriculture and food sciences. Giving preference to multidisciplinary research programmes, the Council aims to support research which addresses complex problems related to biosciences, the environment and natural resources.

Research programmes and targeted calls

The Research Council launched one research programme and one targeted call in 2001. Among the themes covered by the 36 projects in the multidisciplinary research programme on the Sustainable Use of Natural Resources (SUNARE) are forests, waterways, fish, reindeer, agriculture, medicinal plants, green chemistry and environmental research related to the use of natural resources. Running from 2001 through to 2004, the research programme has a budget of around EUR 9.3 million, with the Academy accounting for EUR 8.1 million, the Ministry of Agriculture and Forestry for EUR 0.1 million and the National Technology Agency Tekes for EUR 0.02 million.



RESEARCH COUNCIL FOR BIOSCIENCES AND ENVIRONMENT:

BACK LEFT:

PROFESSOR MARKKU LÖYTÖNEN, PROFESSOR ANNELE HATAKKA,
PROFESSOR MATTI VORNANEN, PROFESSOR JUHA TUOMI,
PROFESSOR MAIJA RAUTAMÄKI, DIRECTOR GENERAL LEA KAUPPI

FRONT LEFT:

PROFESSOR J. PETER SLOTTE, PROFESSOR JYRKI HEINO,
PROFESSOR TERTTU VARTIAINEN, PROFESSOR EEVI RINTAMÄKI

ABSENT:

PROFESSOR PASI PUTTONEN

2001 also saw the start-up of a three-year targeted call on the Spaces of Nature and Culture, which involves teams from both the social sciences and natural sciences. Academy support for the nine multidisciplinary research projects in environmental policy and history amounts to EUR 2.0 million.

The Council has primary responsibility for three Academy research programmes, viz. the Research Programme on Biological Functions (Life 2000, 2000–2003), the Finnish Biodiversity Research Programme (FIBRE, 1997–2002) and the Finnish Global Change Research Programme (FIGARE, 1999–2002). Two programmes ended in 2001, the Urban Studies Research Programme (URBS) and the Material Science of Forest-based Products Research Programme (Wood Wisdom).

The Council organised two exploratory workshops with a view to identifying possible themes for

forthcoming research programmes. In February 2001, joining forces with the Research Council for Culture and Society, the Council hosted a workshop in preparation of the Baltic Sea Research Programme that will be starting up in 2002. Various ministries, funding bodies from Baltic Sea states and foundations that support environmental research will also be contributing to the costs of the programme.

A second workshop was organised in November together with the Finnish Environment Institute and the National Advisory Board for Biotechnology. This was on the theme of genetically modified organisms and the assessment and management of related risks.

International activities

International exchange and cooperation is an integral part of all research supported by the Council; after all environmental problems

are inherently global in nature. The importance of biosciences and research on the environment and natural resources is growing all over the world.

Science funding and science policy, too, are becoming more and more internationalised. With the growth of networking among researchers from different countries and the closer collaboration between international science organisations and funding bodies, the Council finds itself faced with new challenges. The Council's aim is to support and strengthen Finnish research so as to make it more competitive and more visible outside the country's borders.

The tendency towards internationalisation is seen both in the applications review process and in the final evaluations of research programmes. Over the years the Council has come to rely to an increasing extent on foreign experts, specifically on panels of experts

rather than statements by individuals. In 2001 some applications filed with the Council were still evaluated by individual experts. Up to 95% of the members of the expert panels are from other countries. In those instances where statements were requested from individual experts, 78% were from outside Finland.

International cooperation in the review process is very much a reciprocal process, with the Nordic Natural Science and Engineering Research Councils working closely with one another to assemble panels of experts. During 2001 Finnish experts were recruited to review applications submitted to the Icelandic council, for instance.

During the past year two of the Council's research programmes were reviewed by international experts. These concerned the overall performance of the Urban Studies Research Programme (1998–2001) and the Wood Wisdom Programme (1998–2001) as a whole.

The Council was closely involved in the EU framework programmes for research. The Council has monitored the progress of the Fifth EU Framework Programme and particularly the reception of applications filed by Finnish researchers to the Environment and Sustainable Development programme. Applications involving Finnish researchers or teams have on average been more successful

than others. Steps have also been taken to encourage Finnish researchers to take on the responsibilities of programme coordinator.

Preparations for the Sixth EU Framework Programme got under way in 2001. Working closely with the National Technology Agency Tekes, the Research Unit has been charged with the responsibility to prepare Finland's stand on two specific programme proposals, viz. the Food Safety and Health Risks Programme and the Sustainable Development and Global Change Programme. A position paper on the Genomics and Biotechnology for Health Programme was jointly prepared with the Research Council for Health and Tekes.

In the ongoing efforts to strengthen the European Research Area (ERA), the Research Unit has been responsible for preparations within the component Supporting Research Coordination. The Council has paid special attention to the new opportunities for funding cooperation opened up by the ERA and the new framework programme, for instance through various national research programmes.

The Academy's centre of excellence programme is also becoming more internationalised. Four out of the 16 new national centres of excellence nominated for the 2002–2007 term come fully or partly under the Research Council's jurisdiction: the Research Unit on

Physics, Chemistry and Biology of Atmospheric Composition and Climate Change, the Applied Microbiology Research Unit, the Centre of Population Genetic Analyses and the Centre for Environmental Health Risk Assessment.

The Joint Committee of the Nordic Natural Science and Engineering Research Councils (NOS-N) has decided to launch a Nordic Centre of Excellence Programme in the field of global change research. The aim is to bring together the best Nordic expertise to address multidisciplinary questions concerning the impacts of atmospheric and marine processes on ecosystems. The pilot programme is funded by the Nordic Research Councils as well as the Nordic Council of Ministers.

In December 2001 the Academy of Finland signed an agreement with the National Natural Science Foundation of China aimed at supporting cooperation between Finnish centres of excellence in the natural sciences and high-quality Chinese research teams.

The Council began to allocate funds to three new à la carte research programmes administered by the European Science Foundation (ESF); in two cases the funding comes jointly from three Academy Research Councils. All in all the Council supports 13 ESF research programmes in different fields of research.

The Board of the Academy appointed a Finnish Global Change Research Support Group (FIGSU) to maintain contacts with international science programmes concerned with questions of global change.

Finland joined the Global Biodiversity Information Facility (GBIF) that was started up in 2001. In the Academy's organisation it is the Research Council for Biosciences and Environment that is charged with the responsibility to monitor GBIF's work, which it does through a seat located to the Academy on the GBIF Governing Board.

**Research posts under the Research Council
31st December 2001**

Academy Professors	8
Academy Research Fellows	48
Postdoctoral Researchers	11
Total	67

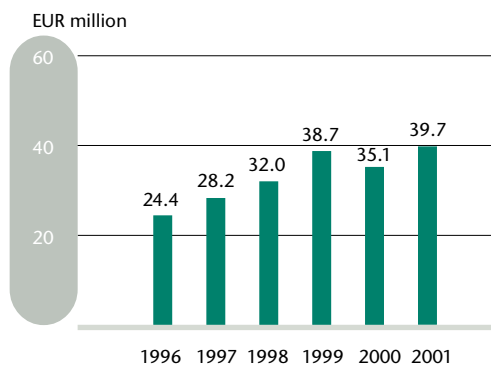
Source: Academy of Finland

Funding decisions in 2001

	EUR million	%
Research projects and other support	20.8	52
Research programmes and targeted calls	10.9	28
Research posts	2.4	6
Researcher training	4.3	11
International cooperation	1.2	3
Total	39.7	100

Source: Academy of Finland

Funding decisions in 1996–2001



Source: Academy of Finland

Research Council for Culture and Society in 2001

New avenues of international funding cooperation

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

- philosophy
- history and archaeology
- education
- philology and linguistics
- cultures research
- law
- psychology
- logopedics
- social sciences
- aesthetic fields research
- economics
- theology
- statistics
- political science
- communication and information sciences

The Research Council for Culture and Society is committed to raising the overall quality of Finnish research and to improving its visibility both nationally and internationally by supporting research and researcher training. Furthermore, the Council aims to promote fields of research that are closely related to Finnish society and culture and to support publishing in these fields.

All new products and innovations, whether these are in the field of engineering sciences, medicine or natural sciences, have not only technological but also cultural and social implications. Therefore the humanities and social sciences can contribute significantly to research in these fields, too.

The amount of research funding granted by the Council varies from project to project, but in each case the Council's overriding aim is to make sure the projects can be carried through to completion according to the plans laid down. Research posts and the promotion of professional careers in research are other important considerations in the Council's funding decisions. In addition, the Council aims in its decision-making to support gender equality in research careers.

One of the Council's ongoing development projects is to improve the applications review process. Ultimately the aim is to improve the quality of the statements for the benefit of both the applicant and



RESEARCH COUNCIL FOR CULTURE AND SOCIETY:

BACK LEFT:

PROFESSOR ERNO LEHTINEN, PROFESSOR JUHA SIHVOLA,
PROFESSOR KRISTA VARANTOLA, PROFESSOR PAAVO OKKO,
PROFESSOR LAURI SUURPÄÄ, PROFESSOR ARTO MUSTAJOKI

FRONT LEFT:

PROFESSOR LIISI HUHTALA, PROFESSOR TERTTU UTRIAINEN,
DOCENT KAIJA HEIKKINEN, PROFESSOR AILA LAUHA,
PROFESSOR MARJA JÄRVELÄ

the people making the funding decisions. Indeed, wherever appropriate the Council relies to an increasing extent on panels of experts for review purposes. In the case of both individual experts and panels it has been the Council's policy to recruit larger numbers of women and international experts.

In 2001 the Council launched research field evaluations in the fields of women's studies and in foreign policy and security issues. For this purpose the research community was invited to hearings that were held in spring 2001. The results of these evaluations will be completed during spring 2002.

The final evaluation of the Research Programme on Russia and Eastern Europe that ended in 2000 was completed during 2001. The report by the international panel of experts praises the high overall

standard of the projects involved in the programme, but also has some critical remarks with regard to their low international visibility. The panel stressed the importance of continuing work within the programme, suggesting that the research areas be more closely defined and that efforts be stepped up to improve international cooperation. Following the completion of the programme the Council has allocated some EUR 1.6 million to support research concerned with Russia and Eastern Europe.

