

RESEARCH ASSESSMENT EXERCISE
AT THE UNIVERSITY OF TAMPERE 2014
FINAL REPORT

RESEARCH

Johanna Hakala and Johanna Roihuvuo (eds)

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Contents

Foreword	5
Summary	6
Tiivistelmä.....	8
Introduction	10
Assessment organisation	11
Aims of the assessment	17
Timeline of the process	18
Assessment methodology and process.....	19
FINAL REPORT – PANEL I	27
1. General statement on the School of Management	29
2. Regional and Environmental Studies (UoA1)	33
3. Public Administration (UoA2)	38
4. Business and Economics (UoA3).....	44
5. Political Science (UoA4)	50
FINAL REPORT – PANEL II.....	55
1. General statement on research at Kauppi Campus	57
2. Biomedical Technology (UoA5)	60
3. Medicine (UoA6)	66
4. Health Sciences (UoA7).....	72
FINAL REPORT – PANEL III	79
1. General statement on the School of Information Sciences	81
2. Computer-Human Interaction (UoA8)	83
3. Information and Media (UoA9)	91
4. Information and Systems (UoA10).....	103

FINAL REPORT – PANEL IV	109
1. General statement on the School of Social Sciences and Humanities	111
2. History and Philosophy (UoA11)	113
3. Psychology, Logopaedics and Vocology (UoA12)	119
4. Social Sciences (UoA13)	123
5. Social Work (UoA14)	128

FINAL REPORT – PANEL V	133
1. Preliminary remarks	135
2. Education (UoA15).....	136
3. Language Studies (UoA16).....	144
4. Literary Studies (UoA17).....	153
5. Communication, Media and Theater Studies (UoA18)	162
6. Final Remarks	170

Appendix 1: Guidelines for Panellists

Appendix 2: Instructions for Self-Assessment

Appendix 3: Bibliometric Analyses by Tampere University Library, Panels I - V

Appendix 4: Bibliometric Analyses by CWTS, Panels I - IV

Appendix 5: Bibliometric Analysis by Tampere University Library, University level

Foreword

When adopting its strategy “Let's Shape the Future” for the years 2010–2015, the University of Tampere stated that it aims to be an internationally attractive environment for studying, teaching and conducting research. In research, the objective of the University is to be a world-class university in its areas of strength – i.e., research on the society and health – and a nationally significant university in all the other fields. At the same time, a decision was made to conduct an international evaluation of the University's research in order to gain an external view on the quality and impact of the research in comparison to research conducted in the same fields internationally, and to receive recommendations on how to further develop the research.

The Research Assessment Exercise UTA RAE 2014 was a comprehensive and time-consuming undertaking for both the Units of Assessment and those planning and organising the exercise. The Steering Group of the assessment, which comprised experienced external members representing other Finnish universities – Professor Marja Järvelä, Dean Arto Mustajoki, Vice-Rector Taina Pihlajaniemi and Dean Ulla Ruotsalainen – was invaluable in providing advice and guidance throughout the process. An important role was also played by the internal working group, which started to prepare for the assessment already in autumn 2012, and the Research Council of the University.

The 18 Units of Assessment were naturally key actors in the process, and a special thanks goes especially to those professors who coordinated the work at the Units. The experts of the UTA Library, in particular Head of Services Anne Lehto and Information Specialist Merja Hyödynmaa, were invaluable in designing and, partly also implementing, the publication analyses. The Assessment Office – Head of Research Development Johanna Hakala, Coordinator Otto Auranen (until September 2014) and Coordinator Johanna Roihuvuo (since September 2014) – was responsible for the overall design and implementation of the process, assisted by several other experts at the University Services. They all deserve a heartfelt thanks. Last but not least, the success of the process is due to the 42 international Panellists who spent a great amount of time and energy for the benefit of our University. We value their contribution very highly.

The assessment process itself produced many new insights and encouraged all of us to take a new look on the University's research activities. The discussions during the Site Visit week between the academic staff and the Panellists were extremely rewarding, often joyful and sometimes surprising – especially when tough and unexpected questions were presented. UTA RAE 2014 provided a necessary outsider's view on our University and a reliable and realistic basis for envisioning the options for future in the rapidly changing and challenging academic world. The Panel Reports, published in this Final Report, are already widely used in the preparation of the new strategy of the University.

Pertti Haapala

Vice-Rector for Research

Chair of the Steering Group

Summary

The University of Tampere (UTA) is a multi-disciplinary university which conducts research in the social sciences and humanities, medicine and health sciences, management and business, as well as education and information sciences. The focus areas of research are the society and health. Currently the University employs a staff of 2,200, of whom 1,150 are academic staff. UTA produces more than 1,100 Master's degrees, 120 doctoral degrees and 2,000 scientific publications annually. The annual budget is 180 MEUR, of which 63 MEUR is external funding. Since 2011, the University is organised into nine Schools.

As a part of its objective to develop as a research university and to support its strategic work, UTA conducted a comprehensive, international Research Assessment Exercise in 2014. The aim of the assessment was to get up-to-date knowledge and perspectives on the current status and potential of the research conducted at the University in comparison to the international level in the respective fields. It was also considered important that the Units of Assessment and the University should receive recommendations and ideas on how to further strengthen the research quality and the scientific and societal impact of research.

The assessment period was 2008–2013. All of the academic staff at the University was allocated to one of the 18 Units of Assessment. The assessment consisted of the Self-Assessments of the Units of Assessment; publication and citation analyses that were conducted by the Tampere University Library and the Centre for Science and Technology Studies of Leiden University in the Netherlands; and a peer-review by Panels consisting of esteemed international experts. The 42 Panellists, who belonged to five Panels, visited the UTA campuses in October 2014. The assessment process was guided by an external Steering Group, which comprised experienced academics with wide-ranging expertise of research assessments.

The assessment criteria were the following: 1. Profile, organisation and volume of research, 2. Quality of research, 3. Scientific impact of research, 4. Societal impact of research, 5. Quality of the research environment, 6. Potential of the Unit. In the panel assessment, all the criteria were given written statements, while numerical ratings were given with respect to criteria 2–5 on the scale of 1 (poor) to 6 (outstanding). The Panels were asked to provide the evaluations by comparing the research at UTA to the international level of research in the respective fields.

The results of the assessment show that the University is on a right track: the average ratings varied between very good and excellent. In several research fields, the quality and scientific impact of research was considered to be at an excellent level when compared to the international level. The highest ratings were given to the following Units of Assessment: biomedical technology, communication and media studies, history and philosophy, medicine, literature and social work. Reflecting the traditional orientation of the University, the Panellists found that the societal impact of research was at a very good or excellent level in most of the fields, and at an outstanding international level in communication and media studies, history, and social work.

The assessment reports also point out some important overall challenges that the University must address in order to improve the quality and impact of its research. In particular, it needs to increase the size of research groups in order to build a critical mass and reduce their vulnerability and to increase international visibility and mobility (especially long-term international research visits from and to

UTA). Recruitment should be diversified and the incentive system reconsidered in order to better reward for high-quality publication. The work on systematising and structuring doctoral training and sustainable research careers needs to continue. The general consensus of the Panels was that even better results would be possible with the potential and resources currently available at UTA.

The assessment helps the University to recognise its areas of strength and potential in the international research community, reinforce its impact on the society, and allocate its resources to the best and most promising research. The results will be used widely in the preparation for the new University Strategy for 2016–2020 and in the continuous development of research and research environments by the whole academic community at UTA.

Tiivistelmä

Tampereen yliopisto on monialayliopisto, joka tekee tutkimusta yhteiskunta- ja humanististen tieteiden, lääke- ja terveystieteiden, johtamis- ja kauppatieteiden sekä kasvatustieteiden ja informaatiotieteiden aloilla. Tutkimuksen painoaloja ovat yhteiskunnan ja terveyden tutkimus. Yliopistossa on 2 200 työntekijää, joista 1 150 kuuluu opetus- ja tutkimushenkilökuntaan. Yliopistosta valmistuu vuosittain yli 1 100 maisteria ja 120 tohtoria. Tieteellisten julkaisuiden vuosittainen määrä on noin 2 000. Yliopiston budjetti on 180 miljoonaa euroa, josta 63 miljoonaa euroa on täydentävää rahoitusta. Vuodesta 2011 alkaen yliopiston tutkimus ja opetus on organisoitu yhdeksään tieteenalayksikköön.

Vuonna 2014 Tampereen yliopisto toteutti kansainvälisen tutkimuksen arvioinnin, joka auttaa yliopistoa vahvistamaan asemaansa kansainvälisenä tutkimusyliopistona ja tukee uuden strategian valmistelua. Arvioinnin tavoitteena oli saada ajantasaista tietoa ja näkemyksiä Tampereen yliopiston tutkimuksen nykytasosta ja potentiaalista verrattuna kunkin alan kansainväliseen tasoon. Tärkeänä pidettiin myös, että yksiköt ja yliopisto saavat suosituksia tutkimuksen laadun ja tieteellisen ja yhteiskunnallisen vaikuttavuuden vahvistamiseen sekä palautetta tutkimuksensa organisoinnin toimivuudesta.

Arviointi kattoi vuodet 2008–2013. Arviointiyksiköitä oli 18, ja jokainen yliopiston tutkimus- ja opetushenkilökunnan jäsen kuului yhteen näistä yksiköistä. Arviointi koostui kolmesta kokonaisuudesta: yksiköiden itsearvioinneista, Tampereen yliopiston kirjaston ja Leidenin yliopiston CWTS-keskuksen tekemistä julkaisu- ja viittausanalyyseistä sekä kansainvälisistä paneeliarvioinneista. Panelistit, joita oli viidessä arviointipaneelissa yhteensä 42, vierailivat Tampereen yliopiston kampuksilla lokakuussa 2014. Arviointiprosessia ohjasi muiden suomalaisten yliopistojen edustajista koostuva ohjausryhmä, jonka jäsenillä oli entuudestaan laajaa arviointikokemusta.

Arviointikriteerit olivat seuraavat: 1) tutkimuksen profiili, organisointi ja volyymi, 2) tutkimuksen laatu, 3) tutkimuksen tieteellinen vaikuttavuus, 4) tutkimuksen yhteiskunnallinen vaikuttavuus, 5) tutkimusympäristön laatu ja 6) yksikön tutkimuksen potentiaali. Paneelit antoivat kirjallisen lausunnon kaikkien kriteerien osalta ja lisäksi kriteerien 2–5 osalta numeerisen arvion asteikolla 1 (heikko, poor) – 6 (merkittävä, outstanding). Arviointi tehtiin suhteessa saman alan kansainväliseen tasoon.

Arvioinnin tulokset osoittavat, että Tampereen yliopisto on edennyt oikeaan suuntaan: keskimäärin arviot vaihtelivat erittäin hyvän (very good) ja erinomaisen (excellent) välillä. Tutkimuksen laadun ja tieteellisen vaikuttavuuden nähtiin olevan kansainvälisesti vertailtuna erinomaisella tasolla useilla tutkimusaloilla. Korkeimmat arviot annettiin seuraaville arviointiyksiköille: biolääketieteellinen teknologia, historia ja filosofia, kirjallisuudentutkimus, lääketiede, sosiaalityö sekä viestinnän ja median tutkimus. Yliopiston tradition mukaisesti tutkimuksen yhteiskunnallinen vaikuttavuus oli useimmilla aloilla erittäin hyvällä tai erinomaisella tasolla, ja merkittävällä (outstanding) kansainvälisellä tasolla sen todettiin olevan viestinnän ja median tutkimuksessa, historiassa sekä sosiaalityössä.

Arviointiraportit nostivat esiin myös tärkeitä koko yliopistoon kohdistuvia haasteita, joihin on pystyttävä vastaamaan tutkimuksen laadun ja vaikuttavuuden parantamiseksi. Tällaisia haasteita ovat tutkimusryhmien koon kasvattaminen kriittisen massan saavuttamiseksi ja haavoittuvuuden vähentämiseksi sekä kansainvälisen näkyvyyden ja liikkuvuuden, erityisesti pidempikestoisten tutkijavierailujen, lisääminen. Myös rekrytointien monipuolistaminen sekä kannustinjärjestelmien kehittäminen korkealaatuista julkaisutoimintaa paremmin tukeviksi nähtiin tärkeänä. Työtä järjestelmällisemmän ja strukturoidumman tohtorikoulutuksen sekä houkuttelevien tutkijanurien

kehittämiseksi on jatkettava. Paneelien yleinen näkemys oli, että yliopiston olemassa oleva potentiaali ja resurssit mahdollistaisivat vielä nykyistäkin paremmat tulokset.

Arviointi auttaa yliopistoa tunnistamaan omat vahvuusalueensa ja potentiaalinsa suhteessa tieteen kansainväliseen kenttään sekä kohdentamaan resursseja parhaaseen ja lupaavimpaan tutkimukseen. Tuloksia hyödynnetään laajasti yliopiston uuden, vuonna 2016 voimaan astuvan strategian valmistelussa sekä muussa tutkimuksen ja tutkimusympäristöjen kehittämisessä.

Introduction

The previous research assessment of the University of Tampere was conducted in 2004. Just as in the current research assessment exercise, UTA RAE 2014, the goal was to gain an impartial and international perspective on research conducted at the university and to provide a basis for the further development of research activities. The assessment in 2004, which covered the years 1999–2003, acted as a significant boost to the research activities of the departments and research centres.

In today's academia, gaining knowledge on the quality and impact of research has become ever more important for universities and their units because of the increasing competition for funding, increased pressures for accountability and the heightened emphasis on strategic planning. The decision to carry out a second research assessment at the University of Tampere was made during the University's strategy process in 2010, and the preparations for the new assessment started in the autumn of 2012. Regardless of the fact that especially the Academy of Finland and Nordforsk increasingly provide information on the quality and impact of research at Finnish universities, it was considered necessary to conduct an assessment that is relevant to our organisational structure and specific interests.

While two core elements of the university-level research assessment have remained the same – i.e., the focus on the quality of research and (international) peer review as the central method of conducting assessments – some important developments have also taken place. Firstly, data collection has become much more comprehensive and strictly defined. Secondly, the methods for analysing publications have considerably advanced and it is now possible to gain a view on the impact of research through bibliometric methods. Purchasing citation analyses based on the Web of Science data from an external specialist has become commonplace in Finland since Aalto University did it for the first time as a part of its research assessment in 2010. Two years later, the University of Helsinki developed new bibliometric methods for fields that are not sufficiently covered by the Web of Science (in particular, the social sciences and humanities) and its example has also benefitted our work. Thirdly, there is an increasing interest in gaining knowledge on the societal impact of research, which was also the case in UTA RAE 2014. Since objective indicators for this kind of impact are hard to find, we experimented with the model familiar from the British Research Excellence Framework, in which the units present case studies on the societal impact of research.

In planning UTA RAE 2014, the aim was to make full use of the lessons learnt from other Finnish universities that had conducted research assessments in the past few years. We are grateful to our colleagues with previous experience of research assessments at Tampere University of Technology, the University of Eastern Finland, the University of Oulu and the University of Helsinki for sharing their experiences and views.

We decided to treat the three main elements of UTA RAE – the Self-Assessments of the Units of Assessment (UoAs), the publication analyses and the panel assessment – with equal emphasis, even though it is unavoidable that the Panel Reports tend to get most of the attention at the end of the process. A special effort was made to provide the Units of Assessment with comprehensive data for the Self-Assessment exercise. We also tried to reserve enough time for the Units to conduct their own assessments. The general impression is that this strategy worked rather well.

The Tampere University Library took the main responsibility for preparing the data for the CWTS citation analysis. It also conducted publication analyses that were more suitable for such fields for which

the relevance in the WoS database was limited. This meant many months of intensive work for the professionals at the UTA Library, but it also enabled them to gain increased competences and knowledge on bibliometric methods. The Library and the Assessment Office planned the presentation of the results together, and special attention was paid on making the results as accessible as possible for both the Panellists and the UoAs.

One key challenge of the process was to compose Panels that combine scientific excellence, a sufficiently broad expertise on the research to be assessed, and previous experience on research assessment. We also wanted the Panels to be balanced in terms of gender and geography. This process took all spring 2014. It was also important to ensure that the Panellists had enough, but not too much, material on the research conducted in the Units of Assessment and that they were able to adequately understand the Finnish context.

Another key challenge was to provide the UTA academic community with enough information and opportunities for discussion during the process. The internal UTA RAE website was the key channel for disseminating information and materials, and info sessions were frequently organised throughout the process. The contact persons in the UoAs were responsible for informing their own units about the process and for organising the work together with the Deans of the Schools.

The Panel reports were published on the UTA intranet already at the end of November 2014. This Final Report was compiled in order to give everyone full access to the principles, processes and results of the assessment, and to contribute to the development of research assessments at Finnish universities.

Assessment organisation

Preparation Group

The Preparation Group was responsible for drafting the goals, principles and implementation of the assessment. The group was established in August 2012 and it consisted of members nominated by Rector Kaija Holli. The group completed its work in January 2013.

Chair	Pertti Haapala , Vice-Rector for Research
Members	Jouni Häkli , Professor
	Marja Jylhä , Professor
	Kari-Jouko Räihä , Dean, Professor
	Olli Silvennoinen , Professor
	Jorma Sipilä , Rector Emeritus, Professor Emeritus
	Tuula Tamminen , Professor
Secretary	Johanna Hakala , Head of Research Development

Steering Group

The Steering Group was established in August 2013 to ensure the quality and objectivity of the assessment process. The group made decisions about the Units of Assessment, the assessment panels and guidelines, the data gathering and the publication and citation analyses. The group consisted of esteemed members of the Finnish scientific community with wide experience of research assessment. The Steering Group started its work in October 2013. It had altogether four meetings, the last of them in January 2015 after the process had been completed. In addition to the meetings, the group also participated in the planning and discussions by email.

Chair	Pertti Haapala , Vice-Rector for Research, University of Tampere
Members	Marja Järvelä , Professor, University of Jyväskylä
	Arto Mustajoki , Professor, University of Helsinki
	Taina Pihlajaniemi , Vice-Rector, University of Oulu
	Ulla Ruotsalainen , Dean, Tampere University of Technology
Secretaries	Otto Auranen , Coordinator, University of Tampere
	Johanna Hakala , Head of Research Development, University of Tampere

Assessment Office

The Assessment Office had the main responsibility for the organisation and implementation of the assessment process, including the preparation of the guidelines, internal communication, preparing the assessment materials, communicating with the Panellists, organising the Site Visits and compiling the Final Report. The office had two members: Head of Research Development **Johanna Hakala** and Coordinator **Otto Auranen** (from September 2013 to September 2014). **Johanna Roihuvuo** continued Otto's work as a Coordinator until March 2015. Throughout the process, the Assessment Office collaborated extensively with the Library, the University Services and the contact persons in the Units of Assessment.

Other contributors in the process

The **Tampere University Library** was responsible for the publication analyses. At the Library, altogether 14 members of staff were involved in the publication analyses gathering either Scopus citation data or Publication Forum Rating data. The Library also contributed to the analysis of the merits and possible conflicts of interest of the candidates for Panel membership. Head of Services **Anne Lehto** was responsible for the publication analyses and she also coordinated the data sets and analyses that were conducted by CWTS. Information Specialist **Merja Hyödynmaa** compiled the Library publication analysis concerning the quality of scientific publishing using the national Publication Forum Rating and the analysis concerning the citation impact of the Units' publications based on the Scopus citation database.

Several units and staff members of the **University Services** were also involved in the process. In particular, Controller **Tommi Lehtokangas**, Controller **Anu Salminen**, HR Specialist **Tiia Vuorinen** and Planning Secretary **Sirpa Hangasmäki** did a lot of work in providing background data on research funding and publications. The practical arrangements of the Site Visit were carried out by Project Assistants **Kirsi Poussa** and **Kristiina Tuokko** at the conference team. The Panels had assistants who escorted the Panel throughout their visit in October 2014. The assistants were Study Coordinator **Pauliina Halme**, Education Manager **Kristiina Tolvanen**, Administrative Secretary **Elisa Laatikainen**, Coordinator of International Education **Eveliina Permi** and Web Designer **Riikka Yliluoma**.

Contact persons in the Units of Assessment coordinated the assessment process within the Units. They were responsible for informing the staff of the Unit about the process, carrying out the Self-Assessments and preparing for the Panel's visit.

- UoA1 **Markku Sotarauta**, Professor
- UoA2 **Jari Stenvall**, Professor
- UoA3 **Arja Ropo**, Professor
- UoA4 **Tapio Raunio**, Professor
- UoA5 **Tapio Visakorpi**, Professor
- UoA6 **Seppo Nikkari**, Professor
- UoA7 **Marja Jylhä**, Professor
- UoA8 **Roope Raisamo**, Professor
- UoA9 **Teemu Rauhala**, Education Manager / **Jarmo Viteli**, Professor
- UoA10 **Jyrki Nummenmaa**, Professor
- UoA11 **Kari Teräs**, Professor
- UoA12 **Jari Hietanen**, Professor
- UoA13 **Anneli Anttonen**, Professor
- UoA14 **Kirsi Juhila**, Professor
- UoA15 **Petri Nokelainen**, Professor
- UoA16 **Juhani Klemola**, Professor
- UoA17 **Mari Hatavara**, Professor
- UoA18 **Pekka Isotalus**, Professor / **Heikki Hellman**, Dean

University-level follow-up

The Rector's Executive Group and the Research Council had an important role in the assessment process by providing forums for discussion and reflection.

Assessment panels

The Assessment Panels started their work in August 2014 when they received all the materials concerning the Units of Assessment. Composing the Panels and the Panels' work is described in more detail later in this report.



The Panels were photographed together on Monday 20th of October 2014 after being welcomed by the Rector and attending a general information session.

Panel I

Tor Eriksson (Chair)	Aarhus University, Denmark
Ole Elgström	Lund University, Sweden
Adrienne Héritier	European University Institute, Italy
Anders Malmberg	Uppsala University, Sweden
Olli Mäenpää	University of Helsinki, Finland
Tiina Randma-Liiv	Tallinn University of Technology, Estonia
Yvonne Rydin	University College London, United Kingdom
Andrew Stark	University of Manchester, United Kingdom

Panel II

Lajos Pusztai (Chair)	Yale University, United States
Ingrid Agartz	University of Oslo, Norway
Sara Arber	University of Surrey, United Kingdom
Markus Grütter	University of Zurich, Switzerland
Bana Jabri ¹	University of Chicago, United States
Tsvee Lapidot	Weizmann Institute of Science, Israel
Johan Mackenbach	Erasmus University Medical Center Rotterdam, Netherlands
Ingalill Rahm-Hallberg	Lund University, Sweden
Thomas Sauter	University of Luxembourg, Luxembourg
Kai C. Wollert	Hannover Medical School, Germany

Panel III

Lina Karam (Chair)	Arizona State University, United States
Helen Kennedy	University of Brighton, United Kingdom
Andrew McGettrick	University of Strathclyde, United Kingdom
Manfred Thüring	TU Berlin, Germany
Jeffrey Ullman	Stanford University, United States
Barbara Wildemuth	University of North Carolina at Chapel Hill, United States

¹ Prof. Jabri participated in the Panel's work through a remote connection since she was not able to attend the Site Visit.

Panel IV

John Urry (Chair)	Lancaster University, United Kingdom
Ruth Campbell	University College London, United Kingdom
Max de Gaynesford	University of Reading, United Kingdom
Anne Lise Ellingsæter	University of Oslo, Norway
Sylvia Hahn	University of Salzburg, Austria
Gunn Johansson	Stockholm University, Sweden
Karin Knorr Cetina	University of Chicago, United States
Henrik Meinander	University of Helsinki, Finland
Joan Orme	University of Glasgow, United Kingdom
Sue Scott	University of York, United Kingdom

Panel V

Johan van der Auwera (Chair)	Universiteit Antwerpen, Belgium
Natalie Fenton	Goldsmiths, University of London, United Kingdom
Lars-Erik Malmberg ²	University of Oxford, United Kingdom
Ansgar Nünning	Justus Liebig University Giessen, Germany
Peter Schulz	Università della Svizzera italiana, Switzerland
Christina Schäffner	Aston University, United Kingdom
Michael Toolan	University of Birmingham, United Kingdom
Jan Van Damme	KU Leuven, Belgium

² Prof. Malmberg attended the Site Visit for two days, 20–21 October 2014.

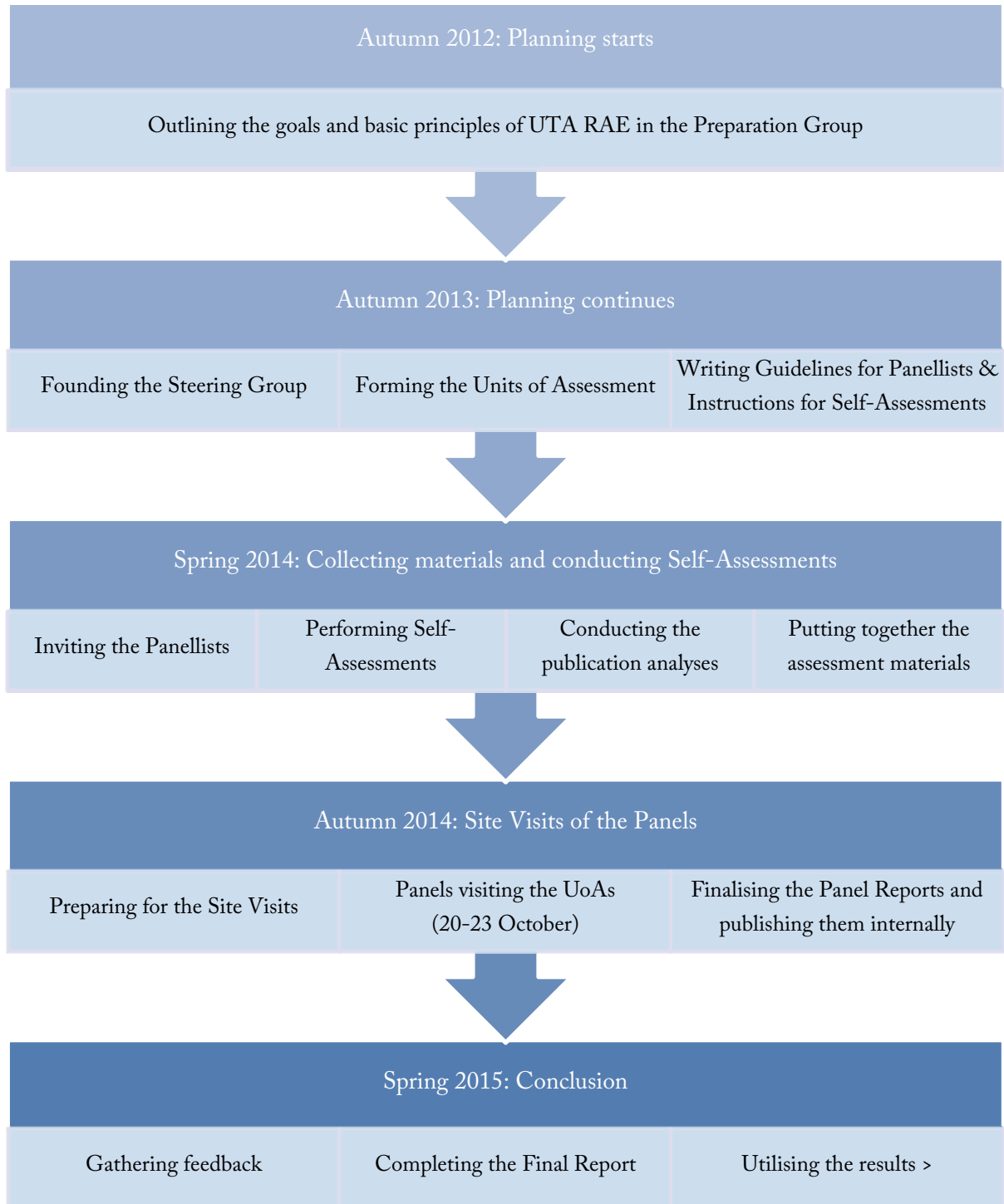
Aims of the assessment

The long-term objective of the University of Tampere is to refine its research profile, to improve the quality and impact of research and to create better opportunities for research and internationalisation. In order to do this, the University decided to conduct a research assessment that would give an overview of the current level of research and future potential in international comparison. The University aimed to get suggestions and ideas especially on how to further develop the potential of its research and organisational structures. The results of the assessment are important for preparing the next strategy for the University as well as for the continuous follow-up and development of research.

As stated in the Guidelines for the Panellists (see Appendix 1, p. 1), the goals of the assessment were to:

- develop the University of Tampere into a high-level research university;
- support the strategic work of UTA and its Schools and help allocate resources for the best and most promising research;
- get up-to-date knowledge and perspectives on the current status and potential of the research conducted at UTA in comparison to the international level;
- identify strong research areas and groups as well as areas and groups that have the potential of becoming strong;
- get recommendations and ideas on how to strengthen the quality of the research at UTA and its scientific and societal impact;
- assess the functionality of the current research organisation and its support services; and
- develop research monitoring at UTA.

Timeline of the process



Assessment methodology and process

The UTA RAE process began in August 2012 when the Rector of the University established an internal Preparation Group. The group prepared a report that discussed the principles and implementation of the assessment. After this, the Schools were asked to make a suggestion about suitable Units of Assessment, unless they considered the School to be the appropriate level of assessment. An external Steering Group for the RAE process was appointed in August 2013. The Steering Group provided advice and guidance throughout the assessment process, and thus helped ensure its impartiality and transparency.

The model of assessment was discussed by both groups, as well as the Research Council and the Rector's Executive Group, and it was eventually decided by the Steering Group in January 2014. The basic principles of the Assessment were the following:

- The assessment covers the research of all academic staff employed on the Census date (1 October 2013). Researchers working at UTA on the Census date without an employee status, for example, with a personal grant, may be included in the assessment.
- All the persons included in the assessment are allocated to (only) one Unit of Assessment.
- The assessment period is 2008–2013 (six years).
- The assessment exercise comprises three elements:
 - Self-Assessments of the Units of Assessment (UoA)
 - Publication and citation analyses
 - Peer review by Panels consisting of international experts
- In the panel assessment, the point of comparison is the international level of research in the field in question.
- The objects of assessment are the UoAs, but the Panels are also asked to identify research areas and research groups with strong performance and/or high future potential.

Assessment criteria and scale

One of the key decisions in any assessment exercise is to operationalise the goals of the assessment into a set of criteria according to which the research can be evaluated. The criteria used in UTA RAE 2014 were the following:

1. Profile, organisation and volume of the research
2. Quality of the research
3. Scientific impact of the research
4. Societal impact of the research
5. Quality of the research environment
6. Potential of research of the Unit of Assessment

These criteria are described in more detail in the Guidelines for Panellists and in the Instructions for Self-Assessments (see Appendices 1 and 2). The Panellists were asked to give written statements for the Units of Assessment on each criterion, as well as a numerical rating for the criteria 2–5, using a scale of

1 to 6: 1 (Weak), 2 (Fair), 3 (Good), 4 (Very good), 5 (Excellent), 6 (Outstanding). It was emphasised that all the assessments should be made in comparison to the international level of research in the field in question.

Units of Assessment

One basic principle of UTA RAE was that all the research conducted was evaluated. Due to the differences in size and the internal variation in research and publication cultures, all the Schools of the University were not suitable for acting as Units of Assessment as such. Altogether 18 Units of Assessments were thus established for the assessment during spring 2014. Five Schools formed Units of Assessment as such, while four Schools were divided into 2–4 smaller units. The UoAs were then grouped into five Panels.

