



UNIVERSITY OF JYVÄSKYLÄ

EVALUATION OF RESEARCH ACTIVITIES 2005–2009

Research Evaluation Report



UNIVERSITY OF JYVÄSKYLÄ

Evaluation of Research Activities 2005–2009

Research Evaluation Report



UNIVERSITY OF JYVÄSKYLÄ

Edited by: Antoaneta Folea

Language revision: Jennifer Nelson

Cover: Marja-Liisa Helimäki, photos by Petteri Kivimäki and Solja Ryhänen

ISBN 978-951-39-4333-2

Jyväskylä University Printing House, Jyväskylä 2011

PREFACE

This Research Assessment Report presents the results of the evaluation of the research activities carried at the University of Jyväskylä between 2005-2009.

The research assessment was commissioned by the University of Jyväskylä, and the University's Science Council has been the governing body of the entire exercise.

The assessment of the research activities was done by 40 independent external experts, organised in seven panels (one panel per faculty).

The present Report consists of two parts: (1) the original comments and marks given by the panels of experts; and (2) the Terms of Reference of the research assessment 2005-2009.

The Science Council

University of Jyväskylä

June 2011

CONTENTS

FACULTY OF SPORT AND HEALTH SCIENCES	9
PANEL MEMBERS.....	10
DEPARTMENT (UNIT) BIOLOGY OF PHYSICAL ACTIVITY.....	11
1. Assessment criteria.....	11
2. Current structure and performance of the research.....	14
3. Identification of research groups at high/highest international level, and of most promising groups	15
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats)	15
5. Recommendations from the Panel	16
DEPARTMENT (UNIT) HEALTH SCIENCES	16
1. Assessment criteria.....	16
2. Current structure and performance of the research.....	21
3. Identification of research groups at high/highest international level, and of most promising groups	22
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats)	22
5. Recommendations from the Panel	23
DEPARTMENT (UNIT) SPORT SCIENCES	24
Unit Social Sciences of Sport	24
1. Assessment criteria.....	24
2. Current structure and performance of the research.....	26
3. Identification of research groups at high/highest international level, and of most promising groups	26
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats)	27
5. Recommendations from the Panel	27
Unit Sport Pedagogy (Physical Education).....	28
1. Assessment criteria.....	28
2. Current structure and performance of the research.....	30
3. Identification of research groups at high/highest international level, and of most promising groups	31
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats)	31
5. Recommendations from the Panel	32
FACULTY OF SOCIAL SCIENCES	34
PANEL MEMBERS.....	35
DEPARTMENT (UNIT) SOCIAL SCIENCES AND PHILOSOPHY	36
1. Assessment criteria.....	36
2. Current structure and performance of the research.....	40
3. Identification of research groups at high/highest international level, and of most promising groups	41
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats)	41
5. Recommendations from the Panel	42
DEPARTMENT (UNIT) PSYCHOLOGY	42
1. Assessment criteria.....	42
2. Current structure and performance of the research.....	45
3. Identification of research groups at high/highest international level, and of most promising groups	46
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats)	46
5. Recommendations from the Panel	47

FACULTY OF MATHEMATICS AND SCIENCE	49
PANEL MEMBERS	50
PREAMBLE	51
DEPARTMENT (UNIT) BIOLOGICAL AND ENVIRONMENTAL SCIENCES	55
1. Assessment criteria	55
2. Current structure and performance of Unit’s research	58
3. Identification of research groups at high/highest international level, and of most promising groups	58
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit	58
5. Recommendations	59
DEPARTMENT OF PHYSICS	60
1. Assessment Criteria	60
2. Current structure and performance of Unit’s research	62
3. Identification of research groups at high/highest international level, and of most promising groups	63
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit	63
5. Recommendations	64
DEPARTMENT OF CHEMISTRY	65
1. Assessment Criteria	65
2. Current structure and performance of Unit’s research	67
3. Identification of research groups at high/highest international level, and of most promising groups	67
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit	68
5. Recommendations	69
DEPARTMENT OF MATHEMATICS AND STATISTICS	69
1. Assessment criteria	69
2. Current structure and performance of Unit’s research	71
3. Identification of research groups at high/highest international level, and of most promising groups	71
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats)	72
5. Recommendations	73
FACULTY OF INFORMATION TECHNOLOGY	74
PANEL MEMBERS	75
DEPARTMENT OF MATHEMATICAL INFORMATION TECHNOLOGY	76
1. Assessment criteria	76
2. Current structure and performance of Unit’s research	77
3. Identification of research groups at high/highest international level, and of most promising groups	78
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats)	78
5. Recommendations	79
DEPARTMENT OF COMPUTER SCIENCE AND IS	79
1. Assessment criteria	79
2. Current structure and performance of Unit’s research	81
3. Identification of research groups at high/highest international level, and of most promising groups	81
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats)	81
5. Recommendations	82
FACULTY OF HUMANITIES	83
PANEL MEMBERS	84
DEPARTMENT (UNIT) HISTORY AND ETHNOLOGY	85

1. Assessment criteria.....	85
2. Current structure and performance of Unit’s research.....	87
3. Identification of research groups at high/highest international level, and of most promising groups	87
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit	88
5. Recommendations	89
DEPARTMENT (UNIT) MUSIC.....	89
1. Assessment criteria.....	89
2. Current structure and performance of Unit’s research.....	91
3. Identification of research groups at high/highest international level, and of most promising groups	91
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit	92
5. Recommendations	92
DEPARTMENT (UNIT) LANGUAGES	93
1. Assessment criteria.....	93
2. Current structure and performance of Unit’s research.....	95
3. Identification of research groups at high/highest international level, and of most promising groups	96
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit	96
5. Recommendations	97
DEPARTMENT (UNIT) ART AND CULTURE STUDIES	97
1. Assessment criteria.....	97
2. Current structure and performance of Unit’s research.....	100
3. Identification of research groups at high/highest international level, and of most promising groups	100
4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS) FOR THE UNIT	100
5. Recommendations	101
DEPARTMENT (UNIT) CENTRE APPLIED LANGUAGE STUDIES	101
1. Assessment criteria.....	101
2. Current structure and performance of Unit’s research.....	104
3. Identification of research groups at high/highest international level, and of most promising groups	104
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit	105
5. Recommendations	105
DEPARTMENT (UNIT) COMMUNICATION	106
1. Assessment criteria.....	106
2. Current structure and performance of Unit’s research.....	108
3. Identification of research groups at high/highest international level, and of most promising groups	109
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit	109
5. Recommendations	110
FACULTY OF EDUCATION.....	111
PANEL MEMBERS	112
FINNISH INSTITUTE OF EDUCATIONAL RESEARCH.....	113
1. Assessment criteria.....	113
2. Current structure and performance of Unit’s research:	115
3. Identification of research groups at high/highest international level, and of most promising groups	116
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit	117
5. Recommendations	117
DEPARTMENT EDUCATION	118

1. Assessment criteria.....	118
2. Current structure and performance of Unit’s research.....	121
3. Identification of research groups at high/highest international level, and of most promising groups.....	122
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit.....	122
5. Recommendations.....	123
DEPARTMENT (UNIT) TEACHER EDUCATION.....	124
1. Assessment criteria.....	124
2. Current structure and performance of Unit’s research.....	126
3. Identification of research groups at high/highest international level, and of most promising groups.....	127
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit.....	127
5. Recommendations.....	128
SCHOOL OF BUSINESS AND ECONOMICS.....	129
PANEL MEMBERS.....	130
UNIT BUSINESS.....	134
1. Assessment criteria.....	134
2. Current structure and performance of Unit’s research.....	137
3. Identification of research groups at high/highest international level, and of most promising groups.....	137
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit.....	137
UNIT ECONOMICS.....	138
1. Assessment criteria.....	138
2. Current structure and performance of Unit’s research.....	140
3. Identification of research groups at high/highest international level, and of most promising groups.....	141
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit.....	141
TERMS OF REFERENCE FOR PANELS.....	143

FACULTY OF SPORT AND HEALTH SCIENCES

PANEL MEMBERS	10
DEPARTMENT (UNIT) BIOLOGY OF PHYSICAL ACTIVITY	11
1. Assessment criteria.....	11
2. Current structure and performance of the research.....	14
3. Identification of research groups at high/highest international level, and of most promising groups	15
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats)	15
5. Recommendations from the Panel.....	16
DEPARTMENT (UNIT) HEALTH SCIENCES	16
1. Assessment criteria.....	16
2. Current structure and performance of the research.....	21
3. Identification of research groups at high/highest international level, and of most promising groups	22
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats)	22
5. Recommendations from the Panel.....	22
DEPARTMENT (UNIT) SPORT SCIENCES	24
Unit Social Sciences of Sport.....	24
1. Assessment criteria.....	24
2. Current structure and performance of the research.....	26
3. Identification of research groups at high/highest international level, and of most promising groups	26
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats)	27
5. Recommendations from the Panel.....	27
Unit Sport Pedagogy (Physical Education)	28
1. Assessment criteria.....	28
2. Current structure and performance of the research.....	30
3. Identification of research groups at high/highest international level, and of most promising groups	31
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats)	31
5. Recommendations from the Panel.....	32

PANEL MEMBERS

Otmar Weiss, Chair of the Panel. Deputy Director of the Center for Exercise Science and University Sports, University of Vienna, Austria.

Dusan Hamar, Faculty of Physical Education and Sports, Comenius University, Slovakia.

Jaro Karppinen, Department (Unit) of Physical Medicine and Rehabilitation, University Hospital of Oulu, Finland.

Gustaaf Lankhorst, Vrije University Medical Center, Amsterdam, the Netherlands.

Göran Patriksson, Department (Unit) of Education, University of Gothenburg, Sweden.

DEPARTMENT (UNIT) BIOLOGY OF PHYSICAL ACTIVITY

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research**Mark: 5/5**

As documented by the written materials submitted, the number of publications in peer-reviewed journals, the numerous presentations at international scientific conferences as well as the on-site presentation and discussion with the staff, the research conducted in the Department (Unit) of Biology of Physical Activity deals with highly topical issues in exercise physiology and sport biomechanics. Overall quality of the rather multidisciplinary oriented research is very high, matching the level of prestigious international scientific and academic institutions of similar focus.

There is an emphasis on basic research projects, which slightly outnumber those oriented towards applied science.

Basic research covers a broad area of fine mechanisms of neuromuscular function; functional as well as morphological adaptation to various forms of physical activity; mechanisms of hormonal regulation; neuromuscular fatigue and muscle damage; tendon structure; signalling systems within the muscle tissues; growth factor expression and receptor density.

Activities within **applied research** focus on the elucidation of problems related to performance enhancement (not only in elite athletes but also in military service members and rehabilitation patients), injury prevention, disease prevention and health promotion. In addition to cross-sectional and descriptive studies, the Department (Unit) also successfully conducted large-scale, long-term intervention projects requiring meticulous planning, recruitment and motivation of participants, and extensive testing and data processing.

Scientific production from the Department of Biology of Physical Activity has been visible on the international scene for more than two decades and the period evaluated (2005-2009) is no exception. High-quality research results have been regularly published in prestigious scientific journals and presented at international congresses and conferences. Papers were published not only in journals covering the field of sport science, but also in periodicals focussing on basic biological and medical sciences.

Evidence of high-quality and relevant research carried out at the Department (Unit) also includes substantial external funding (national as well as international) awarded during the period evaluated.

Innovative and creative approaches in the Department (Unit) have yielded several noteworthy findings in the field of exercise science, two of which are the elucidation of androgen receptor expression in the modulation of hormonal response to resistance exercise, as well as the role of myostatin and its receptor gene expression in exercise-induced muscle hypertrophy.

Assessment criterion 2: Quality of the scientific impact**Mark: 5/5**

During the evaluation period the Department (Unit) produced 259 publications, which include papers in journals, conference proceedings, book chapters and monographs. Taking into account the number of scientific staff and PhD students, the number of publications can be considered very high.

The vast majority of them have been published abroad in peer-reviewed journals covering not only sport sciences, but also basic biological sciences, typically with a higher impact factor. This fact clearly illustrates the high quality of the publications.

Department (Unit) researchers are members of various international organisations and review boards for PhD programmes. They also served as reviewers of professorships and lecturer positions in addition to serving as members of various boards for the Ministry of Education and Culture. Many of them belong to editorial boards of prestigious international scientific journals.

The high prestige of the Department (Unit) is also documented by numerous attendances at international scientific conferences not only as participants, but also as keynote speakers (39 invited presentations abroad, 69 in Finland).

Department (Unit) PhD students have also received 10 awards in both national and international scientific congresses, an indication of high scientific visibility.

Scientific results produced by the Department (Unit) are well recognised not only within the scientific community but also by fitness industry. They are being applied to the development of new equipment and methods for exercise testing of athletes in addition to the general population and various patients groups.

Assessment criterion 3: Quality of research collaborations**Mark: 5/5**

On the national level, the Department (Unit) cooperates with other units within the Faculty, the University and with extramural Finnish institutions dealing with sport and exercise science. Such cooperation with widely known institutions enabled using greater financial means and more equipment and research man-hours to broaden the scope of the scientific activities. It also fosters visibility in the scientific environment in terms of publications as well as presentations at scientific conferences.

On the international level, the Department (Unit) collaborates with numerous institutions dealing with similar research topics in Europe and further abroad. Almost without exception these are the most prestigious and highly respected university departments and laboratories oriented towards sport and exercise science, namely muscle physiology, sports biomechanics and sciences of coaching. All of them are led by internationally recognised scientists. The high number of cooperating partners clearly reflects the fact that the Department of Biology of Physical Activity is an attractive and highly sought-after partner for conducting common research projects. This also demonstrates extremely positive recognition within scientific community abroad. Frequent contact with foreign institutions positively affects the exchange of new ideas, scientific concepts and methods. A very positive outcome of such abundant international cooperation is increased productivity as documented by an extraordinarily high number of joint publications in prestigious scientific journals, conference proceedings and book chapters.

Assessment criterion 4: Quality and quantity of the research funding**Mark: 5/5**

External funding, both national and international, over the five years evaluated amounts to 7,354,997 €. Particularly in the second half of the period, national sources accounted for slightly more than 50% of this amount.

Domestic sources include highly competitive research funding from the Finnish Academy of Science as well as funds from the Ministry of Education and Culture, TEKES (Finnish Funding Agency for Technology and Innovation), Finnish Defence Forces, Finnish Advisory Board for Defence. Research activities have been also supported by the Municipality of Sotkamo, Hospital District of Central Finland as well as organisations within the industry (David Sports, Karhu, and Polar).

International funding has been based on structural funds from the European Union.

The amount of funding can be considered very satisfactory with a well-balanced distribution of basic and applied research. Though central funding institutions predominantly support basic research oriented activities, ministries, municipalities and the industry tend to fund projects with a short-term impact in the form of practical applications.

Assessment criterion 5: Quality of the research environment**Mark: 5/5**

Department research staff consist of prominent international scientists, who are highly recognised from their numerous publications and appearances at scientific conferences. Their aptitude for international networking continually brings together experts with new ideas and skills in diagnostic and analytical techniques. This fact undoubtedly stimulates the research environment within the Department. The unit regularly organises scientific seminars and conferences with both domestic and international participation. It has also been a key institution behind the successful International Conference on Strength Training series, the 7th edition of which was held in October 2010. The scientific staff of the Department (Unit) regularly contribute to the conference programme, which deals with both basic science problems of resistance training as well as applied aspects related to sports performance, injury prevention and health promotion.

All professors and senior researchers are very active in networking with recognised scientific institutions that share their topics of interest. The majority of the scientific activities of the Department (Unit) involve PhD students, which not only stimulates their scientific education and personal growth, but also increases productivity of the Department.

Special acknowledgement is given to the extraordinary wide scope of diagnostic equipment used and methods applied. On the whole, the most up-to-date, state-of-the-art technologies are used for testing and data collection. Along with commercially available diagnostic equipment, innovative systems custom-designed by Department scientists and researchers are also widely used. In addition to a broad scale of biomechanical variables, the latest highly sophisticated equipment and methods for the qualification of various biomechanical, histochemical, and hormonal parameters – including the most progressive methods of molecular biology – are also applied.

A muscle biopsy, coupled with the most advanced processing methods, has become a standard tool in various projects dealing with the mechanism of muscle signalling within the response to strength training stimuli. The same applies to microdialysis of interstitial fluids complemented by relevant analytical techniques.

Several ultrasound imaging units, including one high-speed cinematographic ultrasound camera, are used to gain insight into the mechanisms of muscles and tendons subjected to mechanical load.

DEXA scans as well as single-extremity tomography are used to quantify the parameters of bone tissue and body composition in cross-sectional and intervention studies.

The scientific performance of the Unit research is corroborated by the high quality of its PhD programme. It appears that the Department (Unit) succeeds in attracting and selecting very capable students not only from Finland but also from abroad. Contributing to the high level of the PhD programme is also the rather strict requirement that each PhD student publish five papers in peer-reviewed journals prior to being allowed to defend his or her thesis.

Two-thirds of PhD students are funded by external sources. This reflects a positive evaluation of the topics proposed and the quality of research by grant providers outside of the Faculty.

The age structure of the research staff (the mean age of professors is 51, with a range of 38 to 58, and the mean age of senior researchers is 42, with a range of 31 to 48), together with a steady “production” of new PhD graduates, effectively excludes any future generational problems.

2. CURRENT STRUCTURE AND PERFORMANCE OF THE RESEARCH

The Department (Unit) has defined four main research areas:

1. Basic neuromuscular function during movement

This area focuses on the contribution of supraspinal and spinal mechanisms and single motor unit behaviour during different types of muscle actions and movements with an emphasis on dynamic balance control. Muscle and tendon properties and function are investigated with a focus on force transmission.

2. Neuromuscular adaptation to exercise, training and de-training

This area covers detailed mechanisms and overall adaptation processes in the human body to explain specific training-induced acute and chronic changes in neuromuscular performance.

3. Research on sport performance

This area concerns various sport disciplines from youth to master sports and form technique analysis to performance.

4. Effects of exercise and training on musculoskeletal and metabolic diseases

This area concerns acute and long-term effects of strength and endurance training on musculoskeletal diseases, recovery after surgery and the mechanisms of metabolic diseases, and rehabilitation of patients with musculoskeletal disorders.

Performance of the Department’s research:

The Department (Unit) consists of 30 researchers and 10 other staff members. They exhibit very high productivity with 203 publications (2005-2009) in international peer-reviewed journals. In 2009, 52 peer-reviewed papers were published. The ratio of papers to research staff was 1.7 in

2009; the corresponding figure for the Department of Health Sciences was 1.1, while it was 0.5 for the Department of Sport Sciences (0.6 if publications in Finnish are taken into account).

The Department (Unit) attracts many international (PhD) students and will continue to do so. The Department (Unit) has defined a research strategy for 2010-2014, which expands on the present topics.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

Research activities at the Department (Unit) cover a relatively broad scope of both basic and applied aspects of biological sport and exercise science. Among them two areas in particular deserve special recognition.

The **first** deals with the adaptation of neuromuscular mechanisms to exercise. Current research has covered just the initial steps in the elucidation of mechanisms behind the complex changes within the muscle cells after acute and long-term exposure to different forms of exercise. Local changes do not depend only on type, intensity and volume of exercise, but also on the other factors such as gender; quality, quantity and timing of nutrition; drugs taken; and last but not least, genetic factors. More precise knowledge on signalling mechanisms, including the expression of genes responsible for the production of enzymes and structural proteins as well as hormonal receptors occurring namely in response to endurance and resistance exercise, are not only of theoretical value, but can be potentially applied to optimise the exercise stimulus for performance enhancements and health promotion. The Department (Unit) possess the qualified staff, appropriate equipment and analytical techniques to address these problems.

The **second** relates to effects of simultaneous application of strength and endurance training. For both, performance enhancement in athletes as well as optimisation of the health promoting effects would be highly desirable, along with more precise knowledge on the optimal dosing and timing of endurance and strength training exercise stimuli. Though several projects carried out at the Department (Unit) in recent years have yielded some useful hints for practical application, more information in this direction would be desirable.

Continued and even closer cooperation with the Department of Health Sciences on the project focussed on the therapeutic application of various forms of physical activity would also bring useful results and may benefit both departments as well as the entire Faculty and University.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS)

Strengths:

- Excellent scientists with notable international reputation.
- Highly competitive scientific spirit.
- State-of-the-art diagnostic equipment, techniques and skilled technical staff.
- Excellent reputation with fair potential to obtain external funding and attract high-quality PhD students.
- Excellent international networking.
- Favourable age structure of the research staff.

Weaknesses:

- Predominant orientation towards basic research, compromising visibility outside of academic circles.
- Rather limited orientation towards nutritional studies.

Opportunities:

- High scientific reputation creates a good basis for obtaining more EU funding. Despite additional administrative demand, the Department (Unit) of Biology of Physical Activity should seriously consider continuing to submit these kinds of applications.

Threats:

- Potentially higher financial demands to keep up with progress in technology in order to maintain the “equipment park” at its currently high level.
- Additional administrative burdens due to changes in university structure may compromise scientific activities and decrease productivity.
- Need for careful evaluation and selection of potential international cooperative partners.

5. RECOMMENDATIONS FROM THE PANEL

1. Further increase the number of clinical studies.
2. Increase visibility of the societal impact of the Department’s activities.
3. Intensify the collaboration with the Department of Health Sciences and Department of Sport Sciences.

DEPARTMENT (UNIT) HEALTH SCIENCES

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit’s research**Mark: 5/5**

The Department (Unit) of Health Sciences is multidisciplinary in nature, comprising three main themes: 1) “Physical activity, exercise therapy and health” (further divided into “Physiotherapy” and “Sport and exercise medicine”); 2) “Ageing”; and 3) “Health promotion and health education”. In the self-assessment report it is stated that the main research focus is on the musculoskeletal effects of exercise and ageing. The Unit has over 40 years of research history, with study outcomes that impact the cellular/molecular level up to the organ/organism level. The mission of

the Unit is to promote the health and well-being of people of all ages through innovative, high-quality research on physical activity and health, health promotion, rehabilitation, ageing and functioning.

The average number of publications in peer-reviewed international journals per year has doubled from 31 in 2000-2004 to 63 in 2005-2009 (Self-Assessment Report p. 31). The productivity of the Unit in international peer-reviewed publications continued at the same high level in 2010.

In addition to the substantial quantity of publications, the quality of publications of the Unit has been exceptionally good during the evaluation period. The high quality of the Unit publications can be seen in the utilisation of large population-based cohorts (including twin cohorts) and of advanced experimental methods in animals and humans at the molecular/cellular level. In fact, a very large proportion of the Unit's "own" publications (those in which the Unit plays a major role) comprises population-based longitudinal studies, twin studies, randomized controlled trials or sophisticated experimental studies. Additionally, the Unit researchers have conducted two systematic reviews during the evaluation period. These publications are of top international quality compared to similar units abroad. The Unit has published numerous excellent publications; some examples (based on the design of the study and citations in the ISI Science of Web) include: Cheng et al. *Effects of calcium, dairy product, and vitamin D supplementation on bone mass accrual and body composition in 10- to 12-year-old girls: a two-year randomized trial.* Am J Clin Nutr 2005; Samdal et al. *Trends in vigorous physical activity and TV watching of adolescents from 1986 to 2002 in seven European countries.* Eur J Public Health 2007; Era et al. *Postural balance in a random sample of 7,979 subjects aged 30 years and over.* Gerontology 2006; Karinkanta et al. *A multi-component exercise regimen to prevent functional decline and bone fragility in home-dwelling elderly women: randomized, controlled trial.* Osteoporos Int 2007; Tiainen et al. *Shared genetic and environmental effects on strength and power in older female twins.* MSSE 2005; Cristea et al. *Effects of combined strength and sprint training on regulation of muscle contraction at the whole-muscle and single-fibre levels in elite master sprinters.* Acta Physiol 2008; Volgyi et al. *Assessing body composition with DXA and bioimpedance: Effects of obesity, physical activity, and age.* Obesity 2008; Pietiläinen et al. *Physical inactivity and obesity: A vicious circle.* Obesity 2008; Ma et al. *Long-term leisure time physical activity and properties of bone: a twin study.* JBMR 2009; Ronkainen et al. *Postmenopausal hormone replacement therapy modifies skeletal muscle composition and function: a study with monozygotic twin pairs.* J Appl Physiol 2009; Leskinen et al. *Leisure-time physical activity and high-risk fat: a longitudinal population-based twin study.* Int J Obesity 2009; Cheng et al. *Low volumetric BMD is linked to upper-limb fracture in pubertal girls and persists into adulthood: A seven-year cohort study.* Bone 2009; Waller et al. *Associations between long-term physical activity, waist circumference and weight gain: a 30-year longitudinal twin study.* Int J Obesity 2008; Mänty et al. *Long-term effect of physical activity counseling on mobility limitation among older people: A randomized controlled study.* J Gerontology 2009; von Bonsdorff et al. *Physical activity history and end-of-life hospital and long-term care.* J Gerontology 2009; Cheng et al. *Trait-specific tracking and determinants of body composition: a 7-year follow-up study of pubertal growth in girls.* BMC Med 2009; Tiainen et al. *Genetic and environmental effects on isometric muscle strength and leg extensor power followed up for three years among older female twins.* J Appl Physiol 2009.

The proportion of publications by the Unit to the entire Faculty of Sport and Health Sciences varied between 54-73% in 2000-2004 and 65-79% in 2005-2009. There are several papers co-authored with members of other departments of the Faculty. The overlap (=collaboration) is especially pronounced with the Department (Unit) of Biology of Physical Activity. In addition to international peer-reviewed publications, the Unit researchers have published a multitude of publications in refereed national journals, text books and other research volumes.

The Unit has produced 32 PhD degrees during the evaluation period, which averages to approximately six per year. With 11 PhD degrees in 2010, this excellent achievement was exceeded.

The Unit was granted one patent in 2008 and one in 2009. These were not specified in the Self-Assessment Report. However, one of them is likely Good Balance™, which is an instrument for measuring postural balance. The Metitur company (its connection to the University and the Unit was not specified) has sold hundreds of this measurement device to research centres.

The Unit will continue with a similar high-quality research strategy after the evaluation period. They have on-going studies focussing on cartilage imaging, epigenetics, work ability vs. ageing, and the role of physical activity on health-related outcomes from children to the elderly. Interesting future study topics of note include the pathways of muscle regulation at postmenopause and the Callex study. Additionally, the Unit will continue conducting randomized controlled trials.

Assessment criterion 2: Quality of the scientific impact

Mark: 4.5/5

In the field of health science it is not easy to get papers accepted into high-impact general journals. However, the Unit has succeeded in getting studies published in high-IF journals; several articles are published in journals with an IF factor of 3 or higher, a strong IF for a health field paper. Furthermore, the H-indices of many senior researchers are quite high (30 or more). The H-index of the entire Unit for the last 20 years is 54, and the average number of citations per item is 16.3.

The Unit has recruited PhD students from abroad, which is a sign of the great scientific impact of the Unit in the research community. The Unit is recognised as an attractive research environment among students in Finland and abroad. In fact, the average number of PhD students working at the Unit has increased from 19.8 in 2009 to 22.5 in 2010.

The researchers of the Unit are co-authors of text books, and they have expert academic positions and professional activities (editors of scientific publications, advisory board memberships, international research reviews and evaluations). The researchers of the Unit have been invited to international congresses as speakers. According to the Self-Assessment Report the Unit has not organised its own international congress, but its researchers have participated in congresses organised by other departments of the Faculty. The Unit researchers have received numerous national and international awards.

The Unit educates MSc students as experts in various fields of Finnish society, which is a good way to implement research data. The Unit is the only university-level educational unit in the field of physiotherapy in Finland. Physiotherapists play an important role in Finnish society as they rehabilitate patients with musculoskeletal problems. Therefore, the Unit has a great opportunity (and responsibility) to implement evidence-based knowledge among physiotherapists.

Undoubtedly the Unit has a great societal impact, which is also acknowledged by governmental authorities (especially the Ministry of Social Affairs and Health and the Ministry of Education and Culture). The Unit is visible in the Finnish media.

The Unit has a leading role in the field of application of physical activity in health promotion. However, its societal impact on health promotion at the population-level could be increased even further. “Health Education and Health Promotion” has been (and is currently) an active player in promoting healthy lifestyle especially among children and adolescents. The whole Faculty could take an even more active role in Finnish society and both “Health Education and Health Promotion” and the Department (Unit) of Sport Sciences are needed. This would enhance knowledge on a healthy lifestyle at the population-level as children and adolescents may be more easily influenced (with respect to a healthy lifestyle) than older participants.

The work done by the GeroCenter Foundation, which spearheaded the distribution of research results to the general population, is a definite asset in terms of impacting the scientific and societal communities. For example, the Foundation has on-going projects to implement evidence-based rehabilitation of stroke patients.

Assessment criterion 3: Quality of research collaborations

Mark: 4.5/5

Modern research requires academic networks. The Unit has acquired a wide spectrum of national and international partners.

Nationally, the most active partners come from Jyväskylä, a natural development, as the most important local collaborators – as measured by the number of publications – are the Department (Unit) of Biology of Physical Activity at the University of Jyväskylä and the Central Finland Health Care District. Local partners at the University of Jyväskylä include the Department (Unit) of Physics, Department (Unit) of Biological and Environmental Sciences, and Nanoscience Center.

External national partners include other Finnish universities and research institutes such as the UKK Institute and the National Institute of Health and Welfare. Of special importance to the Unit is the collaboration with the University of Helsinki in twin studies. The number of researcher visits to and from the Unit was quite constant during the evaluation period.

International collaborators include numerous partners in Europe, Asia and North America. Of particular note in international connections are the Calex study consortium and the Health Behaviour among School Children consortium in collaboration with World Health Organisation (WHO).

One sign of Unit's good reputation (=scientific impact) is that it has succeeded in obtaining PhD fellows from international top-level universities and institutions. This will undoubtedly increase international collaboration as these international fellows will disseminate knowledge about the Unit abroad. Furthermore, many Unit researchers have been recruited abroad after completing their PhD degrees.

An area of collaboration in which the Unit could improve is its "homebase". Collaboration with the Department of Sport Sciences has not been of similar magnitude to that of the Department of Biology of Physical Activity, although some joint research projects have been undertaken. Even in some joint projects with the Department of Biology of Physical Activity, the Unit's contribution has been minimal. The Faculty of Sport and Health Sciences (i.e., all three departments) could do even better with respect to both scientific and societal impact if the collaboration between the departments would work optimally in planning and executing large-scale studies. Of course, induction of possible joint projects should take place voluntarily and not by force.

Assessment criterion 4: Quality and quantity of the research funding

Mark: 4.5/5

The total budget for the Unit in 2009 was almost 5 million and over one-third (1.8 million) of the 2009 budget was from external sources. Total external funding has increased by 38% from 2005 to 2009.

The amount of external funding of the Unit has increased by 80% from 2004 to 2009. Funding from the Academy of Finland is very competitive and the Unit received over 480,000 in 2009

from the Academy. The funding from the Finnish Academy has increased manifold from 2005 to 2009, which is a good indication of the quality of research by the Unit.

External funding has been used for research staff. In fact, almost 60% of the full-time researchers (post-doc fellows, doctoral students, senior scientists) were employed with external funding. Funding has been received for projects at the molecular/cellular level; societal aspects of physical activity and ageing; the role of physical activity in the prevention, treatment and rehabilitation of diseases and disability; as well as for promotion of a healthy lifestyle among adolescent, middle-aged and elderly people.

External funding from international resources (most importantly from the EU) is relatively small. In 2005-2009 the Unit received over 0.5 million from the EU.

The Unit has no European Research Council (ERC) Excellence Grant.

Of note, in 2011 the whole Faculty of Sport and Health Sciences received a 0.6 million Finnish Academy infrastructure grant to develop the research core facility of the Faculty.