Research programmes and targeted calls

Experience has shown that research programmes are particularly well-suited to organising research in the humanities and social sciences. The Council's research programmes

and targeted calls have often been launched in response to specific social demand, which is why they have attracted considerable attention both in the media and among political decision-makers. One programme that was very much in the spotlight was the Economic Crisis of the 1990s programme (LAMA), which ended in 2001.

The application rounds for the Research Programme on Finnish Companies and the Challenges of Globalisation (LIIKE) were completed during spring 2001. Following extensive preparations, the programme that is scheduled for 2001 through to 2004 will include 13 individual projects and four research consortia. In addition to funding worth EUR 4.7 million from the Academy of Finland, the programme will be getting EUR 1.7 million from Tekes.

In 2001 the Council launched two targeted calls. An international panel of experts rated the applications submitted to the targeted call on Intellectual Property Rights as being of a very high quality. The projects funded focus on such themes as impacts of intellectual property rights on the national economy and individual businesses, their impacts on the rights of indigenous peoples and regional communities as well as bottleneck situations developing in information and biotechnology as a result of too extensive or too limited rights.

The targeted call on the Production, Control and Use of Digital Data Resources is jointly administered with the Research Council for Natural Sciences and Engineering. The multidisciplinary projects focus on such themes as data retrieval systems, the development of a model for processing and managing historical landscape data and cultural and linguistic differences in the recording and retrieval of digital data. The total budget in 2001–2004 amounts to EUR 1.9 million.

The Council continued work to prepare for the Life as Learning programme with a view to inspiring extensive national and international cooperation. The key domestic partners are the National Technology Agency Tekes, the Ministry of Education, the National Board of Education and the Work

Environment Fund. Internationally, there will be close collaboration with corresponding national research programmes in Europe (most particularly in the United Kingdom, Holland and Norway). The programme was also opened to applications from foreign-based researchers.

In autumn 2001 the Research Council hosted an international workshop on the subject of social capital and networks of trust. Questions of social capital have received growing attention in a number of disciplines in recent years, including economics, the social sciences and humanities. On the basis of the feedback received the Council will continue its work to prepare the programme initiative.

Working closely with the Research Council for Natural Sciences and Engineering, the Council prepared an initiative for a targeted call on industrial design. In spring 2001 an exploratory workshop was organised that looked into the current state of design research and discussed possible themes for a targeted call.

International activities

Key priorities with regard to science policy include the further development and expansion of international cooperation. The Council is working closely with several Nordic and international science organisations

and seeking to promote internationalisation through joint funding arrangements.

The Council was actively involved in developing new avenues to international funding cooperation. The European Science Foundation (ESF) launched the so-called Eurocores programme that is aimed at increasing cooperation among both researchers and funding bodies.

The first Eurocores programme in the humanities is on The Origin of Man, Language and Languages. The ESF will organise the international peer review of the applications received, but each participating country will decide for its own part on the funding of national projects.

The corresponding programme launched in the social sciences differs from that in the humanities in the sense that it has no given theme, and national member organisations are jointly responsible for reviewing the applications.

The total amount of funding for Finnish projects involved in these programmes amounted to some EUR 0.7 million.

Finland has also been closely involved in work to design a major European interview study that will be carried out in the same format in 20 European countries. The European Social Survey will cover such issues as social position, social

networks and social structures, and also include comparisons of people's ways of life and social participation. The survey will be jointly administered by the EU Commission, the ESF and national funding bodies. The Council granted a total of EUR 0.5 million to cover the costs of the Finnish contribution.

In the context of Nordic co-operation special attention was paid to the need for closer exchange and collaboration in the creation of the European Research Area (ERA). During 2001 Finland hosted the conference of the Joint Committee of the Nordic Social Science Research Councils (NOS-S) on the future of the social sciences in the Nordic countries, where one of the key issues highlighted was the need for interdisciplinary perspectives. The Council also organised the meeting of the Councils for Research in the Humanities and Social Sciences (NOP-HS) in Helsinki.

In its cooperation with the United Kingdom, Finland has taken the initiative to start a series of seminars aimed at networking research programmes in the field of learning.

The Council organised briefings for researchers on funding opportunities in the fields of the humanities and social sciences. Within the Fifth EU Framework Programme research fields hosted by the Council are involved most particularly in the specific socio-

economic programme Improving Human Research Potential and the Socio-economic Knowledge Base. The first European project in the humanities that is funded through this programme is coordinated by a Finnish researcher.

The Research Council supports students working towards their doctorate in foreign universities, especially in fields where training opportunities in Finland are limited or where international contacts are considered particularly valuable. In particular, the Council supports Finnish students researching for their doctorate at the European University Institute (EUI) in Florence, Italy, which is jointly supported by EU Member States.

Research posts under the Research Council 31st December 2001

Academy Professors	10
Academy Research Fellows	58
Postdoctoral Researchers	16
Total	84

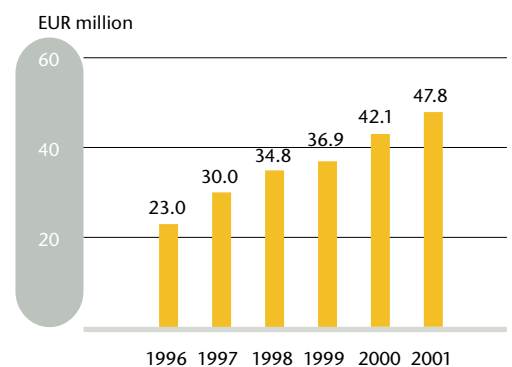
Source: Academy of Finland

Funding decisions in 2001

	EUR million	%
Research projects and other support	23.1	48
Research programmes and targeted calls	11.1	23
Research posts	5.5	12
Researcher training	4.9	10
International cooperation	3.2	7
Total	47.8	100

Source: Academy of Finland

Funding decisions in 1996–2001



Research Council for Natural Sciences and Engineering in 2001

Support for internationally competitive and visible research

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

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

The fields of research within the purview of the Research Council for Natural Sciences and Engineering vary widely from the exact natural sciences and engineering to architecture, industrial design, production economics and further to biotechnology and environmental technology relating to these fields. Basic research within these disciplines creates a solid foundation for Finnish industry and social welfare. This has been a key consideration as the Council has allocated research funds to basic research and to the promotion of researcher training as well as to the development and reinforcement of creative research environments.

Most of the Council's support goes to electronics and electrical engineering, information technology, telecommunications and information processing sciences, all of which are crucial to the information industry, and on the other hand to chemistry and chemical technology as well as mathematics and physics, which are important to all the research fields hosted by the Council. In 2001 one research programme and two targeted calls were launched in fields related to the information industry, and funding was made available for researcher training and other purposes.

Continuing its efforts to encourage young people and women to take up careers in research, the Council published in the autumn



RESEARCH COUNCIL FOR NATURAL SCIENCES AND ENGINEERING:

BACK LEFT:

PROFESSOR JORMA KANGAS, PROFESSOR MARKKU KIVIKOSKI,
PROFESSOR MATS GYLLENBERG, PROFESSOR KARI-JOUKO RÄIHÄ,
PROFESSOR MARKKU TUOMINEN

FRONT LEFT:

DOCENT ULLA RUOTSALAINEN, DOCENT RIITTA KEISKI,
PROFESSOR PEKKA HAUTOJÄRVI, DOCENT KAISA NYBERG

ABSENT:

PROFESSOR IIRO HARTIMO, PROFESSOR MARJA-LIISA RIEKKOLA

a brochure introducing seven young researchers in different stages of their career.

The Council and the Research Unit together hosted several national and international seminars and meetings in 2001.

At the end of January the Council organised an invitational seminar on the development of three major global systems, i.e. materials, energy and information technology as well as their mutual interactions.

In May, during the visit to Finland of the Science Director of the European Space Agency (ESA), a seminar was arranged on Finnish space research. Finland has good cooperation with ESA's research projects and through bilateral agreements with national, especially French projects.

The first national neuroinformatics seminar was arranged in June. Closely related to such fields as bioinformatics and brain research, neuroinformatics is still a young discipline. The seminar was attended by both Finnish scientists

and foreign experts, who exchanged views most particularly on development needs within this field.

Research programmes and targeted calls

The standard of Finnish space research has risen steadily since the 1990s, chiefly as a result of internationalisation in the fields of both space research and technology. At the same time Finnish researchers and equipment manufacturers in the space industry have gained a prominent position in a number of major projects. The joint funding efforts of the Academy of Finland and the National Technology Agency Tekes have been paramount to this development.

Scheduled to run for three years, the Research Programme for Space Research (ANTARES) was launched in 2001 with funding from the Academy of Finland and Tekes. Both agencies will be spending EUR 4.2 million to support the programme, which chiefly involves

space science and remote sensing projects with close links to major ESA projects. In all the programme comprises 11 research projects.

In February the Council announced its decisions on the projects that will be taking part in the second phase of the Research Programme for Telecommunication Electronics (TELETRONICS). Via this programme the Academy also contributes to the EXSITE programme on wireless datacommunications technologies, which is jointly funded from Finnish and Swedish sources. The Academy has decided to support six Teletronics II projects, four of which are research consortia. Academy funding in 2001–2004 will amount to EUR 1.9 million. The EXSITE programme involves three research projects that the Academy is supporting with appropriations worth EUR 0.7 million

In November 2001 the Board of the Academy decided to launch in 2002 a research programme on Proactive Computing. Its aim is through new information technology applications to increase inter-

action between humans and the environment and ultimately to make people's everyday life easier, for instance by developing smart offices and microprocessor-controlled systems for drugs dosage adjustment. A total of EUR 5.7 million was earmarked for the programme in 2002–2005. An exploratory workshop was organised ahead of the launch of the programme where researchers and stakeholders exchanged views on what proactive computing is and how it should be developed. This is a multidisciplinary research programme that also involves the Research Council for Culture and Society and the Research Council for Health. It is jointly administered with Tekes. Another partner is the French Ministry of Science, with which the Council will be jointly issuing a call for applications.

The Council also launched a targeted call on the Methods and Tools for Software Development; funding for the three-year period from 2001 through to 2004 will amount to EUR 2.8 million. Applications were specifically invited from researchers and teams working in the middleware sector, i.e. in the middle ground between computer operating systems and end user software. Key themes include program architectures, program modelling, reuse and development environments.

