

GENERAL SERIES

LIIKANEN ANU, TIRRONEN JARKKO, KEINÄNEN
RIITTA, SAGULIN MERJA, SIMONAHO SIMO-PEKKA,
TASKINEN HELENA, MÖNKKÖNEN JUKKA (EDS.)

*International Evaluation of
Research Activities at the
University of Eastern Finland
2010-2012*

PUBLICATIONS OF THE UNIVERSITY OF EASTERN FINLAND
General Series



UNIVERSITY OF
EASTERN FINLAND

*International Evaluation of Research
Activities at the University of Eastern
Finland 2010-2012*

**LIIKANEN ANU, TIRRONEN JARKKO, KEINÄNEN RIITTA,
SAGULIN MERJA, SIMONAHO SIMO-PEKKA, TASKINEN HELENA,
MÖNKKÖNEN JUKKA (EDS.)**

*International Evaluation of Research
Activities at the University of
Eastern Finland 2010-2012*

Publications of the University of Eastern Finland.
General Series,
No 14

University of Eastern Finland
Kuopio and Joensuu
2014

Kopijyvä

Joensuu, 2014

Editor: Jarmo Saarti

ISSN (print): 1798-5854

ISBN (print): 978-952-61-1347-0

ISSN-L: 1798-5854

ISSN (PDF): 1798-5862

ISBN (PDF): 978-952-61-1348-7

Liikanen Anu, Tirronen Jarkko, Keinänen Riitta, Sagulin Merja, Simonaho Simo-Pekka, Taskinen Helena and Mönkkönen Jukka (eds.)

International Evaluation of Research Activities at the University of Eastern Finland 2010-2012

University of Eastern Finland, 2014

Publications of the University of Eastern Finland. General Series, no 14

ISSN (print): 1798-5854

ISSN (PDF): 1798-5862

ISSN-L: 1798-5854

ISBN (print): 978-952-61-1347-0

ISBN (PDF): 978-952-61-1348-7

ABSTRACT:

University of Eastern Finland (UEF) performed a research assessment exercise (UEFRAE) in 2013. In the assessment the scientific quality of the University's research at the international level was evaluated and the University's strategic choices were reviewed. The purpose of the evaluation was to support the strategy work of the University for the years 2015-2020. The evaluation concerned the standard of research in the University as a whole, all of its Faculties, Departments and Schools during the years 2010-2012. The assessment was performed in three steps. In the first step, background information was collected for the evaluation and self-evaluations were done by the units under assessment, Departments and Schools. In the second step, international evaluation panels, Faculty Panels, assessed research activities of the units. Their evaluation was completed on the basis of the background information reports and site visits. In the third step of the evaluation, chairs of the Faculty Panels formed a University Panel and they evaluated the research performance at the UEF as a whole and gave their recommendations to the UEF for future strategy work. Results of the UEFRAE 2013 carried out by the Faculty Panels and the University Panel are published in this report.

Universal Decimal Classification: 001.82, 303.424, 378.4

Library of Congress Subject Headings: Research; Evaluation; Performance; Strategic planning; Universities and colleges; Finland

Yleinen suomalainen asiasanasto: tutkimus; tutkimustoiminta; arviointi; laatu; strategiatyö; yliopistot; Itä-Suomen yliopisto; Suomi

Foreword

The first international research assessment exercise of the University of Eastern Finland (UEF), UEFRAE 2013, was carried out in 2013. The University of Eastern Finland was established in 2010 as the result of the merger of the University of Joensuu and the University of Kuopio. Three years after its foundation and before forthcoming strategic planning for the future, it was an excellent milestone to review the new University's research activities and to evaluate the strategic choices it has made.

The UEF's predecessors, the University of Joensuu and the University of Kuopio, carried out research assessment exercises in 2007–2008. The results from these assessments were utilised in the creation of the first strategy of the UEF. The UEF is now preparing a new strategy for the years 2015–2020. The most important aim of UEFRAE 2013 was to support the ongoing strategy work. Another aim, of course, was also to evaluate the quality of the University's research during the first years of operation and to assess its strategic choices.

The Research Council of the UEF, acting as the steering group for UEFRAE 2013, discussed whether the evaluation should focus on research areas/communities or on organisational units, Schools and Departments. The Research Council agreed on a departmental evaluation, and decided to invite an international evaluation panel for each of the four Faculties. The Research Council acknowledged that the units of the UEF, its Departments and Schools, are heterogenic for the evaluation and that research activities tend to cross the borders of official organisation structures. However, as the real research communities or areas have not been defined within the University, the UEF did not want to set up research communities or areas only for the purpose of the evaluation. Instead, the results from UEFRAE2013 will definitely be used in the formation of research areas and communities of the UEF in the future.

The research assessment exercise was successfully completed by the Departments, Schools and external evaluators within the planned, very strict, timetable. All the Departments and Schools worked hard for the background information and site visits of the assessment. The panels did a great work and gave extremely valuable recommendations for the future. We are privileged to have obtained comments from 27 world-class experts who were devoted to this task with great interest and enthusiasm, and we really do appreciate their effort for the UEF.

The UEF will decide on its strategic choices and strategic research areas for the years 2015–2020 in spring 2014. The successfully completed UEFRAE 2013 gives the UEF a solid and valuable foundation for its future strategy work.

Academic Rector Jukka Mönkkönen

Content

1. UNIVERSITY OF EASTERN FINLAND IN BRIEF	9
2. THE UEF RESEARCH ASSESSMENT EXERCISE, UEFRAE 2013	12
2.1 Performance of the UEFRAE 2013.....	12
2.2 Players of the UEFRAE 2013	16
3. EVALUATION OF THE PHILOSOPHICAL FACULTY	27
3.1 School of Applied Educational Science and Teacher Education	35
3.2 School of Educational Sciences and Psychology	42
3.3 School of Humanities	49
3.4 School of Theology	57
4. EVALUATION OF THE FACULTY OF SCIENCE AND FORESTRY	65
4.1 Department of Applied Physics.....	67
4.2 Department of Biology	71
4.3 Department of Chemistry	76
4.4 Department of Environmental Science	80
4.5 Department of Physics and Mathematics	87
4.6 School of Computing.....	92
4.7 School of Forest Sciences.....	98
5. EVALUATION OF THE FACULTY OF HEALTH SCIENCES	103
5.1 A. I. Virtanen Institute for Molecular Sciences	107
5.2 Department of Nursing Science.....	110
5.3 School of Medicine - Biomedicine	113
5.4 School of Medicine - Clinical Medicine	117
5.5 School of Medicine - Public Health and Clinical Nutrition	125
5.6 School of Pharmacy	129
6. EVALUATION OF THE FACULTY OF SOCIAL SCIENCES AND BUSINESS STUDIES	132
6.1 Business School and Centre for Tourism Studies.....	135
6.2 Department of Geographical and Historical Studies	141
6.3 Department of Health and Social Management	148
6.4 Department of Social Sciences.....	152
6.5 The Karelian Institute.....	158
6.6 Law School.....	164

7. EVALUATION OF THE UNIVERSITY OF EASTERN FINLAND	168
APPENDICES	173

1. University of Eastern Finland in Brief

The University of Eastern Finland (UEF) was established in 2010 as the result of the merger of the University of Joensuu and the University of Kuopio. With approximately 15,000 students and 2,800 members of staff, the University of Eastern Finland is one of the largest universities in Finland. The University's campuses are located in Joensuu, Kuopio and Savonlinna.

The University of Eastern Finland is a multidisciplinary University, comprising four faculties:

- Philosophical Faculty
- Faculty of Science and Forestry
- Faculty of Health Sciences
- Faculty of Social Sciences and Business Studies.

With its extensive networks, the UEF constitutes a significant competence cluster, which promotes the well-being and positive development of Eastern Finland. The UEF seeks to be among the top three most significant universities in Finland and among the leading 200 universities in the world.

Since launching its operations in 2010, the University of Eastern Finland has appeared frequently, indeed annually, in several rankings listing the world's leading universities. In 2012, the UEF was ranked:

- 302nd in QS World University Rankings (38th among the world's top universities under 50 years)
- 301-350 in Times Higher Education World University Rankings (54th among the world's top universities under 50 years)
- 401-500 in Academic Ranking of World Universities (ARWU), Shanghai
- 290th in Taiwan Ranking
- 295th in Leiden Ranking

The areas of expertise

The areas of expertise are defined in the strategy of the UEF for the years 2010–2015. The University's research in its areas of expertise is of high international standard and the University's education provision is attractive. Furthermore, the University's research in the areas of expertise contributes to the national intellectual capital and the University produces research-based knowledge, which is relevant to the surrounding society and trade and industry alike.

The areas of expertise in research of the University of Eastern Finland are:

- Forests and the Environment
- Health and Well-being
- New Technologies and Materials.

In addition to the above-mentioned areas of expertise, the University of Eastern Finland has selected two regionally and nationally significant fields in which research and education will be further strengthened:

- Broad-based expertise pertaining to Russia
- Selected fields of teacher education.

The organisation and the administration of the UEF

The University of Eastern Finland is a public university, which is administered by the Board, Rector and Academic Rector, University Collegiate Body, Faculty Councils and Deans. The practical administrative tasks of the University are carried out by the Administration Centre and the Administration Service Centres of the faculties. The University operates on two main campuses, in Joensuu and Kuopio. Furthermore, the University also has a campus in Savonlinna.

The Board decides on the strategy and central goals of the University's operations and is in charge of the University's finances. The Board elects the Rectors of the University.

The University of Eastern Finland has a Rector and an Academic Rector, both of whom are based at a different main campus of the University. The Rector attends to the tasks defined in the Universities Act, while the Academic Rector attends to tasks relating to education and research.

The University of Eastern Finland is a public university receiving most of its funding from the Ministry of Education and Culture. However, a significant source of funding, approximately about 40 % originates from other external sources. The total amount of funding in 2010–2012 was on average 230 million euros a year.

The University comprises four Faculties and 21 Departments (Figure 1).

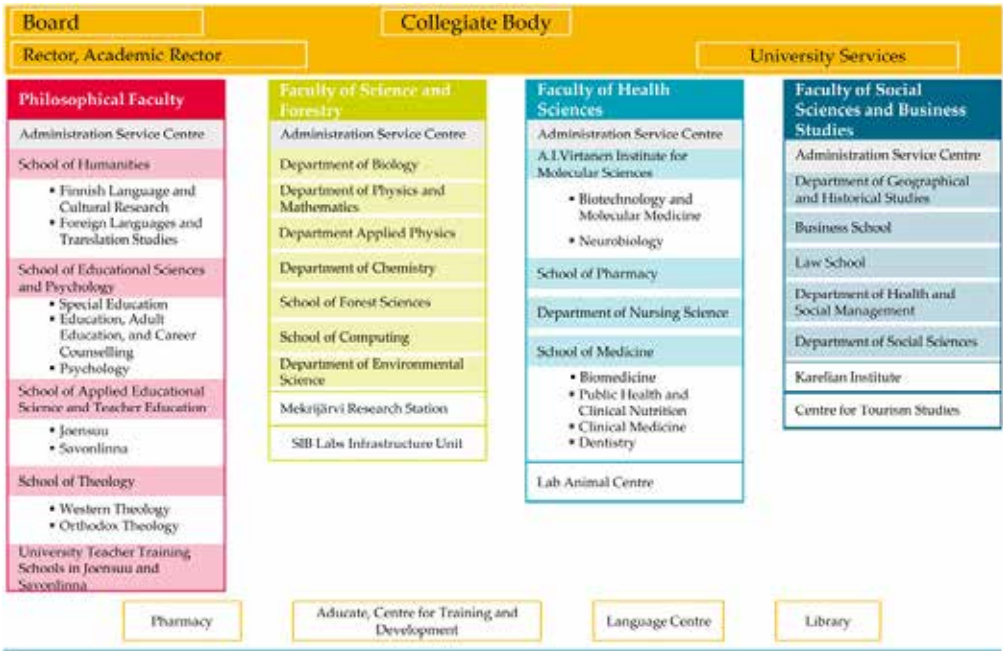


Figure 1. The Organisation of the University of Eastern Finland.

2. The UEF Research Assessment Exercise, UEFRAE 2013

2.1 PERFORMANCE OF THE UEFRAE 2013

In the research assessment exercise (RAE) carried out during the year 2013, the scientific quality of the University's research at the international level was evaluated and the University's strategic choices were reviewed. The purpose of the assessment was to support the strategy work of the University for the years 2015-2020.

The assessment was implemented during the year 2013 in three phases at three corresponding levels:

1. Level One of the evaluation consisted of the collection of background information report and self-evaluations carried out by the Departments/Schools i.e. by the units under the evaluation.
2. Level Two consisted of the external evaluation of the Departments/Schools on a faculty-by-faculty basis by external evaluation panels, called "Faculty Panels".
3. Level Three of the evaluation was carried out by the "University Panel", comprising the chairs of the Faculty Panels of Level Two. The Panel reviewed the overall research performance and research strategy of the University.

The assessment concerned the standard of research in the University as a whole, all Faculties and Departments/Schools during the years 2010-2012.

The assessment criteria in the evaluation were:

- A. Scientific quality of research
- B. Research activities vs strategy of the units and the University (how research has supported/followed the strategy of the unit and University)
- C. International and national research collaboration and researcher mobility
- D. Operational conditions
- E. Impact of research
- F. Unit's strategic research action plan for 2014-2020

The principles and guidance of the UEFRAE2013 process were planned in January-February 2013 and were published prior to the assessment in the beginning of March 2013. The guidance of the UEFRAE 2013 including the documents is presented in the Table 1. Detailed information on assessment criteria on various levels can be found in these instructions (Appendices 2, 3 and 5).

Table 1. *Instructions and forms of the UEFRAE 2013.*

NAME OF THE DOCUMENT	DOCUMENT USED BY	STAGE OF THE EVALAUTION	REFERENCE
Background Information Instructions	Departments and Schools	Level One	Not public
Background Information Form	Departments and Schools	Level One	Appendix 1
Self-Evaluation Instructions	Departments and Schools	Level One	Appendix 2
Assessment Criteria for the Faculty Panels	Faculty Panels	Level Two	Appendix 3
Assessment Report Form for the Faculty Panels	Faculty Panels	Level Two	Appendix 4
Assessment Criteria for the University Panel	University Panel	Level Three	Appendix 5

LEVEL ONE OF THE UEFRAE 2013

The first stage of the evaluation was the collection of background information, completed by the Departments and Schools of the UEF. Instructions were published in the beginning of March 2013 and background information reports were ready in June 2013. Central Administration of the UEF provided part of the statistics for the Background Reports. During the Level One phase, the evaluation office organised discussion meetings for the Departments and Schools (= units of the evaluation). In these meetings, instructions were given concerning gathering background materials and carrying out the self-evaluation. The units finished their self-evaluation reports before the site visits of the Faculty Panels in autumn 2013.

Documents used in the Level One:

- Background Information Form and Instructions
- Self-Evaluation Report – Level One

LEVEL TWO OF THE UEFRAE 2013

The background materials collected by the units were sent to the Faculty Panel members in June 2013. Panellists did not, however, receive the results of the self-evaluation carried out by the units in order to avoid those results having any influence on their work. In addition, the panel members received copies of the strategic plans of the University and the relevant Faculty and a brief introduction to the University. The site visits of the Faculty Panels were organised in October 2013 according to the following timetable:

Panel of Philosophical Sciences:	7 – 11 October 2013
Panel of Science and Forestry:	14 – 18 October 2013
Panel of Health Sciences:	30 September – 4 October 2013
Panel of Social Sciences and Business Studies:	22 – 26 October 2013

At the start of the site visit, the initial welcome meetings and briefings for the members of the Faculty Panel were attended by the Academic Rector, the Dean of the Faculty concerned, the panel liaison officer and representatives of the units under evaluation. The closing session was organised in the last day of the site visit. The Faculty Panels gave their feedback to the heads of the Units, Faculty and University in the closing session.

The task of the Faculty Panels was to evaluate the Faculty / Department (unit) concerned with respect to the criteria defined (Evaluation Guidance - Level Two). The panel members together produced evaluation reports (Research Assessment Report - Level Two) at the end of the visit.

Documents used in the Level Two:

- Evaluation Guidance – Level Two
- Research Assessment Report – Level Two

The Faculty Panels submitted their final evaluation reports before the University Panel meeting, in the beginning of November 2013.

LEVEL THREE OF THE UEFRAE 2013

The University Panel consisted of the chairs of the Faculty Panels (Level Two). The University Panel made use of the evaluation reports from the earlier Level Two in their assessment. The University Panel met at the Helsinki-Vantaa airport on 12 November 2013 together with the Rectors and Deans of the UEF.

The task of the University Panel was to evaluate the University's research activities as a whole. The Panel submitted recommendations to support the University's strategy work for the years 2015-2020.

Documents used in the Level Three:

- Evaluation Guidance – Level Three
- Research Assessment Report – Level Three

SUMMARY

Timetable of the UEFRAE 2013 process is summarized in the Table 2.

Table 2. *Timetable of the UEFRAE 2013.*

Stage of Evaluation	Timing	Responsible Actors
Planning of the evaluation (principles of the UEFRAE and preparation of guidelines)	Jan - Feb 2013	Evaluation working and steering groups, Evaluation Office
Selection of panellists, faculty liaison officers and contact persons of the units	Jan - Feb 2013	Units
Research Assessment Exercise kick-off seminar: publication of the UEFRAE 2013 guidelines	Mar 2013	Head of the evaluation, Evaluation Office
Invitation of panellists	Mar - May 2013	Evaluation Office
Level One: collection of background information	Mar - June 2013	Units
Level One: self-evaluation	Mar - Aug 2013	Units
Level Two: Faculty Panel reading of background information reports	June - Sep 2013	Faculty Panels
Level Two: Faculty Panel site visits, reporting	Oct 2013	Faculty Panels
Level Three: University Panel meeting and reporting	Nov 2013	University Panel
Publication of the UEFRAE 2013 compilation	Feb 2013	Evaluation Office

2.2 PLAYERS OF THE UEFRAE 2013

The Research Council of the UEF acted as the Steering Group for the UEFRAE 2013 process. The Steering Group decided on the details of the evaluation process, such as its subjects, criteria and guidelines. The Evaluation Working Group, comprising representatives of the faculties, was responsible for the detailed planning. The evaluation office of the UEFRAE 2013 coordinated the process, gave guidance to the units of the UEF and provided secretaries to evaluation panels.

The UEFRAE 2013 Steering Group

- Head of the UEFRAE 2013, Academic Rector Jukka Mönkkönen
- Dean Markku Filppula (Vice-Dean Hannu Savolainen), Philosophical Faculty
- Professor Päivi Atjonen (Professor Risto Turunen), Philosophical Faculty
- Dean Timo Jääskeläinen (Vice-Dean Maija-Riitta Hirvonen), Faculty of Science and Forestry
- Professor Elina Oksanen (Professor Kari Lehtinen), Faculty of Science and Forestry
- Dean Hilkka Soininen (Vice-Dean Paavo Honkakoski), Faculty of Health Sciences
- Professor Markku Laakso (Professor Matti Uusitupa), Faculty of Health Sciences
- Dean Juha Kinnunen and Harri Siiskonen (Professor Eeva Jokinen), Faculty of Social Sciences and Business Studies
- Professor Päivi Eriksson (Professor Johanna Lammintakanen), Faculty of Social Sciences and Business Studies
- Doctoral student Eveliina Pollari (Doctoral student Pauliina Halimaa)
- Doctoral student Pirjo Pöllänen (Doctoral student Henriikka Vartiainen)
- Secretary, Research Coordinator Anu Liikanen, Office of Planning and Development

The UEFRAE 2013 Working Group

- Chair, Academic Rector Jukka Mönkkönen
- Dean Markku Filppula, Philosophical Faculty
- Dean Timo Jääskeläinen, Faculty of Science and Forestry
- Dean Hilkka Soininen (Vice-Dean Paavo Honkakoski), Faculty of Health Sciences
- Professor Tarmo Miettinen, Faculty of Social Sciences and Business Studies
- Tomi Rosti, University Library

- Jarkko Tirronen, Office of Planning and Development
- Jani Puumalainen, Office of Planning and Development
- Secretary, Research Coordinator Anu Liikanen, Office of Planning and Development

The Evaluation Office of UEFRAE 2013

- Research coordinator, Dr. Anu Liikanen, coordinator of the UEFRAE 2013, secretary of the University Panel
- Researcher, Dr. Jarkko Tirronen, coordinator of the UEFRAE 2013
- Dr. Merja Sagulin, Secretary of the Panel of Philosophical Sciences
- Docent Riitta Keinänen, Secretary of the Panel of Health Sciences
- Dr. Simo-Pekka Simonaho, Secretary of the Panel of Science and Forestry
- Dr. Helena Taskinen, Secretary of the Panel of Social Sciences and Business Studies

The panel secretaries were only assisting the panellists, they were not involved in the evaluation.

PANEL OF PHILOSOPHICAL SCIENCES



Figure 2. *The Panel of Philosophical Sciences. From the left: Steffen Kjeldgaard-Pedersen, Kjell Rubenson, Theo D'haen, Douglas A. Cheney, Hannu Savolainen (Vice-Dean), Markku Filppula (Dean), Hanne Haavind, Anne Edwards, Jukka Mönkkönen (Academic Rector), Tina K. Ramnarine, Merja Sagulin (Secretary), Ekkehard König, Mika Vähäkangas. (Foto by Kari Korhonen)*

Chair, Professor Anne Edwards

Professor of Educational Studies, Department of Education, University of Oxford, UK

Professor Douglas A. Cheney

Professor of Special Education, College of Education, University of Washington, USA

Professor Theo D'haen

Professor of English and Comparative Literature, Literary Relations and Post/national Identities, KU Leuven, Belgium

Professor Hanne Haavind

Professor of Psychology, Department of Psychology, University of Oslo, Norway

Professor Steffen Kjeldgaard-Pedersen

Professor of Church History, Dean of the Faculty of Theology, University of Copenhagen, Denmark

Professor Ekkehard König

Professor of English and Linguistics, Department of English Language and Literature, Freie Universität Berlin, Germany

Professor Tina K. Ramnarine

Professor of Music, Department of Music, Royal Holloway, University of London, UK

Professor Kjell Rubenson

Professor of Education, Department of Educational Studies, The University of British Columbia, Canada

Professor Mika Vähäkangas

Professor of Mission Studies and Ecumenics, Centre for Theology and Religious Studies, Lund University, Sweden

Secretary, Dr. Merja Sagulin

University of Eastern Finland

Units under evaluation:

School of Applied Educational Science and Teacher Education

School of Educational Sciences and Psychology

School of Humanities

School of Theology

PANEL OF SCIENCE AND FORESTRY

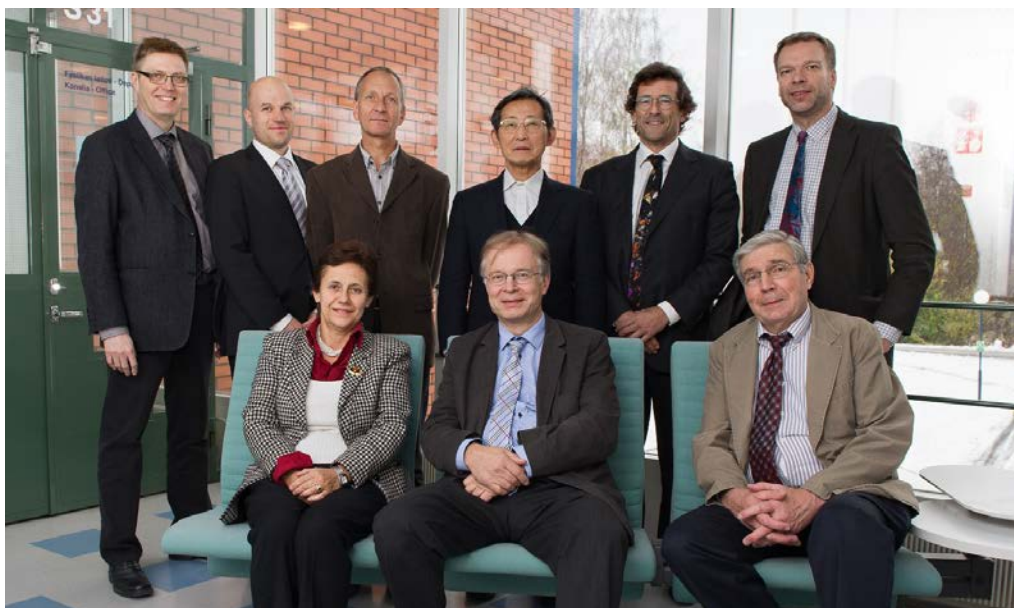


Figure 3. The Panel of Science and Forestry. Back row from the left: Jukka Mönkkönen (Academic Rector), Simo-Pekka Simonaho (Secretary), Nick Hewitt, Takayoshi Kobayashi, Enrico Nardelli, Jukka Jurvelin (Dean), front row from the left: Lucia Banci, Risto Ilmoniemi, Allan R. Ek. (Foto by Raija Törrönen).

Chair, Academy Professor Risto Ilmoniemi

Professor of Engineering Physics, Department of Biomedical Engineering and Computational Science, Aalto University, Finland

Professor Lucia Banci

Professor of Chemistry, Department of Chemistry, University of Florence, Italy

Professor Nick Hewitt

Professor of Atmospheric Chemistry, Lancaster Environment Centre, Lancaster University, UK

Professor Alan R. Ek

Head of the Department of Forest Resources, University of Minnesota, USA

Professor Takayoshi Kobayashi

Advanced Ultrafast Laser Research Center, University of Electro-Communications, Tokyo, Japan

Professor Enrico Nardelli

Professor of Computer Science, Department of Mathematics, University of Roma
"Tor Vergata", Italy

Secretary, Dr. Simo-Pekka Simonaho

University of Eastern Finland

Units under evaluation:

Department of Applied Physics

Department of Biology

Department of Chemistry

Department of Environmental Science

Department of Physics and Mathematics

School of Computing

School of Forest Sciences

PANEL OF HEALTH SCIENCES



Figure 4. Panel of Health Sciences. Back row from left: Riitta Keinänen (Secretary), Paavo Honkakoski (Vice-Dean), Hilikka Soininen (Dean), Jukka Mönkkönen (Academic Rector), front row from the left: Flemming Pociot, Sirpa Jalkanen, Ole Petter Ottersen, Debra Jackson and Konrad Beyreuther. (Foto by Raija Törrönen).

Chair, Professor Ole Petter Ottersen

Rector, Professor of Medicine, University of Oslo, Norway

Professor Konrad Beyreuther

Distinguished Senior Professor, Director of the Network Aging Research (NAR), Heidelberg University, Germany

Professor Flemming Pociot

Glostrup Research Institute, Herlev University Hospital, Denmark

Professor Debra Jackson

Professor of Nursing, Faculty of Health, University of Technology Sydney, Australia

Academy Professor Sirpa Jalkanen

Professor of Immunology, Institute of Biomedicine, University of Turku, Finland

Secretary, Docent Riitta Keinänen

University of Eastern Finland

Units under evaluation:

A.I. Virtanen Institute for Molecular Sciences

Department of Nursing Science

School of Medicine - Biomedicine

School of Medicine - Clinical Medicine

School of Medicine - Public Health and Clinical Nutrition

School of Pharmacy

PANEL OF SOCIAL SCIENCES AND BUSINESS STUDIES



Figure 5. Panel of Social Sciences and Business Studies. Back row from the left: Sarah Green, Helena Taskinen (Secretary), Harri Siiskonen (Dean), Sari Rissanen (Vice-Dean), Panu Minkkinen, front row from the left: Joan Orme, Richard Saltman, Helmut Klüter. (Foto by Raija Törrönen).

Chair, Professor Richard Saltman

Professor of Health Policy and Management, Rollins School of Public Health, Emory University, USA

Professor Sarah Green

Professor of Social and Cultural Anthropology, Department of Social Research, University of Helsinki, Finland

Professor Helmut Klüter

Department of Geography and Geology, University of Greifswald, Germany

Professor Ann Langley

Department of Management, HEC Montréal, Canada

Professor Panu Minkkinen

Professor of Jurisprudence, Faculty of Law, University of Helsinki, Finland

Professor Jens E. Olesen

Holder of Chair of Scandinavian and Finnish History, Department of History, Ernst Moritz Arndt University, Germany

Professor Joan Orme

Glasgow School of Social Work, University of Glasgow, UK

Secretary, Dr. Helena Taskinen

University of Eastern Finland

Units under evaluation:

Business School and Centre for Tourism Studies

Department of Geographical and Historical Studies

Department of Health and Social Management

Department of Social Sciences

The Karelian Institute

Law School

UNIVERSITY PANEL

Chair, Academic Rector Jukka Mönkkönen

University of Eastern Finland

Professor Anne Edwards

Professor of Educational Studies, Department of Education, University of Oxford,
UK

Chair of the Panel of Philosophical Sciences

Professor Ole Petter Ottersen

Rector, University of Oslo, Norway

Chair of the Panel of Health Sciences

Academy Professor Risto Ilmoniemi

Professor of Engineering Physics, Department of Biomedical Engineering and
Computational Science, Aalto University, Finland

Chair of the Panel of Science and Forestry

Professor Richard Saltman

Professor of Health Policy and Management, Rollins School of Public Health,
Emory University, USA

Chair of the Panel of Social Sciences and Business Studies

Secretary, Dr. Anu Liikanen

University of Eastern Finland

3. Evaluation of the Philosophical Faculty

**Professor Anne Edwards (Department of Education, University of Oxford, UK),
Professor Douglas A. Cheney (College of Education, University of Washington, USA),
Professor Theo D'haen (Literary Relations and Post/national Identities, KU Leuven, Belgium),
Professor Hanne Haavind (Department of Psychology, University of Oslo, Norway),
Professor Steffen Kjeldgaard-Pedersen (Faculty of Theology, University of Copenhagen, Denmark),
Professor Ekkehard König (Department of English Language and Literature, Freie Universität Berlin, Germany),
Professor Tina K. Ramnarine (Department of Music, Royal Holloway, University of London, UK),
Professor Kjell Rubenson (Department of Educational Studies, The University of British Columbia, Canada) and
Professor Mika Vähäkangas (Centre for Theology and Religious Studies, Lund University, Sweden)**

Developments in the Faculty since 2010

The Philosophical Faculty was formed in 2010 from the former Faculties of Education, Humanities and Theology and was joined by Psychology from the Faculty of Social Sciences. The Faculty now comprises four Schools: Humanities; Theology; Educational Sciences and Psychology; and Applied Educational Science and Teacher Education. Over the subsequent period, the Schools have followed the University's guidance that they should move towards greater coherence in their research programs in order to avoid fragmentation and develop or sustain international quality research. Consequently, the Schools have been working simultaneously on both their reconfiguration and the internationalization of their activities.

The demands of reconfiguration have not been uniform across the Schools: they have impacted least on the School of Theology and most on the Schools of Educational Sciences and Psychology and Applied Educational Science and Teacher Education. Opportunities for the internationalization of their research have also differed. In some areas of research the international standing of the work is well-established; in others it is emerging through the recognition of the wider

intellectual and social impact of research conducted within the specific affordances of this region; in some areas the international impact of research developed within Finland is being realized; while in others the challenge of generalising locally produced knowledge remains.

The Faculty Research Infrastructure

The responsibility for the strategic development of the Faculty research lies with the Dean who is chair of the 'Sub-committee on Research and Doctoral Education'. Two Heads of Schools are members of the sub-committee as Directors of their respective Doctoral Programs. The Heads of School do not carry a specific responsibility for research leadership; though they are evidently fully engaged both with their own research and with the need for their Schools to meet research targets. The Schools do not have research committees where research group leaders meet, research strategy is discussed, research groups evaluated and so on. Though in the School of Educational Sciences and Psychology, there are regular meetings of research group leaders. There is therefore a tendency across the Faculty for university research priorities to be passed directly to research groups for action.

The University's Research Priorities

The University's research strategy 2010-2015 has identified the following three priority areas of expertise: Forests and the Environment; Health and Well-being; and New Technologies and Materials. It has also identified two areas to be further strengthened: broad-based Expertise Pertaining to Russia; and selected fields of Teacher Education: Special Education and Guidance Counselling and Subject Training in Natural Sciences. The panel was also aware that the Dean of the Faculty has attempted to mediate university priorities through three multi-disciplinary themes: Learning and Learning Environments; Life Course and Human Agency; and Language and Cultural Encounters.

University and Faculty themes were evident in the material presented for evaluation. The panel therefore attempted to discover the extent to which UEF priorities reflected existing and developing areas of research expertise and to examine how university priorities might be informed by these areas.

Site visit

The panel received detailed background information reports, focusing on the period 2010-2012, from each School. It met for half a day with each of the four Schools in the week of October 7th -11th 2013. These meetings involved time with the senior team in each School, the research group leaders, lecturers, post-docs and research degree students. In addition, there were two meetings with the Heads of School and the Dean and smaller follow-up discussions between Heads of School and the relevant panel experts. The panel also made itself available to meet groups or individuals who wished to provide additional information. Two examples of the

latter were the group working on research pertaining to Russia and the University Training School.

While undertaking the evaluation the panel was mindful of the following: the different histories of each School and its sub-units and consequently its current position on its developmental trajectory; the relative impact of the formation of the University on each School; the extent to which the research activities underway might connect with, or potentially connect with, the University's substantive research priorities; and the potential for global significance in current research activities.

In addition to evaluating the research strategy, activities and outputs of each School, the panel also considered faculty-level processes, such as communication flows, mentoring, work-load management, staffing and the use of data on graduate students, through which research strengths were developed and sustained. In particular, the panel examined the extent to which significant strengths evident at the level of research grouping were made visible and able to inform wider Faculty and University research priorities.

The Interpretation of the Evaluation Criteria and Scoring

The panel was aware of the University's aim to be ranked globally in the top 200. In providing scores for research quality, research activities, international collaborations and impact, comparisons have therefore been made with the strongest units internationally in each area. These scores should be regarded as snapshots in a process of change. The scoring of operational conditions and strategic vision was arrived at by consideration of the quality of analysis of the recent and current research culture and the strategies put in place to achieve research excellence over time.

Graduate Students

The panel met groups of doctoral candidates from each School. Those students it met were enthusiastic and skilled junior researchers who were active participants in research groups and with considerable potential for contributing to the quality of the research in their Schools. There were, therefore, examples of good practice across the Schools that can be built on.

The panel was, nonetheless, concerned about the quality of the data available on the number of active candidates, their sources of funding and so on. The data available indicated that a large proportion of candidates started their studies before 2006 and gave no indication of whether these people were still working on their theses. The panel was sympathetic to the challenges of keeping track of large numbers of part-time students who are heavily engaged in the professions served by the Faculty's research. It was, however, of the view that better data are essential pre-requisites for planning in this area.

The panel's reading of available data and of the Schools' background information reports reveal the following picture across the Schools.

The School of Humanities: Eight PhD degrees were awarded in 2012.

The School has:

- 89 registered candidates (69 women and 20 men)

Among them:

- 43 had started their studies in 2010 or later (32 women and 11 men)
- 23 of the 43 candidates (15 women and 8 men) are employed by UEF as junior researchers, a few candidates appear to be financed through research projects or with grants from foundations, and some have no funding

The School of Theology: One PhD degree was awarded in 2012.

The School has:

- 56 registered candidates (28 women and 28 men)

Among them:

- 23 had started their studies in 2010 or later (13 women and 10 men)
- Four of the 23 candidates (2 women and 2 men) are employed by UEF as junior researchers, and there is no available information about funding for the others

The School of Educational Sciences and Psychology: Nine PhD degrees were awarded in 2012.

The School has:

- 92 registered candidates (70 women and 22 men)

Among them:

- 44 had started their studies in 2010 or later (33 women and 11 men)
- Nine of the 44 candidates (6 women and 3 men) are employed by UEF as junior researchers, some candidates are financed through research projects or with grants from foundations, and some have no funding

The School of Applied Educational Science and Teacher Education: Three PhD degrees were awarded in 2012.