Panel	School	Unit of Assessment
I	Management	01 Regional and Environmental Studies
		02 Public Administration
		03 Business and Economics
		04 Political Science
II	BioMediTech	05 Biomedical Technology
	Medicine	06 Medicine
	Health Sciences	07 Health Sciences
III	Information Sciences	08 Computer-Human Interaction
		09 Information and Media
		10 Information and Systems
IV	Social Sciences and Humanities	11 History and Philosophy
		12 Psychology, Logopaedics and Vocology
		13 Social Sciences
		14 Social Work
V	Education	15 Education
	Language, Translation and Literary Studies	16 Language Studies
		17 Literary Studies
	Communication, Media and Theatre	18 Communication, Media and Theatre Studies

One essential task was to determine the criteria the academic staff had to fulfil, that is, deciding whose input was to be included in the assessment. All staff members with a full-time or at a minimum of 20% part-time contract with research duties on the Census date were automatically included. The Units of

Assessment were also able to add people to the list of academic staff if they had researchers with personal scholarships from foundations or with an emeritus/emerita contract working actively in the Unit. The final list was the basis for all the analyses concerning research activities and output.

It should also be noted that the UoAs were divided into two categories according to their size. The size of the unit influenced the length of the Self-Assessment Report (as well as the number of research achievements reported in it) and the duration of the Panels' visits in the units.

Self-Assessments

The Units of Assessments conducted Self-Assessments during spring 2014. The Units received the Instructions for Self-Assessment (see Appendix 2) at the beginning of February and had a chance to discuss them at two information sessions during the spring. In March, the Units were provided with statistics to support the process. The statistics included data on academic staff, funding, publications, expert tasks, international mobility and doctoral degrees.

For the bigger Units (with more than 50 academic staff), the maximum length of the Self-Assessment Report was 15 pages, and for the smaller units, 11 pages. (However, at the final stages the three largest Units were granted two extra pages.) In addition, the bigger Units were asked to list a maximum of 25 of their most important research achievements (publications or other research outputs), while the smaller ones were requested to list a maximum of 15 achievements.

The final deadline for the Self-Assessment Reports was in mid-June. The reports were sent to the Panels together with the other assessment materials in August.

Bibliometric analyses

UTA RAE 2014 was based on two separate bibliometric analyses, which were conducted by the Tampere University Library and the Centre for Science and Technology Studies (CWTS) at Leiden University in 2014. The analyses were sent to the Panels and the Units of Assessment in September 2014.

Both analyses were based on data registered in UTA's publication database system SoleCRIS, into which UTA researchers updated information on their research activity in 2008–2013. The University Services transferred the data from the SoleCRIS database to the University's data warehouse where the data was subsequently enriched with usernames from the University's HR system, Publication Forum (JuFo) levels and WoS codes. These publication data were processed into tables, which were made available to the Units of Assessment before their Self-Assessments began. The data were also delivered to the Library for further cleansing, enriching and filtering, which was necessary before the actual bibliometric analyses could be conducted (for instance, some Publication Forum Ratings and journal titles had to be manually corrected).

Since the goal of UTA RAE 2014 was to assess the scientific potential of the current academic staff of UTA, the analysis included the scientific publications authored by them in the assessment period regardless of where they had been working at the time of publication.

Bibliometric analysis by the Tampere University Library

To give a comprehensive basic view on the scientific publishing activity in the Units of Assessment, the Tampere University Library carried out the following analyses for all the UoAs:

- the volume of scientific publishing activity;
- the language of scientific publications;
- the quality of scientific publications and scientific publishing channels according to the JuFo levels

Only publications in the categories A–C of the Finnish Ministry of Education and Culture's classification of publications were included in the analysis. The quality of scientific publishing was analysed using the national Publication Forum Rating (JuFo) of scientific journals, publication series and publishers. In addition, the quality of scientific publishing was described by analysing the refereed scientific journals in which the UoAs had published most frequently. The same was done to the scientific publishers which had published most of the UoAs' scientific publication output.

Furthermore, the Library carried out the analysis concerning the publication output and citation impact based on the Scopus database for all Units of Assessment except for the Units in Panel II (Health Sciences, Medicine and Biomedicine), since their publication output was already sufficiently well covered by the CWTS analysis (see below). The Scopus analysis included the scientific publications authored by UTA researchers in 2008–2012 and citations to those publications in 2008–2013.

The UTA Library also conducted publication analyses at the university level on the volume and types of scientific publishing activity, the language of publications, and the quality of scientific publishing (see Appendix 5). However, these were not given to the Panels since their task was not to evaluate the University as a whole. A university-level analysis based on Scopus could not be conducted, since the Scopus analyses were not conducted for the Units of Assessment on the Kauppi campus (Panel II).

The methodology and the bibliometric indicators applied are described in detail in the first section of each bibliometric analysis (see Appendices 3 and 5).

Bibliometric analysis by CWTS

The citation analyses carried out by CWTS were based on standard methods using indicators that have been widely tested and approved by the bibliometric research community. These analyses included UTA researchers' publications from the years 2008–2012 registered in UTA's SoleCRIS system and included in the Web of Science (WoS) database. Of different publication types, the analysis included only scientific articles and reviews in journals covered by WoS. The citation impact of these publications in 2008–2013 was compared with worldwide reference values, that is, with the values of publications with the same age, field and type in the world. The CWTS analyses also give information on the research profiles and collaboration patterns of the UoAs.

As the WoS data do not cover all fields of science equally, they could not be used for the impact analyses of all the UoAs. Accordingly, bibliometric analyses based on the WoS database were provided for 11 UoAs out of 18. The decisions on the relevance of the analyses were based on both the internal and external coverage of the publications by the Units of Assessment. The threshold was set at 10 percent of external coverage and 30 percent of internal coverage. The thresholds were set fairly low so that also

those Units, which did not fulfil the stricter demands for reliability and validity in the bibliometric analysis (often 40% for internal coverage and a minimum of 50 publications), could benefit from the additional information regarding their WoS publications. The internal coverage was calculated by CWTS and the external coverage by the Assessment Office.

University level analyses based on the WoS data are not included, since they do not sufficiently cover all Units of Assessment. Due to the large volume of articles in WoS journals on the Kauppi campus (Panel II), those results would mainly describe the publication impact of the UoAs in Panel II, not the whole university.

The methodology and the bibliometric indicators applied by CWTS are described in detail in the first section of each bibliometric analysis (see Appendix 4).

Panel assessment

The final stage of UTA RAE, the Panel review, was carried out in autumn 2014. Altogether 42 international experts participated in the five Panels. The tasks of the Panels included getting to know the assessment materials, attending the Site Visit and writing a Panel Report.

The University recruited the Panellists among esteemed international experts in the fields covered by the University of Tampere. Suggestions for potential Panel members were asked from the Units of Assessment and the Steering Group. Candidates were also sought among the editors of scientific journals and the panels in other research assessments, such as the RAE/REF in the UK. Over 300 experts were identified. Through an analysis of their merits (excellence, broadness of expertise and experience in assessment) this group was narrowed down to approximately one hundred. Naturally, the possibility of a conflict of interest was checked with each candidate to ensure the impartiality of the assessment. In compiling the Panels, also the gender, background institution and country of the candidates was considered in order to create a balanced membership in the Panels.

The first candidates were sent an invitation letter, including the Guidelines for Panellists, in February 2014. The aim was to choose Panel Chairs first. Nearly all of the 42 Panellists were confirmed by the end of May 2014. 19 of the Panellists were women and 23 men. The Panellists came from 15 different countries. Most of the Panellists were affiliated with European universities: 14 in the UK, 9 in the Nordic countries (including two in Finland), and 11 in other European countries. Six Panellists came from the United States and one from Israel.

The Panels received the assessment materials in August 2014. After this, the Panel Chairs were requested to contact the Panel members, outline their areas of expertise and make preliminary decisions about the division of labour within the Panel. The materials sent to the Panellists were the following:

I General information

- List of the Panel Members
- Background information on the Finnish higher education and research system and UTA
- A summary page on each School covered by the Panel
- The Guidelines for Panellists document
- The Instructions for Self-Assessment
- The timetable for the Site Visit

II Assessment materials for each of the UoAs covered by the Panel

- The Self-Assessment Report of the UoA
- Statistics on academic staff, research funding, publications, academic tasks, international mobility and doctoral degrees (the same material was delivered to the Units at an earlier point)
- The CVs of senior staff

In September 2014, the Panels also received the bibliometric analyses conducted by the UTA Library and the CWTS. The Panellists arrived in Tampere on Sunday 19 October. The Panel Chairs had a brief meeting on organising the Panel work, after which the Panellists had the opportunity to get acquainted with their fellow Panel members at a welcome dinner.

The official Site Visit programme began on Monday 20 October. The Panellists were welcomed by the Rector and they attended a general information session concerning higher education and research in Finland and at the University of Tampere. After this, each Panel was assigned an assistant to escort the Panel during the visit and help with any practical issues.

The Panels visited one or two Units daily, and the visits lasted for 2–3.5 hours depending on the size of the Unit. The UoAs had prepared the programme of the visit according to a common template prepared by the Assessment Office and accepted by the Panel Chairs. The visits included four sessions: an introduction and initial discussion with the senior staff, a poster session, interviews with junior researchers and a concluding discussion. The Panels also worked daily on their report, for which they had received a template.

Panels II and III stayed for three days and completed their work late on Wednesday 22 October. Panels I, IV and V had a four-day visit and concluded their work on Thursday 23 October. The Site Visits ended with a concluding session where the departing Panels presented their initial findings and views and submitted the first draft of their Panel Report to the Vice-Rector or Rector.

The final deadline for the Panel Reports was 10 November 2014. The reports were checked for factual errors by the contact persons in the Units of Assessment, the Deans and the Assessment Office. All corrections were then approved by the Panel Chairs. The final versions of the Panel Reports were published in the University's intranet on 28 November.

Feedback and reflections on the process

The research assessment exercise was a long and demanding process with a large number of participants. While it was important to carefully design the basic documents so that no changes would be needed at any later stages, the academic community at UTA was provided with frequent briefing sessions where practical issues could be discussed. The timetables and deadlines were often discussed in the Rector's Executive Group.

We also considered that it was important to provide possibilities for feedback at the end of the process. The Panellists gave some feedback during the Site Visit and especially during the farewell lunches hosted by the Rector/Vice-Rector. After submitting the final versions of their reports, the Panellists were asked to answer a short email questionnaire concerning the assessment materials, the Site Visits and the practical arrangements of the assessment. Altogether 27 of the 42 Panellists (64%) answered the

questions. Around the same time, a feedback and discussion session was organised for the contact persons in the UoAs and the Deans, chaired by the Rectors.

The basic principles of the assessment – e.g., the decision on whom to include in the assessment the assessment criteria and methods – were something that was generally agreed on. Most of the feedback from the UTA community concerned forming the Units of Assessments. Some UoAs felt that their Unit was too large, making it difficult to make a fair representation of the Unit in the materials and during the Visit. However, the Panels did not bring up this issue. Some Panellists would have wanted to have access to more information on the Units and their research groups.

Overall, the Panellists considered the assessment materials useful and appropriately presented. Especially the Self-Assessment Reports, the guidelines and the general background information received positive comments from the Panellists. Providing the same set of data and statistics as the basis for their evaluations for both the Units of Assessment and the Panellists proved to be a good decision. Due to the decision to include the year 2013 in the publication analyses, the materials were not available until August 2014, when the Units had already completed their Self-Assessments. However, they received the analyses at the same time as the Panels, which meant that during the Visits both the hosts and the visitors had access to the same information.

The views on the bibliometric analyses were largely positive, and most of the Panel Reports refer to them. However, some Panellists representing the social sciences, humanities and related fields commented in the questionnaire that the value of the publication analyses was limited and that they would have preferred to receive a full list of publications. Several Panellists would also have wanted to see the CVs of all senior staff, not only those of the professors and research group leaders.

These criticisms give rise to the question of whether there should have been different types of assessment materials for Units that represented different types of disciplines. Furthermore, some Panellists thought that the CVs should have only covered the assessment period (while they now included the most important research achievements for the whole career).

Comments on the case studies presented by the Units on the societal impact of their research in the Self-Assessment reports were generally positive. For the Panels, they provided important qualitative information in addition to the more traditional indicators, for instance, projects with non-academic partners, expert positions, patents and employment of doctors outside of academia (see Appendix 2, p. 4).

The Site Visits were considered generally successful by the Panellists and the Units. The Panellists were satisfied with the practical arrangements and the content of the Visit. The poster sessions were appreciated by both the Panellists and the UoAs, because they provided a chance for more informal discussions. The only major criticism from the Panellists was that their daily amount of work, often extending to 12 hours, was too much. Similarly, the UoAs felt that the visits might have been more efficient if the Panels had had more time to prepare for the visits together. Since the most capable candidates for the Panels are often also the busiest, making the visits longer may not be a realistic option.

All in all, the feedback about the process was mainly positive. However, there is always room for improvement. In case that the University of Tampere decides to carry out a similar assessment exercise in the future, it is important to consider the lessons learnt from UTA RAE 2014, as well as to utilise the experiences from other universities, as was done during this process.

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Final Report

Panel I

Regional and Environmental Studies

Public Administration

Business and Economics

Political Science

27 November, 2014

Tor Eriksson, Aarhus University, Denmark (Chair)

Ole Elgström, Lund University, Sweden

Adrienne Héritier, European University Institute, Italy

Anders Malmberg, Uppsala University, Sweden

Olli Mäenpää, University of Helsinki, Finland

Tiina Randma-Liiv, Tallinn University of Technology, Estonia

Yvonne Rydin, University College of London, UK

Andrew Stark, University of Manchester, UK

1. General statement on the School of Management

As members of RAE Panel I, we would like to express our appreciation of the work undertaken by the Units of Assessment (UoAs) in preparing such careful self-evaluation reports, and for the receptive atmosphere in which open discussions took place during the site visit. The Panel is impressed by the breadth of research and teaching activities undertaken by the UoAs, and the efforts made to give structure to the work of staff through research programmes and groupings. The contribution of doctoral students and postdocs was particularly valued in explaining aspects of the research process.

The Panel would like to start by addressing some recurrent themes of a general nature that have come out of our reading of the submitted material and our discussions with the UoAs. Some of these issues are likely common to other parts of UTA and, in some cases, perhaps the Finnish academic system as a whole.

School of Management: organizational heritage and integration

The School of Management was set up in 2010, as a merger of various previous departments. The fact that this is still a relatively new organisation is visible in several ways. The composition of the School is somewhat unusual and can be confusing for an external observer. It is not a business school (which one could assume) but a business school integrated with several other disciplines. This may not, in itself, be a problem, but it is a problem of communication/branding.

Generally, most groups we met seemed to be relatively content with being part of the new School, and see clear advantages (synergies, integrated activities). In several cases, however, it was obvious that the old departments still form separate mindsets. In a few cases, it is also clear that there are individuals and groups who see the composition of the School as less than optimal.

This is not an evaluation of the organizational reform, but from the point of view of the development of the research, it seems clear that there is a need for integrative mechanisms if the potential synergies of the large School are to be fully realized. There are examples of groups in different parts of the School who do related work that could benefit from more interaction. There is also potential to improve the outcomes of PhD education if the PhD candidates can, to a larger degree, see themselves as part, and are encouraged to make use, of a broader School environment (see below for more on this point).

Size of UoAs and incentives/barriers to growth/change

The Panel observes that many research groups, and even UoAs, are small in size, in a Nordic or European context. The number of professors and other active researchers are, in many group, so small that they cannot, however well they publish, compete as a group in the international arena, even if they can do so on an individual basis. Such groups are often too small to really provide a dynamic and sustainable research environment, and limited size also makes groups vulnerable – if a key professor leaves, the group may experience problems. Furthermore, this problem is linked to observed barriers to growth. Few ways seem to exist for a research group to increase its personnel on a permanent basis, as resource allocation within the School seems in practice to be based on the existing number of personnel. Additionally, the present system of funding does not provide enough incentives for individual efforts to increase a scholar's or a group's number and quality of publications.

All UoAs of the School of Management have committed themselves to growth *via* additional externally raised research funding and an increase in the rate of publication in internationally recognised, peer reviewed, high quality outlets. Some research groups within the School already do this quite successfully. They have raised considerable amounts of external funding, mostly from Finnish funding sources, but to some extent from European sources as well. It should be possible, however, to increase such European funding. Some groups within the School are successful in publishing in peer reviewed, high quality, international and national research journals, but additional efforts are needed.

What remained unclear throughout the course of our discussions with the various UoAs in the School of Management is the following: what are the incentives offered to individual scholars and research groups to successfully engage in the above efforts? In other words, what are the compensations which a scholar, or research group, can expect if they successfully engage in raising sizable amounts of external research funds and/or publishing in high quality research journals? In many other European universities, mechanisms of incentivization/compensation are offered which take the form of salary increases or bonuses, sabbaticals, or teaching reductions at the individual level, or being offered additional posts to fill at the group or UoA level, be it as professors or lecturers. It would seem commendable to introduce such a mechanism of incentivization/ compensation for high achieving individual scholars or research groups. It could serve as a driver of change in otherwise rather static structures.

Internationalization

A professed goal of all research groups we met with during the site visits is internationalization. It appears that, whilst this is a stated goal, no clear steps are being taken to produce that effect for some groups. In the following, we distinguish between internationalization in publications, research efforts, recruitment, and the exchange of scholars.

For internationalization in publishing and international research activities, there are notable differences across group. Internationalising research is not just a matter of choosing publication outlets. It can also mean developing channels for continuing dialogue with groups and institutions in other countries, and to let that exchange of ideas affect research approaches and agendas. Some are quite successful in doing this, but others are very much focused on cooperation in research projects focussed on the national, regional and local level. As described in the paragraphs on “lack of incentives” above, we think that the introduction of clear rewards for scholars and groups engaged in such activities will boost this type of internationalization effort.

With regards to recruitment, we are struck by the pronounced Finland-centeredness (and even UTA-centeredness) of recruiting processes at all levels – professors, lecturers, postdocs and doctoral students. A radical change, in the sense of an international opening up of recruiting processes at all these levels, is desirable. This implies that posts are advertised in English on a Europe-wide, and indeed worldwide, basis and subject to a merit-based process of selection. An important implication of such a change is that much more teaching would have to be delivered in the English language, especially at the graduate level, and possibly also more use made of English in some of the administration. Bilingualism should be taken for granted as a matter of course.

More foreign exchanges in both directions should become a regular feature at all levels of studies, particularly those including young scholars where today it appears to be quite infrequent. An increased number of guest researchers from abroad would also help to mitigate the problem of size mentioned

above, and hopefully increase the quality of scientific discourse at seminars, with the introduction of fresh ideas.

A *caveat* is, however, in order. The suggestions above are not to say that the national and sub-national context should be neglected in research cooperation and teaching, because that will always remain of importance. But the emphasis on a national and local role *versus* a global role should, to some extent, be rebalanced.

Lack of structured PhD programmes

The absence of a well-structured PhD programme is a systemic weakness at the entire School of Management. Although the PhD students are able to attend UTA-wide PhD courses, they do not have a mandatory curriculum in their disciplinary fields. Individual professors can have a large number of PhD students to supervise (occasionally 15–40 PhD students *per* professor). The lack of systematic PhD training on the one hand, and the overload of supervisors on the other hand, leaves PhD students very much on their own, and does not sufficiently support their development. International PhD students are particularly vulnerable in such a situation.

The PhD education at the School of Management is generally rather unstructured and old-fashioned in terms of organizational practices and processes. PhD students seem to be of good standard and highly devoted and, in most cases, report that they experience a supportive environment and enjoy their relative freedom. The system in several ways seems dysfunctional, however. The UoAs have traces of an old system with many candidates admitted to PhD studies, plenty of whom are either very little active or not active at all. More problematically, once admitted, new doctoral students are not receiving clear and structured guidance. There is no structured system which provides them with doctoral courses, except for some methodological and generic skills-courses offered at the University level, leaving the PhD candidates themselves to search for suitable courses. Students do present what progress they are making at seminars, but on a case-by-case basis and not within the context of a structured PhD programme. In general, there is a lot of “hidden knowledge” that candidates have to learn in order to handle, and succeed in, the system.

In the view of the Panel, the decision to end the national PhD programmes is unfortunate. These programmes have, according to what we have learnt, worked well and in certain cases still do so, notably in Economics. There is a risk that well-functioning programmes will cease to exist with funding for doctoral training transferred to universities. The Panel strongly recommends that universities continue to provide joint courses on a national level. If each university is to provide its own courses, the risk is that there are not enough students to offer a proper variety of disciplinary-based courses and that the quality of the courses offered will be worse than in the existing system. While national or international cooperation in offering PhD courses does enhance quality, it is also important to emphasize that each institution must take responsibility for its own PhD training, ensuring high quality supervision and a rich intellectual environment with seminars, visitors, and regular monitoring of the performance of PhD candidates.

Lack of a transparent and structured career system

Another issue is related to the limited mobility of faculty members. There is very little mobility, both nationally and internationally. The staff is overwhelmingly Finnish and, furthermore, graduates of the

University of Tampere. This raises a concern about a potential lock-in effect into existing approaches, methods and schools of thought. There is a risk of self-referential behaviour, which, in the long-run, is likely to diminish the dynamism and quality of research, both nationally and internationally. Few faculty members seem to have spent long periods in other universities during their academic careers. Moreover, some junior faculty members even fear to go abroad as they may lose out on job opportunities by not being present at UTA. Most of the PhD candidates and the postdocs that we interviewed expressed concerns about their future careers. The number of postdoc openings in the literal sense, i.e. positions intended for a new doctor to be able to publish and develop his/her research profile further, is apparently limited. Those who are able to get teaching positions often have these for a limited time period, commonly five years.

In general, there seems to be an absence of information on career possibilities, although many supervisors do advise their PhD students on how to proceed in order to have an academic career. The information that we received on the University's tenure track system, which is still in a pilot stage, does not seem to reflect reality on the ground for the vast majority of the young researchers in the School. The lack of a proper and transparent career system, linked to a lack of open recruitment procedures, contributes to a lack of mobility in general and problems in recruiting internationally in particular. The School, and the University, should prioritize the planning, introduction and implementation of a well-organized career system and consider such issues in its prioritization of resources, for the long-term sustainability of their own faculty.

2. Regional and Environmental Studies (UoA1)

2.1 *Volume, profile and organisation of the research*

The Regional and Environmental Studies (RES) UoA possesses a research-intensive working environment. Since the incorporation of the UoA within the School of Management, there is no separate degree programme in regional and/or environmental studies. The teaching provided in this field is mainly incorporated in the public administration programme. In the overall budget of RES, in rough terms, teaching represents 25%, basic research funding through the School another 25%, and external research funding 50%. This has implications for the structure of staff, with relatively few teaching positions (professor, lecturer) and many people hired on temporary research contracts of various kinds. It should also be noted at the outset that this is, in many ways, a multi-disciplinary milieu, where the academic staff include people with backgrounds in different academic areas such as human/economic geography, social and political sciences, education, engineering, biology and architecture.

This is a productive UoA in terms of the volume of publications, with 412 outputs since 2008. There is the potential to increase the proportion of scientific and peer-reviewed publications further within the total. Figures provided suggest that about 30% (118) currently do not count as 'scientific' and only 34% (139) have been peer-reviewed. But if one takes the papers in JUFO ranked 2 or 3 journals, then the UoA is producing 15 *per annum*, which can be considered very good for the size of UoA. They also demonstrate a strong ability to raise funds on a sustainable basis – €4.3m raised for 2010–13, with over €9m raised since 2008. SPARG and PONTE both raised over €3m, with Sente bringing in just over €2m and UrFC just over €1m. These amounts are impressive for a UoA with only 4 professors.

The research within the UoA is organised into four groups, each led by a full professor:

- the Urban and Regional Studies Group, Sente, looking at how local and regional institutions can be shaped in order to promote economic renewal (Markku Sotarauta);
- the Politics of Nature and the Environment Research Group, PONTE, undertaking a variety of studies on environmental topics (Yrjö Haila, retiring 2014, and being replaced by Pekka Jokinen);
- the Urban Futures and Continuities Research Group, UrFC, which is future-oriented and perhaps could be described as more normative (Ilari Karppi); and
- the Space and Political Agency Research Group, SPARG, which has a theoretically-informed interest in political subjectivity (Jouni Häkli).

Collectively, these constitute a clear and interesting research agenda. The majority of the research of the UoA can be considered applied, although more theoretical and conceptual papers are published, notably by SPARG members. Each of these groups is coherent and well integrated, with regular meetings, seminars and joint discussions. The web presence is also clear for the outside visitor. There are links between the four groups, both in terms of individuals engaging in several groups, and the organization of joint activities (seminars *etc.*).

The research programme, POLIES, apparently proposed by the School of Management, is so far relatively weakly organized compared to the four well-established groups. Members of the UoA greatly value the links that are now possible within the School of Management that were previously across departmental boundaries. There is collaboration with other staff both inside the School and outside across the university more generally.

The individual groups are quite small but their experience of research fund-raising and publication suggests that lack of critical mass is not a problem in general. Furthermore, the information provided on the site visit suggests a substantial increase in numbers over those given in the self-evaluation documentation: 5 professors (of whom one is emeritus), 18 postdocs (and equivalent) and 26 PhD students now, as compared to 4, 7 and 12 respectively in the documentation sent out prior to the Panel visit. There are 17 researchers within the UoA with Web-of-Science recorded publications. There may be greater vulnerability in the Sente and UrFC groups, but inter-linkages between groups appear to offset some of these problems.

2.2 *Scientific quality of the research*

The ambition of RES is clear and manifest – international peer recognition sets the standard for the research quality aimed at (and, to a considerable degree, also delivered). While the list of achievements presented in the Self-Assessment Report is overly focused on the work of three people (9/15 achievements), the websites for the four groups suggested a much wider spread of authorship. Study of these websites suggest:

- Sente's publications are of a high quality but perhaps overly dependent on the leading professor (Sotarauta);
- PONTE's publications are well distributed across the staff and are in journals of good and excellent quality;
- UrFC's publications are not distinguished from those of the School as a whole – it appears that the group is not represented in the list of top 15 achievements for the UoA; and
- SPARG's publications are also well distributed across the staff and are in journals of good and excellent quality.

In terms of positioning within their fields of research, SPARG is pushing the frontier of work in their area, while Sente has been operating close to that frontier. PONTE produces a variety of work, some of which can be considered innovative.

The team argued strongly for the importance of publishing both in English and in Finnish in order to reach both an international academic audience and practitioner/professional communities at the national scale.

2.3 *Scientific impact of the research*

The UoA argued that the citation analysis undertaken by Leiden University indicates that RES had the highest MNCS (1.8) and the second highest PPtop10% (16.4%) reported among the UoAs assessed within the University of Tampere. The RAE Panel 1 did not have the information available to do such a comparison. In general, as indicated above, the research output is published in well-established international journals, and well received within their respective international research communities.

Some of the work carried out within the UoA is among the best in the field in Europe and several of the researchers (including Sotarauta and Häkli) have well-established international reputations. RES as a whole is very active in making keynote presentations, being involved in evaluation processes and other aspects of involvement in wider academe, both in Finland and abroad. The individual groups all have

good international links, both personal and on research projects. The bibliometric analysis by the University of Leiden suggested that just under 14% of publications (that is, 3 out of 22) involved international collaboration and these recorded a MNCS of 4.0 and PPtop10% score of 33.3%. PONTE could be considered as having a strong focus on the Finnish environment; the RELATE Centre of Excellence also provides for collaboration in a Finnish academic context.

Since 2000, 14 of the graduated doctoral students have found employment in academia and the discussions with the research students suggested some confidence in the marketability of their RES doctorate in the labour market, noting the benefits of being trained in an inter-disciplinary environment.

2.4 *Societal impact of the research*

The research of the RES UoA – political subjectivity, place leadership, environmental issues, urban futures – is all highly societally relevant and it is clear that all groups emphasise the societal relevance of the work that they do. In terms of funding, some is received from Tekes, Finnish firms and other public bodies (very little from the EU), but there has been a clear trend towards obtaining funding from the Academy of Finland. This is to be supported if the aim is to achieve higher quality research publications as a primary goal. The UoA has a strong visibility within the Finnish society (for example, through training) and their research already involves key stakeholders. Nevertheless, during the site visit, the UoA stated that it aims to further improve collaboration with non-academic partners in the future. Some 16 doctoral students have found employment in related areas of policy and practice.

2.5 *Quality of the research environment*

RES gives the impression of a high quality, well-led and energetic UoA, which is focused on its research activities and organised around its four research groupings. Indeed, it can be considered in the nature of a research institute with a relatively limited relationship to the teaching within the School of Management. This does not, however, seem to affect the UoA's sense of a coherent identity, which remains very strong.

This relationship to teaching, however, does create a potential structural problem because around 50% of their overall funding comes from external sources that they raise through grant bids. There is a continued need to make successful grant applications to keep the UoA at its current size (or achieve any growth) and such funding can only resource temporary postdoctoral and doctoral posts. In terms of justifying their teaching personnel, they are dependent on attracting students to their specialisms within the generic degrees, since new permanent recruitment within the School appears to be driven by teaching needs.

While the staff is active in making international visits, more effort could be made to attract international visitors to the UoA. The other weakness stressed by the UoA was the administrative burden of running research contracts, which currently falls on relatively few people. To resolve this would require further senior appointments, or greater central university support for not only grant applications but management of grant contracts.

The emphasis of the UoA is on research rather than teaching, but doctoral supervision also features strongly. Currently doctoral students feel part of the RES doctoral 'programme' (perhaps rather than the evolving School of Management programme) and, while it was not very structured, it is considered

highly interactive, with parity between more and less senior staff and considerable openness. As such, doctoral students are strongly supported. Doctoral students are linked to ongoing research projects by putting in for doctoral funding within research bids, but they are encouraged to follow their own interests. Funding is provided for conference attendance, and publication is supported with a policy of joint authorship. There remains the widespread problem of a lack of a clear career structure, and proper job openings after graduation.

2.6 *Future potential of the Unit of Assessment*

Taken together, the RES UoA conducts research that is promising in terms of its agenda, quality, and scientific and societal impact. RES provides a good quality research environment. There is potential to grow and develop the research profile further on a European and, more generally, an international scale. The leadership of the UoA has a good understanding of this potential and a suitably ambitious vision. The UoA suggested three areas that could be highlighted as ‘research spearheads’ for the future: (i) political subjectivity; (ii) place leadership and institutional entrepreneurship; and (iii) environmental values in politics. Their plans are as follows:

- build on past experience and current capacity;
- international visibility and joint publication;
- deepen dialogue with stakeholders;
- intensify collaboration across research groups, *etc.*; and
- strengthen postdoc and senior research staff, support for researcher careers.

The last point is a priority. There is a need to get more funding for postdocs that is not dependent on getting grants, and to even up the balance of postdocs across the four groups. The UoA appears to be an effective home for such postdocs. They are currently provided with time to publish and the younger postdocs feel supported by other staff at different points in their career with whom they meet regularly. The interdisciplinary context is felt to give young researchers more options within the labour market, and the policy of doubling up more junior and senior staff in authoring papers is a good practice. The possibility of young researchers acting as second supervisors for doctoral students, and also supervising MSc students, is also welcomed. These successes should be built upon.

2.7 *Recommendations and suggestions*

The strengths of RES lie in its research active nature, strong leadership, clear group structure and supportive research environment. The weaknesses relate to the dependence on research funding which can only support temporary posts, and the size of the individual research teams with a consequent reliance on a small number of senior people. We would note that two of the smaller groups seem more vulnerable in this regard. Resolving this requires action at the School or even university level as indicated in our general remarks.

We consider that there is a great opportunity (and associated challenge) involved in the further internationalisation of the research activities, and that this would support the continued improvement in the quality and scientific impact of the UoA’s research. In this regard, we would recommend the following:

1. There are opportunities to apply for European and other research grants to maintain and extend international collaboration. This may require greater institutional support at School and/or university level, both for getting research funding and managing successful contracts;
2. Greater staff mobility (in and out) is to be encouraged. Consideration should be given to measures within the School that would enable such mobility for existing staff at all levels and for building links that will lead to international experts spending time in the UoA; and
3. The tendency to employ Finnish staff can carry the risk of a rather inward-looking perspective and a greater openness in recruitment at all levels is proposed. When jobs are advertised openly, they get an overwhelming response; we understand that a recent postdoc opening that was widely announced received some 80 applications, and resulted in the recruitment of one postdoc from Sussex and one from Turku. Such an approach should be encouraged to set the standard for future recruitment.