Together with the Research Council for Culture and Society, the

Council issued a targeted call on the Production, Control and Use of Digital Data Resources.

The Research Council for Biosciences and Environment and the Research Council for Natural Sciences and Engineering together issued a targeted call on Antarctic Studies. During 2002–2005, funding for the eight projects in the programme will amount to EUR 1.4 million. The projects are concerned with studying the atmosphere, snow, ice and soil.

The Research Programme for Ecological Construction (EKORA, 1995–1999) was evaluated in October 2001. The report was published and a joint seminar for the various parties involved in the programme arranged in January 2002.

Launched in 1994 and completed in 2000, the Materials Research and Structures Research Programme (MATRA) was the first ever multidisciplinary programme supported by the Academy of Finland. Funding came from those councils that were responsible for the respective fields of research. MATRA also marked the beginning of funding cooperation with Tekes. The programme was evaluated in October by three foreign experts on the basis of the projects' self-assessments, overviews of their scientific results and interviews. The evaluation report was published in February 2002.

The first phase of the Teletronics programme (1998–2001) was

evaluated in November 2001.

Tekes' ETX and TLX technology programmes were evaluated at the same time by Technopolis Ltd and the VTT Technical Research Centre's Group for Technology Studies. The scientific evaluation of the projects was carried out by four international experts. The results of the evaluation were published in March 2002.

International activities

In its operation the Research Council stresses the importance of international contacts and aims to ensure that Finnish research in the fields of natural sciences and engineering is internationally both visible and competitive.

Published in May 2001, the evaluation report compiled by the Academy of Finland on the country's involvement in CERN (European Organisation for Nuclear Research) deals with the contributions of Finnish scientists to the organisation's work, industrial cooperation and the administration of CERN. Finland has had good success in CERN, both in terms of the research and more recently in the context of industrial cooperation, too. The report highlights the need for a more streamlined administration at CERN.

The Academy of Finland has appointed a working group charged with the responsibility to draft a proposal for a national

CERN strategy. The aim is to take better advantage of Finland's membership of CERN especially in research and researcher training and to promote cooperation between CERN and Finnish industry. Finland is the first of CERN's 20 member states that has carried out an evaluation of its national activities within the organisation.

The Council supported 19 European Science Foundation's (ESF) à la carte programmes and three standing expert committees. Representatives of ESF Member States continued work to prepare for the Eurocores programme Self-organised Nanostructures (SONS) that will be starting up in 2002. Projects in the multinational and multidisciplinary programme will be funded from national sources. The Council has decided to allocate a maximum of EUR 0.1 million to the programme.

The EISCAT Council organised its 2001 spring meeting in Helsinki and on that occasion visited the Academy of Finland. For more than 20 years now the European Incoherent Scatter Radar (EISCAT) has explored the ionosphere and significantly increased our understanding of phenomena in the upper levels of the atmosphere, such as aurora borealis.

The meeting of the Joint Committee of the Nordic Natural Science and Engineering Research Councils (NOS-N) in Riga in November decided on the launch in

2002 of a five-year Nordic Centre of Excellence Programme on a pilot basis. The programme will be funded by the Nordic Research Councils as well as by the Nordic Council of Ministers. Funding for the pilot programme will amount to at least EUR 1.3 million a year. The programme is focused on research on global change, especially ecosystem processes in climate change, atmospheric process and oceanographic processes. The secretariat is based at the Academy of Finland's Research Council for Natural Sciences and Engineering.

Council members representing physics and chemistry took part in the work of the European Union of Physics Research Organisations (EUPRO) and the Chairpersons and Directors of European Research Councils' Chemistry Committees (CERC3). Finnish delegates were elected to chair both these bodies in 2001–2002.

Working closely with the Research Unit, the Council has been actively involved in preparations of the European Research Area (ERA) and the Sixth EU Framework Programme for Research.

Research posts under the Research Council 31st December 2001

Academy Professors	11
Academy Research Fellows	68
Postdoctoral Researchers	13
Total	92

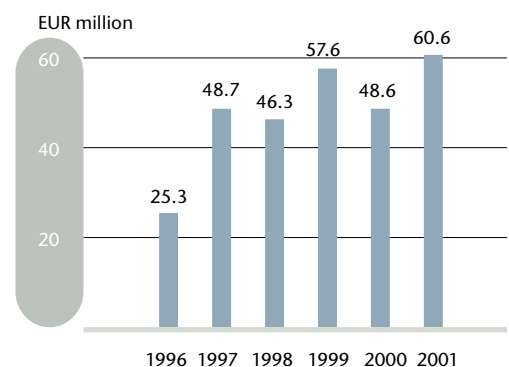
Source: Academy of Finland

Funding decisions in 2001

	EUR million	%
Research projects and other support	29.2	48
Research programmes and targeted calls	10.3	17
Research posts	4.6	7
Researcher training	5.9	10
International cooperation	10.6	18
Total	60.6	100

Source: Academy of Finland

Funding decisions in 1996–2001



Source: Academy of Finland

Research Council for Health in 2001

New types of joint research programmes

Fields of research hosted by the Research Council for Health:

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

Health research is aimed at increasing our knowledge and understanding about the human body and how it functions; about the causes, prevention and treatment of diseases; and about health promotion. The Research Council for Health is committed to strengthening the international status of Finnish health research and to developing the national innovation system. In addition, the Council works closely with other Research Councils and outside stakeholders towards the attainment of the Academy's strategic goals.

The Research Council launched the Health Promotion Research Programme and the targeted pharmaceutical call Drug 2000. It hosted exploratory workshops in preparation of future research programmes, conducted an evaluation of one research programme and applications for graduate school positions, contributed to the start-up of the new centre of excellence programme, chaired the Joint Committee of the Nordic Medical Research Councils (NOS-M) and hosted its secretariat, and worked to promote cooperation between national and international funding bodies and to prepare for the next EU Framework Programme for Research.

In August 2001 the Council organised two exploratory workshops. The workshop on Microbes and Man: Health, Nutrition and



RESEARCH COUNCIL FOR HEALTH:

BACK LEFT:

PROFESSOR TAINA PIHLAJANIEMI, PROFESSOR TIMO VESIKARI,
PROFESSOR EERO VUORIO, PROFESSOR MARKKU ALÉN,
PROFESSOR LARS-AXEL LINDNBERG, PROFESSOR HELENA LEINO-KILPI

FRONT LEFT:

SENIOR VICE PRESIDENT ESA HEINONEN, PROFESSOR PIIRJO PIETINEN,
PROFESSOR HILKKA SOININEN, PROFESSOR ELINA HEMMINKI,
PROFESSOR MARJA MAKAROW

the Environment was a joint, multi-disciplinary effort: the Council played a key coordinating role in the further elaboration of this project. The workshop on Health Care Research stressed the importance of closer cooperation between researchers, funding bodies and end users of research results, which will call for new strategies of action.

Work was also continued to promote discussions among biocentres, with which the Council has held talks on new development projects. The Council sends a representative to all regular meetings among biocentre directors. In November a consensus meeting was arranged with the Finnish Medical Association Duodecim on the subject of schoolchildren's health.

The Council seeks to promote professional careers in research through development projects in veterinary science and psychiatric research as well as in clinical research. In both these areas post-

doctoral researchers are encouraged to continue their studies in foreign countries. In spring 2001 the Council commissioned statements on the memorandum compiled by the Clinical Research Career Working Group and on that basis has planned support measures for clinical research.

The Council has continued to support researchers working abroad as well as those returning home. In order to receive a grant for work abroad, researchers must have completed their doctorate and also secured other funding (preferably from the host organisation).

One of the key considerations in filling the posts of Academy Research Fellow has been to promote professional research careers among young scientists. Appropriations were allocated to graduate schools, to the organisation of national courses and to cover doctoral students' congress travel costs.

The Council has continued

work to improve the operation of its expert panels and in the review process intends to use foreign experts more often. The performance of projects completed was evaluated in connection with reviews of new funding applications, and new procedures were developed for the inspection, approval and utilisation of final project reports.

Research programmes and targeted calls

The challenge of achieving and maintaining high international standards of research requires an ability to identify development needs in time and a preparedness to allocate resources to new areas. In order that the steps taken should have sufficient impact, funding bodies must get together to create a common agenda with common objectives. New types of joint research programmes are good examples of this new kind of cooperation.

The Academy and the National Technology Agency Tekes have worked together in an attempt to identify key areas of research for future programmes and to get the timing of those programmes right. In autumn 2001 the Council and Tekes' Bio- and Chemical Technology Unit together hosted a meeting that discussed the future of joint research programmes.

The Health Promotion Research Programme that was started up in 2001 is coordinated by the Cancer Society of Finland. The programme is quite unique in its scope and coverage. From the very outset its aim has been to achieve high international visibility and cooperation. The programme's international panel of experts also had specific suggestions to the coordinating body with regard to how its results could be used. Total funding for the programme amounts to around EUR 5.4 million

The Academy took part in the Tekes' pharmaceutical programme Drug 2000 by launching a targeted call of its own; the projects started up in spring 2001. The main focus in the programme is on biomedicine, drugs development and pharmaceutical technology. The projects that the Academy is supporting with grants worth EUR 3.8 million will benefit from the programme coordination that are funded by Tekes and also from the researcher meetings that will be arranged during the programme.

The Research Programme on Health and Other Welfare Differences between Population Groups (TERO) was evaluated in spring 2001. The evaluation report sets out some useful proposals for the development of planning, funding and coordination.

In connection with preparations for research programmes and international funding cooperation, the Council's Chair visited in December the Swedish Strategic Fund in Stockholm and the Council for Medical and Health Research of the Netherlands Organisation for Scientific Research (NWO) in the Hague. Towards the end of the year an Academy delegation visited the Medical Research Council in London.

International activities

Finnish researchers in the fields of health and life sciences have been extremely successful with their applications for funding through the Fifth EU Framework Programme. The Health Research Unit has been responsible for the national coordination of the Quality of Life and Management of Living Resources Programme.

In the Sixth Framework Programme the Council is mainly interested in the theme of biotechnology which ties in closely with genome research and health. The Academy's and Tekes' joint programmes have established a solid

foundation for participation in these fields. The Council has carefully prepared for the Sixth Framework Programme and for the introduction of the European Research Area (ERA).