The School has:

- 72 registered candidates, 57 active (44 women and 13 men)

Among them:

- 43 had started their studies in 2010 or later (33 women and 10 men)
- 5 of the 43 candidates (3 women and 2 men) are employed by UEF as junior researchers, a significant proportion of the candidates in this School are teaching personnel in the School, a few candidates seem to be financed through research projects or with grants from foundations, and some have no funding

The panel is aware that the quality of the data may have produced an inaccurate picture. It therefore strongly advises the Faculty and its four Schools to produce

data and related analyses that can be used to monitor the performance of their doctoral programs, enabling them to compare their results to those of other universities.

The panel was concerned, notwithstanding the need to offer some part-time opportunities to candidates working in the professions, that a clear vision of how doctoral students can be recruited and deployed to support and reflect the research strengths and interests of the Schools was missing. It was also aware from talking with students just how difficult it was to sustain funding over three or four years, and how detrimental insecure and intermittent funding was for the progress of their studies.

The panel also observed that the majority of doctoral candidates are women. Across all Schools there are more women among the junior researchers than among the senior researchers with positions as lecturers and professors. Most universities in the Nordic countries have plans for the promotion of gender equality as part of their overall strategy for recruitment and promotion of research personnel.

Recommendations:

- i. The Faculty and the Schools should create a system for capturing data on doctoral candidates as they move from recruitment to defence. These data would enable the monitoring necessary to ensure appropriate distribution of resources, the introduction of appropriate support, the setting of deadlines, suspension of studies and so on.
- ii. When recruiting candidates, the Schools should give priority to high quality applicants with research interests that fit with the research profile of the School. Doing so is likely to increase possibilities of gaining sustained funding for candidates, and thus increase the likelihood of graduating within three or four years.
- iii. Efforts should be made, across the Faculty, to integrate the research of doctoral candidates with research areas within the School.
- iv. The Faculty and its Schools should give greater consideration to the development of policies in relation to gender equality in recruitment and promotion for research personnel.

Summary and Recommendations

In this section, the panel looks across the evaluation areas to make general points at the levels of the Schools, the Faculty and the University. Specific points in relation to each School are not repeated.

Strengths

- i. The Faculty is to be congratulated on the efforts it has made so far to combine its research strengths so that it engages with topics of intellectual importance and societal relevance.

- ii. There is evidence of careful thought in both intellectual vision and in emergent research strategies.
- iii. Some research activities within the Faculty have long demonstrated research excellence and continue to go from strength to strength; while others are already benefitting for the thoughtful planning that has taken place during the evaluation period.
- iv. The panel noted with interest the research which was attempting to take advantage of the specific opportunities afforded by the region to contribute to the intellectual agenda internationally. It also noted efforts to work with robust globally recognised conceptualisations while tackling the local.
- v. There was evidence of some national and international research impact based on the quality of pockets of research. The panel also noted that there were worthwhile examples of societal impact regionally and locally.
- vi. The panel was impressed by some productive international networking and by plans for increasing the international impact of faculty research.
- vii. The panel met with a number of informed and enthusiastic doctoral students from across all four Schools who were credits to the University.

Concerns

- i. The University's substantive priorities were at times being interpreted in ways which seemed to restrict potential developments from within Schools.
- ii. The University's emphasis on research excellence is similarly interpreted at times to suggest that all research-active staff should be operating at the highest level of international excellence in ways which are unrealistic.
- iii. Some very strong areas of research strength are not reflected within the University's substantive priorities.
- iv. Some research groups were what elsewhere may be designated project teams. There were examples of strong groups, with clear long-term research programmes, but these were not found across all Schools. The panel, of course, acknowledges the preference that some scholars have for solo endeavours. Nonetheless, organising groups around specific projects is likely to lead to a lack of emphasis on strong research programmes developed over time and the building of research excellence within those programmes.
- v. The panel recognised the importance of the University's emphasis on achieving the highest quality research income. Yet it was aware of the difficulty in sustaining research programmes in the areas reviewed solely through this kind of funding. It was also aware that there is much to be gained by focusing on building a coherent research programme over time as one route towards gaining substantial high-status competitive funding. Such a route might involve drawing on lower-status funding as part of a strategy towards excellence. A longer-term focus on strengthening coherent research programmes is particularly relevant when accessing European

- funding. There, high risk for high gain should be seen as an organising principle in submissions, alongside a recognition that adjudicating panels look for sustained research strength in the area of the proposal.
- vi. Although there was strong evidence of research vision across the Schools, evidence of School-level strategies to take forward these visions was less evident. The panel was aware of the need for sensitivity with colleagues during and after a period of significant change, but was of the view that in some areas of the Faculty there remained the need for some radical infrastructural change in the organisation of research.
 - vii. Although all the Heads of School and their senior teams demonstrated considerable commitment to research excellence, there was a variable degree of coherent research leadership across the Schools.
 - viii. The panel observed the lack of a research committee at Faculty level.
 - ix. The panel was concerned about the poor quality of the data held on doctoral candidates.
 - x. The panel noted a contradiction between the use of the locally sympathetic Finnish grading of research journals and the University's aim for international research excellence. It also observed some limited confusion over what constituted international quality. The panel would emphasise quality of research output over place of publication.
 - xi. While there was evidence across the Schools of considerable strengths in research methodology, there was little emphasis on developing methodologies or the support for staff in increasing their expertise in these areas.
 - xii. Finally and importantly the panel was aware of the age profile of senior staff and the preponderance of men in senior positions in some areas of the Faculty.

Recommendations

- i. As valuable as the University's strategic planning has been, it has been interpreted at times in ways which impede rather than enhance progress. In particular, the panel would suggest that Schools recognise that not all their research can or should be internationally outstanding at the same time. Schools should therefore take strategically developmental approaches to supporting research excellence. There were examples of this approach within the Faculty. In brief the panel is suggesting differentiation of support within Schools so that excellence is supported and potential excellence is nurtured.
- ii. The Faculty should study carefully the general outlines and instructions in relation to Horizon 2020 funding; there is a new emphasis on societal challenges, which creates additional difficulties for the Humanities. The Faculty may benefit from external help to focus and sharpen the potential

- available in some groups, maybe through an outstanding new appointment or through the Visiting Professorship scheme.
- iii. Schools should consider creating research committees or similar for the development and promotion of their research strategy, information sharing, the evaluation of research groups and so on. These committees may be chaired by a designated Director or Co-ordinator of School research and should consist of at least the leaders of each research group in the School.
 - iv. The Faculty should create a research committee where the chairs of the school committees meet to develop and promote cross-faculty research. Such a committee could also play an important role promoting the research strengths of the Faculty across the wider University.
 - v. Part of the work of a faculty research committee should be to help create a research support infrastructure that would enable cross-school collaboration and provide the practical support needed to enable research groups to take the lead in international collaborations.
 - vi. The data held on research students should be improved and used to monitor progress, allocate resources and so on.
 - vii. The faculty and school research committees should consider the specific niches that mark research at UEF. This suggestion is not to encourage isolationism, rather it is to build research excellence in areas that would mark the University as a destination of choice for international scholars and research funders in specific areas.
 - viii. Research mentoring schemes should be established for staff members that are new to or returning to research, and more attention should be paid to the public discussion of research methods in Schools where this is seen as relevant.
 - ix. There is a need for a staffing strategy that attends to the research strategies in place in each School.
 - x. Similar attention to research strategies should be paid when advertising for and admitting PhD students.
 - xi. There is also urgent need for a working party to address the relative absence of women from significant roles within the Faculty.

3.1 SCHOOL OF APPLIED EDUCATIONAL SCIENCE AND TEACHER EDUCATION

A SCIENTIFIC QUALITY OF RESEARCH

The School has identified its areas of expertise as socio-cultural research on learning/environments, multicultural and multi-disciplinary research, and integrative arts and skills. It has also worked on developing its research culture over the past three years. Increases were noted in publications in international journals, the coordination of international conferences, the recruitment of new research personnel, and the allocation of additional resources to support applications for external funding. Publications have included both an increased international focus and more joint publications with national colleagues.

The research activities are situated in 15 research groups that are described in the background information report as: established, coordinated by the unit, coordinated by other universities, and solitary groups. These groupings, with a few exceptions, appear to be closer to research teams collaborating on a specific project than to research groups which are constructing coherent programs of work comprised of several projects. As a result, the quality of research across the groups was variable. At the same time, it was difficult to discern how all of these groups connected with the three areas of research expertise identified by the School.

Some groups were clearly highly productive and working in line with the University's strategic priorities for further development. These included the Blended Learning and Technology-based Learning Environments and Science and Environmental Education. Within those groups, additional resources have provided funding for PhD candidates and other research personnel. These resources have led to a productive record in publications and international collaboration.

The background information report listed some articles published in relatively high-status academic journals such as, the *International Journal of Educational Research*, *British Journal of Educational Technology*, *Scandinavian Journal of Educational Research*; but many of the articles listed as the 20 best outputs were not placed in journals that would indicate a strong scientific quality or international standing.

Among its other concerns, the panel also noted that some of those who were conducting research in isolation, while still demonstrating a productive level of scholarship, were not publishing internationally. Meetings during the site visit revealed the use of sophisticated analytic approaches with large data sets and rigorous designs, including randomized controlled studies. There was, however, variability in the quality of research methodology across the School.

The panel noted particular research strengths in the areas of Technology, Science Education, Mathematics Education and Health and Nutrition, and acknowledged the importance of some other areas that have been developed within the School over time. The panel, disappointingly, heard less about research addressing pedagogical issues within other subject areas, the identification of teaching and learning principles, or research on Teacher Education as an object of scientific study. The panel was surprised by these omissions, not least because of the University's strategic interest in selected areas of Teacher Education research. The panel was also of the view that the University School offered opportunities for research in these areas and was impressed by the glimpse it received into the research potential afforded by its proximity to the University campus.

Recommendations:

- i. The School should rethink its rationale for its research groupings and move towards the development of grouping that can develop sustained and future-oriented research programmes accommodating the interests of colleagues and research students.
- ii. There should be more strategic targeting of high-quality national and international journals.
- iii. The absence of sustained research on Teacher Education needs to be remedied. Possibilities for stronger collaboration with colleagues in the School of Educational Sciences and Psychology may be useful here.

B RESEARCH ACTIVITIES VS STRATEGY

This School is faced with far greater challenges in relation to addressing University expectations than the other Schools in the Faculty, not least because of its distance from the two other campuses. Discussions during the site visit revealed that since 2010, major efforts have been made to reorganise the School, to consolidate research activities and make links with the Joensuu-based colleagues. It was clear to the panel that this reorganisation has meant that progress towards some UEF priorities has been slower than in the other Schools in the Faculty. The panel did not view the slower progress as a failure; but instead thought the activities were essential steps towards a necessary reorganisation of the School's research infrastructure. The panel was nonetheless surprised that the School had not regarded the University's prioritising of selected areas of Teacher Education as an opportunity for the wider strategic development of research on Teacher Education in its research planning.

The panel noted that research groups are beginning to make research plans, are working on enhancing their research skills, and attempting to improve their international impact and external funding. The panel would encourage them in this direction and was particularly pleased to note activities that were proposed to build capacity among early career researchers such as Research Forums, more attention to the leadership and coordination of the research in groups, and the pooling of internal resources.

Recommendation:

- iv. The panel noted the efforts being made to build a research infrastructure that would enable the School to respond to the University's strategic priorities and would encourage it to grasp the opportunity made available by the focus on Teacher Education in these priorities.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

The panel noted that there were a relatively low number of international or national collaborative research projects. It was also noticeable that none of the four international projects undertaken during the period of the evaluation were coordinated by the School. Members of the School have, however, coordinated two of its four national projects. The School has demonstrated a commendable record of contributing to publications arising from these national and international collaborations, and they are also involved in several international networks. The panel was pleased to note that there were plans in the School for increasing these collaborations.

The panel heard that the teaching responsibilities of the research-active members of the School limited their mobility. In 2012 only three researchers went abroad and only one international researcher visited the School. The panel was of the view that stronger research groupings which would offer interesting environments for visiting researchers might help strengthen productive international connections based on the research strengths of the School.

The panel also noted that the PhD students it met were locally-based and were not taking advantage of student mobility opportunities.

Recommendations:

- v. The School is advised to think strategically about enhancing the international links of its strongest research groups as part of its long-term planning to achieve research excellence.
- vi. The panel would wish to encourage the School in its attempts to develop inter-institutional collaborative projects both nationally and internationally. It would also hope that sustained collaborations would increase the mobility of researchers.
- vii. The panel was of the view that PhD students should also be part of a researcher mobility strategy in the School, and they should be encouraged to have research quarters at other international universities.

D OPERATIONAL CONDITIONS

In presentations during the site visit, the leadership team demonstrated a very good understanding of the challenges it faces in developing a strong research culture and had developed plans to respond to them.

It had identified three extremely broad research areas for strategic development: sociocultural research; multicultural research and sustainability; and integrative arts and skills education. While these are relevant to both contemporary education and to the broader UEF research themes, there was still work to be done to assess whether these areas had any strong meaning in terms of taking forward the School's research strategy. In particular, it was unclear how the 15 research groups might organize their strengths within these areas.

Of perhaps more fundamental importance, as we have already indicated, there is confusion about what constitutes a research group, what is a research area and what is merely a research project. The panel was of the view that 15 groups were too many for a coherent approach to building a research culture. Indeed the panel came to understand that only half of those involved in research activities were also members of a research group.

While there have been attempts at building cohesion and a vision of future research activity there is a need now for a radical reshaping of the groups carried out in ways that build on existing research strengths, and take full advantage of the opportunities afforded to Schools of Education within Finland.

The panel also noted that the School's personnel structure with few professors and senior researchers is not reflective of a research-intensive university and creates obvious limitations for the development of a research culture. It was pleased, however, to note the efforts being made to ensure that staff members without doctorates were able to undertake doctoral study.

Recommendations:

- viii. The School would benefit from strong strategic leadership through a research committee, chaired by a director of research, which would meet frequently in the first year or so to provide oversight and take forward the reorganisation of research groups against clear criteria for their formation and dissolution. The committee might also take responsibility for cross-group researcher development activities and establish systems of peer review of applications for funding and the prioritising of funding sources. In the longer term, it should operate as a forum for the strategic development of the School's research drawing on the strengths of newly constituted yet mature research groupings.
- ix. The panel observed that some of the aims outlined in the background report lacked the precision needed for clear strategic planning. The School, in collaboration with the newly constituted research groupings, should identify specific expectations for each group, building on existing research strengths and identifying where those strengths need augmenting.
- x. The School should put in place procedures for reviewing applications to external funding sources and for examining the feedback on submissions. The former would help share the expertise already available within the

School and the latter would help identify where additional infrastructural support is needed.

E IMPACT OF RESEARCH

The background report pointed to the variety of ways that the School's research may impact on culture and society, including the environment, the economy, politics and administration, as well as welfare and health.

The examples provided in the report were primarily local and regional. The School's aims in relation to contributions to society are more ambitious than the current examples witness. The panel was of the view that the School has a potential for wider national impact that has not yet been realized.

There is clearly work to be done. Current thinking on impact in the School addresses the potential for "providing valuable information", but lacks a clearly designed set of procedures and networks for dissemination. Some of the researchers serve as experts in positions of trust and national task forces. It is therefore likely that the impact from research in teacher education is actually stronger than that documented.

Recommendation:

- xi. The panel was of the view that the School needs to develop a strategy for impact, particularly given the evident interest in research in and on Finnish schools internationally.

F STRATEGIC VISION

The panel appreciates that this school has undergone a major transformation which has included changes in localities, education programs, and research areas. Now that the reorganization has been completed, the School is encouraging its good quality research, working on improving the research qualifications of their teaching staff, and providing the leadership and support to identify strategic research initiatives that have the potential for excellence.

The panel came to the view that, to date, the School has necessarily focused on the demands of reorganization and much less on creating a vision for the future. It was also clear to the panel that the School recognized that it was now time for attention to building a coherent vision of the Schools' research future.

The panel was impressed by the thoughtful work that has gone into the background information report and commends the leadership on the work it has done so far in the consolidation and reorganization of research. A chart - "The developmental actions: new start, directions and motions" - presented during the site visit provided a convincing framework for addressing the challenges faced by the School.

These challenges, as we have already indicated, include promoting internationalization; developing a research culture within the School, at times from a relatively low base; increasing external funding; and enhancing the quality and

visibility of the research. A key in this work will be an analysis of what constitutes the scholarship, knowledge claims and research culture to be found in a research-intensive School focusing on what has been labelled applied education and where there is a strong focus on Teacher Education.

The background information report indicates the School's awareness of the discrepancy between their wide-ranging research interests together with a high commitment to realizing such interests, and their limitations in available time and the shortage of external funding for actually conducting this research. While the panel was impressed by the visioning revealed during the site visit it would encourage the School to revisit the areas identified in the background information report in order to develop their precision and to set out a strong step by step strategy for achieving a strong and generative research culture focused on matters of future relevance to Education nationally and internationally.

Recommendations:

- xii. In order to do more, the School will have to do less by carefully prioritizing its areas of potential excellence.
- xiii. In order to develop and take forward these priorities the School will need research leadership which is dedicated primarily to a radical overhaul of the research groups. This overhaul needs to be negotiated in ways that help research groups align their current research strengths with the School's strategic priorities. The research leadership should be supported in making some difficult decisions where research activity remains of low quality.
- xiv. The panel envisages a careful change process that should not be hurried. The process should be accompanied by a strategy for the development of the research strengths of staff at every level of the School, which has support from beyond the School.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	3
International and national research collaboration and researcher mobility	3
Operational conditions	3
Impact of research	3
OVERALL ASSESSMENT (not the average of the scores above)	3

3.2 SCHOOL OF EDUCATIONAL SCIENCES AND PSYCHOLOGY

A SCIENTIFIC QUALITY OF RESEARCH

During the reorganization of the School, four disciplinary areas have been established, each of which has a distinctive profile and all are of high quality. Within all four disciplines there are specific research focuses, with some projects standing out more than others due to their particularly high quality. Together the four areas create a strong interdisciplinary School with research which complements professional training programs within Education and Adult Education, Special Education, Career Counselling and Psychology.

All the disciplines have had externally funded projects of significance. The research group addressing the benefits of lifelong learning had a high-status research project in adult education: The BeLL Project. The team built a national study, shared an interdisciplinary approach, and connected their work to European partners, receiving EU funding from 2011-2013. This success is impressive, since EU lifelong learning funding is gained by only 3% of the applications. Other projects are CASCADE where the researchers have examined the intersection of disability and technology, and TPA where researchers are looking at the transition from student teacher to experienced teacher. Within Special Education, members of the ISKE project have engaged in international collaboration on the practice and impact of inclusive education. The ProSchool research projects are using international concepts of strength-based assessment and proclaim behaviour work as translational research from the US to Finland. Psychology has been recognised for its work in gender studies and narrative methodology in particular.

Quality was noted in the production of peer-reviewed articles from 2010-13. This included a 27% increase in the number of articles published, from 37 to 47. Further, the number of international collaborative articles produced rose five fold, from three to 16 articles. The Head of School emphasised that this was a strategic target and the panel was impressed by this increased production of quality articles.

The Head of School reported that as part of reaching this improved level, the reorganized research groups have shown a renewed sense of purpose and readiness to engage in multidisciplinary collaboration. An example of this collaboration was presented to the panel in a visit to the lab of the CASCADE project. Here we found professors, researchers, and doctoral students from Special Education, Computing, and Humanities working together to study the language production and social information processing of students with disabilities. The

researchers were using advanced technologies for data collection to analyze eye tracking of students and issues related to interpersonal interactions.

The quality of the research planning that is producing the School's strong research profile was highlighted through clear organizational charts in each discipline. The charts showed the relationship between each area and research projects. These blueprints or guidelines were noted as essential steps for research groups to plan current and future projects of significance. The panel was impressed by the clarity and importance of this planning.

The research has great potential in producing significant outcomes for Special Education in schools, Adult Education across different social settings, and the counselling community. The work in schools, for example, is beginning to address the issues presented by behavior problems and development of learning and behavioral disabilities. By adopting a three-level model of prevention, often referred to as the Response to Intervention approach, or Multi-tiered System of Support (MTSS), breakthroughs have been made in how behavior can be addressed more positively in schools, how students with learning difficulties can access early and effective interventions to ameliorate their difficulties with literacy, maths, or writing, how important instructional approaches can be used to benefit learning for students with disabilities, and how counselling approaches can be used in Career Guidance as well as Special Education.

Recommendations:

- i. The three levels in the Finnish system for grading the quality of publications seem to be somewhat contradictory to other international rating scales for publications. To strengthen the positive trends in the production of research articles, the School should emphasize the international rating standards.
- ii. The School should continue to refine the organisational structure for research collaboration across the four disciplines. This will assist in the validation of knowledge production across groups in the area of evidence-based practices. For example, the mental disorders and promotion of health of individuals that are studied within Psychology might be linked with the school-wide interventions that are used when the ISKE network is addressing behavioural issues in schools. Also, collaborations between researchers in Psychology and Counselling might produce a hybrid approach that not only addresses behaviour problems but also pays attention to social and emotional aspects of learning among children and youth. Overarching liaison groups could capitalize on discipline strengths and thereby contribute to a wider visibility of the research profile of the School.

B RESEARCH ACTIVITIES VS STRATEGY

The School has attempted to address the major areas in the research strategy of the UEF (Forests/Environment, Health/Well-being, and New Technologies/Materials). While commending the School for these efforts, the panel is of the opinion that there are only limited benefits for the School in trying to align its knowledge with the stated priorities. So for example, Health/Wellbeing, which on a first glance seems to be highly relevant to the School, is according to the UEF strategy defined for other purposes than attaining expertise in addressing mental health and/or wellbeing in the educational system and across the life-span. As UEF strives to improve its international standing and research excellence, the panel suggests that, rather than try to oblige the various Schools to adapt their research programs to open, and therefore sometimes vague, priorities, UEF should encourage the Faculty and its Schools to take opportunities to visibly excel within or drawing upon their specific areas of expertise.

Nonetheless, in relation to the two emergent regional and national areas of research priority identified by UEF, Expertise Pertaining to Russia and Teacher Education, the panel notes that the School has been able to develop some specific projects that are likely to promote expertise in research Pertaining to Russia. Its research has consequently benefited by strengthening both the areas of Special Education and Guidance Counselling in relation to Expertise Pertaining to Russia. The panel was of the view that the School has the potential to contribute to the development of the research base for Teacher Education and would also note the work of Finnish Psychology to continuously and repeatedly disseminate Russian Psychology to the Western world.

The School has tackled areas that were seen as challenging in 2010 by, for example, increasing their publication frequency in international journals and seeking more external funding. Over the past three years, publications activities have improved; but external funding has remained relatively stable. The external sources for funding include the most significant ones, with awards from the EU, the Academy of Finland, and the Finnish Ministry and Board.

Recommendations:

- iii. The School has a viable strategy for research that addresses contemporary issues and promotes research of a very sound quality. There are convincing plans for its further development through careful use of existing strengths in collaborations within the School and across the University. The research should therefore be continuously assessed according to the highest international standards.
- iv. The panel also recommends that interconnections regarding research strategy be more clearly defined between the School and the UEF so that the University is able to attend to the plans of a School that has clearly grown rapidly in its research strengths and intellectual maturity.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

The School has increased its national and international research collaborations. This achievement is reflected in a healthy number of joint high-quality publications with Finnish as well as international scholars. The number of joint international publications has increased from three in 2010 to 16 in 2012, an outcome resulting from success in securing funding for national and international research projects. In seven of the 14 international collaborative projects the School acts as the coordinator. The panel also noted that in the recently launched BeLL project, the School is listed as partner but in fact it has the scientific leadership of this important study.

While the level of joint publication and collaborative projects are commendable, the overall research mobility is quite limited. In 2012 only three researchers made an exchange visit, and this does not appear to meet the level of international visibility that the UEF would like to accomplish.

Recommendations:

- v. The panel strongly recommends that the School develop a strategy for international mobility, paying particular attention to establishing better conditions for PhD students to spend time in foreign research groups.
- vi. The panel was also of the view that there was a need for administrative support at School or Faculty level to help with applications for funding from the EU. This support would enable researchers in the School to take stronger leadership roles in these projects.

D OPERATIONAL CONDITIONS

The panel was highly impressed by the strong, supportive and far-sighted leadership that has been driving the School's operations to develop a cohesive and high quality research program. These efforts have involved a detailed analysis of the strength and barriers the School faced in realizing its own and the University's ambitions. Recognizing that much of the strength had come from, and would continue to come from, the four disciplines that make up the School, much thought has been put into identifying viable research areas that can offer some continuity to researchers and allow them to build a career across specific time-limited projects. The panel was also pleased to note that in this School the leaders of research groups did meet, if infrequently, and there was an awareness of current research strengths and interests across the School.

While the panel commends the School for these developments, it has some concerns with regard to the total number of research groups. There are groups with low numbers of members allocated to each discipline. We understand that the School's leadership is well aware of this problem and that they see the present structure as a first step to identifying research groups with sufficient durability and engagement to foster quality. The panel is therefore encouraged by the detailed and

well thought through strategic thinking that is going into moving the School forward.

The School's facilities and infrastructure for doing research, including the library, seem to be good, with the exception of the need for better infrastructure for clinical psychological research.

Recommendations:

- vii. The School recognizes that it should clarify the rationales for its research groups and for the provision of resources for their activities. The panel wishes to encourage them in that endeavor and would suggest that any reorganization of the groups should be a transparent process with clear criteria for their formation and dissolution and for the provision of resources.
- viii. The School is faced with a large teaching obligation within professional education. At the same time staff members are heavily involved in research activities. The panel formed the view that the research aspirations of the School would benefit from an increase in the number of well-qualified staff able to contribute to both research and teaching.
- ix. While there has been an improvement in efforts to secure research funding from European and highly competitive Finnish sources, the panel noted that these sources are limited and increasingly difficult to obtain. The panel therefore suggests that the School might be able to sustain research programs with funding from a wider range of funders, some of which may not be quite so high status. While projects funded from other sources may not carry the same recognition, they can help maintain a strong research environment, contribute to scholarly publications, and fulfill the practical expectations of the funders. This way of working is in line with the School's plans to move away from research groupings based on time-limited projects in order to create fewer and stronger research groups with coherent and sustained programs of research.

E IMPACT OF RESEARCH

The School's background information report addresses impact on "culture and society", on "politics and administration" and on "welfare and health". Within each of these broad areas the report presents specific and convincing examples of the ways in which findings from research activities are disseminated, and also points out the kind of mediation systems and connections with organizations that the researchers have built up and are able to draw on to achieve impact.

The areas in which the School's researchers have had an impact are local, regional and national, and in some cases, international. Such systematic work with social impact has a longstanding history in all the former units that merged into this School, and the School also has current enterprises that point towards the future. Examples of societal impact are: (i) the role of the School's Special Education

research in informing the recent Education Law which has transformed mainstream and special education into a three-tiered support system comprising universal, intensified, and special support; and (ii) the way School research and evaluation in Career Guidance and Counselling has led to close co-operation with the National Board of Education, the Ministry of Education and Culture, the Ministry of Employment and the Economy, and the National Institute of Occupational Health to develop guidance and counselling in schools and in adult education and in transitions to work.

The panel was of the view that the School's methods of dissemination were innovative, both in the ways they include corporate partners and in the material that is produced for practitioners in learning and Counselling and Psychotherapy.

The panel was impressed by these activities, how they are integrated in the research projects as an ongoing concern, and what is accomplished through engagement with research users across a range of arenas. There seems to be a good match between content and the methods for mediating knowledge. These approaches to impact are setting a standard for the Faculty as a whole.

F STRATEGIC VISION

The panel recognized through the background information report and in presentations during the site visit, that research leadership in this School is strong and coherent, with a high degree of strategic thinking taking place across the leadership of the research areas. Those responsible for leading the School's research activities are clearly aware of the challenges that they face, and have strategies underway to address them.

The panel questioned whether the two Schools researching in the broad field of Education should be merged, or whether Psychology should be transferred to the Faculty of Social Sciences and Business Studies. The importance of such questioning diminished during the week of the visit. The panel became convinced that the School has a strong strategic vision which is based on a forensic analysis of challenges and opportunities and on a systemic response which builds from the current assemblage of research strengths.

The panel did note that the problem of too many research groups appeared particularly acute in Psychology, where staffing levels seemed too low to offer sufficient strength to the three research focuses within Psychology. The panel was therefore pleased to note that scholars from Psychology have been able compensate for this by successful collaborations with members with corresponding interests from other schools at UEF.

Recommendations:

- x. The panel recommends that the School's research leaders continue with their plans to create stronger, more sustained research groups so they may support long-term research programs aimed at achieving the highest levels of external funding and derived, at least in part, from the expertise and

research interests of group members. The panel was of the view that a strong acknowledgement of the interests of those who in close touch with the field is of particular importance in the areas covered by the School, where a large proportion of the research involves working with and on matters of direct and immediate relevance to practitioners. It suggests that such sensitivity to changes in these fields places the School in a strong position for achieving future-oriented European funding including Horizon 2020.

- xi. The panel was of the view that the actual number of groups belonging to each area should be flexible and kept under review through a formalization of the current meetings of research group leaders into a functioning and strategic research committee able to make transparent decisions about the formation and dissolution of research groups.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	4
International and national research collaboration and researcher mobility	4
Operational conditions	4
Impact of research	5
OVERALL ASSESSMENT (not the average of the scores above)	5

3.3 SCHOOL OF HUMANITIES

A SCIENTIFIC QUALITY OF RESEARCH

The School of Humanities includes a range of disciplines that have been re-organized in broad areas relating to linguistic/language studies, translation studies and cultural/literary studies. Five areas of expertise have been identified by the Humanities unit – 1) Languages and translation in contact situations; 2) cognitive studies of language and translation; 3) transformation of the local and the global; 4) culture and environment; 5) art worlds and literary cultures in change. The quality of research within these areas of expertise can be categorized at either national and international levels in terms of research significance, research potential, and global reach.

Ambitious scientific objectives and goals are demonstrated in research areas of key strategic importance to the University as well as to the wider society. Research excellence in these areas currently has greatest reach at the national level, as recognized in the background information report. The School of Humanities has developed interdisciplinary areas of expertise in building a nationally distinctive research profile. Research achievements at the national level contribute to fulfilling the government directive to the UEF regarding research and teaching on Karelian language and culture. These research strengths also contribute to the University's development of broad based Expertise Pertaining to Russia. This priority is reflected in research focused on language contacts between Finnish, Karelian, Ingrian, Estonian and Russian, as well as on Karelian as an endangered language. Ethnographic studies of local environments, which include long-term perspectives and particular attention to soundscapes, address matters that arise at borders and in particular in marginalized localities, micro-level regional processes and auditory knowledge. Documentation and publication of ethnographic data is of particular international relevance to specialists in ethnographic –based and cognate disciplinary research fields.

Some research publications demonstrate multidisciplinary approaches and a high-level of internal collaboration. For example, the edited collection on *The Idea of Periphery, Cultural Analyses of Ilomantsi* includes a high proportion of contributions from researchers within The School of Humanities. The research outputs arising from these research areas generally correspond with the University's mission to promote the regional development of Eastern Finland.

Research specialisms in regional issues are strengthened by key partnerships. These have been established with the Kalevala Society, which bases its work on the national epic and on the oral cultures that informed its construction, and with

Northern Karelian film production. Such partnerships are of clear assistance in developing and disseminating knowledge of cultural traditions that have been of long-standing national significance.

Research excellence at the international level is also evident within the Humanities. Impressive external research funding has been gained during the period 2010-12, including successful applications to highly competitive funding sources such as the Academy of Finland and (some) EU research funds. Researchers have contributed to significant publications such as *The Mouton World Atlas of Variation in English* (2012), *The Oxford Handbook of Translation Studies* (2011), *Journal of Commonwealth Literature* (2011). Research outputs have also been published by Suomalaisen Kirjallisuuden Seura, an important national publishing forum.

Internationally, most visible is the work of the School in the research area “language and cultural encounters”, which like analogous research in other universities lays the foundations for Finland’s communication with the rest of the world. Prominent examples of this work are studies of the history and varieties of English, of International English, of linguistics and cognitive impairment (through schizophrenia, autism, Alzheimer’s disease), of the cognitive processes and results of translation, and of speech technology, as well as cultural studies in relevant and topical areas. The visibility of this research is guaranteed through its publication in international journals and handbooks published by major publishing houses. Its quality is also manifested by various roles of its authors, e.g. membership in national and international committees, membership on editorial boards of national and international journals. Overall, the number of publications in high-ranking peer-reviewed journals has increased considerably since the last evaluation.

In summary the panel was of the view that researchers within Humanities had developed creative research synergies through collaborative work. It observed that publication of peer-reviewed articles increased, and non-peer-reviewed articles decreased during the review period. It also noted that publication of monographs increased and that 20 PhDs were conferred during the review period. The panel also recognized that researchers within Humanities contribute substantially to knowledge about the regional context and they are well placed to provide insights into the promotion of regional development.

Recommendations:

- i. Humanities researchers should think more carefully about the status of journals and publishing houses before deciding where to submit work. Moreover, there is some lack of systematic ranking of publishing outlets in the background information report. For example, the Newcastle-based Cambridge Scholars Publishing is variously categorized as Jufo 2/a or Jufo 1/c. It should be noted that high-quality research writing can be found in a wide variety of publishing fora, so this recommendation is not about

- consistency in rankings (or about conforming to ranking systems) but about planning which are the most appropriate outlets for research.
- ii. Researchers in the School could take more advantage of opportunities for stronger research synergy at intra- and cross-faculty levels. For example, music and auditory research within the Soundscapes Studies Research Group might be linked with the study of Church Music within Theology, multicultural arts and skills research (which includes a music specialist) within the Applied Educational Sciences and Teacher Education, and popular music studies within the Karelian Institute in the Faculty of Social Science and Business Studies.
 - iii. While there has been encouragement for the formation of research groups the panel recognized the value of individually-pursued research in the Humanities.

B RESEARCH ACTIVITIES VS STRATEGY

The School contributes to two of the focal research themes of the University with new developments in relation to “Broad-based Expertise Pertaining to Russia” and research on soundscapes, with the latter making relevant contributions to the University research theme “Forestry and Environment”. The School also contributes to one of the three research themes in the Philosophical Faculty, viz. “Language and Cultural encounters”. A broad interpretation of the terms used for the other major themes at the University and at the Faculty level would also allow the School to subsume aspects of its research activities under “Health and Well-being” and “Life Course and Human Agency”.

A focus on Expertise Pertaining to Russia was established only recently and was therefore not strongly represented in the list of major publications of the School. The report and the ideas presented to the panel in the presentation of the VERA center show signs of great promise but they are also in need of critical discussion with relevant experts from elsewhere (including from other parts of UEF).

At Faculty level, the School of Humanities is the main contributor to the focal research area “Language and Cultural Encounters”, an area of crucial importance for Finland’s communication and interaction with the rest of the world. The panel was of the view that the School should develop a stronger an agenda of its own, exploiting the full potential of the Humanities in this area of research. In the course of the period under evaluation, the School has increased its international visibility through its research on language and languages (acquisition, loss, impairment, structure, development, speech perception and language technology), and cultural studies (narrative, representation of human-animal relations, mobility and cultural contacts, etc.). In its ethnographic work and border studies the School offers specific regional perspectives within Finland, as well as beyond, in dealing with the contact between Finnish and other Finnic languages, and their roles as minority and even endangered languages. The panel considers it of utmost importance that these

activities should be continued in the years to come to ensure that the Schools sustains its good work in communicating these topics within and beyond academia.

Recommendation:

- iv. There is work to be done at Faculty level to make visible the specific strengths of the School of Humanities and their relevance to the University's strategic aims and for the University to find a way of engaging with the intellectual resources offered by the School.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

During the review period the unit has participated in various national (6) and international (3) doctoral programs, though more intensively in the former than in the latter. For the national programs UEF acted as coordinator for 2 years of the 3-year period under review. For the international programs UEF did not act as coordinator during the period under review.