In terms of overall numerical rating, it has to be noted that the sub-units of RES display different strengths and research quality. While the Panel would label SPARG and Sente at the level very good to excellent, PONTE would rather be regarded as very good, and UrFC is somewhere between fair and good. The overall grading of the RES UoA is therefore a “weighted average”, which would then be a strong ‘very good’, i.e. 4+. For the ratings for the individual items, see Table A at the end of this document.

3. Public Administration (UoA2)

3.1 *Volume, profile and organisation of the research*

The objective of the UoA is to strengthen the leading position of UTA in national research within the field of Administrative Science and to achieve a stronger international role over the next ten years. The Panel assesses the capacity and potential of the UoA having this objective in mind. There are 6 research groups within the UoA with, in total, 16 professors, 12 university lecturers, 1 postdoc and 17 PhD students (altogether 48 staff members).

In the period 2008–2013, there are 615 publications in total. It is noteworthy, however, that only 130 of them were international refereed publications (68 journal articles, 44 book chapters, and 18 papers in conference proceedings). This demonstrates a rather low publishing rate, with roughly one international refereed article *per* faculty member in a two-year period. It looks as if, together with a generational change in the UoA, the international publishing ambitions have increased but have not yet materialized in a solid track record.

The amount of external (national and international) research funding has remained at a relatively low level. The UoA has received external funding amounting to 4.3 million euro in 2010–2013. Compared to other UoAs at the School of Management, the external funding coming from the Academy of Finland is marginal. This may indicate problems related to excellence in more fundamental research. This is compensated for by generous funding for applied research from Tekes and other national foundations and funding channels. The research funding received from foreign sources (particularly from the EU) is very limited. If the UoA is to strengthen its scientific position in the future, external funding will need to be approached systematically in order to increase the success rate of applications (both nationally and internationally).

With respect to the profile of the UoA, the development and change of public administration as well as the interaction of public and private activities play central roles in the research undertaken. The UoA has a very fragmented set of (relatively small) research groups, which may require some reconsideration. The UoA hosts the following research groups:

- **Public Financial Management:** this research group forms a scientific core of the UoA. The group covers a wide range of topics on public management, not limiting their focus to financial management alone. The members of the group are ambitious scholars who are part of major international networks of the field and who occasionally publish in the very top international journals in the field of public administration;
- **Public Management and Organisation:** the topics addressed by this research group somewhat overlap with the previous group. The members of the group have more national focus than the previous group, but they are also engaged in publishing internationally. The level of their international publications is somewhat lower, however. In the longer run, it makes sense to consider a potential merger of these two research groups in order to consolidate the resources and make UTA public management more visible and focused, both nationally and internationally;
- **Local Governance:** historically, this is a UTA stronghold, which has remarkable national visibility and societal impact, and which has a unique focus in Finnish administrative sciences on local level governance. It has a mostly domestic focus, but increasingly international publications are

occurring and international projects are also being launched. The international publications appear in second- and third-tier journals;

- **Public Law:** this is a research group whose integration with the rest of the groups is yet to be seen. Its research activities are domestically oriented and mostly of an applied nature. High-level international scientific publications are missing. Its focus on human rights, however, may provide interesting avenues for further development;
- **Higher Education:** this is one of the most internationally oriented research groups in the entire School of Management. It appears to stand somewhat apart from other groups, although the members of the group see different opportunities for cooperation both within public administration as well as more broadly within the School of Management. It is yet to be seen if synergy with other research groups leads to increasing research activities and/or publications. The group is very small and vulnerable because of its reliance on external funding, and it is questionable if it is sustainable over the long term;
- **Security Studies:** this is more of a research project than a group. It involves cooperation with political scientists and provides an example of a project crossing the borders of individual UoAs. It is unclear how much the researchers use the general competence of administrative sciences. The long-term sustainability of this group is also questionable.

Such a variety of research groups may require some re-thinking and prioritising. Most groups act rather independently. The Panel doubts if the current organisation of research groups is optimal for a UoA with rather modest research activity. The UoA should reconsider its research *foci*, and better streamline its existing resources and capacity. This would allow the UoA to develop a sharper and more competitive profile in a few areas rather than pursuing research in a number of research topics.

3.2 Scientific quality of the research

The proportion of scientific publications by the UoA covered by WoS is only 7%, which indicates a low proportion of high-quality, internationally recognized, publications. The Panel notes, based on the bibliometric analysis conducted by the UTA Library, that a great majority of the publications have been at the basic level or not at all qualitatively rated (88% in 2012 and 76% in 2013) in the National Publication Ranking (JUFO). Most articles have been published in second-tier and/or domestic journals, although a handful of papers appear in top-ranking international journals such as in *Public Administration* or *Public Management Review*. Altogether, the Panel concludes that not only the quantity but also the quality of research channels is limited. It should be noted, however, that the share of leading publications is on the rise. There is room for considerable improvement through a more selective publication strategy, as also acknowledged in the self-evaluation report.

The publishing activity is unevenly distributed among the staff members. A few professors in the UoA have an international profile, with active participation in international conferences and networks leading to highly-ranked international publications (mostly from the group of Public Financial Management), while the other set of professors are mainly oriented towards addressing local Finnish problems, occasionally leading to lower level, internationally recognized, publications. Although many faculty members claim to be involved more in policy advice and domestically oriented applied research, it cannot

be forgotten that high-level policy advice derives its quality assurance and legitimization through publishing in good peer-reviewed journals.

It appears that the current incentive system is insufficient in encouraging faculty members to: a) publish in international outlets; and b) publish in highly-ranked (level 3) journals.

3.3 *Scientific impact of the research*

Since Finnish is the main language of reporting research results (58.6%), and also the publication channels are mainly domestic, it is fair to assume that the scientific impact is mainly limited to the national setting, and many research findings do not contribute to the international scientific discourse. As such, the share of international publications (40%) is sufficient to guarantee some international visibility, but the scarcity of publications in top-level journals is likely to impair the scientific impact. Individual researchers participate in international conferences and networks, which is very positive. This should be standard behaviour for all faculty members, however, which would also allow participation in several other networks and research *fora*.

It is a major challenge to make UTA visible in the international research arena for public administration, which would require more systematic research activities and, perhaps, also further specialization within the field (as is also acknowledged in the Self-Assessment Report).

3.4 *Societal impact of the research*

The research carried out within the UoA tends to have societal impact especially with respect to national public administration and the drafting of domestic legislation. The researchers of the UoA also engage actively in providing research-based consulting in the preparation of policy decisions in the state and local government sectors. The UoA currently engages in co-funded projects with the Finnish Parliament, ministries, and administrative agencies. There is no evidence of societal impact on international organisations.

While all research groups report societal impact, the activities addressing societal needs seem to be particularly dominant in the Local Governance and Public Law groups. While such consultancy-like activities are certainly important, they are not necessarily always based on the academic state of the art validated by high-level academic publications. It can also be questioned if the consultancy and policy advice inhibits faculty members from doing more fundamental research and publishing in highly-ranked journals. This is a delicate question, especially in practically-oriented fields such as Public Administration, which requires careful balancing. The Panel is in the opinion that good (internationally peer-reviewed) research should be a pre-requisite for high-quality policy advice.

3.5 *Quality of the research environment*

A major generational shift has recently taken place within the UoA, paving the way for new approaches to, and organisation of, the research undertaken. A repositioning of the researchers' interests already attempts to integrate the research more intimately with the international research community, and is likely provide a good basis for multi-disciplinary research within the UoA and across the School of Management. The relatively young age of professors, however, may inhibit career prospects of junior scholars and recent PhD graduates.

Another issue of concern is related to the limited mobility of faculty members. The staff are overwhelmingly Finnish, and graduates of the University of Tampere. More recently, there have been some positive signs towards diversification of faculty through the recruiting of a few foreigners, including the FiDiPro professor. The Panel finds that further diversification of the faculty is needed, however, including the international announcement of vacancies.

The absence of a well-structured PhD programme is not specific to this UoA, but a systemic weakness at the entire School of Management. PhD students do not have a mandatory curriculum in administrative science. Moreover, various groups within the UoA organize their own individual PhD seminars instead of joining forces. This is understandable to a certain degree as research groups within the UoA have different disciplinary backgrounds. In addition, as argued in the Self-Assessment Report, individual professors have a great number of PhD students to supervise (occasionally 15–20 PhD students *per* professor), which may lead to insufficient support to PhD students in their academic development.

3.6 *Future potential of the Unit of Assessment*

As a whole, the research undertaken within the UoA forms a large and diverse research programme. The potential of this broad research base could be utilised more effectively by focusing on more profiled key areas (themes) of research. It is positive that the new generation of professors seems to be open-minded towards research themes that cross disciplinary and administrative boundaries. While the first three research groups make a rather coherent research programme, Higher Education and Security Studies especially form relatively separate entities and lack the critical mass which would make them sustainable in the long run. It is likely that they either need further investment to be internationally competitive, or a deeper integration with the core of administrative sciences. Their potential as autonomous units of the existing size is questionable.

The UoA would benefit from setting more ambitious research goals as the quantity, but especially the quality, of publications is a matter of concern. The UoA has good potential to engage more deeply with the international research arenas and high-level publishing, although this would require some systematic effort, more attention paid to theoretical and methodological rigour, and the presence of a supporting incentive structure. High-level publishing should also open up opportunities for new research grants (both national and international) that would allow more researchers to be hired and bigger research projects to be launched, driven by academic curiosity rather than continuing with commissioned applied research projects driven by the interests of funders.

Similar to other UoAs, the future potential is very much dependent on the recruitment and retention of high-potential faculty members. First, the UoA would benefit from internationally advertised vacancies, and the application of high publication standards in the selection process. Second, it is obvious from the meetings with PhD students and postdocs that their current funding, insecurity, and questionable career prospects do not support attracting and retaining the best and the brightest at UTA, and in academia in general.

3.7 Recommendations and suggestions

The Panel would like to emphasise the following directions which might help in streamlining and further developing its research activities:

1. Publications: At the moment, the quantity of high-level international publications is low. A major challenge is to reach higher level of international quality. Publication in non-refereed sources should be limited to practical applications of the research results and issues of local significance. The UoA should focus on reporting its research results mainly in refereed international publications. Moreover, in order to increase scientific impact, publishing in highly ranked journals (level 3) should be encouraged and rewarded. In order to achieve this, an incentive structure is necessary both on the individual and research group level;
2. Research vs policy advice: The structural challenge that the UoA needs to address is finding an optimal balance between publishing in international highly-ranked journals and domestic policy advice. This requires prioritization and also, perhaps, painful decisions. It is likely that both objectives cannot be pursued on an equally high level. There is potential to approach public governance issues with more theoretical emphasis linking, instead of separating, local, national and multilevel dimensions. Such an emphasis in no way excludes the provision of research-based information to be used, especially in preparing and evaluating public sector reforms;
3. External funding: The UoA should be more active in applying for both national (Academy of Finland) and European/international research grants. This would allow the UoA to engage in larger research projects, internationalize research activities, hire new researchers (especially postdocs), and bring the research output to a new qualitative level;
4. Research groups: Strategic choices should be made based on a thorough evaluation of the strengths, weaknesses, challenges and opportunities of the research groups within the UoA. The research groups are relatively small and some appear to lack sustainability. The UoA should look for ways to create more synergy between the different research themes, approaches and groups, and perhaps reduce the number of research groups to allow for a more focused approach; and
5. PhD programme: The entire PhD programme requires rethinking if the UoA wants to be nationally and internationally competitive. Students need taught courses (seminars), not only on general subjects provided centrally by UTA but also on their disciplinary subjects. Some synergy could be found by joining forces with the different research groups in the UoA. Supervisors' role could also be reconsidered especially, taking into account the large number of PhD students (15–20) that each professor has. Perhaps it makes sense to admit fewer PhD students and supervise and steer their progress more closely.

To sum up, with respect to scientific quality, the modest volume of international peer-reviewed publications, which, however, demonstrates sufficiently good quality in terms of originality and scientific rigour, can be assessed as “good” (3). The scientific impact remains “fair to good” (2+), due to the scarcity of publications in top-level journals leading to limited attention within the international academic community. The societal impact seems to be a strength of the UoA, assessed as “very good” (4) by the Panel. The overall research environment is assessed “good” (3) due to the relative fragmentation within the UoA, limited internationalisation within the faculty and graduate student body, and the absence of a well-structured PhD programme and career development opportunities. This leads to an aggregate

assessment of the UoA as “good” (3), while it is recognised that the UoA has potential for further development. For the grades for the individual items, see Table A at the end of this document.

4. Business and Economics (UoA3)

4.1 *Volume, profile and organisation of the research*

The Business Competence and Economics research groups have rather different profiles. Business Competence covers seven business school topics – customer-oriented marketing, leadership and management, financial management and accounting, workplace wellbeing, insurance and risk management, responsible management and business and tax law. The Economics group's core areas of research are related to the public sector, taxation, income inequality, and labour markets. Three to four years after the introduction of the new structure of the University, there are few signs of integration between the research activities of the two groups.

Any attempt to create joint research projects, or other forms of research cooperation between the groups, will therefore require that both parties make considerable changes, not only in their current research areas but also with respect to method and publication strategies. Consequently, as there are large and, at least in the foreseeable future, highly persistent differences between the two sets of research activities, we henceforth treat and discuss them as two separate groups.

The Business Competence group has 14 professors, 30 other faculty and roughly 15 (active) doctoral students. The Economics group is smaller and comprises 3 professors and 7 other faculty, plus 10–11 (active) doctoral students. The Business Competence group does not state any explicit goals for its activities, whereas the Economics group's primary goal is to be “one of the leading research units in Europe” in its specific fields. The latter seems rather ambitious given the group's current size, and the limits to growth within the current structure of the School of Management.

Information regarding funding is, in the information provided to us, only available for the UoA as an aggregate. From the information contained within the professors' CVs, however, it can be seen that both groups have received funding from the Academy of Finland (in *per capita* terms, Economics has had more). The Business Competence group has also had funding from Tekes, and a number of research foundations.

In thinking about the organisation of research in the area of business, an important point to be made is that there is no intellectual discipline called ‘business’ or ‘management’. Instead, there are many areas of research that can fit underneath the general umbrella term of business (e.g., accounting; finance; human resource management; innovation; marketing; organisational behaviour), all with their own intellectual traditions, and all operating independently of each other. To teach a business studies degree requires teaching inputs related to all, or most, of these areas. As a consequence, academic positions require teaching numbers to be spread across many distinct areas of knowledge. Small numbers of students lead to a number of relatively small groups of individuals in each of the areas of research. Almost inevitably, given the extent of research specialisms in each possible individual area of research, small groups will have to be relatively specialised in covering possible areas of research within each research area. This is also the situation at the School of Management.

Overall, the Business Competence group is very small in overall size compared with its international competitors. Its academic resources are inevitably spread thinly across a number of key business activities (e.g., leadership) and/or functions (e.g., accounting, marketing). Within those small sub-groups, research activity is fairly narrowly focussed compared with their fields overall. Further, because of the

small size, its current research capabilities are heavily determined by past senior appointments at the senior level, some of which may have been made at a time when the research mission of the University, and its individual UoAs, was different from that currently adopted (e.g., research mainly oriented around the Finnish economy and, possibly of an applied nature and written in Finnish for a primarily Finnish audience, as opposed to work intended to reflect upon, and develop, existing theories which might well have been initially established within other international jurisdictions, work which is written up in the English language and intended for an international audience interested in theoretical developments).

For publications in the period 2008–2013, according to the information that only exists in the form of aggregate statistics for both units, there is a visible increase in the number of published works. The growth is, however, primarily due to an increase in non-refereed scientific articles and so called “other publications”. It should be noted, however, that this picture is less pronounced in the bibliometric analysis provided by the UTA Library, although also here the number of level 1 publications account for most of the publications growth. The bibliometric analysis further shows that the number of level 3 publications has increased in the most recent years but remains low (all in all 8 during the 2008–13 period).

Of the refereed scientific articles, a little over half are in journals and 70% of these are in international journals. Thus, contributions to edited books (about 60% in Finnish) and conference proceedings make up a significant portion of the refereed publications. As these receive substantially less recognition (as witnessed by the almost total absence of citations of them in the Scopus analysis conducted by the UTA Library), these publications are making neither the researcher nor the research group more visible in the international scientific community.

Going behind these aggregate numbers, and here we have to rely on the information from the professors’ CVs, the incomplete information on the other faculty members’ home pages, and the School of Management web pages covering publications, we can observe rather large differences in the publishing activities between the research groups, reflecting *inter alia* different traditions in different disciplines. Another pattern is that the volume of publications to some extent is related to academic age, which in part is picking up the fact that an emphasis on publishing, especially in international outlets, was less pronounced in earlier decades.

There are different publication patterns between the two groups. The Economics group generally publish in refereed, internationally recognised, journals, with very few book chapters, books or other forms of publication. In contrast, the Business Competence group has plenty of published research work written in Finnish, both in research journals and chapters in edited books, which, presumably, are aimed at a primarily Finnish audience. There is substantially less published in the English language in journals that might be thought of as targeting an international community of scholars. Also, there are chapters contributed to English language edited books on various topics. For one area of ‘Business Competence’, Finnish language publishing might be inevitable (e.g., Business and Tax Law). For other areas, it is less so. Further, as discussed at the meeting between the Panel and faculty members, there is no particular reason why the use of Finnish data which, in certain settings, is more available than it might elsewhere (e.g., company access) places researchers at a competitive disadvantage in publishing in research journals aimed at international audiences. Indeed, in some areas, researching in a Finnish setting could be a positive advantage.

Some areas of the Business Competence group appear to have adapted more easily than others to a mission which emphasises more attempts to make a contribution to (social) scientific discourse internationally, a discourse which primarily occurs in research journals. Some have because they were already doing it, some *via* a change in the focus of their research activities. These groups include Financial Management and Accounting, Responsible Management and Customer-Oriented Marketing.

4.2 Scientific quality of the research

Business Competence

The Business Competence group's publications are diverse thematically, which is also natural as the themes of their research groups are spread wide. As one measure of scientific quality, not many of the research papers published in internationally recognised research journals are in the very top general journals in their fields, although a few more are in high quality, second tier, journals. Some are in relatively specialised journals within their fields, which will not necessarily have large audiences. Many are in relatively lowly-ranked journals.

As another indicator, in talks between the Panel and faculty members, it was not clear what is theoretically at stake in the research that is performed within the 'Business Competence' theme. There are two observations to be made here. First, it is entirely possible that there just wasn't time to discuss theoretical considerations. Second, the more highly ranked a journal, the more likely it is to be concerned with a theoretical contribution (as opposed to the application of existing theories). One possible explanation for the relatively low presence of papers in the more highly ranked journals, then, is that the level of theoretical contribution in the research done within the Business Competence group is not generally high.

Journal rankings are a third indicator of quality. In Finland, the Publication Forum JUFO indicators of quality seem to be employed. Nonetheless, it might be useful to consider, given that rankings influence research topic choice and publication behaviour, a wider range of rankings (for example, see the various journal rankings at <http://www.harzing.com>; and the forthcoming International Guide to Journal Quality (<http://www.bizschooljournals.com/>). Of course, it is not clear which rankings best capture international visibility, but a pooled view across many rankings might be more useful than a sole reliance on one.

The evaluation of the quality of book chapters in edited books is difficult, other than to repeat that this medium is not the normal mode of research communication in research fields under the general business umbrella.

Economics

The Economics professors' publications are mainly in the four areas mentioned above. As for the outlets, in which they have published their best articles, these are economics journals of good international quality (*Journal of Public Economics*, *International Economic Review*, *Economica*, *Labour Economics*, *Scandinavian Journal of Economics* and *International Tax and Public Finance* and *Urban Studies*). These journals are where one would look for significant research on the topics studied. Overall, the quality of

the Economics group's research output is very good, as is also evidenced by the bibliometric analysis carried out by the University of Leiden.

Although the publications record of this small group is very good, it should be noted that the research has not been carried out within a larger group of international researchers, nor has it led to more international interaction in the form of visits, guest researchers, *etc.* at UTA, something that, in particular, younger researchers at the postdoc stage and doctoral students would benefit from. The doctoral students in economics have benefitted from the Finnish Doctoral Programme in Economics, both in form of the courses and in regular seminars where they can get feedback from leading international as well as national researchers on their ongoing work.

4.3 *Scientific impact of the research*

Business Competence

Given that relatively little of the work has been published in the first and second tier journals, it is likely that its impact will be relatively small. The data available suggests that this is the case.

Economics

As mentioned above, the Economics group has published their work in relevant outlets that regularly publish research on their main topic areas. In terms of citations (in Google Scholar), the three professors have also done reasonably well. The group's researchers participate in some international networks and regularly attend international conferences to present their work. But they have done very little to bring these networks back to their home institution, nor have they organized conferences in Tampere.

4.4 *Societal impact of the research*

Business Competence

Discussions with members of the group failed to produce a clearly enunciated definition of 'social impact' that can be derived from research activity, and how this can be measured. This is a difficulty faced in many jurisdictions that are attempting to evaluate research quality, not only in terms of how to trace the research activity to the impact, but also how to capture any benefits associated with the impact. Interaction with society must be based on quality research not more general interactions.

Other possible indicators include whether members of the faculty are seen as having expert status, presumably as a partial consequence of their research work. There appear to be a number of examples here (for example, amongst those in the Business and Tax Law group).

Economics

The Economics group's societal impact is, according to themselves, reflected in membership of a Nordic labour economics network and boards of a few centers and within Finland in the Scientific board of the Ministry of Finance. Moreover, members of the group have contributed to the public debate on income inequality and, in particular, of the historical development of top incomes (the so-called 1%), which is an important issue as a consequence of Piketty's recent and much discussed book (which is based on an international research programme to which members of the group have contributed).

4.5 *Quality of the research environment*

Business Competence

Discussions with faculty members suggest that the quality of the research environment is good. Although there appear to be some differences in the teaching loads and/or student-staff ratios between different areas, it does not appear to affect research activity differentially across different areas.

Doctoral students also form part of the research environment in this group and the other UoAs considered by the Panel. Comments on doctoral students, their training, and their employment prospects are made in the general comments section on the School of Management overall. The lack of an international environment is, in particular, striking in the Business Competence group as compared to most business schools.

Economics

The small size of the Economics group, and its place in the new organizational structure, in which there are very few (if any) natural joint research interests, means that the group is not a very exciting and attractive research environment. This is likely less a problem for senior researchers with developed networks, but may become a major problem for the younger members and the doctoral students. An additional weakness is the lack of an international environment.

4.6 *Future potential of the Unit of Assessment*

Business Competence

The group has potential to grow its research output, both in terms of quality and quantity, and its international reputation. Nonetheless, it is likely that it will take a longer time for some groups to adjust to the new research mission. Changes to research programmes and commitments take time and, as a consequence, the past has to work itself through before the future can begin. Further, different individuals will have different research backgrounds and orientations and, as such, will have different speeds of adjustments. Much will depend upon recruitment policies with respect to any future new hires and their research potential with respect to the new mission, and the labour market supply of suitable candidates.

Economics

The group obviously does not feel at home in their new environment. This could in the longer term give rise to problems in terms of poorly motivated faculty members and this could also begin to have negative consequences for the recruitment of doctoral students and young researchers willing to invest efforts in contributing to an active, innovative research group.

4.7 *Recommendations and suggestions*

The Panel believes that there is a general commitment to adapt to the new research mission. This commitment is a strength, because it is important that people buy in to the mission. A weakness is the size of the Business Competence relative to the number of groups. In the absence of growth, it is difficult for research achievements to reach higher levels. The challenges are mainly the scale of activities versus

international competitors. This applies to Business Competence as well as Economics. At present, given the small scale, this is unlikely that areas can become international flagships unless the field is highly specialized.

Business Competence

The overall grade for the Business Competence group is 2/3. There is no consistency across the various sub-groups. As pointed out above, some of the groups are producing good work, with some of it very good research journals, in international terms. Other groups are much less well developed, however. For the grades for the individual items, see Table A at the end of this document.

Economics

As for the overall grading it should be noticed that while the quality and scientific impact of the unit's research output is very good, the research environment, apart for some very good researchers, needs to be improved especially in order to create a more stimulating environment for members who currently do not have additional affiliations and opportunities to interact with economics scholars on a regular basis. The overall grading for the Economics unit is consequently 4. For the grades for the individual items, see Table A at the end of this document.

5. Political Science (UoA4)

5.1 *Volume, profile and organisation of the research*

A first observation is that the number of senior researchers in this UoA is rather limited, 17 in all, including five full professors. To this can be added 25–30 active PhD students. The objective of the Political Science UoA is “to be the leading political science and international relations unit in Finland and to consolidate its position as one of the best-known political science units in the Nordic region”. The UoA has received external funding amounting to €2.8m in 2010–13 (four years), of which 84% is from the Academy of Finland. The funding received from other major sources, *nota bene* the EU, is thus rather limited.

The research of the UoA focuses on three areas: (i) representative democracy and political participation; (ii) European studies; and (iii) energy politics. The Panel agrees with the UoA’s own conclusion that European studies, including studies of representative democracy, political participation, and party politics/institutionalization, can be considered the strongest area of research in terms of theoretical and methodological innovation, along with its research on EU-Russian relations. There are, however, a number of top quality publications from the other focus areas. The three prioritized research themes are theoretically and empirically relevant and interesting. In the field of energy studies, the UoA could, however, consider renewing its research focus with more emphasis on current problems and theoretical and analytical challenges. If additional resources become available, we recommend that the UoA should put even more emphasis on European studies and representative democracy, in order to acquire a sharper and even more competitive profile.

5.2 *Scientific quality of the research*

Much of the research carried out at the UoA is of high quality. The researchers publish in good quality, international recognised, journals, although the number of articles in leading journals is rather limited, with 1–2 Publication Forum level 3 articles *per* year. There are also a considerable number of chapters in edited volumes. The UoA in aggregate thus seems to have emphasized quantity rather than quality in its publication strategy. In this area, there is room for improvement, as acknowledged in the Self-Assessment Report. There is considerable variation in the international status of individual staff members. The UoA has, however, an ambition to improve this situation, indicating an ambitious and selective publication strategy with the goal of increasing the number of articles in top-ranking journals. Given the specialities of the UoA, it is also, however, necessary to continue publishing in specialized, problem-oriented, journals.

The UoA’s full professors have, in general, an active international profile. Their international networks seem well developed but with the possibility for improvement. We also note that the UoA includes some younger, very good, scholars. Their focus on *inter alia* trust research and experiments in deliberative democracy is very promising.

5.3 *Scientific impact of the research*

As mentioned above, the UoA has a good record of international publications in refereed journals. In all, it has produced 87 articles and 101 chapters in edited volumes during the time period 2008–13

(according to the bibliometric analysis by the UTA Library; the figures are a bit lower than in the Self-Assessment Report). There is a focus on publishing in English-language outlets, though there are still many in Finnish, which is of course natural. In the Scopus database, the number of citations *per* journal article (MCS) is 2.9, while around 20% of the journal articles are non-cited (see Table 3 in the UTA Library analysis). These figures are difficult to evaluate without comparative data, but seem satisfactory though not impressive.

The UoA's researchers participate in international networks and regularly attend and present at international conferences. Its organization of the 6th Pan-European Conference on EU Politics in 2012 increased its international visibility and drew additional attention to its research on European politics.

5.4 Societal impact of the research

The UoA itself emphasizes two areas where it has had an important societal impact: a) data collection on Finnish elections and political participation; and b) constitutional reform. In addition, the UoA's publications on general Scandinavian politics have had a societal impact. In the first area, the UoA has been instrumental in creating systematic and good data on political behaviour in Finland, in close co-operation with government agencies. In the latter area, staff members have been utilized as experts by the government. These activities are obviously important, while they do not necessarily rely on innovative scientific research.

5.5 Quality of the research environment

The UoA's inclusion in the School of Management does not seem to have created any major changes in its activities. Although members of the UoA have recently applied for external funding together with scholars from other UoAs within the School, so far without success, the UoA still is very much focused on its own research activities and on co-operation with other political science units in Finland. There still seems to exist a "political science department spirit", as indicated by the language used by early career researchers in our discussions with them.

On the UoA level, the milieu is mainly Finnish. Though there are some non-Finnish PhD students, the staff is overwhelmingly Finnish and, further, several of the UoA members seem to have their roots in the Tampere. There does not seem to exist a culture of mobility (which is, of course, true for many Nordic universities). The Panel notes with satisfaction, however, that an effort has recently been made to advertise a new position internationally. While staff are quite active in making research visits abroad, the number of international guest researchers is small. Increasing the number of distinguished guest researchers, and organizing this in a structured manner, could improve the research climate of the UoA.

The Panel would like to emphasize that the absence of a well-structured PhD programme constitutes a major problem. A reformed PhD education system would improve the overall research environment of the UoA. This problem is, however, not specific to this UoA but is valid for the School of Management in general.

5.6 Future potential of the Unit of Assessment

The UoA gives the impression of being ambitious and keen to improve the scientific quality of its output. Many of its scholars are internationally active. The leading professors can be expected to continue to

perform well and there are, as noted above, some very promising younger scholars. The UoA thus harbours researchers at different stages of their academic career. In this sense, its future looks bright. Furthermore, the research themes of the UoA are complementary and competence in different methodologies exists.

The Panel notes that the UoA needs to grow, in terms of the number of senior staff members, if it wishes to reach its goal of becoming a leading Nordic research environment. The prospects for doing so seem, however, small in the present administrative and financial context, where funds are basically allocated according to the existing number of staff. Another major problem is how the UoA will take care of its younger researchers (PhD students and postdocs) and how it will ensure that promising, younger scholars will be able to stay on in the UoA, or will be able to acquire positions in other universities, in Finland or abroad. The UoA shares the general weaknesses that the Panel has discovered in the School of Management as a whole regarding an unstructured PhD education and a lack of research career planning and advancement opportunities.

5.7 Recommendations and suggestions

The Panel would like to highlight the following strengths and weaknesses regarding the UoA's *research areas*:

1. The UoA should continue and deepen its research on representative democracy, political participation, party politics/institutionalization, which is innovative, theoretically well-developed and methodologically sophisticated. It should also continue, deepen and widen its research on links between features of political systems and processes of Europeanization;
2. The research on new forms of participation (e.g. digital) and deliberative democracy as well as the research on reciprocity in strategic interaction is of great interest and innovative and also methodologically innovative, being based on experiments. The methodological variety and sophistication practiced by this part of political science is notable, equally advanced in quantitative, qualitative and experimental methods. These areas of research may be called outstanding and have the potential of becoming international flagships; and
3. The research on EU-Russia security relations may be equally regarded as important and innovative, with considerable success in fundraising and publication.

The research on energy policy offers more equivocal aspects. On the one hand, some work is cutting edge research, particularly publications by the younger faculty. On the other hand, some other parts of the work appear to be somewhat traditional, and should open up more to the challenges of theorization and empirical analysis.

In general, an *incentive system* within the School to advance excellent research and publication in high quality journals as well as external fund raising is desirable. Attention should be paid to quality and impact, not only numbers. This would assist in reaching the UoA's own strategic goal to improve the quality of its publication outlets. Probably, a change in mindsets among staff members is also required.

The Panel would also like to express the following ideas regarding PhD and postdoc positions and careers. It appears that the PhD programme could be better structured, with closer monitoring of the progress of work, requirements to regularly present the progress of work not only to the supervisor, but

also to faculty in general and to other researchers. We also recommend having a system with two supervisors. This would make possible the involvement of other senior researchers in PhD education and, as a consequence, help them in their careers. Postdocs appear to work much on their own. Introducing a mentor system may be helpful to assist them in their career planning. The UoA could also develop a system where senior colleagues help junior ones by commenting upon early drafts of external funding applications.

The very high standard of theoretically guided research in the fields of representative democracy, political participation, European politics and EU-Russia security relations, and their very high methodological standards lead us to assess these parts of the Political Science UoA with a 4.5 (very good to excellent), while other parts of the UoA are rated 3.5 (good to very good). The grade given for societal impact is 3.5. Altogether, these considerations lead to an overall assessment of 4 (very good). For the grades for the individual items, see Table A at the end of this document.