Assessment criterion 5: Quality of the research environment

Mark: 4.5/5

The University of Jyväskylä has nominated physical activity and health, health promotion, and ageing research as internationally strong areas of research and interdisciplinary expertise. Indeed, physical activity and wellbeing is specified as a focus area in the University's research strategy. This shows that the University esteems the research activity of the Unit. The Unit has defined its own research strategy and most of the publications fit well within its research strategy.

The Unit has three themes: "Physical activity, exercise therapy and health" (further divided into "Physiotherapy" and "Sports and exercise medicine"), "Ageing", and "Health promotion and health education". The Unit has 10 professors and five senior researchers. The senior researchers lead their own projects, which are in line with the Unit's research strategy.

The projects' leaders have overall responsibility for their own research projects, although they have delegated to their doctoral students the drafting of grant applications, an essential part of the education of future project leaders. PhD students and post-doc fellows have been led in an impressive manner by the senior researchers, which came to light in the discussion with the students. This is supported by the excellent research results. However, the discussion with the students revealed a wish for better statistical support, despite the Unit's three full-time statistical experts. Furthermore, the Unit should re-organise its seminar strategy. There seem to be joint seminars related to, for example, biology, but the Unit would benefit from inter- and multidisciplinary meetings. One Science Day per year is not enough.

The structure of three departments seems justified. However, e.g. "Health promotion and health education" could work more closely with the Department of Sport Sciences.

The Unit has two Research Centres (the Gerontology Research Centre and the Research Centre on Health Promotion), which are not evaluated in this report. The Gerontology Research Centre received high marks in the evaluation by professor Huttunen (May 2009). It may be disadvantageous to have two labels (Department (Unit) vs. Research Centre), as it may present to the outside research community a confusing image of the Unit.

The laboratory facilities of the Unit are state-of-the-art, including equipment to assess gene expression, protein localisation, bone quality, isometric/isokinetic muscle strength, body composition, muscle fibre contractility, muscle composition and neuromuscular performance. They share laboratories with the Department (Unit) of Biology of Physical Activity and overall the methodological collaboration with the Department (Unit) of Biology of Physical Activity seems to

be working well. In collaboration with other research institutes and universities, they have at their disposal techniques such as microarray at the molecular/cellular level and advanced imaging techniques such as dGEMRIC at the tissue/organ level.

The Unit hosts valuable cohorts (Evergreen, Finnish Twin Study on Ageing, Finnish Longitudinal Study of Municipal Employees), which is a definite asset for the Unit.

2. CURRENT STRUCTURE AND PERFORMANCE OF THE RESEARCH

The Department (Unit) has four disciplines with the following missions:

1. Gerontology and Public Health

The goal is to promote the functional capacity and wellbeing of the ageing population, producing new knowledge about the origins of resilience and longevity, life course influences on ageing and exercise, and promoting functioning and wellbeing in terms of prevention, rehabilitation and compensation. Quantitative studies of ageing-relevant phenotypes and molecular mechanisms of muscle and bone ageing have been and are being studied. Research methodologies include population-based prospective studies, clinical trials in rehabilitation and prevention of functional decline as well experimental designs at the molecular/cellular level.

2. Health promotion and Health education

The mission is to produce research of significant value in planning, implementing and evaluating health promotion and education at different stages of the lifespan and at different settings. Schools, health care, kindergarten and sport clubs are the main settings. The practical aims are to develop comparative adolescent behaviour research, to develop evidence-based health counselling in health care, and to develop and test new health promotion concepts and innovative approaches.

3. Physiotherapy

The focus is on the application of physical activity and (therapeutic) exercise for the prevention, treatment and rehabilitation of people with diseases or disabilities with the aim to improve the capacity of the individual to live independently with mobility, better health and a better quality of life. In studies concerning physiotherapy teachers' education, the main focus is on vocational education in the field of rehabilitation. Both quantitative and qualitative approaches are used.

4. Sports and Exercise Medicine

The aim is to present an evidence-based view of the beneficial and adverse health effects of physical activity and exercise training to help improve population health. They study both the role of physical activity in the prevention of diseases and the role of different exercise regimes in the treatment of disease and rehabilitation. This includes in-depth investigations into the mechanisms that mediate the effects of exercise.

Performance of the Unit:

The Department (Unit) has a research staff of 67 researchers and 5 other staff members. They have a very high productivity with 340 (2005-2009) publications in international peer-reviewed

journals. The ratio of international peer-reviewed publications (n=77) to number of senior staff (n=67) in 2009 for the Unit was 1.1 (the corresponding figure for the Department (Unit) of Biology of Physical Activity was 1.7, while it was 0.5 for the Department of Sport Sciences (0.6 if publications in Finnish are taken into account)).

The Department (Unit) attracts many international (PhD) students and will continue to do so. The Department (Unit) has defined a research strategy for 2010-2014, which expands on the present themes.

All four groups of the Unit have performed well during the period of 2005-2009. The group "Gerontology and Public Health" is at the top international level, and the other three groups are close to the top level.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

International level:

- The entire Gerontology and Public Health group (which also includes the GeroCenter Foundation, which spearheaded information distribution to the general population).
- Longitudinal population-based cohorts (includes both Calex and twin studies).

Promising groups:

- Physiotherapy (in applied research at the clinical level).
- Health education and health promotion (in applied research at the population level).

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS)

Strengths:

- An excellent research tradition and strategy, which has been successful in producing a high number of publications. Importantly, the Unit has kept the focus on the quality of research, which can be seen in the outcome (quality of publications, their citation numbers and scientific impact in general).
- The research of the Unit is multi- and interdisciplinary, which increases its value and societal impact.
- The Unit has increased the number of posts for post-doctoral researchers during the evaluation period.
- An existing strategy for mentoring the research groups in grant application, which may explain the success in obtaining external funding.

Weaknesses:

- The Panel are not convinced of the added value of the Research Centres in relation to existing departments. It may be disadvantageous to have two labels (Department (Unit)

vs. Research Centre), as it may present to the outside research community a confusing image of the Unit.

Opportunities:

- The possibility to strengthen the collaboration nationally, and especially within the Faculty itself. Additionally, LIKES could be more involved in the research activities.
- The physiotherapy group is an important part of the Unit. The Unit has a great opportunity (and responsibility) to implement evidence-based knowledge among physiotherapists.

Threats:

- The three departments within the Faculty of Sport and Health Sciences are not cooperating as effectively as they could. This negatively affects the Unit's productivity.
- Heavy administrative burden.

5. RECOMMENDATIONS FROM THE PANEL

1. The structure of three separate departments seems justified. Due to the multi- and interdisciplinary nature of the research area, it is necessary to enhance the collaboration between the three departments permanently.
2. "Health promotion and health education" should have closer cooperation with the Department (Unit) of Sport Sciences.
3. The societal role of "Health promotion and health education" in collaboration with the Department (Unit) of Sport Sciences in promoting a healthy lifestyle, especially among children and adolescents, could be improved. This way the entire Faculty could take an even more active role in Finnish society.
4. The Unit is the only university-level educational unit in the field of physiotherapy in Finland. Therefore, the Unit has a great opportunity (and responsibility) to implement evidence-based knowledge among physiotherapists.
5. The Unit claims a wide network of collaborators on nutrition, which is essential, as nutrition and physical activity are interlinked. However, the Unit does not have a nutrition expert. The Panel recommend the University consider hiring a nutrition expert in the Unit (not as a group leader but as an expert to support research in the Unit and the other two departments).
6. Although the senior researchers claimed satisfactory statistical support, there seems to be a need for support among students. There could be statistical support at the Faculty level. Statistical experts at the University level may not be sufficient as the statistical expert should be familiar with the research area and be available when needed.
7. The Unit should re-organise its seminar strategy. There seem to be joint seminars but the Unit would benefit from more frequent inter- and multidisciplinary meetings. One Science Day per year is not enough.

DEPARTMENT (UNIT) SPORT SCIENCES

UNIT SOCIAL SCIENCES OF SPORT

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research

Mark: 3/5

The research of the Unit is linked to both history and cultural studies (Sport Sociology) and to participative planning and policy research (Sport Planning and Administration).

The research in Sport Sociology deals with sport and body culture in a historical and sociological context and is presented mainly in the monograph "Varkaus and its people – a hundred years". It is a broad intensive investigation of the public and private sectors and their active relationships within Finnish sport culture, a theme shared with the successful EASS Conference 2006 organised by the Department. In addition to the monograph the article "Sponsorship in the Finnish sport culture" in the European Journal for Sport and Society (EJSS) was published and the Proceedings of the 3rd Conference of the European Association for Sociology of Sport (EASS). The monograph is original because it concentrates on questions of sport and cultural identity in Finland and historical changes in civil society. The article "Sponsorship in the Finnish sport culture" is a theoretical and empirical approach that meets the European/International standards of sport sociology.

The research activities in Sport Planning and Administration concern collaborative planning connected with computer-aided planning. These investigations are innovative and original. The Unit runs the national-level databank LIPAS and the Geographical Information System, which is used by different sport disciplines and public decision makers. This work is characterised by practical relevance, as both the scientific community and public decision makers use the established databank.

A small part of the work of the Unit has been published in prominent international peer-reviewed journals. Most, however, have appeared in conference proceedings and domestic journals. Nevertheless, the Unit's research is of internationally accepted quality.

The Department's productivity in terms of scientific publications could be higher, using all available channels (European Journal for Sport and Society/EASS, International Review for the Sociology of Sport/IRSS, Journal of Sport & Social Issues/JSSI, Sociology of Sport Journal/SSJ, European Journal for Sport Management/EJSM, International Journal of Sport Management/IJSM, International Journal of Sport Management, Recreation & Tourism/IJSMaRT as well as journals in the areas of Sociology, Economy, Tourism, Political Sciences, etc.). The researchers should be more actively disseminating their scientific results (theories, paradigms, methodological issues, empirical studies, etc.) in printed articles that can be more widely distributed to the broader scientific community.

Assessment criterion 2: Quality of the scientific impact**Mark: 3/5**

In 2006 the Department (Unit) organised the EASS and AIESEP conferences successfully. These conferences were used as opportunities to increase national and international public awareness and understanding. For the Unit of Social Sciences of Sport, it was the starting point for publication in international peer-reviewed scientific journals, and subsequently a member of the Unit was nominated as president-elect of the EASS and another became visiting professor at Umeå University and will be a keynote speaker at the next EASS conference in Umeå this year.

The high international visibility could lead to greater acceptance of the social sciences of sport within the Faculty of Sport and Health Sciences, and consequently within the University of Jyväskylä, and thus, ultimately, within Finnish society.

Assessment criterion 3: Quality of research collaborations**Mark: 3.5/5**

The unit has a number of national and international research cooperations, for example, the UKK Institute in Tampere, Erlangen-Nürnberg University (Germany), University of Cassino (Italy), University of Guangzhou (China). The collaborations prove to be particularly important for small units in order to reach the critical masses.

Thus the research collaborations are natural laboratories in which to explore the growing differentiation in the social functions of sport. In Europe, with its ethnically and culturally diverse populations, the role of sport as a vehicle for cultural dialogue is of particular interest. With the increasing importance of sport, the exploration of its sociocultural, sociopolitical, socioeconomic, etc. functions becomes an ever more essential task for sport sociology. Scientific activities of the Unit should take this into account.

Assessment criterion 4: Quality and quantity of the research funding**Mark: 3/5**

The sources for basic social science research funding have become more competitive in many European countries and within the EU at large. The Unit received funding for compelling research proposals with direct application to policy and decision making: the EU- financed project “Improving Infrastructures for Leisure-Time Physical Activity in the Local Arena 2008-2010“, and the project “Sport Facility Services, Accessibility and Equality in Finland – Follow up Study 1999-2009“, financed by the Ministry of Education and Culture. The funding received is in line with the research strategy of the Unit, which is very much application-oriented, and is contributing to the achievement of its objectives.

Assessment criterion 5: Quality of the research environment**Mark: 2.5/5**

The Unit has developed national and international networks successfully, but these collaborations cannot substitute expertise in the field on-site. On the contrary, the lack of research experts and research groups is becoming even more serious (see Recommendations).

2. CURRENT STRUCTURE AND PERFORMANCE OF THE RESEARCH

The current scientific activities of the Unit are dominated by applied research. The national and international connections seem to be conducive to continuation and augmentation of effective joint research networks at the international level. Mutual platforms offer room for ongoing discourses and can facilitate a number of potentially fruitful avenues for further research. It is one element, but an increasingly important one, in the organisational obligation under which members are forced to conduct their activities professionally.

In this context additional scientific resources from the relevant institutions within and outside of the University of Jyväskylä should be integrated (see point “Identification of research groups”) in order to implement research strategies for basic research.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

If the Department (Unit) wants to establish a research group at the high/highest international level in the area of Social Sciences of Sport, a *conditio sine qua non* would be to have at least one empirical social scientist (an expert in methodology/statistics and computing; see Recommendations) within the Unit and as a member of such a research group.

From the strategic point of view, simultaneously, experts from the University (Faculty of Social Sciences, Faculty of Mathematics and Science, Department (Unit) of Health Sciences, Department (Unit) of Biology of Physical Activity) and from outside (empirical social research institutes in Finland, LIKES Research Centre) should participate in this research group.

International collaboration with the group “European Sports Participation Benchmark” (W. J. H. Mulier Institute, a centre for research on sports in society, www.mulierinstituut.nl) would be most promising.

A research group as described above could be the basis (precondition) for the further development of social sciences of sport in Finland.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS)

Strengths:

- The two professors have developed good working networks within and outside of the scientific community, which shows that they have social and inter-cultural competence. Prof. Itkonen's upcoming presidency in the EASS and Prof. Suomi's international reputation and awards are important breakthroughs and strong identity-creating factors.
- The Faculty of Sport and Health Sciences in general and Social Sciences of Sport in particular have always been held in high esteem internationally.

Weaknesses:

- Modelling of the changing social reality by means of empirical social research requires permanent advancement of relevant theories and methods. For that very reason the mean percentage of research below 20% (from the annual total of 1600 hours) – as stated in the Self-Assessment Report – for a scientist is far too low. The high teaching load and lack of experienced empirical research experts are a clear deficiency and are a deterrent to collaboration within the Unit.

Opportunities:

- In order to create more favourable conditions for intellectual exchange among sport scientists working in closely related fields, it is necessary to promote collaboration around current theoretical and methodological concerns across the disciplines. This integrative strategy can be implemented by gathering information on collaborative efforts between Unit members so as to draw up a quasi-portrait of inter-personal relations within the Unit and within the national and international scientific community.
- A good opportunity to do so would be to take part in the platform "Sport Participation in Europe" in order to intensify joint research with leading European social scientists in this field.

Threats:

- A very high student-staff ratio seems to leave limited time for research.
- Applications for research funding (e.g. EU research projects) are nowadays extremely complicated and time-consuming and cannot be managed in the long term without having strong and efficient research groups.

5. RECOMMENDATIONS FROM THE PANEL

At the University of Jyväskylä there has been a long and successful research tradition in the field of Social Sciences of Sport. Social facts in sport are gathered and analysed systematically with the help of theories and sociological research methods and techniques, in which empirical social research plays a central role. The work of Kalevi Heinilä in the 1970s stands at the beginning of this tradition and it should be retained. However, in the future, empirical social research, and along with that basic research, should be strengthened. Sport empirical social research covers the area of theoretical statements that must be verified by practical experience. As far as theory is concerned, the spread is from classical functional analysis to negotiating rules in interaction and other theoretical approaches. The pluralism within theory can also be seen in the

methodology; the whole range of research methods available in the Social Sciences of Sport should be applied in the Unit. The higher the scientific level of Social Sciences of Sport, the better the generation of theories and the standard of methods, the sooner social realities of sport can be explained, and the more the social sciences of sport, as a subdiscipline, can contribute to its integration within the field of sport science.

In Social Sciences of Sport it is mandatory that there are experts with regard to methodological and empirical issues within such a Unit as the Panel is evaluating. That is to say, at least one or two research experts experienced in sport sociology and/or -economy, who are specialists in methodology/statistics and computing, are needed in the Unit of Social Sciences of Sport. This would be an essential precondition in order to improve the quality of empirical social research in sports and thus would give support to the whole Unit.

UNIT SPORT PEDAGOGY (PHYSICAL EDUCATION)

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research

Mark: 3.5/5

According to the self-evaluation the main research areas of the unit are (1) physical activity during the life span (with six subcategories), (2) Physical Education Teacher Education (PETE) and school PE (with four subcategories) and (3) Fitness and motor skills (with two subcategories). The researchers of the Unit also belong to different research groups. There is an overlap between the research groups and several persons are members of more than one group. The information about the research groups is structured in a rather similar way, but in some cases persons outside the Unit are included (for example international collaborators). The size of a research group varies between approximately four to ten individuals. The Unit has no Centre of Excellence, Finland Distinguish Professor (FiDiPro) or European Research Council (ERC) Excellence Grant.

The researchers in the first area have over a long period of time produced a variety of research, including both individual- and trend-level longitudinal studies of young, adult and elderly people. The research is of high quality and is mostly published in highly ranked peer-reviewed international journals.

The second area includes both traditional school PE research (objectives and content), research of professional development of pre-service teachers and on social and emotional skills and the motivational climate in school PE. Most of the research is published in Finnish in national peer-reviewed journals and doctoral dissertations. Very few publications in the second research area are presented in international peer-reviewed journals. The PETE research in particular needs to be strengthened.

There is a long research tradition in the third area – fitness and motor skills – and it includes important reports from a 25-year follow-up on the decrease in adolescent fitness in endurance-related fitness. Other pertinent research concerns longitudinal (30 years) studies of the physical

performance of individuals with intellectual disabilities. The researchers in this area have been fairly successful in publishing their findings in international peer-reviewed journals. Internally ranked within the Unit, the research in physical activity during the life span is first (mark: 4), fitness and motor skills second (mark: 3.5) and PETE/school PE in third place (mark: 3). The research in Adapted Physical Activity (with one professor) seems – even when taking into consideration that it comprises a separate research group – to hold a somewhat obscure and scattered position within the Unit's research profile.

Assessment criterion 2: Quality of the scientific impact

Mark: 3.5/5

One of the Unit's goals was to enhance the number of articles in international peer-reviewed journals. The statistics show that there is a significant increase during the evaluation period. It must be noted that the rise in numbers starts from a low level. Taking this into account, the numbers have more than quadrupled from 2005 to 2009 and many articles are published in top international-peer reviewed journals. The members of the Unit are also rather successful in producing articles in refereed scientific edited volumes and conference proceedings (with a peak in 2006). A fairly substantial number of scientific monographs and textbooks published in Finland and abroad can also be noted.

The Unit has been successful in organising important (and large) scientific conferences and congresses. There is no doubt that the entire Department of Sport Sciences is the leading actor in the Nordic countries and also holds a prominent position from an international perspective as an organiser of big scientific events. The members have also occupied numerous positions (including presidencies) in academic international organisations and have to some extent been invited as keynote speakers at international conferences/congresses. The Unit of Sport Pedagogy has produced scientific results of value both internationally and for specific national institutions such as the Ministry of Education and Culture, the Finnish National Board of Education, sport federations, and Olympic/Paralympic Committees.

Assessment criterion 3: Quality of research collaborations

Mark: 4/5

The different research groups have over the years built up both national and international networks. Particularly impressive are the cooperative networks of the LASERI study and the SEL group (Learning and using socio-emotional and group skills in physical education and sports). Their networks with experts in Finland and research specialists all over the world mirror a genuine interest in cooperation and an insight into the importance of collaboration in scientific work, which have strengthened the research output of the Unit. This is invaluable for a small country and a small Unit.

The research mobility of the Unit is of moderate size and can/should be expanded. The Unit offers also a prestigious European Master Programme in Sport and Exercise Psychology (EMSEP) together with three other European universities and is participating in two other European projects financed by the EU.

Assessment criterion 4: Quality and quantity of the research funding**Mark: 3.5/5**

The external funding for research at the Department of Sport Sciences has been increasing since 2005, and for 2009 the total amount is 631,125 €, which, however, is much less than the other two departments (Biology of Physical Activity and Health Sciences). The bigger unit, Sport Pedagogy (Physical Education), has been more successful than the unit of Sport Sociology and Sport Planning. Of the research groups the SEL group (Learning and using socio-emotional and group skills in physical education and sports) has received the biggest amount of research money from external sources. Taken together the entire Department of Sport Sciences has been moderately successful in obtaining money from two important national research foundations: Ministry of Education and Culture and Academy of Finland. With the exception of 2005 the proportion of international funding (EU) is low. There is a big challenge but also a big potential to increase the grants from the EU.

Assessment criterion 5: Quality of the research environment**Mark: 3/5**

Due to the national responsibility to cover all aspects of sport research in the behavioural and social science areas, it is difficult for the research leaders to fulfil these tasks with limited resources. The shortage of research infrastructure at the Unit makes it somewhat difficult for the researchers to use their time and work in the best way. In combination with a low percentage of time for research for the professors, it seems that the Unit's research is in a situation unfavourable to development. The unit of Sport Pedagogy has an internationally recognised laboratory: Motor Behaviour Research Unit (MBRU).

2. CURRENT STRUCTURE AND PERFORMANCE OF THE RESEARCH

As previously noted, the Unit has organised the research into three relevant fields. In two of these fields the progress has been good and has resulted in more research grants as well as better/higher scientific quality expressed in more publications in highly respected peer-reviewed journals. The third area (PETE/School PE) has so far not succeeded to the same degree in demonstrating at an international level the competitiveness of their research. The national and applied character of the research in this area needs not to be in conflict with ambitions to present and publish internationally. The research in adapted physical activity has a rather unclear role in the Unit's research programme (not in the educational programme) and needs to develop a more distinct profile in relation to the other three areas.

The entire Department of Sport Sciences has a research staff (including all members of the Department) of 61 researchers and 7 other staff members. They have a low, slowly increasing productivity with 67 publications (2004-2009) in international peer-reviewed journals, in addition to 43 in Finnish peer-reviewed journals. In 2009, 27 peer-reviewed international papers were published. The ratio of articles to research staff was 0.5 in 2009. If the 9 Finnish publications are included, the ratio is then 0.6.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

The three research project that began in the late 70s and early 80s (“Long-term secular trends in children’s and adolescents’ physical fitness”; “Finnish adolescent health and lifestyle survey” and “Research in young Finns” LASERI study) are still at a high/the highest international level with an extra plus for the LASERI study. Continuation of these studies carries a risk that many of the leading persons are retired or are close to retirement. It is important to recruit new highly qualified researchers to the groups. Other research groups of high/the highest standard are “Learning and using socio-emotional and group skills in physical educations and sports” (SEL), “Motivation and motivational climate” and “Research in ageing”. These three research groups have managed to attract external funding, have high levels of theoretical-methodological competence in their respective areas and have had high scientific productivity in terms of articles in international peer-reviewed journals and other kinds of publications. It is the Panel’s view that these groups are the most promising in the Unit.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS)

Strengths:

- Sport pedagogy research and studies of school physical education have a long tradition at the University of Jyväskylä, and researchers such as Professor Risto Telama have laid a solid foundation for good research. This tradition and good reputation has been managed well by the next generation of researchers. A large number of well-trained doctoral students seems to facilitate future recruitment of staff members.
- The concentration of education and research in sport science into one place (University of Jyväskylä) has the advantage of a sufficient large critical mass in each of the three departments, which also provides good opportunities for multi- and interdisciplinary research.
- Multi-methodological competence and accessibility of longitudinal databases.
- A large international network of high quality.

Weaknesses:

- Too much emphasis is put on pure empirical research. More focus on (new) theoretical issues should open up opportunities to take a leading position in the sport science debate in sport pedagogy and sport psychology.
- The scarce resources of personnel (technical and research assistants) could pose a problem for conducting research. Together with a teaching overload for both professors and other senior researchers these factors could have a detrimental effect on research quality and output.
- There seems to be too little collaboration between the three research fields.

Opportunities:

- Doing more collaborative research by writing common research applications might increase the cohesion within the Unit and when different theoretical and methodological perspectives meet, an even more creative environment forms. Involve the existing international networks from the beginning when new research projects should be planned.

Threats:

- From a short-term perspective, the new legislation in Finnish universities could be a negative factor, because the staff have limited experience in handling a situation that demands more entrepreneurial competence.
- Too many students to supervise at the master (particularly) and doctoral levels.
- The complexity in the application processes for EU-funded research projects might cause difficulties for a Unit of moderate size.

5. RECOMMENDATIONS FROM THE PANEL

In recent years, there has been an intense debate in the research community about the similarities and the differences between the natural sciences and the human sciences (which include the social sciences). One central theme has dealt with the question of how research (results) should be presented/published. In the natural sciences, with their special characteristics there has for a long time been a tendency to write many rather short articles (the “salami” tradition), mostly in English, in peer-reviewed journals, while in the humanistic tradition it is preferable to publish longer texts – as human interpretations demand longer texts – in books and monographs in the national language. The former tradition has more and more been intrusive/dominant in the humanistic-social domain of research. Sport science represents in a way a microcosm of the larger scientific world, and these scholarly traditions are found within institutions of sport science and could be even more visible in such a context, as the researchers often work in the same department/faculty. This is the case in Jyväskylä. The problem is how to evaluate units/departments with roots in these two traditions. At a surface level it is easier to tally research grants and certain (high-prestige) publications. Such a strategy will be unfavourable to the humanistic tradition if one does not compensate this tradition by, for example, giving more points/higher scores to a high-quality book, which represents a much more time-consuming research activity than writing an article of high standard. It is, no doubt, possible in the humanistic-social disciplines to do both; that is, to publish both in the traditional way and to use peer-reviewed articles as a publication means in satisfying both demands. We have had such reflections in mind when doing this evaluation.

Even within the unit of Sport Pedagogy (physical education) it is possible to see these tendencies. There are research areas/groups within the Unit that tend to give priority to article writing and in other groups one seems to favour research reports, monographs and articles in national journals, and in international contexts there is a preference for peer-reviewed posters and abstracts. It could be seen that both in the Department (Unit) as a whole and in the unit of SP/PE there are different views (which, handled in a constructive way, could be fruitful), and opinions that today seem to split the Unit and have a negative influence on both the creative thinking in starting new high-quality research projects and on scientific productivity of different kinds. This diversity of views seems to lead to a too-scattered research landscape. There is a need for a more distinct leadership (not allowing too many flowers to grow) and of more internal

cooperative work through more common seminars and other activities that probably will result in more effective research applications. We can also identify a need for more research collaboration between the two Units within the Department (Unit) of Sport Sciences and with the other two departments in order to define common research goals. The Panel can see areas – for example “Health education and health promotion” in the Department (Unit) of Health Sciences – in which cooperation seems to be natural and fruitful. In such collaborative efforts it is important to try to respect one another’s research traditions, but also to try to “give and take” and to be as open-minded as possible.

The research strategy for 2010-2014 is not very well defined. According to the self-assessment, all research in the Department (Unit) will be linked to School Physical Education and Physical Education Teacher Education (PETE). This is partly in contrast with the present situation, and there is no clear strategy for achieving this objective.

FACULTY OF SOCIAL SCIENCES

PANEL MEMBERS	35
DEPARTMENT (UNIT) SOCIAL SCIENCES AND PHILOSOPHY	36
1. Assessment criteria	36
2. Current structure and performance of the research	40
3. Identification of research groups at high/highest international level, and of most promising groups	41
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats)	41
5. Recommendations from the Panel	42
DEPARTMENT (UNIT) PSYCHOLOGY	42
1. Assessment criteria	42
2. Current structure and performance of the research	45
3. Identification of research groups at high/highest international level, and of most promising groups	46
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats)	46
5. Recommendations from the Panel	47

PANEL MEMBERS

Arne Öhman, Chair of the Panel. Karolinska Institutet, Sweden.

Anastasia Efkiides, Aristotle University of Thessaloniki, Greece.

Cees Leijenhorst, Radboud University Nijmegen, the Netherlands.

Erno Lehtinen, University of Turku, Finland.

Marcus Llanque, University of Augsburg, Germany.

Göran Sundqvist, University of Oslo, Norway.

DEPARTMENT (UNIT) SOCIAL SCIENCES AND PHILOSOPHY

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research**Mark: 4/5**

Note: due to the heterogeneous character of the Department of Social Sciences and Philosophy, the comments in this assessment are longer compared to the assessment of the Department of Psychology.

Research in the Department of Social Sciences and Philosophy has an exceptionally broad scope, ranging from applied studies in social work to purely conceptual analyses in philosophy. In the interviews with the Department we observed a genuine ambition to conduct multidisciplinary research, combining the various resources within the Department. Members of the Department are able to formulate innovative and in some cases groundbreaking questions based on unique combinations of research approaches and traditions.

The “Political Thought and Conceptual Change” group (PolCon) has continued to be very successful on the international scene, thanks to its unique combination of Continental and Anglo-American approaches to political science. With its Centre of Excellence (CoE), “Political Thought and Conceptual Change” has an excellent international position and tackles core questions in the field of conceptual history in many very novel ways. The Academy Professor's project on the “Politics of Dissensus” promises to make an outstanding contribution to the field.

Given the amount and quality of publications and international presence, the “Philosophical Psychology, Morality and Politics” group (PMP) certainly scores very well. Its presence in the world-renowned, Helsinki-led CoE “History of Mind” and its successor, “Philosophical Psychology, Morality and Politics”, secure a very distinctive presence at the international level, reflected in internationally recognised articles and monographs.

The three research groups “Policies of Development and Culture” (PolDeCult), “Civil Society and Citizenship” (CivSoc), and “Research on the Structures of Public Services” (SocServ) are formed through the cooperation of several disciplines such as sociology, social and public policy, social work and gender studies, as well as interdisciplinary efforts such as cultural policy and family research. Despite the fact that these three groups have fewer staff members than the two others within the Department and do not work within the framework of a CoE, they have managed to put forth research of international relevance. All three groups have a clear ambition to formulate new research agendas based on interdisciplinary work, contributing to the Department's core aim of creating new thematic initiatives.

We truly appreciate this attempt to carry out multidisciplinary research. From the various self-assessments of the Department, however, one gets the impression that in some respects multidisciplinaryity is conceived not as a means to an end but as a goal in itself. This leads to a lack of focus and cohesion in the actual research that is conducted. This is especially true for the PolDeCult and CivSoc groups. We agree that many topics in contemporary social science

require a multidisciplinary approach, but this approach should be adapted to a limited set of themes.

Moreover, interdisciplinarity is certainly achieved in some groups (e.g. PolDeCult, CivSoc and SocServ) but less so in others. In particular, the PMP group does not seem to profit fully from the empirical research conducted on comparable research themes within the same Department.

With respect to the PolCon group, our concern is that it faces considerable challenges over the next five years. Its past success is to a very large extent due to the exceptionally high output of its leader. The group should now work more on continuing its research tradition among the other members of the group. Efforts should be made to produce collaborative publications in major multidisciplinary and disciplinary journals.

The PolDeCult, CivSoc and SocServ groups within the Department have taken important steps towards a more focussed international research agenda, but our impression is that the groups could become even more focussed in that regard and in setting up clearer and stronger publication goals.

Assessment criterion 2: Quality of the scientific impact

Mark: 3.5/5

The Unit's international visibility has grown significantly over the past five years. The number of publications (1308 in total) has risen considerably. The proportion of international versus domestic publications has also improved considerably (2005: 41 international vs. 94 domestic; 2009: 85 international vs. 84 domestic, based on figures provided by the Department). We also saw, however, that a large number (13) on the Department's list of top 30 international publications over the past five years was produced by the PMP group, testifying to an uneven distribution of international presence within the Unit.

We noted with approval that young researchers in the Unit were encouraged to start early on with writing articles that could become parts of their dissertation, either as chapters in a monograph or as one in a series of articles that form the basis for the thesis. This is a way to increase scientific output in leading international journals.