During the review period the unit has participated in international teacher and researcher exchange mobility, especially under the EU Erasmus program. However, in absolute terms mobility remains rather low, and there certainly is room for improvement here in a Faculty largely concerned with language/literature/cultural studies, and where one might expect that a study period in the country/linguistic environment studied would form a vital part of any course of studies.

The unit has engaged in national (2) and international (7) collaborative projects, with in both cases UEF acting as coordinator of one of the projects. The national collaborative projects each involved only three institutions. The international collaborative projects varied from involving only two to as many as 21 institutions. The one international project UEF coordinated was the smallest, involving UEF and Petrozavodsk University, with the latter actually acting as coordinator. Of the international collaborative undertakings one has involved exclusively Nordic universities or partners, two have involved Nordic and/or neighboring states institutions, four have involved wider European and in one case also non-European partners.

The unit has participated in joint publications both nationally and internationally. The lists of what the unit itself considers its 10 (out of 46 total) best national and 10 best (out of 30 total) international joint publications comprise both articles and monographs. Joint publications listed as resulting from national collaboration have appeared in both Finnish and English, in both Finnish and international journals, and with both Finnish and international publishers, more frequently with the latter than the former. Joint publications listed as resulting from international collaboration have appeared both in Finnish and (predominantly) in English, always in international journals or with international publishers. Nonetheless the international academic status of some of the latter can be seriously questioned, as indicated also by the low ranking assigned to some of these

publications (Jufo 1 or ESF C). Among the publications resulting from national collaborative projects there is a slightly higher incidence of publications in the field of linguistics than literature; with publications resulting from international collaborative projects the reverse is the case.

In summary, the unit engages in national and international collaboration, but it seldom takes the lead. What the unit sees as its own best publications resulting from such collaborations infrequently achieve high impact or rank highly on both the Finnish (JUFO) and/or ESF scales, with publications in linguistics almost consistently scoring higher than those in literature or cultural studies. Given the obvious limitations in critical mass in the unit and the funding available for these areas of research this profile is commendable, but there remains room for improvement, even within the existing constraints. The panel did note, however, that the unit does relatively well in gaining funding, especially from Finnish funding sources.

Recommendations:

- v. The School should seek more collaboration, at least for some sectors of the unit, beyond Scandinavia and/or immediately neighboring countries.
- vi. Some sectors of the unit, should target journals and publishers more carefully and prioritize quality over quantity.

D OPERATIONAL CONDITIONS

The School has taken convincing steps towards moving beyond the traditional structuring of research in the Humanities with the goals of reducing fragmentation, exploiting synergies and enabling cooperation across subjects, across disciplines, across Schools, and even across Faculties. While the organizational structure presented in the Schools' background information report comprises 16 fairly small research groups working in five areas of expertise, the presentations and handouts prepared for the site visits showed further reductions of sub-units and a new structuring (e.g. CROSSLING, The Art Worlds and Literary Cultures in Change, Culture and Environment, etc.). The panel considered this restructuring was a step in the right direction, but also observed that an organizational framework consisting of as few groups as possible may not necessarily produce high-quality research if it were to stifle the creativity of individuals.

As a result of the short histories of the University of Joensuu and the UEF the library situation is not very good as far as older books are concerned. In addition, there are few positions for auxiliary research personnel, and the auxiliary personnel available is unevenly distributed over the various research groups. The view was also expressed to the panel on several occasions that high teaching loads made it difficult to find sufficient time for research. The panel, however, was of the view that, from an international comparative perspective, the time available for research is at least in line with general European practice. The current staffing base with the existing number of professors and researchers appeared to present an adequate

base for the School's long-term research strategy. Both professors and senior researchers provide good leadership for the research groups.

During the review period, external funding was obtained from the Finnish Academy and other national agencies for 10 research projects. This remarkable performance nationally has not yet been paralleled by successful efforts to attract international funding from the EU and other sources.

In summary, the School has succeeded in building up a structure that provides a sound basis for future research, by avoiding fragmentation, strengthening cooperation and beginning to exploit synergies.

Recommendations:

- vii. To overcome the uneven distribution of research support within the School, the panel would advise increased attention to costing for support when submitted proposals for external funding.
- viii. Concerted efforts should be made to acquire funding from international sources (ERC, COST, ESF, etc.).

E IMPACT OF RESEARCH

The School of Humanities has developed research activities with considerable academic impact and with potential for further impact on the wider society. The School has concentrated in its language and cultural studies on those aspects of language and languages that are of great use to society (translation, variation, language acquisition and loss, cultural contacts, speech technology, etc.), rather than drawing the usual distinction between theoretical linguistics and applied linguistics. In terms of impact on research knowledge, this unit has contributed significantly to fields such as narrative theory, study of human-animal relations, language pathology, varieties of English and ethnographic documentation.

Research insights communicated beyond academia include social applications which tend to become visible only several, and sometimes many, years later. A good example from the work of the School is provided in the background information report: the basic linguistic and phonetic research carried out prior to the evaluation period of 2010-12 has been explored by the Forensics Laboratory of the National Bureau of Investigation with the consequence that future forensic analysis will include a speaker-voice database. Linguistics research is also being explored with regard to clinical concerns on schizophrenia and Asperger's syndrome. There may be potential future transfers of research knowledge from this project too. The direct application of research in these projects indicates the positions of trust that the School's researchers hold within other public social institutions. In addition, UEF Humanities researchers have been appointed to the Examination Committee for Authorized Translation, the Finnish Literature Society, the Matriculation Examination Board and the Follow-up Committee for Research Integrity. These roles include leading, shaping and contributing to key concerns

around research ethics, publication, and pedagogy. Partnerships with local film industry also hold potential for enriching local cultural life.

Specialist regional research knowledge includes such potentially high-impact activities as dealing with issues around endangered and minority Finno-Ugric languages, especially Karelian. It is a good strategic move of the School to focus on cultural and language knowledge pertaining to regional interests. This knowledge shapes and reflects on matters of culture and society, economy and the environment.

The University has invested considerably and strategically in the establishment of a Centre for Russian and Border Studies (VERA). This initiative is certainly warranted given geographic location. However, in order not to lose the benefits of such strategic investment, it would be worth giving further thought to the conceptual and theoretical underpinnings to the Centre. For example, the theoretical outlooks and methodological tools that shape ethnographic knowledge production in other parts of the School could be usefully consulted to develop the work of the Russian Studies Centre. Without such conceptual foundations, the Centre's potential positive impacts on the wider society and in cross-border relations might not be achieved.

F STRATEGIC VISION

In the background information report, the unit's strategic vision is largely phrased in quite the general terms of increasing research funding, internationalization, and publications. The panel was of the view that the very generality of these strategic intentions reveals an inherent tension between the broad strategic research vision of the University, which seems to be predominantly steered by criteria derived from the applied and medical sciences, and that of the Philosophical Faculty which attempts to mediate those goals to connect where possible with the strengths of its Schools. The panel was concerned that tension risks sacrificing what is disciplinarily most distinctive for the Humanities to the interests of other units within the Faculty and University.

Assessing the success of the Humanities by how well they are able to accommodate strategic priorities which serve the interests of other disciplines creates the risk of obfuscating the achievements of the School. The panel was of the view that research activities in the School include those that have the potential to be at cutting-edge areas within the Humanities, in fields that offer possibilities for interdisciplinary collaboration. These collaborations may build on well-established research strengths within the disciplinary traditions such as translation studies, transculturation, soundscape studies, the animal-human relationship, questions of narrative, literary studies systems and border studies.

All of these areas of research easily lend themselves to creative interactions across the University with, for instance, education studies, neurology, audiology, ethics, bio- and life-studies, psychology, neuroses, autism, studies in personal development, aging, and consciousness, social systems, migration and identity

studies, the study of world language(s) and world literature(s). All of these possibilities are implicitly present in the unit's background information report, but the panel had to elicit them in sessions because the unit had conscientiously fitted its report to the University's and Faculty's overall strategic vision. The panel was of the view that possibilities for collaboration were many; but that it was also necessary for the Humanities to sustain and develop its own strong disciplinary base in order to contribute to inter-disciplinary work and to continue to contribute significantly to the international academic standing of the University.

Recommendations:

- ix. The School of Humanities should develop a strategic vision which is based on the contributing disciplines, so that it may continue to pursue its strengths in these areas. The vision should include defining how these strengths may contribute to the Faculty's and University's overall strategic goals.
- x. The Faculty and the University should enable the School of Humanities to build from its own strengths to develop collaborations across the Faculty and the wider University.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	4
International and national research collaboration and researcher mobility	4
Operational conditions	5
Impact of research	5
OVERALL ASSESSMENT (not the average of the scores above)	5

3.4 SCHOOL OF THEOLOGY

A SCIENTIFIC QUALITY OF RESEARCH

The School of Theology is Finland's second largest provider of theological education, with programs in both Western and Orthodox Theology and covering the following disciplines: Biblical Studies, Church History, Systematic Theology/Patristics, Practical Theology, Religious Education and Church Music.

The School had 23.5 members of research-active staff in 2010 and 18 in 2012. However, in 2013 this decline in staffing numbers seems to have ended. Nonetheless, the School of Theology is by far the smallest unit within the Philosophical Faculty. At the same time, when compared to the other Schools in the Faculty, the number of professors in relation to other staff is higher, forming one third of the staff.

When the number of staff members who are research-active and the time available for research alongside teaching are taken into consideration, the School's production of academic publications is commendably high and has been increasing during the evaluation period. The number of peer-reviewed articles doubled from 18 to 36 during the assessment period despite the decline in staff numbers. Articles published without peer-review varied between 15 and 22 annually showing no clear trend. There was a similar lack of trend in the number of monographs, varying between 1 and 13 annually. Since 2010, the numbers of both professional publications and publications for general readership have decreased from 15 to 11 and 35 to 23 respectively. These figures, when taken together, demonstrate a move towards concentrating on publications of good academic quality.

The research carried out in the School covers almost all major theological disciplines, and a wide variety of scholarly research methods have been applied. The variation of topics is remarkable. Some of the research takes place in well-established and internationally competitive research areas; whereas others represent new openings where there is relatively little or almost no previous research. Scholars in all the major theological disciplines represented in the School operate at high international levels and the overall quality of the research can therefore be described as either excellent or very good.

Areas of particularly strong research are Biblical Studies, Systematic Theology, Church History and Orthodox Church Music. In the latter area UEF has become a world-leading center. Work on the integration of research within the Orthodox and Western Theology is underway to good effect. The future prospects of the School's research in deepening the study of ecclesiastical encounters between the East and the West more broadly appear very promising; while there are also promising signs of new openings in Practical Theology. Despite the breadth of research areas, there are gaps in relation to research in Old Testament Studies and in Comparative

Religion/Religionswissenschaft. The reasons are that Old Testament Studies, including Hebrew teaching, is covered by just one lecturer with the result that the time available for developing research in this discipline is extremely limited; while there is no researcher associated with Comparative Religion.

The panel also observed that the vast majority of the doctoral dissertations examined during the assessment period were written in Finnish (8 out of 10) and all of those published have been published in Finland, mostly in the faculty series, except for one which was published by Brill. The panel was of a view that the School should direct the doctoral students to write in English and to publish internationally whenever the topic of the research is not only of national interest.

Recommendations:

- i. The panel would encourage a further deepening of integration within the School's research, especially between Orthodox and Western theology.
- ii. The panel suggests that the recruitment of doctoral students and the publication of their work should reflect more strongly the international ambitions of the University. A first step would be an expectation that, wherever possible, theses are presented in English.

B RESEARCH ACTIVITIES VS. STRATEGY

Research activities of the School, as presented in the background information report, are in accord with the strategic research aims of the University and the Faculty wherever possible. This compliance has largely been achieved by the priorities being regarded as not impeding research in the theological disciplines. Equally, there was little evidence to suggest that these strategies were of particular relevance to most of the theological research underway.

In its own strategic deliberations, the School emphasizes the basic research on which it has built its strong reputation. This research can be understood as research within disciplines which has the potential to serve as the basis for interdisciplinary undertakings. The panel has therefore questioned the extent to which the University's strategic direction has been helpful for shaping the future of UEF theological research and the excellent work often undertaken by individual scholars. Nonetheless, the University's strategic priorities have prompted the School to formulate innovative approaches in two new research areas. These innovations are occurring in encounters between Russian Orthodoxy and Western Christianity and in religious wellbeing, seen in relation to Pastoral Counselling.

There are several examples of successful strategies for producing high quality research within the disciplines of the School. In some of them, the success has been due to finding a suitable niche, such as in the case of Orthodox Church Music. Here, Joensuu plays a central role as the hub of international research through, for example, organising international conferences which result in strong publications. In the discipline of Church History the panel noted that contributions to international publications demonstrated the high standing of members of the

School in areas of research relating to Eastern Europe and Finland. Another niche occupied by the School exploits its position as the meeting point of Eastern and the Western Christianity studies, with Biblical Studies addressing the methodological and theoretical challenges that are arising when researching in this area. The panel was impressed by how Biblical Studies, a highly competitive area within Theology, was tackling these demands. It observed, for example, one publication in Old Testament studies addressing both of these traditions was in arguably the leading international journal of the discipline.

Publications in Systematic Theology are of a high international quality, some of them in very competitive areas, such as Luther studies; whereas some others are opening new areas of enquiry in, for example, the Theology of Oriental Churches. The panel was of the view that there is considerable potential in utilizing more extensively the opportunities afforded by the Schools' ecumenical outlook. In Pastoral Theology, for example, there have been a large number of research publications but it seems that the School is only beginning to take advantage of the opportunities offered by the surrounding ecclesiastical context and the possibilities for collaboration to be found on the Kuopio campus Faculties in medicine and related areas and by the Joensuu expertise in information technology.

From 2013, the School shares a half position with the VERA centre. The panel was of the view that this post and its purposes need further consideration.

Recommendation:

- iii. The panel was of the view that the strong disciplinary research undertaken across the School should be supported, but the School should sustain its openness to the possibilities for collaboration.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

The level of international research cooperation varies strongly across the disciplines within the School, with some of them providing evidence of strong international links. However, there was considerable frustration among members of the School because opportunities for participation in international conferences and international research collaborations was seen by members of the School as severely affected by what was regarded as insufficient funding.

Researcher mobility was variable across the assessment period. It was at a moderately good level in 2011 (outgoing 3 teachers and 5 researchers) whereas during the other two years of the assessment period it was at a distinctly low level (outgoing one of each category each year).

The profile of research outputs presented in the background information report revealed few international joint publications. However, in Theology there is generally a strong tradition of individual publishing which needs to be taken into account in the assessment and may well reduce the need for mobility. The panel was of the view that the School should consider moving towards a publishing

culture where joint publications were more commonplace. A strategy of encouraging joint publications, if carried out strategically, could, for example, help to integrate the research in Orthodox and Western Theology.

The panel recognized that members of the School have very good national research networks both within Theology and across disciplinary boundaries. One area where research cooperation could, nonetheless, be expanded with relatively little financial input is Nordic cooperation, where more could be made of the Nordic funding available for these collaborations. The panel was also of the view there was much to be gained from wider engagement with the international research community through exploitation of the School's work on the two great theological traditions. The panel recognized that much has already been done in this respect, and could be evidenced in the School's publications. However, the panel was of the view that there was still room for further attempts at working across the two traditions and was pleased to see indications of an increased focus on this area of activity in projects that had been recently planned. The panel would want to encourage these trends, not least because they would be likely to increase the School's attraction to international scholars and potential collaborators.

Recommendations:

- iv. In research, the broadening of Nordic contacts would be beneficial.
- v. Joint publications across the Orthodox-Western divide should be encouraged. They serve as instruments of deeper integration between the traditions as well as resulting in internationally interesting research. This integration through common research projects will also contribute to Joensuu's attractiveness as an international research partner.

D OPERATIONAL CONDITIONS

The School's human resources consist of excellent teaching and research staff. There are also some dimensions of management that help to create a conducive research environment (e.g. the system of organizing teaching over the year in three periods leaving one period for research). The Head of School is also attentive to the research-related needs of colleagues.

The School functions under operational conditions that were reported to be worsening. The panel was informed that School's core funding has been in decline and that this might put at risk the high levels of research quality already achieved. For example, because there is no staff member with Comparative Religion as a specialization, that work needs to be covered by non-specialists, eroding their research time. Comparative Religion is an important aspect of theological research, providing a bridging function in opening theological research questions into inter- or multireligious approaches.

Additionally, as we have already indicated, Old Testament Studies, including instruction in Hebrew, is covered by one university lecturer leading thereby to a situation where there is very limited time for research in this area. Consequently,

the possibilities of research which involves biblical scholarship are reduced. The panel is of the view that this is a serious limitation in theological research.

There are also problems with library provision. While some theological disciplines are well served, others report a worrying lack of required texts, particularly in areas where the School intends to focus its future research. In some areas of Church History, such as Finnish Church History, the library is adequately equipped; whereas e.g. in Systematic Theology the situation is weaker - although some recent acquisitions of electronic source materials have ameliorated the situation. Many of the members of the School informed the panel that the limited library resources were one of the greatest challenges to their research activities.

Much of the research in the school as well as doctoral training is carried out in the framework of the disciplines which is a system that seems to function well. Nonetheless, there are also interdisciplinary dimensions in doctoral training.

The position of the research groups appeared somewhat vague to the panel. Their role and organization appear loose. The relationships between disciplines, research groups, projects, Orthodox/Western programs, areas of expertise, themes etc. are in need of clarification and simplification in ways which reflect the specific needs of theological research.

The panel was of the view that a school-level research committee would be helpful for several reasons. Such a committee could play a role in the co-ordination and internal integration of research in the disciplines. Increased cooperation and coordination is likely to enable the pursuit of external research funding, which the Schools acknowledges is a priority. The strategic work to be done by such a committee might also help in enhancing the internationalization of the research in the School.

The panel was very struck by the lack of women at every level of the School's research activities, with the exception of doctoral students. Addressing the question of gender balance is therefore crucial. The panel was aware that there had recently been two female professors and was informed that women had not applied for recently advertised posts. The panel therefore urges the School to consider very seriously why women do not apply to join an all male School and take appropriate steps to remedy the problem.

The panel was also of the view that the School would benefit more generally from working on its recruitment policies and practices with a particular focus on attracting international PhD scholars whose work is in line with the strategic goals of the School.

Recommendations:

- vi. The research infrastructure (i.e. the tasks and relations between research groups, disciplines etc.) should be clarified and then simplified to reflect the specific needs of theological research.
- vii. The School is advised to establish a research committee to identify and take forward the strategic development of its research activities.
- viii. At the moment, the obvious lacunae in research staff in Comparative Religion and Biblical Studies (especially Old Testament) hamper the realization of certain types of research collaboration. It would seem that these areas may have claims for additional staffing.
- ix. There should be a review of University library resources in Theology in relation to current and future research needs. Every effort should then be made to remedy the gaps that render UEF research overly dependent on Helsinki libraries.
- x. The School should consider very seriously how to address the striking absence of women among its research-active staff and take the necessary steps to remedy the matter. The panel is of the view that expertise within the wider University may be of help in addressing this issue.

E IMPACT OF RESEARCH

The sustained societal impact of the School's research is largely at regional and national levels on the biggest religious communities in Finland. For example, Prof. Kettunen's monographs on counselling have a large circulation and affect the work of the Lutheran Church comprising almost 80% of the population from congregational level to the central decision-making levels. Research in Orthodox Theology contributes to the ecumenical openness of the second folk Church in the country.

In addition, there are indications of areas where international impact is possible. These include research in Church Music and Practical Theology. The latter is producing findings in the area of 'shame' and has plans underway for research in clinical pastoral counselling, in cooperation with the Faculty of Medicine, that can relatively directly impact on the field of pastoral counselling. A planned project on the use of mobile IT in religious communities may similarly produce findings that have relatively rapid impact. In the rest of the theological disciplines the impact is often more indirect and delayed due to the nature of the research.

Several members of the staff are involved in various positions of trust and in expert tasks especially on the national and local level mostly in ecclesiastical organizations such as the Lutheran Church's Department for International Relations, Council for Theological Issues. Additionally, there are some international tasks like the Churches in Dialogue Commission of the Conference of European Churches. Some of the research is also communicated quite directly to the grassroots through media, popular seminars and lectures.

F STRATEGIC VISION

The School presented a clear vision of its aims and strategies; but the panel noted some differences between the strategies expressed in the written documentation and those discussed during the site visit. It became clear that the School has felt obliged to conform to university strategies and priorities and that these expectations do not always accord with what is seen as important for the development of the School's existing research strengths.

The chosen strategic research areas, namely 1) Encounters and Roots of Eastern and Western Religious Traditions and 2) Human Religious Well-Being are in accordance with University and Faculty strategies and much of the research in the theological disciplines can be subsumed under those headings. Equally, the history and situation of the School makes the aim to become an internationally significant platform for research into the history and interaction of Eastern and Western Christianity an obvious one.

The School's strategic goals, including as they do, a focus on the basic disciplines in Theology, are realistic and in line with the development potentials of the School, particularly given that the resource base will not continue to shrink but rather increase.

Theology is a multifaceted field of study comprising disciplines that vary greatly in their methods and research topics and are closely related to a number of research disciplines within the other Schools at the Philosophical Faculty, and in particular the School of Humanities. The School is therefore well-placed to pursue interdisciplinary work that builds on this high-quality research in the basic disciplines of Theology.

Recommendation:

- xi. The School should consider raising its profile as the platform for research into the history and interaction of Eastern and Western Christianity by initiating larger multidisciplinary research projects, preferably also with international collaborators.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	5
International and national research collaboration and researcher mobility	4
Operational conditions	2
Impact of research	4
OVERALL ASSESSMENT (not the average of the scores above)	4

4. Evaluation of the Faculty of Science and Forestry

**Academy Professor Risto Ilmoniemi (Department of Biomedical Engineering and Computational Science, Aalto University, Finland),
Professor Lucia Banci (Department of Chemistry, University of Florence, Italy),
Professor Nick Hewitt (Lancaster Environment Centre, Lancaster University, UK),
Professor Alan R. Ek (Department of Forest Resources, University of Minnesota, USA),
Professor Takayoshi Kobayashi (Advanced Ultrafast Laser Research Center, University of Electro-Communications, Tokyo, Japan) and
Professor Enrico Nardelli (Department of Mathematics, University of Roma "Tor Vergata", Italy)**

The success of UEF is essential for the development of the Joensuu/Kuopio area. On the other hand, the societal and economic success of the Kuopio/Joensuu area may be decisive for the development (and fate) of UEF. Thus, UEF has a great responsibility to succeed.

This Research Assessment Exercise (RAE) allows UEF to see itself reflected, as from a mirror, although the mirror is not perfectly smooth. Even an imperfect mirror is objective in the sense that it reflects what it receives. If you are not satisfied with what you see, you should not blame (only) the mirror.

UEF, at all levels, must clarify its mission at the local, regional, and international scales, refine strategy, find competitive edge, focus; excel. The competitive edge may come from the special interests and skills of individuals and research groups, from their national and international networks and from the unique features of the environment such as the northern boreal forest ecosystem, local societal strengths, local (and national) industry, and the vicinity of Russia and its resources – or some combination of these.

The strategy of the University and its faculties and units should be based on the aspirations of individuals but should, in the end, be coherent and unifying.

As in all higher education institutions, efforts must be taken to reduce the burden of obtaining sufficient internal and external funding.

The logistics and synergies of educating and training must be improved and made much more efficient, e.g., between the Department of Applied Physics and the Department of Physics and Mathematics and between the Department of Environmental Science, the Department of Chemistry, the School of Forest Science, and the Department of Biology. Enhancing the efficiencies in teaching would release additional staff time for research as well as have other benefits.

Similarly, the synergetic collaboration and integration of efforts between the Units should be emphasized to improve the efficiency and impact of the research.

Simplification and streamlining operations, making each unit more efficient, is necessary to give more room for fostering initiative, creativity and excellence.

Young scientists at UEF need more international experience to develop a wider vision of the scientific fields they are working in and to implement a more comprehensive approach to research. This need is also due to the University being relatively small and remote.

There should be a greater focus on high-impact publications.

The effectiveness of PhD supervision should be improved so as to achieve the target of completing doctoral studies in 4 years without sacrificing quality.

Teaching work load of professors is relatively high and that of senior researchers even higher, roughly ranging from one third to one half of the 1600 working hours. However, post-doc researchers have a much lower and reasonable teaching work load (below 10%). We suggest that you consider possibilities to reduce the teaching load. You may also want to consider the possibility of increasing the number of auxiliary or supporting personnel where appropriate.

It is essential that each unit develops its strategy in line with the UEF strategy. While maintaining diversity and freedom of research, the Departments and Schools should aim at improving the coherency and synergy of their research foci.

The ambition level of the Departments and Schools, research groups and individual scientists should be raised by asking: how can we change the world; how can we address the grand challenges mentioned in the strategy of the UEF; how can we have a great impact outside our Faculty and University. All researchers must “think through what they aim to accomplish—and make sure that their associates know and understand that aim. All have to think through what they owe to others—and make sure that others understand. All have to think through what they in turn need from others—and make sure that others know what is expected of them.” (Peter F. Drucker, *The Essential Drucker*).

4.1 DEPARTMENT OF APPLIED PHYSICS

A SCIENTIFIC QUALITY OF RESEARCH

Research in the Department is organized in 3 areas:

1) **Computational Physics** at the Department deals with real-world inverse problems in medical imaging, non-destructive testing and environmental applications. Key expertise lies in numerical methods, Bayesian analysis of inverse problems, including non-stationary cases, model uncertainties and model reduction in large inverse problems. The professors in this area are widely recognized in the field; the results and publications are of high international standard.

2) **Environmental Physics** addresses aerosol physics and chemistry and phenomena related to aerosol physics in the atmosphere as well as health effects of aerosols. This effort at UEF is fairly small; the two full professors work for UEF only 50% and 20% of their time, respectively. However, the team participates in leading research efforts in the field.

3) Research in **Medical Physics** is interdisciplinary, aiming at better diagnosis and therapy; the focus is in biomechanics, biomaterials, biosignals, and medical imaging. The professors are among the leaders in the field worldwide.

The high standard of research has been recognized by participation in two Centres of Excellence of the Academy of Finland (in Aerosol Physics and in Inverse Problems) and by one ERC starting grant. Four Academy of Finland Research Fellows (two in Computational and one in both Medical and Environmental Physics) and 6 Academy of Finland Post-doctoral projects (two in each research area) have been granted during the evaluation period. Also many plenary talks and keynote talks are given by the members of the Department.

The Department has produced 454 peer-reviewed papers in 2010–2012, out of which 103 were level-3 publications (JUFO). The 20 most important publications listed by the Department are highly interesting and relevant in their respective fields. The group of environmental physics has published two Nature papers as supportive contributors and one Nature Chemistry paper as a main contributor during 2010–2012. Several professors are highly cited (Hynynen, 12137 citations; Jurvelin, 7556; Laaksonen, 6681; 5 researchers have an h index in the range 30–60).

B RESEARCH ACTIVITIES VS STRATEGY

Research at the Department of Applied Physics addresses grand challenges of the modern society such as climate change and health.

The research is closely networked with the research in UEF, e.g., the professors are coordinators or partners in seven (out of 13) Spearhead Projects, strategically funded by the UEF.

The strategy of the Department has been very carefully and clearly stated in the Department's strategy document: it is in line with that of the University.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

There is strong international and national research collaboration as indicated by the large number of joint projects and publications. There is close collaboration with the Finnish Meteorological Institute (FMI) and Kuopio University Hospital (KUH) as well as with several other UEF units. The Department would probably benefit from measures that would increase the international mobility of researchers.

Recommendation:

- i. Each student, at the latest during the doctoral studies, should be sent, well-prepared and with well-planned tasks, to a collaborating laboratory for about 5–10 months. Ways of even greater collaboration with the aerosol group in the Department of Environmental Science should be sought.

D OPERATIONAL CONDITIONS

The Department includes research in Computational (two professors), Environmental (three professors) and Medical Physics (six professors). The senior-to-student ratio is quite high: in 2012, professors accounted for 8.4 person years, senior researchers 13.2, post-docs 15.8, and graduate students 50 person years. The teaching load for professors is 72 hours per year (two lecture courses), that for senior staff is about 70 hours; for early-stage researchers it is 5% of work time (80 hours per year). University lecturers are full-time teachers.

The basic funding from the University, about 40% of the budget, is low but quite typical for Finnish universities. Thus, much effort must be expended in grant applications and management. External funding has been obtained to a large extent from the Academy of Finland; other funding has been obtained from TEKES and the European Union. In particular, structural funding from the EU has been of great importance in building the research and teaching infrastructure. There is also funding from commercial companies.

Recommendation:

- ii. A plan for continual replacement and improvement of infrastructure, especially in aerosol science, should be developed.

E IMPACT OF RESEARCH

The Department has had an important impact on Finnish research and educating skilled experts; the impact internationally comes mainly from high-quality

publications. Some patents and patent applications have resulted from the work; start-up companies have also been established on the basis of the Department's work. The research or teaching activities are featured 2–5 times/year in local newspapers, some videos appear on YouTube, and social media such as Facebook is in use. For example, the Aerosol Physics group contributes to current debate on climate change. Several professors/senior researchers are members in expert panels of their research fields.

F STRATEGIC VISION

The Department has formulated a new research strategy for 2013–2017. This was very clearly stated and included quantitative aims or targets. This was very helpful. Clear strategic goals were defined for the number of publications and their proportion in different JUFO classes as well for success in getting Centre-of-Excellence (CoE), FiDiPro, Academy-Professor, and other competitive funding. It is obviously difficult to set such targets at a level that is neither unobtainable nor too low. Here, although the ambition levels regarding these indicators is high, several goals have already been reached or even exceeded (currently participation in two CoEs, 26% proportion of papers in class-3 journals, 14 invention disclosures in 2012 etc.).

The strategic thinking and its implementation in the Department is deep and to the point. For example, in Medical Physics the thinking is based on expected impact – and this is done in a modern, forward-looking way by considering the research continuum from basic science to applied research to instrumentation and clinical research as well as epidemiology. The goal of being able to predict diseases or other medical conditions based on physical measurements may lead the Department to very high-impact results. Similarly, the strategic vision in aerosol science is excellent, and the continuing close collaboration with the Finnish Meteorological Institute and the aerosol group in Helsinki will ensure continuing research outputs at a world-leading level.

OVERALL COMMENTS

The Department has well-defined aims and a very clear strategy to achieve the goals; the strategy is implemented professionally and effectively. The results and impact are excellent.

The University should pay attention to the inefficient use of resources as a result of the division of physics into two Departments on two campuses. Ideally, physics education should be conducted on one campus, at least at bachelor level. However, the innovative use of distance learning technology may allow students to be based remotely, with provision of adequate local teaching support. One way to accomplish better efficiency would be the combination of the Department of Physics and Mathematics with the Department of Applied Physics. Another way would be to combine the teaching between the two Departments.

The Department relies on a relatively small number of students who continue after the first one or two years. Also, international master's programmes have not been very successful, as evidenced by low number of graduates. The Department should exploit its high international reputation in research in the three areas of physics to attract more international students to their programmes.

Intra-Department and inter-Department collaboration should be encouraged to strengthen the excellent activities of the groups in the Department.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	6
International and national research collaboration and researcher mobility	4
Operational conditions	5
Impact of research	5
OVERALL ASSESSMENT (not the average of the scores above)	5

4.2 DEPARTMENT OF BIOLOGY

A SCIENTIFIC QUALITY OF RESEARCH

The research activities are focused towards environmental aspects of plant and animal biology, living in various ecosystems. The various research groups are well networked with other units of the UEF. The Department maintains, despite the several recent reorganization processes, a good and collaborative environment.

Researchers at the Department have published a number of scientific papers. However, their level in terms of quality of the journals and number of citations is not very high. Only 10–13% of the publications are classified at JUFO level 3. This may be one of the reasons for the low attraction of EU funding.

Recommendation:

- i. While the topics addressed can be of high impact and relevance, the researchers should put maximum efforts in increasing the quality of research which would be reflected in top level publications. They also need to coordinate efforts and individual projects to increase the societal impact of the Department.

B RESEARCH ACTIVITIES VS STRATEGY

The Department's strategic vision is clearly stated and in part maps onto the UEF strategy. The plan for research strategy features a SWOT analysis and clear definitions of goals (including promotion of a high quality in research), indicators to be measured, and actions aiming at attaining them.

However, it would be even more useful if these indicators were quantified where possible so that these "key performance indicators" can be used in the future to assess where the Department has made progress and in which areas more action is required.

The Department receives UEF "Spearhead Projects" and "Innovative Research Initiatives" funding. The danger is that the UEF funding in these areas is simply used to conduct on-going research and publish papers and does not lead to larger and sustainable activities in the Department.

Recommendations: A Departmental strategy to allow renewal and expansion of research facilities and infrastructure should be developed, with a plan for implementation. The Department should explicitly discuss and decide how it will make an impact in the three strategic focus areas of the UEF and thus advance the research strategy of the University. The Department should decide how it will build on its current involvement in the Spearhead Projects and Innovative Research Initiatives to ensure that these research areas become sustainable in the Department

in the future by building on them and by obtaining external funding in the same areas.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

The Department of Biology hosts the International Master's Degree Program in Environmental Biology, which accepts 10 students annually, and a FAO-implemented Master's Degree Program in Fisheries tailored especially for Kyrgyz students. Preparation work for a double degree program in the field of biotechnology and food safety was also started during the assessment period. The number of joint scientific publications involving international co-operation has increased by 63% during the assessment period. This is an indication of the growing internationality of the Department. However, the leading role of the Department of Biology in this international cooperative work is not high. In the ten listed international joint scientific papers, three are led by the Department and seven by counterparts. The volume of EU or other international funding is small, which also affects the resources for international collaboration.

Recommendation:

- ii. The researchers of the Department need to take more often a leading role in international collaboration, including joint project coordination.

D OPERATIONAL CONDITIONS

The Department of Biology has research groups under two main research themes focusing on the biology of environmental change in (I) terrestrial and (II) aquatic ecosystems. Both of these main foci are supported by groups working on animal physiology, cell models and animal behavior and welfare.

The research groups under the two main themes are:

- I. Terrestrial biology (including wetland ecosystems)
 - a. The plant ecophysiology research group
 - b. The plant resistance ecology research group
 - c. The plant biotechnology research group
 - d. The animal ecology research group
 - e. The ecosystem ecology research group
- II. Aquatic biology
 - a. The aquatic ecology and behavioral ecology research group
 - b. The aquatic ecotoxicology research group
 - c. The lake ecosystems and food webs research group
 - d. The Saimaa ringed seal research and conservation research group

Each one of the research groups is led by at least one professor, and composed by two to five senior researchers and four to eight doctoral students, on the average. There is a good cooperation level among groups under a same theme.

The number of person-years in 2012 for professors was 7.8, 0.4 for associate professors, 24 for senior researchers, 11.2 for post-docs and 35.4 for doctoral students. Given the progressively higher number of younger people, the structure of the unit appears to be sustainable, although auxiliary personnel should be increased.

The total funding has been around 8.4 M€ per year, of which around 2.8 M€ has come from external sources. Particularly low is the attraction of funds from the European Union (91–154 k€ per year). While the amount of basic funding allocated by the University to the Department of Biology appears to be in line with both the average in the Faculty and their specific needs, external research funding is by far low, and below what is attracted by the other Departments and Schools in the Faculty.

The Department has a strategic personnel development plan, annually evaluating the importance of each vacancy and planning hiring. The Department is also actively considering further acquisition of complementary skills (e.g., bioinformaticians) and of international researchers, post-docs, and doctoral students.

Laboratory equipment appears to be just adequate to the research objectives and goals, although the research of the Department would clearly benefit from their improvement. Some of the equipment is state-of-the-art in its field.