Table A – Details of Ratings by UoA					
Unit of Assessment	Overall	Scientific Quality	Scientific Impact	Societal Impact	Research Environ.
01 Regional and Environ. Studies	4+ (Very Good to Strong)	4+	4+	4	4+
02 Public Administration	3 (Good)	3	2+	4	3
03 Business Competence	2.5 (Fair to Good)	2+	2+	3	3
04 Economics	4 (Very Good)	4+	4	3+	3
05 Political Science	4 (Very Good)	4.5	4	3.5	4

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Final Report

Panel II

Biomedical Technology

Medicine

Health Sciences

27 November, 2014

Lajos Pusztai, Yale University, USA (Chair)

Ingrid Agartz, University of Oslo, Norway

Sara Arber, University of Surrey, UK

Markus Grütter, University of Zurich, Switzerland

Bana Jabri, University of Chicago, USA

Tsvee Lapidot, Weizmann Institute of Science, Israel

Johan Mackenbach, Erasmus University Medical Center, Netherlands

Ingalill Rahm-Hallberg, Lund University, Sweden

Thomas Sauter, University of Luxembourg, Luxembourg

Kai C. Wollert, Hannover Medical School, Germany

1. General statement on research at Kauppi Campus

The campus overall has an impressive productivity with a large number of publications, including high impact papers and broad range of funding including prestigious ERC funding. Several multidisciplinary research programs emerged that have high impact and international visibility and are composed of complementary projects across all three Schools (e.g., Prostate Cancer Research Center, Vaccine Program). In addition, there are strong programs within each School that could serve as the seeds for future expansion (e.g., mitochondrial research, aging, celiac disease, atherosclerosis). Other strengths of the campus include a strong and well established research culture, a large student body, national and international connections, access to large databases and tissue repositories (in some disease areas).

We also noted that the Schools and the faculty face many of the same challenges that all biomedical and health science universities currently struggle with in the Western world: How to sustain and expand high quality research in the face of shrinking and uncertain external funding. How to recruit and retain top researchers. How to balance clinical care, teaching and research. How to maintain breadth of research but also acquire international leadership in narrow and specialized fields. How to move discoveries from the laboratory or classroom to the clinic and ultimately turn these into products, policies or public information that impacts society.

The following are specific suggestions that might help each of the Schools in the Kauppi campus to further increase research productivity, particularly the quality and impact of research:

- (i) A **Campus-wide Strategic Plan** would be helpful to promote thematic translational research projects that integrate the strong laboratory science (BMT/MED), epidemiology (HES) and clinical components (MED) that are already present in the different Schools. The plan should define specific areas of strategic growth, reward projects that apply multiple different methods and technologies to a given problem and bring faculty together from different Schools. The targeted growth areas will determine what core facilities to support (e.g. national epidemiology and disease databases, tissue repositories) and help prioritizing resources and assist in the planning of the space allocation in the new building. For example, the initiative to create a mammalian animal core facility in the new research building could fill an important missing gap in bench research and will help multiple groups across the campus to take their research a step forward. We would like to emphasize the importance of prospectively planning the organization of the new building. These plans may already exist but were not presented to the Panel. The building will provide an opportunity to increase interactions across the Schools and different research groups with distinct technological expertise and could enhance the opportunities for formal and informal meetings between researchers.
- (ii) Create more **salaried positions for Post-doctoral Fellows** (in HES/MED/BMT), **University Research Scientist** (in MED/BMT), **Statistical Analyst** (in HES). These positions could complement, or in some instances replace, the technician-based laboratory model. We recognize that this will require changes in funding from the government or from the Academy of Finland. Such a system could be implemented cost effectively by simultaneously reducing the number of PhD students and shifting salary and educational funds to post doc positions. These new positions would provide more stable high level technical expertise to laboratories, would serve as a resource to graduate students and provide employment opportunity for PhDs. They would also enhance the

education experience of students through better technical and research supervision provided by mid-level researchers and would generate faster, and perhaps also better quality, results for their doctoral thesis. Reducing the number of PhD students could also lead to more career planning and mentoring for the smaller graduate student body.

- (iii) Enhance opportunities and **create more positions for junior and mid-level academic faculty**. The tenure track is an excellent initiative but we would suggest adding a **start-up package** to these positions (e.g. one research scientist/statistical analyst, lab space and funds for consumables for 3 years). This would increase the chance of recruiting the most promising national and international candidates. Start-up packages also increase the chance of the junior/mid-level new faculty achieving academic success. We would also suggest creating similar **retention packages for critical senior faculty**, particularly Academy Fellows and FiDiPro professors to prevent migration of the best groups.
- (iv) Provide **better structure for the PhD and post-doctoral program**. Implement international competitive admission processes for all graduate students (not universally practiced across all three Schools). Provide structured career planning and mentoring beyond immediate technical supervision (e.g. regular meetings with a mentoring committee and with the PI). Consider joint supervision of PhD students by faculty from different Schools which could foster innovative cross-disciplinary collaboration and increase integration of the Schools. All PhD students must have stable funding to complete their studies. Consider capping the maximum allowable duration of PhD student status at 5 years but allow graduation earlier after minimum of 3 years, pending satisfactory research results and academic progress. Set aside competitive funding for “research abroad” for students and post docs to spend 3–6 months in other laboratories. “Research abroad” would help increase the international visibility of the University, it could lead to new collaborations, tighten existing ones and also broaden the scope of research through access to complementary laboratories and methods.
- (v) **Encourage and reward higher quality publications**. The Panel felt that there are many “salami” papers that are small, minimally publishable units that carry modest impact even if they represent solid science. Few publications provide the full repertoire of preclinical mechanistic studies, relevant *in vitro* experiments, and clinical correlative science results in a single high impact paper. The excellent quality of research would justify combining the currently small separate papers into larger units that tell a more complete story. Changing the PhD and internal reward system could go a long way to motivate higher impact publications. For instance, instead of publishing 4 papers in lower impact journals, 1-2 papers in higher impact journals could be considered sufficient to meet doctorate publication requirements.
- (vi) Improvements in the transparency of research administration and grants accounting could also be helpful to increase communication between researchers and the administrative staff. **Research Finance Accounting** should be more transparent and, if possible, distributed to Schools. This may provide an opportunity to save money and achieve greater efficiency within units. The Schools have a substantial portfolio of patents and innovative research with patent potential; establishing a more comprehensive **Technology Transfer and Company Incubator** office, that not only assists with patents and IP but actively seeks out venture capital and licensing opportunities, could make a large impact on the finances and societal impact of the University. The new Board oversight structure of the University may provide an opportunity to reach out to local business, banking and government

officials to create and co-fund a company incubator program that could jump start local biotechnology industry.

In addition to the general comments above, that we consider apply to all Schools, the following sections will provide additional assessments that are specific to individual Schools. We rated individual Schools not in relation to one another but in relation to similar institutions internationally.

2. Biomedical Technology (UoA5)

2.1 *Volume, profile and organisation of the research*

BMT is a joint institute between the former Institute of Biomedical Technology (BMT) at UTA and the Tampere University of Technology (TUT) that was established only recently, at the beginning of 2014. We were impressed by the clarity and organization of the RAE presentations.

Research conducted at BMT has an excellent standing nationally and internationally and the number of research projects and output from these projects is commensurate with the size of the Institute. The projects are innovative and have clear translational potential in each thematic area (e.g. the adipocyte to osteocyte differentiation and application in the clinic, therapeutically targeting AOX, etc.). Translational research at BMT has significant potential for expansion. The Institute has the most extensive international collaborations among the three Schools. There are numerous national- and EU-funded projects and collaborative publications.

The Panel noted that there are a number of issues that need attention in order to further increase the profile of the Institute:

- (i) There appears to be a lack of coordination and limited cooperation between the 5 thematic areas. We were not presented with examples of how these areas benefit from each other's expertise, methods, and models. The 5 thematic areas seem to work independently with little exchange of ideas and concepts. It was not clear to the Panel what the leadership structure of the Institute is. Forming a leadership committee chaired by the research director and including the leading scientists (PI's) from the 5 thematic areas may help to develop a joint strategy, identify research areas of mutual interest and plan joint grant applications and publications.
- (ii) For some activities there may be insufficient critical mass to be internationally competitive. Even where an effort has been made to recruit outstanding young faculty (e.g. Nykter group), groups could be strengthened by further increasing the number of mid-level scientists and young faculty with start-up packages.
- (iii) Although it was not part of the present evaluation, it was unclear how the BMT will benefit in the future from joint activities with the TUT groups. Such joint activities may provide excellent opportunities.
- (iv) Some aspects of UTA financial administration seem not to be transparent to the researchers. There is a perception that some grant funding may not fully reach the investigators and unspent resources are returned to the funding source.

2.2 *Scientific quality of the research*

Grade 5 (Excellent)

The number and quality of English language scientific publications is relatively stable with minor fluctuations (98–136/year) (see analysis by the UTA Library, Table 2). The proportion of Publication Forum level 3 and 2 publications in 2013 is 29% and 42%, respectively (Figure 4).

The Mitochondrial biology (Jacobs, Sanz, Kaguni, Spelbrink) program is internationally recognized and has made important contributions to developing fly models of aging, map our alternative oxidase (AOX) pathway and assess its therapeutic potential when introduced into mammalian cells.

Cancer and computational biology (Visakorpi, Isola, Kallioniemi, Bova, Lilja, Nykter): Interest lies in genetic and epigenetic alterations in cancer. Bova and Visakorpi showed clonality of metastases of any cancer and Visakorpi showed that castration resistant cancer had a hypersensitivity to androgens (increased expression of AR). Isola directed randomized trial on trastuzumab as adjuvant therapy in early breast cancer. Kallioniemi showed the importance of bone morphogenic protein family members in functional and clinical relevance in breast cancer. Nykter has developed computational tools, for instance for prediction of transcription factor targets. The program is well-intergrated and highly regarded.

Regenerative Medicine (Aalto-Setälä, Narkilahti, Miettinen, Skottman): Development of stem cell-based therapy. Aalto-Setälä showed that IPS cells conserve mutations and can serve as model for diseases and she also developed techniques to study the functionality of cardiomyocytes. Skottman optimized conditions for stem cell production and culture for retinal and corneal disease. This program has significant potential to grow and may greatly benefit from the planned animal facility which will enable translational therapeutic approaches.

Immunology (Rämet, Pesu, Hultmark): *Drosophila* innate immunity, adult zebra fish model to study infectious diseases. Pesu's group discovered *FURIN* as a regulator of T cell tolerance. Using animal models that are more relevant to human diseases could increase the impact of this line of research.

Biotechnology (Kulomaa, Hytönen): The group explores novel ways of using avidins in biotechnology, creates artificial virus-like particles for drug delivery and studies kinesin transport regulation and cargo linkers for motor protein-driven transport. The commercialization potential of several of these projects is significant.

Overall, the research is mostly creative and original as demonstrated by several publications in the highest impact journals, including *Nature Medicine*, *Nature Genetics*, *PNAS*, and *Oncogene*. The prostate cancer program is a good example of a cross disciplinary between-School-collaboration with high impact. Other examples of high quality research include the Academy of Finland centre of excellence on mitochondrial disease and aging biology, and the Centre for vaccine research and immunology. It is also notable that the School hosts two PIs that have been awarded ERC grants (it is somewhat concerning that the Institute was not able to retain one of them, who recently left).

We noted that despite solid research, the top 5 journals in which BMT groups are publishing most frequently belong to the lower categories of 1 and 2 in the Finnish National Publication Rating. The most frequently used publication forum is *PLoS ONE*. This may be because the research results are published in a fragmented manner (salami tactic). There should be greater focus on collaborative and more complete work that could be published in higher impact journals. This publication behaviour might be a consequence of funding and graduation regulations where numbers of publications seem to count more than quality.

2.3 *Scientific impact of the research*

Grade 4 (Very Good; based on publication impact, see comments above)

5 (Excellent; based on funding)

We note that 3 of the 5 current Tampere FiDiPro professors are affiliated with BMT which attests for the attractive scientific environment.

Mitochondrial biology: The group of Jacobs was selected (third consecutive time) in 2013 for a 6-year term as an Academy of Finland Centre of Excellence. The group now focuses on metabolism. The group was awarded four additional grants, including a ERC Advanced and a ERC starting grant. Jacobs was awarded several prizes and the PIs have been invited to numerous international meetings. This program is clearly visible and is high impact.

Cancer and computational biology: PCRC is a leading international prostate cancer research group (Tapio Visakorpi) and holds multiple grants including an EU-FP7. Jorma Isola is internationally recognized pathologist and author of a WHO textbook on breast cancer. Anne Kallioniemi is well known for her involvement in developing Comparative Genomic Hybridization technology over a decade ago and continues to have substantial competitive funding and interesting novel research projects. Matti Nykter is also a very productive investigator with broad international collaborations who has contributed important computational tools and observations to cancer genomics (e.g. algorithm to identify gene fusions in glioblastoma in the TCGA data).

Regenerative Medicine: Very well-funded group with respected senior investigators who have EU and consortia grants. Many of the projects have clear translational potential.

Biotechnology (Kulomaa, Hytönen): This is considered to be the best facility for production and purification of recombinant proteins in Finland. It is internationally recognized and has competitive funding from Tekes, the Academy of Finland and the EU (MNT-ERA and PRACE).

Immunology: A growing group that has recruited FiDiPro professor Hultmark. Mika Rämet has received 10 million euro of competitive funding in the past 5 years. Pesu started his independent research group in 2009 after being a Visiting Research Fellow at NIH with John O'Shea's group. Dr. Pesu is an example of a BMT graduate who now has his independent group. This group is promising but it is still small and is less visible than the other programs.

Doctoral degrees: During the assessment period (2008–2013), 53 doctoral degrees were awarded. 27/36 of the PhD students are known to have continued their career in academic research. Some post docs felt that they are specially isolated in BMT and there is no “common room” to socialize and exchange ideas. Many students and post docs were uncertain about their future. Part of the problem seems to be related to a general lack of mobility and willingness to seek job opportunities outside of the Tampere region and abroad. Measures to improve the situation could be better mentoring by the PI's, visits to foreign research departments and career coaching. Fewer but higher impact publications by the students would also increase their international and national competitiveness.

2.4 Societal impact of the research

Grade 4 (Very Good)

Exploitation: BMT is making clear efforts to translate some of their research to practical applications. Good example are the therapeutic studies with stem cells to treat cranio-maxillofacial defects and the patent applications for IPCs to study of mutation- and disease-specific cardiomyocytes and for corneal and retinal differentiation. Narkilahti has 2 patents pending for *in vitro* modelling of neurological diseases. Jorma Isola developed an ultra-rapid immunohistochemistry technique for intraoperative assessment of breast cancer sentinel lymph nodes. Jacobs was at the origin of the commercialization of AOX technology. Visakorpi's finding that AR was overexpressed in castration resistant prostate cancer led to a paradigm shift in their treatment. Kulomaa and Hytönen have developed the (strept)avidin-biotin technology. They have 13 patent applications, nine of which are related to avidin discoveries. The Nykter group was responsible for a Tekes-funded research commercialization project that has led to establishing a biological data analysis company Genevia technology Ltd.

Other social impacts: Many group leaders have been involved in funding bodies, promoting public education (to high school students, to the wider public with "café scientifique", and patient organizations, EMBO reports, information to general public on tuberculosis), and organizing of meetings (EMBO Member's meeting).

We note that patents do not automatically imply societal impact. To increase the speed and efficiency of translating discoveries into products we would strengthen support for R&D and tech-transfer actively seeking out venture capital and licensing opportunities. Links to industry could also be established or reinforced to allow students to obtain relevant experience during their studies, foster the spirit of entrepreneurship and better qualify them for industry jobs.

2.5 Quality of the research environment

Grade 4 (Very Good)

BMT is dependent on expensive research infrastructure and has put a lot of effort to establish and develop core facilities (Bioinformatics, CellTech laboratory, Flow cytometry, Drosophila laboratory, GMP laboratory, IPS cells, sequencing, Zebrafish, Virus production). Infrastructure development was facilitated by major investments from the Council of Tampere Region (EDRF funding) and Biocenter Finland. These core facilities function well. BMT and 6 other Finnish biocenters cooperate under the umbrella Biocenter Finland. In this consortium BMT plays an important role as the non-mammalian model system facility. The Regea Cell and Tissue Center is the only clinical multi-tissue bank in Finland. It is a non-profit organization providing Finnish hospitals with 40% of their tissue grafts.

Innovative initiatives exist for the development of novel therapies for mitochondrial disorders (FinMIT) and cell based therapies (Human Spare Parts Program).

BMT provides an international research environment. It houses 3 FiDiPro professors and 20% of the staff including students are of non-Finnish nationality. It has an international Master's degree in bioinformatics and biotechnology. A few one-year sabbaticals abroad have been given during the last census period. At the post doc level, it would be important to spend several years abroad to establish collaborations that can be continued after the visit.

The general impression of the Panel is that the infrastructure available and built up in BMT is excellent for the research performed in the unit. Unique assets include the fruit fly laboratory, protein technologies/production, the GMP laboratory and high powered computer capacity. The Panel noted as well that the lack of a state-of-the-art mammalian animal facility (including small animal imaging resources and animal surgery) is a major limitation that seems to impair research in many groups. To broaden rapid and efficient access to other expensive technology platforms strategic alliances with other Universities could be pursued.

The 5 thematic areas in themselves are excellent; however, there seems to be no synergy across the programs. More interactions, exchange of ideas and methods between the different thematic areas at the PI level as well as the post doc and doctoral level could increase productivity and originality of the research. Due to the important translational aspects of several of the thematic areas, strengthening ties and collaborations with the School of Medicine could be fruitful (i.e. pilot grants for joint projects, access to human tissues for correlative science, etc.).

2.6 *Future potential of the Unit of Assessment*

The new building could provide an important opportunity to increase synergy within the Institute and with the MED and HES. Strong interactions should be facilitated by proximity (examples: PCRC and VACTIA) and should also facilitate the sharing of resources. A joint strategy and management between the Schools needs to be established to fully realize this opportunity.

Further strengthening of successful thematic areas, e.g. mitochondrial research, by strong retention packages and recruitments and opening opportunities for between Schools collaborations would be wise to consolidate international leadership in the field.

The UTA financial administration needs to be fully transparent to the researchers, thereby avoiding losing financial resources which, for example, could be used for post doc funding. In general post doc funding should be given priority over PhD student funding.

2.7 *Recommendations and suggestions*

a) What are the main strengths and weaknesses of the UoA?

Strengths

Potential for international and across-Schools cooperation. Innovative nature of research with potential of high impact for treatment and diagnosis of disease, in particular in the area of mitochondrial disease, stem cell biology, cancer, and inflammation. Excellent external funding. European connective multi-tissue bank; Prostate tissue bank.

Weaknesses

Given the highly innovative nature of research one would expect more than 29% of papers to be JUFO level 3 publications. Also one would expect there to be at least a few examples of work that was primarily conducted at BMT and that was published in Nature, Science or Cell. When looking at the CVs most of the top-ranking publications were rather old (preceding 2008). Interactions with MED and HES seem to be relatively weak (with some exceptions). Connection between bioinformatics, research and

medicine seems to be relatively limited with the exception of Matti Nykter and the cancer group. BMT is the site for the Regea Cell and Tissue Center. However, there is no other mention of a biobank dedicated to human research. The current lack of mammalian animal facility has certainly been a limiting factor.

b) What are the opportunities and challenges of the UoA?

Opportunities

- Development of strong interactions with MED and HES with the arrival of the new building.
- Definition of shared research interests connecting the three Schools, that enable:
 - Future strategic recruitments
 - Cooperation across disciplines
 - Sharing and expansion of infrastructure
 - High impact research with important translational ramifications
 - Integration of computational, experimental and human research
- Three potential areas connecting the three Schools and helping to focus research activities within the three Schools could be:
 - Cancer
 - Inflammation and Immunity
 - Aging

These three areas complement each other and may stimulate multiple cross-disciplinary interactions (e.g. age as a risk factor for cancer and chronic inflammatory disease; infectious agents causing cancer; inflammation as a main mechanism of age-associated disease, etc.).

- Research opportunities based on existing tissue-banks.

Challenges

- Adequate funding to maintain and further expand a costly infrastructure.
- Grow young and intermediate faculty body and establish post-doctoral program.
- Further improve the number of high quality publications in journals with the highest impact.
- Further integrate and expand bioinformatics.
- Help constitute a general biobank and clinical database to promote human research and enable development of personalized medicine.

c) Did you find research areas or research groups that stand out from the general level of the UoA? ☺

d) Did you find research areas or research groups that have potential to become international flagships in their research area?

See above sections.

e) What measures should the UoA take to improve its performance?

See opportunities (b).

3. Medicine (UoA6)

3.1 *Volume, profile and organisation of the research*

The School of Medicine has a broad range of research activities and several of these are highly productive and internationally visible. However, not all research activities were presented or described in sufficient detail in the Self-Assessment Report. Particularly, descriptions of clinical Neurology, Neuroscience and Psychology that comprise the largest segment of publications, were not well represented. Clinical research and clinical trial accrual to investigator initiated or industry sponsored trials were also not described in detail. Overall the volume of research measured by publications is excellent but the profile may be too broad for a relatively small faculty with a heavy teaching and clinical load. It may not be realistic to strive for leadership roles in all 70 research projects that are currently included in the 9 focus areas.

The volume of publications has steadily increased by about 10% over the past 5 years and the mean normalized impact score of WoS publications has also increased impressively from 1.2 to 2.0. This level of productivity is in line with leading universities in Europe. However, it is not possible to decipher from the citation analysis if this is due to the increasing success of a few programs or if it represents improvements across the entire spectrum of research. The Panel felt that it is most likely to be the former. It would, perhaps be useful for individual research groups to receive information about their normalized impact scores in order to stimulate targeting higher impact journals. Information at an aggregated level does not reveal the potentially large differences between research groups.

The level of overall external funding was stable in the past 4 years but with a significant increase in funding from the Academy of Finland (8% to 13%), Tekes and the EU which is consistent with increasingly competitive and high quality research. However, the proportion of EU, Academy and Tekes funding may still be low.

After hearing the research presentations and reviewing the Self-Assessment document, it was not clear to the Panel how the 9 Research Focus Areas were defined. Some Focus Areas are highly focused and thematic (e.g. Cardiovascular Disease, Vaccines, Cancer, From Childhood to Healthy Adulthood (which seems mainly to correspond to the celiac disease program), while others are very broad and include multiple diverse projects of variable sizes and impact (e.g. Immunology and Inflammation). It appears that the individual projects within the Focus Areas are not prioritized further.

Regarding the organization of research, we noted that there is no formal organizational structure behind the Focus Areas and how these relate to already existing administrative structures such as the Centers and Departments is not clear.

3.2 *Scientific quality of the research*

Grade 5 (Excellent)

Bibliometric measures are excellent and comparable to the best institutions in Europe. We recognize that the University has to play an important role in disseminating medical knowledge to non-academic Finnish physicians through local journals. During the assessment period (2008–2012), an impressive 32

publications are from Nature Genetics and 12 are from the New England Journal of Medicine, even if many of these represent collaborative and large consortium efforts, these should be emphasized more.

We noted the increase in Publication Forum (JUFO) level 3 publications and the corresponding increase in mean citation impact. Further focusing on larger higher impact papers would accelerate this.

The topics of the top 25 publications selected for review in the Self-Assessment Report probably reflect the highest quality science in MED. Around 30% of publications come from cardiovascular diseases, 16% from cancer, 8% from celiac disease research, 32% from Immunology and Inflammation, 8% from Vaccine and 4% from ageing studies. This raises the question of how the large number of remaining research projects fare in terms of scientific impact since 70 subprojects are listed under the 9 Focus Areas.

3.3 *Scientific impact of the research*

Grade 5 (Excellent)

It is clear that many of the projects have made a significant impact in the scientific community. UTA MED faculty play leading roles in international collaborations and regularly present in national and international conferences and in other institutions.

Field of Atherosclerosis: Genetic regulation of heart disease and its risk factors. Several high impact original papers. Leadership in the AtheroRemo research consortium and other large EU projects.

Field of celiac disease: The group is particularly renowned for its clinical and epidemiological work on celiac disease and research on autoantibodies in celiac disease. This line of research could be expanded to other food allergies and could be strengthened by complementary laboratory research.

Field of virology and type-1 diabetes: Pioneering role in developing the hypothesis that human type diabetes is a viral immune mediated disease. The group is actively involved with multicentre international studies TEDDY, nPOD, DIPP and PEVNET.

Vaccine research: International leaders in the field.

Field of prostate cancer: The Prostate Cancer Research Center is an exemplary multidisciplinary, cross campus, high impact program. We suggest creating similar programs around other themes (e.g. aging, food allergies, neurocognition, etc...).

Neuromuscular research: Seminal discoveries have been made by the program which is led by internationally recognized, very productive investigators in the field.

SILK/Ophthalmology program aims at developing new methods for the diagnosis and treatment of ophthalmic disease. However, the report does not discuss the impact of the end of ERDF funding and how the group is being currently funded.

Immunopharmacology (lung diseases): Strong national and international network. Funding through SHOK program, the Academy of Finland and ERDF. Speciality in lung disease, this could also expand through collaborations with epidemiology, basic immunology and investigator initiated clinical trials.

Biogerontology: Strong research focusing on multiple aspects of aging. Involved with GEHA EU consortium and now the EU-consortium Biomarkers of Human Aging (Mark Age). The gerontology

program also has unique resources and several highly promising research directions. Could be cross fertilized from mitochondrial research.

Neurocognitive development: Dr Jukka Leppänen is an Academy research fellow who has an ERC starting grant and investigates neurodevelopment in children.

The carbonic anhydrase research group is also outstanding and a world leader in this small specialized field.

The research impact of the above groups is impressive. However, the Panel also noticed that it is unclear if “scientific schools of thought” are emerging in UTA MED laboratories. Many PhD students seem to have no clear career direction or commitment to continue the research that they have pursued in their mentor’s laboratories.

3.4 Societal impact of the research

Grade 4 (Very Good)

This grade was primarily driven by appreciation for the vaccine research, celiac disease, atherosclerosis and international health groups.

The longitudinal impact of research programs was hard to decipher from the Self-Assessment, in most instances. A better narrative of how programs evolved over time and how discoveries are being translated into products, novel therapies, or innovative new therapeutic strategies would be helpful.

The Vaccine Center is clearly making tangible impact on vaccination policies and maintains regional vaccine research clinics for children. The international health program is broadly involved in clinical trials in Sub-Saharan Africa and there are important programs on maternal and child health in low income settings. The Finnish MS registry and Finnish Register of Visual Impairment as well as Registries for diabetes, allergy, celiac disease and cancer are important national and international research resources. Participation of UTA MED faculty in developing evidence-based clinical practice guidelines is an important sign of professional recognition.

We note that patents are an important step towards commercialization and ultimately to societal impact through novel therapeutic and diagnostic products, however, patents themselves do not represent a significant impact on society. Efforts to assist investigators to develop discoveries into products would increase the societal impact of research at UTA MED substantially.

The Panel also felt that more emphasis on public education, continuous medical education, and media appearances could also bolstered the societal impact of the faculty.

3.5 Quality of the research environment

Grade 3 (Good)

The UTA MED campus clearly provides sufficient support to enable high quality and impactful research as evidenced by the scientific output of the leading research groups. However, there are areas where the research environment could be strengthened:

- (i) No administrative and organizational structure was apparent to coordinate research between the Research Focus Areas and to prioritize programs within the focus areas.
- (ii) Access to core facilities, particularly to mammalian models, is limited.
- (iii) We did not hear about strategic recruitment plans, including recruitment packages, to strengthen areas of high priority research.
- (iv) There was no strategic plan to foster cross campus collaboration with BMT and HES.
- (v) The School has relatively few invited international speakers and seminars. Open faculty positions are advertised in Finnish only.

3.6 *Future potential of the Unit of Assessment*

The School of Medicine has substantially improved the quantity and quality of its publications over the past 4 years. It also increased its competitive peer-reviewed funding and has several strong programs that could be expanded and serve as magnets for recruitment. The planned new building will create new opportunities to bring research groups together in a synergistic manner from across the campus. However this will require a detailed strategic plan which was not shared with the Panel. The planned Kauppi Campus Research Services should help each program to develop more comprehensive research programs from bench-to-bedside. Several research programs may be ready to be expanded into Centers (e.g. Celiac and Food Allergies Center, Atherosclerosis Research Center, Aging Research Center, etc.). The patent portfolio of the faculty also provides unique opportunities to create spin off companies.

3.7 *Recommendations and suggestions*

a) What are the main strengths and weaknesses of the UoA?

Several strong research programs exist, there is an established culture of research, there are many nationally and internationally recognized faculty and there is a critical mass of expertise particularly if the BMT and HES faculty are also considered.

Important weaknesses are relative lack of post-doctoral workforce, no funded post-doctoral fellowship program and few junior/mid-level clinical research faculty. Limited international exposure. Modest integration and collaboration across Schools that is suggested by few research projects that span the full repertoire of in vitro mechanistic discoveries, in vivo validation, epidemiologic research and clinical correlative studies ultimately leading to interventional clinical trials. Hypothesis driven, investigator initiated clinical trials seem to be under-represented in the portfolio of research and were not presented.

b) What are the opportunities and challenges of the UoA?

Opportunities

See section 3.6.

Challenges

Limited recruitment and retention potential in the absence of start-up and retention packages. Several research projects are small in size and have limited funding. Lack of infrastructure for investigator

initiated clinical trials (e.g. research nurses, data managers). No clear career tracks to assist with balancing and defining expectations in clinical service, research and education. Limited integration and synergy with BMT and HES, apart from a few highly successful programs.

c) Did you find research areas or research groups that stand out from the general level of the UoA?

Atherosclerosis, celiac disease, prostate cancer research, vaccine research, genetics of muscular dystrophy, carbonic anhydrase research, prostate cancer research. Also, virology and type-1 diabetes, however, whether there is a solid clinical program of type-1 diabetes is not clear and the program seems to be narrowly focused on a single innovative hypothesis that is not yet proven. Ophthalmology SILK, however more information on the current funding status and ongoing active research was not given.

d) Did you find research areas or research groups that have potential to become future international flagships in their research area?

The aging program has great potential if it could combine forces with synergistic complementary projects in HES and BMT. Neurocognitive development research could be nurtured and complimented with projects in HES. The FICAM initiative is interesting and unique but was not described in detail. Clinical prostate cancer research could leverage the outstanding work in BMT and HES in terms of more translational research and hypothesis testing clinical trials.

e) What measures should the UoA take to improve its performance?

In addition to the general suggestions that apply to all three Schools (see section 1), we have the following specific suggestions for the Medical School:

- Consider identifying fewer but more integrated Focus Areas across Schools. For example, Cancer (having the PCRC as seed and a successful example), Inflammation Immunity (having the celiac disease, viral diabetes, atherosclerosis and vaccine as seeds and examples) and Aging (using the mitochondrial biology in BMT and age related programs in HES as seeds).
- Encourage and establish formal avenues for collaborations with BMT and HES. For example, fund collaborative pilot and feasibility projects, plan joint grant submissions.
- Consider some degree of formal specialization within the faculty and create distinct career tracks for Clinical Scientists, Educators and Researchers. Clinical scientists would be expected to conduct and lead clinical trials and be heavily involved with clinical service but have less teaching courses and no expectations to run laboratories. Educators would be primarily responsible for the curriculum and undergraduate/professional teaching in addition to contributing to clinical service.
- Consider strategic recruitment to strengthen for example mucosal immunology, or human microbiome research to support celiac disease group and target related areas like food allergies and inflammatory bowel disease. Similar opportunities should be considered in atherosclerosis research, aging and viral origins of diabetes research. These groups are already strong but we noted some lack of state of the art in vivo and mechanistic biology studies.
- Develop MD/PhD graduate programs to nurture and retain physician scientists. Include “research abroad” component into training.
- Strengthen the clinical programs to support innovative, investigator initiated clinical trials and encourage clinical faculty to acquire leadership roles in national and international clinical trials.