The Council's Chair is in charge of the EU Genome Research Managers Forum. In this connection Finland is responsible for coordinating the COGENE project which is aimed at increasing awareness of national programmes in genome research and at promoting cooperation between the research programmes and the funding bodies. The Academy of Finland will be responsible for implementation of this project, which opens up significant opportunities for the promotion of cooperation among national research programmes during the Sixth Framework Programme

In addition, a Council delegate has taken part in the European Cancer Forum which is supported by the EU Commission. The purpose of the forum is to promote coordination of European cancer research, particularly its funding.

The Council has contributed to preparations for the EU project European Clinical Trials Platform. The project is concerned with contagious diseases related to poverty and aims to support research in this field in a joint EU effort.

The Council has provided funding to support cooperation between Finnish graduate schools and

the European Molecular Biology Laboratory's (EMBL) PhD programme, which has been run by one of the Council's members. Two Finnish scientists were elected to take part in the European Molecular Biology Organisation's (EMBO) Young Investigator Programme, and the Council awarded to both a Young Investigator Award.

The European Science Foundation (ESF) and its Standing Committee of the European Medical Research Councils (EMRC) are important channels in the effort to steer EU research policy and to strengthen European research cooperation. EMRC aims to support networking among researchers initially through exploratory workshops, later through focused networks and programmes.

The Chair of the Research Council has also chaired the Joint Committee of the Nordic Medical Research Councils (NOS-M), while the Health Research Unit has hosted the NOS-M secretariat as from the beginning of 2001. It is the Council's strategy to invest in the development of NOS-M as a joint forum for funding organisations. Nordic cooperation can play a valuable part in the promotion of the European Research Area.

The Academy has had good cooperation with the Council for Medical and Health Research of the Netherlands Organization for Scientific Research (NWO) since 1997, both in the area of project evalu-

ation and decision-making. This has provided a solid platform for even broader cooperation in line with the objectives of the ERA.

Researchers involved in the US National Institutes of Health (NIH) Fellowship Programme have been praised by NIH and the scientists have made excellent progress with their careers. However, the number of applications has been dropping and discussions are needed on whether it makes sense to continue this cooperation in its present form. The targeted programme on Type 1 Diabetes established a new form of funding cooperation, with the others partners involved including the Juvenile Diabetes Research Foundation (JDRF) and the Sigrid Jusélius Foundation Finland.

Research cooperation between Finland and Taiwan made significant advances during 2001, which saw two Finnish-Taiwanese research seminars arranged in Finland.

Research posts under the Research Council 31st December 2001

Academy Professors	8
Academy Research Fellows	50
Postdoctoral Researchers	15
Total	73

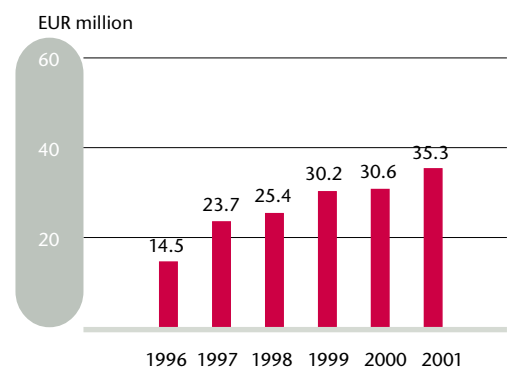
Source: Academy of Finland

Funding decisions in 2001

	EUR million	%
Research projects and other support	18.9	53
Research programmes and targeted calls	7.2	20
Research posts	3.9	11
Researcher training	3.4	10
International cooperation	1.9	6
Total	35.3	100

Source: Academy of Finland

Funding decisions in 1996–2001



Source: Academy of Finland

Resumé français

L'Académie de Finlande en l'an 2001

La connaissance et le savoir-faire, basés sur la recherche et la formation sont des objectifs de développement nationaux en Finlande. On considère qu'ils représentent des facteurs primordiaux pour la croissance économique, l'emploi et la prospérité sociale. La Finlande fait partie du peloton de tête lorsque l'on mesure la part des activités de recherche et de développement par rapport au produit national brut. Cette part est estimée à 3,6 pour cent pour l'année 2001.

L'initiative de l'Union européenne sur une zone de recherche européenne (ERA) se base sur la pensée d'une coopération internationale de haut niveau, transparente et efficace. L'objectif consiste, grâce à des moyens communs et coordonnés, à élever la qualité de la recherche, à soutenir l'économie, à favoriser l'emploi et à améliorer la qualité de vie. La Finlande a participé activement à la recherche de solutions et en a tiré la conclusion que les éléments décisifs pour atteindre ces objectifs sont une mise en réseau des programmes de recherche nationaux ainsi qu'une ouverture de réciprocité avec les chercheurs des autres pays.

La Finlande a obtenu d'excellents résultats dans différentes études comparatives publiées durant 2001 concernant autant la compétitivité que la politique en matière de recherche. Le rapport, publié par la Commission européenne dans l'été 2001, considère que la Finlande dispose, au même rang que la Suède, de la meilleure politique en matière de recherche. L'étude portait sur 35 pays, dont les pays de l'UE, le Japon et les États-Unis.

Le développement du système de la recherche en Finlande s'est poursuivi, conformément aux lignes exposées dans le programme du Conseil des ministres. Les plus importantes sont : le maintien d'un haut niveau de financement du travail de recherche et de développement à l'échelle mondiale, le soutien à la recherche de haut niveau diversifiée et capable de se renouveler, ainsi que l'amélioration de la compétitivité des environnements de recherche finlandais. La garantie de la longévité du système de recherche, la place des jeunes chercheurs et des femmes chercheurs, ainsi que l'internationalisation font partie des défis importants de la politique scientifique.

Politique d'action

L'Académie de Finlande est une organisation d'experts pour le financement de la recherche scientifique. L'Académie a pour tâche de promouvoir la recherche scientifique de haut niveau par un financement à long terme de la recherche basée sur une qualité scientifique, par des évaluations sérieuses, par une expertise en politique scientifique et par une collaboration internationale polyvalente.

La recherche de base, polyvalente et de haut niveau, financée par l'Académie, donne naissance à de nouvelles connaissances au profit de la culture, de la prospérité et de l'économie.

Les activités de l'Académie recouvrent tous les domaines de la science. Elle dépend du Ministère de l'Éducation et reçoit son financement par le biais du budget de

l'État. En 2001, environ 14% du financement public de la recherche est passé par l'Académie.

Le principal axe de travail des actions de développement de politique scientifique de l'Académie repose sur un développement diversifié des possibilités de carrière des chercheurs professionnels - en particulier des femmes et des jeunes -, sur la création de conditions d'environnement de recherche de haut niveau et la mise à profit des possibilités de coopération globale dans tous les domaines de la recherche, du financement de la recherche et de la politique scientifique.

L'Académie dispose de plusieurs modes de financement pour différents objectifs. Elle finance, entre autres, les projets de recherche, les programmes de recherche, les programmes des centres d'excellence, les postes de professeur d'Académie et de chercheur d'Académie, la formation des chercheurs, ainsi que la coopération internationale.

Outre le financement de la recherche, l'Académie procède à une évaluation de l'état et du niveau de la recherche finlandaise ainsi que de domaines scientifiques particuliers, rédige des rapports et des prises de position dans le cadre de la politique scientifique, fait connaître la science au grand public et propose les candidats à la nomination du titre honorifique d'Académicien au Président de la République.

Organisation

Le savoir-faire de l'Académie de Finlande naît des efforts conjugués du conseil d'administration, des comités scientifiques, des autres experts

scientifiques et du service administratif. Un nouveau conseil d'administration et de nouveaux comités scientifiques ont entamé leur mandat de trois ans début 2001.

L'organe décisionnel suprême est le conseil d'administration, composé de sept personnes qui répondent de la ligne de politique scientifique de l'Académie, ainsi que de la répartition des fonds de financement aux comités scientifiques et aux divisions.

L'Académie de Finlande comporte quatre comités scientifiques : le Comité des Biosciences et de l'Environnement, le Comité de la Culture et des Sciences Sociales, le Comité des Sciences Naturelles et de la Technologie ainsi que le Comité de la Santé. Les comités scientifiques, composés de onze membres, décident du financement de la recherche dans leur propre domaine et font office d'experts dans les questions de politique scientifique.

Les divisions prennent les décisions de financement relatives à deux ou plusieurs comités scientifiques.

Les décisions de financement prises par l'Académie se basent sur une estimation scientifique du plan de recherche et du candidat. Pour le choix des projets à financer, on utilise également des experts, nationaux et internationaux, externes à l'Académie, eux-mêmes spécialistes reconnus dans leur domaine.

Le service administratif gère et développe l'administration de l'Académie. Il prépare et présente les sujets à débattre au conseil d'administration et dans les comités et veille à la mise en place des décisions. Les employés du service

administratif rédigent différents rapports et plans de politique scientifique.

À la fin de 2001, 133 personnes travaillaient au sein du service administratif.

Les jalons de l'année écoulée

183,7 MILLION D'EUROS POUR LA RECHERCHE DE HAUT NIVEAU

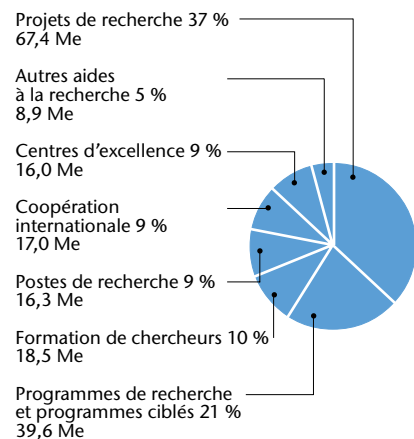
L'Académie de Finlande a accordé des financements à hauteur de 183,7 millions d'euros. Les projets de recherche individuels présentés par les équipes de recherche et les chercheurs isolés, n'étant pas liés aux programmes de recherche par exemple, ont reçu la part la plus importante du financement. Environ 5 000 personnes travaillaient sur les projets de recherche financés par l'Académie en 2001.