A problem for the multidisciplinary work done within the Department is that the international scene to a great degree still works within disciplinary boundaries. The international impact of multidisciplinary research within the Department may be affected negatively by the fact that its results are not always clearly identifiable as contributions to specific, established disciplines. This means that it is difficult to achieve publications in high-ranked journals, which are often "conservative" in this respect. Though the Department is acutely aware of this problem, we noted a lack of a precise research strategy for dealing with it. On the whole, the unique amount of informal cross-disciplinary exchange within the Unit does not fully translate into a focussed research agenda with well-defined aims in terms of publications.

The Self-Assessment Report states that "a long-term problem for the Department has been that people are too modest in their choices of publishers" (p. 24). Important steps have been taken in this respect over the past five years. For example, the recently launched yearbook "Redescriptions" by the PolCon group has all the potential of becoming one of the leading journals in the field. Furthermore, the Springer series "Studies in the History of Philosophy of Mind", which is run by the PMP group, has grown into one of the world's leading publication venues in the field. We noted with satisfaction that the Social and Public Service group, which largely works in the field of applied science with a strong foothold in Finnish society, has

produced several publications in respected international journals. This will enhance the group's international visibility and will help to spread more widely its findings for practical use.

Nevertheless, we are convinced that the PMP group should put forth more effort with respect to international visibility. The group has all the potential to grow into a grade 5-type group within the next five years. This, however, would require more concentrated efforts in producing articles for the top five journals in the field, shifting some attention away from contributions to collections of essays and handbooks. On the basis of the exceptionally high research quality within the group and its tradition of close collaboration, there should be no problems in achieving this end.

The PolCon group places itself at the same level as a diverse range of international networks and scientific working groups. In fact, however, most of these groups are better focussed and therefore more clearly identifiable in the field. We recommend that the group try to illustrate a coherent picture of its scientific goals and how this will affect the course of international research. The potential to attain a ground-breaking role should be turned into concrete results. In this connection, the turn to parliamentary rhetoric is very promising. A major effort to launch a project like "Geschichtliche Grundbegriffe" may contribute to a more focussed research profile.

The PolDeCult and CivSoc groups have managed to achieve a number of international publications; however, most of their output is still published in Finnish. The groups should work on redressing this imbalance.

We would like to add that the lists of publications provided by the Department are not entirely unproblematic. Under "International journals in which Department members have published 2005-2009", RA 2010 lists a considerable number of international publications, which on the basis of no internationally accepted criterion could be considered "international". For example, it goes without saying that editorials and publications in Finnish-speaking newspapers should be left off this list.

Assessment criterion 3: Quality of research collaborations

Mark: 4/5

Throughout the assessed period, groups within the Department have been successful in creating a multitude of national collaborations. An indication of that are collaborations with several centres of excellence. There are also many examples of participations in prestigious international collaborations of high quality, such as European Science Foundation networks. The PolDeCult group organised the 6th ICCPR in 2010, the most prestigious event in the field. The SocServ group took part in the creation of the first joint European doctoral programme in social work, INDOSOW.

From the documentation that was available to us we could see that members of the Department are very mobile and active on the international scene. However, we see a lack of focus in this domain as well. The Self-Assessment Report lists almost any type of encounter as an international contact. Moreover, this domain is characterised by an uneven distribution with the Department. The PMP group is considerably more active at the international level than the other groups.

The newly set-up national Centre for Civil Society Research will certainly contribute to more visibility for the CivSoc group in Finland. Moreover, the recently accepted COST application for "Investigating Cultural Sustainability" (2011-2014), coordinated by the PolDeCult group, could also contribute to more visibility at both the national and international levels.

Given the international outlook of the Department, especially of the PMP and PolCon groups, its membership is too homogeneously Finnish. The Department should work on hiring foreign staff on a semi-permanent or permanent basis, profiting from the opportunities offered by new university legislation recently put into place in Finland.

Assessment criterion 4: Quality and quantity of the research funding

Mark: 5/5

In spite of increasing competition for external funds in Finland and abroad, the Department has been remarkably successful in securing an increasing amount of external support. For instance, the highly prestigious funding from the Academy of Finland comprises an impressive 25% of the total research budget of the Department. On the whole, external funding amounts to 43% of the budget, which is outstanding compared to other Departments of Social Sciences in Finland.

The Department has managed to secure some EU funding recently, but still seems hesitant to make more effort in this domain. We recommend that the Department make more use of the professional help that is available at the university's central level. Given both the size and the quality of the PMP and PolCon groups, they both may certainly be expected to apply for EU funding.

Assessment criterion 5: Quality of the research environment

Mark: 4/5

We were impressed by the very warm and enthusiastic atmosphere of our meeting with the Department staff. The senior researchers and the students that we met all appeared to be driven by a deep commitment to the multidisciplinary research that is cultivated at the Department.

The PMP and PolCon groups should think about how to take the next steps in maintaining and amplifying their international success, especially with respect to publication in the top international journals.

The three other groups (SocServ, CivSoc and PolDeCult) have a clear ambition to formulate new research agendas based on interdisciplinary work and contribute to the Department's core aim of creating new thematic initiatives. The potential for doing this is good due to the size of the Department and the many disciplines involved. Important steps have been taken but our impression is that the groups could become even more focused in their research agendas and in setting up clearer and stronger publication goals.

The PolDeCult and CivSoc groups, even if their disciplinary backgrounds differ – social and public policy and sociology, respectively – have strong ambitions to study challenges and controversial issues in today's society, using concepts and tools from several disciplines. In this connection, the notion of sustainability is a good example of our need for new and broader approaches to study, in a relevant way, the challenges facing society. In this effort by PolDeCult and CivSoc we see possibilities to take advantage of the overlaps between the two groups. When studying civil society and citizenship these days, the focus on sustainability and culture should be strong. Civil society, sustainability, cultural diversity and social capital are

themes that are studied currently by many research groups all over the world today. We think that with a more focussed research agenda about what to study, where to aim and where to publish, in relation to what has already been achieved by the best groups in the field, research with a strong international impact could be produced over the next few years.

The housing of the Department has had a negative influence on the quality of the researchers' work and their opportunities for informal exchange. We welcome the recent decision by the University to move the Department in its entirety to a new building.

2. CURRENT STRUCTURE AND PERFORMANCE OF THE RESEARCH

The Department of Social Sciences and Philosophy is part of the Faculty of Social Sciences. The Department employs a total of 63 researchers, 38 senior and 25 postdoctoral. In addition, there are 86 postgraduate students included as staff members. The Department is the result of a fusion of four former departments that took place in 1995. Since then, there has been an ongoing effort to integrate the various research Units that belong to the Departments. Currently, the Department consists of five clearly identifiable research Units:

*Political Thought and Conceptual Change / Political Science, headed by Prof. Palonen

*Philosophical Psychology, Morality and Politics / Social Self and Subjectivity, headed by Prof. Yrjönsuuri

*Policies of Development and Culture, headed by Prof. Kangas

*Social and Public Services, headed by Prof. Mäntysaari

*Civil Society, headed by Prof. Siisiäinen

The Department forms part of two Academy of Finland Centres of Excellence, namely Political Thought and Conceptual Change (led by the University of Jyväskylä) and Philosophical Psychology, Morality and Politics (led by the University of Helsinki).

Research in the Department covers a broad selection of topics, ranging from conceptual analysis in philosophy to applied studies regarding social work. Inevitably, the Department faces a certain gap between the more theoretical and practical studies. The Department has undertaken a sustained effort to bridge this gap, but more could be done. For instance, within the broader context of the Faculty of Social Sciences, more overlap between the history of philosophical psychology (PMP) and conceptual work in contemporary psychology (Department of Psychology) could be achieved. Also, work on the notion of personhood within the context of PMP could both inspire and benefit from common research endeavours with the SocSev group. Moreover, work on the foundational concepts ("Geschichtliche Grundbegriffe") of political science might inspire research on concepts such as civil society, citizenship, cultural sustainability and sustainable livelihood, as undertaken in PolDeCult and CivSoc groups.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

Highest international level:

PolCon

PMP

Promising groups:

SocServ

CivSoc

PolDeCult

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS)

Strengths:

- CoEs
- Great potential for genuine multidisciplinary work
- Great amount of external funding
- Presence of research relevant to societal needs
- Relevance of research to non-European countries (concept of sustainability)
- Informal, open and dynamic atmosphere without disciplinary boundaries, particularly stimulating for young researchers
- Collaboration with other Departments and Centres within the University
- Productivity: great number of publications

Weaknesses:

- Lack of focussed research agenda at the Departmental level with respect to choice of topics and goals
- Lack of precise publication strategy with respect to international visibility
- Great number of temporary personnel
- High 0,8 rivi
- Making use of overlaps in research within the Department and the Faculty of Social Sciences
- Securing EU funding, assisted by personnel at the central University level
- Making use of the new Finnish university legislation (particularly with respect to international recruitment)

Threats:

- Without careful consideration of disciplinary identity, a great amount of multidisciplinary work might lead to diminished acceptance of research in established disciplinary publication venues
- Problem of continuing large-scale research activities, due to retirement of professors and ending of funding

5. RECOMMENDATIONS FROM THE PANEL

1. Focus on publication strategy, leading to even stronger international visibility
2. More focussed research strategy with respect to topics and goals
3. Identify the best groups in the field to which the various Department units would like to be compared, then take the necessary steps to bring this about
4. Take more advantage of the shared research interests among the different groups
5. More effort with respect to EU and ERC funding
6. More international recruitment of international (semi-)permanent research staff

DEPARTMENT (UNIT) PSYCHOLOGY

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research**Mark: 5/5**

The quality of research performed by all the research groups at the Department is uniformly at a very high level. It is characterised by elegant data modelling, and integration of psychological and biological analyses. There is an impressive output from this research both at the academic and applied levels.

Among the international leaders of their fields are Professors Pulkkinen, Lytinen, and Nurmi. They have made important discoveries and are widely cited, and all three have received prestigious awards. Lea Pulkkinen received the Distinguished Scientific Contribution to Child Development Award from the Society for Research in Child Development. She is also a member of Academia Europæa and the Finnish Academy of Science and Letters. Kaisa Aunola and Jari-Erik Nurmi have shared the Outstanding Publication Award from the European Association for Research on Learning and Instruction. Heikki Lytinen received the Philips Nordic Prize in 2005

(50,000). Another indication of the high competitiveness of research by the research groups under these investigators is the two Centres of Excellence (CoE): Human Development and its Risk Factors (1997-2005) and Learning and Motivation (2006-2011).

The cognitive and behavioural neuroscience group is smaller than the others but nevertheless produces work of very high quality. The longitudinal “Life Course, Work and Well-being” group has published well-cited research in good journals. The Psychotherapy group has existed for quite some time as primarily an applied training unit, but is now rapidly developing into a research entity, which already has produced high-quality publications. The quality of work of all these groups compares favourably to that of comparable groups at the international level.

Assessment criterion 2: Quality of the scientific impact

Mark: 5/5

The publication activity at the department is very high. During the assessment period, 239 articles were published in international refereed journals, which yields an average of 6.5 international refereed articles per professor per year. Twenty of these articles have been published in journals that belong among the 20% most cited in the field, and several of them are published in journals that are ranked among the five best in their field. There are also other important products resulting from the research at the department. For example, the Dyslexia group has developed the Graphogame, which is a computer-based training tool for preventing dyslexia. It has a registered trademark and has been translated into many languages. It is used throughout the world by hundreds of thousands of children at risk for dyslexia.

Members of the department have served at high positions in several well-known scientific organisations. They include Secretary General for the International Society for the Study of Behavioural Development 2002-2008 (Nurmi) and 2008-2014 (Salmela-Aro). Professor Pulkkinen has served as Chair and member of the Expert Panel for Psychology for the European Reference Index for the Humanities (ERIH); as member of the European Science Foundation and European Commission ERA-NET Project; and as Chair of the Psychology Panel in an evaluation of the research at Uppsala University, Sweden, 2007. Members of the Department have served on the editorial board of 13 international journals. As enumerated in the text in criterion 1, several of the Department members have received prestigious international prizes for their research.

Assessment criterion 3: Quality of research collaborations

Mark: 5/5

The department is heavily involved in many high-ranking collaborative research efforts. For example, the pioneering “Jyväskylä Longitudinal Study (JLS) of Personality and Social Development” and its follow-up, the “Human Development and its Risk Factors” (1997-2005) Centre of Excellence, as well as the “FinnTwin12” study have generated a very rich international network. The most important collaborative efforts are those hosted by the “Center for the Analysis and Pathways from Childhood to Adulthood (CAPCA 2003-2013)”, financed by the National Science Foundation in the U.S. It is a consortium of close to 20 long-term longitudinal studies of psychological development. The most important centres (in addition to Jyväskylä) are the Universities of Michigan, Minnesota, and California-Irvine in the U.S. The network members meet regularly three times a year and maintain routine contact via telephone meetings. So far this collaboration has resulted in five joint articles including authors from several countries, and

published in high-ranking international journals. Three of them are published as thematic issues of journals, and two are specific comparisons between longitudinal data from Jyväskylä and New York (“The Columbia County Longitudinal Study”).

The JLS of Dyslexia and the Graphogame are also connected to a very extensive international network. They have joint publications with investigators in Switzerland, Sweden, the U.K., and the U.S., and shared funding with the Netherlands, the U.S., Germany, France, Sweden, Hungary and the University of Helsinki. The GraphoWorld network includes prestigious universities in the U.K. (Cambridge, Oxford), Germany (Munich), and the U.S. (Harvard). The brain scientists of the project have important collaborators in research methodology including the “Brain Research Cluster of Excellence” of the University Alliance Finland (InterBrain, chaired by Lyytinen). At the local level there is important collaboration with the Agora Center, Niilo Mäki Institute and the Centre for Integrative Brain and Intervention Research at Jyväskylä. The latter includes collaboration between departments of Psychology, Music, Computer Science and Information Systems, and Health Sciences, as well as the Department of Psychology, Tampere University, and the Department of Signal Processing at Tampere University of Technology.

The Centre of Excellence on “Learning and Motivation”, chaired by Professor Nurmi, has been involved in the “Understanding of Promises and Barriers in Childhood and Adolescence” network (also chaired by Nurmi), which includes five universities from the Baltic Sea region. The “Learning and Motivation” group has collaborations that have resulted in joint publications with groups in the U.S., Canada, Sweden, and Germany. National collaborations leading to joint publications include the Universities of Turku, Eastern Finland and Helsinki, the Finnish Institute of Occupational Health, and the Departments of Teacher Education and Early Education at the University of Jyväskylä.

The “Life Course, Work and Well-being” group have joint publications with groups in Belgium and the Netherlands, and at a national level with the University of Tampere. It also included in the “Work, Learning and Welfare and Leadership Network Clusters of Excellence” group of The University Alliance Finland. In addition it also collaborates with Finnish labour unions and companies (Suunto and Peurunka).

Given these very extensive collaborative relationships between the members of the department, there is extensive travelling from the department to the external world, with many documented visitors and many visits.

Members of the department have presented about 15 keynote plenary lectures per year at major international meetings and conferences.

Assessment criterion 4: Quality and quantity of the research funding

Mark: 4/5

The Unit has been successful in raising research funding particularly from the Academy of Finland. The two successive Centre of Excellence fundings (1997-2005 and 2006-2011) demonstrate the high scientific quality of the Unit but also skilful fund-raising. The long-term Centre of Excellence funding has been very beneficial in developing a coherent research strategy and conducting longitudinal studies typical for the Unit.

The Unit has also received funding from highly competitive international sources (e.g. the Marie Curie Excellence Grant). International funding of the Unit is mainly based on collaboration projects in the Agora Center. When compared to other psychology departments in Finland, the research funding of the Unit is average. Although the Unit researchers have managed to raise

some international research funding, they could be more active in looking for such opportunities. Based on the high quality of research, the Unit and some of the professors would have opportunities to successfully apply for the extremely competitive European Research Council funding as well.

Assessment criterion 5: Quality of the research environment

Mark: 4/5

The Department of Psychology has been actively developing a high-level research environment. The Unit has a clear project structure and research strategy that is also emphasising the deeper collaboration between the main research fields in the future. The head of the Department, together with the professors leading the different research fields, is continuously monitoring the research achievement of the Unit and developing the research strategy further. The teaching load of the Unit personnel is moderate and the national collaboration within the framework of PsykoNet makes possible the effective use of the teachers' teaching time. On the other hand, collaboration through PsykoNet and local forms such as the Agora Center create additional administrative load. However, there was no evidence that a high teaching load or an overload of administrative duties would be serious problematic for the research work of the Unit.

Recruiting young researchers is actively done among master level students. Research-oriented students have the opportunity to write their master theses within the context of the ongoing research projects of the Department. The Methodology Centre for Human Sciences at the Faculty together with the group of methodology specialists in the Unit provide master and doctoral students as well as more advanced researchers excellent training and support in the use of advanced methods of statistical analysis and modelling. The impact of this support is clearly exhibited in the high methodological quality of the publications by the Unit.

The Unit has well equipped laboratories for neuropsychological research and brain research with animals. Through national networks they also have access to advanced signal processing expertise needed in sophisticated analysis of brain imaging data. There is, however, a need for a better physical environment for the Unit laboratories.

2. CURRENT STRUCTURE AND PERFORMANCE OF THE RESEARCH

The Department of Psychology belongs to the Faculty of Social Sciences at the University of Jyväskylä. Along with the University of Helsinki it is the largest academic psychology unit in Finland. It has a total of 26 senior staff members (8 professors, 8 senior researchers, and 10 postdoctoral researchers). There are also close to 20 full-time doctoral students, and fewer than 10 administrative and technical personnel. Almost half of these staff are paid from the University budget and the rest from external funds. The Methodology Centre for Human Sciences at the Social Science Faculty supplements the methodological expertise of the Psychology Department. The Department's housing is adequate with regard to space and equipment, but there is an important work environment problem (poor indoor air quality) that makes it imperative to move to a new building as soon as possible.

The research in the department is organised around three large groups:

- 1) Longitudinal studies of personality and social development

- 2) Longitudinal studies of early risk factors for dyslexia, and the prevention and treatment of this developmental disorder
- 3) Longitudinal studies of learning and motivation in relation to family and preschool and school performance

In addition there are smaller groups in cognitive neuroscience: Life Course, Work and Well-being research and Psychotherapy research.

The research at the Department successfully combines basic and applied research. One example of this successful combination is the innovative research on behavioural and neural mechanisms of dyslexia. This research provides the basis for the development of an effective and widely used training tool and treatment method, as well as intervention in education, such as Integrated School Day. The Department has a clearly formulated research strategy that suggests explicit relationships between the various research groups of the Department and provides opportunities for new intervention models.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

From our marks and associated comments, it is clear that three groups – namely the JLS of Dyslexia, the “Motivation and Learning” group, and JLS of Personality and Social Development – are at the highest level of quality and international recognition.

The behavioural and cognitive neuroscience groups have publications in the highest rated journals and have recently published results on the neural mechanism of learning that are very promising.

The “Life Course, Work and Well-being” and Psychotherapy groups are small and have a less extensive history; however, they have potential for considerable further development.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS)

Strengths:

- The Department has a high status among similar departments in Finland.
- It has a tradition in CoE.
- It has highly productive and highly reputed research groups.
- It has a unique tradition in longitudinal research and databases that span early infancy to old age.
- It has high expertise in statistical methods and analysis of longitudinal data.
- It has high expertise and infrastructure that so far has allowed high quality brain research.
- It has labs that can support high-level research in psychotherapy and in adult development and well-being at work.
- It has productive collaboration with ICT researchers in Agora.

- It produces good research and has a collaborative environment as well as a sufficient balance between the main fields of psychology that can diversify the sources of funding.
- It has productive collaboration with the Niilo Mäki Foundation that allows application and dissemination of research output.
- It has strong international networks.

Weaknesses:

- Many senior researchers with high international status depend on external funding for their position and this endangers the research profile of the Department, the continuity of research and the best use of the extant expertise and infrastructure.
- There is an insufficient number of postdoc positions funded by the budget.
- Labs on brain research are located in different buildings.
- Poor quality of air in the MaC building.
- It is difficult to indicate, at the Department level, the funding that goes to Agora for research done in collaboration with the Department.

Opportunities:

- The new university law provides flexibility in hiring staff members who can continue and extend research vital to the research profile of the Department, as well as the recruitment of international scholars.
- The potential to train psychotherapists and make use of resources for postgraduate adult education.
- The potential to increase collaboration with the centres hosted by the Faculty and members of the Social Sciences and Philosophy Departments.
- The collaboration with top universities in the world in various research areas.

Threats:

- The Department must safeguard some positions in the JLS of Personality and Social Development in order to ensure the continuation of the project.
- The retirement of professors who have been instrumental to the formation of the research profile of the Department.
- The changes in the funding of universities that may decrease resources.
- The low funding for doctoral studies and postdoc positions.

5. RECOMMENDATIONS FROM THE PANEL

The Department has a clear research strategy for the next five years. This strategy puts emphasis on basic research, which is one of its strengths. The research strategy can be further supported by closer collaboration between the “Life Course, Work and Well-being” and

“Personality and Social Development” groups. It can also benefit from continued collaboration with Information and Communication Technologies (ICT) researchers in Agora. Another strategy that could help both basic research and its application to education is the deeper process-oriented research in learning processes and the role of the interaction between parents and children (with and without learning difficulties). An additional strategy is a focus on research that combines more process-oriented short-term longitudinal studies that can supplement the larger longitudinal projects, as well as research that can attract funding from diverse sources such as medical and health organisations, work organisations, older adult organisations, and children’s welfare organisations. Given the international competitiveness of the research at the Department, we recommend that they actively pursue funding from EU sources, particularly from the European Research Council. Finally, the Department has already had a clearly visible societal impact (e.g. the Graphogame and the Integrated School Day model), and such efforts to put research into practical application should be continued into the future. Because there is no medical school at the University of Jyväskylä, it is challenging to provide an adequate environment for brain research. However, these research lines are so strong that the University of Jyväskylä should consider the opportunity to develop a well-equipped brain research centre, possibly in collaboration with other Finnish Universities.

FACULTY OF MATHEMATICS AND SCIENCE

PANEL MEMBERS	50
PREAMBLE	51
DEPARTMENT (UNIT) BIOLOGICAL AND ENVIRONMENTAL SCIENCES	55
1. Assessment criteria.....	55
2. Current structure and performance of Unit's research:.....	58
3. Identification of research groups at high/highest international level, and of most promising groups:	58
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit:	58
5. Recommendations:	59
DEPARTMENT (UNIT) OF PHYSICS	60
1. Assessment Criteria	60
2. Current structure and performance of Unit's research:.....	62
3. Identification of research groups at high/highest international level, and of most promising groups:	63
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit:	63
5. Recommendations:	64
DEPARTMENT (UNIT) OF CHEMISTRY	65
1. Assessment Criteria	65
2. Current structure and performance of Unit's research:.....	67
3. Identification of research groups at high/highest international level, and of most promising groups:	67
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit:	68
5. Recommendations:	69
DEPARTMENT OF MATHEMATICS AND STATISTICS	69
1. Assessment criteria.....	69
2. Current structure and performance of Unit's research:.....	71
3. Identification of research groups at high/highest international level, and of most promising groups:	71
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit:	72
5. Recommendations:	73

PANEL MEMBERS

Panel Members

Peter Braun-Munzinger, Chair of the Panel, GSI Helmholtzzentrum für Schwerionenforschung GmbH, Germany

Annibale Biggeri, University of Florence, Italy

Peter Bridgewater, Global Garden Consulting, United Kingdom

Christer Brönmark, Lund University, Sweden

Edwin Constable, University of Basel, Switzerland

Keijo Hämäläinen, University of Helsinki, Finland

Kristian Seip, Norwegian University of Science and Technology, Trondheim, Norway.

PREAMBLE

The Panel evaluated the four Units of Assessment independently, but in the course of this process became aware of a number of points which applied equally to many of the Departments. This preamble provides a summary of these common aspects and recommendations that would need to be enacted at the Faculty or University level rather than the Departmental level.

The preamble closes with a comment on the evaluation process and the policy that we have adopted in the quantification of the evaluation.

1.0 Common aspects

Although teaching is not formally a remit of the review panel, we felt that doctoral training is an integral part of the research activity and we make the following comments.

1.1 Doctoral training

A number of common points arose in discussions with each Department and are collected here. On the basis of the submitted material and the interviews with the Departments, the Panel were of the opinion that:

- i The overall time required for completion of the doctoral degree was significantly longer than at comparable institutions in other European countries.
- ii The funding of the doctorate, and in particular the requirement for multiple funding mechanisms during the course of the research, was less than optimal and was a cause of concern for the students.
- iii A more general adoption of a doctoral/graduate school model would assist in quantifying the training and educational aspects of the doctoral studies.
- iv The number of ECTS required over the course of the doctorate appears to be excessive and to extend the length of the study by about one year. The University should conform to European norms as presented in the Salzburg II recommendations: European Universities' achievements since 2005 in implementing the Salzburg Principles. *“Applied wrongly, rigid credit requirements can be detrimental to the development of independent research professionals. High quality doctoral education needs a stimulating research environment driven by research enthusiasm, curiosity and creativity, not motivated by the collection of credits.”*
- v The reporting mechanisms for the number of doctoral students and completion rates give an incorrect initial impression.

Recommendations

- i *The doctorate should ideally be completed within four years and the number of expected publications reduced in accord with this target.*
- ii *Funding should be guaranteed for four years.*

iii *Where appropriate, doctoral schools should be established, with a particular emphasis on developing soft skills.*

iv *The number of required ECTS should be reduced significantly.*

v *The present system of active and passive registrations should be refined in order to allow long-overrunning students to be classified as non-completions.*

1.2 Career development

Doctoral and postdoctoral employees have an uncertain career structure. This is not unique to Finland. The level of support from the research group leaders is generally good. However, the Panel feel that it would be beneficial to establish and expand mentoring programmes to assist in career development and provide advice for “the next step”.

1.3 Infrastructure investment

The Panel were made aware that few strategies or mechanisms exist for the replacement and updating of critical infrastructure within the local or national environment. In many Departments, highly competitive and successful research relies on instrumentation that is currently – or was five years ago – progressive. A clear strategy needs to be implemented for the replacement and updating of this equipment if the University is to remain internationally competitive.

1.4 Nanoscience Center

The Panel were not asked to evaluate the Nanoscience Center. In view of the core role that the Center plays in the activities of three of the evaluated Departments, the Panel consider it appropriate to make comments. In many respects, these comments echo those from the 2005 Review Panel.

i The Nanoscience Center space costs are carried centrally by the Faculty. This is an excellent model enabling maximum accessibility to the state-of-the-art infrastructure by the maximum number of researchers. It is unclear if this is a permanent and ongoing commitment.

ii The Nanoscience Center laboratories were presented by three Departments in their tour. This made the Panel worry that the facilities were subdivided into “Nanophysics”, “Nanobiology” and “Nanochemistry” areas and resources.

iii The Nanoscience Center has state-of-the-art equipment today; however, the Panel were not presented with evidence of consistent and robust planning to retain this edge in infrastructure. If no continuing investment is made, the Nanoscience Center will not remain an internationally competitive player in the five-to-ten-year time frame.

iv The exact relationship of the Nanoscience Center to the Departments remains a little vague, as does its status within the Faculty and the University.

v The Department of Mathematics may represent an important – and underutilised – resource for the Nanoscience Center and should be encouraged to interact more strongly.

1.5 Strategic vision and planning for the future

In many cases, the Panel were not presented with a clear strategic vision by the Departments, although Chemistry had addressed these issues, both in its restructuring of the research profile and strategic planning. The changes within the Finnish university system have resulted in

significant financial and executive power being devolved to the Faculty and the Departments. The Panel were generally underwhelmed by the lack of proactive planning for the future. Most Departments presented neither realistic aspirations for the future, nor clear visions of how they wished to be placed in the national/international research environment. These issues can be addressed if the Directors of the Departments hold stronger leadership roles.

The Panel considered that appropriate training for the Directors of Departments would strengthen the new leadership roles possible under the University reform. The Panel recommend that the University address this as a matter of urgency.

1.6 European engagement

The Panel were disappointed and concerned with the lack of engagement in and enthusiasm for European funding programmes. Although recognising the arguments presented (too complicated and time-consuming application and reporting processes, too low a chance of success in comparison to Academy funding, etc.), the Panel are strongly of the opinion that the Departments and the University must address this as a matter of urgency.

Firstly, programmes such as Marie-Curie and PEOPLE will allow the desired internationalisation to be achieved by the import (and export) of highly qualified candidates.

Secondly, against the local backdrop of decreasing EU regional funds and new funding structures within the Universities, the trend of increasing annual budgets over the 2005-2010 period cannot be expected to continue. Within this context, EU sources are likely to become the major tool for providing infrastructural and project funding if the Departments are to maintain their present high international visibility and competitiveness.

Thirdly, the overall assessment of a university in international ranking tables is likely to become increasingly biased due to involvement in EU programmes and the number of ERC awards in the Departments.

Fourthly, the use of large European facilities can provide alternatives to developing in-house (and often less effective) solutions.

Recommendations

The University is strongly urged to provide additional support for EU involvement by

- i providing additional support for identification, preparation, submission and reporting of European projects;*
- ii further developing and advertising positive incentives in the form of short-term financial or personnel support for the research group(s) who apply;*
- iii implementing a “rewards” scheme for successful applications financed through the overheads (20% return to PI normally, 50% return for ERC or FP7 coordination); and*
- iv budgetary management to avoid duplication of resources available through European central laboratories and facilities.*

1.7 Joint Professorships

The successful model of a joint professorship between Chemistry and Physics should be considered for expansion into future joint appointments between departments. Joint

appointments in the area of Bio-imaging, Biophysics, Data Processing, Molecular Biology and Quantum Dynamics are just a few of the possible areas for consideration.

1.8 Mobility

The Panel noted that there is a general problem associated with mobility in Finland, which is more or less extreme in various disciplines. In many countries, the national funding agency will not finance postdoctorals for continued employment at the institution from which they obtained their doctorates. The Academy should be encouraged to support outgoing postdoctoral positions for candidates wishing to study abroad.

In the context of doctoral study, the EU guidelines are clearly stated in Salzburg II: *“Internationalisation should be used as a tool by universities to enhance the quality of doctoral education and to develop institutional research capacity (e.g. collaborative doctoral programmes, international joint doctoral programmes or joint, integrated curricula, joint committees and juries, and the joint degree). Mobility should be an integral part of a candidate’s research project.”*

2.0 Evaluation process

The evaluation process requests a performance evaluation of the Unit of Assessment in each of five areas of assessment. The Panel are in full agreement with the areas of assessment. In the case of the Faculty of Mathematics and Science, the Units of Assessment are Departments of the Faculty. The Nanoscience Center is not an autonomous entity within the Faculty.

The Panel evaluated the Departments on the basis of comparison with the highest performing comparable units worldwide, with special reference to comparable departments in Europe.

In all cases, the Departments consist of multiple research areas, each comprising one or more research groups and research leaders. In all cases, the performance of the research areas within a Department was not fully uniform.

The guidelines for the assessors are unhelpful in that the definitions relate Units of Assessment to “groups in the same field”. The Panel interpreted “groups” to mean Departments and did not assess individual research groups within the Units of Assessment.

The Panel discussed at length the correct way to assess Departments in which the research areas varied in overall performance (a large majority scored between 4.5 and 5.0). The Panel decided unanimously that the most important metric for the University was the “Scientific quality of the Unit’s research”. Furthermore, the Panel considered that its remit was to evaluate the overall performance of the Department. *We emphasise in this preamble that a consequence of this is that Departments in which a significant number or vast majority of the research groups are performing at an outstanding international level are not receiving the highest possible assessment mark of 5.0.* Our terms of reference only allow us to award this maximum assessment mark if *all* research groups are performing at the highest level. We recognise that this clearly degrades the performance of research groups and research areas that are at the international highest level. We have attempted to address this inequity by consistently identifying in the detailed textual content groups within the Units of Assessment which are performing at this extremely high level.