- Consider strategic alliance with other leading EU universities including faculty and student exchange. Organize seminar series or visiting professor programs inviting scientists from the EU and the United States.

4. Health Sciences (UoA7)

4.1 *Volume, profile and organisation of the research*

The School of Health Sciences (HES) was formed only recently (in 2011), bringing together some groups that had no tradition of working together. Also, as understood during the site visit, HES is currently in a phase of rejuvenation, with nine recently recruited professors, following the retirement of a substantial number of professors. This needs to be taken into account when the past performance is being assessed.

HES sees itself as being at the intersection of the two strengths of the University of Tampere, “health” and “society”. This indeed offers interesting opportunities for collaboration between HES and other Schools within the University, but these opportunities may not be fully exploited currently. The multidisciplinary nature of HES offers substantial opportunities for collaboration both within the School and with other Schools, for example in the fields of ageing and evaluation of screening programs.

HES has a large teaching program, that needs to cover the full range of disciplines within the health sciences, as is also clear from the wide scope covered by its professorial chairs (n=25 according to table 1 in the Self-Assessment Report). Although this broad scope is important from an educational point of view, and this multidisciplinary nature represents an important resource, it also seems to lead to a certain degree of heterogeneity in the research focus of the School. In the perception of the Panel, the School currently does not have a clearly focused research portfolio. The four common strands of research identified in the Self-Assessment Report did not entirely convince the Panel. These common strands are very general in nature and do not adequately reflect the strengths of the School. The Panel feels that the interaction under each strand should be strengthened in order to help create more critical mass around specific themes.

The School receives about a third of its research funding from external sources, which is about equal to the proportion for the University of Tampere as a whole. The Panel would encourage HES to increase the proportion of external funding, and is concerned about the reductions in external funding in some areas. Between 2010 and 2013, funds received from the Academy of Finland have fallen by around 25%, and funding for vaccine research is expected to decline when the current studies are finished. On the other hand, the Panel was told that HES expects a growth in university funding, related to the performance of the School in teaching, doctoral student and publication numbers. The Panel sees the increased funding as a great opportunity for strengthening the research programs of the School, providing clear spending priorities are formulated within a well-articulated research strategy for the whole School.

As in the other Schools that the Panel reviewed, the number of PhD students in HES is very high. Although there is an excellent program in HES for teaching and supervision of these doctoral students and career prospects for PhDs in the Health Sciences seem to be good in Finland, the Panel recommends a relative shift from PhD students to post docs, which would enable the School to perform more cutting-edge research.

4.2 *Scientific quality of the research*

Grade 4 (Very Good)

This was graded 4 by the majority of the Panel, but this overall score hides important variations within HES, with the scientific quality in some areas probably qualifying for a grade of 5. As the Panel did not receive information on the performance in specific research areas within the School, differentiation of the score was impossible.

The score for scientific quality is to a large extent based on the very high research output of HES in terms of number of papers in international scientific journals per staff member. According to the CWTS analyses, there was a total of 959 publications in (S)SCI journals, which with an academic staff of 75 translates into the highest output of papers per year per staff member of the three Schools that the Panel reviewed. However, rather than focus on the quantity of publication, HES researchers should put greater emphasis on quality of publications.

In assessing the publication output, the Panel recognized that HES also targets a large number of publications to national professional journals, as part of its strategy to generate societal impact. The Panel noted that 19.8% of HES scientific publications were in Finnish, according to the Tampere University Library analyses.

At the same time, the Panel noted that the average number of citations per publication within HES is an MNCS score of 1.3 (30% above the world average for the health sciences). Although the absolute number of citations that HES publications receive is very large, due to its large number of publications, the Panel feels that the School should develop and implement a strategy to increase the number of publications in high-impact journals. As HES currently publishes only 12% of its publications in top 10% journals, as well as a limited number of papers at Publication Forum level 3, there is clear scope for improvement. The Panel considers that HES is in a good position to increase the number of papers in high-impact journals, for example by better exploiting its access to high quality national and Nordic registries and its possibilities for (inter)national collaboration.

The Panel recognized that the large number of publications in journals with a lower impact factor may partly reflect the system of PhD thesis writing in Finland, which seems to require 4 publications (3 first-authored) for a doctoral thesis. The Panel feels that aiming for higher quality publications should be preferred instead.

4.3 *Scientific impact of the research*

Grade 4 (Very Good)

The School's work has a clear scientific impact, as is evident from the large number of citations that its work generates. However, the relatively modest MNCS score suggests that the School is not yet on a par, in this area, with some of the best Schools in the field of health sciences in Europe.

The Panel noted that the publications metrics for the School as a whole are heavily influenced by one or two groups that are excellent, such as the cancer epidemiology and vaccine groups. However, because the Panel did not receive systematic information on performance in different research areas, it cannot make specific comments on these variations.

The scientific impact of the School is also evident from its role in national and international scientific evaluations and appointment procedures, and from the recruitment of some of its doctoral graduates to academic, research and clinical positions in Finland and abroad.

The international visibility of HES is currently limited. Some areas of research, such as in ageing and cancer epidemiology, are visible internationally, but some others are not. The Panel welcomes the plans of HES, as presented during the site-visit, to create a stronger international profile.

4.4 Societal impact of the research

Grade 5 (Excellent)

Research undertaken by HES is of substantial relevance to society, with societal impact achieved in a diverse range of ways. There are very strong links with politicians and Ministries and governmental research institutes (for example the National Institute for Health and Welfare), including joint appointments with HES, joint projects, and the analysis of Registry data collected by public sector organisations. In addition, HES researchers and doctoral students work closely with health and social care providers resulting in research findings that impact on changing clinical practice guidelines and health care delivery. Thus, research by scholars in HES is closely embedded in diverse public organisations enabling synergistic relationships that result in research of high relevance to society.

Members of HES occupy a range of expert positions on both international and national Working Groups, Committees and Advisory Boards. There is also involvement in regional and local health and hospital organisations. These roles impact on policy making and have more direct impacts in recommendations for improving health and social services delivery.

Research in a number of areas has led to the development of national recommendations and guidelines, including related to prostate cancer screening, national nutrition guidelines, and recommendations for handling child abuse cases.

The very extensive doctoral programs in HES have a major societal impact. They are educating the next generation of public health specialists and epidemiologists world-wide, as well as health and social care managers in Finland, and nursing scientists who play key roles in Finnish health care delivery and organisation.

4.5 Quality of the research environment

Grade 5 (Excellent)

The doctoral programs in HES are of a first-rate standard. They involve very good systems for recruitment of students, seminar programs, and support structures for doctoral students, especially international doctoral students. It is beneficial that each doctoral student has an Advisory Group, in addition to their supervisor(s), but it would further strengthen the doctoral programs to instigate mentoring systems for doctoral students.

HES has recently been rejuvenated by the addition of 14 new recruits (9 at professorial level). This provides an excellent opportunity to reinvigorate research and re-focus research priorities where appropriate. The research environment is collegial and supportive. There is a heavy demand on academic

staff time from high numbers of doctoral and Masters level students. The School would benefit from the development of transparent work allocation models, which account for amounts of time spent on research and public organisational/policy-related activities, as well as teaching.

The School would benefit from stronger support for the preparation of research grant applications, especially grants from the European Union, as well as additional technical and administrative support for research. There appeared to be a lack of robust information about expenditure of funds on research grants, and transparency in use of overheads.

A strength of the HES research infrastructure relates to the large population-based datasets and registers, and associated data management and analysis systems. The Panel very much welcomes the initiative of HES to allocate resources to guarantee continuity of employment of data management personnel for these resources. These data resources provide a 'Gold mine' for current and future research projects, including the integration of these data resources with sample data collected by HES academics, such as the longitudinal study of nonagenarians (Vitality 90+). It is vital that the School employs appropriate expert personnel to maintain and manage these data resources.

4.6 *Future potential of the Unit of Assessment*

The future potential of the School is very good, especially following the 14 recent appointments, and because of its multidisciplinary breadth. In particular, HES should capitalise more fully on the multidisciplinary of the staff in order to develop more cutting-edge projects in the health sciences area. The excellent resources of large scale datasets and Registers could form the basis of creative and innovative projects with strong potential to be world-leading, including comparative Nordic studies of Register and large-scale datasets.

The School has excellent Doctoral and Masters programs, which could be built on in terms of further developing collaborative work internationally and with local and regional health and social care providers.

The School has to balance the importance of conducting research of high scientific impact with research that is beneficial for policy makers and practitioners. The volume of publications is high, but it is important to work on a strategy for publishing in higher impact journals.

4.7 *Recommendations and suggestions*

a) What are the main strengths and weaknesses of the UoA?

Strengths

- An outstanding doctoral program, which has well organized procedures for recruitment of students, good supervisory arrangements (including an Advisory Group for each student), doctoral seminar series and strong student support mechanisms.
- There is strong multi-disciplinary within the School, which provides an opportunity for cutting-edge research projects that capitalize on this area of strength.
- There is excellent expertise and access to a wide range of important Finnish Registry and large-scale datasets.

- There are strong collaborative links with Ministries, as well as with local, regional and national health and social care organizations.

Weaknesses

- The School needs to develop a more clearly formulated research strategy and action plan to achieve this strategy.
- The recent decline in external research funding.
- Research collaborations and interactions with MED and BMT seem to be relatively limited (with some exceptions).
- The School has a relative lack of junior academic staff (including post docs) compared with the numbers of professors and of doctoral students.

b) What are the opportunities and challenges of the UoA?

Opportunities

The School should focus on new funding opportunities, such as those associated with recent reforms of the health and social care system. In particular, HES should tap into new government strategic research funds.

The very successful international Doctoral program could be more fully exploited in terms of promoting greater internationalization.

There are potential opportunities which will result from the co-location of HES with MED and BioMediTech on the new Kauppi campus.

Challenges

To develop a clearer research strategy, including revisiting the four broad research thematic areas. There is a need to target higher impact journals as well as publications that are relevant to policy and practitioners.

To seek to obtain more sustained sources of long-term research funding, including to manage the impact of changes in the resources of key partners.

To develop strategies to strengthen internationalization of staff and doctoral students.

c) Did you find research areas or research groups that stand out from the general level of the UoA?

Epidemiology (particularly cancer), Vaccinations, and Ageing research.

d) Did you find research areas or research groups that have potential to become international flagships in their research area?

Epidemiology – especially the potential to exploit the very valuable Finnish Registry data in innovative and creative ways, including through international comparative analyses of Registry data.

Research on Ageing, including through the recently established Gerontology Research Centre (GEREC).

e) What measures should the UoA take to improve its performance?

The School needs to articulate a clearer research strategy to address the recognized threats and weaknesses, and establish specific action plans to implement the research strategy.

HES should capitalize on the wide range of multi-disciplinary skills within the School, in particular to target larger-scale funding opportunities, such as from the European Union.

There is a need for a strong internationalization strategy supported by targeted financial resources, for example to support visits of faculty, post docs and doctoral students to other international research centres, and to maximize the number of international visitors to HES. Given that the Unit has excellent international Doctoral and Masters programs, these could be more fully exploited to develop stronger internationalization.

To develop a clearer system of mentoring both doctoral students and junior researchers.

It will be important to expand the recently introduced tenure track program.

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Final Report

Panel III

Computer-Human Interaction
Information and Media
Information and Systems

27 November, 2014

Lina Karam, Arizona State University, USA (Chair)

Helen Kennedy, University of Brighton, UK

Andrew McGettrick, University of Strathclyde, UK

Manfred Thüring, TU Berlin, Germany

Jeffrey Ullman, Stanford University, USA

Barbara Wildemuth, University of North Carolina, USA

1. General statement on the School of Information Sciences

The School of Information Sciences (SIS) is one of the nine schools of the University of Tampere. SIS offers three degree programs including a Bachelor degree, a Master's degree, and a Doctoral degree. Typically, students directly enroll for the Master's degree at the beginning of their undergraduate studies.

SIS has three research centers:

- 1) Tampere Unit for Computer-Human Interaction (TAUCHI),
- 2) Tampere Research Center for Information and Media (TRIM), and
- 3) Tampere Research Center for Information and Systems (CIS).

For the purpose of this Research Assessment Exercise (RAE), each of these centers constitutes an independent Unit of Assessment (UoA). All three research centers have each fewer than 10 professors and fewer than 50 academic staff and are thus considered as *small* units. Overall SIS has about 124 academic staff members including 18 professors or research directors.

SIS total income in 2013 was 16.1 Million Euros (10.9 M from UTA budget, 4.2 M external research funding, and 1.0 M other).

While research in SIS is being conducted along several fronts, SIS has selected three main areas as its thrust areas that are in line with the UTA's focus on society and health:

- 1) Data led by CIS,
- 2) Games led by TRIM, and
- 3) Interaction led by TAUCHI.

SIS offers a good infrastructure through which it supports these centers in terms of space and equipment. SIS needs to work on increasing the diversity of its academic staff and students by reaching out and recruiting international scholars and students. Diversification can additionally be accomplished by fostering international collaborations and by seeking grants that support such collaborations. Distinguished researchers with on-going prominent research activities can be attracted to join SIS by establishing targeted Chair positions (e.g., supported by industry, foundations, or other sources), attractive packages and incentives to recruit these highly active researchers. Also outreach to underrepresented groups including women is highly encouraged to increase diversity.

The number of refereed cited publications is relatively low within SIS and, except for some groups within SIS, few of these appear in high-quality venues. More efforts are needed to conduct high-quality impactful research. The quality and impact of the research conducted by doctoral and postdoctoral students need to be increased through direct dedicated mentoring by senior faculty members and by attracting and recruiting high caliber promising doctoral and postdoctoral researchers. Inviting distinguished researchers as short-term visitors to provide feedback to doctoral and post-doctoral students on their research is also recommended.

The importance of high-quality research productivity can be emphasized by the University by requiring academic staff to provide written self-evaluation reports on a yearly basis to school-level and university-level evaluation committees emphasizing productivity in high-quality refereed journals and conferences, funding and collaborations, doctoral mentoring achievements, doctoral students' placements after

graduation, prestigious service, and other major high-impact research contributions. University resource allocation in terms of infrastructure and core funding can be linked to these evaluations.

So far, SIS's international visibility is rather low. Several measures can be taken to improve this. Professors as well as senior researchers should strive for more influential positions on editorial boards and engage in committees of international high level conferences. Students should be encouraged and financially supported to visit research centers abroad for longer periods (i.e., 3 to 6 months) in order to start and maintain collaborations. Programs of the EU could be addressed to acquire financial support for such visits. For example, the Erasmus program provides a good way to exchange undergraduates, while the Marie Curie Program offers attractive opportunities to exchange doctoral students. Also, the number of visiting scientists should be increased by offering them research opportunities at SIS for a limited time. Finally, all scientists and lecturers – and even master students – might be encouraged to improve their personal visibility by joining international research networks, such as ResearchGate and/or LinkedIn.

Groups from SIS aim to submit several proposals to the Horizon 2020 program to raise more funding from the EU. Since competition will be very intense in that program, the success of a proposal will not only depend on scientific quality, but also on the reputation of the partners forming the consortium. Since SIS' groups will not be the only research units facing these challenges, the management of UTA might define a strategy to support all units which intend to participate in Horizon 2020. This could include (a) the provision of financial resources to develop proposals, (b) the setup of an internal consulting and reviewing process to ensure high scientific quality, and (c) support efforts aimed at finding potential consortium members in industry and academia. In the long run, professors and senior researchers should be encouraged to serve as reviewers for programs such as Horizon 2020, in order to establish better connections to the European Commission and to gain valuable insights for future proposals.

2. Computer-Human Interaction (UoA8)

2.1 *Volume, profile and organisation of the research*

The Computer-Human Interaction Unit of Assessment (UoA8), also known as Tampere Unit for Computer-Human Interaction (TAUCHI), consists of 41 academic staff members, including 5 professors, 3 lecturers, 5 university researchers, 6 post-doctoral researchers, 20 doctoral students and 2 members with personal grants. The academic staff members of TAUCHI are mostly Finnish nationals (32 out of 41 or 78%).

The interaction research conducted by TAUCHI is one of the focus areas of the School of Information Sciences (SIS). Members of TAUCHI conduct research as part of four research groups in the unit. All groups are concerned with *interaction*, but each has a different focus:

- 1) The Multimodal Interaction Research Group led by Prof. Roope Raisamo with a focus on haptics and computer vision;
- 2) The Emotions, Sociality, and Computing Research Group led by Prof. Veikko Surakka with a focus on emotions and socially meaningful signals;
- 3) The Pervasive Interaction Research Group led by Prof. Markku Turunen with a focus on mobile ubiquitous interaction, user experience, education and outreach; and
- 4) The Visual Interaction Research Group led by Dr. Poika Isokoski (Senior Researcher) with a focus on gaze interaction and eye tracking.

The graduation rate of PhD students has been about 1 PhD student per year for the last 6 years, which is relatively low; however, statements in the TAUCHI's Self-Assessment Report indicate that a significantly larger number of doctoral students are expected to complete their doctoral studies in 2014.

In relation to publications, TAUCHI produced an average of 45 refereed publications per year over the last 6 years. However, according to the analysis by the UTA Library, the number of produced publications that are ranked as levels 2 and 3 (combined) is lower than 13.6%, over the last six years. Furthermore, in the analysis based on the Scopus database, while the refereed journal publications are adequately cited with an average of 6 to 7 citations per journal paper, the citations of refereed conference papers are low with half of these conference papers not cited at all.

In relation to funding, between 2010 and 2013 the members of TAUCHI were successful in securing funding at an average of 2.2 Million Euros per year over half of which is from Tekes. TAUCHI seems to be successful in attracting funding by collaborating with industry and other partners as part of consortia and collaborative networks.

In relation to service, two professors of TAUCHI served on committees of various universities including tenure committees and scientific advisory board. Three members of TAUCHI (two professors and one university researcher) serve on journal editorial boards. Two members of TAUCHI were also invited as keynote speakers at conferences in Europe and Asia. Members of TAUCHI are also actively involved in the organization of international conferences.

The research output and quality is largely imbalanced among groups in TAUCHI with the majority of the funding (more than 40%) and the majority of the highly cited publications being mainly produced by one group (The Multimodal Interaction Research Group).

2.2 *Scientific quality of the research*

TAUCHI produced 273 refereed journal and conference publications over the last 6 years, which amounts to an average of 45 refereed publications per year. In particular, members of TAUCHI have been actively publishing in the prestigious computer science ACM SIGCHI Conference on Human Factors in Computing Systems. While the national Publication Forum Ranking System (JUFO) awards a rating of level 2 to this conference, this conference should be rated at level 3 since it has a much lower acceptance rate and a higher impact compared to journals in the computer science community. Despite the commendable efforts of TAUCHI members in publishing in such prestigious conference and other level-2 journals, the number of produced publications that are ranked as levels 2 and 3 (combined) is lower than 13.6%, with only 37 such publications (out of 273 total refereed publications) over the last six years. The majority of the refereed publications during the last six years (2008–2013) by members of TAUCHI are either ranked at the lowest JUFO level 1 (66.6%, or 182 out of 273) or are not ranked (19.8%, or 54 out of 273). Members of TAUCHI are advised to focus on producing high-quality research that can be published in highly ranked refereed conferences and journals in order to move into achieving excellence in research.

Based on the list of publications provided in the professors' CVs from different groups in the unit, the research quality varies among research groups with some groups (e.g., Multimodal Interaction Research Group) having a significant number of level 2 and level 3 refereed publications and other groups lacking highly ranked publications during the last six years.

The poster presentations given by the doctoral and postdoctoral students were in their majority not at the doctoral level and the presented methods and results corresponded more to undergraduate senior design or master-level projects rather than high-quality doctoral work. This issue was prevalent in the poster presentations throughout the UoAs of SIS. The majority of doctoral and postdoctoral students did not demonstrate the qualities that are expected from researchers at this career stage, such as being able to show the contributions and significance of their research relative to the state-of-the-art and justify why the research they conducted is needed and its advantage relative to what is already been done. The doctoral students need to be better trained by their supervisors on how to choose high-impact research areas and be discouraged from pursuing unjustified "already done" research or "implementation-type" projects for their doctoral research. They should be guided by their supervisors and be required to demonstrate the significance of a proposed research approach relative to the state-of-the-art before pursuing it for their doctoral work.

Based on the above, the rating is 3 (Good).

2.3 *Scientific impact of the research*

While the refereed journal publications are adequately cited with an average of 6 to 7 citations per journal paper, the citations of refereed conference papers are low with half of these conferences papers not cited at all, resulting in an average close to 1 citation per paper (see the publication analysis by the UTA

Library based on Scopus, Table 3). Furthermore, based on the list of publications and data provided in group members' CVs, most of the refereed cited publications are mainly produced by one group (Multimodal Interaction Research Group). It is recommended that, in addition to outreach efforts and technology transfer projects, TAUCHI members across the different groups should also dedicate time to produce innovative research methods results that can be published in high-impact high-quality conferences and journals in order to increase the visibility and citations to their work and the quality of the work of their graduating doctoral students.

The graduation rate of PhD students has been about 1 PhD student per year for the last 6 years, which is relatively low given the number of professors, lecturers, university researchers, and post-doctoral researchers in the unit (19). Senior members of TAUCHI, including professors and senior researchers, are advised to allocate more of their time on one-to-one mentoring of their doctoral students. During the visit the students raised a low level concern that supervisors may be too busy to offer their full support. A strategy should be in place to enable peer, postdoc and research group support to augment the minimum supervisory input. Based on information in the Self-Assessment Report and CVs of TAUCHI's senior staff members, 10 doctoral students (more than the combined amount over the last 6 years) are expected to graduate in 2014. TAUCHI is advised to increase the research output and PhD graduating rate relative to the last 6 years and to maintain a consistent output of graduating doctoral students.

Doctoral students from TAUCHI participated in short-length research visits overseas as part of collaborative research projects with TU Berlin, Stanford University, and IBM Research India, to name a few. While most of TAUCHI's doctoral graduates have continued their careers at UTA, one joined Tampere University of Technology as project manager, two accepted positions overseas (Google, USA, and Intel, China), and six pursued leadership positions in industry including initiating start-ups. TAUCHI is encouraged to recruit more international students and to help in the placement of more of its graduating students at prominent positions outside UTA, with the expectation that this would increase the national and international visibility and impact of TAUCHI's research.

Members of TAUCHI were successful in securing funding from a variety of sources (government, industry, and foundations) in 2010–2013 with an average funding of 2.2 Million Euros per year (57% Tekes, 23% Academy of Finland, 13% companies, 6% EU; 1% foundations and public funding). Funding levels have been increasing in the last two years (2012–2013) as compared to the previous two years (2010–2011). TAUCHI seems to be successful in attracting funding by collaborating with industry and other partners as part of consortia. While TAUCHI was able to maintain a relatively stable funding from the Academy of Finland, Tekes funding has been steadily increasing, which also reflects the focus of this unit on collaborative projects with industry with the potential for productization and technology transfer. TAUCHI was also successful in establishing an EU Network of Excellence (COGAIN) consisting of 25 partners from academia and industry collaborating on research related to interaction through gaze with a focus on helping and empowering people with disability. Although the funding period of the COGAIN Network of Excellence ended in 2009, this Network of Excellence led to the formation of a COGAIN Association which is continuing the collaborative research work laid out by the CoGAIN action.

Despite TAUCHI's network of more than 100 partners, funding acquired from the EU (6%) as well as from international companies is surprisingly low. For the future, strategies are required to raise funding

outside of Finland. As the interviews showed, TAUCHI is aware of this necessity and is preparing several proposals for the Horizon 2020 program.

The research output is largely imbalanced among groups in TAUCHI with the majority of the funding (more than 40%) and the majority of the highly cited publications being mainly produced by one group (The Multimodal Interaction Research Group). In particular, based on the information provided in the UoA Self-Assessment Report and in the provided CVs, the Visual Interaction Research Group shows a relatively low level of acquired funding during the last six years (2008–2013). The TAUCHI groups are advised to follow the lead of the TAUCHI Multimodal Interaction Research Group and strive to increase the quality and impact of their publications in addition to their level of research funding.

Based on the above, the rating is 3 (Good).

2.4 *Societal impact of the research*

The COGAIN EU Network of Excellence led by TAUCHI's Visual Interaction Research Group (2004–2009) energized 25 partners from academia and industry to come together and design interactive gaze-enabled communication technologies to enable people with disabilities. This EU Network of Excellence resulted in the creation of a COGAIN Association that is continuing the collaborative research work laid out by the CoGAIN action for designing gaze-based improved technologies for the disabled.

TAUCHI's Pervasive Interaction Research Group is developing pervasive interactive technologies to help educate illiterate people in developing countries in addition to pervasive communication technologies for mentally-challenged children, the elderly and youth. Members of this group are also involved in developing interactive technologies to increase the efficiency of industry workers and health-care professionals.

The research of TAUCHI's Emotions, Sociality, and Computing Research Group in the areas of emotions and social processes together with human-computer interfaces enabled interfaces and interaction methods that are based on emotional and social behaviour and methods related to emotion regulation in virtual environments.

The haptics research work of the TAUCHI's Multimodal Interaction Research Group enabled, in collaboration with Nokia haptics, technologies for helping the visually impaired (Tactile Braille) and for improving grasp force control in multiple sclerosis patients.

Overall, TAUCHI has successfully established interactions with different societal entities in various parts of the world and is actively collaborating with industry partners in developing solutions that benefit society in various sectors.

Based on the above, the rating is 5 (Excellent).

2.5 *Quality of the research environment*

TAUCHI has very good resources in terms of space and equipment for conducting research work in Human-Technology Interaction and related areas. In particular, the five research laboratory spaces, plus SimLab and Simspace, provide excellent infrastructural support for the research being conducted in

TAUCHI. Doctoral students also expressed being satisfied by the fact that they can freely pursue research ideas without limitations and that they are encouraged to independently conduct research without barriers. However, it became also apparent that students need to be allocated sufficient quality mentoring time from senior academic staff on a consistent basis with timely feedback on research they are pursuing and papers they are writing. In addition, doctoral students need to be better trained in working on and presenting high-quality research topics with the ability to clearly demonstrate the significance of their research relative to the existing state-the-art and how their research compares favourably to the state-of-the-art in their field of research. As stated earlier, doctoral students need to be better trained by their supervisors on how to choose a relevant and justified research topic and be discouraged from pursuing unjustified “already done” research or “implementation-type” projects for their doctoral research.

Based on the above, the rating is 3 (Good).

2.6 *Future potential of the Unit of Assessment*

According to its Self-Assessment Report, TAUCHI plans to pursue five goals in the near future, which are commented here on by the Panel:

- Increase European funding: “Financing is sought from many sources, most prominently Horizon 2020, the Academy of Finland and Tekes.” Especially the Horizon 2020 program is a promising source to participate in large-scale European project. However, competition will be fierce in Horizon 2020, and it will be difficult to be successful for a group working in isolation. Therefore, we suggest that a common strategy and support concept is established for the whole university and that the activities of all units applying for that funding are coordinated.
- More long-term visits by highly qualified researchers from abroad: “The unit strives to employ both long- and short-term guests and new postdoctoral researchers through European financing opportunities and FiDiPro projects.” While basic funding is mandatory prerequisite to draw researchers to TAUCHI, additional measures are needed to attract them as for example additional funding.
- International recruitment and long-term contracts to attract high potentials: “The goal is for 15% of the personnel to be professors and senior researchers; 25% postdoctoral researchers, lecturers, and senior assistants; 40% graduate students; and 20% students aiming for a M.Sc. degree.” TAUCHI is encouraged to improve diversity as part of its targeted recruitment efforts.
- Improve publishing: “The plan is to strengthen the established practice of focusing on high-impact journals. Conference papers will be extended and published in journals.” This goal indicates that TAUCHI has recognized a current weakness and attempts to improve its publishing activities. However, TAUCHI is encouraged to develop a concept of how to obtain the scientific quality that is required for such journals.
- Acquire the status of a “Center of Excellence” from the Academy of Finland. As a Center of Excellence TAUCHI will increase its visibility and its attractiveness. The status will definitely make it more attractive for high-potential researchers especially from Finland, but also from abroad. Additionally the resulting reputation is likely helpful to acquire funding.

2.7 Recommendations and suggestions

a) *What are the main strengths and weaknesses of the UoA?*

Strengths

- TAUCHI has good resources in terms of infrastructure (space and equipment) to conduct high-quality research.
- Some groups at TAUCHI succeeded in establishing a large network of contacts to companies and research institutions at national and international levels.
- Some groups at TAUCHI have acquired significant funding from national and public sources, such as the Academy of Finland and Tekes. However, more effort should be spent to get funding from the EU and from national as well as international companies.
- TAUCHI has a good mass of researchers in terms of professors, senior researchers, post-doctoral, and doctoral students.
- Some professors in TAUCHI are involved in service to the scientific community by serving on journal editorial boards and conference organizing committees.

Weaknesses

- The quality of the research mentoring of doctoral students and post-doctoral researchers is a significant issue that is seriously affecting the quality of the research conducted by doctoral students. The level of the research work that was presented to the panel is generally below the internationally-recognized quality for a PhD-level research and does not show the rigor and novelty required from a PhD-quality research.
- Low and inconsistent graduation rate of doctoral students.
- Low number of cited refereed papers in top-tier journals and conferences, and large percentage of uncited papers.
- Significant imbalance in the productivity of the groups at TAUCHI with some groups suffering from very low productivity in terms of recent refereed publications and funding relative to other more productive groups in the unit.
- TAUCHI succeeded in establishing a large network of contacts to companies and research institutions at national and international levels. However, this network should be used in a more productive way. In the future, collaborations should result in more international funding and in joint publications with co-authors from abroad.
- Lack of significant funding from the EU and international companies.

b) *What are the opportunities and challenges of the UoA?*

- Improve international visibility:

So far, TAUCHI's international visibility is rather low. Several measures can be taken to improve this. Professors as well as senior researchers should strive for more influential positions on editorial boards and engage in committees of international high level conferences. Students should be

encouraged and financially supported to visit research centers abroad for longer periods (i.e., 3 to 6 months) in order to start and maintain collaborations. Programs of the EU could be addressed to acquire financial support for such visits. For example, the Erasmus program provides a good way to exchange undergraduates, while the Marie Curie Program offers attractive opportunities to exchange doctoral students. Also, the number of visiting scientists should be increased by offering them research opportunities at TAUCHI for a limited time. Finally, all scientists and lecturers – and even master students – might be encouraged to improve their personal visibility by joining international research networks, such as ResearchGate and/or LinkedIn.

- Increase the participation in large scale European projects:
TAUCHI aims to submit several proposals to the Horizon 2020 program to raise more funding from the EU. Since competition will be very intense in that program, the success of a proposal will not only depend on scientific quality, but also on the reputation of the partners forming the consortium. Since TAUCHI will not be the only research unit facing these challenges, the management of UTA might define a strategy to support all units which intend to participate in Horizon 2020. This could include (a) the provision of financial resources to develop proposals (b) the setup of an internal consulting and reviewing process to ensure high scientific quality, and (c) support to acquire high-potential researchers from firms and academic partners that might serve as consortium members. In the long run, professors and senior researchers should be encouraged to serve as reviewers for programs such as Horizon 2020, in order to establish better connections to the European Commission and to gain valuable insights for future proposals.

c) Did you find research areas or research groups that stand out from the general level of the UoA?

In terms of scientific impact, the Multimodal Interaction Research Group led by Prof. Roope Raisamo has been successful in leveraging a significant amount of funding and in producing good-quality refereed publications in top level (JUFO levels 2 and 3) journals. The group established successful on-going collaborative partnerships with other academic and industry partners.

In terms of societal impact, together with the Multimodal Interaction Research Group, the Pervasive Interaction Research Group led by Prof. Markku Turunen is initiating several outreach efforts to help educate and empower disadvantaged children in developing countries in addition to the elderly, youth, and mentally challenged children. The group is also developing interactive technologies that help industry workers and health professionals with their tasks.

d) Did you find research areas or research groups that have potential to become international flagships in their research area?