PLUS DE 300 TITULAIRES DE POSTES DE RECHERCHE

L'Académie a pour ambition de renforcer et d'asseoir le système de carrière de chercheur professionnel et d'améliorer les conditions de la formation de chercheur en développant son système de postes de recherche. Fin 2001, l'Académie comptait 316 chercheurs en poste: 37 professeurs d'Académie, 224 chercheurs d'Académie et 55 chercheurs post-doctoraux.

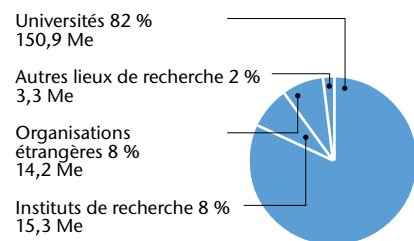
Tous les comités scientifiques ont nommé plus de femmes aux postes de chercheurs qu'était leur part de tous les candidats. Les femmes occupaient 36 % des postes de chercheurs de l'Académie fin 2001.

Répartition du financement de la recherche par l'Académie de Finlande en 2001 par mode de financement, au total 183,7 millions d'euros



Source: L'Académie de Finlande

Répartition du financement de la recherche par l'Académie de Finlande en 2001, par lieu de recherche, au total 183,7 millions d'euros



Source: L'Académie de Finlande

Les chiffres comprennent aussi les dépenses de postes de recherche converties en euros.

SEIZE NOUVEAUX CENTRES D'EXCELLENCE

Le programme de centres d'excellence de la recherche nationale est une forme de financement par laquelle l'Académie encourage la naissance et le développement d'environnements de recherche créatifs. Un centre d'excellence peut être choisi à partir d'un ou de plusieurs groupes de recherche de haut niveau qui vont former une unité de recherche et une unité de formation de chercheurs. Cette unité se situe dans les premiers rangs au niveau international.

En juin 2001, l'Académie a choisi 16 nouveaux centres d'excellence pour les années 2002-2007. Le nouveau programme de centres d'excellence comporte plus d'unités qu'auparavant, composées de groupes de recherche exerçant dans plusieurs localités.

Début 2002, on compte en Finlande 42 centres d'excellence. La précédente décision sur les centres d'excellence remonte à 1999, date à laquelle 26 unités de différents domaines scientifiques ont été choisies pour les années 2000-2005.

NOUVEAUX PROGRAMMES DE RECHERCHE

Les programmes de recherche et les programmes ciblés sont un autre moyen important par lequel l'Académie apporte son soutien à des environnements de recherche créatifs. Un programme de recherche est composé de plusieurs projets liés les uns aux autres, ciblés dans le même domaine. Le but de ces programmes consiste à mettre en réseau les capacités de recherche dispersées et à créer des relations de collaboration d'un nouveau type, ainsi que de promouvoir la formation de chercheur et l'internationalisation de la recherche.

lisation de la recherche.

L'Académie avait 23 programmes de recherche, dont cinq qui ont démarré en 2001. L'Académie a également décidé de quatre nouveaux programmes qui démarrent en 2002.

SOUTIEN À LA MOBILITÉ INTERNATIONALE DES CHERCHEURS

L'Académie de Finlande contribue à la mobilité internationale des chercheurs de maintes façons. La mobilité des chercheurs est financée par l'Académie dans le contexte général du financement de la recherche, mais également par le biais de bourse pour la formation de chercheur et le travail à l'étranger.

L'un des modes de financement est l'attribution individuelle d'une bourse pour échange de chercheurs. En 2001, l'Académie disposait d'un contrat d'échange de chercheurs avec 37 organisations coopérantes dans 25 pays et zones différents. Il existe aussi une coopération d'échange de chercheurs avec deux organismes de financement de la recherche étrangers.

L'Académie apporte son soutien à la participation des chercheurs finlandais à la coopération scientifique internationale, notamment en payant les frais de recherche et d'adhésion aux organisations des pays nordiques, à la Fondation Européenne de la Science, à l'Organisation Européenne pour la Recherche Nucléaire et aux autres organisations.

Des pages Internet en anglais ont été ouvertes en 2001 sur le site de l'Académie, présentant aux chercheurs les possibilités de financement international et de coopération.

DÉVELOPPEMENT DE LA COLLABORATION INTERNATIONALE EN MATIÈRE DE FINANCEMENT

L'Académie a élargi sa coopération avec les autres partenaires assurant le financement, particulièrement en ce qui concerne le financement des programmes de recherche, des programmes ciblés et des programmes de centres d'excellence.

Concernant les programmes de recherche en cours et les programmes ciblés, l'Académie a collaboré avec 24 organismes de financement nationaux et étrangers. Les partenaires représentaient, entre autres, différents ministères, d'autres organismes de financement public, des fondations ainsi que des organismes de financement privés et internationaux.

L'Académie de Finlande et Tekes (Agence Nationale pour le Développement Technologique) collaborent étroitement dans le domaine du financement de la recherche ainsi que dans les tâches d'expert de la recherche et de financement de la recherche. En 2001, l'Académie et Tekes comptaient 12 projets de recherche cofinancés.

Les ministres de l'éducation et de la recherche des pays nordiques ont passé un accord pour la phase pilote d'un programme nordique commun de centres d'excellence. L'Académie a étroitement participé au développement du programme. L'objectif de ce programme consiste à améliorer la qualité de la recherche nordique ainsi que sa visibilité internationale. Le programme de centres d'excellence permettra aussi d'augmenter les échanges de chercheurs et l'interpénétration des domaines scientifiques.

Le contrat signé avec la Chine à propos du programme de centres d'excellence est un exemple de la collaboration internationale la plus récente de l'Académie en matière de financement.

LE PLAN D'ÉGALITÉ EST ENTRÉ EN VIGUEUR

Un groupe de travail sur l'égalité fait partie intégrante du service administratif de l'Académie de Finlande depuis le début de l'année 2001. Ce groupe de travail veille à la mise en place du plan d'égalité adopté fin 2000 par l'Académie. Conformément à ce plan, le sexe minoritaire doit disposer d'une représentation d'au moins 40 pour cent dans les postes de recherche, les tâches d'experts et les groupes de travail financés par l'Académie.

LA CARTE D'IDENTITÉ ÉLECTRONIQUE PEUT DÉSORMAIS ÊTRE UTILISÉE

Tous les dossiers ont pu être présentés sous forme électronique. Au lieu de remplir un formulaire, de le copier et de le poster, le chercheur peut maintenant faire sa demande de financement ou présenter son rapport d'avancement de ses recherches de manière électronique en ligne. L'utilisation des services électroniques s'est trouvée améliorée par l'utilisation de la carte d'identité électronique. La carte d'identité électronique est la clé en ligne permettant d'identifier les individus sur les sites exigeants une telle reconnaissance.

LE PANORAMA DE LA SCIENCE A PRÉSENTÉ LA RECHERCHE CULTURELLE ET SOCIALE

Le thème du panorama de la science 'Culture 2001', présenté sur tout le territoire national, était "Finlande multiculturelle". L'Académie a

été responsable de la coordination du panorama, en collaboration avec 34 autres organismes. Durant l'année, plus de 70 manifestations ont contribué à promouvoir la recherche culturelle et sociale auprès des lycéens, des chercheurs potentiels, des personnes influentes de la vie économique, des décideurs et des organismes de financement de la recherche. Ces manifestations ont été organisées dans les universités, les instituts et les organisations de recherche de la branche.

L'Académie a organisé la manifestation principale du panorama de la science sur une durée de trois jours, avec pour thème «L'individu, la culture en mouvement, la nouvelle technologie» fin septembre au centre médiatique Lume à Helsinki.

RÉCOMPENSE DES TROISIÈMES VIKSU

Mademoiselle Essi Kainonen de Turku a remporté le premier prix du concours scientifique pour lycéens, Viksu, organisé pour la troisième fois. Cent vingt-deux travaux en tout ont été présentés au concours et dix d'entre eux ont été récompensés.

ARTO SALOMAA, MATHÉMATICIEN, ACADÉMICIEN SCIENTIFIQUE

Madame la Présidente de la République, Tarja Halonen a décerné le titre honorifique d'académicien scientifique à Monsieur le professeur émérite d'Académie Arto Salomaa au mois de septembre à Helsinki.

PARTICIPATION ACTIVE À LA POLITIQUE SCIENTIFIQUE INTERNATIONALE

L'Académie de Finlande a pris une participation active au travail de développement international de la politique scientifique et de la recherche. Les experts de l'Académie ont participé aux activités de dizai-

nes de groupes de travail à l'intérieur de l'UE, au sein de la Fondation Européenne de la Science ainsi que dans de nombreux organismes nordiques et internationaux.

L'organe de coopération des directeurs des organismes de financement public de la recherche des pays de l'UE, EUROHORCs a tenu sa réunion à Helsinki. Durant l'assemblée générale, ont été abordés les sujets touchant à la zone de recherche européenne ERA ainsi qu'au sixième programme-cadre. Le directeur général de l'Académie préside l'EUROHORCs.

La Commission de l'UE a nommé le directeur général de l'Académie ainsi qu'un autre membre finlandais au Conseil scientifique européen (EURAB European Research Advisory Board) pour les trois prochaines années. L'EURAB est un organe de conseil dans les matières relatives à la conception et à la mise en place de la recherche et de la politique technologique de l'UE.

L'Académie de Finlande, Tekes ainsi que NISTEP (une organisation japonaise d'évaluation et de prévisions technologiques) ont signé en octobre un contrat de coopération. Sitra (Fonds National Finlandais pour la Recherche et le Développement), VTT (Centre national de la recherche technique) et Université de Technologie de Helsinki participent également à la coopération.

L'Académie était présente à la réunion de lancement du nouveau forum de coopération de la communication scientifique European Science Events Associations (EUSCEA) en décembre à Vienne.