We also note that the quantification of the remaining assessment areas (Quality of the scientific impact, Quality of research collaborations, Quality and quantity of the research funding, Quality of the research environment) is inappropriate and can lead to unwarranted comparison of unrelated

areas. Accordingly, we have provided detailed textual commentary in all of these assessment areas but have not provided a quantitative assessment. In most cases the quantitative assessment falls between 4.0 and 5.0.

We hope that the University authorities will take this deviation from the guidelines by the Panel as a positive and constructive initiative designed to assist the University in its evaluation process. We urge the University to consider this approach in future evaluation processes.

DEPARTMENT (UNIT) BIOLOGICAL AND ENVIRONMENTAL SCIENCES

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research

Mark: 4.5/5

The overall research quality of the Department is very high to outstanding, with the strongest research foci found in the Units of Ecology and Evolutionary Biology, and Cell and Molecular Biology, which each have a Centre of Excellence in operation until the end of 2011.

There is a very strong tradition of excellent to outstanding research in Evolutionary Ecology, specifically on the evolution of mimicry, social information use, life history evolution, sexual selection and speciation. Also included in this category are the works on the structure and function of large proteins, and on the structure, function and evolution of viruses.

Other strong fields are Conservation Biology, Biodiversity and Aquatic Sciences.

Environmental technology, biofuel, and fish management are important environmental topics that clearly have a national importance and are to a large extent communicated through national reports and other grey literature. However, these topics are of a general interest and there should be greater potential to publish results in international journals than so far achieved.

The Unit has two Centres of Excellence (Evolutionary Research and Virus Research), which is a clear sign of the high scientific standards in these areas. Both CoEs will be unfunded after 2011 but three applications for new Centres of Excellence have been short-listed in the present round (Biological interactions, Boreal lake research and Molecular structure and quantum dynamics).

The equipment and functioning of the Nanoscience Center aids the continuing high quality of these research efforts. Special mention should be made of the imaging facilities available at the Center.

Two Academy Professors have held positions in the Department during the assessment period.

Assessment criterion 2: Quality of the scientific impact**Mark: (See Preamble)**

The Unit has a high and steady rate of publication with an excellent publication profile. A large proportion of papers are published in top-ranked peer-reviewed journals and several papers published in multidisciplinary journals of the highest rank, including Science, Nature, and PNAS. Publications are frequently cited.

The scientific impact is of high quality. All areas of the Department research effort have impacted their areas of specialisation. The focus on publication in review journals is an important and useful contribution to the global discussion, but should not replace contributions to the primary literature.

The work on Environmental Impact Assessment brings insight to a wider audience. The Aquatic Ecosystem research has a strong impact in Finland, but is also clearly visible in the international arena.

Overall, the Department has high international visibility, resulting in researchers being regularly invited to give plenary talks at international conferences, as well as visits to foreign departments and institutes.

Senior members of the Department regularly take part in the assessment of positions at other universities, grant reviewing committees, etc.

Assessment criterion 3: Quality of research collaborations**Mark: (See Preamble)**

Strong collaboration exists between the research groups and other Finnish researchers and, depending on the type of research, more widely within Scandinavia, Europe and the rest of the world. Visits to the Department come from a wide range of regions and appear to be well balanced globally, reflecting a healthy interest in the Department's value and extending the possibilities for collaboration.

Participation in a number of research networks (e.g. EU Marie Curie Initial training networks on speciation and muscle protein complexes; Nordic imaging network and Nordic research network on the deer ked; EU COST programme on Stable Isotopes in the Biosphere/Atmosphere) suggest good attempts at collaboration, and provide further evidence of the respect with which the Department's researchers are regarded.

A clearly expressed strategy of the Department is to have active collaboration with top universities and research institutes, both internationally and nationally. This strategy is clearly successful as, in addition to Department visits, there is very extensive national and international collaboration resulting in internationally co-authored publications.

Importantly, the international collaboration also involves PhD students, who are encouraged to spend portions of their education at foreign departments.

Assessment criterion 4: Quality and quantity of the research funding**Mark: (See Preamble)**

The research funding is adequate and growing, though has an over-reliance on Finnish sources (Academy of Finland, TEKES, other public sources and foundations). A significant problem can arise if only one or no new proposals for a Centre of Excellence are funded. We strongly emphasise that more attempts should be made to diversify the funding base for the Department, especially attempting to obtain much larger EU grants. EU funding can also help, in a more targeted way than Finnish funding, the Ecosystem/Biodiversity funding needs of the Department. Individual researchers have applied, and have been shortlisted, for ERC grants. However, the Department also needs to be involved in larger collaborative EU programmes.

The new applications for Centres of Excellence, if successful, will provide continuity for funding and high-quality research areas of cell and molecular biology. The success of a Centre of Excellence application for Aquatic Sciences would boost support for that area; however, if unsuccessful, there are many EU funding opportunities.

Assessment criterion 5: Quality of the research environment**Mark: (See Preamble)**

The research environment is very good, with adequate facilities and equipment. During the evaluation period the Department has made strategic recruitments and replaced retired personnel, resulting in a strengthening of the Cell and Molecular Unit as well as the Evolutionary Ecology Unit.

The availability of a fully equipped and functioning field station in proximity to the main campus is a strong bonus, and this facility should be retained and developed as part of the overall research (and teaching) environment.

The Department has a very diverse portfolio of research interests, and it is somewhat questionable if this is sustainable in the long run. The expressed strategy of strengthening key areas in the future is important, although the Panel were presented with no clear departmental planning as to how this will be achieved.

Of importance is the new direction of the Biological Interactions Centre of Excellence application which is a development from an earlier Centre of Excellence. Also notable is the clear initiative to merge evolutionary/ecological theory with virology and genomics, which is in line with the Department's strategy to increase collaboration between research fields. This is also evident in the new interest in conservation genetics and genetics of speciation. This development has strong potential to be highly successful.

The ratio of PhD students to postdoctorals appears rather high, with a fairly long doctoral completion time. There is a clear necessity to reduce PhD numbers while increasing the number postdocs. Though this is recognised by the Department, there does not appear to be a clear strategy for achieving this.

2. CURRENT STRUCTURE AND PERFORMANCE OF UNIT'S RESEARCH

Overall the research performance is high to very high, with a range of research spanning from the molecular scale to the entire ecosystemic scale. Part of the strength of the Department is precisely in that link between the different scales.

There exists considerable potential for great societal impact from the various research strands, yet the Department seems to take a rather passive view of “informing the public” rather than “involving the public”. The research work is important – indeed, critical – for the future management of Finnish biological resources, and there should be greater discourse with potential stakeholders at the start of research efforts so the projects can be designed at the start with such impacts in mind.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

The Cell and Molecular Biology group have a very high international profile. They perform well on all aspects of the evaluation.

Ecology and Evolutionary Biology also has a very high international profile, and attracts interest at many levels. The continued development of this aspect of the Department's work should be encouraged, including through increased numbers of postdoctoral positions.

Similarly, the Aquatic Sciences and Biodiversity Sciences are also good performers, but on a national/regional scale. Some of the work is of strong international importance and deserves to have a higher profile and more support, although this will require assistance from EU sources.

A focus on research into the identification and delivery of ecosystem services, and on understanding and managing the carbon balance in wet systems (so-called “wet carbon”) is already evident in different branches of research, but should be developed through a more collaborative and focussed approach.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS) FOR THE UNIT

Strengths:

- Links to Nanoscience Center: infrastructure, collaboration with chemists and physicists
- Very good publication record
- Maintaining competitiveness in funding
- Very good staff-student relations – non-hierarchical, informal atmosphere – increases interactions, discussions, collaborations

- Highly motivated staff
- Several strong research groups
- Konnevesi Field Station
- Utilisation of Nanoscience Center infrastructure and interdisciplinary platform

Weaknesses:

- Research portfolio too broad, with an inability to implement strategic priorities
- Too many doctoral students vis-à-vis postdoc positions
- Over-reliance on funding from Finnish sources
- Lack of clear strategy to address funding issues
- Lack of clear strategy to develop academic offerings
- Failure to build relationships within the Department from the molecular to the ecosystemic levels
- Unstructured development of bioinformatics and data management work
- Weak connection with Statistics in the Dept. of Mathematics and Statistics

Opportunities:

- Develop work on ecosystem services, carbon balance
- Potential for wider and deeper collaboration with SYKE and other related research bodies
- Use of field station to build and develop relationships within the Department, university and wider community
- Promote genomics work in Evolutionary Ecology group
- New proposals for Centres of Excellence
- Possibilities for EU funding
- More research activity from an increase in the number of postdocs
- Nanoscience Center could possibly link to developments in Biocenter Finland

Threats:

- Possible loss of percentage of funds coming from Centre of Excellence support
- Lack of diversity in funding sources
- Overemphasis on doctoral training without clear employment opportunities
- Lack of international recruitment at all levels
- Failure to realise full potential of collaboration in the Nanoscience Center
- Lack of relationship with wider community, including relevant industry
- Not using the field station to its fullest potential for teaching and research

5. RECOMMENDATIONS

The number of postdoctoral positions should be significantly increased.

The Department should respond to opportunities for funding in the developing areas of ecosystem services, and linkage between biodiversity and climate change, especially by developing better links between Biodiversity and Aquatic Sciences.

Carbon sequestration and carbon management in wet systems should form core activities in the Aquatic and Biodiversity Sciences.

Work with SYKE and the Finnish Game and Fisheries Research Institute should be deepened and further developed.

Opportunities should be exploited for deeper cooperation with the Physics and Chemistry Departments through work in the Nanoscience Center.

All PhD students should complete their studies within the four-year timeframe.

Opportunities should be explored for creating working cooperation with the University's Institute of Environmental Research.

An investment plan to replace and further develop the instrumentation for the Nanoscience Center should be established

DEPARTMENT OF PHYSICS

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research

Mark: 4.5/5

The Nuclear and Accelerator based Physics Program has been spectacularly successful in the past five years. By combining novel techniques for particle detection, the group has succeeded in addressing – with the JYFL accelerator facility – important questions concerning the stability of superheavy elements. Furthermore, precision measurements of nuclear masses and radii have become possible using beam cooling and bunching as well as ion traps and lasers. The research is of the highest quality and has led to the laboratory being defined as an EU access laboratory with more than 200 international users per year and very large foreign investments in equipment. The laboratory is clearly one of the leading nuclear physics centres worldwide with unique capabilities in the area of stable beam spectroscopy. This has also been recognised by the awarding of a Centre of Excellence for the 2006-2011 period.

The Particle Physics group has made very strong contributions to our understanding of relativistic nuclear collisions at the RHIC and, most recently, LHC accelerators. The experimental group has made a focussed and visible contribution to the ALICE experiment at the LHC. The Cosmology group has worked in close collaboration with the Helsinki Institute of Physics and has produced important scientific results on cosmological inhomogeneities and “beyond the standard model” physics.

Materials science activities are focussed on the nanosciences and greatly utilise the Nanoscience Center's multidisciplinary research environment. Most of the research projects address very

fundamental scientific problems, although the output tends to be seen in single-discipline organs. Although this field is highly competitive at both the national and international levels, the research groups have managed to find their niches by combining the expertise within the Nanoscience Center. The Department anticipates that the Nanoscience Center-related research programme will receive highly competitive national and EU funding, e.g. Centre of Excellence status and ERC awards in the near future.

Assessment criterion 2: Quality of the scientific impact

Mark: (See Preamble)

In the nuclear/accelerator area, the impact of research is very high, with a large number of important publications in *Physical Review Letters*. Furthermore, the laboratory plays an important role in the nuclear physics priorities laid down in the NuPECC Long Range Plan for 2010. One of the main architects of this success has received, in 2010, the Lise Meitner Prize for these achievements.

The work of the High Energy group has led to well focussed and internationally widely recognised publications on nuclear parton distributions. Significant theoretical results have also appeared in non-equilibrium quantum theory and electro-weak symmetry breaking.

The experimental High Energy group has made a significant impact on the first publications from ALICE program. .

Within Materials Science, the results are published in leading journals (Nature, PRL, PNAS), reflecting top quality both in multi- and single-disciplinarity. Some of the group scientists have the highest international visibility.

Assessment criterion 3: Quality of research collaborations

Mark: (See Preamble)

The JYFL Nuclear Physics group collaborates with nearly all leading groups worldwide in the field of nuclear spectroscopy. The nearly 200 external users per year provide evidence of the attractiveness of the group and facilities. In addition, the group has close ties to the CERN ISOLDE and GSI-FAIR programmes. The theoretical groups are very well connected nationally through the Helsinki Institute of Physics and have strong links to many internationally leading institutes.

The experimental High Energy group is significantly involved in the ALICE experiment at CERN and in the preparations for the LAGUNA experiment.

Within Materials Science there is strong international collaboration. The multidisciplinary research environment and the excellent research infrastructure available in the Nanoscience Center strengthen the inter-departmental collaboration

Assessment criterion 4: Quality and quantity of the research funding**Mark: (See Preamble)**

The main research funding for the Department comes from Jyväskylä as well as from the Academy-funded Centre of Excellence, which will run until the end of 2011. Two Centre of Excellence proposals are currently shortlisted for the period 2012–2017. An ERC starting grant was obtained in 2008 and the Department has attracted an internationally renowned scientist for a FiDiPro professorship in 2007. The overall level of research funding has steadily increased to nearly 6,000,000 in 2009.

The significant funding raised from non-academic sources, for example for accelerator applications and imaging, should be applauded and has resulted in a major upgrade of the tomography facilities.

Assessment criterion 5: Quality of the research environment**Mark: (See Preamble)**

The laboratory attracts visitors, students, and postdoctorals from all over the world. It provides a research environment from which high-quality scientists are produced. Postdoctoral scientists with training at JYFL are sought after worldwide. The international visibility of the Department is very high.

Regarding the field of materials science, the Nanoscience Center comprises an excellent modern infrastructure with a wide set of characterisation instruments for structural studies. Most of the instrumentation is at a highly competitive level. The Nanoscience Center provides a nice combination of turn-key and unique, custom-made instruments.

2. CURRENT STRUCTURE AND PERFORMANCE OF UNIT'S RESEARCH

JYFL is divided into three units with links between them and some collaborative research activity as reflected in the Self-Assessment Report. The balance between the areas should be considered in future planning. The Department did not present a clear strategic plan for the future development and integration of the research areas.

The Panel recognised that the materials science programme shows growth potential both within the Department and through interaction with neighbouring disciplines.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

The research groups in the field of nuclear- and accelerator-based physics are considered a world leader in its area of research and has established the only Finnish International User Facility, which is used by scientists all over the world.

The Heavy Ion Phenomenology group has made seminal contributions to the understanding of high energy collisions.

The research groups working in the field of materials science have also made an important international impact with their scientific achievements, and the computational nanoscience activities are at an outstanding international level.

Imaging activities, especially due to the new nanotomography upgrade in combination with the related statistical physics theory/computational support, are at the forefront of European research and carry important national strategic value.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS) FOR THE UNIT

Strengths:

- International visibility, globally competitive research, attracting students, postdocs, and visitors/users from around the world.
- Unique accelerator-based infrastructure and EU-recognised access laboratory.
- Capabilities and tradition for experimental hands-on training of graduate and post-graduate students in an international environment.
- Well-established national centre in nuclear research.
- Strong and continued support from the university, recognising strategic importance of the accelerator-based research.
- Utilisation of Nanoscience Center infrastructure and interdisciplinary platform.

Weaknesses:

- Lack of clear long-term strategy for accelerator-based research.
- Nuclear- and accelerator-based research still represents significant volume of the Department's research portfolio and investments despite diversification into materials physics.
- Modest scientific output from industrial-related funding.

Opportunities:

- The renewal of the nuclear/accelerator infrastructures and research programmes within the context of the Finnish participation in FAIR implies a leading national role for JYFL.

- A better integration of the experimental nuclear and high energy programmes via participation in HIP and ALICE activities.
- Novel and innovative multidisciplinary openings via the Nanoscience Center.
- To become national leader in imaging.
- EU funding for new research areas.
- New young talents can be attracted via tenure-track positions.

Threats:

- Funding is strongly dependent on Academy of Finland.
- Possible loss of CoE status for accelerator and nuclear physics.
- Possible reduction of international investment in the nuclear physics facility.
- Lack of funding to replace rapidly ageing instrumentation, particularly in the Nanoscience Center.
- Increase of premise expenses including significant increase in price of electric power.
- Ability to maintain pre-eminence in Nanoscience in the face of strong national and international competition.
- Loss of outstanding professors in Jyväskylä due to national and international competition.
- General lack of students studying exact sciences.

5. RECOMMENDATIONS

Develop long-term (10 – 20 years) strategy for the accelerator/nuclear physics lab.

Participation in the FAIR project should be of high priority in the departmental strategy.

The LAGUNA proposal at Pyhäsalmi is a very large European research infrastructure project. For this project to be considered there needs to be a national-level discussion of Finnish research priorities. The current group at JYFL is below critical mass to lead this effort. The Panel recommend that the University review the implications for the local investment in resources, funding and personnel.

An investment plan to replace and further develop the instrumentation for the Nanoscience Center should be established.

Nanoscience should find its optimal areas and niche in the face of strong national and international competition.

Industry-related and e.g. TEKES-funded research should lead to high-profile scientific publications.

Collaboration and joint efforts between theory/modelling and experiments are strong and should be further encouraged both in high energy physics and nanoscience.

DEPARTMENT OF CHEMISTRY

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research**Mark: 4.5/5**

The output of the Department assessed through the usual bibliometric indicators is excellent. During the assessment period a significant number of publications have appeared in high-impact journals and have been highly cited. The interdisciplinary research has been particularly successful and recognised both nationally and internationally.

The excellence and visibility of the research is inconsistent over the disciplines or research areas, with much of the activity in Applied Chemistry remaining of local and national strategic importance.

In terms of volume, the productivity and research activity of the Department matches its position as the second largest department in Finland, as determined by the independent 2010 national evaluation of chemistry departments by the Academy of Finland.

The vision and aspirations of the Department are realistic but require sound financial and resource planning for implementation.

Assessment criterion 2: Quality of the scientific impact**Mark: (See Preamble)**

The scientific impact of the Department is high. This is seen both in the bibliometric analysis and in the recognition of achievement through national and international prizes.

The Department is heavily involved in and plays a leading role in many national research programmes. Lead roles in international programmes are less well established.

Mobility is reasonably high and the Department is an attractive venue for short- and long-term scientific visits in those areas with the highest scientific visibility. Other areas of research are less strongly embedded in international programmes and have accordingly less international impact.

There are members of the Department who are eligible for ERC awards at both levels and they should be strongly encouraged to apply. This will further strengthen the international reputation and visibility of the Department.

Assessment criterion 3: Quality of research collaborations**Mark: (See Preamble)**

In some areas the research teams collaborate strongly with the internationally leading groups.

The relatively low percentage of publications with overseas joint authorship reflects, in part, the lack of involvement with large-scale facilities, but this is not atypical for chemistry research.

The majority of national and international research collaborations are natural and should be encouraged. The Applied Chemistry section is well embedded within TEKES.

Assessment criterion 4: Quality and quantity of the research funding**Mark: (See Preamble)**

In general, the Department is well-funded and has a good level of support for most of the research groups. The portfolio of funding might be expected to change following the rebranding of Applied Chemistry. However, a strong reliance on TEKES funding in this area continues to be important for the Department.

The Department lacks significant support from the European Union. This is disappointing, both because the newly defined strong areas of research match excellently with the priorities within FP7 and foreseen in FP8, and because there are internationally highly competitive researchers who should be applying for ERC awards.

The decrease in EU regional funds will pose a threat to future investment and must be anticipated.

Assessment criterion 5: Quality of the research environment**Mark: (See Preamble)**

The Department has recently restructured its research divisions from a traditional (organic, inorganic, physical, etc.) into a more modern structure. This is represented neither in the output for the 2005-2009 period nor in the Self-Assessment. The restructuring is logical and gives the Department a modern and adaptable profile which should be able to respond to priority funding areas within Europe and Finland.

The instrumental infrastructure of the Department, which includes the resources available from the Nanoscience Center, is excellent, and allows state-of-the-art research to be performed in each of the four strong areas of research.

There is a strong interaction between the various areas as well as productive interactions with neighbouring disciplines, many through the environment of the Nanoscience Center. Additional interactions could be foreseen and should be encouraged and nurtured.

The Department has a tendency to rely on in-house resources and could make constructive use of large national and European facilities for spectroscopic studies.

2. CURRENT STRUCTURE AND PERFORMANCE OF UNIT'S RESEARCH

As noted above, the Department was restructured shortly after the assessment period.

The structure in place during the assessment period was open to criticism, but the new research groupings both reflect the activities of the Department and place them in a modern responsive context.

A consequence is that the research areas no longer map one-to-one to the traditional teaching areas, which have been retained. The students did not find this to be a problem, a view shared by the Panel.

The newly defined strong area of research "Chemistry of renewable resources and environment" has made a good start, but the publications of the assessment period still placed a locally and nationally important emphasis on more traditional wood and paper chemistry, which is difficult to evaluate in a truly international context. The consequences of redefining activity in this area will only become evident in the next assessment period.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

The strong areas of research "Structural chemistry" and "Computational chemistry and spectroscopy" are at the highest international level.

The joint activity associated with the Departments of Physics and Chemistry is identified as being particularly strong, as is the work in supramolecular and materials chemistry. The activities in spectroscopy are internationally very competitive.

The proposed Centre of Excellence "Molecular Structure and Quantum Dynamics" is an extremely strong grouping of the research leaders at the Nanoscience Center and should be vigorously supported. If successful, this is likely to become one of the highest visible activities in the Department.

The Panel also note that the activities in "Chemical Education", although falling outside the usual areas of research assessment, are excellent and make a very significant impact on the local and national profile of the Department.

Activity in conventional methodological and synthetic organic chemistry is emerging as a future strength and should be nurtured and brought to fruition.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS) FOR THE UNIT

Strengths:

- The Department has some research activities at the highest international level. Other areas have been developed to address local or national strategic needs.
- The research infrastructure is currently state-of-the-art and matches the research activities of the Department.
- The Department has at all levels a dynamic, relatively young, and highly committed staff.
- The structures of the Department are adaptable and will allow facile response to new challenges and opportunities.
- Professional and committed management with a strategic vision for the Department.
- Realistic self-assessment and aspirations.

- Utilisation of Nanoscience Center infrastructure and interdisciplinary platform

Weaknesses:

- There is still a lack of international visibility in the area of Applied Chemistry. This will hopefully be addressed in the next assessment period in which the benefits of the restructuring become apparent.
- Scientific activities in some areas are not achieving international visibility.
- The internationalisation of the Department is low by international standards.
- The mobility of Jyväskylä-educated students is both nationally and internationally low.

Opportunities:

- The Department is very well placed to respond to calls from the European Union in materials science, energy and renewables.
- There are numerous very highly cited researchers who are of the calibre to achieve the highest international reputation.
- The success of the joint chair with Physics could be capitalised on and new joint appointments developed to further strengthen the links with Physics and Biology, and possibly with Mathematics or Information Sciences.

Threats:

- The restructuring of the research groupings is to be applauded. A consequence is that two of the strong areas of research incorporate all of the highest ranked scientists. This may pose a risk to the development of activity in the area “Chemistry of renewable resources and environment”.
- Many areas of research are strongly dependent on access to state-of-the-art instrumentation, much of it through the resources of the NSC. Whilst this instrumentation is currently up-to-date, plans need to be put into place to ensure a rolling updating and replacement programme.
- The lack of involvement in European activities will increasingly damage the profile of the Department on the international stage.

- A reduction of the number of active professors would damage the profile and productivity of the Department and must be avoided at all costs.
- Ability to maintain pre-eminence in Nanoscience in the face of strong national and international competition

5. RECOMMENDATIONS

The Department must strongly commit to involvement in European-level funding programmes. These are likely to be the major method by which the required budget can be achieved in the future in order to match the aspirations of the Department.

The doctoral programmes should be assessed and conform to European standards.

Excellent candidates should be *identified* and *supported* in applying for ERC funding.

A strategic plan needs to be fully implemented to ensure that the instrumental infrastructure remains internationally competitive.

The synthetic and methodological organic chemistry grouping should be further developed and nurtured. In this context, the strong area of research “Structural chemistry” might be better identified as “Structural and synthetic chemistry”.

The Department should utilise European transnational facilities (ESRF, SPIRIT, NMI3, MICROKELVIN, LASERLAB-EUROPE, ELISA, ESMI, SFERA, SOPHIA, QNano, EUMINAFab) and plan to make use of emerging technological platforms such as the Free-Electron Laser.

DEPARTMENT OF MATHEMATICS AND STATISTICS

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit’s research

Mark: 4.5/5

Primarily fundamental research is conducted in Mathematics; a relatively modest amount of research is concerned with applications of stochastic analysis in mathematical finance.

- The Mathematics group is world leading; the quality of the research is at an outstanding international level.
- The research of the Statistics group is of good international quality. The research has international relevance and significance.

Assessment criterion 2: Quality of the scientific impact**Mark: (See Preamble)**

The scientific impact of the Department is at an outstanding international level and comparable to that of leading international research groups.

- Senior professors in Analysis have been recent invited speakers at the International Congress of Mathematicians. This is a distinguished recognition of their outstanding contribution to the mathematics field over many years. This is a remarkable achievement.
- Members of the Mathematics group are regularly invited to speak at important conferences, and are very visible on the international scene.
- In general, all papers are published in high-quality journals, and many papers appear in journals that are ranked among the very best. (A notable achievement is a landmark paper in *Annals of Mathematics* in 2008.)
- Several papers of the Mathematics group are among the most cited works in their field of research.
- The senior members of the group serve on editorial committees of high-quality journals (including *Acta Mathematica*), research evaluation panels (ESF, research councils, university evaluations), various prize committees, etc.
- The Mathematics group is extremely well-connected internationally and participates in exchange actions with the best groups with related interests worldwide.
- The research of the Statistics group is published by well-known international publishers or in well-known international journals and it is comparable, with special regard to spatial statistics, to its potential competitors.
- The members of the Statistics group are actively involved in international scientific networks and associations.
- Members of the Statistics group occupy scientific positions of national and local relevance. They also are active in exchange actions with the best organisations in the field.

Assessment criterion 3: Quality of research collaborations**Mark: (See Preamble)**

- The Mathematics group collaborates widely with leading mathematicians worldwide.
- The Statistics group has some international academic collaborations, such as long-term interaction with Bergakademie Freiberg and INRA, Avignon.
- The Statistics group has collaborations with national research institutions and companies.
- A member of the Structural Equation Modelling group was part of the Academy of Finland Centre of Excellence “Learning and Motivation”.

Assessment criterion 4: Quality and quantity of the research funding**Mark: (See Preamble)**

- The Department has been successful in obtaining competitive research funding.
- EU funding is low but close to the norm for mathematics research.

Assessment criterion 5: Quality of the research environment**Mark: (See Preamble)**

- The research environment is outstanding.
- The scientific leadership within the research groups is excellent.
- Motivation for obtaining EU funding is low.

2. CURRENT STRUCTURE AND PERFORMANCE OF UNIT'S RESEARCH

The mathematics part of the Department is de facto a single group in mathematical analysis. A small subgroup of the Mathematics group (consisting of one professor and one lecturer) does research in stochastic analysis with applications to finance.

Building up a group in stochastic analysis during the period of assessment is seen as an excellent move for several reasons:

- It connects well with the existing groups in analysis and statistics.
- It is an important and expanding field of contemporary mathematics, interacting profoundly with other areas.
- It has important applications in and interactions with fields outside mathematics, in both the natural sciences and finance.
- The applied flavour of this field could help increase student recruitment numbers and widen the career opportunities for candidates outside academia and the education system.

The Department invests significant resources in the education of teachers (approximately 25 per year).

The Statistics group is currently composed of three professors (active in spatial statistics and Bayesian inference, time series analysis, structural equation modelling), and fewer than ten researchers or lecturers (recent appointments of young people with previous experience in research on Bayesian inference for point processes and Genetic Epidemiology, Robust Multivariate Statistics, adaptive Monte Carlo methods and computational statistics). Over the next few years, all the Statistics professors will be approaching retirement.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

- In Mathematics, the core group in Analysis is at the highest international level.
- The group in Stochastic analysis is smaller and less well-established, but its activities are very promising, with potential for interdisciplinary interaction.
- The high international level research in Statistics consists of spatial statistics, computational statistics, MCMC and stochastic analysis. The Department has a good tradition in this field.
- The Department has a number of very promising younger researchers.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS)

Strengths:

- Quality of research in mathematics is at the highest international level
- Research in spatial statistics is at a high international level
- Large and remarkably strong Analysis group
- The top groups in the Department have outstanding international visibility and networking skills
- Excellent training of PhD students and postdocs
- Wide collaboration with top people worldwide
- In general, the age distribution of the Department is good
- Coherence of fields represented in the Department (analysis – stochastic analysis – spatial statistics and complex data analysis)

Weaknesses:

- The moderate size of the Department makes it challenging to build new groups outside its traditionally strong fields of research.
- A strategic plan for securing continued excellence and strong societal impact is not clearly visible.
- The Department does not receive per capita remuneration for its service teaching.

Opportunities:

- Strong candidates both for ERC starting grants and ERC advanced grants.
- Using the autonomy reform and the FiDiPro programme to hire outstanding professors from outside Finland.
- The current outstanding international performance is a sound basis for the long-term growth of the Department.
- Establishing a joint master's programme and strengthening communal research activities in Applied Mathematics (including scientific computing) with the Faculty of Information Technology.
- Strong potential for research collaboration with the other Departments within the Faculty of Mathematics and Science.
- Strong potential for contributing complementary expertise in applied statistics to research collaborations with other Finnish universities and research/governmental institutes.
- The retirement of three senior staff members in the Statistics group is a special opportunity to reshape the research portfolio.

Threats:

- The lack of an integrated strategic plan for the Department.
- Recruitment of excellent students could be hampered by the lack of diversity in the research portfolio.
- The near-concurrent retirements within the Statistics group threatens continuity.
- Research in statistics is based on individual interests rather than an overall strategy.
- Lack of interaction with other departments could marginalise Mathematics and Statistics within the university.
- The size of the Department may be subcritical in the near future.

5. RECOMMENDATIONS

The Department should develop a strategy and a detailed action plan in order to:

- increase the size of the Department and expand the research portfolio;
- address the lack of remuneration for service teaching;
- use the autonomy reform and the FiDiPro programme to hire outstanding professors from outside Finland and take advantage of tenure track positions and postdocs;
- identify and support candidates for both ERC starting grants and ERC advanced grants.

The Panel strongly recommend consideration of:

- more extensive research collaboration with the other Departments within the Faculty of Mathematics and Science and the Faculty of Information Technology
- establishing a joint master's programme in Applied Mathematics (including scientific computing) with the Faculty of Information Technology

FACULTY OF INFORMATION TECHNOLOGY

PANEL MEMBERS.....	75
DEPARTMENT OF MATHEMATICAL INFORMATION TECHNOLOGY	76
1. Assessment criteria.....	76
2. Current structure and performance of Unit's research:.....	77
3. Identification of research groups at high/highest international level, and of most promising groups:	78
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit:	78
5. Recommendations:	79
DEPARTMENT OF COMPUTER SCIENCE AND IS.....	79
1. Assessment criteria.....	79
2. Current structure and performance of Unit's research:.....	81
3. Identification of research groups at high/highest international level, and of most promising groups:	81
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit:	81
5. Recommendations:	82

PANEL MEMBERS

Peter Axel Nielsen, Chair of the Panel. Aalborg University, Denmark

Matthias Rauterberg , [TU/e](#) Technical University Eindhoven, Netherlands

Keijo Ruotsalainen, University of Oulu, Finland

Klaus Schittkowski, University of Bayreuth, Germany

Jouni Similä, University of Oulu, Finland

DEPARTMENT OF MATHEMATICAL INFORMATION TECHNOLOGY

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research

Mark: 5/5

The Department's research is innovative and comparable to the best research groups in the field.

The Department's research is of excellent international quality and is well known by its international competitors. A member of the Department received the Professor Vilho Väisälä Award.