The activities of the Department do not seem to be greatly affected by operations being performed in two campuses. However, the use of some of the specially equipped laboratories has suffered from the merging and restructuring because of the reduction of auxiliary personnel.

Overall, the Department has relatively well-organized groups with clear development plans. A sufficient number of young researchers able to sustain research in the long run are also present. Further development of bioinformatics would be of high benefit to all research areas of the Department.

Recommendation:

- iii. Interdisciplinary research and cooperation with other Departments/Schools of the Faculty (most notably with the School of Computing in the bioinformatics field) should be strengthened to the mutual benefit of all involved parties. The Department should aim at increasing the quality and impact of the research, to address more challenging problems, to increase the attraction of international funds and to increase interdisciplinary scientific collaborations.

E IMPACT OF RESEARCH

The Unit is active in promoting interest and knowledge in biology in the local community (collaboration with Karelia Univ. of Appl. Sciences, training, visits of high-school students, and SciFest) and, via the "Ask the biologist" internet pages for the general public, in the whole country. It actively transfers knowledge to companies, farms, and municipalities. It is active in Digitarium in helping to digitize natural history collections.

The Department focuses on natural conditions and phenomena in the local northern ecosystems, with significance in protection biology and in the sustainable exploitation of natural resources. It is also active in the study, protection, and public discussion of ecological issues and the conditions of endangered species such as the Saimaa ringed seal. The research and public discussion in national TV, radio and newspapers have had an impact on fishing legislation and other aspects of political decision-making, e.g., in issues related to climate change, genetically modified plants, and animal farming.

The Department collaborates with local companies that deal with fertilizers, food and other natural products as well as bio-products. It belongs to the Forest Cluster Strategic Centre for Science, Technology and Innovation (SHOK).

There have been six invention disclosures during 2010–2012, but no patent applications have been submitted.

Overall, the Department of Biology has a significant impact on local companies and the discussion and policy issues related to the biology of ecosystems. Its role in research-based teaching and education extends beyond the academic boundaries of the University. Several faculty members have an important influence in positions of trust in Finland and elsewhere.

On the contrary, the impact at the international level is rather limited; this is reflected in the limited level of international funding and in the limited leading role in international collaborations.

OVERALL COMMENTS

The Department's documentation describes a unit that sees an important role for itself in understanding and managing the terrestrial and aquatic resources of the region locally and nationally. We agree with this. At the same time, in reality, the Department has a mix of biological and ecological science capabilities and interests but lacks the critical mass to provide the depth that certain areas of research may require. Further, the Department is relatively new in its current configuration and is perhaps spread too thinly over its research areas for its size. At the same time we are impressed that modest additional resources would do much to strengthen the Department. There are significant research and teaching overlaps between the activities of this Department and those of the Department of Environmental Science; efforts should be taken to streamline these, particularly to make teaching more efficient in order to free up staff time for research. Effective communications between these departments is absolutely essential. More radically, consideration

should be given to the merger of the Departments of Biology and Environmental Science, to maximize efficiencies and synergies in research and teaching and to reach critical mass.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	3
International and national research collaboration and researcher mobility	3
Operational conditions	3
Impact of research	4
OVERALL ASSESSMENT (not the average of the scores above)	3

4.3 DEPARTMENT OF CHEMISTRY

A SCIENTIFIC QUALITY OF RESEARCH

The Department of Chemistry develops research projects in areas identified as strategic by UEF. Research is addressing both basic and applied aspects, in some areas in a coordinated way, so as to exploit the results of research for industrial innovation.

The Department is small with its five professors and a recently hired associate professor. The main areas of research are relative to new materials and design and development of nanomaterials, surface characterization, polymerization processes, and mass spectrometry and crystallization for biomolecules. These areas are of high relevance and impact on the advancement of knowledge at the international level. The results of the research activities resulted in a good number of publications, of which 42% are on high-level journals (JUFO level 3), but none in top interdisciplinary journals, even if they have three papers in top chemical journals, namely, JACS and Angewandte Chemie.

The total funding of the Department sums up to around 5.5 M€. Almost half of this amount comes from external funds. The funding at the international level has increased over the years.

The Department has the potentiality of further developing more challenging projects within the frame of the knowledge already established and within the overall strategic plans of the Department and of the University.

Recommendations:

- i. It might be beneficial to increase the number of post-doctoral fellows and young researchers who can contribute to push forward the research projects.
- ii. The researchers should work on highly challenging scientific problems which would have a double impact: 1) higher-level publications, 2) higher economic impact as a consequence of exploitation of the research results.

B RESEARCH ACTIVITIES VS STRATEGY

UEF has a research strategy that highlights three areas of expertise (Forests and the environment; Health and well-being; New technologies and materials) and in principle all three of these are (or should be) applicable to the activities of a Department of Chemistry. It is therefore essential that the Department's research strategy is as closely aligned with these institutional priorities as possible.

The main targets of the Department are the development of new technologies, new materials and tools for biomolecule characterization. These fit within the strategic lines of the Faculty and of the University, but are very limited in scope. More importantly, there is a lack of vision and ambition towards new challenges which could have high impact. The ambition level is far below the capability of the researchers working at the Department.

Recommendation:

- iii. New strategic challenges that align with the institutional (UEF) research strategy should be sought, developed and implemented.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

Some members of the Department are involved in international collaborations and in projects funded at the international level. This has led to a number of joint publications in high-level journals. Collaborations both at national and international level essentially involve academic partners, while a few projects are mainly performed with industrial partners.

The collaborative projects are mainly focused on surface properties, catalysis and polymers. Within the frame of these projects there have been exchanges of researchers with several visits lasting more than a week. This, however, has had only a limited impact in stimulating the young people to develop an international perspective and view on their own.

Exchange of researchers (at the international level) will take advantage of the establishment of the recently established doctorate program with St. Petersburg State University.

These collaborations were mainly funded by national agencies, the Academy of Finland being the main sponsor for the UEF participation.

Recommendation:

- iv. The involvement and support of international funding agencies should be reinforced. Further development of collaborations in the field of design and production of new materials should be pursued.

D OPERATIONAL CONDITIONS

The Department of Chemistry is organized, within the two main research areas of Material Science and Biomolecules, in four different laboratories. Each laboratory is run by one or two professors and involves senior researcher, post-docs and graduate students.

The Department also coordinates the activities of some facilities providing access to services in the fields of material synthesis and characterization, reactors, and spectroscopy. These facilities are relatively small and operate essentially at a local level. They provide services to industries.

The Department is able to attract a high level of funds, a significant share of which comes from sources external to the University-based funding, but still mainly from national institutions. Funding originating from international collaborations has increased during the evaluation period.

Overall the Department provides a very good, collaborative and supportive environment for the researchers and the young students and post-docs; a good working atmosphere was perceived as we met members of the Department. The presence of small groups makes the interactions at any level easy and friendly.

Recommendations:

- v. In order to increase the quality and impact of research and to be competitive at the international level, the research teams should involve more researchers at the post-doctoral level. Also at the level of facilities, besides covering the needs of the local researchers, they should try and concentrate their efforts in one area of instrumentation in order to become a national and possibly European reference center in the selected techniques.
- vi. We noticed a lack of structure and mentoring to identify the difficulties and weaknesses of individual projects and set-ups; researchers should be stimulated towards more ambitious and challenging goals. Also, interactions and synergies with other, related Departments of UEF should be more extensively developed as they could contribute to increase the critical mass of researchers.

E IMPACT OF RESEARCH

Professors and researchers are efficiently interacting with Finnish and international companies, with whom they develop research projects and for whom they study some basic aspects of the products and/or processes used by the industries. Thus industry-related research is essentially industry-driven. One start-up company has been set up from researchers of the Department. Impact of research in terms of publication quality at international level is modest, as also shown by the limited number of publications in high-impact journals and/or the citation level. When personnel were asked what prevents the Department having more impact and to be among the top programs, the lack of continuity of funding was noted. This is really an important aspect as it prevents building up a stable organization, which would be necessary to perform high-quality science.

F STRATEGIC VISION

Overall we think that the Department of Chemistry does not have a sufficiently ambitious strategy that will lead to an increase in research volume, research quality and impact. Young researchers appear to lack an international perspective and do not have a sufficiently developed vision and ambition to tackle challenging scientific problems. They were unable to identify weaknesses in the Department. This might originate from the fact that researchers do not seem to be mentored by

the Department towards new frontiers of science. They are not very connected to the international chemistry research community.

The Department performs well at the national level given its size and location and the level of the resources. However, we are of the opinion that they have the capability to perform at a higher level and could compete internationally.

Recommendation:

- vii. A strategy for increasing research quality, volume and impact has to be developed and implemented.

OVERALL COMMENTS

Overall the Department of Chemistry is performing well considering the small number of professors and staff. They have a good share of external funding. They have some facilities which are relevant not only for their research but also for industry-oriented research. They have a number of collaborations with national industries and thus have economic impact. The weak points are: i) the small size and limited vision, which prevent the creation of the critical mass necessary to address more challenging scientific problems, ii) too little international networking, which would stimulate higher-impact projects as well as participation in calls at the international level, iii) stimulating and motivating the young researchers to be more ambitious.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	4
International and national research collaboration and researcher mobility	4
Operational conditions	4
Impact of research	3
OVERALL ASSESSMENT (not the average of the scores above)	3

4.4 DEPARTMENT OF ENVIRONMENTAL SCIENCE

A SCIENTIFIC QUALITY OF RESEARCH

The Department of Environmental Science conducts research in three areas of environmental science: air quality; physical and chemical risks; and bioprocesses of environmental change. Research in these three areas covers environmental processes and environmental health effects. In each of the three areas there are three sub-areas of research: fine particles, inhalation toxicology, and indoor environmental and occupational health; radiation risks, environmental cell biology, and noise; trace gas biogeochemistry, environmental ecophysiology, and chemical ecology. Research is also carried out on environmental informatics and environmental microbiology.

In 2013, new research group on Physical and Chemical Risk Research was launched. It includes now the radiation risks, environmental cell biology and chemical environmental science. The noise research group does not exist anymore.

A strength of the Department, and something which distinguishes it from most Departments of environmental science, is the inclusion of health effects research. The fine particle and aerosol technology laboratory is also noteworthy.

The scientific quality of research carried out in the Department may be assessed on the basis of

- (a) External support generated (see section D below);
- (b) The quantity and quality of publications;
- (c) The impact of publications and other research outputs; and
- (d) External recognition of individual researchers in the Department.

(a) The total funding for the Department fell from 10.96 M€ in 2010 to 8.66 M€ in 2012, despite the basic government grant growing from 3.35 to 4.06 M€. Total external funding fell from 7.6 to 4.6 M€, with national competitive research funding falling from 2.8 to 2.3 M€ and international (including EU) competitive funding falling from 0.77 to 0.36 M€. However, total competitive external funding per professor increased from 322 k€ per professor in 2010 to 345 k€ per professor in 2012. The overall decrease in funding is attributed by the Department to the transfer of the Laboratory of Applied Environmental Chemistry from UEF to the Lappeenranta University of Technology and the retirement of professors.

The 10 most important research grants obtained by the Department in 2010–2012 include six from the Academy of Finland, three from TEKES and only one from the European Commission. This dependence on national sources of funding is a

weakness and exposes the Department to a significant risk of funding cuts in the future.

The level of external research funding seems adequate to meet the current aspirations of the Department but could be much larger. In particular, greater efforts to gain European funds would be highly advantageous in terms of spreading risk, building international profile and increasing research volume.

(b) The Department published 112 peer-reviewed papers in 2012 (127 in 2010), of which only 9% were in the JUFO level 3, top, group of journals (18% in 2010). 38% were in the level 2, leading, group of journals (42% in 2010).

Of the 20 most important publications listed by the Department for the period 2010–2012, one was in 'Nature'. There were no papers published in 'Science' or 'PNAS'. The others were in the "middle" or "lower" ranking journals. These 20 most important publications have not been read by the reviewers, so comments on their specific intrinsic qualities are not possible. However, the fact that only 9% of publications are in JUFO level 3 journals and the very small number of publications in the top multidisciplinary journals is definitely a major weakness for a department of environmental science, which has the capacity for considerably higher impact outputs. The paper in Nature points to the great advantages of internal and external networking and of involvement in collaborative projects.

(c) See section on "Impact" below.

(d) The only (minor) evidence of external recognition of the members of the Department is the REHVA Fellowship awarded to Pasanen in 2011.

Overall, the scientific quality of the research of the Department is judged to be good. The research of the aerosol group is particularly good.

Recommendation:

- i. Greatly enhance focus on highest impact research outputs. The process leading up to the Nature paper should be used as a model by the rest of the Department for delivering high visibility and high-impact research outputs.

B RESEARCH ACTIVITIES VS STRATEGY

UEF has a research strategy that highlights three areas of expertise (Forests and the environment; Health and well-being; New technologies and materials) and all three are directly applicable to the activities of the Department of Environmental Science. It is therefore essential that the Department's research strategy is directly aligned with these. However, the Department's strategic vision in the background documents did not mention these three areas (although they were mentioned earlier in the report). The Department should discuss and explicitly decide how it will make an impact in these three areas and so advance the research strategy of the University.

The Department's strategic vision does mention participation in the UEF "Spearhead projects" and "Innovative Research Initiatives" but does not say how it will contribute further to these in the future. The Department should discuss and

decide precisely how it will build on its current involvement in these projects and initiatives. Doing so will ensure that these research areas become sustainable in the Department by building on them and by obtaining external funding in the same areas. The danger is that the UEF funding in these areas is simply used to conduct research and publish papers and does not lead to larger and sustainable activities in the Department.

Recommendations:

- ii. Develop an ambitious but realistic strategic plan that maps on to the UEF strategy for research.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

Evidence is presented of extensive international collaborations (24 institutional links listed).

The Department states that it encourages international mobility and this has increased during the evaluation period, with 34 outgoing visits in 2012 (four in 2010) and 14 (six) incoming visits. However, details of the degree of collaboration and of the benefits that these collaborations bring to UEF are not clear. In 2012, there were 45 joint publications involving international collaboration, but at least some of these might have arisen even in the absence of visits.

During the evaluation period, the Department took part in seven international collaborative projects as coordinator and 14 as partner. In 2012, there were 77 publications involving national collaborators (58 in 2010).

In general the lack of European and other international funding is a major weakness, and this has the effect of limiting the number and depth of international collaborations. The Department recognizes this weakness but does not have a clear strategy for addressing it. The doctoral-student and post-doc community in particular should be more exposed to the international research environment.

Recommendations:

- iii. Develop a plan for greater involvement in national and international collaborations; strengthen existing internal and external linkages in aerosol science; enhance researcher mobility.

D OPERATIONAL CONDITIONS

Staffing and funding

This is a small department, with 7.7 professors (professor-years) and no associate professors in 2012. This is a decrease from 11.1 professors in 2010. In 2012 there were 17.2 senior researchers (18.3 in 2010) of which 3 are from abroad. There were also 16.3 post-doctoral researchers (11.6 in 2010) and 26.7 doctoral students (28.1 in 2010). In total there were 67.9 active scientific staff members in 2012 (69.1 in 2010). In addition to the research personnel, there were also 12.3 laboratory and technical

assistants in 2012 (23.1 in 2010), 7.1 administrative personnel (10.8 in 2010). There is no teaching-only personnel. The Department has therefore contracted from 103 personnel in 2010 to 87.3 in 2012.

The most significant contraction in numbers has been in laboratory, technical and administrative staff. Despite this, there seems to be a relatively large number of staff in these categories – 1.5 auxiliary and 1 administrative staff per professor. The number of research staff (senior and post-doctoral combined) seems adequate (4.4 per professor) as is the number of research students (3.5 per professor) but of course both of these metrics could be improved.

As noted above, the total funding for the Department fell from 10.96 M€ in 2010 to 8.66 M€ in 2012, despite the basic government grant growing from 3.35 to 4.06 M€. Total external funding fell from 7.6 to 4.6 M€, with funds from all sources falling.

Structure

The focus on three areas (air quality; physical and chemical risks; bioprocess of environmental change) is sensible, but the fine division below this is probably not. More cohesion is essential if the Department is to avoid spreading itself too thinly.

Infrastructure and facilities

The Department has a small but reasonably high quality research infrastructure:

- Fine particle and aerosol technology laboratory: well equipped (by their own assessment)
- Inhalation toxicology laboratory: well equipped
- Indoor environment and occupational health facilities: reasonably well equipped
- Physical and chemical risks laboratory: well equipped
- Noise laboratory: reasonably well equipped
- Biogeochemistry group: reasonably well equipped
- Environmental ecology: well equipped
- Environmental informatics: reasonably well equipped
- Environmental microbiology: reasonably well equipped

In addition to using its own equipment and infrastructure, departmental research also utilises external facilities elsewhere on campus and in Finland and Russia.

In general, the research equipment base seems adequate, with no major deficiencies. The aerosol and toxicology facilities seem to be better than adequate, and are, in fact, a major asset to the Department.

However, in an environment of stable or even declining base funding, it is essential that the Department increases its external funding to allow renewal and growth of infrastructure.

Overall, this is a rather small environmental science department by international standards and this limits the possibility of applying for larger scale funding opportunities (e.g. Horizon2020).

Recommendations:

- iv. Consider much greater integration with (also the possibility of merger with) the Department of Biology;
- v. Develop a Departmental strategy for enhancing researcher career development;
- vi. Seek synergistic research activities with the School of Forest Sciences; build on its success in aerosol science and toxicology.

E IMPACT OF RESEARCH

This multidisciplinary department has the potential to produce work of national and international impact and significance, but this potential has not been fully realized. 351 peer-reviewed publications have been produced in 2010-12, most of them in either JUFO-2 or JUFO-3 category, with the number of papers in the very best and most visible journals being small. The h-indices and total citations are, with one exception, on the low side of what might be expected.

Two examples are given of invitations to participate in working groups (Juutilainen and Martikainen). Four examples of professorial involvement in committees are given. Other evidence of impact is provided by the list of the Department's corporate research partners and patents, but overall, the impact of the Department's research appears to be low, as measured both by citations and external recognition.

Recommendation:

- vii. Develop a relentless focus on production of the highest quality and highest impact outputs.

F STRATEGIC VISION

The strategic vision of the Department is inadequately aligned with the UEF strategy. However, the background information provided lacked any forward vision of how the Department might tackle the global grand challenges of climate change and adaptation, food security, environmental health etc. Still, some comments were made about this during our meeting with the Department.

The Department identifies several strengths:

- Several nationally and internationally competitive research groups
- Interdisciplinary approach
- Extensive collaborations
- Activities unique in Finland (environmental health?)

as well as weaknesses:

- Insufficient resources
- Too great reliance on external funding

The Department participates in several UEF initiatives that have led to recent developments – a new research unit of radiation biology, the development of a central laboratory facility for IRMS with Academy infrastructure funding and new aerosol science infrastructure. However, the Department is over-reliant on internal funding for these new initiatives and needs to externalise and internationalize its funding base. No vision for growth of the Department (or even retention of its current size) was presented. Overall, the strategic direction of the Department lacks vision and is not clear.

Recommendations:

- viii. The Department needs to develop a clear, coherent and aggressive vision and corresponding strategy to achieve this vision. This strategy must be tightly aligned to the UEF strategy and must contribute to the goals of UEF.

OVERALL COMMENTS

The multidisciplinary approach taken by the Department is a strength. We have seen examples in other departments in the UEF of a similar size where there is concentration of resources in one major area, which has some advantages in terms of collaborative working and building a reputation, but is risky in terms of funding. However, Environmental Science is a small department and it must avoid the trap of spreading itself too thinly.

The inclusion of environmental health in the research portfolio is an advantage and gives the Department a competitive advantage over other small environmental science departments, and it should seek to exploit this advantage more fully.

Collaboration with the world-leading group in aerosol science in Helsinki and with the atmospheric aerosol group in the Department of Applied Physics and the Finnish Meteorological Institute is a great advantage (as evidenced by the joint paper in *Nature*). Every possible effort should be taken to strengthen these linkages, with a view to leading a joint research activity in aerosol toxicology.

More efforts should be taken to internationalize the research, particularly by more involvement in or leadership of European-funded projects.

There was no apparent effort taken by the Department to help develop the careers of doctoral students and post-doctoral researchers and a clear strategy and action plan should be developed for this at the departmental level. Nurturing and mentoring of early career researchers is absolutely essential and may, in the long term, lead to expansion of research volume in the Department.

Overall, the Department is much too small to compete on the European stage. We recommend that serious consideration is given to a merger with the Department of Biology (which is essentially a Department of Environmental

Biology) on one site. The two Departments complement each other very well both in teaching and research and would form a unit of sustainable size and research volume.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	3
International and national research collaboration and researcher mobility	3
Operational conditions	3
Impact of research	3
OVERALL ASSESSMENT (not the average of the scores above)	3

4.5 DEPARTMENT OF PHYSICS AND MATHEMATICS

A SCIENTIFIC QUALITY OF RESEARCH

The Department of Physics and Mathematics has three main research areas:

1) Research output from the **Photonics research Group** is at the high international level, because several of them are world renowned professors attracting students and post-docs internationally from outside of Finland. It is also proved by the statistics of citations. Two professors out of nine have more than 4000 and five professors have more than 1000 citations. The total number of publications in 2010–2012 in JUFO level-3 journals was 11, in level-2 journals 125, and in level-1 journals 135. In the field of Photonics, Optics Express and Optics Letters are well cited journals with impact factors of 3.75 and 3.4, respectively, but they are classified as level 2, although one could argue that at least the former might belong to level 3. One reason for the relatively low number of citations is the characteristic of the field: The European Optical Society has a large number of members but many of them belong to industry and do not publish much.

The photonics group collaborates with Tshinghua University in Beijing, China, the College of Optical Sciences in Arizona, USA, and Friedrich Schiller University in Jena, Germany, which are among the top 5% of the photonics research units in the world. This is arguably the leading photonics research unit in Finland; another remarkable locus of photonics research with different research foci is at the Tampere University of Technology – which is the main national collaborator.

2) The scientific quality of the **Mathematics research group** in the Department is high in its areas of specialization, taking into account the resources available. The publications appear in good quality journals relevant to the research specialization fields of mathematics.

3) **Physics and Mathematics Education research group** belongs to the area of Establishment of new areas of expertise in research and education in the strategy of the UEF. Especially, the research supports efforts for improving the preconditions of subject teacher education in natural sciences and mathematics.

B RESEARCH ACTIVITIES VS STRATEGY

The **Photonics group** research belongs to the expertise area of new technologies and materials defined in the strategy of the University. Joint research is performed with the School of Computing and the Surgery Unit of the Kuopio University Hospital in spectral color imaging for the purpose of diagnostics. On bio-photonics, there is collaboration on fluorescent imaging with the Department of Biology. With the Department of Applied Physics, there is collaboration on the development of

spectral imaging of cartilage damage. With the School of Pharmacy, there is a long-term collaboration on optical characterization of pharmaceutical products.

The Mathematics group participates in the Spearhead Project “Multi-Scale geospatial analysis of Forest Ecosystems” together with the School of Forest Sciences, the Department of Applied Physics, the Department of Biology, and the School of Computing.

The Physics and Mathematics Education group has strong collaboration with the School of Applied Educational Science and Teacher Education following the strategy of the Department.

Physics and Mathematics Education research belongs to the area of Establishment of new areas of expertise in research and education in the strategy of the UEF. Especially, the research supports efforts for improving the preconditions of subject teacher education in natural sciences and mathematics.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

The group of Photonics in the Department of Physics and Mathematics has strengths in terms of international collaboration with many internationally well-known institutions such as Tsinghua University in Beijing, China, the College of Optical Sciences in Arizona, the USA, and the Friedrich Schiller University in Jena, Germany; these are among the top 5 % of the photonics research units in the world. The strength of the Mathematics group lies in networking, the efficiency of postgraduate training, and research partners in internationally leading universities, including the University of Lund, University College London, and Cerfacs.

The Department also actively collaborates with Tampere University of Technology, which has different research foci from that of the Department.

The Department of Physics and Mathematics has been an active organizer of conferences, work-shops and summer schools over the years. During the period 2010–2012, more than 500 people participated in five different conferences. In Photonics, an internationally open summer school with 20 participants on average is organized annually. This continuous effort results in publicity and successful international collaborations with world-leading research units in the USA, Europe, and Asia. This effort is also effective in opening the scientific achievement to other groups and also to get information from outside. Furthermore, domestic and international collaborations were and will be started as triggered by these conferences and workshops.

D OPERATIONAL CONDITIONS

The research of the Department is not tightly divided into individual research groups. The main re-search areas form a natural base for the division into three main research fields. The research is managed by the professors who are responsible of the research teams on the main research areas. Professors are also in charge of the externally funded projects. In projects, typically one of the senior

researchers acts as a project coordinator. His/her responsibility is to follow the overall progress of the project and take care of the reporting. The nominated administrative persons are responsible for the procurement of goods for research purposes. The administrative staff maintains also research equipment and laboratories.

The Photonics research can be further divided into research teams according to the main research fields. These teams interact constantly with each other and usually the same person contributes to the research of, at least, a couple of the teams in such a way that the exact number of researchers in each team cannot be given, especially in the photonics group. Therefore, nine professors, one tenure-track associate professor, nine senior researchers, five post-doc researchers, 24 doctoral students, and six auxiliary staff members are working in the field of photonics. They form groups based on the various subjects. However, this grouping is not fixed—it may vary depending on the project needs to perform research most efficiently. This flexible structure is an advantage to the Photonics group, very dynamically fitting their researching activity in the best suited way in a rapidly changing physics study field.

E IMPACT OF RESEARCH

The major part of the Department, the Photonics group, has already developed extensive collaboration with the industry based on externally funded projects, in which the main financier is a public one and companies pay a small share of the total costs. This collaboration seems to have been very fruitful for both sides and it has produced new product and research ideas, project reports, and scientific publications. Even a local company has had an essential role in some doctoral studies in the field of replication of high precision micro-optics. This is very valuable for both industry and academia and must be well supported by the University.

Photonics group

There are three highlights of the research as described below.

(1) Fluorescence and Raman Signal Enhancement in Bio-photonics: This is of interest from both fundamental sciences including physics and chemistry, and application in biology. The phenomena have been known for quite some time but detailed studies made by the group are important to further development of applications.

(2) Spectral Imaging in Medicine: By this method, the spectral imaging of human retina and articular cartilage were successfully performed and showed the importance of spectral imaging for medical applications.

(3) Ultra Precision Unit and Parallel Micro-Structuring Using Femtosecond Laser and Spatial Light Modulator: This method makes the laser machining that is extremely efficient in industry.

Outputs (1) and (2) are good examples of advantages of optical methods of spectroscopy, which can be used for medical applications having impact in the field of medicine. Output (3) is especially important for industry.

During the past three years there has been no patent application.

Recommendation:

- i. If the results are sufficient for real application, we recommend that the researchers apply for patents supported by the University.

Mathematics group

The mathematics group has only two professors but they are doing quite well in education and research even though the field being covered is of course very limited. They are publishing in reasonably good quality journals.

Physics and Mathematics Education Research

The effort on teaching is very valuable for educating students for the future of Finnish science in a situation of decreasing numbers of high-school students who enter physics and mathematics. This is a worldwide problem.

F STRATEGIC VISION

Major strengths of the Department are its excellent international reputation in teaching and research, very good national and international cooperation networks, excellent research and teaching laboratories, focused research topics in the main research fields, good publication culture, success in getting external funding, good balance in the age structure of the staff members, and success in the recruitment of international master and doctoral students.

Weaknesses include the small amount of international funding and the difficulty in the recruitment of Finnish students.

OVERALL COMMENTS

The Photonics group is internationally well-known; it has been involved in successful international collaboration with outstanding groups in the world. The group looks like one well-organized team with a flexible intra-group structure. The Mathematics group is small but doing well in a focused area. The Department also plays an important role in education, which is vitally important in the future development in science and technology in Finland.

From the viewpoint of the success of the group of Photonics in biomedical and industrial applications, we recommend exploring the possibility of joining in applications especially with the Medical Physics group in the School of Applied Physics.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	5
International and national research collaboration and researcher mobility	5
Operational conditions	3
Impact of research	5
OVERALL ASSESSMENT (not the average of the scores above)	4

4.6 SCHOOL OF COMPUTING

A SCIENTIFIC QUALITY OF RESEARCH

The overall research outcome of the School of Computing, while comparatively high in terms of number of publications per year per research FTE, is not yet fully aligned with respect to the leading international research in the field, as is shown also by the distribution of their papers according to the 3 classification levels of the JUFO classification system produced by the Federation of Finnish Learned Societies.

From the list of the 20 most important publications it appears that the speech and image processing research area has consistently produced high-quality results. Computational intelligence and spectral color research areas, the technologies for development and education (TED) group and some of the information systems research areas outcomes are of respectable quality. Other areas do not show a significant research outcome in terms of papers. Some of them, on the other hand, declare to have patents, strong cooperation with industry, and a significant involvement in society.

It can certainly be expected that the School is able to contribute to the progress of Computer Science, also with some significant outcomes. The probability of obtaining real breakthroughs, even if it cannot be excluded, appears to be – from the report and the visit – rather low, unless new visions will be vigorously developed. The School has surely the potential to move beyond the state of the art. The magnitude and relevance of these expected forward steps will greatly depend on how research will be organized and managed.

All the research areas investigated in the School of Computing are scientifically significant, with various degrees of expected impact on theory and methods on the one side, and on industry and society on the other side.

A common theme in the overall objectives and goals of the School is defining IT solutions for significant problems in the society (from, e.g., sustaining individual and social development to creating high quality information systems to sophisticated processing and integration of various kinds of digital data). In this respect the School is certainly ambitious, but utmost care has to be applied to ensure that the final results are validated and usable by the end-users.

Strengths of the School include:

- Applied research close to the end-user needs
- Attention to societal needs
- Experience with multi-disciplinary research
- Good international visibility of research outcomes of some groups
- Research supporting under-developed countries
- Research collaboration with other Departments and Schools of UEF

Recommendation:

- i. The School should focus its research on a smaller and more coherent set of areas, which could increase the impact of the unit.

B RESEARCH ACTIVITIES VS STRATEGY

Research areas of the School of Computing are aligned to the overall research strategy of UEF.

Recommendation:

- ii. In terms of excellence, more effort should be put on publishing in higher quality publication venues.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

The School of Computing (averaging 36.4 research FTE/year – excluding students – during the analyzed period) is involved in a total of eight international research projects for the analyzed period.

Involvement in national research projects is somewhat higher: a total of 17 projects (in nine as coordinators, in eight as partners). The nature of partners involved is well balanced.

The School has been able to produce joint publications and significant scientific findings both in their international and national collaborations.

While the outgoing mobility of research is significant, the incoming mobility does not show strong signs of a group receiving significant stimulus from the international research community.

Recommendation:

- iii. The School should increase amount of funding coming from international research projects.
- iv. The school should increase incoming mobility of high-quality researchers.

D OPERATIONAL CONDITIONS

The School of Computing derives from the merging of three former units: the Department of Computer Science of the University of Kuopio, the Department of Computer Science of the University of Joensuu, and the Healthcare Information

Systems Research and Development Unit from the IT Centre of the University of Kuopio. Moreover, it has also collected statistics scientists who previously worked in various units of the two former universities.

The School of Computing now operates on the two main campuses of Joensuu and Kuopio and is responsible for both Computing and Statistics research and education at UEF. This physical organization is not the best one to promote high quality in research. Also the high fragmentation of research areas within the School of Computing and the low level of cooperation among units internal to the School hinder high-quality results in research.

The Department does not show adequate leadership in defining and implementing its overall research strategy in the direction of obtaining high quality in research.

Some of the research areas within the School of Computing are so small that their sustainability appears uncertain, that is, not enough doctoral students and post-docs are in the career line to ensure a healthy sustainability of these areas.

The amount of basic funding allocated by the University to the School of Computing appears to be in line with both the average in the Faculty and the specific needs of Computer Science.

The School of Computing appears to be slightly better than the average in the UEF Faculty in obtaining external research funding, even if this only applies to national research funds. Funding from international projects is not aligned with international averages, but some groups perform very well.

In some of the research areas the School appears to have a critical mass of researchers and adequate expertise. In others, the number of researchers is severely limited. Considered in its entirety, the high fragmentation of the School's research units results in having many of them too small with respect to the critical mass needed to produce high-level results and to have high impact.

Research infrastructures in specially equipped laboratories currently appears to be adequate to the research overall objectives and goals, but their updating was suspended during the merging period.

The research groups operating in Kuopio have been forced to move into two different physical locations, which is clearly an additional problem for the School as a whole, which is already distributed over two campuses.

It does not appear there is a critical lack of auxiliary personnel.

The teaching work load of professors, university researchers and post-doctoral researchers is more or less in line with European standards (64 lecture hours plus 16 supporting hours per academic year). Junior researchers act as teaching assistants, typically in two courses per year.

Some research units of the School are well organized and able to sustain a continuous production of high-quality research.

Recommendations:

- v. It is recommended that the School reduce the fragmentation of research areas, fostering closer cooperation and more focused work among various units in the Information Systems and Software Engineering (ISSE) group, and among them and the Computational Intelligence unit and the Search Algorithms and Data Structure unit in the Intelligent Media Computing (IMC) group.
- vi. Also, the School should increase international funding and consider whether a more concentrated physical location of their people could have a positive impact on the production of high-quality research. At least, the groups in Kuopio should be situated in the same location.

E IMPACT OF RESEARCH

The societal impact of the School of Computing research is significant in the areas of:

- Culture and society (supporting developing countries, supporting digital inclusion)
- Environment (forests management)
- Technology (digital media processing)
- Welfare and health (supportive technology)

On average, there is a good level of active collaboration with the private and public sectors. One of the research units is starting a spin-off company and another has an ongoing consulting business.

One researcher has been Chief Technical Advisor for the Ministry of Science and Technology in Mozambique from 2010 to 2012. Another researcher is Honorary Professor at the Nelson Mandela Metropolitan University since 2010.

The School is actively involved in the *SciKids* and *SciFests* initiatives aiming at bringing kids and youngsters closer to science. This kind of activity is of the utmost importance to ensure an incoming flow of students able to sustain activities of the School.

F STRATEGIC VISION

The School of Computing declares to have the following vision for 2020:

- a) the leading national academic research institution in technologies for development
- b) the leading national academic research institution in medical and welfare information systems
- c) in the national forefront in the research of intelligent media computing
- d) in the national forefront in the research in software engineering
- e) the leading national computer science teacher education unit
- f) among the leading Finnish educators of international computer science students
- g) internationally recognized in its profile areas

Their feasibility appears to be the following:

- a) possible if the cooperation with the School of Educational Sciences and Psychology in the Philosophical Faculty is enlarged and deepened (attention to human factors is a key)
- b) possible if a larger mass of researchers will work in a more focused way (competition in this area is increasingly fierce)
- c) good
- d) difficult with the current level of resources (to focus on local SMEs is a good plan, but cannot be done with the small number of people working in this area)
- e) possible under the same conditions as in a)
- f) possible if researchers are stimulated to publish in venues with a higher international visibility and the incoming mobility is increased
- g) possible under the same conditions as in f)

Some research groups in the Department show considerable ambition, while others appear to be happy just to survive. Actions planned to promote high quality in research appear to be weak or insufficient to be successful.

In the future, the School of Computing intends to keep the same focuses of its current research, namely:

- Technologies for Development
- Information Systems and Software Engineering
- Intelligent Media Computing
- Application driven Statistics

Recommendations:

- vii. The School should focus on a smaller set of visions and research topics, increase cooperation with SMEs as well as increase internal cooperation around common application areas and shared research methods.