Board and Research Council members of the Academy of Finland in 2001

Board

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National Research and Development Centre for Welfare and Health, Stakes

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Culture and Society**

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Arto Mustajoki, Professor
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Juha Sihvola, Professor
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Kari-Jouko Rähö, Professor
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Lappeenranta University of Technology

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Eero Vuorio, Professor
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Centre for Welfare and Health, Stakes

Helena Leino-Kilpi, Professor
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University of Helsinki

Marja Makarow, Professor
University of Helsinki

Pirjo Pietinen, Professor
WHO / National Public Health Institute

Taina Pihlajaniemi, Professor
University of Oulu

Hilkka Soininen, Professor
University of Kuopio

Timo Vesikari, Professor
University of Tampere

Funding decisions of the Academy of Finland in 2001 by site of research *

	EUR million	2001 %	2000 %	1999 %
Universities	149.0	81.1	80.9	84.8
Helsinki School of Economics and Business Administration	1.9	1.1	0.6	0.7
University of Helsinki	51.0	27.7	30.2	25.8
University of Joensuu	5.4	2.9	3.1	3.3
University of Jyväskylä	10.6	5.7	4.3	7.1
University of Kuopio	5.8	3.2	4.0	3.5
University of Lapland	1.0	0.5	0.6	1.0
Lappeenranta University of Technology	0.9	0.5	0.8	0.7
University of Oulu	13.5	7.3	6.9	7.5
Sibelius Academy	0.0	0.0	0.2	0.1
Swedish School of Economics and Business Administration	1.9	1.1	0.5	0.1
University of Art and Design Helsinki	0.0	0.0	0.1	0.2
Tampere University of Technology	5.4	2.9	3.3	4.7
University of Tampere	11.3	6.1	5.5	4.6
Theatre Academy	0.3	0.2	0.0	0.0
Helsinki University of Technology	13.9	7.6	7.4	10.9
Turku School of Economics and Business Administration	1.7	0.9	0.0	0.6
University of Turku	18.0	9.8	10.6	10.1
University of Vaasa	0.3	0.2	0.0	0.0
Åbo Akademi University	6.2	3.4	2.6	3.7
University hospitals	1.9	1.1	0.8	0.1
Research institutes	15.3	8.3	6.7	5.2
Other sites of research	3.3	1.8	2.3	2.0
Foreign organisations	14.2	7.7	9.3	7.8
Total	183.7	100.0	100.0	100.0

* The figures also include the costs of research posts, converted into euros.

** The figure includes the CERN membership dues (p. 45).

Funding decisions of the Academy of Finland in 2001, by field of research *

	EUR million	2001 %	2000 %	1999 %
Humanities	19.1	10.4	11.9	10.0
Philosophy	2.2	1.2	1.4	1.1
History and archaeology	5.5	3.0	2.7	2.3
Philology and linguistics	5.3	2.9	2.1	2.7
Cultures research	1.5	0.8	2.0	1.3
Aesthetic fields research and literature	2.6	1.4	2.3	1,4.9
Theology	2.0	1.1	1.3	1.3
Natural sciences	77.5	42.2	42.6	43.0
Space research and astronomy	2.3	1.3	0.4	0.3
Biology, environmental sciences	27.9	15.3	19.1	18.1
Physics**	21.4	11.6	12.6	13.2
Geosciences, meteorology	3.6	1.9	0.9	1.7
Chemistry	7.7	4.2	2.9	3.4
Geography	0.6	0.3	0.4	0.7
Mathematics	5.0	2.7	4.1	2.3
Information processing science	9.0	4.9	2.1	3.3
Medicine and health sciences	32.8	17.8	17.5	19.0
Biomedicine	13.1	7.1	7.9	9.0
Veterinary medicine	0.5	0.3	0.1	0.2
Pharmacy	1.5	0.8	0.2	0.7
Dental science	0.4	0.2	0.1	0.2
Nursing science	0.0	0.0	0.2	0.2
Public health science	7.9	4.3	2.7	2.7
Clinical medicine	9.1	4.9	5.9	5.8
Sports sciences	0.1	0.0	0.2	0.0
Nutrition science	0.2	0.1	0.1	0.0
Agriculture and forestry	5.8	3.1	2.3	2.5
Agricultural sciences, food sciences	0.5	0.2	0.2	0.4
Forest sciences	5.3	2.9	2.1	2.0
Engineering	19.0	10.4	10.4	12.5
Architecture	0.9	0.5	0.0	0.3
Biotechnology and food engineering	0.9	0.5	0.6	1.0
Energy technology	0.0	0.0	0.1	0.3
Mechanical engineering	0.9	0.5	2.1	0.7
Metallurgy and extractive engineering	0.4	0.2	0.2	1.2
Other engineering	1.2	0.6	0.6	0.8
Process and materials technology	3.6	2.0	0.5	0.9
Wood processing technology	0.1	0.1	0.2	0.3
Construction engineering, community planning and municipal engineering	0.7	0.4	0.4	0.4
Electronical engineering	9.6	5.2	5.0	6.0
Chemical engineering and chemical process technology	0.7	0.4	0.7	0.7
Social sciences	29.5	16.1	15.4	13.1
Economics	2.3	1.2	1.1	1.2
Education	2.1	1.2	1.8	1.9
Business economics, economic geography	6.1	3.3	0.9	0.8
Law	3.7	2.0	1.9	1.1
Psychology	4.0	2.2	1.9	2.4
Social science	6.9	3.7	5.4	3.4
Statistics	0.1	0.1	0.3	0.1
Political science and administration	3.4	1.9	1.5	1.1
Communication, library science and information science	0.9	0.5	0.5	1.3
Total	183.7	100.0	100.0	100.0

Academicians in 2001

On the proposal of the Academy of Finland, the President of the Republic of Finland may grant the honorary title of Academician to a highly distinguished Finnish or foreign scientist or scholar. The title of Academician may be held simultaneously by no more than twelve Finnish scientists or scholars. The number of foreign holders of the Finnish title of Academician is not limited.

Finnish holders of the honorary title of Academician

Erik Allardt
Albert de la Chapelle
Nils Erik Enkvist
Olavi Granö
Pekka Jauho
Eino Jutikkala
Teuvo Kohonen
Olli Lehto
Olli V. Lounasmaa
Jorma K. Miettinen
Arto Salomaa
Nils Westermarck (d. 17 March 2002)

Foreign holders of the honorary title of Academician

Johannes Andenaes, Norway
Sir Arnold Burgen, Great Britain
Alfred W. Crosby, USA
Ludvig Dmitrievich Faddeyev, Russia
Hans Fromm, Germany
Péter Hajdú, Hungary
Bengt Hultqvist, Sweden
Torsten Hägerstrand, Sweden
Ancel Keys, USA
Leon Lederman, USA
Yuri Ivanovich Marchuk, Russia
Sanjit K. Mitra, USA
Martha Nussbaum, USA
Birgitta Odén, Sweden
Richard Peto, Great Britain
Lennart Philipson, Sweden
Darwin J. Prockop, USA
Stig Strömholm, Sweden
Richard Villems, Estonia

Retired from the post of Academician

Georg Henrik von Wright

Academy Professors in 2001

Helena Aksela
1 Aug. 2001–31 Jul. 2006
Electron Spectroscopy and Structure of Atoms and Molecules Using Sychrotron Radiation Measurements and 'ab initio' Calculations
University of Oulu

Rauno Alatalo
1 Aug. 1997–31 Jul. 2002
Evolutionary Ecology
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. 2003
Dynamics and Signaling in Photosystem II
University of Turku

Jaakko Astola
1 Aug. 2001–31 Jul. 2006
Signal Processing Algorithm Group
Tampere University of Technology

Auli Hakulinen
1 Aug. 2001–31 Jul. 2004
Finnish Reference Grammar
University of Helsinki

Ilkka Hanski
1 Aug. 1996–31 Jul. 2006
Metapopulation Biology
University of Helsinki

Riitta Hari
1 Aug. 1999–31 Jul. 2004
Human Cortical Functions:
Neuromagnetic Approach
Helsinki University of Technology

Erkki Haukioja
1 Aug. 2000–31 Jul. 2005
Evolutionary-ecological Effects of Atmospheric Pollution
University of Turku

Bjarne Holmblom
1 Aug. 1998–31 Jul. 2003
Towards Molecular-level Understanding of Papermaking
Åbo Akademi University

Seppo Honkapohja
1 Aug. 2000–31 Jul. 2005
Learning Behaviour and Other Topics in Macroeconomics
University of Helsinki

Sirpa Jalkanen
1 Aug. 1996–31 Jul. 2006
Mechanism Controlling Cell Traffic in Malignancies and Inflammations
University of Turku

Kai Kaila
1 Aug. 1996–31 Jul. 2006
GABA Ergic Transmission: Mechanisms Underlying Neuronal Communication, Development and Pathophysiology
University of Helsinki

Kimmo Kaski
1 Aug. 1996–31 Jul. 2006
Computational Science and Engineering
Helsinki University of Technology

Seppo Kellomäki
1 Aug. 2001–31 Jul. 2006
Dynamics and Modelling of the Functioning and Structure of Forest Ecosystem with Implications for the Sustainability of the Forest Production and Climate Change Impacts
University of Joensuu

Kari Kivirikko
1976–1983 and
as from 1 Sept. 1988 with tenure
Molecular Biology of Collagens and Enzymes of Collagen Biosynthesis
University of Oulu

Simo Knuuttila
1 Aug. 1994–31 Jul. 2004
Studies in Philosophy of Religion
University of Helsinki