The number of Finland Distinguished Professorships (FiDiPro) is outstanding.

The Department has managed to establish a good balance between applied and basic research.

Assessment criterion 2: Quality of the scientific impact

Mark: 5/5

The research output (which includes publications and patents) is of outstanding international quality.

The Department publishes in the top five journals in the field.

The Department's scientific staff have very good h-index profiles.

The list of memberships on editorial boards, conference committees, and professional societies is impressive.

Assessment criterion 3: Quality of research collaborations

Mark: 4.5/5

The quality of collaboration is at a very good international level. The outcome of the collaboration is significant for the international research community.

The Department regularly hosts visiting scientists from the best international research organisations and FiDiPro professors.

The Department is very active in informal, international networks, but it is not participating in any significant way in formal EU consortia.

Assessment criterion 4: Quality and quantity of the research funding**Mark: 4/5**

The Department has attracted substantial national, external research funding.

The Department has good and relevant funding from the industry.

There is a lack of sufficient international, competitive funding.

Assessment criterion 5: Quality of the research environment**Mark: 3.5/5**

The Department's research environment is at a good international level.

The research leadership of the Department is unclear due to a split between formal and informal roles.

The Department states that the administrative support is insufficient.

The Department's research strategy is not in line with the university's strategy.

The Department provides good support for PhD students.

2. CURRENT STRUCTURE AND PERFORMANCE OF UNIT'S RESEARCH

The Department conducts research in the following two areas further divided into themes:

- Computational sciences
 - Scientific computing
 - Optimization
 - Signal processing and data mining
- Information technology
 - Mobile systems
 - Intelligent systems and software engineering
 - Human and education technology

Research in the main areas is performed independently.

One or more professors drive each research theme. Coordination between themes seems to happen in an informal social setting.

There is an obvious diversity in performance among areas and themes due to different levels of research maturity.

The excellent quality of the Department's research is not fully reflected in the poor quality of the provided documentation and in particular of the Self-Assessment Report.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

At the highest international level is optimization/scientific computing. The efficient multi-criteria algorithm is applicable to practical problems. The research results for fast solvers in partial differential equations are pioneering and outstanding. High-performance evolutionary methods are being developed.

The mobile systems research theme exhibits high potential.

There is high potential for fruitful collaboration with other research groups in the university, e.g. the Machine Learning for Future Music and Learning Technologies Project.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS)

Strengths:

- Stronghold in research on scientific computing, optimization, and mobile systems.
- Well-connected in the scientific community also through FiDiPros.
- Doing well in external, national funding.
- There is a good track record for PhD graduation (e.g. COMAS).

Weaknesses:

- No explanation of linkage between the strategies of the university and the Department.
- The master's programme curricula and the research topics in PhD studies are weakly connected.
- Low outgoing mobility of the research staff.
- No incentive to apply for competitive EU funding.

Opportunities:

- The need for high-level computational modelling and mathematical methods will increase in industry and academia.
- Start a long-term initiative to recruit or groom research leadership.
- Additional funding source (e.g. EU) will increase international visibility.

Threats:

- The field of scientific computing is well established and therefore very competitive; it is difficult to develop breakthrough results.
- Changes in national funding policies, e.g. basic funding depending on performance measures.
- Changes in EU structural funding policies.
- Shortening of time horizon in industry-collaboration contracts.

5. RECOMMENDATIONS

Develop a strategy to gain clarity in research leadership.

Identify the Department's contribution to the core fields of the university's strategy.

Extend the bridge to other research areas within the faculty and the university in which collaboration shows sufficient potential for new research opportunities. Sort out the overlap with CSIS (e.g. data mining and mobile systems) and identify the goals for possible collaboration.

Balance the diversity gap in research performance.

Apply for competitive EU research funding.

Partial differential equations and multi-criteria optimization are very established research disciplines internationally. The Department should explore new and promising related research fields and develop a vision for the future.

DEPARTMENT OF COMPUTER SCIENCE AND IS

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research

Mark: 4/5

The publications are at a very good international level.

There are observable differences in the quality and amount of publications among the Department's research groups.

The Department has potential for innovative ideas and concepts.

Assessment criterion 2: Quality of the scientific impact

Mark: 3.5/5

A small portion of the Department's publications is published in top-ranking international journals mainly within information systems and human-computer interaction.

The quality of the research output from the Department staff, as measured by the h-index, is at a good international level.

The Department has a moderate impact profile in terms of keynote addresses and invited lectures.

The Department has been actively seeking to reach larger audiences through establishing an open access journal.

Assessment criterion 3: Quality of research collaborations

Mark: 4.5/5

The Department is active in several researcher networks and is prioritising research collaboration at a very good national (e.g. through adjunct professors and INFORTE) and international level.

The Department's extensive collaboration with the industry shows a high level of societal relevance.

The Department regularly hosts a high number of visiting researchers from renowned international organisations.

The Department has participated in international research projects.

Assessment criterion 4: Quality and quantity of the research funding

Mark: 4/5

There is indication that the Department has secured competitive funding on the national and international levels. There are, however, inconsistencies in the provided information on research funding.

It is unclear to what extent the external funding contributes to the Department's research strategy.

Assessment criterion 5: Quality of the research environment

Mark: 4/5

The Department has a research strategy that details the research areas, goals and directions. However, descriptions of research areas are unclear and inconsistent. The Department's emergent research teams do not yet have critical mass.

The Department seems to have an egalitarian research leadership, e.g. a process through which the research strategy is developed.

The Department is satisfied with the level of administrative support from the faculty and with the balance between the teaching and administration loads and research opportunity.

The infrastructure in general seems to be at a very good international level; but specific and required research facilities seem to be missing.

2. CURRENT STRUCTURE AND PERFORMANCE OF UNIT'S RESEARCH

The Department can be characterised with five research themes:

- Cognitive Science
- Digital Media
- E-Business
- Software Business
- Systems Development

It is difficult to see how the Department's research activities and funding relate to the Agora Center and to the IT Research Institute for the 2005-2009 period. It is unclear how the Department benefits strategically from these arrangements.

The Department still struggles with the loss of a leading researcher several years ago.

The very good quality of the Department's research is not fully reflected in the poor quality of the provided documentation, and in particular of the Self-Assessment Report.

In the provided documentation it is not clear where the emergent theme of Software Business is positioned and how it relates to the other themes.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

The theme Cognitive Science appears to perform at a high international level. Its name does not sufficiently reflect how it fits into the Department's research activities. The theme, if reframed towards usability engineering and user experience, has the potential to become integrated into the core of the Department.

The other themes perform at an international level, though the themes are narrow and no single theme stands out from the rest.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS)

Strengths:

- Strong national research and practitioner networks.
- Strong international research networks.
- Broad knowledge of research methodologies.

Weaknesses:

- Incomplete and inconsistent research strategy.
- Unclear relationship between the Department and Agora Center.
- Lack of international research impact, e.g. through high-level journals.
- Lack of a shared vision within the Department.
- Insufficient strategising about international research funding.

Opportunities:

- Establish a leading researcher through recruiting or grooming.
- Focus on competitive research funding.
- Stronger thematic focus.

Threats:

- Changes in national funding policies.
- Changes in EU structural funding policies.

5. RECOMMENDATIONS

Complete the strategy and speed up the implementation process. Describe the research themes as specifically as possible. Explicate the commitments to the themes and be prepared to redefine if necessary.

The Cognitive Science theme should move towards the core of the Department. This implies a renaming and a reframing of the theme's main contribution to the Department's strategy.

Explore the potential of integrating the Software Business theme with the Systems Development theme in order to reorganise the two and reach critical mass.

Sort out the overlap with MIT (e.g. data mining and mobile systems) and identify the thematic goals for possible collaboration.

Apply for competitive EU research funding.

Increase research impact by publishing in better journals and, if needed, with reduced quantity.

FACULTY OF HUMANITIES

FACULTY OF HUMANITIES	83
PANEL MEMBERS	84
DEPARTMENT (UNIT) HISTORY AND ETHNOLOGY	85
1. Assessment criteria	85
2. Current structure and performance of Unit’s research:	87
3. Identification of research groups at high/highest international level, and of most promising groups:	87
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit:	88
5. Recommendations:	89
DEPARTMENT (UNIT) “MUSIC”	89
1. Assessment criteria	89
2. Current structure and performance of Unit’s research:	91
3. Identification of research groups at high/highest international level, and of most promising groups:	91
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit:	92
5. Recommendations:	92
DEPARTMENT (UNIT) LANGUAGES	93
1. Assessment criteria	93
2. Current structure and performance of Unit’s research:	95
3. Identification of research groups at high/highest international level, and of most promising groups:	96
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit:	96
5. Recommendations:	97
DEPARTMENT (UNIT) “ART AND CULTURE STUDIES”	97
1. Assessment criteria	97
2. Current structure and performance of Unit’s research:	100
3. Identification of research groups at high/highest international level, and of most promising groups:	100
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit:	100
5. Recommendations:	101
DEPARTMENT (UNIT) CALS	101
1. Assessment criteria	101
2. Current structure and performance of Unit’s research:	104
3. Identification of research groups at high/highest international level, and of most promising groups:	104
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit:	105
5. Recommendations:	105
DEPARTMENT (UNIT) COMMUNICATION	106
1. Assessment criteria	106
2. Current structure and performance of Unit’s research:	108
3. Identification of research groups at high/highest international level, and of most promising groups:	109
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit:	109
5. Recommendations:	110

PANEL MEMBERS

Ulo Valk, Chair of the Panel. University of Tartu, Estonia

Eckart Altenmuller, Institute of Music Physiology and Musicians' Medicine at the Hanover University of Music and Drama, Germany

Alejandro Garcia Aviles, University of Murcia, Spain

Kenneth Hyltenstam, Stockholm University, Sweden

Constant Leung, King's College London, United Kingdom

Hannu Nieminen, University of Helsinki, Finland

Jens Olesen, Lehrstuhl für Nordische Geschichte, Germany

Erkki Sevänen, University of Eastern Finland, Finland

DEPARTMENT (UNIT) HISTORY AND ETHNOLOGY

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research

Mark: 5/5

Created in 2002, the Department of History and Ethnology (Hela) is an interdisciplinary research unit that combines the fields of ethnology, Finnish history, general history and economic history. It is remarkable that the research topics of the Department transcend the borders of these profiled disciplines and demonstrate a high level of cross-disciplinary cooperation and creative synergy. The Department has created new research Approaches methodologically and theoretically.

Between 2002 and 2007, the Department hosted the Centre of Excellence "History of Mind", and since 2008 has been hosting the Centre of Excellence "Philosophical Psychology, Morality and Politics".(until 2013). In addition, the Department is participating in the Nordic Centre of Excellence "The Nordic Welfare State – Historical Foundations and Future Challenges" (2009-2012). Thus the Department has demonstrated commitment and innovative efforts to build up an international profile for the Unit.

In recent years, the Unit has published extensively in both national and international refereed journals and volumes and has produced excellent monographs with international academic publishing houses. Nationally the esteemed Finnish Literature Society has given out several books from the Department in both Finnish and English. As an example, the Department has twice won the annual award for best history publication (K. Vilkuna in 2006 and S. Zetterberg in 2008). These publications are of a high international standard and some works are sure to be translated into major languages.

Assessment criterion 2: Quality of the scientific impact

Mark: 4.5/5

The number of international refereed articles has been rising from 45 (over the period 2000-2004) to 126 (2005-2009). Many articles have been published abroad by prestigious publishers and it is expected that this development will continue. The number of scientific monographs has been fairly stable (mostly in Finnish and Swedish) with a total of 82 between 2005 and 2009. However, only five of these have been published abroad.

Members of the Department have also been active editors of journals and series in Finland and abroad. Many articles have been published in journals, indexed by ISI Web of Science. The Department is well aware of the importance of bibliometrics (the related problems are discussed in Annex no 4.) The number of quotations of the ISI articles is 191 during the period of 2005-2009. The Department has successfully made its research accessible and known to a broader international scholarly audience. Altogether nine national and six international awards and honours for the best books bear witness to the impact of the Department and its scholars.

The number of plenary/keynote lectures at major international conferences has been outstanding (32 from 2005 to 2009). Several members have also served on the boards of funding organisations and foundations. The Department members have been working as visiting scholars abroad. The Department has itself organised 18 conferences and other international forums between 2005 and 2009. These efforts have certainly made the Department well-known and internationally visible as a dynamic and innovative research Centre.

Assessment criterion 3: Quality of research collaborations

Mark: 4/5

The Department collaborates with the leading Finnish and international research institutes spanning from Scandinavia, the Baltic states, and other European countries to the United States, Canada, Australia, Japan and South Korea. Several members of the Department, including PhD-students and postdocs, have participated in national and international congresses and have been actively engaged in the large network of the Department.

The Department has also attracted foreign scholars. There has been, however, an imbalance between external visits made by HELA staff and visits by colleagues from outside institutions to HELA. Despite this there seems to be a positive development: the ratio has changed from 91-19 visits in 2006 to 79-49 visits in 2009.

Within the Faculty of Humanities, the Department has established a fruitful cooperation with other units; this development is very positive and will be furthered, in order to optimise future resources and promote interdisciplinary studies.

Assessment criterion 4: Quality and quantity of the research funding

Mark: 4.5/5

The total external funding of the Department has been growing noticeably in recent years. Hosting two CoEs of the Academy of Finland and having a partnership in the Nordic CoE (NordWel – The Nordic Welfare State) since 2009 have supported the multi-faceted research and teaching at the Unit. The Department has also hosted three Fulbright professors. In 2007 the project “Subjectivity and Selfhood in the Arabic and Latin Traditions” (SSALT) received a European Research Council grant of 750,000 . The applying for external funding is considered as an integral part of the Department’s research work.

The proportion of external funding was about one-third of the Department’s total budget for the assessment period. During the year 2010 the level of external funding reached a new high, 40%.

Assessment criterion 5: Quality of the research environment

Mark: 4.5/5

The Department has a solid tradition of working in research groups, and this can be seen as a basis for the remarkable output of the projects. The leadership of the projects is dynamic and inspiring to the involved scholars and other staff members, and has delivered publications of the highest scientific standards.

The research infra-structure is up-to-date, and broadly comparable to that of the best international scholarly centres. There are working rooms and offices not only for the staff, but also for the PhD students and postdoctoral scholars. Weekly and monthly seminars with the staff members and the PhD students have fostered a democratic and non-hierarchical research culture.

The University Library offers the Department excellent working conditions and facilities; it has also been possible to purchase additional source-collections (e.g. Early English Books Online, Eighteenth-Century Collections Online and others).

The Department is in a strong position, with its ten professors and a total staff of 40 persons (30 of whom are grant holders), to provide sufficient critical mass for sustainable research. The Faculty delivers administrative support to the research groups.

2. CURRENT STRUCTURE AND PERFORMANCE OF UNIT'S RESEARCH

This project-based structure has been efficient in securing a creative environment and a high level of academic research. The combination of historical and ethnological studies has created an innovative and inspiring research culture, built on good leadership and teamwork.

The productivity of the Department during 2005-2009 has been remarkable. Active participation in several major conferences, both national and international, has made the Department and its scholars well-known and has brought increased attention to early modern and modern periods of Finland and Northern Europe.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

The Centres of Excellence provide an indication of the high quality of the work achieved by the Department. Some researchers are engaged in several projects. The list of the 30 most important publications includes the names of more than 20 authors/editors. Obviously, there are many prolific scholars in the Unit whose scholarly production is of excellent quality.

The PhD students are well-integrated into the Department and its large network.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS) FOR THE UNIT

Strengths:

- The Unit is a good example of the benefits of an interdisciplinary approach, combining history and ethnology, creating a dynamic and fruitful environment. The Department is internationally well connected and its research has national and international impact. The growth of external funding has been remarkable.
- The age profile of the staff is relatively young and the Unit aims at recruiting the best international talents in the focal areas. The research strategy to reach greater internationalisation has succeeded and is expected to show further results during the next years.

Weaknesses:

- The combination of historical and ethnological studies is innovative and has shown remarkable results during the assessment period. However, the core areas of research could be better defined in order to clarify and further strengthen the overall identity of the Department.
- There are many scholars without a permanent position at the Department. The career possibilities of the postdoc-level and mid-level scholars would need further attention, including gender aspects.

Opportunities:

- The many projects offer excellent possibilities to further the understanding of North European and Baltic societies in a European and global comparison. This covers both micro- and macro-levels over different time periods, including *longue durée* perspectives.
- The Department has good opportunities to attract expertise from Finland and abroad; this would further the internationalisation of the Department as a whole, including PhD students and postdoc scholars.

Threats:

- Heavy work-load of Department members, particularly for those involved in repeated grant applications, can displace valuable time and effort that would otherwise be spent on productive research.
- An important problem to be dealt with is the insecure position of the experienced post-docs. Efforts should be made to create attractive conditions in order to further their careers.
- A sabbatical system for the professors and staff members of the department should be implemented.

5. RECOMMENDATIONS

HELA is a dynamic, innovative, and relatively young Unit with a remarkable high scientific quality. The Department has established a good model of working in research groups, thus being a good example to other Units.

On the other hand, the cooperation within the Faculty should be further developed in order to create joint projects and programmes. This will strengthen the interdisciplinarity of the research projects and also strengthen the profile of the faculty as a whole. This cooperation with other departments in the Faculty might also help to recruit future PhD students and postdocs and secure well-functioning PhD training.

The Department has successfully improved external funding. The staff members have shown great efforts writing applications. The service office of the Faculty should be used to a greater extent to secure national and international funding.

DEPARTMENT (UNIT) MUSIC

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research

Mark: 4/5

The Department of Music is an internationally acknowledged research institution which hosts cutting-edge research in the fields of music cognition, music therapy and cultural and social research of music. The specific features that distinguish the University of Jyväskylä music department from others are:

1. Interdisciplinary approach with the disciplines such as Musicology, Physics, Psychology, Engineering, Computer Science, Music Therapy, etc.
2. Excellent expertise in innovative technology (e.g. Music Information Retrieval)
3. Broad interest in the societal impact of music perception and music making
4. High-impact international publication strategy in peer-reviewed journals primarily in the fields of life sciences and systematic musicology.

The high quality of the scientific work is reflected in the fact that it hosts a Finnish Centre of Excellence with its principal coordinator localised in Jyväskylä. Furthermore, international funding is generally impressive, as is the list of international peer-reviewed publications. And lastly, the extremely dynamic development of the research activities must be acknowledged, taking into account the rapid growth and flourishing of projects and publications.

Although most of the scientific work has been excellent, if not outstanding, there are some concerns regarding the scientific quality: in addition to the brilliant presentation of data, more conceptual thinking is desired – what is the common link between the many research projects? What do ‘brain images’ say? What is the scientific benefit of the MIRtoolbox? What are the mechanisms rendering music therapy efficient? What are the big questions to be solved? And what are the long-term goals in a more general way, given that music is an integral part of human nature?

Assessment criterion 2: Quality of the scientific impact

Mark: 5/5

The quality of scientific impact is outstanding internationally. The research undertaken in Jyväskylä has attracted enormous interest not only from scholars in the relevant fields, but also in the more general scientific press and in the mass media. Moreover, the Music Department has hosted important international conferences and hosts the editor of one of the most important journals in the field, namely “*Musicae Scientiae*”. With respect to the high scientific impact, it must be acknowledged that the choice of timely research topics contributes essentially to this impact. The high scientific impact can also be seen in the attractiveness of the Department to attract PhD students from all over the world.

Assessment criterion 3: Quality of research collaborations

Mark: 5/5

Networking and intense research collaboration at the national and the international levels are important strengths of the Jyväskylä Music Department. Many joint publications and the cooperation in national and transnational research consortia are the convincing proofs of the excellent ability of the researchers to form ‘strategic coalitions’.

Furthermore, numerous invitations as key-note speakers and contributors of international symposia underline the high international reputation and the tight connections within the international research community. Given the high interest in socio-cultural aspects of music, one might question whether there could be more co-operation within the Faculty of Humanities in Jyväskylä, e.g. with the Department of Languages.

Assessment criterion 4: Quality and quantity of the research funding

Mark: 5/5

National and international external funding is outstanding, covering 26% of the total budget. The total amount of funding has increased almost threefold from 2006 to 2010. Furthermore, it must be acknowledged that the Department of Music has acquired highly competitive international research funding during the assessment period. The Department has also secured highly competitive domestic funding from the Academy of Finland.

Assessment criterion 5: Quality of the research environment**Mark: 4/5**

The research environment in general is very good. There is an excellent infrastructure available for the researchers, including several laboratories of international standard. Generally it has to be said that the technological standard of the Department is excellent and that there are excellent cooperations with other research units to cover novel methodological approaches not represented in the Department. For example, functional MRI measurements can be done in Helsinki with a “reserved measurement slot” for the department.

The educational load, though, seems to be quite high. Although the Department has elegantly managed to integrate research and teaching in the Master’s programmes of “Music Therapy” and “Music, Mind and Technology”, there remains quite a heavy workload to cover the music teacher training. Here, the research strategy does not cover topics required for the “conventional” teacher training, such as music history, for example. A more general “sabbatical” policy will be helpful to reduce teaching work.

2. CURRENT STRUCTURE AND PERFORMANCE OF UNIT’S RESEARCH

Taking into account the relatively small number of professors, the extremely high scientific output and successful funding strategies, an increase in professorships (at least one) would be highly recommended. Concerning the PhD students and their backgrounds – e.g. in engineering, musicology, psychology, etc. – a structured PhD programme, designed to somehow equalise this heterogeneity and provide a more general approach to systematic musicology, would be desirable.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

An outstanding international level has been reached by the scientific activities in the “music information retrieval area” and in the research with respect to kinematics and dynamics of musical communication. The area of Music and Emotion is, in combination with the advanced technologies, highly promising. Furthermore, scientifically based Music Therapy is a developing field, deserving high attention, since it will produce the most significant results with respect to the role of music in rehabilitation.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS) FOR THE UNIT

Strengths:

- Young and enthusiastic staff
- Excellent interdisciplinary group with a very high expertise in advanced technology
- Highly interesting, original and timely scope of research
- Excellent skills to communicate research to a broader public
- Excellent networking
- Excellent funding strategies

Weaknesses:

- The questions of conceptual research are not reflected critically enough
- Heavy workload on professors (missing sabbatical policy)
- Heavy teaching workload on part of the staff
- No structured PhD programme

Opportunities:

- Young interdisciplinary team with excellent scientific skills
- Openness for highly original research questions
- Cutting edge research in emerging fields – such as neurological music therapy
- Ability to attract young students from all over the world
- Excellent research facilities and access to high cost laboratories

Threats:

- Development of funding strategies: In the coming years, EU funding might be more difficult to obtain. Furthermore, general interest in “music cognition” and “music and emotion” might decrease. Development of exit strategies is highly recommended.
- Conceptualising “Music as a stimulus to human response” might be too narrow to cover all relevant research questions.
- Too many different project lines might diversify research activities too much.
- Danger of separation from other departments within the Faculty of Humanities.

5. RECOMMENDATIONS

Generally speaking, the Department of Music is an outstanding research department.

1.) The research staff should be augmented by at least one professor position in order to reduce general workload and to ensure the implementation of the Unit’s future strategy.

2.) A structured PhD programme should be implemented.

3.) Research fields within the Department should be more closely related to one another in order to develop more added value.

4.) The coordination of research interests in societal important fields – such as working with marginalised children – with other departments in the Faculty of Humanities (e.g. languages, history and ethnology, arts and culture studies) should be promoted.

DEPARTMENT (UNIT) LANGUAGES

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research

Mark: 5/5

The Department of Languages has been recognised as the most important for applied linguistics in Finland. It operates at the level of its best international scientific competitors.

The policy decisions taken by the department through the perspective of a contextual approach to language, taking into account social meaning as constructed by participants in interaction, have led to a transparency of theoretical and methodological orientations, contributing to an articulate sense of coherence in the department's research. The high quality of research undertaken by this Department is reflected in a variety of ways, e.g. through the Centre of Excellence status associated with the VARILANG project "Study of Variation, Contacts and Change in English", and through the appointment of the Finland Distinguished Professor 2007-2010, Professor Jan Blommaert.

The range of issues addressed by the Department includes research in three defined strength areas within the general framework of global and national aspects of multilingualism:

- 1) Language Learning and Teaching
- 2) Language and Discourse
- 3) Language and Culture

Projects such as Books in Transition, Paths in Second Language Acquisition, Northern Multilingualism and Finnish Sign Language among others have all found a supportive and productive intellectual home within these three areas. The commitment to socially oriented and applied research has contributed to fundamental understandings of the conceptual issues involved, which are also pertinent to basic research.

A common and shared agenda between the different groups has enabled active collaboration and synergy in research methodology. The high degree of shared understanding within the Department has resulted in a critical mass, which is essential for the development of future projects. The Department is well placed to address the complex process of change in Finnish society and beyond with regard to increasing diversity and technological development.

Some of the research at the Unit is clearly innovative and has ambitious scientific objectives and goals. The best results are at an outstanding level.

Assessment criterion 2: Quality of the scientific impact

Mark: 4.5/5

The Unit has a considerable number of articles published in refereed scientific journals; the statistics indicate an increase in international journal articles over the last three years. Publications include chapters in refereed scientific edited volumes, a common publication type in the field. More than half of these publications are published abroad, but a fair number appear in national publications, something considered important by the Unit. The Unit aims at increasing the number of articles published in high-ranking international journals.

As mentioned above, the Unit is the leading research institution in applied linguistics in Finland, and is internationally recognised.

Members of the staff have been invited as plenary or key note speakers at 22 important international scientific events during the assessment period.

Staff members are well represented in journal editorial boards and in international scientific committees.

Of special importance is the fact that the Unit has been active for many years in organising applied linguistics summer schools and international conferences. The Department has taken a leading role in postgraduate studies in language sciences at the national level.

During the last two years of the period, four staff members have won important scientific prizes.

Assessment criterion 3: Quality of research collaborations

Mark: 4.5/5

The Unit is engaged in a wide range of scientific networks and has developed successful international collaboration. Such cooperation is carried out with sister departments in Great Britain, the Netherlands, as well as the other Nordic countries.

The intra-university research cooperation with CALS is seen by both Units as a fruitful and creative activity. Nationally, during the period of assessment, staff members have been convenors of different thematic networks in their respective fields.

It is noted that the Unit also plays an important role at the national level in consultancy, in board memberships, etc. for authorities such as the Ministry of Education, the Research Institute for the Languages of Finland, and The Finnish Association of the Deaf.

Assessment criterion 4: Quality and quantity of the research funding**Mark: 4/5**

The Unit is highly competitive in national funding, but has also obtained funding at the Nordic level. The national funding (mainly from the Academy of Finland) amounts to over 95% of all external funding over the whole period. More efforts might be spent in obtaining European funding, especially with reference to the research strategy of the Unit. External funding comprises approximately 30% of the Unit's total budget, which is a high share, but not untypical for a scientific field in which the demand from society for specialist knowledge is high.

Assessment criterion 5: Quality of the research environment**Mark: 4.5/5**

The Department has been making effective changes in administrative structure to facilitate research activities. This is accompanied by the progressive development of greater collaboration between research groups. There is a strong sense that administrative decisions and actions are oriented towards greater research involvement from all members of the Department, including postgraduates and doctoral students.

This commitment to fostering a supportive environment for research is also paralleled by efforts to provide resources for appropriate physical accommodations, including library facilities, space and technical/digital communication equipment not only for staff but also for doctoral students. Furthermore, both research staff and doctoral students are provided with financial support for conference attendance and scholarly exchange visits.

The Unit has also a future-oriented staff recruitment policy, designed to ensure high quality maintenance and enhancement where appropriate, with particular reference to reducing the current high work load for the staff.

2. CURRENT STRUCTURE AND PERFORMANCE OF UNIT'S RESEARCH

During the assessment period, the Unit has been successful in promoting coherent research with a focus on language in context within three topical areas, 1) Language Learning and Teaching, 2) Language and Discourse, and 3) Language and Culture. This, in turn, has allowed a consistent continuation with a new research profile for 2010-2015 with a slightly different focus, namely linguistic and cultural practices in changing environments. This not only applies to research and development, but also guides staff and doctoral student recruitment.

At the national level the Department has the unique research area of Finnish Sign Language and a leading position in applied linguistics.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

Excellent research outcomes and scientific impact have been achieved in several areas:

1. Variation, Contacts and Change in English
2. Multilingualism as a problematic resource
3. Books in transition
4. Linguistic basis of the CEF (with CALS) and paths in SLA
5. Northern multilingualism
6. Dialogues of appropriation

The Sign Language Centre is new at the Department, but has a clearly promising potential of contributing to the Department's research agenda as well as to the growing international research on sign language.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS) FOR THE UNIT

Strengths:

- A coherent and collaborative environment for interdisciplinary research.
- Excellent conceptualisation of both applied and basic research issues.
- Outstanding responsiveness in addressing frontline research questions with high societal relevance.
- Great scientific and societal potential in research activities related to multilingualism in a diversified society undergoing rapid change and transition.
- High visibility and large impact in the national arena through regular summer school and conference events as well as through central contributions to the national doctoral school for languages, LANGNET.
- Selective and strategic networking.
- Highly strategic publication policy combining high-ranking peer-reviewed scientific international journals, edited international volumes and publications in Finnish for the national arena.
- Good financial support for conference activities and staff travel.

Weaknesses:

- The division between teaching-only and teaching-and-research staff not yet overcome.
- Extremely high work load for some of the senior staff members. No system of sabbaticals in place.
- Limited non-national research funding.
- Excessive number of registered doctoral students.

Opportunities:

- New, more purposeful and determined staff and student recruitment strategies.
- Well developed national and international networks.
- Interesting composition of research interests and research approaches.
- A friendly and supportive atmosphere.
- Excellent research facilities.
- Possibly new sabbatical regulations at the faculty level.

Threats:

- Scarcity of human resources, among other things due to retirement and absence of highly qualified staff replacements.
- Long-term negative effects of an excessively demanding work load.
- Insufficiently structured doctoral programme.

5. RECOMMENDATIONS

The Department should continue to develop its outstanding research qualities with the efficient approaches already in place. The more specific points are:

1. To work towards extending European funding.
2. To secure and develop further the Unit's role as a nationally leading and internationally important actor in the applied linguistics research community.
3. To increase the number of publications in high-ranking journals.
4. To adjust the number of doctoral students to a healthy balance of the Unit's needs for research contributions, its resources for supervision and financial support.

DEPARTMENT (UNIT) ART AND CULTURE STUDIES

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research**Mark: 4/5**

The Department of Art and Culture Studies, established in 2002, is a multi-disciplinary Unit that practises basic and applied research. Of its disciplines, Museology, Contemporary Culture and Hungarian Studies are the only ones of their kind in Finland: in the Finnish context. The same can be said of Art Education, as well. Additionally, Art History, Literature, Creative Writing and Digital Culture belong to the disciplines of the Unit.

The number of staff in the different disciplines varies to a considerable extent. In disciplines such as Literature, Art History and Art Education the situation is, in this respect, relatively good, but, on the other hand, Contemporary Culture, Creative Writing, Digital Culture, Hungarian Studies and Museology are small disciplines whose staff might consist only of one or two researchers/teachers. Despite this, in certain areas the Department has proved to be creative and innovative, in that it has participated in the regeneration of the study of art and culture by putting into closer contact different theoretical and methodical approaches: it has crossed traditional boundaries between the humanities, social sciences, cognitive sciences and pedagogy. In the same way, it has brought to academic research new questions, themes and tools with particular reference to disciplines such as Art Education, Art History, Contemporary Culture and Digital Culture. The large size of Literature has also enabled to produce important scientific results. It is chiefly due to these disciplines that the Department research is at a very good international level. The rest of the disciplines are important and necessary for the Department for, among other things, their support and enrichment of the research work maintained by the above-mentioned disciplines.