The Multimodal Interaction Research Group led by Prof. Roope Raisamo has the potential of achieving international visibility and stature by keeping up and boosting their research productivity and by recruiting high-calibre well-trained doctoral and postdoctoral students and star senior researchers that can help push the group to the next level.

e) What measures should the UoA take to improve its performance?

- Systematic high-quality mentoring of doctoral and postdoctoral students is essential to improve the quality level of the research and to prepare the next-generation of high-quality researchers and innovators. Doctoral students are an important capital for research. Currently, 51% of TAUCHI's

academic staff consist of such young academics. To exploit the scientific potential of this promising group, special efforts should be dedicated to identify high potentials as early as possible, i.e., already among master students, to recruit the most promising of them as junior researchers, and to systematically mentor them and support them as effectively as possible in writing publications and finalizing their PhD thesis. Since only 7 doctoral degrees were earned in the period of evaluation, TAUCHI should devise a support concept which decreases the duration of doctoral studies while at the same time ensuring high scientific quality.

- Requiring academic staff to provide self-evaluation reports on a yearly basis to evaluation committees emphasizing productivity in high-quality refereed journals and conferences, funding and multi-disciplinary collaboration, doctoral mentoring achievements, prestigious service, and other major contributions.
- Attracting distinguished professors as short-term visitors to participate in the mentoring of doctoral and post-doctoral students.
- Actively recruiting post-doctoral researchers who already demonstrated high-quality research through high-impact refereed publications and who pursued their doctoral degrees as part of distinguished groups in the area of interest. These post-doctoral researchers can help in mentoring doctoral students on high-quality research standards.
- Targeting submission to top-tier journals and conferences and learning from unsuccessful submissions by taking steps to actively address raised issues and learn from them in order to raise the quality of the research.
- Actively presenting talks internationally at distinguished universities and meetings about research conducted in the unit in order to get feedback from distinguished peers and also increase the international visibility of the conducted research.
- Active participation in collaborative research networks and consortia inside and outside the university/nation.
- Increasing the diversity of hired academic staff and researchers by providing incentives and actively recruiting international researchers and leaders from distinguished places.
- Active involvement of senior researchers at TAUCHI in prestigious service at the international level including serving as members of the organizing committees of prestigious international conferences, editorial board of journals, and technical committees of professional societies.

3. Information and Media (UoA9)

3.1 *Volume, profile and organisation of the research*

Research profile and organization

The Tampere Research Centre for Information and Media (TRIM) was created in 2009, as a merger of two units: the Department of Information Studies and the Hypermedia Lab. In addition, the University reorganized its schools in 2011. With these two recent organizational shifts, the group has done a good initial job of establishing its research profile; however, it also has some potential for continuing shifts in its internal structure (and for coordinated re-combinations with the two other centers within SIS) that may further improve its research capability. For example, there are potential collaborations possible between each of the three TRIM research groups and TAUCHI, and there is great potential for collaboration between FIRE and the data mining initiatives in CIS.

TRIM currently consists of three research groups. The Finnish Information Retrieval Expert (FIRE) group was originally founded in 1991 and currently includes 10–15 academic staff. Its research focuses on task-based and interactive information retrieval (IR); XML IR; cross-language IR; and IR evaluation methods. Its portfolio consists primarily of basic research, with an interdisciplinary emphasis.

GameLab was originally founded in 2002 and currently includes 15–20 people. Established in the same year as the launch of the academic discipline of game studies, the research focus of this group reflects the interdisciplinary approach of this field of study. The academic focus of the group follows two clear trajectories – an engagement with the study of social and cultural aspects of games as a contemporary play form, and design based research. The year 2002 also saw the development of the first academic journal with a focus on the study of computer games and play (*Game Studies*) with a second journal launched in 2006 (*Games & Culture*). The lead professor in this group was also a founding member and first president of the academic association which supports the development of the research field (DIGRA).

The Research Group for Information and Media Practices (RIME) was originally founded in the 1990s and currently includes 10–13 academic staff. Its research areas seem to be a bit less focused than the other two groups, including studies in information seeking and use, information literacy and informed learning, and electronic records management. Their research portfolio includes a wide range of studies, from more basic research to very applied research.

The School's three research focus areas for 2015 are (1) data (data storage, IR, and data analysis), especially "big" data; (2) games (including game design and the effects of gaming); and (3) interaction (including new interaction modalities and the social aspects of information interaction). GameLab will clearly take a leading role in the second focus area; it is not as clear that FIRE and RIME will play important roles in helping to achieve the School's strategy. While FIRE will likely be involved in the planned research on data and RIME will likely be involved in studies of the social aspects of information interaction, the School may not be benefitting fully from the strength of these two groups by not calling on them to play leadership roles in the near future.

Volume of research

The members of TRIM have been quite productive in publishing their work: 295 refereed scientific articles appeared during the study period. This is an average of 8 refereed publications per academic staff member (almost two publications per person per year). This volume of publications is comparable to expectations in this field in other countries.

In addition, TRIM has had good success in applying for and receiving external funding. During the study period, they received a total of about 5.5 Million Euros. Of this, 43% came from grants from the Academy of Finland and 35% in grants from Tekes. Of the 30 proposals submitted to the Academy during this period, 43% were funded; of the 23 proposals submitted to Tekes, 77% were funded; and of the 5 submitted to EU funding sources, 20% were funded. This level of success is noticeably above average for all three major funding sources. Until 2012 funding was also obtained from the EU. The Horizon 2020 program, addressed in collaboration with other units in SIS and across UTA, might be a good opportunity to return to the former success. See comments earlier regarding the development of a School strategy in relation to EU funding.

While this level of success is quite good, we believe that TRIM has even more potential for success. Specifically, we found the presentation of the group's research contributions to be weak (at all levels, from the group leaders to the students presenting posters). With some coaching for both writing and orally presenting their research, we believe that TRIM can be even more successful in obtaining external funding and increasing the impact of their work. See also earlier recommendations in relation to mentoring and support for researchers.

3.2 Scientific quality of the research

Each of the three research groups in TRIM is well-established, and has been conducting research in its own field for 10–20 years. One of the notable commonalities across the groups is the relatively high proportion of publications in the newly-defined Finnish Publication Forum Project's level 3/top (40 of the TRIM papers, almost 10% of the 423 group publications identified in the analysis by the UTA Library). While it is acknowledged that other SIS research centers (TAUCHI and CIS) suffered in this analysis due to the low classifications of some of their most significant conference publication venues, it is noteworthy that TRIM has already established themselves in a number of highly-regarded publication venues.

The citations to these publications will be discussed in detail below (in Section 3.3), but they should also be mentioned here, since citations to a publication are evidence of its quality as well as its impact.

The FIRE group is internationally-established as conducting high-quality research in task-based and interactive IR research. They regularly publish in top-quality venues, such as the *Journal of Documentation*, the *Journal of the Association for Information Science and Technology*, and *Information Retrieval*, as well as highly-regarded conference proceedings such as ACM SIGIR, CIKM, and IIR. In addition, Järvelin was co-author of a leading textbook presenting an integrated model of information behaviors in context (Ingwersen & Järvelin, 2006). Their work on metrics for evaluating IR systems has been widely-adopted in many contexts, including the annual Text Retrieval Evaluation Conferences (TREC) administered by the US National Institute on Standards and Technology.

Going beyond the traditional focus of IR research, this group also reaches into the human/social side of information search. Vakkari's longitudinal studies of information seeking in context have been an internationally-important contribution to our knowledge of information seeking processes that people use "in the wild" and help to inform the design of IR systems and other types of information seeking support.

Game Studies is a very new international discipline with a preponderance of young scholars and few full professors. Traditional research councils have been slow to recognize the field partly because of the absence of senior researchers to act as reviewers of proposals or advisors when research councils have been setting their priority areas. This picture has started to shift and you can see this reflected internationally (in Canada the SSHRC has recently funded a raft of projects in this field and in the UK the AHRC launched a priority funding call for Video Games in 2013). In Finland it appears that Tekes has been quicker to adopt this area for strategic investment. In such a new field initial inclusive practices around conferences, symposia and publication have often worked against the establishment of clear quality thresholds. This has slowly changed over the past 10 years with a number of key journals and publishers positioning themselves as leaders in this area. As scholarship has developed, there have been a number of international nodes of excellence and influence – Tampere and the GameLab have had a key position in this area. In the first 8 years, the GameLab played a significant role in terms of postgraduate teaching (master courses which offered the opportunity for theses in the area of game studies) and postgraduate research – a number of doctoral opportunities in this area, 5 completed PhDs in the census period with 14 ongoing.

There are no 'top' ranked journals related to this field but there are a number of journals ranked as 'leading' – notably *Games Studies* online journal and *Games & Culture* published by Sage. The main conference in this field is the now annual Digital Games Research Association conference (DiGRA) where the peer reviewed proceedings receive a ranking of 'basic'. This research group's members are publishing regularly in these key influential publications. These current ratings are likely to improve as the field matures. The group has very recently edited two special issues of the *Transactions of the Digital Games Research Association* journal which is currently unrated but likely to eventually achieve a top ranking.

Also significant are a monograph that is a key introduction to the field of Game Studies (Mäyrä) and a multi-authored volume which was produced through an international funded research collaboration (Montola, Stenros & Waern) that came to an end at the start of the study period. The collaboration took place between 2004 and 2008 and received funding through the EU sixth framework and involved designers (Blast Theory amongst others) and researchers from UK and Sweden and secured industry participation from the Nokia Research Lab. This single project produced over 50 publications across the consortium and led to this volume which remains the only book length study on the subject of Pervasive Games. This engagement with design as a research method continues to inform a number of ongoing projects particularly the recent Tekes funded collaboration Free2Play (408,000 Euros). These initiatives, by facilitating interdisciplinary collaborations and securing international participation and visibility, contribute to the development of the quality of the research and increase the range of esteem indicators generated by the research participants – e.g., Invitations to keynote, guest lectures, editorial positions, industry consultations.

The RIME group covers at least a couple of research areas: information behaviours/practices in everyday life, and the role of information literacy in learning. Savolainen is internationally known for his work in developing a theory of everyday life information seeking processes, explicated in his influential and frequently cited 2008 monograph. In addition, he has published a number of important contributions to the empirical literature in leading journals, such as *Journal of Documentation*, *Journal of the Association for Information Science & Technology*, and *Library Quarterly*. Sormunen has been more prominent in investigating the role of information literacy. While he has not yet achieved international prominence in his work, he is publishing in top-level journals such as the *Journal of the Association for Information Science & Technology*.

While the research conducted by the TRIM groups is highly respected, being published in high-quality venues, and having an impact on researchers in similar groups, we believe that they have the potential to aspire to even more innovative and impactful research. For example, the FIRE group has focused their IR work primarily within the traditional IR community (as represented, for example, by ACM SIGIR or ECIR), but it would be more significant if they could/would integrate the latest findings from database-system research. In general, the TRIM research would benefit from making competitive comparisons against the best known techniques, both from within their own sub-disciplines and other related disciplines.

Based on the above, the rating is 4.5 (Very Good to Excellent).

3.3 Scientific impact of the research

Two sets of bibliometric analyses were provided to us, helping to quantify the scientific impact of the TRIM research (in terms of citations from other publications). In the CWTS analysis, 54 WoS publications were included. The mean normalized citation score for these publications was 1 (in Table 1, though it is shown as 0.95 in Table 2), indicating that these publications are being cited at a rate comparable to others in the same field. The analysis found that five publications (9.7%) are among the top 10% most frequently-cited publications in this field. It is interesting to note that all the authors on all five of these publications are from the University of Tampere; one would expect that international collaborators would increase the citations to a work, but that is not the case for these publications. Finally, it should be noted that only 25.9% of the publications analysed have not yet been cited; this is a relatively low proportion of uncited publications.

The analysis conducted by the UTA Library used Scopus as a data source, rather than the Web of Science. This analysis may be a more complete representation of TRIM's work, since Scopus does a better job of including conference proceedings, which account for about half of the group's refereed publications. 139 publications were identified in Scopus, and so form the basis of this analysis. Of these publications, 40 (29%) were level 3 publications as designated by the Finnish Publication Forum Project. The full set of 139 publications received 331 citations, i.e., 2.4 citations per publication. About one-third (33.8%) have not been cited yet.

From these data, we would conclude that the research produced by TRIM is having significant scientific impact. While citation rates in fields that are larger overall and include more co-authoring in their publishing practices would be expected to be higher than the rates noted here, the number of citations being received by TRIM publications is comparable to those found among US scholars in information science (ranging from 0.4–3.3 citations per publication, depending on the publication venue and faculty

rank; Shaw & Vaughan, 2008). The same study found that 63% of information science faculty publications go uncited during their first five years. While comparative data for faculty in games research may vary somewhat, it is clear that TRIM, overall, is having significant scientific impact.

In addition to the bibliometric analysis, scientific impact can be evaluated in terms of participation in work as members on editorial boards or as conference chairs. Academic staff from all three groups within TRIM have participated in this way, editing top-tier journals such as *Games and Culture*, *Human IT*, *Information Processing & Management*, *Information Research*, and *Journal of Documentation*, and chairing or presenting keynotes at conferences such as the Digital Games Research Association (DiGRA) annual meeting, the biennial conference on Information Seeking in Context (ISIC), the European Conference on Information Retrieval (ECIR), and the International Association for the Development of the Information Society (IADIS) Mobile Learning Conference.

In addition, particular findings generated within the three groups have had significant impact in their respective fields. For example, the FIRE group developed a key metric for evaluating IRG systems: the normalized discounted cumulative gain (nDCG) metric. The GAME group can be said to have developed the field of game studies as an entirely new discipline. Researchers within the GAME group also published the most influential key work on the design and study of Pervasive Games that remains a foundational text for all research in this area. A further key area of impact is the development of a theoretical basis for the further study of everyday life information seeking and work on the role of information literacy in learning tasks by the RIME group.

While this unit has made significant contributions, it also has opportunities for having an even greater impact in the future. We would encourage the FIRE group to publish its work in major non-IR venues in order to increase its visibility among people working on similar problems in related fields; they should compete with all comers, not just the IR community. We would encourage the GAME group to consider making stronger and more visible connections with international communities of scholarship in related areas. For example it was not evident from the Self-Assessment Report or the visit the extent to which the gamification priority area staff were directly linked to the communities of scholarship at gamification-research.org nor the extent to which they had sought out collaborations with others in this area. It may be useful for the group to organize conference panels, symposia and research seminars in key areas to invite leading researchers to their community and to establish their authority in the field anew. We would encourage the RIME group to focus and consolidate their research interests more than is possible currently; in this way, they can make more concerted efforts in fewer directions and will likely have more impact.

TRIM has been graduating 2–4 doctoral students per year during the assessment period (total 14). Of those who have graduated in this period one is an Academy of Finland postdoc in TRIM, and two others are postdocs in Brazil and Sweden. The largest single employer of TRIM doctoral graduates is the UTA, others have been employed in academic and professional positions elsewhere including one start up in the creative sector.

Based on the above, the rating is 4 (Very Good).

3.4 Societal impact of the research

In 2010–2013, TRIM researchers have received funding from Tekes (1.920 Million Euros) which requires industry collaborations and has a strategic role in supporting research with an immediate or potential economic or social application. FIRE basic research into the creation of IR system components and evaluation methods has resulted in the development of real-life information systems and work-practices. The project was based on seed funding provided by the Ministry of Social Affairs and Health and led to an Academy of Finland funded project which engaged partners from cities throughout the Tampere region and involved a collaboration between researchers in information systems and researchers in social work. The project produced new guidelines for the improvement of client information systems in order to better support the social worker practices in relation to the child protection.

The GAME group has received 2.2 Million Euros in funding from Tekes over the assessment period which supported 11 projects to develop insights in understanding game play behaviours, games' industry practices and to foster innovations in game design in general. The GAME group have been influential in drawing attention to the economic importance of the games industry locally and were awarded the Tekes VERSO 'Best Research Group' award in 2010.

The GAME group has been called upon as experts to provide commentary and guidance on issues around gender inclusivity in the games design community and within games representation, and the Finnish Player Barometer survey has been influential in shaping policy and investment practices in relation to the national games industry.

The RIME group has also worked directly on applied projects which have received funding not just through Tekes but also through business (e.g., Metso, KONE, Yara & Telia Sonera) to support projects that improve operations and marketed products in these partnered organizations. Courses on information literacy have been developed by this group in partnership with the City of Tampere (*Mastery of Knowledge*) and this area of expertise has informed the development of an online tool *Opeka* as a means through which to measure and understand the adoption of online and other ICT tools within local schools. This is also available as a means through which to compare this activity within and across different schools locally and nationally with an impact on investment and development in this area to support more consistent use practices.

TRIM as a whole needs to develop a clear strategy and relevant mechanisms through which to identify the potential for societal impact, to ensure the research reaches the relevant target group and that the impact is then evaluated and disseminated widely.

Based on the above, the rating is 3 (Good).

3.5 Quality of the research environment

TRIM is directed by Jarmo Viteli, assisted by a steering group. Each of the three research groups is led by a Professor with an international reputation. The three groups interact with each other in a variety of ways, on both research projects and in offering the MSc in Information Studies and Interactive Media.

The Self-Assessment states that "the combination of senior and junior researchers is well-balanced," and we observed evidence to support that assertion. The 15 key publications identified by the groups included both senior and junior researchers as authors. Doctoral students reported that they are involved

in writing grant proposals with more senior staff and receive strong supervision from their advisors. The doctoral students are empowered to organize and host small local conferences on site, thus providing leadership to their peers in other Finnish universities. While the junior researchers would benefit from internal funding available for long-term visits to other countries and research groups, they do receive support to attend conferences at which they are presenting their work. From this evidence, we would conclude that the working atmosphere within the unit is stimulating and collegial. The poster presentations during our site visit allowed junior researchers, including doctoral students, to showcase their work, and they were well able to discuss it with the assessment team. However, as noted previously, we found the presentation of the group's research contributions to be weak (at all levels, from the group leaders to the students presenting posters). Some coaching and mentoring is needed to improve on the research presentation skills, which can help in increasing the impact of the work.

Each of the groups also contributes in some way to the culture of TRIM. For 10 years, Gamelab has hosted a spring seminar where researchers from around the world submit work in progress projects to a mixed group of early career researchers and more senior and more experienced members of the games academic community. These seminars have served to position the GameLab community and the junior and more senior colleagues there at the center of debate within the field. Hosting key conferences such as NordicDiGRA (2013) has also played a part in maintaining the reputation of the research community and fostering an environment of international exchange and high level debate. This most recent conference has also led to a special issue of the newly launched ToDIGRA journal which was published after the census date in March 2014 and edited by members of this research group. Similar efforts can be seen in the RIME/FIRE leadership of the Memornet doctoral program, focusing on researchers engaged with cultural heritage and memory institutions. With funding from the Ministry of Education and Culture, students from six universities in Finland have participated in the program since 2012, and it will continue into 2015. In addition, the three groups each hold monthly post-graduate seminars in which doctoral students can discuss and refine their work.

As indicated in the discussion of the research volume, TRIM has been quite successful in achieving funding from both the Academy of Finland and Tekes. There is no reason for us to expect that this success would not continue; however, there is still a clear challenge in terms of achieving large scale grants across the centers and in securing EU funding in the future. See further recommendations below.

The School's physical facilities appear to be adequate to support the research needs of TRIM. Of particular note is GameLab's use of physical space in SIS to try out some of their ideas, e.g., in the OASIS. It seems likely that additional lab spaces might be useful to the group; for example, a usability lab for capturing people's interactions during search or a room optimized for focus groups. While some of these capabilities are available within the School (in the TAUCHI labs), the School might want to consider gaining resources (external or internal) that could further develop their lab facilities.

As noted in the Dean's presentation, SIS is a member of the iSchools organization. This membership, along with other relationships with schools in other countries, positions SIS within a world-wide community of schools with similar interests. This opens the door for attendance at and participation in the annual iConference and other opportunities for collaboration.

As noted in the Self-Assessment, the one activity lacking in the TRIM's portfolio of research activities is a very large-scale grant. FIRE and RIME collaborated on a proposal for a Center of Excellence in 2010, but it was not funded by the Academy. Fortunately, they have made some progress in that work

over the past few years (with an article soon to be accepted in ACM's *Transactions on Information Systems*). However, we would encourage them to try this avenue of funding again. To be successful, they will need to tell a coherent story about the contributions to science and to society that can be made by such a center, and form a strong and cohesive group of researchers to participate in that endeavour.

Another weakness is that there is less international participation (both incoming and outgoing) in TRIM research than might be desirable. While this lack of international collaborative authorship has not seemed to have a negative impact on TRIM's scientific impact (as measured by citations), it is likely limiting their impact in other ways.

Based on the above, the rating is 4 (Very Good).

3.6 Future potential of the Unit of Assessment

In general, TRIM is already achieving much of its potential. Its research is addressing important questions, is of high quality, and is having the expected scientific impact. Its research environment is fairly strong, and supports the current lines of research. It is able to recruit high-quality doctoral students, though could do more to recruit academic staff from other institutions or countries.

While each research group within TRIM is relatively successful in its current emphases, we also see several opportunities that have the potential to improve its research profile and impact. Each research team will be discussed in turn.

FIRE's current research focus is on task-based and interactive IR; XML IR; cross-language IR; and IR evaluation methods. These continue to be important aspects of IR research and should be maintained. In particular, the most recent work on task-based IR and IR interactions should be pursued. The Information Interactions in Context conference and Computer-Human Interaction and IR workshop are poised to merge in 2016, and the work of FIRE will have an important impact on this sub-discipline.

As noted above, one way in which FIRE might have more impact is to interact more with the closely-related discipline of database-system research. Stretching themselves in this way is likely to have two benefits. First, it would improve the quality of their work by encouraging them to look at their research questions from a new perspective. Second, it would improve the visibility of their work in a closely-related community.

During the research assessment visit, Professor Mäyrä listed the 24 new publications produced by this group between the census date and the RAE visit. Of this 24, 7 are peer reviewed conference proceedings, 7 are articles in journals and 7 are under review with journals, 2 are chapters in edited collections and 1 is a book review. 6 of these recent publications appear to be outcomes from a new priority area in Gamification. This level of activity seems to suggest that there is significant potential in this group to retrieve a key position as an international center for the study of games. The group has also begun to publish outcomes for the recently funded Free2Play project which was launched in May 2013. The project tackles four lines of inquiry: 1) understanding consumer behaviour, 2) case studies on best practices of the service design, 3) player experiences, and 4) comparing free-to-play games and new forms of gambling games.

The project has an industry facing dimension as it will provide information on the most playable and successful Free2Play models and share information on the funding and business development models

which support this activity. It will also contribute new ethnographic based outcomes in relation to player behaviours and cultural experience. The move into studying gambling games from a less pathologising perspective is likely to attract significant academic and more popular attention.

Gamification is also an increasingly significant and related area of research within the wider games community and the ongoing projects within GameLab suggest some potential to make a contribution to this field of inquiry with over 50 publications current and forthcoming. To fully capitalize on this potential, the research community needs to foster further collaborations both locally and internationally. There is some untapped potential within TRIM, in close neighbour TAUCHI and through research and publication collaborations beyond Finland. The forthcoming eleventh Spring seminar in 2015 is an opportunity for this research to be profiled to an international group of scholars.

Individual researchers within RIME are strong, both methodologically and substantively (i.e., they are asking interesting research questions). However, they have the potential to make even more important contributions if they work together to define a more cohesive research strategy. The professors working in RIME are interested in information seeking and use and the role of information literacy in learning of other kinds. The leadership of SIS and TRIM should consider whether these interests can be formed into a more cohesive strategy, or should be re-organized as separate units or combined with other groups in TRIM or SIS. These are long-term decisions, and so do not need to be made quickly; but the strategy and core research interests of this group should be considered carefully in five-year and ten-year plans.

There are other potential opportunities for collaboration across units within SIS that do not appear to have been leveraged. Some of these appear in the documentation we received, but there is little evidence that they have been implemented. They include collaborations between FIRE/TRIM and CIS on data analytics and data mining; between GameLab/TRIM and TAUCHI on interaction design; between RIME/TRIM and CIS on the analysis of interaction data; and between RIME/TRIM and TAUCHI on the development of information ergonomics as a program of research. It is not at all clear that these collaborations would lead to increases in external funding or scientific/societal impact, but they have some potential to do that. Again, these are possibilities in the long-term, and are not suggested as immediate changes in the groups' structures or work practices.

Another opportunity for TRIM, and for SIS as a whole, is to more closely align its research emphases with the University's mission. The University's educational and research strategy focuses on two areas: society and health. Information can play a key role in both the improvement of society as a whole and in the improvement of people's health and the healthcare systems that serve them. While we would not encourage TRIM to focus solely on these areas, we do see opportunities for collaborating with other schools at UTA to address these University goals.

One of the challenges that SIS is facing is a fairly high number of retirements over the next 5–10 years. Losing a significant number of senior staff may have negative impacts (e.g., loss of leadership in existing research projects and lowered potential for external funding), but also provides opportunities for some of the restructuring and realignment discussed above.

For TRIM to achieve the level of internationalization set out in their five-year strategy we would recommend the following actions:

- More consistency in the presentation of the Unit's research internationally to increase this high level visibility of the conducted research.

- Further enhance the active participation in collaborative research networks and consortia inside and outside the university/nation.
- Increase the diversity of hired academic staff and researchers by providing incentives and actively recruiting international researchers and leaders from distinguished places.

TRIM has expressed an ambition to enhance their physical resources and to use those already in place more effectively, however the panel also advises that TRIM considers how they could collaborate with TAUCHI in order to secure access to their relevant research labs.

3.7 Recommendations and suggestions

a) What are the main strengths and weaknesses of the UoA?

Strengths

Publication record (volume and venues) and scientific impact. As mentioned above these research groups are targeting the right journals and conferences in order to secure visibility and influence for their work. The junior researchers, postdocs and PhDs are also being exposed in these venues through vertical collaborations within the individual clusters. Further international collaborations (such as the Pervasive Games volume) would further secure this strength.

Clearly motivated and engaged doctoral students; probably related to vertical collaboration and their direct involvement in organization and planning of external events. TRIM's research has clearly benefited from close collaborations between doctoral students, postdocs, university lecturers and the professors.

Weaknesses

Despite a high level of success in attracting funding from beyond the Academy for work with a potential for economic, social and cultural impact this was not demonstrated as fully as we might have expected. On the basis of the evidence it would appear that there is less societal impact than might be expected; that there appears to be a somewhat narrow focus of application areas. This may be more an issue of how these impacts are tracked, evaluated and disseminated. There may indeed be much more evidence of impact than we saw but it has not been aggregated and profiled adequately.

Lack of internationalization in some groups; more external visitors and more visits abroad, for scholars at all levels (particularly PhD students and postdocs), are needed. TRIM needs to share strategies and resources for the development of international collaboration. There are some areas where this is much stronger than in others.

b) What are the opportunities and challenges of the UoA?

Opportunities

Potential for collaboration because of breadth of skills and research expertise. This breadth drives the potential for the TRIM cluster to be more fully aligned and seriously contribute to the development of the creative sector in Finland (<http://www.creativeindustries.fi/>). The staff expertise and the combination of potential to support and enhance value capture and value creation are seen as key drivers

of innovation. See for example the UK based Fuse Report which is currently driving research and industry investment (<http://www.ahrc.ac.uk/News-and-Events/Publications/Documents/The-Brighton-Fuse-accessible.pdf>).

Challenges

Develop a clear strategy for research profile/priorities. This may require re-organization. TRIM has a multitude of potential areas for development and not all of these can achieve the level of support and funding required. TRIM must agree on shared areas of priority, establish clear goals and performance indicators and continue to reflect upon and evaluate the success of the measures put in place.

One quite straightforward action could be school-wide work in progress and showcase events through which possible school-wide consortia or colloquia could develop.

The GAME group needs a more sustainable leadership profile. One lone professor weakens the group and limits the potential for distributed leadership and external funding support. The relative youth of this disciplinary area is reflected in the profile within the group but needs some support to achieve full potential.

c) Did you find research areas or research groups that stand out from the general level of the UoA?

The GAME group established an early leadership position in their field; to support this and to renew and sustain this position, there needs to be greater breadth in leadership and the unit could benefit from developing some priority areas and a clearer focus.

RIME has some individual scholars who are internationally-known with clear evidence of influence and reputation in their relevant fields. However, the group needs to be aligned in such a way as to facilitate collaborations that will ensure the further vertical integration within the group.

d) Did you find research areas or research groups that have potential to become international flagships in their research area?

The FIRE group is already internationally established with some key leaders in this field, publishing in the top journals and being invited to keynote at the most significant conferences in the field. Their work is particularly strong in relation to the evaluation of IR systems. Another flagship area is the field of information seeking in context.

e) What measures should the UoA take to improve its performance?

- Provide systematic high-quality mentoring of doctoral and postdoctoral students to improve the quality level of the research and to prepare the next-generation of high-quality researchers and innovators.
- To exploit the research potential of this promising group, dedicate special efforts to identify high-potential researchers as early as possible, i.e., already among master students, to recruit the most promising of them as junior researchers, and to systematically mentor them and support them as effectively as possible in writing publications and finalizing their PhD thesis.
- Provide staff development opportunities that support more senior level staff particularly as it relates to the presentation of the significance and contributions of their research.

- Work with the university to ensure that PhD supervisory activities are directly included in individual workloads. There is no single international standard in this area but in the UK many institutions are moving towards an agreed workload that recognizes the importance of this activity and therefore provides a mechanism that makes this visible.
- Require academic staff to provide self-evaluation reports on a yearly basis to evaluation committees emphasizing productivity in high-quality refereed journals and conferences, funding and multi-disciplinary collaboration, potential societal impacts of their work, doctoral mentoring achievements, prestigious service, and other major contributions.
- Attract distinguished professors as short-term visitors to participate in the mentoring of doctoral and post-doctoral students.
- Actively recruit post-doctoral students who already demonstrated high-quality research through high-impact refereed publications and who pursued their doctoral degrees as part of distinguished groups in the area of interest. These post-doctoral students can help in mentoring doctoral students on high-quality research standards.
- Consider the efficacy of existing research structure within the Unit. What more could be done to support synergistic collaborations within TRIM and across SIS?
- Leverage funding opportunities to be able to host regional and international events to showcase their research leadership. For example, thematically-driven versus cluster-driven research activities: seminars, colloquia, symposia could be the mechanism to identify synergies and potential for joint funding endeavours.

4. Information and Systems (UoA10)

4.1 *Volume, profile and organisation of the research*

The Research Center for Information and Systems (CIS), founded in 2011, is one of the three Units of Assessment within the School of Information Sciences. The current staff is around 48; of these 9 are professors, 11 are university lecturers / senior researchers, 6 are post-doctoral researchers and teachers, 18 are junior researchers / doctoral students and there are 4 additional academic staff; around 50% of the staff hold teaching positions, and so between 50–75% of their time must be devoted to teaching duties.

During the assessment period, the UoA produced a total of 541 publications, 360 of which were peer-reviewed articles. Of these around 16% fall into the category of being a leading scientific publication (JUFO level 2) and around 4% are in the category of the top publications (JUFO level 3).

Total research funding for the census period 2010–2013 has been 3.820 Million Euros; some 42% of this has been from Tekes, 16% from the most prestigious source namely the Academy of Finland, 30% from public funding and foundations, and 12% from Finnish firms.

Research is performed in 4 main areas:

- Data Research involves some 26 staff and is the largest of the four areas.
- Information Systems involves 9 staff and has attracted the bulk of the funding for this unit; it seems to have attracted around 3.5 Million Euros.
- Mathematics and Theoretical Computer Science involves 15 people and is the second largest area; external funding for this area seems problematic.
- Software Development has 7 staff members with almost all being involved in the other research areas.