OVERALL COMMENTS

The School should:

- Redefine vision and strategy, with particular emphasis on the impact of science on society,
- Focus the research on a smaller and more coherent set of areas, while maintaining a healthy diversity in research areas,
- Increase internal cooperation around common application areas and shared research methods,
- Foster closer cooperation and more focused work among various units in the Information Systems and Software Engineering (ISSE) group, and among them and the Computational Intelligence unit and the Search Algorithms and Data Structure unit in the Intelligent Media Computing (IMC) group,
- Consider whether moving the School to a single physical location could positively impact on the production of high-quality research,
- Increase the amount of funding from international research projects,
- Increase incoming mobility of researchers,
- Increase cooperation with SMEs.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	4
International and national research collaboration and researcher mobility	3
Operational conditions	2
Impact of research	3
OVERALL ASSESSMENT (not the average of the scores above)	3

4.7 SCHOOL OF FOREST SCIENCES

A SCIENTIFIC QUALITY OF RESEARCH

Typical of University forest science research programs, the School describes itself as having four research areas with a focus on sustainable management and use of forests. The four core research areas are:

- A. Forest management and forest ecosystems
- B. Forest inventory and forest management planning
- C. Forest economics and policy
- D. Forest, energy and wood technology

Other schools have labelled and/or grouped these somewhat differently, say as up to eight or nine research areas. But, however stated, they are typical and expected areas of work in forestry research programs in this decade as viewed by government, industry and other stakeholders.

The School of Forest Sciences is one of two globally recognized forestry programs in Finland; the other is the slightly larger Department of Forest Sciences in the University of Helsinki. The background information provided for this School is detailed, especially with respect to research areas, staffing, facilities, funding and the linkages this program has within the University, nationally and internationally.

The scientific quality of the research in the School is considered very good to outstanding, depending on the research area. The research focusing on “Forest management and forest ecosystems” has provided outstanding research achievements in several areas and wide recognition at the international level. The success in this area was recognized in 2012 when the Academy of Finland evaluated the Finnish research in the area of Ecology and Evolutionary Biology over the period 2006–2010. The School received excellent to outstanding rankings in many research activities. The School has also held a status of a National Centre of Excellence in Forest Ecology and Management. International compilations of publications by forest science subject area show the UEF as on par with the University of Helsinki and among the top in the world including universities that have much higher numbers of faculty.

The School is at or near the top internationally in most of its research areas. The numbers of WoS-listed publications have been among the 10 best in the world in topics such as forest inventory, forest planning, bioenergy & biomass, forest economics and policy, silviculture and forest management. Further, there is ample evidence that this pattern of science leadership and success will continue. In

operation the School is modest in describing the strengths of its research, yet very consistently delivering important results ahead of most other forest science programs internationally.

Recommendations:

- i. Greater investments in this program will be well spent.

B RESEARCH ACTIVITIES VS STRATEGY

These research areas also fit closely with two of the University's Areas of expertise and associated research strategies, Forests and the Environment and New technologies and Materials.

In operation, the School's research effort translates and integrates basic and applied research from other disciplines with its own such work to provide scientific and technological understanding and to meet the need for specific information and tools for managing forests and their component resources valued by society, e.g., timber, water, biodiversity, recreation and aesthetics. Often this work also involves the development of specific products the forest can provide, e.g., paper, specialized fibers, structural building materials and biomass energy.

Given the School's reliance on numerous science disciplines, its strategy is to support research and cooperation between science fields. It does so by creating opportunities to fund and conduct multidisciplinary research that strengthens the know-how, networking and top research potential in its core research areas. In doing so, it recognizes the strengths within its core areas; e.g., forest management, protection, inventory and planning are seen as especially strong areas, while forest technology, logistics and economy are the most rapidly developing areas. Importantly, this research strategy is also intended to recruit talented doctoral students.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

The School and its faculty are involved with a wide range of international collaborators and specific research projects — the background document describes numerous examples ranging from developed to developing countries on most continents. Significant collaborations exist within academia, UEF specifically, industry, the private sector and government. Faculty research grants and traveling grants from the Graduate School in Forest Sciences appear to support much of the School's considerable internationalization of doctoral students. The School also provides space, facilities and research sites for cooperating international researchers. This international collaboration has also produced significant joint findings and publications. Notable among these findings are addressing climate change in boreal forests, forest inventory with remote sensing, and forest-based energy development.

The faculty is especially visible in the international forestry research community by their volunteer and leadership roles in the International Union of Forest Research Organizations (IUFRO), the European Forest Institute (EFI) and because of their welcoming attitude toward visiting scientists and young researchers. The personnel of the School also help to find accommodation and guidance to arrange matters of everyday life for such visitors. We see these international linkages also as enriching the opportunities for such linkages for other units on campus.

Recommendation:

- ii. Continued funding that allows the collaborative initiatives noted.

D OPERATIONAL CONDITIONS

The School is medium sized with ten professors having open-ended appointments, three to four professors appointed for a fixed term and numerous senior researchers and post-doctoral researchers, approximately 30 doctoral students and 65 docents and including seven to eight persons with specialized support skills with respect to computers, soil science and wood science. Aside from research and doctoral student education, the School trains numerous master's and bachelor's degree students.

In research, the School uses its own laboratories and research equipment, shares in the use of equipment among other UEF units, and conducts short- and long-term field research at Mekrijärvi Research Station and on many government and industry sites. The unit describes its laboratory facilities and equipment as good. A substantial component of the Finnish Forest Research Institute (FFRI) is also located nearby on the Campus and is a substantial co-operator in research and in the funding of research. The EFI is also located with the FFRI facilities. The EFI is also a major asset in developing research internationally and in drawing in international graduate students.

The School appears to have good leadership that in turn can articulate a vision and research and education needs and foster creative and diligent efforts among faculty and staff. The School also tends to cooperate informally on a faculty-to-faculty-member basis within the University. Often that appears to result in joint funding for formal research projects. The faculty seem to be a catalyst for bringing in funds to various other units (e.g., Applied Physics and Biology which then focus on multidisciplinary research on complex forest science problems).

For its size, the School appears to have been consistently successful in drawing in Academy of Finland and international funding support.

Faculty, staff and students appear to cooperate across the campus in maintaining and using research equipment. However, we discerned that difficulties in obtaining and maintaining equipment have limited research at times. This was noted in discussions with several campus units.

The School is sustainable at its current size, but could be much more effective across more subject matter with a modest increase in faculty size. Part of that

increase could increase depth in especially active areas and also grow the breadth of the program. The areas of wood technology and silviculture related to forest health (including climate change) would seem to be potentially very productive candidate areas.

In teaching at the graduate level, considerable effort goes into the international enrolment and the faculty take this role very seriously.

Recommendation:

- iii. Increase the number of faculty in one or more of the above noted areas and improve research equipment support.

E IMPACT OF RESEARCH

Examples of research impacts for 2010–2012 include those on culture and society, the economy, environment, politics and administration and technology. Here we note research on bioenergy and biofuels, which have very direct impacts on local employment rates and, more broadly, fostering a green society. Research for the environment includes the assessment of threat categories for several species; it has provided guidance on the management and restoration of forests in Finland and for boreal forests in other regions. Specifically, research on the dynamics and management of the boreal forest has provided understanding important to the EU on a new forestry strategy and locally for updating forest management plans. It has also greatly improved our understanding of climate change impacts and improved management strategies for dealing with this change. Finally, the refinement of airborne laser scanning (Lidar) has been adapted to operational forest inventory in Finland for state, company and private forests. In brief, the School has followed its work through to applications and impact with considerable diligence. The School is very much trusted for its work in all of the endeavours it undertakes.

F STRATEGIC VISION

The strategic vision of the School of Forest Sciences is to be a recognized and acknowledged national and international actor in its areas of expertise, notably as it relates to high-quality research and education. The vision also suggests subject areas, such as wood technology and bioenergy, in which it plans to improve. This vision clearly addresses two of the University's three targets for enhancement — *forests and the environment* and *new technologies and materials*. However, the School's talent and efforts in the areas of the forest economy and policy, collaborating with other University units, can also advance the University's third target—human *health and well-being*. In brief, this is an ambitious and highly effective set of faculty. Further, the School seeks to be recognized for its collaboration. It would seem that much of this vision has been achieved, but even greater contributions are very possible.

OVERALL COMMENTS

The documentation describes a School that clearly understands the driving needs behind its existence, its considerable talent in the forest sciences nationally and globally, and the networking and collaboration capability inherent in its faculty, staff and students.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	5
International and national research collaboration and researcher mobility	6
Operational conditions	5
Impact of research	5
OVERALL ASSESSMENT (not the average of the scores above)	5

5. *Evaluation of the Faculty of Health Sciences*

**Professor Ole Petter Ottersen (University of Oslo, Norway),
Professor Konrad Beyreuther (Network Aging Research (NAR), Heidelberg University, Germany),
Professor Flemming Pociot (Herlev University Hospital, Denmark),
Professor Debra Jackson (Faculty of Health, University of Technology Sydney, Australia) and
Academy Professor Sirpa Jalkanen (Institute of Biomedicine, University of Turku, Finland)**

The goal of the UEF is to be among the 200 leading universities in the world. The Panel applauds this ambition. At the same time, it must be recognized that competition will increase rather than decrease in the years to come, and that the realization of UEF's ambition will require a significant improvement of the University's performance and even a rethinking of how the University should be run and led. Recognizing that the institutes are the targets of this evaluation, the Panel nevertheless provides 12 general commendations directed at the Faculty and University. This is because many of the shortcomings identified and potentials revealed are rather generic in nature and apply to most if not all of the Faculty's units.

The Panel realizes that the recommendations are many and challenging. For these to be implemented, there must be an awareness throughout the institution of not only the *how* but also the *why*. In other words, there is a need to communicate effectively to staff and students alike why UEF must raise the bar when it comes to quality and international visibility. Simply stated, in a world that grows more competitive at unprecedented speed, the UEF cannot serve its region and stakeholders well unless it is able to attract international talent and nurture its own. For this to occur, the UEF must be even more attractive than it is today.

This said, the UEF has much to build on. The Panel learnt that two of the Faculty's disciplines (pharmacy/pharmacology and medicine) are among the world's top 200, according to the QS ranking. This fits with the Panel's own impression: the Faculty of Health Sciences is home to research environments of high international standard. Some of these can even be counted among the world

leaders in the respective fields. Subject areas where the UEF excels at top international level include nutrition, translational medicine (including use of viral vectors), Alzheimer's disease, diabetes, and epilepsy. Several other subject areas, typically led by scientists in early career, aspire to this top league.

There are also research environments at the other end of the spectrum – research environments that are underperforming and that need strong leadership and strategic clout in order to succeed. Nursing science and psychiatry figure most prominently among these, although it is clear that there are significant research achievements in psychiatry that were not brought to the Panel's attention. Nursing science is rather new as an academic discipline, while psychiatry in Finland – as in many other countries - has been late to fully integrate a biological or biomedical approach. Historical explanations aside, these two disciplines need particular attention and strategic input to realize their research potential in an academic setting.

The Panel had several meetings with PhD students and postdocs. These meetings were invaluable. What we learned is that there is no lack of motivation and talent. While this bodes well for the future of UEF, career development is essential. How this can be further improved is one of the issues that we raise in our recommendations below.

TWELVE RECOMMENDATIONS:

- i. The Faculty of Health Sciences punches far below its weight when it comes to funding from the EU and European Research Council (ERC). The same is true for the UEF at large. The Faculty and University have launched initiatives to remedy this situation, but efforts should be further intensified to build a competence center for international funding and to establish grantsmanship training programs specifically targeting young scientists and PhD students. Researching funding sources and writing proposals should be important elements of the PhD educational programs. Rethinking is required: submitting applications to ERC or other international funding bodies of high prestige should be seen as an obligation - and not merely as an option - for those researchers that are strong enough to qualify. Also, applying should be incentivized by collateral funding from the Faculty or University.
- ii. There is a need to recruit more talent and expertise from abroad. The Panel recommends using part-time (20-30%) professorships as a means towards this end. Such professorships could be offered to leading international experts in fields where the UEF already excels and in fields where UEF needs to build new competence. The professors should take part in postgraduate education. Recruitment of part-time professors could help establish contact with benchmark institutions.
- iii. The proximity to the Kuopio University Hospital undoubtedly represents a structural advantage for the Faculty of Health Sciences. Several of the

Faculty's units fully exploit the benefits of the resources that this hospital commands. Other units – such as the Department of Nursing Science - lag behind in this regard and need to build stronger research links with the hospital, for mutual benefit.

- iv. In several units there is a need for careful succession planning.
- v. Several of the Faculty's units are well integrated in international collaborative networks, including some of the largest and most visible consortia in Europe. However, the Panel found that most of the networks and consortia in which UEF takes part, are coordinated and run from other institutions. The Panel strongly feels that UEF should take the front seat more often, as the competence and attractiveness of the Faculty's research environments justify a more active stance when it comes to initiating and coordinating international networks. To a larger extent than today, the Faculty and University should help shoulder the administrative burden associated with the coordination of large international projects.
- vi. To realize its high ambitions, the UEF must bolster interdisciplinarity in research as well as in education. The Spearhead program is a good start. As competition increases, it becomes more important than ever to identify and cultivate the institution's unique profile. Interdisciplinarity is important in this regard. Addiction and Alzheimer's research are examples of subject areas where interdisciplinarity needs to be encouraged and strengthened. Within the fields of nutrition and diabetes, collaboration across disciplines is already strong, but there is a potential for forging even closer links. Interdisciplinary research programs of high quality would serve to increase the visibility of the Faculty and of the UEF at large. However, there is a fine balance to be struck, as the disciplines must be retained and not allowed to erode.
- vii. International rankings are an insufficient proxy for performance and should be complemented by benchmarking against comparable institutions. It is the impression of the panel that few of the research environments have adopted a benchmarking strategy. The Panel recommends that this be rectified.
- viii. If strategy plans are to be used actively in the further development of the Faculty, these plans need to emphasize areas where the Faculty has a competitive edge and where there are structural advantages. With some exceptions, current strategies stand as too generic and not sufficiently conducive to originality and increased quality.
- ix. Being outside the great crossroads of Europe, Nordic universities must compensate by offering the very best infrastructure. The Panel's interviews with foreign students and postdocs confirmed that infrastructure is an essential element in UEF's international attractiveness. The Panel understands that strategic working groups are in place at the Faculty and University level. The infrastructure strategy should duly exploit the

possibilities offered by Biocenter Finland and EUs infrastructure platforms. Obviously, cofunding should be sought from the private sector.

- x. Being a very young university, the UEF brand is not very visible internationally and scores low on reputation in international rankings. A “visibility strategy” should include arrangements of international meetings on the Kuopio campus, revamping of web pages, and online educational resources in select fields. Organizing meetings devoted to Spearhead projects or other interdisciplinary endeavors, with participation of benchmark institutions, would be win-win.
- xi. The Panel’s discussions with PhDs and young scientists made it very clear that the Faculty must develop predictable career paths to take care of the many young talents. The establishment of a tenure-track system is a very good beginning although the number of positions needs to be increased. Talented young scientists should be mentored and groomed for independent careers and for independent funding through national and international funding bodies. Ambitions must be in place for increasing substantially the number of ERC starting grants. Supervisors must help ensure that ERC starting grants candidates develop an independence that is duly reflected in authorship and journal quality.
- xii. Many PhD students and postdocs were vocal in pointing out the need for better interaction across institutes and disciplines. The Panel learned that Research Days and seminars have been initiated to meet this demand. However, statements like “we do not know what is going on in the laboratory next door” emphasize the need for retreats where research groups with potential for collaboration and mutual inspiration could meet to discuss strategy and research. RISI (Retreats in Splendid Isolation) could be an instrument to unleash creativity and kindle the enthusiasm that is required to bring UEF to the world’s top 200.

5.1 A. I. VIRTANEN INSTITUTE FOR MOLECULAR SCIENCES

A SCIENTIFIC QUALITY OF RESEARCH

During its existence the A.I. Virtanen Institute for Molecular Sciences (AIVI) has built its operations with clear vision and has become one of the leading places in the world when it comes to development of viral vectors, their use in clinical trials and, hopefully, one day with market authorization in certain diseases. Also the neuroscience part is of high quality with excellent international standing. Research on Alzheimer's disease and epilepsy are at top international level.

Overall, the quality of the research can be easily realized from the high level of external funding including a significant part from international sources, academy professor positions, centre of excellence status and awards. However, AIVI also contains groups with acceptable but not outstanding performance and with strategies that do not point to real breakthroughs in the near future.

B RESEARCH ACTIVITIES VS STRATEGY

The research activities of AIVI are well in line with the strategy of the University and the Faculty of Health Sciences – with emphasis on 'Health and well-being' and 'New technologies and materials'. The overall goals were clearly set out in the presentations for the Panel.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

AIVI is exceptionally well networked locally, nationally and internationally and it has been able to attract significant number of both foreign group leaders and doctoral/postdoctoral students. Moreover, a number of AIVI's researchers have spent some time in foreign laboratories.

D OPERATIONAL CONDITIONS

Operations of AIVI are heavily dependent on expensive machinery. So far, the necessary purchases have been successfully executed. However, the half-life of modern equipment is regrettably short and to stay on the top, budgeting of new machinery is a MUST. This is inevitably creating a threat for the future.

The Panel learnt that some complex and expensive machines/microscopes are not optimally used as core-facility personnel is lacking. Also the current situation of the animal facilities was seen problematic. This situation should be looked into and appropriate measures taken. The continued success of AIVI certainly hinges on the availability of modern and cost-efficient animal facilities.

Existence of several small units with special demands hampers optimal use of the infrastructure. AIVI should consider whether it would be appropriate to rethink the organization of the core facilities. For example, staff dedicated to core facilities and trained to use several facilities could handle the needs of the whole Institute even if somebody leaves or goes on vacation. This could make the organization less vulnerable and less person-dependent than it is today.

E IMPACT OF RESEARCH

The research has had exceptionally high impact in the development of biotech industry in Finland – this concerns both therapies utilizing viral vectors and therapies aiming at treating neurological disorders. The Panel was impressed with the fact that academically outstanding scientists have had the courage and energy to exploit their discoveries in the industrial sphere. Bibliometric analyses reveal high citation frequencies for several of the PIs.

F STRATEGIC VISION

Both Departments of AIVI, the Department of Biotechnology and Molecular Medicine and the Department of Neurobiology are aiming at being among the leading centres in the world and Europe, respectively. The Department of Biotechnology and Molecular Medicine will focus on cardiovascular translational aspects extending from basic discoveries to preclinical and clinical trials at the University Hospital. The Department of Neurobiology aims at pursuing its ambitions in translational neuroscience. The current strengths of both Departments are convincing and the aims are realistic. However, as the development both in viral vectors and translational neuroscience is advancing with high speed in other centres as well, new recruitments are required. New recruitments should be done with utmost attention to quality and international competitiveness.

OVERALL COMMENTS

The A.I. Virtanen Institute is an impressive hub for basic and translational research in the fields of cardiovascular disease and neuroscience. There are few places in the world where translation from molecules to clinic is carried out with the same diligence as here. The National Virus Vector Laboratory is state of the art, and following a recent upgrade it is now equipped for large-scale production of gene transfer vectors. The VEGF-D clinical trial is close to reaching the target of 30 patients. This trial, and subsequent ones still in the planning stage, are likely to place UEF firmly on the international map of leading biomedical institutions.

Few basic science institutes worldwide manage to maintain such a clear research focus as AIVI does. Cardiovascular disease is approached from diverse angles and areas of expertise, including molecular physiology, imaging, and cardiovascular signaling. The translational perspective is evident throughout. However, there is a fine balance to be struck. While joining forces towards a common goal is something to be applauded, the young scientists need to develop their own independent path.

Not least is this important for ensuring success in the ERC Starting Grant system. With the competence at hand, AIVI should be even more efficient in encouraging its young researchers to apply for ERC Starting Grants and other international grants that could help promote their careers and secure a more robust funding base for the Institute.

Together with the Faculty and the University, AIVI should establish strategies that open for a larger influx of funding from the ERC and EU. AIVI will continue to be heavily dependent on external funding. Strategies, incentives, and dissemination policies must be developed with due attention to this fact. This said, it is also essential that AIVI retains a predictable core funding. Thus, the ability of AIVI to garner international grants depends on a stable funding base from the University.

As the Institute does not have any significant responsibilities in basic education and is aiming at producing world-class level of research, it could be wise to evaluate the scientific performance of individual groups on a regular basis so as to open AIVI for some rotation.

In sum, the Panel recommends:

- i. that new recruitments are made with utmost attention to track record and international competitiveness;
- ii. that career paths are developed to foster independence of young investigators and secure their potential for success in the ERC;
- iii. that scientific performance is evaluated on a regular basis, opening AIVI for rotation of groups;
- iv. that the strongest possible emphasis is placed on garnering external funding from external sources including Horizon 2020;
- v. that a strategy group is established to meet the described challenges regarding infrastructure and animal facilities.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	5
International and national research collaboration and researcher mobility	5
Operational conditions	5
Impact of research	5
OVERALL ASSESSMENT (not the average of the scores above)	5

5.2 DEPARTMENT OF NURSING SCIENCE

A SCIENTIFIC QUALITY OF RESEARCH

It is the opinion of the Evaluation Panel that the area of nursing research has considerable scope for development. The short, mid, and longer term goals of an overall research agenda were not clearly articulated. Currently, the research activities of the Department of Nursing Science are organised into two main themes. Considering the size of the Department, these themes stand as very broad and seem to reflect a desire to be all-encompassing, rather than to focus on building strength in key areas. Moving forward, a more targeted approach to research would help to focus activities and build a critical mass of relevant expertise in priority areas.

Much of the research that is currently underway in the Department of Nursing Science does not seem to have strong, direct implications for the development of nursing science or nursing practice. This includes some of the work being undertaken at the Kuopio University Hospital. The hospital appointments held by the Department of Nursing Science represent a wonderful opportunity to meaningfully explore nursing interventions and how they could enhance patient outcomes and the health and illness trajectory. Instead, much of the current work conducted in the Department of Nursing Science seems to focus on peripheral issues not directly related to the practice and the science of nursing.

B RESEARCH ACTIVITIES VS STRATEGY

The strategy is formulated in rather general terms and lacks focus and vision. The strategy is in need of revision, placing due emphasis on the need to identify and develop areas of competitive edge and to better exploit the links with the hospital and the potential offered by the Faculty of Health Sciences.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

There is evidence of some large-scale collaborations, but the longer-term benefits to the Department, or to nursing science are not immediately clear. One of the issues with these very large international collaborations is that there can be a dilution of the benefits of funding and dissemination. So involvement in these sorts of projects, while having some potential strategic importance, should be balanced with smaller (but significant) nursing-focused projects where the benefits of funding and dissemination are more strongly in favor of the institutional participants.

D OPERATIONAL CONDITIONS

The operational conditions appear well-suited for the present research and educational activities. However, they are not necessarily conducive to the shift in research focus that is now required. A shift in focus would necessitate additional conjoint appointments with the Hospital and the establishment of part-time professorships linking the Department to outstanding research environments abroad (see below). Also, the funding structure must be revised and improved.

E IMPACT OF RESEARCH

As stated above, the impact of current research is limited. But there are potentials that now should be explored and that if unleashed could significantly increase quality and visibility. Most importantly, there is a need to take full advantage of the collaboration options offered by the Faculty and the University Hospital.

F STRATEGIC VISION

The current strategic vision leaves much to be desired. As pointed out above, it is essential that the Department exploits the close relationship with the hospital and duly recognizes the potential of exploring nursing interventions and how they could enhance patient outcomes and illness trajectory. Such a shift would benefit the Department and help align it more closely towards the core of nursing science.

There is also a need to more meaningfully engage with psychiatry and mental health research. Nurses have an enormous potential to enhance the care of persons affected by mental illness, and given the prevalence of mental health problems in the community (here in Kuopio and further afield), this is a crucial area for future work. The hospital connection represents a unique opportunity to enable the development of a research program in this area.

OVERALL COMMENTS

The Department has some obvious strengths that should provide a good platform for future development. There is excellent access to the University Hospital, and there are synergies with other researchers in the Faculty of Health Sciences implying strong potential for productive cross-disciplinary collaborative work. Also, the Panel noted that there are strong associations with Finnish Doctoral Education Network and the European Academy of Nursing Science. It bodes well for the future that the Department is endowed with a leadership that is both passionate and committed.

As indicated above, there are a number of challenges and weaknesses that need attention. Grants acquisition has been slow and should be further developed. The Department's researchers take part in a number of international consortia, but not in leadership roles. Also, there is a potential for an enhanced engagement with the wider UEF research community.

The following recommendations should be considered:

- i. Development of a stronger and more visible patient/client-centred research theme in nursing.
- ii. Development of focused and targeted priority areas for research.
- iii. Development of a short, mid, and longer-term plan for nursing research at the UEF.
- iv. Undertake a mapping exercise to:
 - a) identify areas of strong synergy with colleagues in the Faculty of Health Sciences at the UEF;
 - b) identify potential for collaborative opportunities for members of the Department of Nursing Science to work with established research teams at the UEF
 - c) seek out methodological expertise within the Faculty to enhance strength in research design, methodology, and funding outcomes.
- v. Develop a targeted publication strategy.
- vi. Consider fractional fixed-term international appointments of leading nursing experts to provide strategic input and assist in building track record in key areas.
- vii. Benchmarking against nursing departments in other similar universities.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	2
International and national research collaboration and researcher mobility	2
Operational conditions	3
Impact of research	2
OVERALL ASSESSMENT (not the average of the scores above)	2

5.3 SCHOOL OF MEDICINE - BIOMEDICINE

A SCIENTIFIC QUALITY OF RESEARCH

The research is on a high international level. The three research programs differ substantially in scope and organization, but each of them demonstrates a good track record with publications in well-esteemed international journals.

Because of its heterogeneity and broad scope it is not easy to benchmark the Institute of Biomedicine against other institutions, nationally or internationally. The institute is organized so as to cover the basic expertise required for teaching preclinical medicine. As such it incorporates proficiency in the traditional disciplines anatomy, biochemistry and physiology, as well as in molecular biology and exercise medicine.

The panel was impressed by the research program on Physical Activity, Diet and Genetics which aims at identifying risk factors for obesity, metabolic syndrome, type 2 diabetes, and CVD. The approach is a combination of long-term epidemiological follow-up studies in large well-characterized cohorts and studies of genetics/molecular mechanisms. A strength of this research is the thorough phenotypic characterization of cohorts. Apparently, the PANIC cohort is one of the largest of its kind and thus provides the basis for research of high scientific quality. As aging is an important strategic focus area, the DR's EXTRA cohort holds significant potential. The studies of molecular and cellular mechanisms in response to intervention should add to this. Another strength is the proximity to the clinics, which should be explored maximally. The quality of the research is reflected in publications e.g. *Nature Genetics*, *Human Molecular Genetics*, *American Journal of Genetics* in 2013. However, many of these studies are consortia publications where it is difficult to sort out the role of the unit and its researchers.

Like the program on Physical Activity, Diet & Genetics, the programs on Genome and Gene Expression and Cellular Matrices & Cell Membrane are built on the recognized experience and well-documented expertise of the leading scientists. Overall, the programs have generated solid science, and the results have been published in well-respected international journals. The three programs are quite disparate in profile and scope, but they have been able to complement each other in regard to methodological and conceptual aspects. Further strengthening of interaction is recommended, following a careful assessment of research areas where inter-program collaboration could provide a competitive edge on the international scene.

B RESEARCH ACTIVITIES VS STRATEGY

The strategy was described in rather general terms. Emphasis was placed on the need to promote internal co-operation between the research groups. The establishment of research programs stands as an important step towards this goal. As pointed out above, there is a potential for additional synergies between the different research programs.

The research activities of the programs are in line with the strategy of the University and the Faculty of Health Sciences.

The funding of the programs is derived mainly from national sources. Additional funding should be sought from the EU and other foreign funding agencies. Also applications for 'Finnish Distinguished Professors' funded by the Finnish Academy or TEKES are highly encouraged. Utilizing this instrument would potentially impact research, research training, and visibility, and possibly help attract more external money.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

The Unit takes part in a number of international collaborations. The participation in these large consortia (e.g. those related to metabolic syndrome/diabetes traits) ensures a number of high-impact publications, but the role of the Institute is oftentimes difficult to judge and funding appears to be limited. It is essential that efforts are being made to attract more funding from international sources. This requires a careful strategy and proactive attitude towards the development of Horizon 2020.

It is the Panel's impression that the Institute's participation in international consortia has not translated into an increased mobility of students and researchers. In fact, the situation is rather paradoxical in that mobility remains low while networks and contacts are in place for an extensive exchange of both students and scientists. Additional incentives should be established to rectify this situation.

D OPERATIONAL CONDITIONS

Operational conditions and infrastructure are good. The Institute boasts state of the art technologies in the field of genome-wide analyses and also profits from access to modern imaging facilities that are being put to good use by members of the research programs. The bioinformatics core promises to develop into a valuable asset for the Institute and the Faculty at large.

E IMPACT OF RESEARCH

The Physical Activity, Diet and Genetics Research Program has scientific 'cutting-edge' and represents potential translational value due to the combination of large, clinically well-characterized cohorts and the study of molecular mechanisms. The other programs likewise enjoy international impact. This view is supported by bibliometric analyses.

F STRATEGIC VISION

The strategy is described in rather general terms. The strategy should be revised so as to focus more on the areas where the Institute has a competitive edge, and where expertise, resources, and infrastructure can be combined so as to ensure attractiveness on the international scene. A proactive stance on external funding is essential, and there is a need for a better strategy for career development.

OVERALL COMMENTS

The Institute of Biomedicine performs well, but there is certainly a potential to become even more visible and attractive internationally. When working out a long-term strategy, it is important to pay due attention to the needs and views of the students.

Interviews with the doctoral students revealed that they had selected UEF for their doctoral studies over other options, for a range of reasons including the existence of a public health option, and because of a reputation of good teaching staff, quality supervision and a supportive environment. Students indicated they feel well taken care of and believed themselves to be in a good learning environment. Students also indicated that they were supported to be internationally active. Doctoral students were generally pleased with enhanced coursework offerings available to them, but highlighted a need to ensure that all coursework offerings – not only those specifically designed for postgraduates - should be available in English, to better meet the needs of a culturally and linguistically diverse student group.

Post-doctoral fellows had chosen to work at the UEF Kuopio because of the quality of the research, the interest in the research areas on offer, and the quality of supervision and support available to them. A number of the post-doctoral staff were graduates of the University of Kuopio, had obtained experience in diverse overseas locations and had chosen to return to UEF Kuopio. Overall, the post-doctoral staff spoke highly of their work at the Institute; in addition to their laboratory work, they were afforded some additional opportunities, such as involvement in the supervision of current doctoral students. Furthermore, post-doctoral staff stated they had opportunities in relation to publications and to networking with international colleagues. However, they expressed concerns about taking the next steps in their careers; and uncertainty as to what was required in developing their own research programs and becoming independent researchers. They also indicated a desire to participate in more multidisciplinary work, to get

together with multidisciplinary colleagues to explore synergies, and develop projects, and this included translational work. There were also concerns about the unpredictable nature of their employment, in light of their dependence on the continued acquisition of external funding. However, the University's recent moves to introduce a tenure track was welcomed by the post-doctoral staff as being one way of moving towards an independent career path. Post-doctoral staff highlighted a need to begin to prepare doctoral students for the post-doctoral phase of their careers during the latter stages of the doctoral program.

Interviews with students highlighted what stand as major challenges for the Institute at large:

1. There must be a strategy in place for increasing funding from external sources.
2. There must be a strategy for maintaining top quality infrastructure – essential for international attractiveness.
3. Mobility must be increased.
4. There is a need to concentrate the research efforts so as to ensure that the research groups are above critical mass. Areas with a clear competitive edge should be identified and developed.
5. There is a need to more clearly articulate a career trajectory for post-doctoral staff.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	4
International and national research collaboration and researcher mobility	4
Operational conditions	4
Impact of research	5
OVERALL ASSESSMENT (not the average of the scores above)	4

5.4 SCHOOL OF MEDICINE - CLINICAL MEDICINE

A SCIENTIFIC QUALITY OF RESEARCH

The Panel was told that the School of Medicine is rated as the best in Finland in teaching clinical skills to the students in medicine. It is also the biggest medical school in the country.

As such, the Institute of Clinical Medicine covers a lot of ground and is heterogeneous in regard to organization and research portfolio. There is also a substantial variety when it comes to quality and impact of research. Some research programs (most notably those on type 2 diabetes and cardiovascular disease) are of excellent international quality and would have been awarded top marks if evaluated separately. At the other end of the spectrum there are programs that punch below their weight and show potentials that remain to be unleashed. The psychiatry environment is a prime example of the latter.

The Panel also realized that the sheer size of the Institute precluded a presentation of the entire range of research activities. However, the fields that were exposed to the Panel were broad enough to be deemed representative of the Institute at large. Thus the high overall mark is fully justified.

Research on type 2 diabetes and coronary heart disease is concentrated in the 'Centre of Excellence in Cardiovascular Diseases and Type 2 Diabetes Research'. The quality of the science is outstanding in terms of establishing and phenotyping clinically relevant cohorts, studying clinical, molecular and cellular mechanisms, translation of basic science into clinical applications, and publication of data. The work has resulted in more than 30 papers in journals with an IF > 10 in 2010-13.

The METSIM Study (Metabolic Syndrome In Men) is unique – also on a world-wide scale – and there are all reasons to believe that this study will continue to provide important data.

The neuroscience community is also at high international level. Ongoing studies addressing risk factors, objective diagnosis and prevention of Alzheimer's disease enjoy international visibility and hold great potential. A major breakthrough is the implementation and validation of the PredictAD project tool, whose main objective is to find and integrate efficient biomarkers from heterogeneous patient data to make early diagnosis and to monitor the progress of Alzheimer's disease in an efficient, reliable and objective manner. The project is based on the discovery of biomarkers from biomolecular data, electrophysiological measurements of the brain and structural, functional and molecular images. The PredictAD project is now part of the EU project on "Healthy Aging Through Internet Counselling in the Elderly" (HATICE) which in January 2013 was awarded a 5.8 million EUR grant from the EU.

PredictAD work has also been included into the new EU-project “Use of a European Medical Information Network” (EMIF) to develop markers for early diagnosis of Alzheimer’s disease.

In regard to prevention of neurodegeneration, the FINGER Project (The Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability) has been implemented under the leadership of Kuopio. From an international perspective, this multi-domain lifestyle study has taken a lead in design, size, and execution of interventions to delay cognitive impairment among high-risk individuals.

The first LIPIDIET trial on medical nutrition in prodromal Alzheimer’s disease, a double-blind, placebo-controlled, 24-month study, is led by Kuopio (Hilkka Soininen) and a German group (Tobias Hartmann, University of Saarland).

The small animal MRI studies done on epileptogenesis are at the international forefront. Equally important and unique is the combination of structural and functional MR imaging with surgery of epileptic patients from KUH. The translational, clinical neurophysiological and stroke research is first class in terms of quality and relevance.

In the Cancer Centre, scientific productivity is quantitatively and qualitatively high as a significant number of papers have been published in top journals. However, in many of these publications the UEF scientists are in the middle of tens of authors indicating that they are not always in leading roles. The cancer research environment has a long track record and expertise especially in clinical pathology and cell-matrix interactions in cancer development. The Centre was recently evaluated in the context of a Spearhead project. The Panel supports the main conclusions that were made in the latter evaluation.

The field of musculoskeletal research is based on a long and proud research tradition that includes all central themes of the Faculty’s research strategy. The research activity is characterized by intensive research collaborations (including a Spearhead project) and interdisciplinary approaches. The program includes important cohort studies with impressive follow-up. Some studies benefit from the use of quantitative bone histomorphometry, a methodology used by very few other laboratories. There is a strong publication record.

The collaboration of the Heart Centre with the A.I. Virtanen Institute is a worldwide unique translational research activity in gene therapy. In an ongoing study, patients with severe coronary artery disease are treated with adenovirus vectors encoding endovascular VEGF-D. In addition to this novel approach to gene therapy, patients with atherosclerotic heart disease are treated with an innovative nanotechnology based on a combination of endovascular *in vivo* near-infrared fluorescence molecular imaging and endovascular near-infrared targeted photodynamic techniques. A third novel and innovative treatment uses intracoronary reinfusion of bone marrow derived mononuclear cells in acute myocardial infarction. The gene therapy project receives funds from the Finnish

Foundation for Cardiovascular Research. The other two therapies of coronary artery disease benefit from EU funding.