- Matti Krusius
1 Aug. 1999–31 Jul. 2004
Topological Objects in Quantum Fluids
Helsinki University of Technology
- Antti Kupiainen
1 Aug. 1999–31 Jul. 2004
Extended Dynamical Systems
University of Helsinki
- Ismo Lindell
1 Aug. 1996–31 Jul. 2001
Development of Theoretical and
Numerical Methods in Electro-
magnetics
Helsinki University of Technology
- Risto Nieminen
1 Aug. 1997–31 Jul. 2002
Computational and Theoretical
Materials Physics
Helsinki University of Technology
- Risto Näätänen
1983–1998 and
as from 1 Aug. 1998 with tenure
Cognitive Function and its Neural Basis
University of Helsinki
- Erkki Oja
1 Aug. 2000–31 Jul. 2005
New Information Processing Principles
Helsinki University of Technology
- Kari Palonen
1 Aug. 1998–31 Jul. 2003
Polity, Contingency and Conceptual
Change
University of Jyväskylä
- Tapio Palva
1 Aug. 1999–31 Jul. 2004
Molecular Analysis of Adaptive
Responses on Plants
University of Helsinki
- Jukka Pekola
1 Aug. 2000–31 Jul. 2005
Fabrication and Sensor Applications of
Nanostructures
University of Jyväskylä
- Lea Pulkkinen
1 Aug. 1996–31 Jul. 2001
Social Development and Its Risk Factors
University of Jyväskylä
- Elianne Riska
1 Aug. 1997–31 Jul. 2002
Sociology of Health and Profession
Sociology
Åbo Akademi University
- Heikki Räisänen
1 Aug. 2001–31 Jul. 2006
Christianity in the Making:
An Alternative to ‘New Testament
Theology’ from the Perspective of
Religious Studies
University of Helsinki
- Yrjö Sepänmaa
1 Aug. 2000–31 Jul. 2005
The Theory and Practice of Applied
Environmental Aesthetics
University of Joensuu
- Anna-Leena Siikala
1 Aug. 1999–31 Jul. 2004
Myths, History, Society:
National Traditions in Global World
University of Helsinki
- Kaarina Sivonen
1 Aug. 2000–31 Jul. 2005
Cyanobacteria and Their Bioactive
Compounds
University of Helsinki
- Irma Thesleff
1 Aug. 1998–31 Jul. 2003
Molecular Regulation of Tooth
Development
University of Helsinki
- Jaakko Tuomilehto
1 Aug. 2000–31 Jul. 2005
Epidemiology and Genetics of Diabetes
and Rheumatoid Arthritis in Finland
National Public Health Institute
- Pertti Törmälä
1 Aug. 1995–31 Jul. 2005
Studies of Biodegradable Polymer
Materials and Composites
Tampere University of Technology
- Esko Ukkonen
1 Aug. 1999–31 Jul. 2004
Pattern Matching and Machine
Learning – Algorithms and
Biocomputing Applications
University of Helsinki
- Ulla Vuorela
1 Aug. 1999–31 Jul. 2004
Minna Canth Academy Professorship
(Women Studies and Gender Equality)
The Rich, the Poor and the Resourceful.
Gender and Development in
Postcolonialist Context
University of Tampere
- Mårten Wikström
1 Aug. 1996–31 Jul. 2006
The Catalysts of Cell Respiration –
Molecular Dynamics, Structure and
Pathophysiology
University of Helsinki
- Hannele Yki-Järvinen
1 Aug. 1995–31 Jul. 2005
Mechanisms of Glucose Toxicity
University of Helsinki
- Heikki Ylikangas
1 Aug. 1996–31 Jul. 2001
The History of Crime
University of Helsinki

Academy of Finland research programmes in 2001

Ageing (2000–2002)
 Biodiversity, FIBRE (1997–2002)
 Biological Functions, Life 2000 (2000–2003)
 Cell Biology, SOLU (1998–2001)
 Economic Crisis of the 1990s: Reasons, Events and Consequences, LAMA (1998–2001)
 Electronic Materials and Microsystems, EMMA (1999–2002)
 Environment and Health, SYTTY (1998–2001)
 Finnish Companies and the Challenge of Globalisation, LIIKE (2001–2004)
 Future Mechanical Engineering, TUKEVA (2000–2003)
 Global Change, FIGARE (1999–2002)
 Health Promotion, TERVE (2001–2004)
 Information Research Programme, TIETO (1996–2001)
 Interaction across the Gulf of Bothnia (2000–2003)
 Marginalisation, Inequality and Ethnic Relations in Finland, SYREENI (2000–2003)
 Material Science of Forest-based Products, WOOD WISDOM (1998–2001)
 Mathematical Methods and Modelling in the Sciences, MaDaMe (2000–2003)
 Media Culture, MEDIA (1999–2002)
 Process Technology, PROTEK (1999–2002)
 Space Research, ANTARES (2001–2004)
 Structural Biology, RAKBIO (2000–2002)
 Sustainable Use of Natural Resources, SUNARE (2001–2004)
 Telecommunication Electronics, TELETRONICS (1997–2003)
 Urban Studies, URBS (1998–2001)

Preparations were made in 2001 for the following research programmes to be started in 2002

Baltic Sea (BIREME)
 Life as Learning (LEARN)
 Microbes and Man (MICMAN)
 Proactive Computing (PROACT)

Centres of excellence in research in 2001

The Academy of Finland has nominated 26 centres to the centre of excellence programme for 2000–2005.

Ancient and Medieval Greek Documents, Archives and Libraries
 University of Helsinki,
 Professor Jaakko Frösén

Cell Surface Receptors in Inflammation and Malignancies
 University of Turku,
 Academy Professor Sirpa Jalkanen

Center for Activity Theory and Developmental Work Research
 University of Helsinki,
 Professor Yrjö Engeström

Centre of Excellence in Disease Genetics
 National Public Health Institute,
 Professor Leena Peltonen-Palotie

Computational Condensed-matter and Complex Materials Research Unit
 Helsinki University of Technology,
 Academy Professor Risto Nieminen

Evolutionary Ecology
 University of Jyväskylä,
 Academy Professor Rauno Alatalo

Helsinki Bioenergetics Group
 University of Helsinki,
 Academy Professor Mårten Wikström

Institute of Hydraulics and Automation
 Tampere University of Technology,
 Professor Matti Vilenius

Low Temperature Laboratory
 Helsinki University of Technology,
 Professor Mikko Paalanen

Molecular Biology and Pathology of Collagens and Enzymes of Collagen Biosynthesis
 University of Oulu,
 Academy Professor Kari Kivirikko

- New Information Processing Principles
Helsinki University of Technology,
Academy Professor Erkki Oja
- Nuclear and Condensed Matter Physics
Programme at JYFL
University of Jyväskylä,
Professor Matti Manninen
- Plant Molecular Biology and Forest
Biotechnology Research Unit
University of Helsinki,
Academy Professor Tapio Palva
- Program in Cancer Biology,
Growth Control and Angiogenesis
University of Helsinki,
Academy Professor Kari Alitalo
- Programme of Molecular Neurobiology
University of Helsinki,
Professor Heikki Rauvala
- Programme on Structural Virology
University of Helsinki,
Professor Dennis Bamford
- Research Centre for Computational
Science and Engineering
Helsinki University of Technology,
Academy Professor Kimmo Kaski
- Research Unit for Forest Ecology and
Management
University of Joensuu,
Academy Professor Seppo Kellomäki
- Research Unit for Variation and Change
in English
University of Helsinki,
Professor Terttu Nevalainen
- Research Unit on the Formation of Early
Jewish and Christian Ideology
University of Helsinki,
Academy Professor Heikki Räisänen
- Signal Processing Algorithm Group
Tampere University of Technology,
Academy Professor Jaakko Astola
- Technical Research Centre of Finland,
Industrial Biotechnology
Technical Research Centre of Finland,
Research Professor Hans Söderlund
- The Human Development and Its Risk
Factors Programme
University of Jyväskylä,
Academy Professor Lea Pulkkinen
- The Metapopulation Research Group
University of Helsinki,
Academy Professor Ilkka Hanski
- Tissue Engineering and Medical,
Dental and Veterinary Biomaterial
Research Group
Tampere University of Technology,
Academy Professor Pertti Törmälä
- Åbo Akademi University Process
Chemistry Group
Åbo Akademi University,
Professor Mikko Hupa
- The Academy of Finland
has decided on new centres
of excellence for 2002-2007**
- Applied Microbiology Research Unit
University of Helsinki,
Academy Professor Kaarina Sivonen
- Bio- and Nanopolymers Research
Group
Helsinki University of Technology,
Professor Jukka Seppälä
- Centre for Environmental Health Risk
Assessment
National Public Health Institute,
Research Professor Jouko Tuomisto
- Centre of Excellence for Research in
Cardiovascular Diseases and Type 2
Diabetes
University of Kuopio,
Professor Seppo Ylä-Herttua
- Centre of Population Genetic Analyses
University of Oulu,
Professor Pekka Pamilo
- Developmental Biology Research
Programme
University of Helsinki,
Academy Professor Irma Thesleff
- Finnish Research Unit for Mitochondrial
Biogenesis and Disease (FinMIT)
University of Tampere,
Professor Howy Jacobs
- Formal Methods in Programming
Åbo Akademi University,
Professor Ralph-Johan Back
- From Data to Knowledge Research Unit
University of Helsinki,
Academy Professor Esko Ukkonen
- Helsinki Brain Research Centre
University of Helsinki,
Academy Professor Risto Näätänen
- History of Mind Research Unit
University of Helsinki,
Academy Professor Simo Knuuttila
- Research Unit of Geometric Analysis
and Mathematical Physics
University of Jyväskylä,
Professor Pertti Mattila
- Research Programme on Male
Reproductive Health
University of Turku,
Professor Ilpo Huhtaniemi
- Research Unit on Economic Structures
and Growth
University of Helsinki,
Academy Professor Seppo Honkapohja
- Research Unit on Physics, Chemistry
and Biology of Atmospheric
Composition and Climate Change
University of Helsinki,
Professor Markku Kulmala
- Smart and Novel Radios Research Unit
Helsinki University of Technology,
Professor Antti Räisänen

Personnel of the Administrative Office at the Academy of Finland in 2001

Management

Vihko Reijo, President
Laine Jarmo, Senior Adviser
Ryynänen-Karjalainen, Lea, Senior Adviser
Rautiainen Irmeli, Secretary

Kallio Heikki, Director of Administration
Kulo Päivi, Secretary

Anneli Pauli, Director of Research
Heinänen Anne, Senior Adviser
Soikkonen Leni, Secretary (until 22 Feb.)
Anja Raatikainen, Secretary (as from 5 Mar.)

Bioscience and Environment Research Unit

Kallio Arja, Secretary General (as from 1 Aug.)
Vanhanen Sipo, Secretary General (until 31 Jul.)
Järvinen Riitta, Secretary of the Unit

Aarnio Tuula, Scientific Secretary
Andberg Risto, Scientific Secretary
Ellmén Ulla (b. Malkamäki), Scientific Secretary
Haila Katri, Scientific Secretary
Häkkinen Leila, Scientific Secretary
Kolu Timo, Science Adviser
Lampinen Mirja, Office Secretary
Lehvo Annamajja, Scientific Secretary
Lindström Jussi, Scientific Secretary
Oja Minna, Scientific Secretary (1 May–30 Nov.)
Raatikainen Anja, Project Secretary (until 4 Mar.)
Roos Jaana, Scientific Secretary
Stendahl-Rechardt Kerstin, Scientific Secretary (leave of absence)
Vanhanen Sipo, Scientific Secretary (leave of absence until 31 Jul.)
Vuorivirta Kirsi, Office Secretary
Vitikainen Sanna, Project Secretary (as from 19 Feb.)