It should be noted that some staff are counted in more than one area. Also note that on the census day, there was low activity in Statistics, although that subject was part of the scope of the UoA both before and after the census day in October 2013.

Members of this Unit of Assessment can evidence a number of indicators of esteem: apart from prestigious publications, members of the unit serve on the editorial boards of a number of leading journals, on programme committee of international conferences. Furthermore, they have assisted in the Informatics Olympiads, and they have acted as consultants for the Ministry of Transport and Communications which is preparing a national strategy for Big Data utilisation within Finland.

The University's aims of the research assessment exercise include an emphasis on the impact of the research on society, on strong contributions to economic growth, on innovation, and on reduced fragmentation of research. Within the unit, the research could be seen to straddle logic, mathematics, statistics, computer science including programming and software development, information systems, health care, information retrieval, databases, big data, machine learning / intelligence, and even education.

During their visit, the Panel made suggestions whose purpose was to present the activities in a way that could benefit the research and heighten the profile of activity in the eyes of external agencies (e.g., potential students, industry, potential funding agencies). These included:

- Rationalizing the database and information retrieval activities across UoA8, UoA9 and UoA10 so that there was a focus on this in one UoA.
- Rationalizing the database and information retrieval activities across UoA8, UoA9 and UoA10 so that collaboration and synergy would be encouraged in their approach to these research areas; re-organization of the units may be one approach to achieving this aim.
- Recognizing that the successful eHealth activity would result in concerns about trust, that security and privacy constituted a huge activity which just had to be addressed and that the mathematicians could play an important role in supporting a significant trust/security/formal methods/privacy activity.
- Noting that the Big Data activity has the potential to pull together much activity within CIS and across the three Units of Assessment (UoA8, UoA9 and UoA10) and could contribute to creating a valuable emphasis on machine learning / machine intelligence and other work in systems and algorithms suitable for processing large datasets.

4.2 *Scientific quality of the research*

Based on the Web of Science (WoS) data, the CIS group of 48 researchers produced 88 publications (mainly authored by 28 of the 48 researchers) that were included in the analysis (see bibliometric analysis conducted by CWTS). Based on the Scopus data, the CIS group produced 108 refereed journal articles, 85 proceedings papers, 4 refereed book chapters, and 2 refereed reviews, amounting to a total of 199 publications that were included in the analysis (see bibliometric analysis by the UTA Library).

While the volume of publications is relatively high, the number of corresponding citations is somewhat low. Based on the WoS data, the 88 publications were cited an average of 3.1 times each. When normalized to international level in the particular WoS field, the mean normalized citation score is 0.7 (1.0 is the world average). The proportion not cited at all is 55.7%. Based on the Scopus data, the 199 publications were cited an average of 2.6 times each. There is no calculated normalized mean citation score that accounts for field differences with Scopus data. The proportion of publications not cited at all is 59.8%.

Based on the above, the rating is 4 (Very Good).

4.3 *Scientific impact of the research*

Neither the standing of the publication outlets nor the citation counts provide positive indications about the impact of the research. The journals that are used would generally not be regarded as the top computing journals internationally, and consequently the work is not obviously drawn to the attention of the international research community. The relatively low citation counts would tend to confirm this.

It is noticeable that the unit has attracted no European funding or funding from international bodies. That reflects poorly on the scientific impact of the research activity. International visits/ visitors do take place but the volume of activity is low.

Funding within the group tends to be mainly with the Information Systems group; during 2008–2013, the eHealth initiative attracted around 1 Million Euros and the research on information, customer and innovation management attracted 2.5 Million Euros. The amount being attracted by other groups is low.

Based on the above, the rating is 3 (Good).

4.4 *Societal impact of the research*

The major societal impact has been from the Information Systems, which has attracted the bulk of the external research funding. The eHealth initiative has contributed to the development of a national health information system. There has also been a contribution to teacher education from the research staff in mathematics, who have been active in popularising mathematics and active as trainers in the Mathematical Olympiad.

In addition staff members have been involved as consultants for government plans, e.g., in the “big Data” working group of the Ministry of Transport and Communications.

The existence of the TUPA (Statistical Research Service) is a positive development and it provides statistical consulting service for companies. Of course, this development has the potential to work against the pursuit of research and must be managed carefully: there is a risk of becoming a “service unit”.

There is inadequate evidencing of societal impact and this is an area where this research center could be much more central to the overall research trajectory of SIS and the university. If funding and internationalization ambitions are to be met, there needs to be a much clearer sense of the value and contribution of the research both in terms of its real-world application and in relation to speculative research.

Based on the above, the rating is 4 (Very Good).

4.5 *Quality of the research environment*

The volume of activity and the number of researchers involved (32% female) is a positive indicator regarding the environment. The facilities are good and there is some international activity involving both incoming visitors attending and also staff visiting other institutions although there is scope for increasing this.

The Self-Assessment produced by the unit raises a number of matters that need to be investigated: there is no unit-wide approach to seeking funding; some senior researchers spend excessive time with external collaborators – there is an issue of balance here; funding for research students is not easily available; demands of teaching appear to detract from research; promotion seems to be about waiting till a professor has retired.

Based on the above, the rating is 4 (Very Good).

4.6 Future potential of the Unit of Assessment

The topic of Big Data would appear to be an area of research that could serve to strengthen the ties between the different groups within the unit, as well as other units of the School. The fact that the unit has representation within the national planning activities is a very positive opportunity.

Attracting additional funding, especially from European and international sources should be seen as an important goal. This ought to strengthen international links.

Promoting the work of the unit internationally through publication and choice of publishing outlets needs to be seen as a priority. These efforts could increase the unit's potential for external funding, particularly international funding.

4.7 Recommendations and suggestions

a) What are the main strengths and weaknesses of the UoA?

A strength

The number of refereed scientific articles from journals (A1) publications (161) and the number of refereed articles from conference proceedings (A4) publications (174) is impressive. The number of refereed articles in edited books (A3) publications (20) is also impressive (see bibliometric analysis by the UTA Library).

Both Strength and Weakness

UoA10 covers a very broad range of subjects, typically three separate departments at other universities. These departments are Computer Science, Mathematics, and Statistics. This organization represents both a strength and a weakness. It is a strength in that a number of areas of great importance these days cut across these subjects. For example, “machine learning” is a subject claimed by both CS and Statistics, while some questions in theoretical CS, e.g., the famous “P=NP?” problem, are now regarded as among the most important open problems in Mathematics. However, by combining these subjects into one unit, the total staff remains tiny compared with what would be normal for a school the size of SIS. It also puts a burden on the administration to deal with the different cultures of the three areas. For example, in CS, leading conference publications and important artifacts (e.g., publicly available software tools) are the measure of research quality, while the other two areas focus on journal publications.

Weaknesses

- Table 3 on page 5 of the UoA10 bibliometric analysis that is produced by the Tampere University Library based on Scopus shows that 46.3% of the refereed journal publications and 76.5% of the refereed conference publications are classified as non-cited. Indeed the number of citations overall is relatively small at 2.6 on average per publication.
- We noted that the research work tends to be presented in venues that are not frequented by the mainstream of CS, even if the subject matter is itself mainstream CS. For example, there are relatively few papers in major ACM conferences, which generally represent the center of CS. The result is that the research work is invisible to many of the key researchers doing work in the same

area, and the CIS researchers may not be as familiar as they should be with the work of these key researchers.

- Of the funding income there has been no contribution from the European Union or from International firms throughout the whole assessment period. Moreover, in 2013 there was no income to the UoA from the Academy of Finland. This has contributed to a certain frustration within the UoA and greater teaching loads. Within the unit, funding is focused heavily on the Information Systems group; the mathematics and theoretical computer science group finds it difficult to attract external funds.

b) What are the opportunities and challenges of the UoA?

The opportunities offered by the Big Data initiative could be important. Another opportunity is the new European Commission's Framework Program for Research and Innovation entitled Horizon 2020.

The UoA feels challenged in a number of ways that involve resources it receives from the University. We are aware that UTA regards itself as focused on the social sciences and health. However, Computer Science, or more broadly Information Technology (CS plus areas of electronics and communications) is regarded by many as the primary determiner of the health of a nation's economy (see, e.g., Thomas Friedman's *The World is Flat*). We were told that, with shrinking budgets, CIS has actually lost professorial positions, something that must be almost unique among universities in this decade. While we recognize that funding for positions does not appear magically, there are strong arguments related to improving the health of the Finnish economy to increase the CIS staff markedly.

There is also an argument that it takes more effort to teach one student in a course given by this UoA than is the case for many other areas of the University. For example, many of these courses involve instruction in programming or the use of specialized software systems. It is the nature of such courses that students, even the most capable, will have "bugs" in their code and, due to their being novices at the system at hand, need individual attention. Thus, more resources devoted to teaching would also be warranted.

While we recognize that the Finnish funding system takes some account of this situation, we are convinced that there is a good case for additional resources, and in particular a case for rethinking the model the University uses to apportion funding. It is also the case that the UoA has not made maximum effort to obtain external funds, and seems reluctant to spend the (often substantial) effort needed to find partners in industry or other universities.

We also see a lack of attention to the need for impact beyond the publication of papers, which would make it easier to attract external partners. We are aware that there is a style of research, especially in the mathematical end of the spectrum of research, where utility is less important. However, almost all the research we saw was intended to solve a real problem. They just did not follow through. We do not wish to single out one project in particular, as there were several problems of this type. But in general, we observed a lack of enthusiasm for engaging consumers of the proposed technologies, approaching the appropriate standards bodies, or even getting the work before major Computer-Science conferences. For example, some researchers of this unit are today addressing subjects such as database management or XML processing, where the leading work is presented at conferences affiliated with ACM SIGMOD, and they should be engaging this community.

c) *Did you find research areas or research groups that stood out from the general level of the UoA?*

From a funding perspective the Information Systems area stood out from the other areas.

d) *Did you find research areas or research groups that have potential to become international flagships in their research area?*

The Big Data area falls into this category of having the potential for international exposure and leadership. It is important to observe that this has the potential to unite a number of activities and lead to a broader base for the funding. If successful it could also lead to international collaboration.

We note, however, that there are a number of challenges that must be met for this work to realize its potential.

- Strong leadership for the project must be identified.
- Sources of funding for the center must be secured.
- There must be a serious effort to attract sources of both data and problems/challenges for the research teams to address. At this point, we are aware of only an effort to get data from Tampere traffic lights, road sensors, and bus-location data. There are many opportunities for asking questions about traffic management, but it is also a common problem area for this sort of research. Data and problems from a variety of sources, including those at UTA, e.g., medical, or biological, should be sought.
- There must be the ability to do massive-scale computation. It is not necessary to have a large array of compute nodes in-house. An alternative is to get commercial “cloud” service from any of a number of vendors, including Amazon, Google, and Microsoft. In the ideal case, one of these vendors provides free service and also participates in the work of the center.

e) *What measures should the UoA take to improve its performance?*

There are a number of things we believe could be beneficial to the unit, and which have been discussed above. In summary:

- Work with the University management to establish a level of funding appropriate to the critical importance of CIS and Information Technology in the national and world economy.
- Take steps to increase external funding and linkages with international research groups.
- Rethink the publication strategy to get their best work in front of the mainstream CIS community.
- Becoming more directly engaged with how priorities are being set nationally would be beneficial. For example, to what extent could the expertise of this unit be leveraged in service of value creation to support the creative industries which is a priority area for the Finnish economy?

Issues exist about publications outlets and citations. During the visit it was observed that the choice of publishing outlets is heavily influenced by the professoriate; if changes are to take place then the professors need to make adjustments to their advice so that they are drawing attention to the top outlets as seen by the international community.

Final Report

Panel IV

History and Philosophy

Psychology, Logopaedics and Vocology

Social Sciences

Social Work

27 November, 2014

John Urry, Lancaster University, UK (Chair)
Ruth Campbell, University College London, UK
Max de Gaynesford, University of Reading, UK
Anne Lise Ellingsæter, University of Oslo, Norway
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1. General statement on the School of Social Sciences and Humanities

The members of Panel IV had good opportunities to engage with many members of relevant units and centres; there were extensive interesting discussions. The Panel found the administrative arrangements for the RAE very satisfactory. They were impressed with the general friendliness and efficiency of both academic and administrative staff. They enjoyed the more informal opportunities for discussion and debate and thank the University of Tampere for its hospitality.

Overall the Panel considered that the social sciences and humanities is a serious, hardworking and enthusiastic research entity. There is no doubt that good quality work is being generated and the level and volume of work is comparable with other similar universities. The areas of research that Panel IV considered are clearly operating at an impressive standard and contributing to a significant 'research university'. There are we think no major problems or issues.

We were however frustrated by some aspects of the RAE procedure. Significant sets of data were made available to us but these were often difficult to relate to each other. Much material pertained to different time-periods. While our focus was on the last 6 years we were provided with a person's whole career with most publications listed lying outside the period of assessment. We found the citation data unhelpful in some cases. Moreover, we struggled to determine the 'size' and level of output of each discipline/centre. We were not provided with the names and activities of non-professorial staff. It was thus difficult to determine the level of research activity per person (a key measure), or the degree to which career young colleagues were developing research trajectories that would enable them to develop as 'research leaders'. We also suggest that in a future exercise there should be some direct reading and assessment of a sample at least of actual outputs.

Thus although we make some assessments of research achievement below these should be issued with a strong 'health warning'. Our difficulties in making assessments were compounded by how many of the units were uneven in their research levels. So a single score conceals significant variation. We do not have enough evidence to provide unambiguous scores – they are at best only indicative.

We found a number of general issues apart from those relating to specific Units of Assessment documented below. First, we consider that the rate of recruitment of staff from Tampere caused problems within some of the units we examined. We would recommend that there should in future be systems set in place to ensure that there is the somewhat less local and more international recruitment of academic and research staff.

Second, we struggled to decipher the organization of PhD funding, teaching, administration and support. We enjoyed discussions with the PhD students but we got rather conflicting answers as to how these matters are now organized and whether their work is supported in all respects especially financially.

Third, we found that relatively little effort is paid to research/career planning amongst doctoral candidates. We suggest that this should be further enhanced following the general reorganization of postgraduate work. We were told that the practice of having only one PhD supervisor and there being no advisory board might contribute to this lack of research/career planning although we gather that this is not always the case.

Fourth, we did not get a very clear idea of the overall impact of ‘teaching’ upon the time, timing and resources available for ‘research’. We were unsure if this is a significant issue but this is something to monitor carefully and to develop pan-University measures and management of workload, staff-student ratios and so on.

Fifth, it seemed that there was a relative absence of administrative support, especially for developing large-scale research applications. Some units had not achieved EU funding in the recent period – EU funding could have compensated for the falling funding available from the Academy of Finland. Many professors incidentally claimed to do much of the own clerical work because of this lack of administrative support.

Sixth, few colleagues were able when asked to ‘benchmark’ their departments vis-à-vis other departments; some attention might be paid to what happens in other universities around the world and how Tampere might enhance its position by matching the levels of achievement of comparable departments/centres. Indeed the career-young colleagues seemed fairly uninformed about other universities and rarely travelled to them. Some professors thought that there had been a general downward trend in doctoral student mobility.

Finally, we did not hear much about the reward systems to develop great research. This is probably true the world over but it seemed that the number of professorships was relatively fixed and hence it would be hard for lecturer staff to think that they could aspire to a chair at Tampere. Also some of the time what are important in research development are modest forms of ‘recognition’ and the university might assess whether this always happens as effectively as it might. We note there is a research incentive scheme but were unsure whether this works well in stimulating research activity.

In conclusion we are very happy with the research reported and assessed here.

2. History and Philosophy (UoA11)

The Panel decided to discuss and give numerical ratings to History and Philosophy separately because the kind of work undertaken in these two fields are different. We were hampered by the fact that the statistics and the publication analysis by the UTA Library treated the UoA as one.

Generally speaking both disciplines show a good international standard in their scientific output and in some specific research areas their results are even outstanding. A reasonably good measure of this is the excellent level of research funded by the Academy of Finland. Compared with other academic units in Finland both disciplines have also received significant funds from private foundations. However, the lack of European funding indicates that an international breakthrough has not yet taken place. Another indication of this lack of an international edge is the low production of referee articles. Related to the total number of staff (73) the yearly average of published referee scientific articles during the assessed period was 0.74 articles per person.

2.1 History

2.1.1 *Volume, profile and organization of the research*

At the time of the site visit, the UTA community of historians consists of 12 permanent teaching staff (6 full professors, 8 university lectures or university teachers), 16 post doc researchers, and 16 doctoral students working at the department. Thus it is one of the biggest history units in Finland. The gender balance with around half female staff members is striking, especially in comparison with other history units in Finland or Europe in average. The Panel was also impressed by the amount of external research funding, which is exceptional within the UTA School of Social Sciences and Humanities and also by comparison with other history units in Finland.

With its long tradition of research in the field of social history, history from below and urban history the UTA historians managed to shift its focus during the last years to an interdisciplinary historical approach with main elements of critical inquiry (such as new narrative, new paradigm, etc.). The persons in charge of the different research units are well-known and their research credentials are strong.

2.1.2 *Scientific quality of the research*

The scientific quality of research in History is very high and of an international competitive level. One main success was the achievement of the Centre of Excellence on “Re-writing Finnish History” which is already a major research cornerstone and transmission for the different fields of historical research within the UoA. The empirical contribution – especially in Finnish history and constructing identity – is strong. Theoretically and methodologically more cooperation within the School would enlarge the perspectives, especially (long term perspective) research projects with sociologists.

Furthermore interesting results can be expected from the multidisciplinary approach of the CoE and its cooperation with the partner-universities in Finland and abroad. Also the research and publications in urban history and premodern history are of great importance and significance.

Grade 5 (Excellent)

2.1.3 Scientific impact of the research

In regard to the scientific impact, the research in 19th and 20th century Finnish and North European social and urban history is a strong and successful area and well-established within the European urban history network. In the study of Finnish Civil War 1918 Tampere historians have since the 1980s had a central and unchallenged position.

Senior researchers of the unit have achieved leading roles in national scientific networks, organizations and boards. This is due not only to their high academic performance but also an outcome of a conscious strategy. The participation in international organizations and conferences has for example been more dynamic and visible than from the University of Helsinki.

Grade 5 (Excellent)

2.1.4 Societal impact of the research

The societal impact of the historical research of the UoA is impressive and in many ways very important. The History section of the UoA was and is able to provide important new research results and publications for historical political events and anniversaries (for example Civil War, WWII, etc.). Finnish historians get still reasonably much attention in public discourses and the researchers at the unit have been active and visible also on this front, even if the media coverage is still concentrated to Helsinki.

A less visible but in fact more influential societal impact has been their participation in regional and local civic organizations which maintain, reproduce and reconstruct history culture. The cooperation of the History section with the local museums, the participation in exhibitions, and the prize nominations and commercial success of some books show the substantial engagement of the researchers in the cultural life of the city and in school and/or adult educational programs. With these activities major contributions to the Finnish and Swedish identity were set throughout the Nordic lands. The members of the research community are also engaged in different societies, committees, foundations, etc. The slogan “history goes public” is really realized by the members of the History section.

Grade 6 (Outstanding)

2.1.5 Quality of the research environment

The quality of the research environment of History seems adequate and very good. The organization supports the high quality in research. The management of the unit is well organized, structured and dynamic. Furthermore the CoE has together with the other externally funded research projects created a positive atmosphere of scientific discourse for both the employed and the more loosely connected members of the unit. The Tampere historian community constitutes a considerable critical mass.

The PhD-training at the unit seems also to be developing in a more strict and controlled direction but the career development especially for PhD students and post-PhD research members is so far not optimal. A better (long-term) career planning support should be reconsidered. PhD students should be informed before they start their PhDs about the possibilities of funding and scholarships (also about funding and scholarships from outside Finland).

With regard to mobility and staff recruitment much more could be done, especially taking into account the successful external funding. Academics as well as PhD students should also be encouraged to take

advantage of long-term research visits abroad. The existing US-contacts could be of use for that and further (new) cooperation should be taken under consideration (for example in the field of urban history).

The research infrastructure seems fine. The balance between research, doctoral supervision and teaching seems adequate.

Grade 4 (Very Good)

2.1.6 Future potential of the Unit of Assessment

History can function as a bridge for more interdisciplinary workshops with other social science units of the School (issues like old age, family, childhood, urban planning etc.); long term perspective and discussion can broaden the (theoretical/method.) perspective.

The step of the unit from a transnational research approach in direction to global history should be taken under consideration – especially in regard to the time period after the end of the CoE. There is a great potential in the research field of Urban History taking in regard the changing faces of cities and towns as a result of globalization (declining cities, new developing cities, migration and/or gentrification, etc.)

The plan of a joint doctoral school with Bielefeld should be realized. This would be a chance to bring more international PhD students to Tampere and to the UoA. This can be also a further step to increase the so called “internationalization at home”.

The TRIVIUM research network could/should become a real research centre to strengthen its position within the European and international field of pre-modern/medieval history.

2.1.7 Recommendations and suggestions

a) Strengths and weaknesses

A main strength of History is the successful achievement of research funding. It would not be impossible to enlarge the CoE on a European level with more European university partners and apply for EU funding.

The tradition of recruitment of international guest scholars is clearly positive; this should be also expanded to the recruitment of more international PhD students. Perhaps within the CoE international PhD students can be attracted to join the UoA. All members of the History section are part of international networks – although some of these networks could be enlarged in direction of Central and Southern Europe and/or beyond Europe and the USA.

Mobility plans seem mostly limited to conferences; international (monthly or long-term) mobility should be promoted and supported. The encouragement and promotion for international exchange visits should start early – already from the beginning of the bachelor and master study program. An enlargement of the circle of international journals should be taken under consideration in regard of future publications. It is noticeable that there are relatively few publications meant for a larger lay audience although this may be the result of staff not registering these publications.

b) Opportunities and challenges of the UoA/History --- see also 2.1.6

c) and d) Outstanding research groups

The most impressive research group within the History section is the CoE, which has given the whole unit a boost of self-confidence and has been skillfully led and coordinated by Professor Haapala. A research area that has potential to develop into an international flagship would be a stronger combination of the rewriting and deconstructing of the national history with a more systematic and empirically based global history research.

e) Improvement of performance

The unit has already a number of younger scholars who have the potential to combine these two approaches. But in order to really succeed in this task the History section needs to attract a sufficient number of scholars with potentials from other academic milieus for permanent positions in the unit and its research groups.

2.2 Philosophy

Since the research focus of Philosophy is in the national and international community of philosophers rather than in collaboration with History, it makes sense to assess philosophical research, under all six headings, in the same way that it has been represented by the Philosophy section in the Self-Assessment Report, somewhat separately from History.

2.2.1 Volume, profile and organization of the research

The Philosophy section is larger than it first appears: besides the four permanent teaching staff (two professors, a postdoctoral researcher and a university lecturer), there are nine researchers or part-time teachers and fifteen docents or adjunct professors. There are also eleven doctoral students.

Research in the Philosophy section covers the following areas, all well-established research areas in international philosophy, and all organized with impressive professional leadership at the University of Tampere: (i) Reason and Judgement in Phenomenology; (ii) 'Being' (in Heidegger and Frege and others); (iii) Reason-Emotion-Imagination; (iv) Theories of Mutual Recognition; (v) Social Ontology.

The Philosophy section has produced a significant number of high quality publications, reflecting the fact that it is well embedded in international debates, particularly in the history of modern logic, in recognition theory, in analytic metaphysics and in French trends in Phenomenology (this is particularly true of the assessment period, but it is also important to recognise the continuing significance to the present research environment of works published further back in the past). The section has also attracted significant funding – of particular note are the three Academy of Finland grants in the assessment period – and it is clearly and actively focused, at all levels, on gaining more.

2.2.2 Scientific quality of the research

The research output of the Philosophy section is widely recognized to be of a very high standard, and it is clearly growing in volume in recent years. The likely trajectory is very promising indeed, since the section is balanced between established scholars producing high quality work in a steady flow (particularly on the reception of Frege, Heidegger and Charles Taylor) and younger researchers with the

incentive to produce such work and promising research programmes clearly designed to be attractive in the current research environment (particularly on Hume's metaphysics, Husserl's philosophy of mathematics, Quine, and epistemic issues in fiction). Citation indices and bibliometric analyses seem to be misleading about the scientific quality of research in the Philosophy section – as they are throughout Philosophy (a complicating factor is that it is by no means uncommon for philosophical work of the highest quality and in the best journals to cite rarely and in unsystematic, unrepresentative ways). It is also worth pointing out that the section is correct that edited collections are often regarded as more valuable amongst the philosophical academic community than they are generally accredited by external review formats. Indeed, editorship of such volumes has a particular value for smaller and more isolated departments like that at Tampere: it enables them to work towards being, and then represent themselves as, an internationally recognized node of scholarly research.

Grade 5 (Excellent)

2.2.3 *Scientific impact of the research*

As the philosophical community has recognized and the evidence of reviews of their work appearing in international journals has regularly shown, members of the Philosophy section are playing a significant and growing role in international debates. In addition, they are contributing to edited collections and carrying out reviewing tasks in significant journals, which gives them an increasing presence in the academic community. The Philosophy section has organized at least one significant conference per year in the assessment period; this is a good record for a section of this size, where quality counts for a good deal more than quantity. The Academy-funded projects on 'The Possibility of Metaphysics', 'Phenomenology and Early Analytic Philosophy' and 'Judgement and Human Rationality' have made a significant impact.

Grade 5 (Excellent)

2.2.4 *Societal impact of the research*

Societal impact is always difficult to document in Philosophy, and thus particularly difficult for an outsider to assess. But the section makes a good case for significant impact in this dimension – in terms of the high reputation of some philosophers, the visible media role, the impact on school education, the involvement with the cultural journal *niin&naän*, and the links with former pupils now in public life.

Grade 4 (Very Good)

2.2.5 *Quality of the research environment*

The most significant fact about the research environment of the Philosophy section is that there is no unifying concentration and that individuals are focused quite differently, employing various philosophical approaches and methodologies (e.g. Analytic; Pragmatic; Phenomenological) and covering a wide variety of topic areas (both in Theoretical and Practical philosophy).

It is a highly commendable – but equally a difficult and very challenging – goal for a relatively small group of philosophers to pursue international research excellence and substantial scientific and societal impact without concentrating on a particular approach to philosophizing or a single core of topic areas.

This goal is hard enough to achieve even in very large departments; Pittsburgh is perhaps the only really successfully analogue here, but it is far too large to count as a useful model here.

Difficult as it is, we have no doubt that this goal is being achieved at Tampere and at a high level. The publication record is most impressive, the international contacts are genuine and run deep, and there is a readily appreciable sense of vibrant energy and forward thinking at every level, from the permanent teaching staff and the adjunct faculty to the doctoral students. In short, the Philosophy section is a fine model of how philosophy can and should be done in smaller scale departments, stimulating dialogue between different traditions of philosophy, enriching the core activities of the School and University, and sustaining creative engagements at both international and societal levels.

Grade 5 (Excellent)

2.2.6 Future potential of the Unit of Assessment

How to achieve the goal that the Philosophy section has set itself – to sustain research excellence and a substantial impact while retaining its breadth of approach and coverage – is becoming an ever more urgent issue at a time of great internal and external pressures on all departments of Philosophy around the world. The Rector spoke of the need to identify ways to clarify the profile of each UoA; in our view, its success here is the uniquely identifying feature of the Philosophy section and its greatest value. Other institutions would benefit greatly from seeing how the difficulties are being overcome so successfully at Tampere. So it is to be hoped that (i) the University of Tampere will continue to sustain and support the Philosophy section in achieving this goal; and (ii) that the University will encourage visiting scholars to come and spend time in the Philosophy section; it would greatly enhance the reputation of UTA abroad. The lack of significant-length site visits by international scholars, as detailed in Table 5b, means that this opportunity is not being realized adequately at present.

With the exception of long-term visits to Tampere, mobility at every level in the Philosophy section is excellent and every attempt should be made to sustain it. Professional training seems of an enviable level also, though it is something that will need to be attended to constantly in the coming years of change. The balance of well-established researchers and career-young philosophers is crucial and clearly working well to sustain the vibrant research environment at Tampere; this is always difficult to sustain over time, but it is vital if the Philosophy section is to continue to realize its great strengths.

2.2.7 Recommendations and suggestions

In order to sustain research excellence and substantial impact, we recommend that UTA continue to support the Philosophy section in its breadth of approach and coverage.

In order to enhance the University's reputation abroad, we recommend that the Philosophy section encourage more visiting scholars to spend a substantial period of time at UTA.

Mobility and professional training are key areas for the present success of the Philosophy section; we recommend that both remain a constant focus of attention.

3. Psychology, Logopaedics and Vocology (UoA12)

3.1 Volume, profile and organisation of the research

With 35 full time staff at all (academic) levels, including PhD students, this is a small but viable unit in international terms. In citation terms (which are widely used in Psychology) it is productive, with 308 articles out of a total 425 outputs in peer-reviewed outlets in 2008–2013. The analysis by CWTS, based on WoS, showed that 9% of the output fell in the top 10% of citations in their field. The analysis by the UTA Library showed steady rather than expanding output over this period, with publication of papers in ‘top publications’ (i.e. JUFO level 3 publications) remaining constant at around 5–7 over this period. There was a drop in non-refereed material between 2008 and 2013. Reflecting these output measures, the Unit has maintained a steady stream of external funding, especially prestigious Academy of Finland funding. The apparent jump in funding in 2013 reflects a single large Academy of Finland grant to one individual (workstream 1 – below).

This Unit comprises several different independent workstreams, each led by a senior researcher (professor). In Psychology these comprise (1) social cognition and emotion; (2) work, environment and wellbeing; (3) mental health, clinical psychology and neuropsychology. Logopaedics and Vocology are included in this UoA as additional workstreams. The latter two Psychology strands have at least 2 professors leading the teams; the other workstreams are led by single professors. The three psychology groups are well established within the UoA with a reasonable distribution of senior researchers and doctoral students. The Logopaedics and Vocology groups are smaller, relying to a greater extent on research by the professor in each group (although both have junior members).

3.2 Scientific quality of the research

We have given separate ratings for the Psychology, Logopaedics and Vocology research, since they constitute different disciplines and international benchmarks.

Psychology – Social cognition and emotion (8 staff) is focussed on face-processing and, now, processing of gaze direction and gaze engagement. This work is very strong and well established in a dynamic international field. It is moving in important directions with respect to psychological, physiological and neurophysiological bases of gaze engagement. UTA staff are highly visible internationally in terms of numbers of sustained high quality publications.

Psychology – Work, environment and well-being (13 staff). Within this theme the volume of research appears altogether adequate considering the number of staff and size of funding. The research on issues such as work-related stress and recovery, work-family interface, emerging forms of employment, nature-based recreation and well-being address highly topical themes in touch with current international research. The combined competencies of work psychology and environmental psychology offer a unique platform for research on stress and restoration. Practically all of the items in the representative list of 15 publications and the publications listed in staff CVs are published in highly esteemed peer-reviewed journals within the respective fields.

Psychology – Mental health, health and clinical neuropsychology (8 staff). This work embraces topics in psychosomatic health (e.g. hypertension) and clinical psychology (effects of trauma in children affected by armed conflict, mental health, and psychotherapy). It reaches the top national levels, with

impact at the international level. The number and quality of publications are appropriate for a workstream of this size. The complementary skills of the non-clinical and clinical psychology team leaders makes this a potentially highly effective sub-group.

Grade 4 (Very Good)

Logopaedics (4 staff). Reflecting the staffing of this Unit, research here is good, but limited, with just relatively few peer reviewed journal publications since 2008.

There is scope for increasing research productivity by more extensive collaboration with more productive teams, who would benefit from the linguistic analysis pioneered here in the study of aphasia.

Grade 3 (Good)

Vocology (3 staff). This is high-level research on vocal tract function, explored by a variety of means. It is being pursued by the single senior staff member working at a top level. The work is highly specialized, involving expertise in engineering, speech science, anatomy, acoustics, ergonomics and neurophysiology (among other disciplines). As is typical of the best vocology work, there are much effective international collaboration, leading to excellent publications and effective grant support. In this field, this sort of specialized expertise tends to be distributed across individuals in different countries and continents.