Though a lot of progress has taken place since the establishment of the Department and the faculty assessment in 2005, the Department is still, in certain areas, quite heterogeneous. It is, therefore, difficult for it to function as a sufficiently coherent research unit. Its research strategy contains three themes or areas: (1) interpretation, expression and experience of art; (2) cultural heritage, contemporary culture and technology; and (3) culture of children and youth culture. This strategy has been formulated in broad and general terms, and it remains a bit unclear what is actually included in these areas.

Within these three areas the Department has succeeded in establishing several research projects based on external funding. This is a positive sign of the high scientific quality of these projects and the Department's research. However, it is difficult to ascertain the level of participation of the different disciplines in these projects. At the same time, most of these projects focus on limited themes and questions. Therefore a key question is: Would it be more fruitful to develop more extensive and ambitious projects and, at the same time, restrict the number of projects. In addition the disciplines should deepen their collaboration at a substantial, theoretical and methodological level and form a more interdisciplinary unit.

Assessment criterion 2: Quality of the scientific impact

Mark: 3.5/5

Almost all of the disciplines within the Department actively participate in national and international scientific discourse. This is a good sign of the quality of the Department research. Moreover, the work in Art History is acknowledged through several national scientific awards, prizes and honours.

Some members of the Department hold several academic and professional positions in scientific associations and journals. These positions are primarily national. The Department and its members have close contacts with foreign universities, but these contacts are rather limited. In general, most areas of the Unit do not collaborate with the best or top-level departments in their fields.

The Department members have been published in high-quality national and international journals and books, but to increase the visibility of their research activities they should publish their articles in top-rated peer-reviewed journals more often.

Assessment criterion 3: Quality of research collaborations**Mark: 3.5/5**

The Department has good scientific collaborations with other Finnish universities and research institutes. The Department's international collaboration covers scientific and educational aspects. The members of the Department participate in several national and international scientific networks, but so far they have not been plenary or keynote speakers at major international conferences. The Unit seems to be improving and moving towards higher international visibility.

Assessment criterion 4: Quality and quantity of the research funding**Mark: 4/5**

During 2005-2009 the Unit's total external funding was nearly 30% of its entire budget. Thus, the Unit has been quite successful in this respect. The external funding primarily came from national sources, but a considerable amount, about 20%, came from international funding.

In the area of external funding, the most important sources were the Academy of Finland and EU Structural Funds. Additional funding was received from other public sources and private foundations. The external funding was generally competitive.

External funding is of great importance for the Unit in order to carry out its research strategy. External funding is, again, a positive sign of the high scientific quality of the research made by the Unit. An increase in external international funding is also needed for the coming years.

Assessment criterion 5: Quality of the research environment**Mark: 3.5/5**

At present, the Unit has 18 permanent teacher-researchers, 109 doctoral students and 614 students. This constellation is not favourable for the research, as the teaching load of the staff is very high. In addition, the staff has invested a good deal of time and effort in administrative duties. For these reasons, the staff has conducted a great deal of its research outside their yearly work plan.

There are certain problems with the physical environment, since the Department is located in three different places on the campus. This situation often creates obstacles for practical co-operation between the members of the Unit. Furthermore, some buildings do not provide a suitable physical working environment for the staff.

Many of the disciplines within the Department are too small to provide the critical mass needed for a productive and sustainable research environment. Although there has been increasing synergy between the disciplines, it is not a substitute, even collectively, for the advantages that larger disciplines could provide.

In conclusion, there are certain shortcomings that prevent the Department from reaching the international top level at the moment. In particular, this can be explained by the small size of the disciplines and the high administrative and educational load of the staff. On the other hand, the Department has been able to increase its scientific quality to a high international level.

2. CURRENT STRUCTURE AND PERFORMANCE OF UNIT'S RESEARCH

There is a lot of energy, optimism and intellectual potential in the Department. It is developing in a positive direction, changing into a more coherent and interdisciplinary research unit. Provided with the appropriate research environment, the Unit will be able to better take advantage of its intellectual potential.

At present, it is not quite clear how an area like Hungarian Studies is related to the core activities of the Department. Perhaps this discipline would benefit more from being placed in another department.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

Promising research is especially seen in the fields of Art History, Art Education, Literature and Digital Culture. Contemporary Culture is also a central discipline in the field of Finnish cultural studies and has its own place in the international field of cultural studies. The Department has efficiently recognised these areas.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS) FOR THE UNIT

Strengths:

- Despite its diverse, multi-disciplinary structure and a relatively small staff, the Unit has successfully participated in national and international scientific discourse in its fields.
- The Unit has been able to transform its multi-disciplinary structure into a positive resource for interdisciplinary research.
- The Unit has been highly innovative and creative within its research fields.
- The Unit is firmly rooted in different research networks and has demonstrated national leadership in arts and cultural studies.

Weaknesses:

- The uneven structure of the Department poses an obstacle for obtaining sufficient critical mass.
- The number of publications in top-rated journals is low.
- The research environment has shortcomings, which create practical obstacles for cooperation.

Opportunities

- During 2010-2017, "Languages, culture and social change processes" belong to the areas of emphasis at the University of Jyväskylä. This offers the Unit an opportunity to strengthen its position.

- The ongoing “economisation of culture” provides the Unit with new opportunities to increase its societal impact. Innovative and interdisciplinary research of contemporary culture might also have immediate societal impacts.
- There is, in contemporary society, a large research potential for knowledge concerning ethnic and cultural minorities.

Threats:

- There is a risk that society adopts a more instrumental conception of humanistic research, thus reducing and marginalising its importance. It could negatively affect the resources allocated to the Unit.

5. RECOMMENDATIONS

So far, the Unit has cooperated primarily with other national departments and research institutes, however it should also be more oriented towards wider society. This would include collaboration with public and non-public cultural actors and institutions, making the Unit more receptive with regard to the world outside the academic milieu.

The Unit would benefit from closer cooperation between the involved disciplines.

Improvement of the physical environment and the creation of administrative staff posts are necessary conditions for a well-functioning department.

The Department has a lot of intellectual potential to improve its visibility; for instance by publishing more articles in top-rated peer-reviewed journals.

DEPARTMENT (UNIT) CENTRE APPLIED LANGUAGE STUDIES

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit’s research

Mark: 4/5

The Centre for Applied Language Studies (CALs) conducts conceptually and methodologically rigorous research that is socially relevant to local concerns within Finland and beyond. This intellectual orientation is reflected in its distinguished track record in undertaking research and development for commissioned national contracts in the field of language education and assessment since the late 1990s.

The three main areas of research activities are: language assessment, language learning and literacy practices, and language education policies. Conceptually and theoretically all three areas are oriented towards a socio-cultural paradigm. The articulation of diagnostic language assessment into language learning is a good example of intellectual synergy. The broad socio-cultural orientation provides an excellent platform for paradigm-crossing theorising and the development of innovative methodology in language assessment, an area that has long been associated with psychometric approaches.

A holistic approach to language use and literacy, filtered through a socio-cultural perspective, has enabled a broadening of research parameters to cover participant practices in a variety of contexts in ethno-linguistically diverse settings. The re-insertion of speaker agency in language education research has yielded important theoretical and empirical insights for both educationally and policy-oriented language research.

The appearance of the research team's published work in top-rated international journals and prestigious edited collections indicates the high quality of scholarship achieved.

There is considerable potential for further development in relation to basic theory-building, problematising conceptual issues and reflexive analysis of socially oriented and policy-driven research.

Assessment criterion 2: Quality of the scientific impact

Mark: 4/5

Given the duality of CALS's position within the University – as a research centre and an agency for commissioned public projects of national priority (national duties) – the notion of impact has to be understood in context. Two key indices of impact are relevant here: dissemination outlets and practical application.

In terms of the outlets of dissemination, the articles and chapters in top-rated international refereed journals and high-quality edited volumes indicate peer approval and community-conferred esteem. At the same time the publication of scientific monographs and textbooks represents a strong effort to make up-to-date research available to local/national users. Over the five-year period (2005-2009) the momentum of output in all categories of scientific publications has been maintained at a very high level. CALS also runs its own publication facilities and publishes its own journal, *Apples*.

The nationally commissioned activities afford an opportunity for research-derived knowledge to be implemented in practical applications directly relevant to language issues in educational and other everyday contexts. CALS enjoys a unique position among academic research units in that it has a built-in capacity to transfer research-derived knowledge and know-how to real-life application.

The scientific impact of the work of the Centre would benefit from more resources devoted to increasing its engagement in shaping the intellectual agenda and the core concepts associated with its activities and domains of expertise.

Assessment criterion 3: Quality of research collaborations**Mark: 5/5**

CALS has built up extensive networks of collaborating partners locally/nationally and internationally. It actively works with some other units within the University, and has established good working relations with a range of national and international partners. This is evidenced by the high level of support the Centre has given to visits abroad, and by the productive participation of external partners in its on-going research activities.

CALS has been working with the Department of Languages within the University on a number of projects, some of which have been supported by Academy of Finland.

In addition, CALS is a partner on a number of funded projects with University units outside the Faculty of Humanities and external organisations, e.g. EUROMOBIL (2005-2007). Another example of successful collaboration is the Finnish Network for Language Education Policies (2009-2012), which is coordinated by CALS.

The personnel of CALS serve on editorial boards of international journals and expert committees of international professional bodies.

Given the fact that the Centre has a relatively small staff, it has made maximal use of its collaborative arrangements.

Assessment criterion 4: Quality and quantity of the research funding**Mark: 4/5**

CALS has been successful in securing external funding for its activities: from 2005 to 2009, approx 33% of its budget was supported by external funding, the bulk of which came from the Ministry of Education and the National Board of Education. This funding is linked to the commissioned public contracts associated with the work in assessment and language education policy. While these projects are oriented towards practical outcomes, much of their development requires both basic and applied research. Given the dynamic and protean nature of the phenomena involved – e.g. the shifting nature of language competence in context and the variability of situated language and literacy practices – the Centre's research domains are likely to be included in future national and EU public research agenda. The knowledge and expertise produced by past (and on-going) research will provide a highly competitive capacity to bid for future research funding.

The Centre is well-situated to explore further opportunities for competitive funding both nationally and internationally.

Assessment criterion 5: Quality of the research environment**Mark: 4.5/5**

The relatively small size of CALS has afforded the development of an organisational structure that encourages cross-domain working between the different research project groups. The seemingly 'flat' structure between professors, research staff and PhD students has engendered a highly productive collegiate atmosphere.

The close working relationship between CALS and the Department of Languages provides opportunities for cross-fertilization of ideas and expertise.

The corpus of multilingual data (consisting of language test-takers' performances) is a very useful resource for researchers working in different areas of language learning and language use.

The research support infrastructure, e.g. access to library facilities and computing and other digital communication equipment, appears to be excellent.

The high work load for the senior staff as well as the time-limited nature of the contract for some of the research staff militate against medium- to long-term sustainability of the current level of effort.

2. CURRENT STRUCTURE AND PERFORMANCE OF UNIT'S RESEARCH

CALS conducts conceptually and methodologically rigorous research that is socially relevant to concerns local to Finland and beyond. The uncomplicated organisational structure of the Unit supports the Centre's core activities. The three main areas of research activities are:

1. language assessment
2. language learning and literacy practices
3. language education policies

There is a good deal of synergy between the national duties (contract work) and the academic research. The Centre has attracted a high level of external funding from educational authorities in Finland. In the medium- to long-run it would be important to develop a strategy to broaden the Centre's income base.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

Areas of research output at the high international level include:

- language assessment
- the linguistic basis of the CEF (in association with DL) and Paths in SLA
- situated language practices in the classroom
- linguistically oriented analysis of development of CLIL

The work in literacy practices and multimodal pedagogies carry considerable potential for further exploration.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS) FOR THE UNIT

Strengths:

- An open and collaborative environment for interdisciplinary research.
- Strong commitment to conducting research into questions of high societal relevance.
- Emphasis in new research development on issues related to multilingualism in Finnish society.
- Substantial interaction with key leading researchers in relevant fields.
- Dedicated staff and PhD students.

Weaknesses:

- Heavy reliance on a limited number of external funders may pose problems to medium- to long-term security.
- Commissioned research and development work can displace time and energy that otherwise could be spent on innovative work.
- The relatively small staff size can restrict the Centre's capacity to engage in long-term, large-scale projects.

Opportunities:

- To exploit the possibilities of developing monitoring and evaluation work alongside commissioned projects to develop conceptually and thematically reflexive accounts.
- To deploy some of the existing resources to develop projects that would harness the considerable human talent and resources represented by the early-career researchers.

Threats:

- The relative small size of the Centre carries an inherent problem for medium- to long-term development.

5. RECOMMENDATIONS

- To continue to develop the Unit's high-quality research activities and to explore possible areas of concept building and empirical investigations with reference to the different strands of the Centre's present research activities.
- To explore the relationship between the Centre and DL with a view to enhancing greater synergy and long-term security.

DEPARTMENT (UNIT) COMMUNICATION

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research**Mark: 4/5**

The Department of Communication was established in 1985. Today it comprises four disciplines, all related to different traditions in media and communication research: Journalism, Speech Communication, Organizational Communication and PR, and Intercultural Communication. Between 2005 and 2009, the Department had the following three strategic research areas: 1) Communication, media and society, 2) Interaction, communities and culture, and 3) Communication in working life.

- 1) "Communication, media and society" is represented by three projects. One concerns media history; an example of this is a biography of a prominent Finnish politician and journalist Eljas Erkkö. Another project, titled "Global Innovation Journalism", has connections to Stanford University and Oxford Internet Institute of Oxford University. The third focuses on the transformation of media systems and journalism cultures in Central and Eastern Europe.
- 2) "Interaction, communities and culture" is exemplified by three projects as well. The first is titled "Mental Violence in Communication Relationships at School and in the Workplace", funded by the Academy of Finland. The second is called "Technologically Mediated Communication", and it has been a part of a larger project of "Innovations in Business, Communication and Technology" at the Agora Center. The third, "The Crisis Communication" project, is funded by the EU FP7 and it is a part of a four-country consortium (coordinated by Jyväskylä with Norway, Estonia, and Israel as partners).
- 3) The third area has two lines of research. The first addresses journalism practices, and the second deals with the co-construction of knowledge and the role of interpersonal and group communication. The latter is a co-project with the University of Oulu.

The Department hosts one FA-funded project, one TEKES funded project and two EU FP7 consortium projects (one coordinated by the Department), all with several international publications.

The new revised research strategy for 2011-2017 was adopted in summer 2010 and it is based essentially on the same division into three research areas, although the titles are slightly different. In addition, some new projects were started in 2010 and 2011. Many research areas and projects seem very promising and aim at a high academic level, while some are more R&D in character with less academic ambition.

In the field of Journalism Research, the Department competes with both several national and international respective units. In the disciplines of Speech Communication and Organizational Communication and PR, the Department is rather unique, and it has good opportunities to become a major player both nationally and internationally. The same applies – perhaps even more so – to Intercultural Communication.

The revised research strategy for 2011-2017 appears somewhat more coherent than the previous version and is clearly more forward looking. It is fair to say that the Department's scientific quality of research is at a good international level and is progressing. There are some projects and researchers that reach a very good international level.

Assessment criterion 2: Quality of the scientific impact

Mark: 3.5/5

The Department has six professors (two professorships are presently vacant) and six other doctoral-level researchers. Between 2005 and 2009, the number of refereed publications was around 22 per year, which amounts to fewer than two per researcher. By Finnish standards, the amount can be considered satisfactory. In the international publishing the Department shows a definite upward trend.

The channels of publication include some top-ranked international journals. Most researchers are well recognised nationally and they are active in national scientific associations and publications. Many researchers are very well known and active in international organisations in different capacities. The Head of the Department was instrumental in the mid-2000s in the process of establishing the main European research association of the field, ECREA. Some members of the Department are very visible and well positioned internationally in ECREA, ICA and IAMCR, among others. It is fair to say that at the moment, the scientific impact of the Department is already at a good international level, and that there are all the elements to further improve the performance.

Assessment criterion 3: Quality of research collaborations

Mark: 4/5

Between 2005 and 2009, the Department had three collaborative projects at a national level (with the Lappeenranta University of Technology, University of Tampere, University of Turku, and University of Helsinki). Two publications were co-authored with researchers from other Finnish universities. Some examples are given of collaboration with non-academic organisations. Within the University of Jyväskylä, one collaborative project involving partners from different faculties is mentioned.

The members of the department have made on average 60 visits abroad per year between 2005 and 2009, most of them to conferences. The Department clearly supports research mobility which extends to research students, too. The visits have led to concrete results in the form of research collaboration and funding opportunities. The Department is visited yearly by about 15 researchers from abroad.

The Department has eight international collaborative projects which included researchers from over 20 countries. There are several well-established research networks in which researchers participate regularly. As there are clear signs that the Department works seriously to improve the quality of collaboration, the quality of the Department's research collaborations can be assessed to be at a good to very good international level.

Assessment criterion 4: Quality and quantity of the research funding**Mark: 4/5**

The external research funding for the Department has increased from 365,000 in 2005 to 642,000 in 2009. The total in 2009 included funding from the Academy of Finland and TEKES (217,000) and EU FP7 funding (108,000). In 2010 the Department started another EU FP7 project. It seems evident that without external funding, most of the relevant projects would not have been possible. The quality and quantity of the research funding of the Department are clearly improving.

Assessment criterion 5: Quality of the research environment**Mark: 4/5**

The Department has adopted a new Research Strategy and nominated a Research Director and a Research Development Group. The Department's research activities are carried out by the research groups which are formed around the main research areas and the research projects receiving external funding. The main research areas are clearly defined in the Research Strategy. All main projects fit well within these areas.

The Department is satisfied with its technical infrastructure, but there are problems with research administration at the departmental level. For some members of the academic staff, a heavy teaching load is still an obstacle to efficient research. There there is a palpable sense that critical mass for effective research is lacking. On the basis of the report, the quality of the research environment can be assessed to be at an either fair or good international level.

It was not quite clear, though, how well these research areas function, for example, in guiding the recruitment of senior staff members and doctoral students, or in planning research applications.

Although it was discussed in the meeting with the Department, it remained unclear what kind of assistance is available to researchers and doctoral students for e.g. supervision or peer support.

2. CURRENT STRUCTURE AND PERFORMANCE OF UNIT'S RESEARCH

Some of the research projects are internationally renowned and they have produced very good results. Although the Department has not produced (yet) major international breakthroughs, some research groups are working already at a good international level.

The Department has good national and international networks, and researchers are active in international forums. Some researchers are publishing in top international journals. The Department is striving for more and better international research cooperation, and leadership and support are available for this purpose.

However, the research still appears to be too dependent on individual researchers. Both national and international collaboration appears to be mostly temporary and based on separate projects. Taking into account the effective Finnish networks, there might be room for more strategic long-term collaborative relations with Finnish partners as well.

There is a need to consolidate the research groups and improve means to support them outside the funded project periods. Not all senior researchers appear to be involved in planning the research plans and developing research areas. The positive synergy of the four disciplines is not fully utilised. Although there is already collaboration with other departments of the Faculty, this could apparently be utilised more extensively.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

Some of the research projects in the Department that reach a high international level, for instance the projects on Mental Violence and on Innovation Journalism. On the same level are the projects on transformation of media systems and media cultures in Central and Eastern Europe. There is clearly potential for other projects to reach this level as well, such as the Crisis Communication project. As many projects are either just concluded or are still in an early stage, we can expect steady improvement in all quantitative indicators concerning publications, conferences, visits abroad and incoming visitors, etc.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS) FOR THE UNIT

Strengths:

- There is a solid support for research from the Faculty and Department, both in the form of research infrastructure and in subsidising international cooperation with travel grants, etc.
- The Department has managed to achieve a good and improving level of external funding, both from national and European sources.
- The Department is an active member in international networks and increasingly a dynamic contributor to international collaboration.

Weaknesses:

- The balance between teaching and research is still wanting in the Department. Those with an excessive teaching load do not have the possibility to effectively conduct research. The same concerns those with administrative duties.
- The departmental synergy could be even better utilised. The planning of research projects and proposals could engage more the expertise of all disciplines.
- The operationalisation of the research strategy needs developing. The strategy is still on a rather abstract level.

Opportunities:

- The university intends to invest further in the internationalisation of research. The Faculty plans to establish a research collegium and implement a sabbatical system.

- The international networks of the Department open up numerous opportunities to deepen the strategic research areas.
- There is increasing societal demand for communication and media research.

Threats:

- Increasing competition for research funding requires rapid action and flexibility. The threat is that the research strategy is not properly operationalised.
- There is a danger that due to the scarce resources for proper planning of research proposals, the new research culture will be left underdeveloped and the individualistic research culture will make a reappearance.

5. RECOMMENDATIONS

- The Department should focus more on its strongest research areas and invest in those with the best potential for a real international break through.
- This requires long-term investments in those areas with already solid long-standing results and experience. The Department should guarantee that these areas will have the critical mass needed for high-level international research. This might mean that new recruitments are necessary for these areas.
- At the same time, the Department should be receptive to new openings and opportunities – but avoid the temptation of short-term gains/easy wins.
- The relations of collaboration, both nationally and internationally, should be assessed strategically from these points of view. It might need a re-orientation in emphasis and resources.

FACULTY OF EDUCATION

FACULTY OF EDUCATION	111
PANEL MEMBERS.....	112
FINNISH INSTITUTE OF EDUCATIONAL RESEARCH.....	113
1. Assessment criteria	113
2. Current structure and performance of Unit’s research:	115
3. Identification of research groups at high/highest international level, and of most promising groups:	116
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit:.....	117
5. Recommendations:	117
DEPARTMENT EDUCATION.....	118
1. Assessment criteria:.....	118
2. Current structure and performance of Unit’s research:	121
3. Identification of research groups at high/highest international level, and of most promising groups:	122
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit:.....	122
5. Recommendations:	123
DEPARTMENT (UNIT) TEACHER EDUCATION.....	124
1. Assessment criteria:.....	124
2. Current structure and performance of Unit’s research:	126
3. Identification of research groups at high/highest international level, and of most promising groups:	127
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit:.....	127
5. Recommendations:	128

PANEL MEMBERS

Sten Ludvigsen, Chair of the Panel. InterMedia, University of Oslo, Norway

Dora S. Bjarnason, University of Iceland, Iceland

Seamus Hegarty, National Foundation for Educational Research, United Kingdom

Eija Syrjäläinen, University of Tampere, Finland

Miriam Zukas, University of London, Birbeck, United Kingdom

FINNISH INSTITUTE OF EDUCATIONAL RESEARCH

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research

Mark: 3.5/5

The Institute aims to cover 'the entire educational system', including links to working life. Currently, this has been operationalised in terms of four, relatively disconnected domains of research:

1. The processes of teaching, learning and guidance
2. ICT and learning
3. (International) comparative assessment
4. Education and social change, mainly higher education.

The Institute also seeks to advance research methodology in its area. In addition, 'Education, teaching and learning in the future' has been defined as one of the University's areas of strength.

On the evidence presented, the quality of the research output is uneven. Domain 1 (Learning, teaching and guidance) and Domain 2 (ICT and learning) are relatively strong, with an effective focus and relevant publications. Domain 1 has developed a model of integrative pedagogy that is relevant to workplace learning as well as to university and vocational learning. Work on practice-oriented assessment has contributed to the assessment of work-based learning in European countries. There has also been a strand of work on methodology which has advanced thinking on the use of narrative research in action research. Domain 2 has entailed a robust body of work on collaborative learning in electronic environments, with particular reference to vocational and higher education. This has led to the development of PedaNet and to pedagogical innovations within the University but not as yet further afield.

Domain 3 (Comparative assessment) is the traditional area of strength of the Institute. It encompasses a very large and well resourced set of large-scale international studies – TIMSS, PIRLS, PISA, PIACC, ICCS – which have been part of the history of the Institute. These studies are conducted by and large to external imperatives and for the most part entail data-handling rather than analytical research processes. There have been some secondary analyses based on these international datasets, though few in number and quite old. (The studies cited draw on datasets from 1999 and 2000 respectively.) Domain 4 (Education and social change) has done an analysis of teacher education curricula across Europe and has supported doctoral work on aspects of higher education policy.

The submission makes no explicit reference to learning in the future as an area of sustained research interest. Some strands of work, e.g. Domain 2 but possibly others as well, could feed strongly into this area. Given the increasing importance of this topic and the need for solid research into it, it is a little surprising that the Institute's current work – and indeed its future potential – in relation to this has not been set out explicitly.

Some areas of the Institute's work are of excellent international quality and contribute well to international discourse. In relation to the assessment domain, the Institute's work is not currently at the level of leading bodies such as the Australian Council for Educational Research or the National Foundation for Educational Research in England.

Assessment criterion 2: Quality of the scientific impact

Mark: 3/5

Institute staff have published an average of 14 papers a year in peer-reviewed international journals as well as a range of other publications in Finland and abroad. (The latter include an average of 19 publications a year in a category described as 'international refereed scientific edited volumes and conference proceedings'.) Some of these papers are of high standard and represent a good contribution to their respective fields, but the Institute's output as a whole is modest and, in particular, the limited number of analytical papers in the comparative assessment area must be noted. This output can be seen in the twin contexts of the Institute's own targets and the relative productivity of the Faculty of Education. The Institute's aim is that 'each tenured researcher will produce statistically two international refereed articles annually'. With some 25 tenured staff, this points to a productivity of just over one article every two years as opposed to the target of two articles every year. If the c. 40 non-tenured research staff are taken into account, the productivity rate drops further. The Education Department has a similar number of staff and yet has comparable output in terms of publications over the period, despite its teaching commitments. The Teacher Education Department average over the whole period is lower but matched the Institute's average in 2008 and 2009.

A number of staff are editors or editorial board members of international journals and participate in scientific expert tasks. Staff have won several prizes for dissertations or conference papers. There is good evidence of staff impact on the scientific community at national level, particularly in respect of guidance and counselling, and teacher research.

Assessment criterion 3: Quality of research collaborations

Mark: 4/5

There is a good deal of international collaboration, with substantial output. Typically, these are joint publications and seminars. This encompasses significant work in computer-supported collaborative learning, vocational education and training, higher education networking, newly qualified teachers and international student assessment. Partners include leading universities and research groups in Europe but also in Japan and the USA. Activities co-ordinated by Institute staff include the ESF project 'Scaffolding, structuring and regulating collaborative learning', the Change in Networks, Higher Education and Knowledge Societies design and NQT-COME, an international mentoring programme for newly qualified teachers.

National collaboration is largely with university colleagues at Jyväskylä but extends to other Finnish universities as well. The amount of collaboration with Faculty of Education colleagues is relatively limited, in part because of resource constraints. In general, the collaboration encompasses joint research activities, publications and doctoral training but not research support.

There is a great deal of staff mobility, with considerably more visits abroad than visits to the Institute – a yearly average of 131 versus 20. A few members of staff have held visiting positions abroad.

Assessment criterion 4: Quality and quantity of the research funding

Mark: 4/5

The Institute has attracted a good deal of external funding for research, particularly in 2009 – a total of 6.3 million over the five-year period, of which 2.3 million was secured in 2009. Most of the funding is national, with negligible amounts from international sources. About one-third of the national funding has come from the Academy of Finland; this is a steady stream of income, averaging about 400 000 a year.

Funding from the Academy of Finland has been important in developing basic research, for example, in computer-supported collaborative learning, and in supporting young researchers. It would appear that a substantial amount of the other external funding is geared to large-scale data collection and does not permit in-depth analysis of the data gathered.

Assessment criterion 5: Quality of the research environment

Mark: 4.5/5

The Institute has an appropriate leadership structure and a well developed infrastructure to support the research programme. As the Institute does not have formal teaching responsibilities, staff are well placed to concentrate on conducting research and engage in the requisite project management and professional development activities that this entails. While the Institute provides stable employment for a core group of staff, career opportunities are limited for early-career researchers.

There is an effective research infrastructure which provides professional and administrative support to the research projects. In particular, there is a Methodology Unit which focuses on the statistical requirements of large-scale assessment and longitudinal projects. There is also a publication unit which services the Institute's publishing and information needs and supports the dissemination of educational research in Finland.

2. CURRENT STRUCTURE AND PERFORMANCE OF UNIT'S RESEARCH:

The Finnish Institute of Educational Research is an independent institute of the University with two national roles: realise Finland's participation in international comparative studies, and take responsibility for disseminating educational research findings in Finland. It also conducts research on a range of other topics. Conceptually, it sits alongside the Education and Teacher Education Departments within the Faculty of Education but is quite separate from them. There is some, limited collaboration between the three entities but, for the most part, they operate independently of each other.

Different considerations apply to the Institute's two roles, vis-à-vis its national remit and its research programme respectively. The national role is an important and demanding one and is well executed. Despite the large quantum of resources committed to it, however, it entails relatively little research, as evidenced in particular by the modest amount of secondary or other in-depth analysis conducted to date. This role entails modes of working, infrastructure requirements and responses to external imperatives that do not sit easily with conventional university departments. The Institute's research programme, on the other hand, is no different in conceptualisation and execution from other university research, and there is no reason in principle for it to be part of a separate structure.

It is not the panel's role to say how the University should organise its research and related activity, but we offer three reflections which may be helpful. These relate, respectively, to synergy, critical mass and the value of having a cadre of dedicated researchers. One reason for conjoining a research programme to the Institute's assessment activity is that the former would be enriched by the latter through engagement in a common intellectual enterprise. This does not seem to be happening, however, nor is it likely to, given the topics being covered in the research programme. They bear no particular relationship to the Institute's assessment activity, and indeed it could be argued that there is greater synergy between the Institute's research programme and strands of work within the Faculty of Education.

As against that, the need for critical mass in research groups is well established, and it may be that the Institute's assessment work, and its research programme, are enhanced by the infrastructure and other support that a larger volume of activity permits. This is primarily an organisational matter. It is not necessary for the research programme to be located within the Institute for these benefits to be realised. Indeed, if the Institute were resourced in such a way that it could provide research support across the Faculty of Education, it is likely that the University's research as a whole would benefit.

Having a dedicated cadre of researchers who are free from teaching duties can contribute substantially to research productivity. So long as research funding is available, it may well be easier to maintain such a cadre in an independent institute than in a conventional teaching department.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

The two groups concerned with learning, teaching and guidance and computer-supported collaborative learning respectively have produced robust bodies of work and are having impact at European level. They have established or are active in effective cross-national networks, and it is reasonable to expect that their involvement and contribution will continue to grow. The assessment area does not have a major impact internationally at the moment but has the potential to grow if it develops its analytical and theoretical capacity.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS) FOR THE UNIT

Strengths:

- The Institute has considerable strengths: comprehensive research skills; multidisciplinary expertise; strong research infrastructure; good core and steady external funding; strong national reputation; good professional and policy networks, nationally and some internationally; and a critical mass to ensure long-term viability. In addition, staff are free of teaching responsibilities.

Weaknesses:

- The Institute's international profile is uneven, and its international publication record is modest in relation to its size. Much of the external funding is short term; this introduces uncertainty as well as the opportunity cost of generating funds. The demands of large-scale data collection projects appear to impact negatively on the conduct of in-depth analyses. This has the twin effect of losing opportunities for key explanatory research and reducing productivity in terms of publication output. There is little synergy between the Institute's national assessment role and its research programme.

Opportunities:

- The Institute could capitalise on its many strengths in order to secure more and better structured funding, enhance its recruitment, and engage in more fundamental research as well as in-depth analyses of existing datasets. It could also contribute more strongly to the University's mission in respect of teaching and learning in the future. If all this were done in a way that realised the potential synergy between the assessment and research programmes, this would increase its research output and enhance its capacity to be a major player nationally and internationally. It is also well placed to provide valuable research support to the substantial research activities being carried out in the Faculty of Education.

Threats:

- The international research arena is becoming increasingly competitive and the Institute risks being sidelined in it. Its dependence on national funding sources exposes it to a shift in national research funding policies. The failure to carry out more in-depth analyses of international datasets exposes it to a reputational risk, especially as international activity in this area builds up. The lack of relationship between the research programme and the assessment activity may lead to the former migrating from the Institute.