Cultures and Social Science Research Unit

Savunen Liisa, Secretary General
Ryhänen Maija, Secretary of the Unit

Ervellä-Myrreen, Eili, Scientific Secretary
Forsman Tiina, Scientific Secretary (leave of absence 17 Feb.–31 Dec.)
Haavisto Arja, Office Secretary (until 31 Janu.)
Järvenpää Paula, Scientific Secretary (as from 14 Feb., leave of absence as from 20 Aug.)
Karttunen Seija, Office Secretary
Kotilainen Eija-Maija, Scientific Secretary (until 31 Aug., leave of absence until 31 Jul.)
Kulin Aila, Office Secretary
Kurki Hannele, Science Adviser
Lahti Vesa-Matti, Scientific Secretary (until 5 Sept., leave of absence until 5 Sept.)

Launonen Riitta, Scientific Secretary
Matikainen Raija, Scientific Secretary
Messo-Lindén Päivi, Scientific Secretary
Mirala Petri, Scientific Secretary (as from 17 Sept.)
Salmensivu Jaana, Scientific Secretary (as from 1 Feb.)
Toikka Maija-Liisa, Scientific Secretary
Tuomi Mika, Office Secretary (as from 31 Jul.)
Vuosalmi Barbro, Office Secretary (leave of absence until 31 Jan. and as from 31 Jul.)
Vänskä Helena, Scientific Secretary (leave of absence as from 25 May)

Natural Science and Engineering Research Unit

Linko Susan, Secretary General (leave of absence)
Dammert Ritva, Secretary General
Hagelin Aila, Secretary of the Unit

Heikkilä Katri-Leena, Office Secretary
Helle-Tuomi Ritva, Project Secretary
Ikonen Eeva, Scientific Secretary (until 31 May)
Karjalainen Eeva, Scientific Secretary (as from 8 Mar)
Lehtinen Christel, Scientific Secretary (12 Feb.–23 May)
Lehtinen Maaria, Scientific Secretary (leave of absence until 31 Aug.)
Majamaa Tero, Scientific Secretary (until 4 Nov.)
Pitkänen Tuula, Scientific Secretary
Pulkkinen Pentti, Scientific Secretary
Taurio Ritva, Scientific Secretary
Turunen Pia, Office Secretary (as from 5 Feb.)
Vihma-Kaurinkoski Mirja, Scientific Secretary (leave of absence as from 1 Oct.)
Ylikarjula, Janica, Scientific Secretary

Health Research Unit

Karjalainen Sakari, Secretary General (leave of absence as from 1 Oct.)
Hiltunen Merja, Secretary General (as from 1 Oct.)
Rajala Anneli, Secretary of the Unit

Aalto Jaana, Scientific Secretary
Hiltunen Merja, Scientific Secretary (leave of absence as from 1 Oct.)
Husso Kai, Science Adviser
Kari Leena, Office Secretary
Kauppila Anna-Liisa, Scientific Secretary
Matti Anna, Scientific Secretary
Niemelä Reetta, Scientific Secretary (until 30 Nov., leave of absence until 30 Nov.)
Nuotio Sirpa, Scientific Secretary
Nuutinen Anu, Project Secretary (as from 1 Sept.)
Oja Minna, Scientific Secretary (as from 1 Dec.)
Parkkari Tuomas, Scientific Secretary (leave of absence 1 Oct.–1 Dec.)
Raijas Tellervo, Scientific Secretary
Viikilä Eila, Office Secretary

Administrative Unit

Mikkolanniemi Hedvig, Head of Administration
Tyynelä Inkeri, Department Secretary

Alkula Pirjo, Office Secretary
Bärlund Hanna, Senior Adviser (until 31 Aug.)
Hakli Lauri, Office Caretaker (9 Aug.–8 Dec.)
Hakola Veli-Pekka, Archivist
Heikkilä Seppo, Personnel Secretary (leave of absence until 31 May)
Hongisto Seppo, Senior Adviser
Hänninen Riitta, Personnel Secretary
Kulmala Merja, Registrar
Lamberg Eila, Office Caretaker
Liukkonen Eija, Office Caretaker
Majamaa Katja, Senior Adviser (leave of absence)
Metsä Kimmo, Senior Adviser (as from 8 Jan.)
Moisander Pirjo, Office Caretaker (as from 17 Dec.)
Mäkinen Jani, Office Caretaker (7 Feb.–14 Aug.)
Niskanen Ari, Office Caretaker (until 14 Aug., leave of absence 15 Feb.–14 Aug.)
Nurmi Seppo, Office Caretaker
Saarela Maarit, Senior Adviser
Suuronen Eero, Office Caretaker (leave of absence)
Terho Marjukka, Department Secretary
Toivo-Niemi Hannele, Personnel Secretary
Tuomi Mika, Office Caretaker (7 Feb.–30 Jul.)
Turunen Pia, Office Secretary (leave of absence as from 5 Feb.)
Törrönen Kirsti, Personnel Secretary (until 31 May and as from 1 Aug.)
Villikka Pirjo, Personnel Secretary
Väisänen Olavi, Office Caretaker Chief

ADP Unit

Raejärvi Seppo, ADP Manager

Karjalainen Esa, Information Systems Specialist
Kauranen Anneli, End-user Adviser
Puhakka Marko, Information Systems Specialist
Turunen Eero, ADP Assistant
Viita Reino, Information Management Specialist

Communications Unit

Laakkonen Jorma, Head of Communications

Aaltomaa Marjo, Communications Secretary
Häivälä Heli, Information Officer (as from 8 Jan.)
Järvelä Jenni, Information Officer
Loukiainen Terhi, Trainee (1 Jun.–30 Sept.)
Pemberton Marja, Information Officer
Vähäkylä Leena, Information Officer
Väisänen Annikki, Project Manager
Westerback Anita, Communications Secretary

SCIENCE POLICY LIBRARY

Miettinen Maija, Information Specialist
Paalanen Marjatta, Library Secretary

Finance Unit

Virtanen Pirkko, Head of Finance
Hyttinen Merja, Office Secretary

Haapsaari Marjatta, Office Secretary
Hentilä Merja, Office Secretary (leave of absence)
Huurinainen Ilpo, Senior Adviser
Immonen Pirkko, Senior Adviser
Kanninen Lea, Department Secretary
Kulmala Mailis, Bookkeeper
Paulamäki Riitta, Office Secretary
Pesola Paula, Office Secretary
Petäjajarvi Pirjo, Finance Planning Officer
Torvinen Kirsti, Senior Adviser
Vallius Tomi, Office Secretary

International Relations

Hattula Raija, Head of International Relations
Bqain Arja, Secretary of the Unit

Berg Tiina, Project Secretary (as from 1 Aug.)
Cojan Sari, Senior Adviser (as from 1 Nov.)
Helansuo Kristiina, Secretary for International Affairs
Ikonen Eeva, Senior Adviser (as from 1 Jun.)
Liimatainen Marja-Liisa, Secretary for International Affairs
Lindeman Kaisu, Secretary for International Affairs
Nordström Johanna, Trainee/Project Secretary (15 May–30 Nov.)
Pirinen Aila, Hostess of the Guest Rooms
Simon, Orsolya (Ursula), Senior Adviser (until 28 Feb.)
Toivonen Tuulikki, Translator
Vihma-Purovaara Tiina, Senior Adviser

Other operations

Hannula Ulla, Secretary (until 30 Jun., leave of absence until 30 Jun.)
Heikkilä Hannu, Senior Researcher
Karjalainen Sakari, Project Manager (as from 1 Oct.)
Linnavalli Sari, Editorial Secretary
Löppönen Paavo, Director of Development (leave of absence as from 21 May)
Pohls Maritta, Senior Researcher
Rasi Saila, Researcher
Riskä-Campbell Leena, Researcher
Saikku Sakari, Researcher
Savolainen Raimo, Project Director
Selovuori Jorma, Editorial Secretary
Seppälä Esko-Olavi, Head of Development (leave of absence)
Tiitta Allan, Chief Senior Researcher

Academy of Finland publications series in 2001

1/01 Tutkimus- ja kehittämisrahoitus valtion talousarviossa 2001. Timo Kolu.

2/01 Centre of Excellence Policies in Research. Aims and Practices in 17 countries and Regions. Ed. Ulla Malkamäki, Tuula Aarnio, Annamaija Lehvo & Anneli Pauli

3/01 Evaluation of the Finnish CERN Activities. Panel Report.

4/01 Evaluation of the Research Programme for Russia and Eastern Europe 1995–2000. Panel Report.

5/01 Research Programme for Health and Other Welfare Differences between Population Groups 1998–2000. Evaluation Report.

6/01 Tieteenalojen arviointi Suomessa – Kehittämisen vai vakuuttamisen väline. Ville Valovirta.

Other publications in 2001

Academy of Finland Annual Report 2000

Academy of Finland Research Funding. Guide for Applicants

Finnish Programme for Centres of Excellence in Research 2002–2007

Academy in Brief. Brochure in English, Finnish, Swedish and Japanese

Internet:

Academy of Finland web pages in English, Finnish and Swedish
(www.aka.fi/eng, www.aka.fi, www.aka.fi/svenska)



Some facts about Finland

- Member of the European Union since 1995
- Over five million inhabitants
- Basic research carried out mainly at universities
- 20 universities
- Over one thousand doctorates a year
- R&D expenditure some 3.6 per cent of GDP

ACADEMY OF FINLAND ANNUAL REPORT

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PETRI KUOKKA (P. 1)

ADOLFO VERA (P. 1)

TAPIO VANHATALO (PP. 1, 6, 8, 12, 14, 18 AND 20)

HANNA HENTINEN (P. 1)

MAARIT KYTÖHARJU (P. 2)

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ACADEMY OF FINLAND

Vilhonvuorenkatu 6, POB 99, FIN-00501 Helsinki, Finland

Phone: +358 0 774 881, Fax +358 0 7748 8299, Internet www.aka.fi/eng, Email keskus@aka.fi