Research in immunology focuses on immunogenetics of autoimmune diseases with emphasis on type 1 diabetes and celiac disease. The investigations on the role of T-cells in immunopathology take advantage of the large and well-characterized DIPP-cohort (Diabetes Prediction and Prevention Study). The DIPP Study has produced a large number of papers in high-impact journals. The productivity of the group has been somewhat limited in the 2010-13 period, with few publications by the group leaders under the UEF affiliation.

The Institute has a strong environment in eye research. With the identification of autophagy and heterophagy dysregulation in age-related macular degeneration (AMD), the Unit of Ophthalmology became the worldwide leader in AMD research. The scientists not only identified the mechanism leading to the pathological hallmarks of AMD, but also showed that lipofuscin is the toxic element in AMD degeneration.

The Psychiatric Research Group is small, with four doctoral students. The quality and impact of its research lags behind the quality and impact of the other programs in the Institute and would have received a rather low mark if evaluated separately. The professors in psychiatry carry a clinical load at the University Hospital, and a teaching load in the Institute of Clinical Medicine.

In relation to patient load, a member of the Psychiatric Research Group indicated they treated approximately 2000 inpatients, and 2000 new outpatients per year. The age range of the patients is 18-65, with a mean age of 40 years. There is an additional specialist environment for the psychiatric care of older people. All of the patients treated by the Psychiatric Research Group undergo comprehensive clinical assessment. Currently, only approximately 5% of these patients have any involvement in research activities. However, Psychiatric Research Group members agreed that most if not all patients could potentially be involved in research.

Meetings with members of the Psychiatric Research Group were illuminating. Group members indicated they were pleased to be able to discuss issues related to their research activity, and were keen to identify strategies in moving forward. They identified two major issues which they believe impaired their capacity for research activity. These issues were: (1) the demands associated with meeting the clinical needs of patients; and (2) a lack of funds and resources to move the research agenda forward.

It is the opinion of the Panel that psychiatric research has considerable potential for development and capacity building. Previously there has been productive research in the area of depression etiology, illness course and treatment (the Kuopio Depression Project, KUDEP study). This work generated a number of peer-reviewed publications and some key baseline information from which further research could be developed.

While there are some small scale studies either planned or underway, the aims and short, mid and longer-term goals of an overall research agenda were not clearly

articulated. Furthermore, the research team acknowledged a need to enhance their engagement with the wider UEF research community, and also to actively seek out collaborations with leading researchers in Finland and abroad.

B RESEARCH ACTIVITIES VS STRATEGY

The research activities at the Institute of Clinical Medicine appear to be well in line with the institutional strategies.

The strategy of the diabetes research community was particularly impressive and deserves mention. Translational, clinical problem solving is elegantly pursued by doing case and/or population-based studies with deep phenotyping, molecular and metabolic studies, bioinformatics, and then follow up with basic science methods with the ultimate goal of going back to the patients with new treatment modalities. The group has been successful in several cases using this approach. This includes a patented therapy to improve metabolic adaptation.

In immunology, the objectives of the research groups are to define genetic risk of autoimmune diseases, to understand the role of genetic factors in immunopathology and to address the interaction between genes and environment. Most of this research is taking place within large Finnish (DIPP, TRIGR and FINDIA) and International consortia (DIABIMMUNE, TEDDY and PRODIA). The group has recently addressed the first two items in studies based e.g. on the DIPP study population. Their involvement in the TEDDY study will assist them in addressing the gene-environment interaction.

With its strong focus on novel tools for diagnosis and therapy of coronary artery disease, peripheral artery disease, heart failure and treatment and prevention of atrial fibrillation as well as hypertrophic and dilated cardiomyopathy, the Heart Centre fits very well into the excellence program of the Faculty and the University. Most if not all research activities are at the international forefront of experimental and clinical cardiology.

In eye research, the program has a strong focus on the most relevant aspects of AMD, which are autophagocytosis, inflammasomes, AMD genetics and epigenetics. The recent finding of a polymorphism in complement factor 8 suggests that impairment of phagocytosis by macrophages can cause AMD opening new avenues for therapy.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

As is the case also for other institutes at the UEF, the Institute of Clinical Medicine has unleashed potential when it comes to assuming leadership in international research consortia. There is no shortage of international collaborations: the challenge resides in exploiting them optimally so as to strengthen UEF's visibility, enhance mobility, and secure future funding. As the capacity to sustain international networks will always be limited, there is a place for prioritizing those

networks that look the most promising in regard to prospects of major funding within Horizon 2020.

The Heart Centre deserves special mention in regard to international and national collaboration. Nationally, the Centre's collaboration with the A.I. Virtanen Institute is important and unique. In addition, the collaboration and clinical interaction with the Imaging Centre is very efficient and of significance for research as well as clinical work. The latter compares well with other clinical centres in Europe (example: Cardiology at Heidelberg University Hospital, Germany). Collaborators within Finland include the Heart Centres at the Universities of Oulu, Tampere, Helsinki and Turku. International research partnerships on atrial fibrillation are established with two universities in Denmark and three universities in Sweden, on imaging with seven Canadian universities and on coronary artery disease with universities in Belgium, Denmark, Germany (two), Holland, Spain and the US.

D OPERATIONAL CONDITIONS

Generally, the infrastructure appears modern and state-of-the-art and the necessary in-house collaborative links are in place. In the case of cancer research, efforts for establishing a well-functioning bio-banking facility are extremely important. The future success of the neuroscience community depends on the large and unique cohorts and patient-derived data sets that were built up in the past.

The Panel missed a comprehensive plan for securing external funding, from the EU and Horizon 2020 in particular, and a strategy for maintaining the state-of-the-art infrastructure. For international attractiveness, top level infrastructure is a *conditio sine qua non*.

E IMPACT OF RESEARCH

Most units demonstrate a high international impact. The Research Program of Type 2 Diabetes and Heart Diseases has world-class scientific 'cutting-edge'. Similarly, the work on neurodegenerative disease is likely to have strong impact on primary and secondary prevention of dementia while work in the Cancer Centre promises to improve diagnostics of cancer and treatment of cancer patients.

There is a great immediate and future impact on treatment of patients through research achievements in the fields of novel diagnostic tools and therapies for coronary and peripheral artery disease (endovascular VEGF-D gene therapy), photodynamic therapy (FP7 grant) and mononuclear cells in myocardial infarction (FP7 grant). In the field of ophthalmology, it deserves emphasis that in the past 15 years, treatment of exudative AMD has advanced from no treatment, over inefficient laser treatment (1-2% of patients with effect), to efficient antibody treatment with anti-VEGF. With the identification of the toxic element in dry AMD (80% of cases), the target for drug discovery has been identified. The work performed in the Institute of Clinical Medicine has contributed significantly to recent progress.

F STRATEGIC VISION

It was the impression of the Panel that most units have clear visions and strategic goals and that threats and opportunities are duly recognized. For some fields, such as immunology, the translational perspectives were not clearly articulated. Also, for units that face a transition in leadership there is a need for adequate succession planning.

OVERALL COMMENTS

The Institute of Clinical Medicine is already putting the UEF on the map, and has the potential of leaving an even stronger imprint in the future provided that measures are taken to uphold the quality of research and infrastructure. There is a need for a realistic strategy for maintaining the top-of-the-line infrastructure, for securing recruitment at international level, for attracting additional external funding, and for developing further the interdisciplinary projects that are already in place.

Succession planning is important, and the UEF should consider establishing senior professorships for select areas such as in the fields of diabetes and cardiovascular research. In the event of a successful outcome of the gene therapy trials, the UEF should be prepared to exploit this success in full by allocating resources and help to disseminate the findings.

The UEF faces special challenges in regard to psychiatry. There is an urgent need to develop and clearly articulate a research agenda and a plan for capacity growth in this area. Within the Faculty, there is considerable interest in psychiatric co-morbidity, and this interest could be harnessed to engage and bolster the Psychiatric Research Group.

The following specific recommendations for psychiatry should be considered:

- i. Review the clinical workload of the Psychiatric Research Group and take measures to involve patients in research programs.
- ii. Develop a short, mid and longer-term plan for psychiatry research at UEF.
- iii. Undertake a mapping exercise to identify areas in psychiatric research that hold potential for collaboration with established research teams at UEF.
- iv. Facilitate more international collaboration and strengthen links with groups in other Finnish universities.

The discussion with the students of the Institute of Clinical Medicine gave important insight in the challenges ahead:

The students who presented to the Panel had long-term goals of establishing viable careers in science, with some students who were medically trained aspiring to careers that encompassed both research and clinical aspects. Students chose to study in the Institute because of the quality of support and supervision and the nature of research training on offer. While students were generally very satisfied with their programs of research and the quality of supervision they were receiving,

they did have a number of suggestions that they felt could further enhance the research training environment. These suggestions included: support to increase opportunities for students to interact and collaborate with colleagues internationally; opportunities to visit other laboratories both within Finland and internationally; and, early initiation of training to develop skills in grants acquisition, particularly in relation to EU funding. Students were also unfamiliar with strategies that existed within the Faculty to gain training in using instruments other than those they were using directly in relation to their own research, and expressed a desire to have access to such training.

Similarly, the post-doctoral candidates also expressed a desire to forge careers that would allow them to engage in clinical work, as well as undertake research. These candidates had chosen the Institute of Clinical Medicine at UEF to gain high quality research training and further developmental opportunities. There was general satisfaction with the quality of supervision, and the learning opportunities available in the Institute. Particular mention was made of the usefulness of some of the English courses, and how helpful they were in terms of preparing scientific papers for publication. Post-doctoral candidates also commented on the benefits to them of interacting with others, and working collaboratively with peers and colleagues from other departments, which had occurred as a result of some of the coursework they had undertaken. An additional positive comment was made about the improved structure in the doctoral training, by those who had undertaken recent doctoral training in the Institute. These post-doctoral staff members also had some suggestions that they felt would enrich the Institute's research income and its research training environment. These suggestions included start-up packages for post-doctoral researchers to help them make the transition to independent researchers more quickly; and training opportunities in the area of advanced analytical procedures. In relation to the latter, this may mean support to travel overseas for a period of time to gain relevant skills and expertise. Finally, there was the suggestion that some of the research areas in the Institute are very small, and that it may be more productive in the longer term to focus on some key research areas and enhance the resource support to those more focused areas.

Based on the discussion with students, two recommendations should be considered:

- v. Investigate the possibility of offering start-up funds to talented post-doctoral researchers to help them become independent researchers with a potential of gaining independent external funding, e.g., from the ERC.
- vi. Develop and deliver grants acquisition workshops aimed at both the doctoral and the post-doctoral level, to enhance skills in grantsmanship.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	5
International and national research collaboration and researcher mobility	4
Operational conditions	4
Impact of research	5
OVERALL ASSESSMENT (not the average of the scores above)	5

5.5 SCHOOL OF MEDICINE - PUBLIC HEALTH AND CLINICAL NUTRITION

A SCIENTIFIC QUALITY OF RESEARCH

This is a truly multidisciplinary Institute with extensive international collaborations. There are two main tracks at the institute: Public Health and Clinical Nutrition.

The research in the fields of public health and nutrition gave rise to as many as 175 publications in 2012, several in high-impact journals. The teams enjoy a steady influx of students from abroad with 10-20 international exchange students at any time.

The KIHD (Kuopio Ischaemic Heart Disease Risk Factor Study) cohort stands as important for several aspects of the Institute's research and is an obvious focus area. However, the research activities as a whole cover a lot of ground. There will be a need to concentrate the efforts in order to retain a competitive edge. A major part of the research is performed within European multi-center studies. KuBiCo (Kuopio Birth Cohort) undoubtedly will be an important resource for future investigations.

Within air pollution research the personal measurement of air pollution is considered a strong competitive edge at the international level. It is noted that with relation to air pollution and noise Finland may in many cases represent the lower percentiles.

The Panel was impressed by the research in clinical nutrition. There is no doubt that UEF's nutrition and diabetes research is at the international forefront and would have received the highest score if evaluated separately. In these fields, the Spearhead project has bolstered internal collaboration within the Faculty, and there is now a wide range of activities across departments. The research on the Nordic diet has drawn international attention and an impressive number of citations.

The Finnish Diabetes Prevention Study (FDPS) is top level and ranks among the best 2-3 most influential worldwide. The challenge is to retain this position, in the wake of the successful demonstration of the effect of the Nordic diet. Mechanistic studies and a transition towards personalized medicine are obvious avenues to explore.

B RESEARCH ACTIVITIES VS STRATEGY

The research is in excellent compliance with all aspects of research themes outlined in the UEF/Faculty of Health Sciences strategy.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

The Panel learnt that the Institute is involved in a large number of national and international collaborations, including collaborative networks funded from the EU. Attesting to its attractiveness, the Institute is host to many PhD students and postdocs from abroad.

In most collaborative networks, the Institute is partner rather than coordinator. In the years to come, it is important that researchers take the driver's seat in larger consortia. The leadership should encourage this shift as part of the strategy to increase the visibility and profile of the UEF at large.

There is potential for an increased funding from the EU. For instance, to help realize the high ambitions in Vitamin D research the research group should strive for a coordinator role in an EU project.

Of note, the discussions with the students revealed a desire for an even more active internationalization policy. The students also suggested that the campus should be used more extensively as a venue for international meetings.

D OPERATIONAL CONDITIONS

The Institute has high teaching activity. Some areas of research would benefit from recruitment of additional staff, e.g., the Nutritional epidemiology group. The work with the KIHD cohort and the very extensive database that has been established should provide an excellent platform for future interaction with other research groups.

E IMPACT OF RESEARCH

The unit has significantly advanced the knowledge in the respective fields. The progress that has been made has the potential of being translated into new intervention trials or recommendations. With the enormous amount of data generated for several of the cohorts studied, it is likely that there will be a significant impact on public health. Specifically, the unit has shown that Type 2 diabetes is preventable by changing lifestyle and that Nordic diet has a positive effect on lipid profile and low-grade inflammation. The latter findings are now been translated into a common Nordic diet recommendation.

F STRATEGIC VISION

The unit has drafted a strategy for the near future until 2020. This strategic vision is in compliance with the strategy of UEF/Faculty of Health Sciences but appears too ambitious and in need of more focus and prioritization. Collaboration with other groups within UEF and with national and international partners should be a central theme in the strategy. The strategy should also include a realistic plan for attracting external funding.

OVERALL COMMENTS

The Institute of Public Health and Clinical Nutrition is clearly one of the flagship units at the UEF. It scores high on international visibility and is in a position to positively impact public health, provided that the recent breakthroughs are translated into recommendations that can be duly disseminated and implemented. The potential for internationalization and external funding is significant and remains to be fully realized.

The unit is involved in many activities and faces challenges in maintaining a leading edge within all the current areas. A strategy extending to 2020 has been drafted. However, as it now stands, the strategy appears too general and it is recommended that a clear prioritization be done.

Thus, in an institute that currently excels in several fields, the Panel saw a clear need for an increased strategic clout. Among the Faculty's institutes, the Institute of Public Health and Clinical Nutrition is clearly the one that faces the greatest transitional challenges, in regard to staff as well as research portfolio. To maintain its current position, the Institute will have to heed the warning signs and handle these challenges, proactively and efficiently:

- i. There will be a need to concentrate the efforts in order to retain a competitive edge.
- ii. The recent successes in regard to several of the Institute's research objectives may come at a price, as they represent natural end points of endeavours that now have to be replaced with new, ambitious projects. It was not clear to the Panel how the Institute plans to grapple with this challenge.
- iii. Similar to the situation in several other institutes, the Panel saw a potential for a much more active stance on international collaborations. For an ambitious University, it stands as an anomaly that its strong research groups most often act as partners rather than coordinators in collaborative networks. This anomaly deserves attention, in the Faculty as well as in the University at large.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	5
International and national research collaboration and researcher mobility	5
Operational conditions	4
Impact of research	5
OVERALL ASSESSMENT (not the average of the scores above)	5

5.6 SCHOOL OF PHARMACY

A SCIENTIFIC QUALITY OF RESEARCH

Pharmaceutical and Medicinal Chemistry (PMC) has proven expertise in all areas of drug discovery including molecular modeling, drug synthesis, biochemistry, drug analysis and pharmaceutical technologies such as cyclodextrins and prodrugs. The program on prodrugs is not only unique to Finland but also unique for Europe and internationally recognized. The NMR facility has a strong expertise in high-throughput NMR metabolic profiling. For drug development, the translational ADMET activity covers *in vitro*, *in vivo* and *in silico* approaches. Biopharmacy and Pharmaceutical Technology have their focus and expertise in nano and polymer technology in drug, peptide and gene delivery. Thus the School of Pharmacy covers a lot of ground with a high quality throughout.

Many of the research lines are forward-looking and hold great promise, like the CNS targeting project that aims at exploiting a novel carrier to take drugs through the BBB.

B RESEARCH ACTIVITIES VS STRATEGY

The focus is on highly relevant targets such as the endocannabinoid system, and on molecular modeling for rational drug design, anti-cancer drugs, CNS and placenta targeting, and bisphosphonate research. The NMR high-throughput metabolomics platform has been opened and extensively used by UEF scientists and the international community. Nano and polymer technology in drug, peptide and gene delivery addresses a timely problem for cancer treatment and treatment of brain disorders. The research activities are very much in line with the strategic objectives.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

There are ongoing collaborations with the School of Medicine and within EU consortia. In addition, there are collaborative projects on anti-cancer drugs with the University Hospital Tuebingen, national and international collaborations on NMR analytics, and collaborations with industry under the umbrella of PROMIS. This list is not exhaustive. In sum, the School of Pharmacy appears well integrated in collaborative networks, both nationally and internationally.

D OPERATIONAL CONDITIONS

The School faces the challenge of having a high and demanding teaching load, not least in pharmaceutical chemistry, biochemistry, and chemistry which in the past was the duty of three different units. Top research in a highly competitive field can

be maintained only if there is a reasonable balance between teaching and research. There is a need to look into this issue to see if an optimal balance has been struck. The Panel was told that the Pharmaceutical Chemistry Unit was the only unit at Kuopio campus teaching and studying chemistry.

As for infrastructure, there seems to be a need for an update of instrumentation for organic chemistry. Computational resources must be updated on a continual basis, and analytical work requires top-of-the-line NMR and MS resources.

E IMPACT OF RESEARCH

The research program has international impact, although not on a par with some of the research programs in the School of Medicine. There is a potential for even higher impact within areas such as drug development for treatment of cancer, metabolic diseases and brain disorders.

F STRATEGIC VISION

The programs of the different groups are very ambitious and address highly competitive issues in drug design, metabolism and delivery, as well in social pharmacy. In order to improve efficiency and success with highly competitive projects, milestones have to be defined and a priority list has to be provided for the numerous projects.

OVERALL COMMENTS

The School of Pharmacy is obviously an asset for the UEF. It is home to a broad range of expertise and methodologies and demonstrates ample visions and strategic clout. While the School enjoys international visibility and impact today, the Panel felt that its full potential remains to be unleashed. The reasons for this must be looked into. One possibility is that the right balance between research and teaching has yet to be found. Another possibility is that attention to breadth detracts from the need to prioritize. In either case, with its broad repertoire of techniques and methodologies, the School will have to ensure that infrastructure is duly updated and renewed. This is a key to the School's future success and international attractiveness.

It is recommended that the entire range of research activities be screened for potential support from Horizon 2020. The School should also analyse its current teaching curriculum to see if a reorganization of this could help spend available resources more efficiently.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	5
International and national research collaboration and researcher mobility	5
Operational conditions	4
Impact of research	4
OVERALL ASSESSMENT (not the average of the scores above)	4

6. Evaluation of the Faculty of Social Sciences and Business Studies

Professor Richard Saltman (Rollins School of Public Health, Emory University, USA),

Professor Sarah Green (Department of Social Research, University of Helsinki, Finland),

Professor Helmut Klüter (Department of Geography and Geology, University of Greifswald, Germany),

Professor Ann Langley (Department of Management, HEC Montréal, Canada),

Professor Panu Minkkinen (Faculty of Law, University of Helsinki, Finland),

Professor Jens E. Olesen (Department of History, Ernst Moritz Arndt University, Germany) and

Professor Joan Orme (Glasgow School of Social Work, University of Glasgow, UK).

The review panel was very pleased at the high level of cooperation and information provided by the examined units.

First, several procedural comments should be noted. The observations made both in this cover note and in our departmental reviews reflect performance of the UEF units reviewed in terms of publications, funding, operating conditions etc. as they appeared in the background materials as well as the meetings with the departments. However, the panel had very limited or no comparative data for similar units in other Finnish universities. Moreover, information was not provided to the review panel on international conferences attended by unit members. Importantly, distinctions were not always made in the provided materials between the total number of FTEs and the number of permanent staff members. This distinction could influence our assessments of research funding and publication productivity.

There was a general sense that the overall quality of research in the Faculty was “very good”. Some departments in some areas were, however, closer to “good.” Given that the merger took place only four years ago (and that some units had more complex arrangements to manage), it would appear that some departments have been more successful in adapting to the new circumstances than others. Through their research work in particular, many members of staff have showed

enthusiasm and creativity in developing new alliances inside and also occasionally between Departments since the formation of UEF. Overall, the review panel found that many aspects of the current departmental picture are quite positive, and the trajectory for further research and also external funding appears in many cases to be positive.

A key element in this positive direction is the fact that a number of strong new professors have been hired in the last several years (Gabrielsson in Business School; Assmuth as a VERA professor in Social Sciences tied to the Karelian Institute; Smith also Scott in the Karelian Institute, etc.). Reinforcing these appointments, two well-chosen new cross-departmental centers have been established: Welfare Research Center and the Cost-Effectiveness and Patient Safety Center, both of which will expand research capacity, quality and output in the next years.

A number of key cross-cutting themes were noted by the review panel. These points typically extend across several and, in some cases, all of the Faculty's departments. The review panel would suggest that UEF faculty management may wish to take under consideration these following points, which are presented here in bullet point format and in no particular order of priority or importance.

- Some Departments seem better organized than others in terms of support personnel for grant-writing, to provide data for grant proposals, for language correction (English), to make travel arrangements for faculty travel.
- Some Departments would benefit (in grant-writing, research, PhD students' work) from funds for access to additional databases (Business School; Social Sciences).
- Some Departments had a high percentage of staff, including professors, on short-term contracts, which had the potential to create increased departmental instability.
- Adopt mechanisms to support more international mobility of faculty, both to take visiting posts in universities in other countries and to invite visiting faculty from other country universities to UEF.
- Adopt mechanisms to support more cooperation inside Departments and between Departments on research projects, as well as beyond UEF in Finnish and international institutions
- Establish a system to fund longer-term study and research leaves, also below professor level.
- Current degree of funding instability at doctoral and junior staff level can harm career development. The current number of fixed-term rather than permanent staff can affect departmental morale and productivity.
- The system for paying and/or crediting faculty for teaching should be reviewed to ensure clarity and consistency inside and between departments.
- Inconsistency exists among departments as to whether they allow faculty to use grant funding to reduce (not just compress) their teaching loads.

- The strategic view taken by the University, as well as the nature of their discipline (Social Sciences, Health and Social Management, Karelia Institute), constrains several Departments to focus considerable effort on national, regional or local Finnish activities, creating a clear tension for faculty between a Finnish orientation to serve Finnish decision-making leaders and the general population, on the one hand, as against pursuing international publication, on the other hand.
- There is an opportunity to further develop the existing University Press, to promote and market faculty monographs and edited volumes in the Russian, Finnish as well as English languages (particularly for history and geography related departments).
- There appears to be a difficult employment gap after finishing the doctoral degree – hence a need to introduce Post-Doctoral fellowships to ensure that expensively educated doctoral students remain in the academic world and continue to develop their analytic skills.
- Faculty efforts to achieve societal impact – e.g. effects on society and the economy – could be encouraged and appropriately rewarded in financial or in professional career terms by a separate reward structure.
- Doctoral students in some Departments lack adequate office space, and lack adequate communication about responsibilities and changes in their program.

6.1 BUSINESS SCHOOL AND CENTRE FOR TOURISM STUDIES

The assessment below is based on the background report provided by the Business School and the Centre for Tourism Studies, as well as the oral presentations we received and the discussion in meetings. We received a large amount of information from these sources. However, we have limited information on how the performance of the units compared with similar units in other Finnish universities (in terms of publications, funding etc.) for the same period. Note also that the background information (except for funding) was presented in a unified manner for the two units of the Business School and the Centre for Tourism Studies. We have therefore generally considered them jointly. Finally, the oral presentations (PowerPoint) sometimes provided more up-to-date information than was available in the background report. We took this into account even though it was not always restricted to the 2010-2012 period as such. With these provisos and caveats, here are our main observations according to the criteria suggested.

A SCIENTIFIC QUALITY OF RESEARCH

Strengths

- The panel was generally impressed by the shared research focus on *“Development, growth and internationalization of small and medium-sized enterprises,”* and in particular how each of the research groups in quite different subfields (accounting/ finance; marketing; innovating firm; trust research; tourism research) seemed able to relate to this focus. This appears to be a unique positioning for UEF, not replicated by other business schools in Finland according to the statements made by the Faculty.
- The accounting/ finance, customer insight and new international business and sales research groups provided clear evidence of solid publications in international, relatively highly-rated, peer-reviewed journals in English; other groups (including those on innovating firms, tourism and leisure research and trust) showed laudable efforts in this direction. Note that the very top tier of journals are not strongly represented (e.g., the background report shows only one publication in a journal in the *“Financial Times List”* of journals used to rate MBA and M.Sc. Programs in management internationally, and that one in the *Journal of Business Ethics* has a large

number of authors). These top tier journals are often extremely difficult to publish in, and the current strategy of targeting 2s and 3s in the Finnish list may be sufficient in terms of maximizing output in relation to effort.

- Members of the Business School who spoke to us all expressed shared ambitious goals aimed at publication in English in high-level journals.
- In terms of reaching beyond the state-of-the-art, novel approaches were put forward in terms of developing trust research from a processual perspective. Other areas spoke of testing existing knowledge developed for large firms to SMEs.

Areas of development

- Several areas (including those related to innovation, trust research, and tourism research) need to develop further their publications in high-level journals. The ambition is there and some successes were noted. To realize this ambition, effort needs to be placed on professional development activities around academic publishing. Resources also need to be available to enable members of the Department to become involved in international research networks and key conferences in Europe and North America, as well as additional involvement of visiting scholars.
- The requirements to write reports for regional funders (Centre for Tourism Studies) or to engage in action research with start-ups (innovating firms group) implies that there may be some tension between benefits offered to local firms/ organizations and internationally recognized publications. The panel believes that this is a natural situation for almost any business school, and that ways need to be found for the two activities to become synergistic. This appears to be the orientation favored by the School.

Recommendations

- Members of the Business School were clear about their strategic goals, successes and weaknesses and were able to articulate quite well the kinds of efforts needed to develop (as expressed above). The panel recommends pursuing these efforts.
- Given the small size of the Business School, consideration should be given to opportunities for collaboration across departments and faculties on joint projects. Some of these opportunities are already being followed (e.g., with the Law School and with Health and Social Management). Further opportunities should be encouraged.

B RESEARCH ACTIVITIES VS STRATEGY

The strategy of the University refers to “Forests and the environment,” “Health and well-being,” and “New technologies and materials” with expertise pertaining to Russia as an area to be strengthened. The strategy of the Business School and the Centre for Tourism Studies has some relationship to the first two and last of these themes, notably in terms of benefits for tourism, and some relationship to the third in terms of the “innovating firms” area. However, the linkages here seem rather tenuous. The linkage is much clearer with the Faculty’s strategy in relation to “Business Opportunities for Small and Medium-sized Enterprises.” The focus on this in the Business School is strong and the panel believes that this makes considerable sense in the light of the School’s geographical positioning and traditional strengths.

Recommendation:

- The Business School’s focus on the development of small and medium-sized business appears to be entirely appropriate given the geographical position. If it does not fit strongly with one of the University’s strategic directions, then perhaps that strategy should be adapted. There may be other units for which this orientation would be relevant.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

Strengths

- Almost all of the research groups have been publishing to some degree with international collaborators. Five international projects having UEF as coordinator are mentioned in the background report.
- Members of the Department have visited colleagues in Canada, US, India, Korea, Germany, Portugal, Poland, Latvia. Visiting faculty have come from Italy, UK, New Zealand, Latvia, Australia, Hungary, Greece, South Africa, Japan, etc.
- Members of the Department are also involved in national networks of researchers (six as coordinator, three as partner)

Areas for development

- There would be room to develop closer contacts with researchers on small and medium-sized business worldwide. For example, relatively few US scholars were mentioned in the list of collaborators. There would be benefit to developing closer connections there given their importance within international scholarship.

Recommendations

- A strategy involving greater intensity of international publication would benefit from wider participation in international research networks. The Business School appears sensitive to this issue, but more could be done.

D OPERATIONAL CONDITIONS

Strengths

- Perhaps surprisingly, the Business School appears to have adjusted quite well to the functioning on two (even three) campuses through the use of technology, the location of particular research groups within one campus, and some travel between the campuses mainly for teaching purposes.
- The Centre for Tourism Studies receives funding from a consortium of external sources including businesses. These funds are used to develop projects which finance several doctoral candidates at Joensuu campus, enabling them to develop their research on the basis of their work under the supervision of a Business School Professor. These synergies between the Business School and the Centre for Tourism Studies appear to be effective, adding to the strengths of both units.
- Doctoral students all appear to be doing theses in article form, with some of the articles in collaboration with professors. This contributes to enhancing the number of publications emerging from the Business School despite the relatively small number of full-time professors. Students also noted that funds were available to attend about two conferences per year following application for support. They also benefit from shared doctoral courses with other Finnish universities (KATAJA program).

Areas for development

- Despite a good and apparently improving publication record, the Business School has not developed competitive external funding sources as well as it might. The amount of external funding has increased over the last three years. However, further development is necessary to support research.
- We have conflicting information concerning funding for doctoral students. Although the background report states that, *“Researchers and doctoral students’ main duty is to continue writing their doctoral theses. Most of them are working on a scholarship and they only use short periods of time to supervise master’s theses or to teach in their own expert areas,”* all but one of the specific doctoral students we met with had full-time positions either teaching or coordinating projects (for the Centre for Tourism Studies or elsewhere). In other words, they had to share their time with teaching.
- The Accounting and Finance Faculty expressed the need to acquire international databases to remain competitive. It would be useful to find

ways to support these acquisitions if possible (in collaboration with other units/ universities?).

Recommendations

- Work is still required to develop external funding sources for the Business School. International collaborations on SME research could be helpful in this regard.
- If doctoral students depend on teaching or project assignments, efforts to improve scheduling of teaching work would be helpful to them. The same applies to other researchers. Better planning of teaching schedules would release time for teaching.

E IMPACT OF RESEARCH

- The Centre for Tourism Studies clearly has societal impact in the way that it supports research (e.g., surveys) conducted for local businesses, which at the same time enable doctoral students and researchers to develop academic articles. If evaluated on a stand-alone basis in terms of its research output, the Centre for Tourism Studies might appear weak. When evaluated in conjunction with the Business School however, there are synergies between the academic focus of the Business School and the more applied focus of the Centre for Tourism Studies.
- The “Innovating firm” research group engages in action research along with medical/ health technology spinoffs. Again, these initiatives provide project funds to support doctoral students.
- The real impact of the research on local firms is difficult to assess from the reports and information we received, although there is a clear effort to collaborate in some cases with local businesses and to feed back the findings through educational initiatives.
- Overall, as noted above, there may be some tension between achieving international publications and societal impact.

F STRATEGIC VISION

The strategic vision of the Business School appeared to the panel to be focused and ambitious. The ability to implement it will depend on increasing the share of external funding of the Department, so achieving this (by building on the successes obtained so far) would appear to be the highest priority.

NUMERIC EVALUATION AND OVERALL ASSESSMENT

CRITERIA	NUMERICAL EVALUATION SCALE 1-6
<p>Scientific quality of research</p> <ul style="list-style-type: none"> • Very good quality – excellent in three areas • Good quality in some areas – improvements possible 	4
<p>International and national research collaboration and researcher mobility</p> <ul style="list-style-type: none"> • Very good quality – some improvement possible 	4
<p>Operational conditions</p> <ul style="list-style-type: none"> • This is a small School but one that has selected a productive and valuable strategic direction to focus on. Good potential to compete in this area. Should be encouraged • Business School needs to develop more external funding • Synergy between Centre for Tourism Studies and Applied research + academic research positive element • Work on three campuses could be an issue but seems to have been handled very well in this unit. 	4
<p>Impact of research</p> <ul style="list-style-type: none"> • Difficult to evaluate but strong for Centre for Tourism Studies and certain areas of the Business School • Current focus is more on developing international impact than on developing local impact 	4
<p>Overall assessment (not average)</p> <ul style="list-style-type: none"> • Ambitions to develop research are clear • This unit appears to be doing well in the light of operational conditions and should be encouraged and supported to enable it to realize its ambitions 	4

6.2 DEPARTMENT OF GEOGRAPHICAL AND HISTORICAL STUDIES

6.2.1 Geography

Some remarks on the special situation of UEF concerning quantitative evaluation strategies:

- In metropolitan universities, you have a high correlation between the scales and contents of quantitative global evaluation systems and the addressees of science. Big firms and large administrations also act globally. In peripheral regions, the number of such addressees is small.
- In peripheral universities, you are confronted with the fact that problems of specific regional or rural relevance are not rated high in an international urban-dominated scientific context. Most of the addressees of peripheral universities cannot be addressed in English but only in local languages. Thus peripheral universities are compelled to publish in two directions: 1) in English to gain high ranks in international evaluation, 2) in local language combined with low earnings in rankings but high societal relevance in the region. Only very few other universities will deal with the specific problems of the given region.
- The engagement of UEF in the Russian Science market is still rather low – except Karelian Institute. The Joensuu branches of UEF produce more Russian publications than the Kuopio branches.
- Nevertheless UEF has a strong impact on the development of cooperation with Russia. Some of the UEF-authors have a high reputation in the Russian-speaking world. Most of the Western quantitative evaluation systems are “blind” concerning this world. It will be fruitful for the academic community, if UEF strengthens its function as one of the gateways to Russian-speaking science. It is clear that the acknowledgement of this performance by English-based quantitative evaluation systems is a long-term matter.

A SCIENTIFIC QUALITY OF RESEARCH

Evaluating the scientific quality of the Department’s research we should remember that there is an ongoing discussion on evaluation scales in Finland¹. Paasi (2013)

¹ Paasi, Anssi (2013). Fennia: positioning a ‘peripheral’ but international journal under conditions of academic capitalism. *Fennia* 191: 1, pp. 1-13. ISSN 1798-5617

argues that some of the new quantitative instruments of assessments encourage not always better quality of science but only better marketing strategy concerning a given text. Another point can be seen in the fact, that there is a trend in nearly all Finnish universities to replace PhD monograph by 4 published articles, until now not in Historical Studies. In the largest academic labour market of Europe (i.e. Germany), article-based PhD scientists are less competitive than the monograph-based. This is a structural problem that lowers the quality of academic output from an international perspective.

Nevertheless, there are fields in which UEF-geographers' research quality can be estimated very high: Governance and politics of forests, periphery regions and analysis of the neighbouring Russian regions.

Some studies of UEF-geographers are translated to Russian and ranked highly in the publication systems over there. Up to now, the Western Anglo-American dominated evaluation systems do not register these effects. In other words: They underestimate the scientific value of UEF publications in Russian.

B RESEARCH ACTIVITIES VS STRATEGY

The research activities of geography are central for the research strategy of the Faculty of Social Sciences and Business Studies.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

There is productive cooperation with the Karelian Institute, with the Centre for Tourism, and with the Finnish Forest Research Institute (Joensuu unit). This makes Joensuu a national centre of forest studies.