5. RECOMMENDATIONS

1. The Institute occupies an unusual position within the University and nationally, with its combination of national assessment and conventional research projects. The Institute should examine its mission so as to articulate a clearer relationship between its

assessment and research functions and make any structural or programmatic changes that would follow from this. This would enable it to capitalise to a far greater extent on its many strengths.

2. There are some working links between the Institute and the Departments of the Faculty of Education, though these appear to be relatively limited and ad hoc. The Institute should consider with the Faculty and the University how it could work more closely with the two Departments, particularly in the area of providing research support. The Institute has strong methodological, data-handling, statistical and other expertise which could greatly strengthen the Departments' research activity.
3. The Institute's position as a leading assessment centre is weakened by the absence of in-depth analyses of the large assessment datasets and other psychometric inquiry. The Institute should ensure that analytical and theoretical work is a sustained part of its programme. This would add greatly to the value of Finland's participation in international assessment studies, enhance the Institute's standing in the assessment community and increase its contribution to education discourse.
4. The Institute's publication record is modest. The reasons for this should be explored in detail and all necessary steps taken to ensure that the quantity and quality of scientific publications increase.

DEPARTMENT EDUCATION

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research

Mark: 3.5/5

The Department has four divisions: three of these, Education, Early Childhood Education and Special Education, contribute to the five research areas within the Unit; the fourth, Educational Leadership, does not appear to do so. The five research areas are all, to a greater or lesser extent, concerned with fundamental research questions such as the construction of professional identities in creative and human-centred work or questions about the conceptualisation of childhood. Each is led by at least one professor. However, there are differences between the five research areas: some are programmatic with a well defined focus, while others appear to be a list of individual projects grouped under a heading.

There are a wide range of research questions being asked within the Department. Many of these relate well to agendas in educational research around the world and some have contributed to shaping those agendas. For example, work within the Department has contributed to the emergence of childhood studies as an area of specialisation and has been a significant influence

on the question of what constitutes the child. Work on the theorisation of disability has contributed to international discourse, though it is not evident that it has contributed to or commented on contemporary developments in inclusive education within the Finnish system. Studies relating to children's early language development are also important, though it is harder to judge the trajectory of this research, particularly as it tends to be described in terms of past projects rather than in terms of future ones or generative themes.

Some of the research has the potential to produce new lines of thinking, and examples could be seen as post-docs and senior researchers developed their own lines of work: the professional identities and learning communities group were developing a line of inquiry investigating professional agency and inter-professional work in healthcare and education; an emerging area of work in fathering and mothering within the cultures of childhood theme was also identified, although there are questions about how this might relate to work within the group working on social relationships in the early years.

The research strategy of the Department is relatively limited: it refers, without elaboration, to the overall strategy for the Faculty which, in turn, is couched in general terms of developing high-quality research with international and national visibility and with scientific and social relevance and impact. There is little within the strategy which is specifically about the research areas that might be prioritised. While specialisation is important, the research strategy does not bring the different elements together in a coherent way nor does it point the way to maximising the potential impact of a large group of researchers. While the research strategy has clearly been addressed in terms of outputs, it is too general to be meaningful as a guide for future development. As far as outputs are concerned, however, some important aspects of the research strategy have been achieved:

- a) The Department has increased the volume and quality of international publication, including publications by doctoral students; a high proportion of students are now submitting theses by publication.
- b) The Department has increased research funding from 240 000 in 2005 to over 1M in 2009; funders included the Academy of Finland, EU sources and the Finnish Work Environment Fund. There was clear evidence that a strategy of writing applications for funding was paying off. A further nine applications were submitted in 2010 to the Academy of Finland and one each to TEKES and Ministry of Education.

Assessment criterion 2: Quality of the scientific impact

Mark: 3.5/5

Department staff have been successful in getting published in some of the leading academic journals in their respective fields. This is an indication that they are well immersed in a range of international scientific debates. This was especially evident in relation to early childhood education, and professional identities and learning communities. The University's orientation toward the highest ranked international journals can be problematic in some instances where the most appropriate dissemination outlet for a given paper is not necessarily such a journal. Publication in a national and/or practice-oriented journal has a place in education, and staff's endeavours in this regard are to be commended

There is evidence of creative energy in relation to both national and international networking, and there are examples of networks created by members of the Department or where they play

significant roles, particularly at the national level. The Department hosted an EARLI SIG meeting in 2008.

One staff member is an editor of an international journal and a number of others are on international editorial boards. A few senior members have been invited to contribute to international scientific organisations. Some junior members of the Department have been awarded academic prizes.

Assessment criterion 3: Quality of research collaborations

Mark: 3.5/5

The Department has a wide range of different kinds of collaboration, principally but not only in relation to joint writing, editing, and joint seminars and workshops. Leading research universities in Australia, Germany, the UK and the Nordic countries appear as partners for joint research and/or writing, with collaborations in some areas strategically formed and developed. The Department also works closely with a wide range of organisations in Finland including other universities and appropriate research institutes. There is some evidence of work with governmental agencies and associations.

The outcome of such work tends mostly to focus on collaborative publications (some of high international quality) and/or ongoing scientific networking. Many staff are actively involved in a wide range of Finnish organisations with evidence of some staff involvement in international educational associations.

The Department has been very successful in attracting national funding and in using that to build international networks, bringing experts from other countries to work with colleagues in the Department to build research strengths as well as to conduct collaborative research.

Two important international collaborations feature in the period under review. One concerned with children's welfare involved 15 countries and led to four books as well as a range of other output. The other – Work, Learning and Welfare (WoLeWe) – involves three universities in Finland and is funded by the Ministry of Education. It brings together scholars from the three universities and promotes collaborative activities such as writing workshops for PhD and postdoctoral researchers and seminars led by international journal editors.

A few colleagues collaborate with colleagues in Teacher Education and the Institute. There is personal networking across the groups and there are examples of co-supervision and co-publishing, as well as collaborative research. This is a good basis on which to build critical mass which would strengthen the external view of educational research at Jyväskylä and position the University more clearly in the international scene.

Assessment criterion 4: Quality and quantity of the research funding

Mark: 3.5/5

Much of the Unit's external funding comes from the Academy of Finland or from national organisations. Over the period, the Department's record on Academy of Finland funding has improved significantly. Given the number of research awards being submitted – by a range of scholars at different points in their careers – it is to be hoped that this will continue in the future.

There was little international funding during the review period. The lack of senior researchers within the Institute of Educational Leadership has limited its capacity to secure external funding.

Assessment criterion 5: Quality of the research environment

Mark: 2.5/5

The work of the Department is spread across twelve locations, and this would seem to be an impediment to collaborative working. Members of the Department feel that they have high levels of teaching and administration, and have found the administration load more burdensome over time.

Within this general context, it appears that the Faculty research input lies in two areas: decisions about research postgraduate support; and meetings with the professoriate. This is therefore relatively 'light touch' in view of a strategic approach, and might account for the rather diverse – even disconnected – fields of research within the Department. Most of the doctoral students felt well supported within their research groups where there were such; some, however, did not belong to an active group and this was experienced as a disadvantage.

There is no doubt that, collectively, there are enough researchers within the Department, let alone across the Faculty, to provide critical mass, but realising this would mean more agreement on collective issues and projects. Research support within the Department is limited. Doctoral students are encouraged to attend international conferences, and there is some research training on offer but it appears to be somewhat reliant on individual research groups or connections with other parts of the University, rather than being a strategic and planned set of interventions.

2. CURRENT STRUCTURE AND PERFORMANCE OF UNIT'S RESEARCH

The current structure of the Department's research is somewhat problematic. It is represented as having five core fields of study, but this is somewhat artificial: in some of these core fields, there is a strong sense of identity and research support, both in the work done and in the comments by junior researchers; in some, there is something of the culture of the 'lone researcher' (and lone PhD student) operating; and in some, there is no apparent connection between the different lines of research. Some research groups have tangible and important connections with researchers elsewhere in the University (for example, with the Centre of Excellence in Learning and Motivation Research); some professors co-supervise with colleagues in the Institute for Educational Research and the Department of Teacher Education. These connections are positive but they rely on personal networks.

There has been a significant improvement in the research performance of the Department since the last report. Despite evidence that the reorganisation of the Department has brought some advantages such as the collective investment of some resources, and a more powerful collective voice, the intellectual strengths of being in a larger Department have not been fully reaped. In part, this is because the core fields of study represent sites or stages (professionals, childhood, families, early years, special education) rather than theoretically or conceptually driven questions. While the advantages of such an approach include the development of tightly-knit research groups working on similar problems, the disadvantages of such a structure mean that

researchers in different groups working from similar intellectual positions or using related methodologies are less likely to work together. This is the case within the Department and even more so across the Faculty and with the Institute for Educational Research. Without a more strategic approach in this respect, it will be difficult for the Department to meet the challenges of the coming years.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

The *Professional identities and learning communities* group and the *Cultures of childhood, family life and children's well-being* group are both strong, with good international research publications, high levels of research funding and close collaborations internationally. There is also a sense of 'succession planning' with senior researchers, post-docs and doctoral students, and evidence of group members applying for and winning funding.

Other groups have positive features, although these tend to relate to individual achievements, rather than the research group as a whole.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS) FOR THE UNIT

Strengths:

- The Department has many strengths: high-profile professors with a track record in their fields; significant areas of work which have the potential for development; a steady flow of doctoral students; some well-functioning research groups; good publications, internationally and nationally; good sources of external funding, mostly national; a high degree of international as well as national collaboration; and a diversity of interests within the Unit.

Weaknesses:

- There are too many areas of interest to build critical mass; not enough strategic thinking appears to be happening at Department level with too much fragmentation and no overall story to tell about the Unit's work; there are also a few intellectual links between areas which need to be strengthened.
- There was no clear career path for post-docs. Tensions between organizational work, research and teaching were evident. Not enough attention has been given to either vertical or horizontal research infrastructure.

Opportunities:

- The Department has high quality staff and a good balance in respect of age distribution (among professors). The Department has recruited a number of talented young scholars

in some areas who need supporting and developing. For the Unit, breadth can be a strength, but only if harnessed strategically, so this becomes an opportunity as well as a weakness. There is evidence of collaboration within the Faculty and with the University and this capacity needs to be developed.

- A model of collaboration exists between (three) Finnish universities– how could this be developed further, and spread to other areas? The Department could formulate – or reformulate - research agendas given the new policies and societal changes which the Department addresses e.g. special education.

Threats:

- Research funding could decrease or be directed toward areas of educational policy which the Department does not address. This threat is exacerbated because of the lack of strategic thrust at the level of Faculty and across the departments. Strong research groups may fail to be consolidated. Increased tensions between the tasks involved in administration, teaching and research could threaten the Unit's research.

5. RECOMMENDATIONS

1. The Department needs to develop its research strategy in terms of intellectual challenge and infrastructure. This would include coordination at a senior level which goes beyond the leadership already provided by the research group leaders.
2. Related to this, mechanisms for prioritising research effort and for developing new areas in the future must be established as a matter of urgency.
3. The Department should continue its strategy for national and international publication, which has reaped benefits for its research profile. The support for PhD publication has worked well, and could be developed more systematically across the Department.
4. If the Department is to function coherently, the University will need to consider consolidating the physical arrangements for its members.
5. While the research group approach is a positive tool for structuring PhD support, doctoral student training should be addressed at Department and Faculty levels in order to ensure systematic training for all doctoral students. Linked to this, regular seminars across the Department and other collective activities would strengthen links between post-docs and other researchers, as well as doctoral students.

DEPARTMENT (UNIT) TEACHER EDUCATION

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research**Mark: 3.5/5**

The Department's research aim is 'to produce and provide an effective environment for high quality research with international and national visibility and high scientific and societal relevance and impact'. Based on this strategy, the Department aims to build research teams, increase international publication and external funding, and foster innovative research initiatives.

Four core fields of research are identified: teacher education and professional development of teachers; learning and teaching processes; educational impact; and counselling. Currently, there are two key research groups within these. The first group, Teacher education and professional development, has three sub-groups: teacher selection and professional growth, critical integrative teacher education, and peer group mentoring. The second group, Learning and teaching processes, has several further sub-groups including, for example, *Teaching- learning interactions in science and mathematics classrooms*. In addition, the Department is a major partner in the Centre of Excellence project *First Steps follow up – Learning and interaction in the child-parent – teacher triangle*.

The evidence clearly identifies the research output of most of these research groups. For example, *Teaching- learning interactions in science and mathematics classrooms* is a good example of an effective, well-structured research group involving a professor, senior researchers, post-docs and doctoral students. Another good example is the *First Steps follow up* which is based on the collaboration of four departments within the University of Jyväskylä, and the universities of Turku, Eastern Finland, Tartu and Tallinn. The Department therefore has given evidence that it is building research teams with distinct research profiles and internationally active orientations.

The Department has a clear focus: to educate teachers in the most effective manner possible. That focus is embedded in the Department's research strategy which is focused on the classroom experience of teachers, with research findings being fed back to them as a matter of course. The Department is also making a contribution nationally and internationally. There was evidence of research which contributes to national teacher education and pedagogies, as well as to international discourse on education. One example of the Department's contribution at national level is the Teacher Researcher Net which has been active since 1994; a number of activities such as summer schools and seminars have been generated through its work, with outcomes such as doctoral theses and publications. *First Steps* is a good example of its contribution at international level; while some countries have more extended longitudinal studies of child development, many have none and *First Steps* is a welcome addition to the corpus.

Assessment criterion 2: Quality of the scientific impact**Mark: 3/5**

During the period, 40 international journal articles appeared, with a sharp increase in the last two years. Other international contributions were also made. This upward trend has continued, judging by the evidence given during the site visit. This includes publications in international and in some of the most prestigious national education, science education and psychological journals. In line with the Departmental research diffusion strategy which seeks to ensure that research is read by teachers, academics and administrators, a number of textbooks in Finnish, together with national conference contributions, were also published.

There is some evidence of staff involvement in international scientific networks, with pro-active engagement in developing those networks. Staff members serve on the editorial boards of national and international journals, national academic associations and conference committees. Five staff members have received national or international recognition/awards for their scientific work.

Assessment criterion 3: Quality of research collaborations**Mark: 3.5/5**

The Department is involved in several national and international collaborative research projects. These encompass joint research projects and publications, conferences, seminars and doctoral students' co-supervision. Judging by the number of visits by faculty and researchers coming to the Department and the number of staff from the Department going abroad, there is ongoing international exchange in several fields within the Department's research. Staff collaborate with colleagues at Jyväskylä, and also with other Finnish universities and training organizations.

These international and national collaborations are particularly active in science education, learning and motivation, guidance and counselling, critical interactive teacher education and peer group mentoring.

There is clear evidence of an increasing and deliberate expansion of such collaboration and cooperation.

Assessment criterion 4: Quality and quantity of the research funding**Mark: 2.5/5**

The Department has attracted some external research (and development) funding. National funding sources include: the Academy of Finland; the Ministry of Education; the Finnish National Board of Education; the Finnish Cultural Foundation; the Finnish Work Environment Fund; and the Finland State Provincial Office. The EU is the principal international funding source. External funding includes both applied and basic research. From 2010, the external funding has increased significantly.

Assessment criterion 5: Quality of the research environment**Mark: 3.5/5**

The quality of the overall leadership appears to be excellent. There is a strong sense of a collaborative culture amongst academics within the Department. The research group organization also contributes significantly to the research environment. The support for full-time PhD students is commendable.

The infrastructure to support research needs to be strengthened. In particular, support services for research and for grant applications could be improved. Methodological expertise exists elsewhere in the University but the mechanisms for drawing on that support are not currently well-established.

The Department is located in nine different buildings. This inhibits the social and intellectual exchange that is needed to build a more coherent research environment.

This is a teaching Department where staff have substantial teaching and administrative loads; this limits their capacity to engage with research. The Department is restructuring the curriculum to enable staff to spend more time on research.

2. CURRENT STRUCTURE AND PERFORMANCE OF UNIT'S RESEARCH

The current structure for research in Teacher Education looks to be robust, and well-articulated. The Department has recognised that there is benefit to be gained by focusing on two key broad areas, and linking other topics to these areas. This has been a recent decision, and it will take time to knit together all the different elements into a coherent whole. It seems reasonable to have two substantive areas of work with critical mass, alongside a range of other fields of study. The discussions within the Department which led to this decision have been productive in giving energy and direction. The Department has developed the capacity to capitalise on opportunities, both internationally through networks, and locally through the Centre of Excellence for Learning and Motivation Research. The Department should build on this capacity.

A particular strength of the Department is its focus on the core issues for teacher education; it should continue to recognise the unique position it holds within the University in this respect. The connections with other departments through these core issues and the potential influence the Department has in relation to teacher education are great strengths. The connections with disciplinary departments are strong, and should be maintained.

If the Department continues on the trajectory of research displayed since the last review, it has the potential to improve its position on the international scene and to offer something to the field beyond the individual areas of strength.

One of the special features of the Department is its focus on classroom practice allied to its close working with practising teachers. This needs to be maintained and developed in relation to research within the Department and the University. This is the Department's competitive advantage.

The full-time research students are well-supported and well integrated into the structure, on the whole. However, given the link to the field which part-time students represent, and the potential contribution they might make to the Department's research agenda, a strategy needs to be developed as to how best to support them and to integrate them into research groups.

The research infrastructure for bidding for research funds and for participation in international projects needs further development because too few people currently take on such leadership. This could be achieved through better use of resources elsewhere in the University.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

There are two lines within the research groups which are already operating at a high international level: the Child-Parent-Teacher triangle research (First Steps Follow-Up) which works with the Centre of Excellence in Learning and Motivation Research; and the Teaching-Learning Interactions in Science and Maths group. The first group shows the advantages of integrating teacher education with strong disciplinary research so that both the discipline and teacher education benefit from theoretical and practical advances. The second group benefits from the integration of relevant educational theories with subject domains.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS) FOR THE UNIT

Strengths:

- The Department's research programme is firmly rooted in the classroom and teaching practice. There appears to be a shared vision of using research findings to drive pedagogical change across the Department. The research programme itself is diverse, with two particularly strong areas of activity. There are excellent collaborative links across the University and beyond.
- There is a good leadership structure, with an evident sense of collegiality; this helps to solidify the position of research within the Department. There is excellent support for the full-time PhD students.

Weaknesses:

- The diversity of staff interests and disciplinary expertise makes it difficult to build critical mass in targeted areas. The combination of limited infrastructure support, high teaching loads and the dispersion of staff across multiple locations inhibits the development of a research culture or sustained research engagement. It is difficult to secure research funding, particularly in an international context where few staff have a high external profile.

- There is a large number of part-time PhD students; some of these are relatively inactive, and they are likely to be a net drain on the Department's research resources rather than contributing to it.

Opportunities:

- The Department's focus on understanding classroom life positions it well to conduct research that will enhance learning and teaching in schools. In this way it is well placed to respond to the educational and societal challenges of an uncertain future, and to support the University's strategic intentions to develop pedagogical leaders and to create innovative teaching and learning environments.
- As individuals and groups establish higher external profiles, there will be greater opportunity for collaborative work and funding.
- As new senior appointments are made, there should be opportunity to develop further key areas of strength. This should help the Department to take leadership roles in any institutional reorganisation.

Threats:

- If high teaching loads and infrastructure weaknesses are not addressed, there is a danger that staff commitment to research, as well as their possibilities for engaging in it, will diminish.
- Limited career opportunities, in terms of stability of employment and promotion, make it difficult to retain good staff – and risk wasting the investment in training a new generation of researchers.
- If a restructuring of the Faculty of Education were to lead to a less collegial environment, one of the key strengths of the Department in terms of its research engagement would be at risk.

5. RECOMMENDATIONS

1. The vertical management structure of the Department is commendable, and strong leadership for research is in evidence both at the Departmental level and within groups. However, the Department needs to strengthen the horizontal integration of research through activities such as research seminars, joint applications for funding and joint writing. Research infrastructure for constructing bids and methodological support needs development.
2. There is need of more dedicated time for engaging in research, whether by reducing teaching loads, arranging teaching and student support differently, making effective use of social media or by investing in more administrative and other support for staff.
3. While the research group approach is a positive tool for supporting PhDs, doctoral training should be addressed at Department and Faculty levels in order to ensure systematic training for all doctoral students. Linked to this, regular seminars across the Department and other collective activities would strengthen links between post-docs and other researchers, as well as doctoral students. The situation of part-time doctoral students is unsatisfactory and needs to be addressed.
4. The physical dispersion of Department staff is sub-optimal, and the University needs to consider a more coherent grouping of staff.

SCHOOL OF BUSINESS AND ECONOMICS

SCHOOL OF BUSINESS AND ECONOMICS	129
PANEL MEMBERS.....	130
UNIT BUSINESS	134
1. Assessment criteria:.....	134
2. Current structure and performance of Unit’s research:	137
3. Identification of research groups at high/highest international level, and of most promising groups:	137
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit:.....	137
UNIT ECONOMICS	138
1. Assessment criteria:.....	138
2. Current structure and performance of Unit’s research:	140
3. Identification of research groups at high/highest international level, and of most promising groups:	141
4. SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) for the Unit:.....	141

PANEL MEMBERS

Peter Nijkamp, Chair of the Panel. Free University, Netherlands

Kjell Gronhaug, Norwegian School of Economics and Business Administration, Norway

Leif Melin, Jönköping International Business School, Sweden

Paavo Okko, Turku School of Economics, Finland

RECOMMENDATIONS

GENERAL RECOMMENDATIONS TO THE SCHOOL OF BUSINESS AND ECONOMICS:

The Assessment Panel have investigated the nature, quality and distribution of senior staff members' scientific performance and the PhD programmes of the two units of JSBE on the basis of the information provided in the Self Assessment Report and all publications (and further signs of scientific recognition) by staff members. The Panel have confronted this with additional information on the significance and quality of various publication channels (through impact scores, Scopus information on citation indicators, etc.). Despite the significant improvement in publication performance, the Panel conclude that JSBE still has a long way to go in terms of volume, quality and outreach of scientific performance, before it can qualify as an international research centre of a highly prestigious stature in the field of its research specialisation.

Based on the assessment and the related SWOT analysis presented in this report, the Panel wish to offer a series of strategic and operational recommendations, which can be summarised as 'reinforcing the promising potential'. Some research groups in JSBE, but certainly not the two major research units (Business and Economics) in their entirety, have the indigenous strength and drive to reach the goal of international recognition, as has been formulated by the School leadership. Some research teams have been performing rather well over the past years (and have demonstrated a good vitality for the future), but others have fallen behind due to limited visibility in highly rated and internationally recognised journals. Admittedly, the growth rate of publications in refereed journals has shown an impressive trajectory over the period considered, but the starting point was also very low. This improvement ought to be welcomed and is the result of increasing publication productivity from various staff members (who ought to be complimented for their achievement), but the overall productivity is not yet in agreement with the potential intellectual capital of JSBE. There is much scope for, and an urgent need of, a significant upgrade of the research profile of the staff of the two JSBE research units. This calls for a rigorous change in strategy and management, based on quality selection and a new incentive structure in order to support the highly performing scholars who have promise for an international stature.

The following action lines are needed to position the potential 'high performers' at an international scientific platform:

1. HRM: research policy is personnel policy

- introduce as soon as possible a tenure track system as an overall career policy system, based on the (potential) scientific quality of a younger cohort of researchers (to be recruited from a much wider environment than JSBE).
- broaden the scope of search and recruitment of new faculty to a much wider area than Finland, preferably at an international level (e.g. through advertisements in relevant international channels).
- offer highly competitive labour conditions for promising young faculty members in order to compensate for the geographical disadvantages of Jyväskylä; for example, an inconvenience bonus.

- attract foreign faculty by offering a competitive salary and/or a sustainable investment bonus (e.g. up to approximately half a million euro per year over a number of years) in order to build up a faculty research team that could spearhead one of the research programmes at the School.
- create a more professional management system and research policy for the guidance of young PhD students, to monitor their progress, guide their core and field courses, act as a liaison with their supervisors, introduce supervising committees, ensure that dissertation committees have sufficient international stature, etc.

2. Research Incentives: research performance needs rewards

- offer the ‘high performers’ (champions) in research and in refereed journal articles many more attractive opportunities and facilities to conduct advanced research, by reallocating a significant share of the total available research time in JSBE to these scholars, in which the allocation of research time is based on achievements, primarily publications in international refereed journals (clearly, this presupposes a rating system of journals).
- introduce a bonus system for those scholars (PIs) who are able to attract research money from highly competitive, high-quality research funds (e.g. Academy of Finland, NORFACE, ERC).
- offer a significant research bonus for supervisors of any successfully completed doctoral dissertation.
- provide successful scholars with sufficient supporting facilities to operate at an international level, e.g. through advanced data infrastructures, international travel budgets, etc.
- organise a professional system of permanent research quality control, through which the research performance of individual staff members, research groups and the Unit as a whole can be monitored, in order to provide JSBE research management with sufficient management information for effective action.

3. International Profile: research calls for international outreach

- develop an action-oriented strategy (including milestones) for enhancing the visibility of JSBE scholars, in particular: presence on editorial boards of prominent international journals, keynote speeches at major international conferences, membership to programme committees of international meetings, and so on.
- introduce an ambitious ‘foreign visitors’ programme at JSBE so that on a continuous basis well-known scholars would stay at JSBE and offer advanced seminars and courses; but above all would start a research collaboration with faculty staff and PhD students.
- develop an operational strategy to be actively involved in international research programmes (e.g. EU FP programmes, NORFACE, Marie Curie etc.).
- implement a system of sabbatical leave for qualified and successful researchers to spend sufficient research time abroad, not only to enhance research cooperation but also to improve individual research performance.

4. Research Orientation: research is a tour of discovery

- expand the research scope beyond the local horizon and link the research to major new challenges of a sometimes global nature (e.g. ageing, urbanisation, migration, new forms of entrepreneurship, etc.) in order to bring sufficient innovativeness to the local research system.
- focus and critical mass are necessary to the current research constellation in JSBE, but the task will always be to produce scientific output not only for a dedicated audience, but also for mainstream scholars in the profession. This calls for a strategic publication policy and a related monitoring process.
- link the research results, which are normally in the applied domain, to mainstream thinking in the discipline and identify new research challenges that call for innovative conceptual and methodological approaches.
- given the size of research teams at JSBE and the mission to be internationally recognised, it is pertinent to establish institutionalised research collaboration with strong groups abroad that are working in a similar domain, for instance, through a formal network of Centres of Excellence.

Specific recommendations to the Business Unit:

In addition to the overall recommendations to the whole School of Business and Economics, the Panel wish to give the following recommendations specifically to the Business Unit:

- To enhance research productivity and quality, develop and/or recruit a few 'research champions' with particular responsibility for research. If developing an internal candidate who is presently a faculty member, some qualified 'coaching' from experienced international scholars may be a way. If recruiting international scholars, an alternative is the part-time appointment of a scholar at the highest international level, with an interest and commitment to contribute to the development of a prioritised research area (cf. the Norwegian Professor II, a paid part-time position with clear obligations, e.g. project leadership, PhD courses and supervision).
- Widen the repertoire of research approaches and enhance research skills by exploiting the learning potential available at the university; for example, close cooperation with methodology focussed institutions (such as summer schools in Essex and Brussels, which offer courses on advanced methodology).
- Create a research strategy – meaning a clear research focus and concentration on a few research topics – leading to formulated research programmes in which the Unit and its groups can both contribute to specified research fields and sustain concentrated research efforts over time. Milestones, in terms of research output and publication targets, should be developed to guide and implement the research strategy.
- Identify and pursue research opportunities between the Business and Economics Units, exploiting their research pool in line with the interdisciplinary focus of the university. For example, quantitative database analyses combined with in-depth studies of the phenomenon in focus could increase the value and visibility of the research output in specific areas (such as Family Business).
- Enhanced, committed international cooperation should be developed. This, however, requires by far more active participation of all faculty members internationally, and research output that

attracts attention internationally, published in high-quality journals and presented at leading conferences internationally. At present the perceived research environment is too domestic and local. Research, however, is international, so even if there is a relevant local/domestic market for implications of research findings, there is only the international market for legitimising new research findings.

Specific recommendations to the Economics Unit:

In addition to the overall recommendations to JSBE as a whole, the Panel also wish to offer the following recommendations specifically to the Economics Unit:

- Average research productivity, measured in terms of publications per head, is not impressively high, with some good to very good exceptions (as shown, for instance, in the labour market modelling and regional economics teams). A more satisfactory publication output, in terms of volume, quality and distribution, may be achieved by more cooperation within JSBE (e.g. entrepreneurial research in the Economics and Business Unit), more cooperation with other quantitatively oriented, applied research teams in the university (e.g. psychology) or more cooperation with other research teams in these domains in Finland (e.g. Tampere), in addition to drastically intensified research cooperation with other teams outside Finland.
- If applied spatial labour market research is an important focal point of the Economics Unit, then a system of up scaling may be implemented; e.g. organising a regular system of international summer schools held in Jyväskylä in order to acquire more visibility and recognition from the international research community in the field.
- The data infrastructure of the Economics Unit may be an important asset, but it may also act as a straight jacket, hampering theoretical or modelling innovation in the field. International recognition of a research team also requires frontier research in order to obtain or maintain a leadership position.

UNIT BUSINESS

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit's research

Mark: 3/5

The quality of the research of the Business Unit has improved since 2005, which is reflected both in the quality and quantity of the published works and the number of citations. Publications and citations, however, still need to increase quite significantly in order to reach a very good international level.

Much of the research is scattered, lacking a clear focus and addressing a multitude of problems, even though the research profiles of some disciplines/groups within the Unit are more coherent and distinct.

No research orientations and findings really stick out and there is a quite uneven distribution of quality across the research published in academic journals.

A minimum requirement to realise the strategic ambitions and reach a higher mark for this criterion is in the form of concentrated and devoted research efforts, involving a critical mass of competent researchers with strong international cooperation over an extended period of time.

At present, the research of the Business Unit reflects a modest degree of novelty with modest possibilities to move the fields addressed beyond the state of the art. The research of the Unit is only to a limited degree recognised at the international level. At present the Unit has no Centre of Excellence, nor is it contributing significantly to the international scientific debate in the core fields of which the different groups of the Unit are part, and it is not broadly represented in influential international research projects.

However, there is potential, and there are quite evident possibilities to eventually move to a higher level, as we will comment on below.

Assessment criterion 2: Quality of the scientific impact

Mark: 3/5

The assessment is based on the Self-Assessment Report of JSBE, the presentations and hearings with the Panel, the supplementary publication lists, as well as a deeper investigation by the Assessment Panel of some bibliometric data, such as the Scopus citation figures for all senior faculty and the impact figures for the journals in which the researchers have published.

The quality of the scientific impact as measured in terms of number of publications, the quality and impact of publication outlets and citation of the published works has improved since the last evaluation. However, few of the Business Unit's publications are published in very good journals. Looking at the Unit's different groups ('disciplines'), some show better results than others –the research groups in management and leadership as well as marketing have more publications in good journals and are more frequently cited.

Some members of the Faculty occupy positions in central academic and professional associations in their fields and have been invited keynote speakers; this is the reason why they are sought-after experts in committees and research assessments.

Assessment criterion 3: Quality of research collaborations

Mark: 3/5

The Business Unit has research collaboration both nationally and internationally. Much of the collaboration is at the individual, personal level; however, some examples of formalised collaboration exists as well, both with public bodies and academic institutions. There is an ongoing collaboration with the KATAJA Graduate School, giving doctoral students in the Business Unit the possibility to take high-quality courses on a national level, often with

international teachers, also leading to an extended academic network. Some research groups within the Business Unit are/have been involved in international scientific networks and collaboration consortia, such as the entrepreneurship group's participation in the global STEP project on entrepreneurial family business development over generations that includes (potential) collaboration with around 30 leading universities worldwide. However, the Unit's research groups seldom take leadership roles in these collaborations.

The Unit also participates in international exchange action: yet even including visits from prominent researchers for presentations, etc., there remains an evident imbalance. To this day, the number of those in the Business Unit's faculty and in the PhD programme who have travelled to institutions abroad far outnumber those recognised scholars and PhD candidates who visit the Unit and School of Business and Economics.

Assessment criterion 4: Quality and quantity of the research funding

Mark: 2.5/5

The Business Unit has attracted external research funding primarily from national sources, representing up to approximately 1/3 of the total research budget. At present international funding – for example through participation in EU projects – is almost absent.

So far the Business Unit has faced difficulties in attracting funding of pure academic projects (e.g. from the Academy of Finland) considered by the Unit itself to be critical for conducting top-quality research.

Assessment criterion 5: Quality of the research environment

Mark: 3/5

While the research environment of the Business Unit and the entire School have improved, the research environment is still not 'perfect'. Even though the strategic vision for the School of Business and Economics is rather clear (but could still be further elaborated), a research strategy with clear direction is more or less absent, and so is the prioritisation of research (areas and topics). In spite of the intention to enhance both research quantity and quality, a disproportionately high share of available time ends up being devoted to 'routine' tasks such as teaching – undoubtedly an important task, but nevertheless one that takes time and energy from increased research efforts. As presently organised, the research groups ('disciplines') within the Business Unit do not possess the appropriate critical mass to carry out research of good international standards (cf. comments under Criterion 1 and Current structure and performance of the research).

The Business Unit probably has the potential to receive appropriate administrative support and assistance at the university and school levels to carry out high-quality research, but the requirements for such support and assistance are seemingly unspecified, and the potential of the present support level unexploited.

To conclude, a good driver for developing the research environment can be found in building on and giving support to promising and enthusiastic PhD candidates in the Business Unit.

2. CURRENT STRUCTURE AND PERFORMANCE OF UNIT'S RESEARCH

The Business Unit is presently organised around four rather broad research areas (internally identified as 'disciplines'): Accounting; Entrepreneurship; Management and Leadership (including corporate environmental management); and Marketing. Each of these groups (disciplines) addresses a wide range of research problems, and within some of the groups we can identify several rather distinct research topics. The research productivity of the four groups (disciplines) as a whole, measured in the number of academic journal publications, has been increasing over the 2005-2009 period, and in relation to the outcome reported in the last evaluation. The productivity (fewer than one article per faculty member per year) is, however, not very impressive in light of the vision of being in the top three schools in Finland and having an internationally recognised position in Europe. It should be noted that the research productivity across faculty members belonging to the four groups (disciplines) is highly skewed, indicating an unbalanced distribution of talented researchers but certainly also an untapped potential. Even though their research output is published to some degree in good refereed journals, still only a fraction of their publications is at a good international standard.

However, high ambitions and a positive spirit among the faculty and PhD candidates favour the realisation of their strategic intentions in the future.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

In the Business Unit, at present, there are no research groups at the high or highest international level. However, there are definitely some persons/groups who, with support (including given sufficient resources and adequate incentives) and guidance (for example, collaboration with highly recognised international scholars), have the potential to develop into research groups at a high international level. At present the small groups in Business Ethics and Marketing seem to be the most promising, but Management Accounting and Family Business also have potential, on the condition that these groups are strengthened. This may include improving the organisation and utilisation of present researchers as well as attracting new researchers.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS) FOR THE UNIT

Strengths:

- The Business Unit has a motivated and loyal faculty, and there is a positive atmosphere within the School and this Unit.
- The PhD programme attracts students and produces a high number of new dissertations (albeit of uneven quality).

- There are some established profiles to further develop (Business Ethics, Internet Marketing, Family Business)
- Participation in some international networks with potential for the respective research group to take one step further towards actual and deep research cooperation (currently missing in most groups within the Unit).

Weaknesses:

- Lack of clear research focus addressing central research topics over a sustained period of time. The emergent profile for the whole Unit, Responsible Management, is too vague to function as an efficient direction towards future international recognition.
- Lack of critical mass of competent researchers (on a high international level) working on the chosen research topics.
- Modest cooperation with ‘the best’; that is, international researchers/research teams on the high or highest international level.
- Lack of research leadership and incentives to realise the strategic ambitions and sharpen the research strategy.

Opportunities:

- The vision for the entire University of Jyväskylä, and as well partly for the School of Business and Economics, is a clear look towards the future through a strong emphasis on further internationalisation and international recognition. Combined with the motivated research staff and implementation of a matching research strategy, it should be possible to realise the vision.

Threats:

- Confidence in the Unit’s current state may challenge the efforts needed to actually reach high international recognition.
- The restructuring of the university system in Finland, with some stronger competitors coming out of the mergers that take place, will make also the national market for recruitment and attracting research grants more competitive.

UNIT ECONOMICS

1. ASSESSMENT CRITERIA

Assessment criterion 1: Scientific quality of the Unit’s research**Mark: 3.5/5**

The Economics Unit of JSBE has constructed its own research profile in order to be a nationally and internationally competitive unit. The nature of the research is applied research based on large microdata sets. The Unit is targeting spatial labour market research, which integrates regional economics and labour economics. The Unit also does research work in the fields of

macrofinance, and entrepreneurship and firms. The Unit has created special microdata resources, e.g. in cooperation with Statistics Finland. The data infrastructure is a critical success factor for the research, and it has created a competitive edge for the Unit. But it may also limit the scope of the research and hamper scientific innovativeness.

The Unit has been able to publish rather well in international field journals of economics (e.g. Labour Economics, Regional Studies), and some of them are good. This indicates that the research has clear international relevance and significance. It has also created new lines of thinking and contributed much to domestic economic policy discussion.

Even though the research performance of the Unit has been at a quite good international level, much remains to be done, and the Unit has good reasons to reformulate its targets in order to climb up to higher scientific levels. Specialisation into applied research using Finnish data may contain also an obstacle to high-level publishing forums. Increasing international cooperation could be an effective way to enhance the scientific capabilities of the Unit.

Doctoral education is organised in cooperation with the Finnish Programme in Economics (FDPE), and it is functioning rather effectively.

Orienting towards more basic research in the area of specialisation could help the Unit to upgrade its position in international scientific competition. One aspect of strategic reorientation should be increased international networking. A reallocation of resources within the Unit and the internationalisation of both research funding and research cooperation can create many new resources for scientific competition.

Assessment criterion 2: Quality of the scientific impact

Mark: 3.5/5

The assessment is based on the Self-Assessment of JSBE, the presentations and hearings with the Panel, the supplementary publication lists, as well as deeper investigation by the Assessment Panel of some bibliometric data, such as the Scopus citation values for all senior faculty and the impact figures for the journals in which the researchers have published.

The publication performance of the Unit has gained considerable reach in the international scientific community. Researchers are publishing in journals of rather high international standards. Some of the newest articles are submitted to very good journals, not only to so-called field journals. Given the applied profile of the Unit, international performance is also quite good. Members of the Unit have held important positions in academic and professional roles domestically. International positions are still very few.

Regarding Finnish data, based on the nature of applied research, the international publication output may remain restricted in the future. It is a strategic issue to consider how these risks could be avoided. One aspect of the strategic reconsidering is also in this sense a higher degree of internationalisation, beginning with doctoral studies.

Assessment criterion 3: Quality of research collaborations

Mark: 3/5

The Economics Unit has developed systematically its domestic research collaboration. Cooperation with many prominent Finnish research units works effectively, e.g. Bank of Finland,

some university economics departments, and research organisations like ETLA, VATT, PT and PTT are good partners for the Unit. Doctoral studies are organised within the framework of the national doctoral programme (FDPE), and the research partners offer good working environments for some doctoral students.

Institutionalised international research collaboration is still underdeveloped or nearly nonexistent, and the researcher exchange is badly unbalanced.

Assessment criterion 4: Quality and quantity of the research funding

Mark: 2.5/5

The share of competitive funding is quite good on the national scale. The Academy of Finland funding is a good sign of the competitiveness of the Unit. The Unit has a good share of PhD student positions in the national doctoral school FDPE. It has succeeded also in obtaining funding from private foundation sources (e.g. Yrjö Jahnsson Foundation). The Unit has been concentrating mainly on funding, which is allotted to academic research work.

International research funding is disappointingly low, and the Unit should consider how to upgrade its position in international funding.

Assessment criterion 5: Quality of the research environment

Mark: 3.5/5

The research strategy of the Unit is clearly formulated and well implemented in the functioning of the Unit. It has been developed based on previous assessments and experiences over time. There is a clear target to create an appropriate critical mass despite the quite small size of the Unit. Database infrastructure is developed purposefully and it has created a competitive edge for the Unit. At the same time, investments needed to maintain and to develop microdata sets create considerable costs to the Unit. The academic leadership and the appropriate administrative support has been organised in a proper way, even if the PhD student supervision structure may need improvement. The teaching load of the researchers is to some extent high.

2. CURRENT STRUCTURE AND PERFORMANCE OF UNIT'S RESEARCH

The Economics Unit is currently organised mainly around three thematic research groups: spatial labour markets, macrofinance, and entrepreneurship and firms. The selected strategy of specialisation and database construction has been a good way to create critical success factors for a small research unit. The publishing output and number of doctoral degrees have shown that the strategy works. There is a clear upward trend in the quantity and also quality of publishing in the years 2005 to 2009. The Unit is well-known for its empirical studies on regional and labour market issues and issues of entrepreneurship and self-employment. Topics of open economy at a macro level, monetary policy, and time-series econometrics are also studied. Combining finance issues, business subsidies included, and entrepreneurship looks to offer a promising addition to the research output of the Unit. Nevertheless, the overall productivity per capita in this

Unit remains below the level that is necessary to be considered for an internationally recognised profile of the Unit.

The Unit has been capable enough to publish rather well, particularly in so-called field journals of economics (e.g. Labour Economics and Regional Studies); and some of the journals are very good ones. This indicates that the research has clear international relevance and significance, even if its applied and empirical work is based mainly on Finnish data. Unfortunately, the international profile and outreach of the research group is rather low.

3. IDENTIFICATION OF RESEARCH GROUPS AT HIGH/HIGHEST INTERNATIONAL LEVEL, AND OF MOST PROMISING GROUPS

The spatial labour markets group has been the main research group that showcases a nice scientific performance. At the moment we cannot say that it is already at an outstanding international level. The research group can be considered to be a promising group, which can in principle reach a high international level, but this requires a series of effective measures. The Unit has for a long time invested in this area, and because of the cumulative human capital accumulation we may expect an even better performance in the future. This is said assuming that the Unit's visions for the future will be realised.

The entrepreneurship and firms research group has quite good records, too. There may be good opportunities to develop this area into a direction of combining firm formation and finance studies and taking into consideration both innovation and competition policy issues. The area might offer an interesting opportunity for the Unit, which has both researcher and data resources suitable for this kind of research. But here an even more accelerated improvement is pertinent.

The Unit is aiming at higher quality in publishing while increasing the volume of publishing, but for the time being, the Unit has not yet met the standards of high international profile, while the distribution of publications is uneven. The assessment team hopes that its recommendations will help the Unit to reach this target.

4. SWOT ANALYSIS (STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS) FOR THE UNIT

Strengths:

- Clear strategic orientation in research
- Excellent data infrastructure
- Good cooperation with domestic research partners
- Doctoral training is rather effectively organised

Weaknesses:

- Small number of researchers
- Not yet established international position
- Low level of international participation

Opportunities:

- The School and the Economics Unit has a good position within the University, which can offer a multidisciplinary research environment and is willing to develop the area of Business and Economics
- Strongly motivated research staff, which badly needs more research incentives
- There is a good potential to benefit from further deep, international cooperation

Threats:

- Increasing competition both in a domestic and international respect creates a threat even if the Unit is developing its performance
- There is the threat that the Unit's role will turn into too much teaching only, because there is a high demand for teaching at the University

UNIVERSITY OF JYVÄSKYLÄ

RESEARCH ASSESSMENT 2010

TERMS OF REFERENCE FOR PANELS

Working versions:

Draft: 16.02.2010-Antoaneta Folea

Review 1: V1-18.02.2010-Matti Manninen

Review 2: V2-23.02.2010-Science Council meeting

Review 3: V3-01.03.2010-Individual comments-Science Council

Review 4: V4-08.03.2010-Science Council meeting

Table of Contents:

1. Background information and context
2. Purpose of Research Assessment 2010
3. Scope of the Research Assessment 2010
4. Objectives of the Research Assessment 2010
5. Methodology and assessment criteria
6. Governance and management
7. Tasks and responsibilities of the panels
8. Confidentiality and Conflict of Interest
9. Timetable
10. Annexes

1. Background information and context

(Summary of:

- history of the activity being reviewed
- purpose, aims, objectives and intended outcomes of the review
- organizational, social and political context in which the review will occur)

The University of Jyväskylä is a multidisciplinary, dedicated scientific university, with an absolute drive for quality in all areas.

The University of Jyväskylä is based on Finland's first Finnish language teacher training college established in 1863 by Uno Cygnaeus. In 1934 the teacher training college becomes the Jyväskylä College of Education. Today, the University implements student and teacher exchange with more than 350 foreign universities all over the world.

Measured according to the number of Master's degrees conferred, the University of Jyväskylä ranks as the second largest university in Finland. The University has 15000 students in addition to adult education students, representing 40000 students in total. The University of Jyväskylä is a highly popular place for learning, with applicants from throughout Finland and from over 100 countries abroad.

The University is strongly linked with top national and international research, business and innovation communities. According to the field of research comparison, the University of Jyväskylä is one of the most productive universities in Finland. According to the Government Institute for Economic Research, the University is one of the most profitable in Finland. From the business perspective (innovations, transfer of knowledge), the University ranks among the four most interesting universities in Finland. At the same time it is part of over 300 international scientific networks and has more than 50 ongoing collaborative programmes with top universities from Europe, North America, Japan, China and India. The University of Jyväskylä is also ranked among the top 500 universities in the world on the Shanghai ranking list.

The attractiveness of University of Jyväskylä for its partners lies in highly talented and creative scientists, excellent infrastructure, and commitment to succeed. The University's first-rate success in the Academy of Finland's Centre of Excellence programme (eight Centres of Excellence) reinforces its position as one of the best research universities in Finland. The university currently hosts four international professors of Finland Distinguished Professor Programme, two ERC-fellows and one Marie Curie excellence team, and the Accelerator Laboratory of the Department of Physics is one of the European Major Infrastructures.

In 2005 the University had conducted the first evaluation of its research activities over the period 2000-2004. The Research Evaluation Exercise 2005 was decided and entirely financed by the University. The evaluation was carried on by independent experts from Finland and abroad. The purpose of this first research evaluation was to gather knowledge about the impact of research on both the academy and society, and to obtain experts' recommendations for the future development of research and research training, with the final target of helping the departments improve the quality of their research. The University used the results of the Research Evaluation 2005, and the recommendations made by experts, in designing its research strategy 2007-2011.

From 1 January 2010, following the implementation of the new Universities Act, the University of Jyväskylä became an autonomous, legally independent higher education organization under public law. The reform brings not only changes in the operational environment, but also new dimensions for research cooperation, research funding, quality and effectiveness of research and teaching.

In light of these recent structural changes, as well as the increasing influence of international rankings, the University of Jyväskylä decided it is an appropriate time to undertake the assessment of its research activities carried over the period 2005-2009. The Research Assessment 2010 will help the University of Jyväskylä to continually develop top quality international research and strengthen its position as international research-based university. The results and recommendations of the Research Assessment 2010 will be used to re-design the University of Jyväskylä research strategy for 2010-2017, including the strategic allocation of resources.

2. Purpose of Research Assessment 2010

(Why the review is being undertaken and how it will benefit the stakeholders)

The University of Jyväskylä renews its commitment towards international recognition of its research. The success of The University of Jyväskylä requires that its research is carried at top international level and the research quality is internationally acknowledged; that the standing of the University in international rankings is continually improved; and that the University strengthens its competitive edge in attracting national and international research funding.

The broad purpose of the Research Assessment 2010 is to provide:

- Information on the quality and status of research in the University of Jyväskylä
- Analysis of strengths, weaknesses, opportunities in research for each department and research field
- Recommendations for the departments and the University, which will assist the departments, the Rector and the Science Council to develop and (re)shape the research strategies

The University of Jyväskylä will use the results and recommendations of the Research Assessment 2010 in updating the research strategy for 2010-2017, including the strategic allocation of research resources.

3. Scope of the Research Assessment 2010

(The scope describes the boundaries, the scale and/or the limits of the review)

The scope of the present review is to assess the research carried by departments, research institutes and centres or equivalent from the University of Jyväskylä. The unit of assessment is such a department or research institute or centre (Annex 2 — List of the units of assessment for RA2010). It is understood that each unit of assessment may consist of several research groups.

The time period the research assessment will cover is 1 January 2005 to 31 December 2009.

At Finnish universities PhD students contribute in a significant manner to the research activities. Therefore, the research activities of doctoral students are included in the Research Assessment 2010. However, the entire system of doctoral training is at present changing in Finland, and therefore is excluded from the current research review.

4. Objectives of the Research Assessment 2010

(This is a key section of the Terms of Reference. Here the main issues (objectives) and the questions / criteria that the review needs to answer / address are laid out. Clarity and focus in this section is critical to the outcome of the review, and the way the findings of the review will be reported)

The objectives of the Research Assessment 2010 at the University of Jyväskylä are:

1. To assess the overall quality of research performed by the units of assessment at the University of Jyväskylä with regard to the international level
2. To assess the effectiveness and relevance of the research, and the scientific excellence
 - Is the research likely to lead to outstanding, internationally acknowledged results (e.g. publications, research projects, etc)?
 - How is the research likely to contribute to the international field, capacity building, methodological and theoretical development?
 - How is the research connected to international groups, networks, collaborations in the field?
 - Is the research highly original and innovative; how it relates to the international level in the area?
 - Is the research multi, inter-disciplinary?
 - To what extent does the research enable outstanding, top-level international publications?
3. To analyse the effectiveness of the units of assessment in attracting national and international competitive funding
 - How is the research likely to enable research collaborations (projects) at national and international level?
 - To what extent has the unit of assessment managed to attract national and international funding for research?
4. To identify in each research field those research groups which are at high(est) international level, and where the most promising potential for research excellence lies
 - How does the research compare with regard to the international level (e.g. publications, collaborations, networks, research funding, equipment and infrastructure, relevance of the topics, etc)?
 - How does the research respond to the European and international research challenges?
 - Are the researchers motivated (e.g. self-motivation, enthusiasm, but also research environment, support from department, support from university) to conduct high level international research?

- Are there international research prizes, distinctions, awards? International recognition for research?

5. To analyse the strengths, weaknesses, challenges (threats) and opportunities in research for each unit of assessment

- What are the strengths, weaknesses, challenges and opportunities in research?
- What are the issues that supported or constrained the units of assessment in conducting (high, very high) quality research?

6. To help each unit of assessment in adjusting and (re)shaping their research strategies from the present quality level to a higher international level

- How could research activities better coordinate with and support continuing development and increasing effectiveness of the research strategy?
- How research activities can deliver better international results and achieve higher international ranking?
- Has the unit of assessment an adequate research leadership?

5. Methodology and assessment criteria

The assessment of research will be a peer-review supplemented with bibliometrics process. External, independent high-level experts from Finland and abroad will constitute panels which will

assess the research carried in each unit of assessment based on (1) background material (including bibliometric data and other indicators of the quality and impact of scientific research) collected in advance by the unit of assessment, followed by (2) site visits and discussions at each

unit of assessment. Each panel will reach a collective (consensus) final assessment report based on panel discussions, site visits and all the material made available to them.

The guiding principles of the Research Assessment 2010 are:

Equality – all fields of enquiry are assessed with methods that treat all in equal manner

Independence — the assessment approach must avoid any adverse effects of political or organizational influence on the results

Participation — the units of assessment will be involved in the process of gathering information, prereview briefing, preparation and participation of site visits

Transparency — the assessment processes are open and understood by all parties involved

The assessment approach will specify the roles and responsibilities of each party (experts, units of assessment, Science Council, coordinating team). The draft design methodology and timeframe for the assessment will be submitted to the Science Council and refined as necessary.

The experts will be asked to conduct their review of research at the University of Jyväskylä against a set of assessment criteria, and to write comments, analyses and recommendations.

I. Assessment Criteria

The selection of assessment criteria followed the OECD general recommendations for evaluations, i.e. effectiveness, relevance and impact (Annex 1 — Key terms and definitions).

The assessment criteria for Research Assessment 2010 are:

1. Scientific quality of research

- What is the nature of research (fundamental / applied, inter, trans-disciplinary)?
- Is the research creative, innovative, likely to produce new lines of thinking?
- Is the research likely to lead to excellent / outstanding scientific results?
- Does the research address (important) challenges in the field?
- To what extent the research has addressed the research strategy of the unit of assessment?
- Does the research have the potential to move the field beyond the state of the art?
- Does the research have ambitious scientific objectives and goals?
- How does the research relate to its leading international scientific competitors (is the unit of assessment comparable to the best international units in the same field)?

2. Quality of scientific impact

- What is the quality of unit's publications compared to its scientific competitors?
- What is the quality of other scientific outputs, such as patents, MSc and PhD theses, prototypes, methodologies?
- Is the quality of research acknowledged at national / international level through e.g. centres of excellence, major infrastructures, European / international laboratories or centres
- Do the members of the unit occupy positions in academic and professional associations in the field, are sought-after experts in committees, chair appointments, research assessments etc?
- Are the members of the unit participating in exchange (visiting) actions with the best organizations in the field?
- Was the unit's research acknowledged through important scientific prizes, awards at national / international level?

3. Quality of research collaborations

- Are there national collaborations? With what type of organizations (i.e. academic, industrial, business, public / government, NGO, other)?
- Are there international collaborations? With what type of organizations (i.e. academic, industrial, business, public / government, NGO, other)?
- Do members of the unit participate (actively) in national and international scientific networks in the field?
- Are members of the unit invited speakers at major international conferences in the field?
- Do members of the unit participate in exchange (visiting) actions? Are there visits abroad and visits to the unit?

4. Quality and quantity of research funding

- What is the quality of funding (national, international, competitive, highly competitive)?
- What is the relevance of the funding attracted (national and international) to the research strategy of the unit?
- What is the amount of national and international funding attracted?

5. Quality of research environment

- What is the quality of the research strategy of the unit?
- Does the unit provide adequate research leadership?
- What is the administrative and educational load of the members of the unit (teaching load, student/staff ratio, etc)?
- Does the unit provide the infrastructure necessary for the research to be carried out?
- Is the research environment in a position to provide an appropriate critical mass (intellectual environment) to the research?
- Does the unit have the appropriate administrative support and assistance (from the department, the university) to carry on research?
- To what extent the infrastructure and administrative support help the research to become top level, internationally acknowledged?

Application of criteria

Panels will evaluate and mark numerically the units of assessment. Each assessment criterion will be marked on a scale from 1 to 5 and panels will motivate the numerical rating in written statements for each criterion and unit of assessment. The rating and assessment will be based on the background material submitted by the units of assessment and on the interviews and discussions during the site visits.

The marks indicate the following with respect to the criterion under assessment:

5 – Outstanding international level

4 – Very good international level

3 – Good international level

2 – Fair international level

1 – No international level

II. Assessment comments and recommendations

Besides assessing the units' research against the assessment criteria, panels will be asked to write comments and recommendations under the following headings:

a). Identification of research groups at high / highest international level, and of most promising groups

- Are there research groups which are already at outstanding, top-level international position?

- Are there promising groups, with potential to achieve soon (5-10 years) excellent, top-level international status?

b). Strengths, weaknesses, opportunities and challenges (threats) (SWOT) analysis for the unit

- What are the current strengths, weaknesses, opportunities and challenges (threats) of the unit's research?
- How can the unit improve its performance and better the international status of its research?
- What is the future scientific potential of the unit (5-10 years)?

c). Recommendations

- Research (staff, methodology)
- Research strategy of the unit
- Research environment
- Other

6. Governance and management

The Research Assessment 2010 exercise is commissioned by the University of Jyväskylä. The assessment and its organization are funded by the University of Jyväskylä, which will pay an expert fee to panel chairs and panel members as well as reimburse all travel and accommodation expenses relating to site visits.

Governance

The Rector of the University of Jyväskylä appointed the Science Council to act as a steering committee for the Research Assessment 2010.

The Science Council is the decision body with respect to Research Assessment 2010. The Science Council has the responsibilities of signing the Terms of Reference, approve the assessment plan, approve the timetable, approve the final list of panel chairs and panel members, approve the assessment report as final. The Science Council will address all other relevant issues as they arise.

Management

The management structure and responsibilities for the Research Assessment 2010 exercise is as follows:

Assessment Coordination Team, responsible for drafting the assessment guidelines, guides, forms, instructions, etc; organize and brief the panels; ensure the finalization in time of the assessment reports; day to day administration and arrangements.

Working Group, responsible for working together with the research assessment coordinator to ensure the efficient organization of the assessment at the level of units of assessment; collecting information from the units of assessment and prepare background material; organize locally the site visits.

The governance and management structure and composition is presented in Annex 3.

7. Tasks and responsibilities of the panels

The experts will be organized in panels, one panel for each major research area at the University:

Panel 1 – Sport and Health Sciences

Panel 2 – Social Sciences

Panel 3 – Mathematics and Science

Panel 4 – Information Technology

Panel 5 - Humanities

Panel 6 - Education

Panel 7– Business and Economics

Each panel will have appointed a chair, from among the panel members. The chair will direct the panel's work. The chair has the responsibility that the panel produces its reports in time, at the end of the panel site visits.

Assessment Report

The panels will produce an Assessment Report on each unit of assessment. The Assessment Report form will be provided by the Assessment Coordinator to each panel. The Assessment Report must be finalized and signed by all panel members at the end of the site visit week. The Assessment Report will be based on the consensus among all panel members.

The Assessment Report consists of:

- a). Assessment criteria. Brief statement for each criterion, motivating the mark per criterion.
- b). Statement concerning the current structure and performance of unit's research
- c). Identification of research groups at high / highest international level and of most promising groups
- d). SWOT analysis for the unit of assessment
- e). Recommendations for future

The Assessment Coordinator will compile the Final Report of the Research Assessment 2010 by including all the finalized Assessment Reports without any changes in the substance of the reports. The Final Report will be published both in printed and electronic form by the University of Jyväskylä.

Desk Work and Site Visits

The assessment of research consists for each panel of Desk Work and Site Visits.

The Desk Work is carried by each panel member individually, at their home institutions, prior to the Site Visits. The Desk Work is based on the background material compiled by each unit of assessment.

Besides

1. Background information on the Finnish higher education and research
2. Background information on the University of Jyväskylä

the background material includes, for each unit of assessment and for the assessment period:

3. The unit of assessment research profile within the field of assessment (e.g. Department of Chemistry within panel Mathematics and Natural Sciences)
4. The research strategy of the unit of assessment
5. Data concerning the research and teaching staff and visiting researchers
6. Data concerning the research funding of the unit of assessment
7. Data concerning the research output of the researchers in the unit of assessment: scientific publications, national and international patents, other
8. Data concerning national and international collaborations, including visits abroad and visits to the unit, and including industrial collaboration
9. Data concerning international recognition of the researchers of the unit of assessment: invited talks at international conferences, membership in editorial boards of scientific journals; representatives in international scientific boards, committees or equivalent; prizes awarded, honours, scientific positions of trust, and equivalent; representatives in committees and in scientific advisory boards, companies
10. Self-assessment of the unit

All the materials will be collected by the Working Group and sent (electronically and by post) to the panel members approximately four months before the Site Visits.

The Site Visit is organized for each panel within one week. During the Site Visit week, the panel will:

1. Visit each unit of assessment within the panel
2. Get acquainted with the units of assessment
3. Interview researchers representing different phases of the researchers' career
4. Meet representatives of the faculties' and university administration
5. Discuss with other members of the panel
6. Write and finalise the Assessment Report for the panel

The specific timetable for the Site Visit weeks will be provided by the Assessment Coordination Team.

8. Confidentiality and Conflict of Interest

Confidentiality

Panel members will maintain strict confidentiality with respect to any non-public facts and findings,

information, documents and other matters brought to their attention during the Research Assessment 2010 exercise. All Assessment Reports, including all marks and rankings, are strictly confidential until the publication of the Final Report, which summarises all the results and findings.

The Final Report is the only instrument for making public the results of the Research Assessment 2010.

Conflict of Interest

Under the terms of their appointment letters, experts must declare beforehand any known conflict of interest (for example, but not limited at, joint publications, joint research projects, ongoing collaborative research), and must immediately inform the Assessment Coordination Team staff if one becomes apparent during the course of the Research Assessment 2010. A panel member is disqualified if his/her impartiality is endangered and the Assessment Coordination Team will take whatever action is necessary to remove the conflict.

9. Timetable

February-March 2010	Planning phase
April-August 2010	Selection of experts
April-August 2010	Prepare and collect background material by and from departments
September 2010	Send background material to experts
February-March 2011	Site visits
May-June 2011	Final Report

Annex 1 — Key terms and definitions

(OECD definitions)

Evaluation | an assessment of outcomes and/or impact carried out after a project or programme has become fully operational, during the completion stage, or some time after the intervention has been completed.

Effectiveness | whether and to what extent the activity has achieved the desired outcomes.

Efficiency | the extent to which the programme could have been implemented at less costs without reducing the quality and quantity of activities.

Impact | refers to the wider, deeper and long-term effects of a development activity. These may be positive or negative; primary or secondary; direct or indirect; intended or unintended.

Monitoring | refers to the systematic collection of data to provide management and the main stakeholders of an on-going development intervention with indications of how allocated funds are being used and progress towards achievement of expected outcomes. Monitoring may be formal and/or informal.

Outcome | refers to the short and medium term effects of a development activity.

Output | those goods or services that are produced within an establishment that become available for use outside that establishment, plus any goods and services produced for own final use.

Review | is used to describe evaluative activity taking place at key points during the lifetime of an activity to gain a better understanding of what is being achieved and to identify how implementation can be improved. Reviews lie between monitoring and full evaluations. They check that the overall direction is still relevant and ask whether the development activity is likely to meet the purpose for which it was planned.

Annex 2. Units of Assessment - Departments, research institutes and centres from the University of Jyväskylä subject of the Research Assessment 2010

Panel 1 – Sport and Health Sciences	Biology of Physical Activity Health Sciences Sport Sciences
Panel 2 – Social Sciences	Psychology Social Sciences and Philosophy
Panel 3 – Mathematics and Science	Biological and Environmental Sciences Physics Chemistry Mathematics and Statistics
Panel 4 – Information Technology	Mathematical Information Technology Computer Science and Information Systems
Panel 5 - Humanities	Arts and Culture Studies History and Ethnology Languages Communication Music Centre for Applied Language Studies
Panel 6 - Education	Education Teacher Education Institute of Educational Research
Panel 7– Business and Economics	

Annex 3. Governance and Management structure and composition

Science Council (Steering Committee)

Professor Matti Manninen, Chair, Faculty of Mathematics and Sciences

Professor Jaana Bamford, Faculty of Mathematics and Sciences

Professor Anneli Eteläpelto, Faculty of Education

Professor Kari Heimonen, Faculty of Business and Economics

Professor Päivi Häkkinen, Institute for Educational Research

Professor Urho Kujala, Faculty of Sport and Health Sciences

Professor Sirpa Leppänen, Faculty of Humanities

Professor Kaisa Miettinen, Faculty of Information Technology

Professor Jari-Erik Nurmi, Faculty of Social Sciences

Dr. Sirkka-Liisa Korppi-Tommola, Secretary, Head of Research and Innovation Office

Dr. Antoaneta Folea, Permanent Science Adviser

Assessment Coordination Team

Dr. Antoaneta Folea, Assessment Coordinator

Dr. Sirkka-Liisa Korppi-Tommola

Working Group

One representative for each unit of assessment



UNIVERSITY OF JYVÄSKYLÄ

Evaluation of Research Activities 2005–2009
Research Evaluation Report

ISBN 978-951-39-4333-2
Jyväskylä University Printing House, Jyväskylä 2011