The international cooperation concerning governance and politics of forests and regional analysis of Northwest Russia has expanded during the last years. Cooperation in monitoring and development of periphery regions has been discussed on a European level but should be intensified. Due to the organizational problems of teaching (implementation of the Bologna process) and of merging the two universities the researcher mobility has somewhat stagnated. Since 2012, the number of exchange visits is increasing.

D OPERATIONAL CONDITIONS

Geographical research interests are in UEF also performed in other units, especially in the Karelian Institute, in the Centre for Tourism Studies, in the Department of Social Sciences and in the School of Forest Sciences. Thus, the role of Geographical Studies in UEF is much larger than presented in the background information. From our point of view it would be informative for international scholars and other addressees to find on the UEF website a chapter titled "Geographical and historical research in UEF" presenting all applicable studies of these disciplines of a given year in one list.

E SOCIETAL IMPACT OF RESEARCH

The situation in this field is contradictory. On the one hand, Geography is one of the disciplines that deal professionally with the solution of local and regional problems. In order to perform the most positive and wide-ranged addressee effect, studies of that kind must be published in Finnish. On the other hand, such studies will seldom find the attention of global players in scientific publishing, even if they are translated to English. That means that if a researcher compiles a good study with high societal impact in a Finnish region, he will be punished by the official quantitative evaluation systems. Traditionally, the societal impact of regional geographical studies is very high. Regional geography and regional history are threatened to die, if there is not found a practicable implementation of awarding studies with high societal impact in a territorial limited environment.

F STRATEGIC VISION

The strategic visions presented to us gave a solid basis for future development of Geographical and Historical Studies. But they do not exhaust all opportunities which are given by the new combination of Geography and History in one Department. The merging of Geography and History could lead to a new quality of cultural studies – especially in Eastern Finland, where regional development is rather often linked with specific social and historical factors. A great opportunity should be seen in the growing interface function of the department between Finnish, English and Russian speaking worlds.

OVERALL COMMENTS

The theoretical opportunities of the merging of Geography and History in cooperation with economics and other social sciences can be shown by a scenario of a special project: Compilation and edition of an Atlas of the Euro-Region Karelia (including neighboring regions). The Atlas should consist of several information layers in the given region, organized as GIS, which is savable in internet media. They include a set of thematic maps (population, economy, enterprise, infrastructure, natural resources, vegetation, forests, history, transport systems, health, labor, social indicators...) covering Eastern Finland, the Republic of Karelia and neighboring regions (maybe also St. Petersburg).

The Atlas is not only a book, but the work on the Atlas can give an organizational shell of specific new goals (like the IfL, the Leibniz Institute of Regional Geography). The departmental shell (Geographical and Historical Studies) should create cooperation with other departments, and with regional institutions to implement the project.

An information system of this kind can be performed on a limited number of GIS based maps, which can be filled with different contents – like the maps of Nordregio (<http://www.nordregio.se/en/Maps--Graphs/>)

It would be very interesting to complete the maps with comments and other graphics similar to <http://aktuell.nationalatlas.de/>, which is edited by the Leibniz

Institute of Regional Geography <http://www.ifl-leipzig.de/en.html> . The publication modus of IfL is also interesting: Every two months, a map of Germany with a new special topic is published on the internet. They attract permanent attention. This would make the compilation of the Atlas a long term project. In reality "Nationalatlas aktuell" is one of the most successful internet journals of German geography.

The organization of the atlas activity could be a common project for the Department of Geographical and Historical studies and for the Karelian Institute.

The organization of the information system should be open to permanent (or periodical) cooperation with other departments.

As the Atlas performs the Euro-Region, it should be possible to attract EU-funds for financing it. Maybe Nordregio and the Federal State Statistics Service of the Russian Federation www.gks.ru will also cooperate in the project.

The atlas information system gives the basis for further scientific work, for enterprise, infrastructure organizations and administration. It should be edited in Finnish, Russian, and English.

6.2.2 History

A SCIENTIFIC QUALITY OF RESEARCH

The historians in the Department are like their geographical/environmental colleagues not only very active with research and teaching, they are also publishing nationally and internationally. It is fair to say, that the colleagues are well above the average; several of the historical publications are of a high scientific quality.

It is unfortunately not possible in the report to see the distribution of the peer-reviewed scientific articles within the Department, but totally 88 published articles in 2012 is a high number, which goes to the benefit of the Department. The list of selected publications within the field of History incl. a number known by the assessor published in 2013 (among others Tiina Kinnunen's book on Finland during the Second World War) underlines the statement, that the historians (together with the geographers) in the UEF are publishing well and on a high international level. The areas dealt with are especially Border-Studies, Russian (Medieval) History, Modern History related to Forest History, Environment and the Welfare State. Also some articles concerning Africa (this is an old research-field in Joensuu) should be mentioned.

The scientific standard of the scholars in the Department is in no way to be questioned, however, in the future more efforts should be used to further projects and publications with combined geographical/environmental-historical themes concerning borders and peripheries and within the two other main core areas of research. It is recommended that these aspects are taken more into consideration in the coming years.

This will also involve more cooperation on research (incl. teaching) especially with the Karelian Institute, where several ongoing projects are dealing with

historical-cultural themes. Since the Karelian Institute is a research institution, an administrative model with the Department of Geographical and Historical Studies will have to be developed for the benefit of the involved units and the University as a whole.

Focusing on and expanding research within the main core areas will certainly have the potential to produce not only new and significant outcome, it will also lead to good progress combining historical-cultural-geographical studies and at the same time strengthen the international profile of the Department.

There exists a long-standing doctoral programme in the field of History, which is of good quality. However, it is recommended that doctoral seminars for both historians and geographers are developed in order to foster the Department as a unit. The number of doctoral students in History is a bit unclear to the assessors.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

The many ongoing research projects (37) in the Department (several are funded by the Academy of Finland) generally reflect the big range of activities within the units of the Department. This is impressive, although it for the moment seems that historical-cultural studies could do a little bit more to apply for money for new projects, hopefully then combined with geographical aspects and perhaps also for some projects in cooperation with the Karelian Institute and other units of the UEF. The historians participate most active in national and international research collaboration according to their fields of study (see numbers given in the report). On the basis of the report, however, it seems that the historians could do more to stimulate researcher mobility. This also goes for incoming research partners from abroad visiting the Department. In future projects this ought to be taken more into consideration, also in order to build up and strengthen contacts to strategic national and international partners. This will also contribute to put more focus on the core areas of research within the Department.

The historians participate in many international and national conferences and workshops and will host the great Nordic History conference in August 2014. On the whole, international and national projects and strategic partners should be taken more into consideration during the next years.

D OPERATIONAL CONDITIONS

The leadership of the Department has been doing a great job also at the top-university level to build up and consolidate the University of Eastern Finland (UEF) together with Rector, deans and vice-deans. The organization and administration of the Department functions well and great efforts have been undertaken to build up cooperation and teamwork between the involved units and fields of study, which were merged in 2010. There has been good and solid progress, but there are still some steps to be taken in order to foster teamwork and optimal cooperation between the disciplines within the Department.

The research infrastructure and facilities including secretaries and offices seem excellent. The structure of the staff in the Department seems as a whole to be good. Whether History could deserve to be given more posts for the future is not here to be discussed. There are in the Department established scholars and professors, but positively also a critical mass of researchers in order to undertake coming new research projects. Would it be possible to do more for the Post-doctoral students?

The workload of the Department concerning research and teaching seems to have been handled in an appropriate way. Also the basic funding allocated from the University seems appropriate, especially because of many Bachelor and Master students.

The Department houses LYY Centre. The new VERA Centre, coordinated by the Karelian Institute, helps to coordinate and promote research on Russian and border issues. This is of importance and is most welcome, but the future relations to the Karelian Institute among others should, as mentioned above, be further discussed in order to support common new projects within the core areas of the Department. This will not only strengthen the profile of the Department, but also make the whole University more known nationally and internationally.

E IMPACT OF RESEARCH

The research, teaching and other activities of the Department undeniably have an important societal and scientific impact: lectures, contacts to archives and museums, exhibitions, TV, radio, newspapers, magazines. Historians – and geographers – here, like many colleagues in the other departments, have an important task to fulfill. Open university activities (lectures, courses given also by young scholars) would perhaps be a good idea to foster. The University has an obligation to communicate with the people in the region and distribute knowledge and research results to an interested public audience.

Most of the articles from the scholars of the Department (incl. History) are published in English, besides a minor part of articles published in the Finnish language. And the plan is to publish more articles in English in the most high-ranking international journals. However, it is also important still to publish in Finnish and in Russian, which at the moment does not deliver much prestige seen from an international ranking perspective. The Department is very active; however, a solution for giving credit also for publishing in Finnish and in Russian without being “punished” in international rankings and other lists should be found. It is a problem when almost all research activities and results are being planned mainly to be published in English. In order to serve the need for books and articles in Finnish, Russian and English incl. the two to three science cultures within the Department, a common channel of publishing could perhaps be discussed. A suggestion would be to expand the possibilities offered by the present University Press (UPEF).

F STRATEGIC VISION

The research efforts of the Department focus/concentrate mainly on three core areas:

- Borders and peripheries,
- Environment and sustainability,
- Well-being of society.

These main areas deliver excellent opportunities to further integrate and foster cooperation between the disciplines within the Department. This is most promising and should certainly be continued in the next years. This would also develop the common profile of the Department - and the University.

OVERALL COMMENTS

The Department of Geographical and Historical Studies has laid a solid ground for its work during the last years since 2010, when the units were merged. Historians and their colleagues from Geography and Environment now stand well prepared to develop new common research projects with national and international strategic partners. Common doctoral seminars should be developed and researcher mobility (out-going and incoming) too.

OVERALL NUMERIC EVALUATION of the Department of Geographical and Historical Studies

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	5
International and national research collaboration and researcher mobility	4
Operational conditions	4
Societal impact of research	4
OVERALL ASSESSMENT (not the average of the scores above)	4

6.3 DEPARTMENT OF HEALTH AND SOCIAL MANAGEMENT

A SCIENTIFIC QUALITY OF RESEARCH

The Department has grouped its research into three broad topical areas:

- i) Management in health and social care
- ii) Health economics
- iii) Health and human services informatics

In addition, a new Center for Comparative Effectiveness and Patient Safety (CEPS) was begun on 1 August 2013, with four funded positions.

Health informatics, the third grouping, has a clear focus on building a useful set of research networks and research-related activities. It has collaborative relationships in place with a number of major Finnish institutions (KELA, THL) and is well-positioned to provide important support to Finnish national knowledge base and institutions in the health care system. This research grouping also has developing relationships with several international organizations including several Harvard teaching hospitals in Boston, Massachusetts, USA (Partners Health Care). Given, in particular, this research grouping's access to high quality patient registers and data records available in the Finnish health care system, this research group appears to have strong future prospects nationally and also as an international contributor to publications and research development. It will be further strengthened by CEPS as its work gets underway. Currently, its publication record can be assessed as "very good quality" but capable for considerable further expansion and development.

Health economics, the second grouping, has a clear focus on its research objectives. It has already made major contributions at a national level to knowledge necessary to guide and steer the Finnish health system, which is in a period of major structural re-consideration, including a study made at the request of the Prime Minister's office. These contributions, although inside Finland and/or in Finnish, represent a major and important contribution that is expected of a nationally visible and valued research program in health economics, and should be highly valued and encouraged further by the UEF administration. Regarding publications, its recent articles have appeared in very high standard European journals, and its publication record can be assessed as "excellent quality."

Management in health and social care, the first grouping, incorporated four different research areas: elderly care services, managing human resources, public and private management, and governance, steering and management. There is some overlap between these areas, and several groups have been successful in

bringing in substantial levels of external funding. Overall publication performance is varied among the four different groups.

In addition, there is a small grouping focused on local economies that is being discontinued in 2014 and 2015. This appears to be appropriate as this local approach to economic development does not appear to have a strong research future in this Department.

Overall assessment: Looking at the Department as a single unit, research activity and publication activities can be assessed as somewhere between “very good” and “good.” While there has been an increase since 2010 in the number of English language publications, some research groups within the Department could target more important topics and more visible journals. Ideally, it would strengthen the Department’s external image and reputation if members of the different research groups could succeed in finding topics and funding projects where several faculties in the department work together (or with members of other Social Science faculties) on broader scale, important issues that would attract substantial interest internationally.

B RESEARCH ACTIVITIES VS STRATEGY

The current research activities in most parts of the Department fit into the UEF strategic objective to be “among the leading 200 universities in the world.” The Department fits particularly well with the second Area of expertise in the UEF strategy, namely “health and well-being,” and the health informatics group links to the third objective, “new technologies and material.” Again, several members of the Department could work together across research group lines to identify and fund research projects on some of the “big” topics in the field, using Finland as a background to explore these bigger topics, as a way to boost UEF’s efforts to meet its long-term strategic goals.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

The Department overall is quite strong in this area. The Public/Private and the Health Informatics groups are both quite active in terms of international meetings and collaboration with faculty and departments in other countries such as England and the United States. The Public/Private groups’ editing of a (new) international journal from Kuopio also plays an important role in fostering international collaborative recognition for UEF.

It would be helpful for the Department’s visibility and long-term research strategy if more could be done in the area of international cooperation by some of the other research clusters. Moreover, the Department would benefit in both research and publication if various ways of funding senior international researchers could be developed to bring them to the Department for periods of residence, and if, similarly, it became possible to fund Department faculty to take semester-length leaves of absence to do research in universities in other countries.

D OPERATIONAL CONDITIONS

Operational conditions appeared to be good but could be improved, however. Research staff (including professors) would appear to benefit from more systematic availability of research support for language editing, for statistical analysis, and also for project administrative support. Some doctoral students appear to need additional physical (office space), technical (for research), and additional financial support to enable them to write up their research. It would also be valuable to stimulate cross-department brownbag lunches and/or other mechanisms to allow students to hear each other, faculty, and also visiting researchers present their ongoing work.

The Department has done quite well in attracting funding, especially in parts of the Management of Health and Social Care grouping. These have included EU and well as Academy of Finland funding, as well as funding from various Finnish national ministries and regional and local government. Both the Health Economics and the Health Informatics group could improve their performance in terms of external funding sources, and could seek to achieve more prestigious and visible sources such as EU project funding. Additionally, a solid long term strategy for the Department should seek out additional sources beyond Finland that are not dependent on available (and perhaps no longer growing) financial resources of the national government.

E IMPACT OF RESEARCH

The Department's research appears to have strong impact inside Finland in terms of the current health system policy and decision-making processes. The Health Economics group's emphasis on the role of competition in health systems appears to be well-timed given likely future developments in the ongoing structural reforms of the Finnish health care system. The Health Informatics group's work with KELA on a national e-prescription warehouse is an example of important work that is valuable in the Finnish national health policy context. Some sub-groups in the Management of Health and Social Care research group also appear to be visible in contributing to national health policy debates inside Finland.

In this area, more could be done by all the research groups to translate the information obtained from Finland-focused efforts into useful observations for a broader European policy audience.

F STRATEGIC VISION

The Department has worked hard over the last three years since the merger to put in place an appropriate framework that will help it to further grow and develop in the future. This framework would appear to be well-suited to the current diversity of research skills and abilities currently in the Department, and should assist in moving the research activities to the next level in the next period of years. One important dimension of this strategic vision will be to ensure, as the Department

grows in size and funding, that its vision helps it to mature into a more European as well as a Finland-focused set of research activities and publications.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	4
International and national research collaboration and researcher mobility	4
Operational conditions	4
Societal impact of research	3
OVERALL ASSESSMENT (not the average of the scores above)	4

6.4 DEPARTMENT OF SOCIAL SCIENCES

A SCIENTIFIC QUALITY OF RESEARCH

The multi-disciplinary unit presents its research under five main research themes

- Well-being and Welfare
- Education and Work
- Migration and Borders
- Gender
- Social Work

These groupings incorporate a variety of research activities (up to 20 groups+ individual researchers). It is difficult to evaluate overall effectiveness as, understandably, not all research was presented in detail. However, there are areas of excellence, some of which have been successful in achieving Academy funding and have obtained standing in international fields, including:

1. The **Education and Work** group's project on *The 'fourth shift'. On the borders between home, work and affects* explores definitions of borders, but narrows its focus to North Karelia where the issues addressed are of global significance.
2. *Changing Civil Society – Multi-culturalism, Young People and Finnish Culture* (**Education and Work**) involved a mixed methodological approach in a significant area of social and public policy. The forthcoming book in the area has the potential to contribute to scholarship of international significance.
3. In the **Social Work** group research on *Critical incidents in child protection* is of international significance. The focus is on Finnish child protection practice, but the nature of the study and the contribution the Finnish data make to international research in this area means that the scientific quality of the study is of an excellent standard.
4. *Well-being and social cohesion in Finland* project (WEBE) in the **Well-being and Welfare** research group is methodologically innovative in the area of welfare studies. The large scale data sets, the nature of the vulnerable groups studied and the emerging theory, while focusing mainly on Finland, produce findings and comparative data that are able to be translated into other national contexts.
5. *Living with depression in a social context* (**Well-being and Welfare**) is innovative in its application of symbolic interactionism and narrative

psychology in a research context that has been dominated by medical research. The findings have relevance for a number of areas of study e.g. social policy, social work and gender studies, in addition to social psychology.

The Department's mission to undertake research to produce 'valid knowledge for scholars, citizens, officials and other actors' reflects the position that internationally scholars in the social sciences are required to both develop global knowledge and bring about local transformations. This means that to date, effort has been concentrated at the regional and national level. As was observed, Finnish ministers do not have time to read journal articles. This means that, because of the nature of the publications, the potential to achieve international recognition has not been fulfilled in some cases even when the research is of excellent quality, either because of lack of publications or because of lack of a management strategy to enable the dissemination of results of the research, or explorations of emergent theory at an appropriate level across the unit.

Strengths

Impact - the Department's research projects of different sizes and complexity have served the needs of Finnish people and brought about changes in Finnish policies. However, it is necessary to challenge the departmental statement that 'At the end of the day, it is only Finnish scholars who have a systematic interest in Finnish society and politics'. There is evidence of a publishing strategy in, for example, English targeted at international journals. The methodological approaches and the understandings drawn from research in the Department are transferrable globally.

Current involvement in collaborations is also a strength. E.g.

- The appointment of Prof. Assmuth to head a multi-disciplinary, international project in the Karelian Institute.
- The Kuopio Welfare Research Centre offers opportunities for interdisciplinary work, coordinated by the Department to build on Prof. Saari's work.
- Collaboration between Prof. Rissanen and the Department of Health and Social Management in an Academy funded project investigating elder care services

Recommendations:

Attention be paid to the multiplicity of research activities in the Unit and synthesising these into more focused themes. For example – is it necessary to have a separate research theme on gender, or should this permeate all research? Building into all research the need to explore underpinning theory and global implications would enhance the scientific quality of the research.

The Department is in a prime position to undertake comparative work, based on regional studies it has already undertaken on models of Finnish welfare building on existing strengths rather than broadening the range of activities. This could make an important contribution in the current changes in welfare globally.

Other collaborations outside the Unit might include the Law School which has identified welfare law as an area of future development for research in Social Work and Social and Public Policy.

The position of UEF researchers and educators in the area of Social Work should be built on, especially at a time when the Finnish Academy is recognising the discipline (for example in 2013, for the first time, the Academy had a panel dedicated solely to Social Work applications).

B RESEARCH ACTIVITIES VS STRATEGY

The unit has recently reviewed its research groupings and now presents them in line with the research strategy of the Faculty and University (e.g. attention to well-being and borders). However, in a department which includes five disciplines, each with its own portfolio of research interests and different research traditions, the coherence of the research groupings in relation to these themes is not yet established. Collaborating with greater effect would enhance opportunities for co-writing as well as networking with colleagues within the UFE, nationally and internationally.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

From the information provided, there is variation in the level of international and national collaborations across the Department. It could be argued, as above, that this is because the emphasis of the Department is on Finnish society and politics and there is evidence of collaboration at the national level (with the UEF being co-ordinator of ten projects with other universities, government departments and municipalities). Some evidence of involvement in European networks (e.g. the European Research Institute in Social Work, ERIS) is provided. Collaborative research may arise from the developing relationship in the area of Social Work with Fudan University, China.

The Department also produces *The International Journal of Sociology* in cooperation with Auburn University, USA.

However, for the size and multi-disciplinary nature of the Department on the information available there is limited staff mobility related to research and little or no detail about, for example, international Doctoral students.

There is scope for more activity in the area of joint international publications. A starting point might be active involvement in European and international associations to provide networking arrangements for sharing research findings, and identifying collaborators for publications and funding bids.

D OPERATIONAL CONDITIONS

As has been said, this is a large multi-disciplinary unit whose organisation and management is made more complex by the two campuses split between disciplines and in some cases within disciplines. The major limitations caused by the split campuses were in the area of Doctoral students where opportunities for students from both campuses to meet were limited.

However, the dual location could also be positive for both staff and students, providing opportunities to forge links with other disciplines within the Faculty and beyond.

The history of particular disciplines, the rationale for combining them and the demands and complexity of the teaching commitments within the Department present logistical challenges and, based on the evidence provided, there appears to be an imbalance in research activity between, and perhaps within, the disciplines. While the Department is moving towards a situation where 'more scholars than before are producing a stream of publications' this requires further development work.

Management strategies have been put in place to work with staff to increase output and activities such as targeting top journals in each of the discipline areas. However there are challenges:

- Staffing levels
- Basic funding although high is required because professional programmes (e.g. social work) are teaching-intense. Opportunities provided by Ministry funding to increase the number of social work students while presenting funding opportunities will also create an increasing teaching workload on some staff members if there is no concomitant increase in staff.
- Funding for policy-related research requires outputs such as focused reports and executive summaries. Funding is rarely available to allow staff time for publishing in international peer-reviewed journals.
- The Kuopio Welfare Research Centre is a multidisciplinary research centre established by the University which has had a major impact on national debates and contributed to positive changes in areas of national policy and practice but has not yet achieved its true potential of attracting significant international funding and producing international publications. As a university centre of some long-standing and significance, undertaking research of extremely high quality and with potential for international excellence there is the need for a review of the resourcing of the Centre to enable it to flourish according to the original vision of the University.
- Little information was given about the Disability Research Unit.
- The unit has been successful in acquiring competitive research funding (e.g. from the Academy of Finland) but this has not translated into increases in outputs required to meet the assessment exercise (e.g. internationally peer-

reviewed scientific articles). Having said that, the quality has increased over the evaluation period.

- The number of Doctorates awarded but there is little discussion of the actual recruitment (as opposed to targets). Collaboration with the Wismar over Doctoral training in Social Policy might provide opportunities for further collaboration.
- While there is evidence of high quality research there are limitations to the extent that this is reflected in the Department's external profile. The breadth and diversity of the current arrangements require a critical overview to ensure coherence in research groupings, which will enable collaboration within the Department, the Faculty, the University and beyond. Research management and organisation at the strategic level need to be across disciplines. Resources are required to enable a bottom up review of the work of the Department (through staff seminars, writing workshops, 'away-days', and possibly an external consultant or critical friend) to identify realistic targets for reorganisation and strategies for facilitating the development of an international profile.

E IMPACT OF RESEARCH

The impact of the research on culture and society and welfare and health at regional and national level is unquestionable. This has been achieved through policy-relevant research based on excellent co-operation with public and private sectors that has impacted on municipality and Government strategies.

Based on the quality of this research, a number of staff members occupy positions of trust at the regional, national and international level.

F STRATEGIC VISION

The Department has provided a very full and critically reflective strategic vision. However, it is constrained by the current composition of the Department based on existing research streams which are themselves related to disciplinary backgrounds. While distinct research focuses have been identified for the future the strategies do not necessarily identify how high-quality international publications will be achieved if the current pressures for policy-relevant documents are required. Nor do they explore the potential for making links with other departments within the Faculty. The fact that there are so many disciplines within the current Department might act as a disincentive.

The strategy rightly identifies there is potential for excellent research but does not address the structural barriers to achieving it.

OVERALL COMMENTS

Because of the complexity of the unit there was some difficulty in presenting a detailed picture. However I felt that this Unit was honest about their achievements to date and the need to continue to review both the arrangements for research and the focus of their research and dissemination.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	4
International and national research collaboration and researcher mobility Reflects the complexity of making an assessment across a complex organisation of research	3
Operational conditions	3
Impact of research Reflects the strength of regional/national impact and the complexity of making an assessment across a complex unit	5
OVERALL ASSESSMENT (not the average of the scores above)	4

6.5 THE KARELIAN INSTITUTE

A SCIENTIFIC QUALITY OF RESEARCH

The scientific quality of research in this unit is generally extremely high, as evidenced by the Institute's strong and consistent record in winning highly significant research grants, not only in one area of their expertise, but across all their research priorities. They also have a strong and improving publication record. In 2012, there was not only a very significant increase in publications, but the proportion classed as 'leading' in the Finnish publishing quality evaluation system went well above 50%. While such scales for measuring publication quality have very significant limitations, especially in the fields of social sciences and humanities publications, and in correctly reflecting the work of regionally specialist work, the publication trends for the Institute are in a highly and significantly positive direction. Taken together with other measures of research quality, such as the level of commitment to publishing in Finnish, commitment to genuinely innovative cross-disciplinary collaborations, and commitment to making a difference in the region's sustainability, it is clear that the Karelian Institute is doing extremely well.

There are several aspects of the research being carried out within the Institute that are internationally excellent within their field. Most notable amongst these in terms of transnational recognition is the work on borders research, most particularly the comparative work involving European border dynamics (including the Russian borderland region) in relation to EU border regime politics. It is highly likely that this research will continue to generate cutting edge work, given that the Institute has recently secured a highly significant EU Societal Challenge grant to investigate new ways to conceptualise borders research.

The research that is focused more clearly in the Karelian region is also of very high quality, and is successfully and consistently attracting both high-level scholars (e.g. Professor Smith) and very good levels of publication. It is notable that in this regional work, there is also highly interesting work being done in the cultural area, both on the social and humanities sides. This diversity of approaches being used to tackle issues affecting the Karelian region is to be highly commended.

One area of possible improvement here is to make the relationship between the work being done in regional terms and the work on the much wider questions concerning Europe and its relations with the rest of the world a little clearer. This is often difficult in many research units that are working on quite widely different scales of attention (Europe, the multiple effects of its complex border regimes and transnational relations, as opposed to one specific region in the periphery – eastern Finland and north-west Russia), but it might repay more effort for these different

sectors to speak to one another. This is for two reasons. First, the Karelia Institute has a commitment to the region in which the UEF is located, and the work being carried out in the Institute makes it possible to demonstrate how transnational dynamics that are occurring well beyond this specific region are having a significant effect on changes occurring in this specific area. Second, while there have been many commentaries made on the effects of the EU, or globalization, or cultural changes, on local conditions, those kinds of commentaries are often made without substantive evidence. The Karelia Institute's combined work – large, transnational research projects which take in a much larger scale than the immediate area, combined with detailed regionally-focused work that intimately understands the dynamics of the local area – makes it possible to provide evidence-based analysis of the relationship between these scales. This has the potential to provide highly useful knowledge for comparative purposes in other parts of the world. In particular, understanding the interplay between social and cultural lives and the much wider political and economic dynamics in which people live, with a specific focus on major changes occurring in terms of border dynamics and regionalisation should provide immensely useful cutting edge knowledge in the future.

B RESEARCH ACTIVITIES VS STRATEGY

The Institute's three research priorities – Border and Russian Studies, Ethnic and Cultural Studies, and Regional and Rural Studies – generate an overlapping series of research foci that work at both the local and the much wider level. The strategy of not making these three priorities into fixed research groups was a wise decision for a unit that focuses particularly on cross-disciplinary collaboration: while some benefit can come from formally structured groups, such groups can also act as self-contained boxes that restrict the flexibility needed in order to respond to rapidly changing conditions, and as barriers to communication. The Karelian Institute appears to have found a good balance between the need to provide focus for the work of the Institute, while maintaining the flexibility needed to continually develop in new directions.

The strategy of the Institute could be written a little more clearly, as it does not make the relationship between the regional focus and the much more ambitious conceptual work being done very obvious. The Institute states that its task "is to carry out basic and applied research on the intellectual and material development of Eastern Finland, Karelia and north-west Russia," but this significantly understates both the much wider transnational focus of the research and the role of the Institute. The next sentence, which states that "the institute acts as one of the main strategic instruments of the University in forming international-level research communities in its key areas of expertise" is much closer to describing the Institute's work, for the research that is being carried out stretches very considerably beyond this eastern region of Finland and its status as a neighbour to Russia. This includes the development of internationally-recognised expertise in

borders research, particularly with reference to the European Union, combined with an on-going expertise on the Karelian region, both within Finland and in the Russian Federation. As implied in the previous section, this combination works exceptionally well as a strategy to internationalise the work of the Karelian Institute: given that border dynamics occurring well beyond eastern Finland and the Finnish-Russian border area are also affecting the Karelian region, it has been a wise move to extend expertise and international networking through a focus on cutting edge work on European borders.

Having said that, the relationship between the three strategic goals (Russian and border studies, ethnicity and culture, and regional and rural research) – that is, how they each could support each other and work with each other at some levels – could have been made a little clearer. There is great scope, with this concentration of expertise within the institute, to develop further synergies, both within the institute and across the departments and faculties within the University.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

Both the report and the presentation made clear that opportunities for, and experiences of, international and national research collaboration and researcher mobility are excellent in this Institute. In all three priority areas, there are significant partnerships with some of the best research units in their field, both nationally and internationally. The number of researchers going outwards is exceptionally good.

The incoming visitors are, on the other hand, rather limited, and perhaps more work could be done to encourage higher numbers of visits to the Institute. In this respect, one possibility that might be worth considering is a visiting fellow program, both for UEF staff working in other departments, and for national and international visitors. This would both increase communication between the Institute and other departments in the UEF, as well as increasing the international visibility and research environment of the UEF via the Karelian Institute. This could work, for example, on a similar model to Advanced Studies Institutes in some other universities (e.g. Princeton in the USA and Durham in the UK): both UEF staff and external staff could be given the opportunity to spend a period of time, perhaps one semester or a period of weeks, at the Institute to work on some aspect of their research that overlaps in some way with the mission of the Institute and that of the UEF.

D OPERATIONAL CONDITIONS

This area of the Institute's work presents both the greatest strengths and the greatest challenges. In terms of strengths, it is undoubtedly the case that the Institute has been achieving successful grant fund applications at the highest level, not only for the flagship projects such as EUBORDERSCAPES (won through an EU Societal Challenge call, which awarded only one grant in the whole of Europe,

which the Institute was successful in securing), but also within all sectors within the Institute: researchers there have been exceptionally successful in bidding for Academy of Finland funding and for more regionally focused funding for its work on the direct regional area. Their cross-disciplinary work in this field is also to be strongly commended, and the work on gender and cultural studies was particularly notable. The strengthening of the regional focus both intellectually and in applied work with the twin location of VERA and SPATIA within the Institute provides strong structural support for the range of activities of the Institute. The appointment of 4 VERA professors who are spread across the UEF's disciplinary specialism, and the Institute's securing of the ABS secretariatship, as well as the ABS's first world congress, to be held jointly in Joensuu and St Petersburg, are also signs of highly effective operational conditions.

The biggest challenge for the Institute is also the source of its biggest strength: this concerns the Institute's structural position within UEF as a research institute. The relative autonomy the Institute enjoys, which means it is not tied to any one particular department, means that it is able to draw together research interests from across the social sciences and humanities, and this is a powerful strength: it enables the institute to design research projects that can draw in the expertise of many disciplines without requiring those experts to become members of a discipline to which they do not naturally belong. If the Institute was tied to any particular department, that capacity for multi-disciplinary work would be much more limited. At the same time, this independence generates tensions within the University's structures: (a) The relative lack of a structural 'home' for the institute generates difficulties in administrative terms from the perspective of accounting for the Institute, both in budgetary terms and in terms of relative work allocations. The University's budgetary model does not 'fit' the institute's work as well as the work of departments. This can lead to misrepresentations of the Institute's work, costs, income and contribution to the UEF; (b) as doctoral candidates are associated with departments, the Institute's role in supervising doctoral students is not fully recognized in either structural or budgetary terms.

Suggestions for change: (a) The institute has generated an excellent research environment that is paying dividends in terms of grant income, publications and international reputation. It might be worth providing increased opportunities for other members of staff within the University to gain a chance to spend some time within the institute from time to time. (b) A clearer structure of both expectations for doctoral teaching and providing credit for that teaching could be made. (c) Strengthening of the role of the Institute in bringing together cross-departmental and cross-campus work and communication. Given that research can more easily be free of the departmental structures than teaching, this should be encouraged. (d) Making more visible the breadth of the work of the Institute: it is not, as first impressions might give, simply a regional specialist; it has grown into a significant and internationally recognized research institute on conceptual and thematic issues that reach well beyond eastern Finland. It is worth making that more visible. (e)

Consider implementing a visiting fellow program, open both to UEF staff and external visitors, which would enhance both the internal and external multi-disciplinary research environment.

E IMPACT OF RESEARCH

This is where the work of SPATIA and the third research focus is strongest, being increasingly supported by the new VERA focus, as well as ESPON and the labour market research. The collaborative work being done with tourism studies in collaboration with Savonlinna is also noted and to be commended. It is particularly notable that the institute simultaneously carries out research work at the highest international scientific standards at the same time as doing applied and basic research in the field.

Having said that, again, there are further opportunities here for those working in the applied fields to find areas of collaboration and cooperation with those working on the more conceptual and intellectual areas. As Professor Scott pointed out, there is a difficulty here in that this sort of work is inherently multi-disciplinary and requires writing in journals and book collections that do not score highly in bibliometric measures, because those measures tend to emphasise the disciplinary specialist journals, rather than the thematic or regionalist specialist journals. Nevertheless, it is also clear that this type of collaboration would benefit the region in which the UEF is located, and may also, in the longer term, benefit the quality of the scientific work being carried out within the Institute.

F STRATEGIC VISION

The strategic vision is clear and reflects the current strengths of the institute: to maintain its internationally recognised role in the field of border studies and Russian studies; to coordinate multidisciplinary research across faculties in the UEF and to continue to work in a more applied way within the region of eastern Finland and north-west Russia.

One of the most impressive aspects of the Institute is its multi-disciplinarity: its research spans the social sciences and humanities. They have recently produced doctorates in folklore, social policy and social anthropology as well as human geography. This is broadly divided into three foci within the Institute: Border and Russian Studies, which includes VERA, and has a strong emphasis on geography; Ethnic and Cultural Studies, with a focus on the humanities; and the Regional and Rural Studies priority, supported by SPATIA, which emphasizes more policy-oriented and applied research of direct relevance to the Karelian region. It is exceptional and to be highly commended that such a combination of expertise is housed within one institute.

Having said that, it is clear that there are structural difficulties in achieving some of the strategic ambitions within the UEF, as outlined in the operational conditions section above. If some solutions to these could be found, the Institute has tremendous potential to develop in the future. There is a danger, if these structural

conditions are not solved, of leaving the Institute without sufficient structural support to continue to thrive in the long run. Clearer relations between the Institute and the other departments and faculties, both at the level of teaching and research, are needed. It is crucial that the Institute maintain its autonomy from any given department, for that provides it with the underlying strength and flexibility it requires to draw together combinations of disciplines and providing a context of high level research collaboration. At the same time, creating administrative clarity about the relations between the Institute and other units in the University are needed in order to both create opportunities for future new collaborations and to avoid structural tensions within the UEF.

OVERALL COMMENTS

The Karelian Institute is a real asset to the University, both in terms of its ability to draw together people from across departments, and in terms of international and global reputation, as well as the work it does in applied research in the region. The challenge is its structural position within the University, and finding a means to sustain the work of the Institute in the long term. Finding ways to maintain the Institute's independence, which crucially gives it the flexibility to draw together many disciplines in different ways according to changing research and applied needs, while maintaining its strength within the University, is the main challenge and opportunity facing the Karelian Institute in the coming years.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	5
International and national research collaboration and researcher mobility	5
Operational conditions NB: This has been divided into two marks, as this area is where the greatest strength and the greatest challenge exists for the Institute	6 (grant funding) 4 (structural relations with the University)
Impact of research	5
OVERALL ASSESSMENT (not the average of the scores above)	5

6.6 LAW SCHOOL

A SCIENTIFIC QUALITY OF RESEARCH

In terms of comparable law schools, the UEF Law School has clearly done well by identifying a niche for specialisation (i.e. environmental law, social law to a minor extent), developing its research in those selected areas, and strategically focusing on its existing strengths (re the ongoing recruitment strategy). Indeed, the years covered in this exercise have involved both growth and focus. This general trend of growth and focus will most likely continue now that the Law School has been given the right to award fully qualifying law degrees. The trend is also visible in the School's strategic documents and personnel plan.

The downside to this development of high specialisation is that the undeniable strengths of the School are in a somewhat narrow area of legal research (i.e. mainly environmental law) that involves only a handful of researchers. This makes the School vulnerable in a way that would require good contingency plans. The secondary areas of focus, presented somewhat differently in the Head's oral presentation and in the written documentation, are not developed enough yet to be able to compensate for e.g. unexpected staff turnover or unplanned changes in personnel.

Another similar problem that arises from developing expertise in relatively limited areas of research is the effects that it will have on the School as an educational unit. Because the ethos of the School is based on research-led teaching, the more conventional areas of law that cover the whole educational remit will also need attention. There is a balance between high specialism and general approaches that may be difficult to strike and that may take some time to achieve.

A healthy amount of the School's publications are in international peer-reviewed journals. Perhaps here the ambition in terms of outlets could be higher than it is, including a strategy to target even the most respected generalist journals (*Modern Law Review*, *Oxford Journal of Legal Studies*, *Legal Studies*, etc.) to balance the specialist journals. Although the documentation and the Head's oral presentation did point out to more nationally oriented doctrinal studies ('legal dogmatics') too, publication in national outlets should only be encouraged in the top end outlets.

B RESEARCH ACTIVITIES VS STRATEGY

The School's research strategy is clearly aligned with those of the Faculty and the University. Within the strategic emphases of the UEF and its host Faculty, the

School will need to address the potential tension that arises from the possibly incompatible strategic requirements of active internationalisation and contributing to regional development (e.g. research in commercial law and local SMEs). It would also be advantageous if the School strategy could also specify thematic areas of potential collaboration with the UEF's other departments. Cross-departmental collaboration would compensate for the disadvantages of small units within a small university creating critical mass where needed. The panel did see evidence of existing cross-departmental collaboration, but it also saw potential for expanding on it and even heard of the School's inability to respond to another department's request.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

The lists of collaborative partners documented with the research project descriptions are impressive although not all projects manage to reach the same quality. The School is clearly making valuable and useful institutional connections with the best research partners.

The documentation also bears evidence of an active unit encouraging members of staff on all levels to both develop collaborative partnerships and to benefit from individual mobility. Less is said about how the School actually implements such "encouragements". Especially in terms of younger members of staff, a mobility plan could be adopted as a regular feature of the researcher's contract.

There are also a growing number of international researchers visiting the School. In order to encourage the development, the School may wish to consider adopting a separately budgeted visitor's programme to formalize such visits making them a more regular feature of academic life.

D OPERATIONAL CONDITIONS

The School has grouped its research activities in a logical and efficient way. Perhaps in the future the strategy could also include more about research *across* the groups (e.g. environment and welfare) to encourage "thinking outside the box" and new perspectives.

Taking into account its relatively small size and its location outside the epicentres, the School has managed to secure a very respectable amount of external funding. In terms of sources, the funding is sufficiently diversified including national, European and international funders, both public and private institutions as well as NGOs. But once again the strength of one dominating area of research (i.e. environmental law) introduces a vulnerability that would require contingency plans in order to enhance the competitiveness of bids coming from other areas of research, too. The School should also begin early preparations for Horizon 2020 as the School's thematic foci would seem to fit within its remit.

The documentation provided is not very clear on how the School supports the development of funding proposals, i.e. about the actual mechanisms that enable a

rough idea to materialize into a competitive proposal. Because there is clearly expertise in securing funding within the School, mentoring and review mechanisms could be effective. The School may wish to consider mechanisms where all proposals are reviewed and given constructive feedback to before they are submitted. Because most review panels are interdisciplinary, cross-departmental collaboration at this level may be valuable and effective, as well.

The School seems sufficiently resourced in terms of personnel, and according to the documentation, the teaching workload has been divided amongst staff members in a (seemingly?) transparent and equitable way. As with most departments in the Faculty, the proportional number of temporarily appointed staff is, perhaps, too high. The lighter teaching workloads of younger members of staff and the study leaves are evidence of a healthy research culture if, indeed, study leaves include a true reduction of teaching commitments and is not merely a time management mechanism where the same amount of contact hours is merely condensed into a shorter period.

E IMPACT OF RESEARCH

As with law in general, the School does not have too many problems in accounting for the societal impact of its research. This is especially so given the focus areas chosen. The narratives are well constructed. In terms of environmental law, the School has collaborated with law-drafters as well as with public institutions, both national and international. There are also signs of collaboration with NGOs, but perhaps this is an area with which the School could even improve the impact of its research. In addition, the area of impact could be diversified as, once again, research in environmental law plays perhaps too prominent a role. The School's strategic commitment to social justice, welfare and social law may be an area into which impact could be strategically extended.

F STRATEGIC VISION

The School has clearly come far from the rather humble origins of the Department of Public Law to a fully-fledged modern law School offering qualifying law degrees and having developed into a national leader in research in select areas of legal scholarship. This has been the result of strategically focused work coupled by investments. The ambitions of the Law School aim higher. The School wishes to be "amongst the best law schools in the world" (oral presentation by Head, 23 October), and these aspirations are, once again, coupled with planned investments into personnel (an indication of the Faculty's and University's trust in the School and its management) and a vision that builds on developing existing strengths.

While being an overall "world leader" may be somewhat unrealistic, especially within the next assessment period, the School certainly has the possibility of not only securing its position as the leading national player specialised in environmental law, but also developing into a major European and global player in

the area. On top of that, it is entirely realistic that the School can create strong research profiles within its selected areas of focus.

But one should take into account that the next few years will also require the Law School to develop its educational profile and to live up to the national mandate that it has received to award qualifying law degrees. Making the most of this important mandate will also require allocating resources for the more core areas of law which will inevitably mean sacrificing resources from something else. As with many other issues, there is a balance to be struck.

OVERALL COMMENTS

In terms of management, the School has a clear idea of where it wants to go and what it has to do in order to get there. This clarity will help the School to integrate into Faculty and University strategies in the future.

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	5
International and national research collaboration and researcher mobility	4
Operational conditions	5
Impact of research	5
OVERALL ASSESSMENT (not the average of the scores above)	5

7. *Evaluation of the University of Eastern Finland*

**Professor Anne Edwards (Department of Education, University of Oxford, UK),
Professor Ole Petter Ottersen (University of Oslo, Norway),
Academy Professor Risto Ilmoniemi (Department of Biomedical Engineering and
Computational Science, Aalto University, Finland) and
Professor Richard Saltman, (Rollins School of Public Health, Emory University,
USA)**

The University Panel was formed from the chairs of the Faculty Panels. The task of the University Panel was to evaluate research activities in the University of Eastern Finland as a whole. In this report the University Panel gives its views on areas of research excellence, strong research areas and potentially rising research areas within the UEF. The Panel identifies the most crucial areas of development and gives its recommendations on how to improve research performance in the UEF.

Great potential, not fully exploited

The goal of the UEF is to be among the 200 leading universities in the world. The Panel applauds this ambition. However, this goal has to be reflected in the ambition levels of individual researchers and groups; research should be focused in such a way that excellence at the top international level in the selected areas would be possible to reach.

The Panel's view was, however, that UEF's strategic aim to be "among the three most important universities in Finland", may be too modestly expressed. Although being *one of the most important in Finland* is a respectable goal, it may not sufficiently attract and motivate future students or faculty. Therefore, the Panel strongly recommends that a new, more ambitious formulation be developed.

It was suggested that the UEF could profile itself to be or become, not only the best in Finland, but the best in Europe or globally, in specific areas based on its unique strengths and opportunities. Such areas of excellence could be found, for example, in medicine, physics, environment, or forestry. Unique potential exists in the combination of expertise available in the University and the opportunities arising from its northern location, proximity to Russia and, for example, the local

demographics and registries that document medical, employment, and other conditions of the people. It is not up to the Panel to tell UEF what combination of strengths should be utilized in order to formulate goals that aim at becoming the absolute best in the world in the selected strategic area(s). UEF must do this itself; the talent is certainly there. Only the ambition, the strategy and its implementation have to be lifted to higher levels.

If UEF succeeds (and there is no doubt that this is a possible scenario) in elevating its status to world-class vision and visibility, it will be far more likely to attract the most talented and ambitious researchers in the areas where it can be the best.

The Panel was of the view that there is a great potential in research in the University; however, this potential is at the moment only partially exploited. There was some concern that many researchers tend to be quite satisfied with the prevailing state of their research and achievements and are not eager to expose themselves and their research to ever sharper competition at the international level.

It must be recognized that competition will increase rather than decrease in the years to come, and that the realization of UEF's ambition will require a significant improvement in the University's performance. There is a need for a long-term university strategy to sustain and build up research strengths allowing potential good areas to develop towards research excellence. Simply stated, in a world that grows more competitive at unprecedented speed, the UEF cannot serve its region and stakeholders well unless it is able to attract international talent and nurture its own. For this to occur, the UEF must be even more attractive than it is today.

Strategy work

All the units should pay attention to strategy work. The units should build up their own strategy based on their own strengths. The Panel was of the view that current strategies are too generic and do not always exploit uniqueness and strengths in research or infrastructures of the units. In some units, the strategy seems to be written in such a way that it would appear to be in line with the strategy of UEF; without highlighting own niches of expertise. The UEF and its Departments/Schools should exploit the structural advantages of the Finnish society, infrastructure and higher education system, like excellent registers and good relationships with industry, research institutes and the University Hospital.

Research quality should be emphasized instead of quantity. The UEF should focus immediately on those units and groups that have the potential for world-class results and impact, while being aware of the potential that exists elsewhere in the University. Units should pursue excellence in research rather in a limited number of areas than in all possible areas of research. UEF should not be aiming at research excellence in all of its areas.

An effort should be made to reduce non-essential burdens from faculty such as excessive reporting, unproductive meetings, and administration. While performance indicator collection and research and teaching evaluations are

important, the data for these should be collected as much as possible from publicly available registers so that researchers are not too much burdened with report-writing.

As the world and the research environment is changing more and more rapidly, UEF as a whole and especially its units and individual scientists should emphasize agility, i.e., the ability to renew itself by reallocating resources and by making novel plans at the cost of old ones when new opportunities arise and old ways become less attractive.

Strong research programs/areas

The UEF must bolster interdisciplinarity in research as well as in education. Interdisciplinary research programs of high quality would serve to increase the visibility of the UEF at large. However, there is a fine balance to be struck, as the disciplines must be retained and not allowed to erode. Interdisciplinary research programs or areas should be built in order to create networks of critical mass. Strong research groups or programs are needed, individuals cannot have strong interdisciplinary research or obtain good visibility by themselves. Programs should be flexible and dynamic in character, their missions should not be set in stone.

UEF should consider mechanisms that support the formation of strong research areas over faculty boundaries. Principles of internal allocation of resources should be constructed in a way that co-operation over faculty boundaries is beneficial.

Research career

In some units, some personnel have substantial responsibilities in teaching. The UEF should consider flexible mechanisms to share the teaching responsibility among researchers especially in the case if a one obtains a significant grant. The amount of teaching could be lowered by interdepartmental collaboration and by reducing the number of courses.

The Panel was of the view that in some areas researchers should do less in order to do more of high quality. People should have focused areas on research excellence but broader areas of teaching. Courses do not need experts in every area of the topics being taught. Thus there could be more flexibility in staffing when organizing the teaching.

Units should consider the rotation of researchers, visiting professors from within UEF and visiting international professors and researchers. Researchers of the UEF should also spend time in research centres outside Finland.

The UEF should build the capacity of early and mid-career researchers and develop predictable career paths to take care of the many young talents. The establishment of a tenure-track system is a very good beginning, although the number of positions needs to be increased. Talented young scientists should be mentored and prepared for independent careers and for independent funding through national and international funding bodies. Expectations must be in place for increasing substantially the number of ERC starting grants. Supervisors must

help ensure that ERC starting grants candidates develop an independence that is duly reflected in authorship and journal quality.

Recruitment

It is essential in the future to accomplish top level, talented international recruitments. UEF should think of mechanisms to attract top researchers and to support new recruitments, like the establishment of attractive starting packages.

Being outside the great crossroads of Europe, Nordic universities must compensate by offering the very best infrastructure for their researchers. The infrastructure strategy should duly exploit the possibilities offered by national and EU infrastructure platforms.

Research funding

UEF should considerably increase international research funding, especially from the EU and European Research Council (ERC). The Faculty or University should build up a competence centre for international funding and to establish training programs to build capacity in proposal writing specifically targeting young scientists and PhD students. Researching funding sources and writing proposals should be important elements of the PhD educational programs. Rethinking is required: submitting applications to ERC or other international funding bodies of high prestige should be seen as an obligation - and not merely as an option - for those researchers who are strong enough to qualify. Also, applying should be incentivized by collateral funding from the Faculty or University.

Researchers at the UEF should take a more active leadership role in international research consortia, not act only as partner. The Faculty and University should help shoulder the administrative burden associated with the coordination of large international projects.

There is a need to develop sustained research programs/areas within research groups across the University. Funding should be applied for bigger research programs, not for fractionated small projects.

Reputation

Being a very young university, the UEF brand is not very visible internationally and scores low on reputation in international rankings. UEF should make its very best research areas far more visible. The excellent scientists at the top of their research areas could be important figureheads of the UEF. A “visibility strategy” should also include arrangements of international meetings and schools, revamping of web pages, and online educational resources in selected fields.

In all areas, the goal of the UEF should be to move from a local university with some international strengths to an internationally recognized university of research depth.

Table 3. Summary of the numeric evaluation of the Departments and Schools. Numeric evaluations were given by the Faculty Panels working independently from each other. Intercalibration of the scale between the Panels was not done.

	Quality of Research	Collaboration & Mobility	Operational Conditions	Impact of Research	OVERALL ASSESSMENT
PHILOSOPHICAL FACULTY					
School of Humanities	4	4	5	5	5
School of Applied Educational Science and Teacher Education	3	3	3	3	3
School of Educational Sciences and Psychology	4	4	4	5	5
School of Theology	5	4	2	4	4
FACULTY OF SCIENCE AND FORESTRY					
Department of Biology	3	3	3	4	3
Department of Applied Physics	6	4	5	5	5
Department of Chemistry	4	4	4	3	3
Department of Environmental Science	3	3	3	3	3
Department of Physics and Mathematics	5	5	3	5	4
School of Computing	4	3	2	3	3
School of Forest Sciences	5	6	5	5	5
FACULTY OF HEALTH SCIENCES					
A.I. Virtanen Institute for Molecular Sciences	5	5	5	5	5
Department of Nursing Science	2	2	3	2	2
School of Medicine - Biomedicine	4	4	4	5	4
School of Medicine - Clinical Medicine	5	4	4	5	5
School of Medicine - Public Health and Clinical Nutrition	5	5	4	5	5
School of Pharmacy	5	5	4	4	4
FACULTY OF SOCIAL SCIENCES AND BUSINESS STUDIES					
Department of Geographical and Historical Studies	5	4	4	4	4
Business School	4	4	4	4	4
Department of Health and Social Management	4	4	3	4	4
Department of Social Sciences	4	3	3	5	4
Karelian Institute	5	5	5	5	5
Law School	5	4	5	5	5

Numeric scale: 6 = outstanding, 5 = excellent, 4 = very good, 3 = good, 2 = fair, 1 = poor.

APPENDICES

APPENDIX 1 Background Information Form

APPENDIX 2 Self-Evaluation Instructions

APPENDIX 3 Assessment Criteria for the Faculty Panels

APPENDIX 4 Assessment Report Form for the Faculty Panels

APPENDIX 5 Assessment Criteria for the University Panel

Appendix 1

Background Information Form



Research Assessment Exercise 2013

PICTURE

NAME OF THE UNIT

NAME OF THE FACULTY

BACKGROUND INFORMATION

1 DESCRIPTION OF THE UNIT

1.1 Focus and strategy of research

2 OPERATIONAL CONDITIONS

2.1 Organisation and administration of the unit

Table 1. Number of person-years among various personnel groups in 2010-2012 in the unit (the person years of international researchers are indicated in brackets).

	2010	2011	2012
Research personnel			
- Professors			
- Associate professors (tenure)			
- Senior researchers ^a			
- Post doc researchers ^b			
- Doctoral students			
Teaching personnel^c			
Auxiliary personnel^d			
Administrative personnel			
Personnel total			

^a Researchers who have carried out research for more than 5 years since doctoral graduation.

^b Researchers with post doc status or who have carried out research for less than 5 years since doctoral graduation.

^c Only persons who do not participate in research. Lecturers and assistants participating in research are included among research personnel.

^d e.g. Laboratory and technical assistants.

2.2 Funding of the unit

Table 2. Funding from various sources, amount of money spent during 2010-2012.

Source	2010	2011	2012
Total funding			
Basic government funding			
Total external funding ^a			
Strategic funding of the UEF^b			
National competitive research funding			
Academy of Finland			
National Technology Agency of Finland			
National enterprise funding			
International competitive research funding			
EU research funding			
International enterprise funding			
Other international research funding			

^a Total external funding includes external competitive research funding, funding from European Structural Fund Programmes, funding from the public (ministries) and private sectors.

^b The amount of money the UEF has allocated in its budget as strategic funding.

2.3 Research infrastructure and facilities

3 SCIENTIFIC QUALITY OF RESEARCH

3.1 Publications

Table 3. Number of publications in 2010-2012.

	2010	2011	2012
A Peer-reviewed scientific articles			
B Non-reviewed scientific articles			
C Scientific monographs			
D Professional publications			
E Publications for the general public			

Table 4. Number of scientific publications in Finnish Publication Forum groups (JUFO-groups)

	2010	2011	2012
Level 3, top			
Level 2, leading			
Level 1, basic			

Level 1 (80% of the classified journals and series, 90% of the classified book publishers)

Level 2 (20% of the classified journals and series, 10% of the classified book publishers)

Level 3 (25% of level 2 journals and series)

The classification of Finnish Publication Forum system is described at: <http://www.tsv.fi/julkaisufoorumi/english.html>

3.2 Doctoral education

Table 5. Number of doctoral degrees conferred during 2010-2012.

	2010	2011	2012
Doctorates			
Doctorates conferred on international students			

3.3 Research projects

3.4 Scientific awards

4 INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

4.1 Exchange of researchers

Table 6. Number of exchange visits by researchers in 2010-2012 (number of visits which lasted for at least 1 week).

	2010	2011	2012
Outgoing from the UEF			
teachers			
researchers			
Incoming to the UEF			
teachers			
researchers			

4.2 Joint scientific publications involving international collaboration

Table 7. Number of joint scientific publications involving international collaboration in 2010-2012.

	2010	2011	2012
International joint publications^a			

^aAt least one of the authors and his/her affiliation must be with an international institution..

4.3 International research projects and partners

Table 8. Number of international collaborative projects in the unit during 2010-2012.

	2010-2012
International projects^a	
UEF as the coordinator	
UEF as a partner	

^a Only projects which have received external research funding.

4.4 Joint scientific publications involving national collaboration

Table 9. Number of joint scientific publications involving national collaboration in 2010-2012.

	2010	2011	2012
Number of national joint publications			

4.5 National research projects and partners

Table 10. Number of national collaborative projects in the unit during 2010-2012.

	2010-2012
National research projects^a	
UEF as the coordinator	
UEF as the partner	

^a Only projects which have received external research funding.

5 IMPACT OF RESEARCH

5.1 Impact of research

5.2 Corporate collaboration

5.3 Innovations

Table 11. Number of patent applications and invention disclosures in 2010-2012.

	2010	2011	2012
Patents			
Invention disclosures			

5.4 Contribution of researchers to society

6 STRATEGIC VISION

Appendix 2

Self-Evaluation Instructions

ASSESSMENT CRITERIA FOR THE SELF EVALUATION, Level One of the Evaluation

The unit under evaluation is assessed as a one, single entity. The research activities of the unit are assessed from an international perspective. The research should be compared to top international research within the same field of science, paying attention to scientific characteristics of the discipline.

The units are requested to assess and give written evaluation on the following aspects:

- A. SCIENTIFIC QUALITY OF RESEARCH
- B. RESEARCH ACTIVITIES VS STRATEGY
- C. INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY
- D. OPERATIONAL CONDITIONS
- E. IMPACT OF RESEARCH

In addition to written feedback, a numeric evaluation on a scale from 1 to 6 should be provided on the following aspects: scientific quality of research, international and national research collaboration, operational conditions and impact of the research.

The evaluation report should be structured according to the headings provided below (printed in bold). The self-evaluation report can be written in Finnish or English, and the maximum length of the report is 5 pages. The self-evaluation report is intended for internal use within the UEF only; it will not be delivered to the external experts of the Faculty Panels. The self-evaluation reports will be published in the UEF intranet after the Faculty Panels and the University Panel have finished their evaluations.

The self-evaluation report should be sent by e-mail to Research Coordinator Anu Liikanen (anu.liikanen@uef.fi) before 30 June 2013.

A SCIENTIFIC QUALITY OF RESEARCH

Evaluate the scientific quality of the unit's research from an international perspective:

- How does the unit's research relate to the leading international research in the field?
- Specify the areas of research excellence.

Evaluate the potential of the unit's research:

- Is the unit's research likely to produce new significant outcomes, scientific breakthroughs and progress of science in the field?
- Does the unit's research have potential to move beyond state of the art?

Evaluate the unit's research focuses:

- Scientific significance of the research areas and focuses.
- Does the unit's research have ambitious scientific objectives and goals?

Indicate

- strengths
- areas of development.

B RESEARCH ACTIVITIES VS STRATEGY

Evaluate the unit's research areas and research excellence against the research strategy of the faculty and university.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

Evaluate the unit's national and international research collaboration.

- Do members of the unit participate actively in national/international research collaboration and with which types of partners (academic, industry, private sector, public sector)?
- To what extent has national/international collaboration produced joint publications and significant scientific findings?
- Activity of researcher mobility between the unit and foreign organisations.
- Indicate the type of collaboration or the types of partners that could significantly contribute to the unit's success in research.

Indicate

- strengths
- areas of development.

D OPERATIONAL CONDITIONS

Evaluate the organisation and administration of the unit.

- Have the unit's research areas and/or research groups been organised in the best and most feasible way to promote a high quality in research?
- Does the unit provide adequate leadership in research and how do leadership and management processes promote a high quality in research?
- Is the personnel structure of the unit's research groups/areas sustainable?

Evaluate how the unit's operational conditions promote a high quality in research in terms of

- Basic funding allocated by the university.
- External research funding: To what extent has the unit succeed in obtaining national/international research funding and projects?
- Research personnel: is there a critical mass of researchers (including doctoral students and post doctoral researchers) and adequate expertise?
- Research infrastructure and facilities.
- Support and assistance offered by auxiliary personnel.
- Work load of teaching-related tasks.

Indicate

- strengths
- areas of development.

E IMPACT OF RESEARCH

Evaluate the societal impact of the unit's research.

- Has the unit's research produced significant new knowledge/innovations/solutions/patents for a) culture and society, b) economy, c) the environment, d) politics and administration, e) technology or f) welfare and health?
- Have the unit's researchers collaborated actively with the private and public sectors?
- Do the unit's researchers occupy positions of trusts and expert tasks in society?

OVERALL COMMENTS

NUMERIC EVALUATION

The units are requested to give a numeric evaluation of the selected criteria and an overall assessment on a scale from 1 to 6. The overall assessment is given for the research activities of the unit as a whole; it is not necessarily the average of the scores given to the separate criteria.

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	
International and national research collaboration and researcher mobility	
Operational conditions	
Impact of research	
OVERALL ASSESSMENT (not necessarily the average of the scores above)	

6 Outstanding

The unit's research in general is of an excellent quality and in some areas of an outstanding quality, especially from an international perspective. The unit's research attracts great international attention with a wide impact, including publications in leading journals and/or monographs published by leading international publishing houses. The unit's research has world-leading qualities in the field. The research focuses, key research questions, scientific significance, impact and innovativeness are of an outstanding quality. No significant elements to be improved. The ambition to develop the research activities is of an outstanding quality.

NB! In cases where the unit's research is of a national character and, in the judgment of the evaluators, should remain so, the concepts of "international attention" and "international impact", etc. in the grading criteria above may be replaced by "international comparability".

5 Excellent quality

The unit's research in general is of an excellent quality, typically published with great impact, also internationally. Without doubt, the unit's research has a leading position in the field in Finland. The research focuses, key research questions, scientific significance, impact and innovativeness are of an excellent quality. No significant elements to be improved. The ambition to develop the research activities is of an excellent quality.

NB! In cases where the unit's research is of a national character and, in the judgment of the evaluators, should remain so, the concepts of "international attention" and "international impact", etc. in the grading criteria above may be replaced by "international comparability".

4 Very good quality

The unit's research is of a very good quality, such that it attracts wide national and/or international attention. The research focuses, key research questions, scientific significance, impact and innovativeness are of a very good quality. The unit's research activities contain some elements that could be improved. The ambition to develop the research activities is of a very good quality.

3 Good quality

The unit's research is of a good quality, attracting mainly national attention but possessing international potential. The research focuses, key research questions, scientific significance, impact

and innovativeness are of a good quality. The unit's research activities contain some elements that could be improved. The ambition to develop the research activities is of a good quality.

2 Fair quality

The unit's research is of a fair quality, attracting some national attention without gaining a wide national or international circulation. There is a need for improvement and some of the unit's research activities should be revised. The ambition to develop the research activities is of a fair quality.

1 Poor quality

The quality of the unit's research is poor and its results and publications do not gain wide circulation or attract national or international attention. There are severe flaws and a need for substantial modification. The unit's research activities should be revised. There is no ambition to develop the unit's research activities.

Appendix 3

Assessment Criteria for the Faculty Panels

ASSESSMENT CRITERIA FOR THE FACULTY PANELS, Level Two of the Evaluation

The unit under evaluation is assessed as a one, single entity. The research activities of the unit are assessed from an international perspective. The research should be compared to top international research within the same field of science, paying attention to scientific characteristics of the discipline.

The panels are requested to assess and give written feedback on the following aspects:

- A. SCIENTIFIC QUALITY OF RESEARCH
- B. RESEARCH ACTIVITIES VS STRATEGY
- C. INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY
- D. OPERATIONAL CONDITIONS
- E. IMPACT OF RESEARCH
- F. STRATEGIC VISION

In addition to written feedback, a numeric evaluation on a scale from 1 to 6 should be provided on the following aspects: scientific quality of research, international and national research collaboration, operational conditions and impact of the research.

A SCIENTIFIC QUALITY OF RESEARCH

Evaluate the scientific quality of the unit's research from an international perspective:

- How does the unit's research relate to the leading international research in the field?
- Specify the areas of research excellence.

Evaluate the potential of the unit's research:

- Is the unit's research likely to produce new significant outcomes, scientific breakthroughs and progress of science in the field?
- Does the unit's research have potential to move beyond state of the art?

Evaluate the unit's research focuses:

- Scientific significance of the research areas and focuses.
- Does the unit's research have ambitious scientific objectives and goals?

Indicate

- strengths
- areas of development
- recommendations.

B RESEARCH ACTIVITIES VS STRATEGY

Evaluate the unit's research areas and research excellence against the research strategy of the faculty and university.

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

Evaluate the unit's national and international research collaboration.

- Do members of the unit participate actively in national/international research collaboration and with which types of partners (academic, industry, private sector, public sector)?
- To what extent has national/international collaboration produced joint publications and significant scientific findings?
- Activity of researcher mobility between the unit and foreign organisations.
- Indicate the type of collaboration or the types of partners that could significantly contribute to the unit's success in research.

Indicate

- strengths
- areas of development
- recommendations.

D OPERATIONAL CONDITIONS

Evaluate the organisation and administration of the unit.

- Have the unit's research areas and/or research groups been organised in the best and most feasible way to promote a high quality in research? Evaluate both from the viewpoint of the internal organisation of the unit and the organisation structure of the faculty concerned.
- Does the unit provide adequate leadership in research and how do leadership and management processes promote a high quality in research?
- Is the personnel structure of the unit's research groups/areas sustainable?

Evaluate how the unit's operational conditions promote a high quality in research in terms of

- Basic funding allocated by the university.
- External research funding: To what extent has the unit succeed in obtaining national/international research funding and projects?
- Research personnel: is there a critical mass of researchers (including doctoral students and post doctoral researchers) and adequate expertise?
- Research infrastructure and facilities.
- Support and assistance offered by auxiliary personnel.
- Work load of teaching-related tasks.

Indicate

- strengths
- areas of development
- recommendations.

E IMPACT OF RESEARCH

Evaluate the societal impact of the unit's research.

- Has the unit's research produced significant new knowledge/innovations/solutions/patents for a) culture and society, b) economy, c) the environment, d) politics and administration, e) technology or f) welfare and health?
- Have the unit's researchers collaborated actively with the private and public sectors?
- Do the unit's researchers occupy positions of trusts and expert tasks in society?

F STRATEGIC VISION

Evaluate strategic visions of the unit.

- Are the strategic visions of the unit feasible and realistic in terms of the operational conditions of the unit (personnel, financial resources and research infrastructure)?
- Does the unit have ambitious scientific goals and innovative new ideas for the future?
- Are the actions planned likely to promote a high quality in research?
- Has the unit defined distinct research focuses for the future?

Indicate

- strengths
- areas of development
- recommendations.

OVERALL COMMENTS

NUMERIC EVALUATION

The panels are requested to give a numeric evaluation of the selected criteria and an overall assessment on a scale from 1 to 6. The overall assessment is given for the research activities of the unit as a whole; it is not necessarily the average of the scores given to the separate criteria.

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	
International and national research collaboration and researcher mobility	
Operational conditions	
Impact of research	
OVERALL ASSESSMENT (not the average of the scores above)	

6 Outstanding

The unit's research in general is of an excellent quality and in some areas of an outstanding quality, especially from an international perspective. The unit's research attracts great international attention with a wide impact, including publications in leading journals and/or monographs published by leading international publishing houses. The unit's research has world-leading qualities in the field. The research focuses, key research questions, scientific significance, impact and

innovativeness are of an outstanding quality. No significant elements to be improved. The ambition to develop the research activities is of an outstanding quality.

NB! In cases where the unit's research is of a national character and, in the judgment of the evaluators, should remain so, the concepts of "international attention" and "international impact", etc. in the grading criteria above may be replaced by "international comparability".

5 Excellent quality

The unit's research in general is of an excellent quality, typically published with great impact, also internationally. Without doubt, the unit's research has a leading position in the field in Finland. The research focuses, key research questions, scientific significance, impact and innovativeness are of an excellent quality. No significant elements to be improved. The ambition to develop the research activities is of an excellent quality.

NB! In cases where the unit's research is of a national character and, in the judgment of the evaluators, should remain so, the concepts of "international attention" and "international impact", etc. in the grading criteria above may be replaced by "international comparability".

4 Very good quality

The unit's research is of a very good quality, such that it attracts wide national and/or international attention. The research focuses, key research questions, scientific significance, impact and innovativeness are of a very good quality. The unit's research activities contain some elements that could be improved. The ambition to develop the research activities is of a very good quality.

3 Good quality

The unit's research is of a good quality, attracting mainly national attention but possessing international potential. The research focuses, key research questions, scientific significance, impact and innovativeness are of a good quality. The unit's research activities contain some elements that could be improved. The ambition to develop the research activities is of a good quality.

2 Fair quality

The unit's research is of a fair quality, attracting some national attention without gaining a wide national or international circulation. There is a need for improvement and some of the unit's research activities should be revised. The ambition to develop the research activities is of a fair quality.

1 Poor quality

The quality of the unit's research is poor and its results and publications do not gain wide circulation or attract national or international attention. There are severe flaws and a need for substantial modification. The unit's research activities should be revised. There is no ambition to develop the unit's research activities.

Appendix 4

Assessment Report Form for the Faculty Panels



RESEARCH ASSESSMENT EXERCISE 2013

ASSESSMENT REPORT OF THE FACULTY PANEL

Name of the unit:

Name of the evaluators:

A SCIENTIFIC QUALITY OF RESEARCH

B RESEARCH ACTIVITIES VS STRATEGY

C INTERNATIONAL AND NATIONAL RESEARCH COLLABORATION AND RESEARCHER MOBILITY

D OPERATIONAL CONDITIONS

E IMPACT OF RESEARCH

F STRATEGIC VISION

OVERALL COMMENTS

NUMERIC EVALUATION

CRITERIA	NUMERIC EVALUATION SCALE 1-6
Scientific quality of research	
International and national research collaboration and researcher mobility	
Operational conditions	
Impact of research	
OVERALL ASSESSMENT (not the average of the scores above)	

Appendix 5

Assessment Criteria for the University Panel

ASSESSMENT CRITERIA FOR THE UNIVERSITY PANEL, Level Three of the Evaluation

The University Panel is requested to assess the research activities of the University of Eastern Finland as a whole. The Panel will complete the assessment on the basis of the reports of the Faculty Panels. The University Panel is especially requested to give recommendations on how the UEF should develop its research activities and what its strategic choices could be for the future. The Panel should prepare a written report and give recommendations on the following aspects:

A SCIENTIFIC QUALITY OF RESEARCH

- Name the areas of research excellence of the UEF.
- Name the potential, innovative areas of research for the future.
- How should the UEF support the development of new potential research areas?
- Give recommendations on how to renew the organisation of research, i.e. possible new multidisciplinary research areas or research communities within the UEF.
- Name the research areas of the UEF that could have the most significant impact and contribution to major global problems.

B NATIONAL AND INTERNATIONAL COLLABORATION

- Recommendations on how the UEF should improve its international reputation.
- Indicate the type of collaboration and/or collaboration partners/organizations that could significantly contribute to the success in research of the UEF.

C OPERATIONAL CONDITIONS

Organization structure

- Does the structure of the UEF promote a high quality and development of research, and is there any need to develop the organization structure of the UEF?
- Strengths and weaknesses of the multi-campus structure of the UEF.
- How should the UEF improve the administration and management of research?
- Name the most important areas for development regarding research personnel, research infrastructure and research facilities.

Research career

- How should the UEF develop its recruitment strategy of researchers?
- Recommendations on the career development of the research personnel.

Research funding

- How could the UEF improve its performance in obtaining international research funding?
- Recommendations on how the UEF should prepare for the EU Horizon 2020 Programme.

OVERALL RECOMMENDATIONS

- The University Panel is requested to give suggestions for the future development.

**LIIKANEN ANU, TIRRONEN JARKKO,
KEINÄNEN RIITTA, SAGULIN MERJA,
SIMONAHO SIMO-PEKKA, TASKINEN
HELENA, MÖNKKÖNEN JUKKA (EDS.)**

*International Evaluation of
Research Activities at the
University of Eastern Finland*

2010-2012

The first international research assessment exercise of the University of Eastern Finland was carried out in 2013. The evaluation concerned the standard of research in the University as a whole, all of its Faculties, Departments and Schools during the years 2010-2012. Evaluation procedure and the assessment reports of the international evaluation panels are published in this report.



UNIVERSITY OF
EASTERN FINLAND

PUBLICATIONS OF THE UNIVERSITY OF EASTERN FINLAND
General Series

ISSN (PRINT): 1798-5854

ISBN (PRINT): 978-952-61-1347-0

ISSN-L: 1798-5854

ISSN (PDF): 1798-5862

ISBN (PDF): 978-952-61-1348-7