Grade 5 (Excellent)

3.3 Scientific impact of the research

The three Psychology workstreams show good scientific impact overall, mainly through publication in good quality journals and participation in scientific meetings, where several professors have given keynote papers. There is also good evidence of research support activities by senior staff including (national and international) editorial and learned society work.

While generally visible internationally, this work could have more impact via (for example) hosting international workshop/conferences in UTA. None were mentioned in the SAR.

Grade 4 (Very Good) – *While we have given a rating for the Unit as a whole, Vocology may be ranked 5 (Excellent) for its excellent, high-level impact.*

3.4 Societal impact of the research

The societal relevance of the research varies across the UoA. The work and environment strand is highly applied in nature and relevant in relation to the changing character of work and the need for psychosocial health promotion in the high-speed society. The mental health strand (including clinical) addresses several important societal and health issues, in addition to the direct impact of clinical research. The work on social cognition and emotion, while more ‘purely’ experimental in nature, has relevance in the clinic and in the field, and this is being extended. Logopaedics, like clinical psychology, is of direct relevance to wellbeing (language rehabilitation). The Vocology work is also of immediate societal impact – shown here in relation to the development of voice ergonomics for teachers.

Grade 4 (Very Good)

3.5 *Quality of the research environment*

The Self-Assessment Report (SAR) reports sufficient laboratory workspace. Technical support for experimental psychology (HIP lab) may need enhancing. In terms of academic personnel, there is a good balance of senior, junior and ‘trainee’-level researchers in each of the workstreams. There is, as the SAR recognizes, opportunity to extend techniques and data from one workstream into another. While local collaboration, with other UTA units and other Tampere institutions, looks good, the research environment could be enhanced through developing more and longer national and international bi-directional visits and collaborations. Vocology, despite its small size, offers a model for effective international collaboration.

The two clinics (‘Psyche’ and Logopaedics) offer additional opportunities for collaborative research, which, to be effective, need specialized administrative support for client and case administration. The research environment would be improved by forthcoming statistical support.

Grade 3 (Good)

3.6 *Future potential of the Unit of Assessment*

The remit of this Unit falls well within the UTA priority focus on Health and Society, and has the potential to grow from its strong, well-established base. Staff increases, given the range and popularity of Psychology as a discipline and the high reputation of UTA in this field, should be considered.

The quality and originality of most of the work of this Unit reaches international levels, sometimes high international levels. However, the research vision and ethos could be bolder and more assertive in order to make an impact at the next level of international excellence. This would be nurtured by further international collaboration – at all levels including recruitment and mobility of students and staff.

To reach the next level of research excellence, international funding needs to be actively pursued, as both the SAR and UTA strategy acknowledge. In particular, ESF funds for psychological research, and EU mobility funding for senior and junior researchers should be prioritized.

3.7 *Recommendations and suggestions*

1. Psychology: the relatively small Unit is necessarily somewhat uneven in its coverage of the discipline. There is limited high-level research in basic behavioral science, such as attention, sensation and perception, memory, lifespan and developmental psychology. Thought should be given to redressing this in any consideration of expansion of scientific psychological research at UTA through recruitment of new staff. This would enhance the research environment for all, and provide a firmer basis for research development.
2. Professional training requirements (Logopaedics, Psychology) are challenging for senior staff who take on high level professional duties as well as staff-intensive training of professionals. This does not have to be inimical to high quality scientific research. With appropriate staffing and structure, excellent scientific research can be done (cf. some of the ‘Psyche’ based work). It is not clear that Logopaedics has sufficient staff or structure to meet these challenges, and its scientific quality and impact are appreciably less than for the other streams. The best research in Logopaedics is generally based in larger units or in networks that make efficient use of distributed facilities.

3. We have highlighted Vocology in this report as an example of excellence, and this particular work must be nurtured in future plans to enhance research.
4. There should be continuing strategic oversight of work within this Unit in terms of its scope and direction. As an example we note that there is limited consideration of topics related to the psychological and communicative aspects of the increasing societal issue of the ageing population and its care. All the senior staff in the Unit possess expertise that could be usefully exercised and expanded in this area.

4. Social Sciences (UoA13)

4.1 *Volume, profile and organisation of the research*

This is a large and complex unit consisting of 133 staff representing various disciplines and 5 Research Centres. The volume of research in the unit seems to be adequate in scale; multiple efforts have been made to obtain external funding, mostly successful. We take the slight drop in research funding in 2013 as not significant, and the general level of external funding to be good. However, the volume of research outputs in the form of publications could be increased, as the Self-Assessment Report (SAR) acknowledges. The volume per scholar in the unit is approximately one research article per year. We agree that this is a reasonable achievement given the costs in time of the restructuring of teaching and the reorganization of the unit in recent years. However, when looking at the CVs that we received, we noted considerable differences between researchers in terms of their indicated overall productivity.

The critical mass of researchers can only be assessed in relation to research themes, and here the picture is varied. While there is clearly a good level of staffing in some of the research centres, particularly TaSTI and WRC and PERLA, some research themes, for example social anthropology, social policy (in as far as it is not part of WRC or PERLA) and Gender and the Body, appear to be less well-staffed.

Just to work through an illustrative example: Gender has been an important area of research at Tampere for some time, both within and beyond the Social Sciences. However, in the context of the new School and the associated Research Centres it seems not to be so clearly represented. While Gender and Embodiment is presented as a theme in the SAR, our ability to evaluate it has been limited by the fact that it is only represented by one professor and a couple of publications out of the 25 selected. There are clearly doctoral and post-doctoral researchers working on gender topics, but we have no way of knowing about the work of the mid-career researchers in this area.

The work of the national doctoral networks have been important in the gender field but will not exist in the reformed context. The SAR states that the theme 'operates effectively across most of the other research areas' and is represented in all the disciplines of the School and beyond. It is however rather difficult to see this in operation in the context of this assessment. These comments apply to a greater or lesser in other areas of the UoA.

The profile of the research appears to be to some extent historical and to some extent based on what happens to have been funded rather than being rooted in a clear research strategy for Social Science at Tampere. The undoubted theoretical and methodological strengths could have been foregrounded more to indicate what underpins the empirical work of the Centres and the actual and potential connections between them.

The unit comprises 10 disciplines according to the SAR, and 5 if one uses broader distinctions. This seems sufficient interdisciplinarity. Social Science should not be a catch-all unit for left over themes and research topics. The question is what kind of interdisciplinarity is productive in the context of current research themes and Centres. We see no evidence of a lack of interdisciplinarity.

The strongest thematic research groups are integrated in the research centres. We note the nationally and internationally widely recognized research in the areas of knowledge, science, and innovation and its relationship to TaSTI. Like TaSTI, WCR has been very successful in attracting external funding, currently accommodating ten projects involving a large group of researchers. Topical issues related to

central international debates are addressed. Ongoing projects combine surveys, time use data and register data, allowing valuable longitudinal research design.

Publications are found in high impact journals and with leading publishers, but publications in Finnish are also prioritized. WRC has a key role in organizing LabourNet – which has been a leading national doctoral education network. Finally, we note the interactionist and conversation analytic research conducted in the unit. Research in this area is also published in top rated international journals, and has contributed to a wide variety of areas of communication and to areas of work practice in maternity and child health care clinics, substance abuse therapy and psychotherapy. This area also conducts research on gaze and facial expression that may have synergies with research in psychology (UoA12). We consider all these areas to be particularly strong at Tampere.

4.2 *Scientific quality of the research*

Given the current diversity of the UoA it is not easy to assess the unit as a whole. However, we should emphasize that there are many creative and original research projects and areas in the unit. We again refer to the Research Centres, as well as the much of the research listed in Appendix 1 of the Self-Assessment Report.

Given that outputs in high-ranking journals can to some extent act as a proxy for the international quality of research we note the comparatively low output of Publication Forum (JUFO) level 3 articles: 8 according to the bibliometric analysis by the UTA Library, compared to 100 level 1 or unrated publications. Most published work is in Finnish and some Scandinavian journals. Similarly Vastapaino, Tampere University Press and Gaudeamus account for 90 of the books published (although these do appear to include doctoral dissertations). However, 60 books were published with international publishers such as Routledge, Palgrave, Edward Elgar.

The unit should receive credit for the applying actively for Centres of Excellence twice and reaching the final stage. It should also be noted that the research we saw appeared to be methodologically very sound and rigorously executed, as well as significant with respect to the questions asked.

Grade 4 (Very Good)

4.3 *Scientific impact of the research*

As with quality the scientific impact can to some degree be approximated by publications in top journals, and by books with top international publishers. JUFO level 3 publications not only count as an indicator of quality but also have a higher likelihood of being read and noticed. For example, according to the Scopus database, many publications from the unit were not cited (see Table 3 in the analysis by the UTA Library). We do understand, however, that work in smaller sub fields is likely to be published in specialist (international) journals with lower impact factors, but which are central to the specific field.

The unit is well aware of the fact that there is more work to be done to raise the international profile of its research outputs. As the unit moves toward more widely acknowledged publication outlets, the visible scientific impact will become higher. It should be emphasized once again that there are pronounced differences in the unit with respect to what sort of impact is sought and preferred. For that reason, the

overall rating is inevitably an average even though impact within Finland and across the Nordic/Scandic countries is higher.

Grade 4 (Very Good)

4.4 *Societal impact of the research*

We see no lack of orientation toward relevant and societally useful research in the unit. The unit strives to produce research that has impact in the context of the Finnish State and Society and which increases the nation's self-understanding. There is a long history and continuing commitment to producing results for a range of national audiences and the unit is generally very successful in this respect. Examples are WRC's projects with non-academic partners and TaSTI's influence on Finnish national and innovation policies and on research funding mechanisms. We find the three case studies presented to us in the Self-Assessment Report impressive. Overall, the unit is enviably successful in this respect and appears to have developed considerable expertise in dealing with the policy, practice and business environments.

Grade 5 (Excellent)

4.5 *Quality of the research environment*

The organizational structure of the Social Sciences after the reorganization is, with its 5 disciplines, 6 themes and 5 centres potentially confusing from the outside. We wondered at times if the structure would have been helped by leaving disciplines more clearly in place, at least in organizational terms. The administrative side of the School model also gives the impression that it has not yet been fully tested in regard to its functionality and conduciveness to top-level research. If academics become prosumers that do everything themselves from mailing to copying and organising travel they will have simply have less time for what they are best at i.e. research and teaching. It also affects the balance between research and teaching, as time is always taken from the research side of the equation.

In respect of the Centres, we find them to be functioning and well appreciated. However, our understanding of them would have been enhanced by more information about the 'absent middle' of senior researchers. We wonder however if Centres should be set up for a limited time-span, with an inbuilt review process, rather than permanently. This would allow for the development of research areas and would create openings for new centres around emerging themes.

The unit has had a good deal of success in educating doctoral students. All the students we met felt well served by their supervisors and praised their accessibility and readiness to help. Students also commented positively on the opportunities and financing available to present papers at national and international conferences, although PhD students who were only partially funded did not seem to find these opportunities equally available. We found generally that students were satisfied with their PhD programs, courses and the mentoring they received. The difficulties come with the development of an ongoing research environment for post-doctoral and early career academics, but this is by no means specific to the Social Science Unit.

Grade 4 (Very Good)

4.6 *Future potential of the Unit of Assessment*

The future potential of the unit will largely depend on the vision to be developed across, as well as within the Themes and Centres and Disciplines between existing, new and future staff. As indicated before, several of the themes currently in place as well as the Centres are successful, internationally recognized, and have strong future potential. A strategy is needed however, to ensure that there is the flexibility for new areas to develop and to prevent any potential tendency for ossification. More generally, social science research in multiple domains is essential for complex modern societies. The representatives of the Social Science UoA we met are keenly aware of current strengths and challenges and seem to have a desire to turn the latter into the former. In our view they have the intellectual capability to do so and with the increased capacity and fresh ideas from recently appointed staff they are in a better position to succeed. Nonetheless, it will not be easy to lead, plan and implement the desired future in a large unit like the Social Sciences and more thought needs to be given to the optimal size and structure as well as to the support needed.

4.7 *Recommendations and suggestions*

We welcome the focus on interdisciplinarity within the new School structure and appreciate the value of both teaching synergies and research collaborations. We are, however, concerned that some disciplines may struggle to maintain a clear identity within this broad definition of social science. In order to ensure that there continues to be a strong theoretical and methodological contribution to feed into interdisciplinary research it is still important to nurture disciplinary contributions. Sometimes whole new areas emerge from interdisciplinary collaborations and this is to be welcomed, but it is also possible to create a 'lowest common denominator' research culture in which the cutting edge gets blunted. It might therefore be valuable to continue to nurture disciplines at the School level while blurring them within the Research Centres.

In an amorphous unit disciplines may not be able to provide useful grounding in standards and traditions, offering examples of organization and implementation, delivering frameworks for mutual understanding and communication, and by providing well trained "disciplined" PhDs and post docs. A large Unit not held together by shared theories and methodologies may simply fragment and become less successful. However, it is also possible that Social Science will simply function like a large teaching department and research will only be successfully implemented only through Centres. The potential problem with this latter model is that does not nurture new ideas developing outside existing Themes and Centres and that the latter will become too rigidly bounded.

We have already mentioned the strength of several aspects of the research and of the societal impact of the unit, and want to stress again the usefulness of the organizational unit of the Centres. However, we recommend that the research profile of the unit should be somewhat more focused, and that this is done on the basis of a vision and strategy for the Social Sciences at Tampere which takes into account strengths in this Unit, those elsewhere in the University and in other Finnish Universities, as well as wider international developments in social science and key issues for society.

We feel that strength has been lost in Social Policy which has an important history at Tampere and has been integral to much research in the Centres and therefore needs to be supported by more than one professor. In relation to gender it is an interdisciplinary field, and while it also requires more senior

input, we also think that creating a cross University network with Social Science as the hub could improve both quality and impact.

We wonder if it might be possible to use the rich case study and data material on Finland, collected by the unit, to develop more widely applicable concepts and theories which researchers in similar areas in other countries might also find useful. This would allow the respective research teams to continue to respond to political needs for evidence-based recommendations and also to follow their particular research interests. At the same time, it would allow their research to become internationally relevant and to receive greater recognition within scientific communities that are not motivated by social problems but address theoretical or analytic concerns. Some of this work might require undertaking more comparative research of which there is some evidence. This would increase the opportunities to develop international collaborations and create potential for EU funding.

We would encourage the Unit to further broaden the pool from which it draws both academics and doctoral students and also to encourage academics to undertake international visits and Visiting and FiDiPro Professors to come to Tampere.

In the context of the lack of 'tenure track' positions and academic careers we encourage the Unit to ensure that it develops the very best doctoral students and researchers and works across themes and centres in relation to acquiring funding to support them.

We were presented with Social Work as a separate UoA, but wish to draw the University's attention to the strong links and interdependence of research in the two UoAs – Social Work research is social scientific and is underpinned by disciplines such as Sociology and Social Psychology.

Also we would suggest that the University encourages benchmarking and the building up of relationships with strong units of social science across the world.

5. Social Work (UoA14)

5.1 *Volume, profile and organisation of the research*

The UoA comprises a total of 38 academic staff of whom 8 are full professors (including 1 professor emerita). The academic staff cover three thematic research areas which are closely linked to the well-established teaching activities in Social Work and Youth Studies. The overall research profile relates to professional practices; social and health care and citizens' everyday lives; and family and the life course. However internal coherence is achieved by collaborations around three major strands:

- Children, young people and families: relations, policies and practices;
- Institutional practices and interaction at the margins of welfare services; and
- Substance abuse and its treatment.

These three areas are organised with strong professorial leadership for each, supported by professorial and lecturing colleagues, post-doctoral researchers and doctoral students. The first two areas have over 100 scientific publications each while the third (with a smaller staff group) has 30 scientific publications during the assessment period. In addition to strong links between research activities within the UoA there are also collaborations with others within the School, e.g. PERLA.

Links with policy and professional practice require that much of the research is applied but the UoA is now also making efforts to establish a programme of basic research.

For the size of the staff in the context of the demands of delivering programmes of professional education the volume of research is impressive. They have achieved an increase in funding for research over the assessment period with the greatest percentage coming from the Academy of Finland.

5.2 *Scientific quality of the research*

In the three identified areas research is of a very high quality achieving a good level of publication activity in leading peer reviewed scientific journals, edited books and conference proceedings (281 over the assessment period of which 35% are in international publications). Even the most prestigious publications on social work tend not to be recognised in citation indices, so it is not relevant to use these for the purposes of assessment. Also research in the discipline tends to be policy and practice specific which limits the scope for international publication. In this context the balance of publications in highly rated peer reviewed national/international journals by the UoA compares very well with other leading institutions in Europe.

Social work research is not represented at university level in all European countries, and in those where it is there are variations in the research activities. Social work academics in Finland have taken a lead in ensuring the quality of social work research, as reflected in the fact that the 3rd European Social Work Research conference was held in Finland. Members of the UoA have been proactive in Finnish, and therefore European, developments.

Furthermore the UoA has demonstrated a rigorous approach in its research activities establishing a strong track record in its three research areas. Innovation is evident in the development of methodological approaches to researching micro practices within the context of rapidly changing policy

developments in Finland. The UoA seeks to evaluate such changes, but also undertakes research to inform policy developments, especially in the area of child welfare.

The development of the use of qualitative methods in social work research, in particular the application of social interactionism, ethnomethodology and social constructionism, are examples of applying theoretical approaches to methodology in new contexts – in particular social work practice. Commitment to developing these approaches is shared with other disciplines and centres within the School and in collaboration with international colleagues in the discipline.

Grade 5 (Excellent)

5.3 *Scientific impact of the research*

The scope of the publishing outputs required by the nature of the discipline includes publications in top and good rated journals as well as edited collections which are not necessarily included in citation indexes. The UoA has achieved a high level of publications in international journals within social work (e.g. BJSW, QSW) and in international collections edited by leaders in the field. These publications, often with colleagues from within the School, are well regarded within the discipline.

Publications on child protection and adult social work are frequently cited in Finland with one publication (Social Work among Adults) being the first book to be published in Finnish on the subject. A number of other publications are significant internationally as primary points of reference because they provide a 'Nordic lens' to welfare – focusing on the Finnish context but exploring the impact for global practices. In some cases research focuses on aspects of welfare that have not been previously researched (e.g. the emergency placement of children in Finland) and contribute to global debates.

In the last two years Social Work has had its own panel within the Academy of Finland; prior to that it was a joint panel with Social Policy panel. In view of this, the success rate of the UoA in acquiring funding from the Academy is impressive. There are a number of active large grants and in the latest round the UoA achieved one of only two post-doctoral awards awarded to the 3 panels in the Social Sciences of the Academy of Finland.

Academics in Finland generally and from the UoA in particular have been prominent in developments in social work research in Europe. The UoA has hosted (together with Nursing) the European Child Abuse and Neglect conference and the International Conference in Qualitative Research in Mental Health. Staff members have also been keynote speakers at six international conferences during the period.

The UoA is well represented in Finnish and European research networks in social work and youth studies. Members of the UoA have fulfilled a variety of roles in international journals and one member was the first editor in chief on the Nordic Social Work Journal.

Half of the doctoral graduates (since 2000) have taken up academic posts, the majority in Finland but also in Estonia, Mozambique and the US.

The expertise of members of the UoA is also reflected in the number of funded international collaborations.

Grade 5 (Excellent)

5.4 *Societal impact of the research*

In an academic discipline where societal impact and improvement in welfare provision is a 'raison d'être', Finnish academics have sought to ensure that research underpins practice developments. In this context the achievements of the UoA surpass some of the best comparable research units in the discipline in Europe. Impact has been achieved from the level of the individual citizen, to policy making at the United Nations.

Research in the UoA is regularly undertaken in collaboration with, and funded by, non-academic partners (e.g. Tekes, KAKS). However the current initiative of establishing community based research clinics in collaboration with the city of Tampere to provide practice relevant research will ensure that future research agendas are formulated from the direct interaction between academic researchers, practitioners and citizens.

Societal impact at national level is evidenced by changes in national policy, brought about as a result of research in the UoA, into, for example, homelessness and housing (Housing First) and legislative and practice changes regarding children in prison. Research in the latter area led to an invitation to a Day of General Discussion from the UN Committee on the Rights of the Child – an example of the international impact of the UoA.

Academics in the UoA have been members of Finnish government and NGO working groups (ETNE, Kaste) and have been consulted by agencies from abroad (e.g. the Scottish government).

14 of the 34 doctoral graduates since 2000 have found employment in non-academic posts, including social work management posts, director of a non-governmental projects and research manager for the National Institute of Health and Welfare.

Grade 6 (Outstanding)

5.5 *Quality of the research environment*

The excellent research environment provided by the UoA is evidenced by the enthusiastic feedback given by the doctoral research students and post-doctoral researchers. They paid tribute to the UoA's commitment in this area. The level of support and infrastructure provided includes the availability of the staff (not just individual supervisors) for feedback and mentoring; opportunities for involvement in seminars both within the UoA and the wider School (e.g. by joint inter-disciplinary seminars); opportunities for attendance at national and international conferences; and the availability of space and resources for study.

The staff group demonstrate a cohesive approach to undertaking research which contributes to the strength of the research activity overall.

It is significant that the quality of the environment has been achieved despite a major obstacle – the increase in social work student numbers to meet the growing demands for social work practitioners in Finland with limited increase in resources to meet the demands of intensive professional teaching programmes.

Grade 5 (Excellent)

5.6 *Future potential of the Unit of Assessment*

The research profile of the UoA in two of its thematic areas is well established and, in the light of policy changes globally, there is potential for developing these areas within UTA drawing on its international collaborations. For example the research profile of the UoA in the area of children and families means it can make a major contribution to the recently established multidisciplinary forum in UTA the Childhood Youth and Family Research Unit (PERLA). There is also potential to widen research into substance abuse by exploration of the impact on children and families.

In the context of the privatization of welfare services across Europe and the 'personalisation' agenda within this there is potential to build on established partnerships with Social Policy colleagues to ensure the Finnish perspective and experiences are incorporated into cross-national studies.

The UoA has demonstrated its capacity to recruit doctoral students – a situation which is the envy of colleagues in the UK, the US and some other European countries. In view of this the decision, in line with School policy, to focus on recruiting students with the potential to produce research of the highest quality seems an appropriate strategy.

5.7 *Recommendations and suggestions*

The strengths of the UoA relate to its reputation within the first two of its thematic areas and the emphasis on socially relevant research, undertaken in close collaboration with and funding from non-academic partners as well as national and international research funders. This research is underpinned by methodological developments which have international resonance and have led to important collaboration with European partners.

In contrast in the thematic area substance abuse and its treatments the research potential is not being developed proactively. The intention to undertake secondary analysis of the use of existing data sets is less innovative especially in the context of international developments in the area relating to mental health and well-being and family functioning. Current approaches in this area do not build on the potential for making links with ongoing research in the UoA, the wider School and other UoAs (e.g. Health Sciences).

A number of opportunities exist including: increasing applications to the Academy of Finland, which over the last two years has responded to the increase in Social Work applications by convening a Social Work specific panel; collaborating with the UK and other European colleagues in initiatives such as the newly established European Social Work Research Association (joint bids for European funding should flow from such networks); collaborating with colleagues in Health Sciences through the activities of PERLA.

However a major threat to research excellence is presented by the demands from the Ministry of Education and Culture for increased student (teaching) numbers, unless this increase in teaching is appropriately resourced.

Overall the two thematic areas: Children, young people and families: relations, policies and practices; and Institutional practices and interaction at the margins of welfare services were the strongest. Within these the first, Children, young people and families: relations, policies and practices, has global relevance. On the basis of its existing reputation there is the potential for the UoA to take a lead initiative

in international and multi-national partnerships in social work, and to be pro-active in PERLA in establishing its reputation.

While the performance of the UoA is currently strong it could still be improved by continuing to develop collaborations with colleagues in the wider social sciences, both in projects and in efforts to establish funding streams to establish greater permanence for staff on short-term contracts. There is also an urgent need for discussions at the Dean level and above (including other universities), about the potential impact on research activity of the continuing demands from the Ministry of Education and Culture for increased student numbers if such extra teaching is not properly resourced.

Final Report

Panel V

Education

Language Studies

Literary Studies

Communication, Media and Theater Studies

27 November, 2014

Johan van der Auwera, Universiteit Antwerpen, Belgium (Chair)

Natalie Fenton, Goldsmiths, University of London, UK

Lars-Erik Malmberg, University of Oxford, UK

Ansgar Nünning, Justus Liebig University Giessen, Germany

Peter Schulz, Università della Svizzera italiana, Switzerland

Christina Schäffner, Aston University, UK

Michael Toolan, University of Birmingham, UK

Jan Van Damme, KU Leuven, Belgium

1. Preliminary remarks

In the *Guidelines for Panellists* it is stated that the areas of strength of the University of Tampere are research on society and on health and that it is here that the UTA wants to be a world-class university. In the other areas of research the aim is to be a nationally significant university. The units that this Panel had to evaluate relate to issues of society and less so to health, but they do not, in general, directly focus on either society or health and so the level of excellence that their research is chiefly expected by the University to aim at is one of national significance, although many scholars work above this level. The one exception to this is the School of Communication, Media and Theatre Studies, which does have a societal focus for much of its work and would therefore be aiming for international significance. To evaluate the units it would have been interesting to have information on comparable Finnish university departments and schools, though the Panel understands that the RAE was not a benchmark comparison.

There are a number of differences between the four UoAs, including different cultures of research and evaluation. While bibliometric measures may be appropriate in some cases they are not in others. Furthermore, the UoAs differ in size and demographics. These differences may be part of the reason why the Panel encountered diverse ways of responding to the structural changes that have taken place since 2011 within each School.

The CVs provided numerical information on publications for each senior staff member but details were supplied only for selected publications. For non-senior members there were no CVs. Also, it is not clear how research time compares to the time needed for teaching and administration for each and every colleague. The commission did discuss these matters during the visit.

The Finnish National Publication Forum rating for is not fully felicitous. First, journals can be 1 (basic), 2 (leading) or 3 (top), but publishers, relevant books and proceedings can only be 1 (basic) or 2 (leading). This seems to imply that books can never be top. This is not correct. Of course, it is difficult to distinguish between 'leading' and 'top' publishers and books, but it is no less difficult to do this for journals. Second, 'publication series' can also be 1, 2 or 3. But it was unclear what exactly the category 'publication series' denoted.

Although these factors give the report a certain tentativeness, the Panel would like to emphasize that during the assessment process they saw a wide range of high-level research, much of which holds real promise and some of which can already be identified as internationally excellent.

2. Education (UoA15)

2.1 *Volume, profile and organization of the research*

A first impression of the volume of the research is given by the total number of scientific publications ($N = 540$) in a period of 6 years. With an academic staff of 64 this gives an average of 1.41 publications per person per year ($540 / 6 / 64 = 1.41$). If we look at scientific peer-reviewed articles per year per academic staff, this gives an average of 0.83 publication per person per year ($319 / 6 / 64 = 0.83$). This is not very high, but not very low either, especially considering that academics in education are expected to publish for both a professional and a lay audience.

A positive element is that the number of refereed scientific articles increased (from 35 in 2008 to 76 and 66 in 2012 and 2013). Most of the refereed articles are international publications. The number of new doctoral degrees is stable (between 11 and 19 per year). Less positive is the decline in funding between 2010 and 2013.

A relevant element appears to be that many academic staff members are heavily involved in teaching; 12 of them teach full-time and don't do research. According to the Self-Assessment Report (SAR) only 24 academic staff members are 'research-focused' (incl. 6 PhD students, which is a low number considering the number of doctoral degrees every year). Another group of people has at least 25% research time.

The School of Education was established in 2011, as the result of a merger of a Department of Education and a Department of Teacher Education, both of which were partly outside Tampere. For the new School, a new research profile was formulated. The graphical and verbal presentation in the SAR makes clear that a rather broad framework was developed with a focus on 4 areas: 1) Educational policy, 2) Educational and learning environments, 3) Citizenship and participation, and 4) Professional growth and development. The profile seems to be a rather original and creative construction, which allows one to include many of the core topics of the ongoing research in the research groups. The link with the profile of the University is explicitly made (cf. 'culture and society'). Many elements of the profile give clear indications of the priorities, e.g. the importance of links with the broader community, the focus on the well-being of teachers, etc. One has nevertheless the impression that the 11 research groups, which are not mentioned in the SAR but are present on the webpage of the School, are in fact the main structures of the School of Education. That is also suggested by the fact that several researchers are involved in two (or more) of the new areas and that no names of heads of the new areas of research are mentioned.

When reading the profile one can have the impression that many domains and topics which are important for teacher education are not mentioned or only barely so. This is especially true for the subject specific elements (pedagogical content knowledge) but also, for example, learning problems and classroom management.

The available information does not allow one to say much about the critical mass in the main research areas and groups of the UoA. For the 4 areas the following numbers of researchers are mentioned: 18, 23, 10 and 22. This seems to be a sufficient critical mass, but several people are counted twice and it is not clear how many individuals are included (nor how many academic staff members are not included). (A cross table of the 11 research groups and the 4 areas in which people who are involved in two or more areas are only counted as 0.5 or less would have been helpful here.)

One of the intentions of the new profile is to change the research culture in the sense of moving from ‘individual level research’ towards more collaboration. The SAR states it as follows: ‘It is essential that each research group specializes in at least one of the four areas’. How far this is already realized and how it is promoted is not spelled out. During the interviews it was further emphasized that the research areas are seen as a starting point for further planning and development. Using the research areas for organizing the research in the UoA is clearly an on-going process. The success of this endeavor is at least in part dependent on the allocation of resources to the organization of the research areas. Many research groups seem coherent, have substantial or at least trickles of funding coming in, and are productive in terms of output.

Dissertations have up to now been dominantly monographs. On the website dissertations published in 2014 and forthcoming ones (n=13) are all monographs. As the SAR highlights, PhD by publication is now promoted (see also <http://www.uta.fi/edu/en/doctoralstudies/dissertation.html>). In interviews with PhD students many decided to do a PhD by publication. There are several advantages to the PhD by publication, but also some risks; for example, the publications might take long to publish, students might “aim” too high or “go for a low threshold”. Are members of the staff well qualified and prepared for the kind of “mass production” of articles, which a group of PhD students can produce? Many students have already had significant experience in publishing. Thus one student has published 5 papers, 3 book chapters, 3 co-authored books, 2 papers in-press and 3 under review, all since 2011.

In the interviews it was clear that the recent merger of the UoA has been rather turbulent, and the staff are still experiencing the aftermath. Most of the educational research is applied. A more troublesome aspect with regard to research, typical for teacher education departments in Finland, is the large proportion of staff who do not carry out research. Lecturers in teacher education are typically outstanding teachers, so the teaching intensive courses are in safe hands (and will be subject to a separate evaluation of quality of teaching in 2016). A structural change that bodes well for the development of more research is that current lecturer contracts in teacher education include a mandatory proportion of research time.

2.2 *Scientific quality of the research*

According to the SAR the relevance of educational research to societal change is a core element of scientific quality. Because educational research is considered to have an applied nature, according to the SAR, it is vital to ensure, via dialogue, the significance and applicability of the results from the practitioners’ point of view. Therefore the research is often carried out to address issues that arise from practical needs. This vision leads to a lot of publications in Finnish and local publishing channels, which is confirmed by the tables and the bibliometric analysis.

The selected publications give an overview of the different kinds of publications (including dissertations, chapters in books and monographs), which reflect the previously mentioned research profile of the School of Education. And from the CVs of the senior individual researchers it becomes clear that even in the category of refereed articles in journals, for most of the researchers the number of national publications is higher than that of the international ones.

Nevertheless, many of the researchers have intensive international contacts (next to collaborations with Finnish colleagues), the number of refereed articles is increasing, and of the refereed articles in journals the majority is international (about 20% in leading or top journals). Two articles got an outstanding

paper award, one of which in an ‘impact journal’. And in the rather short period considered, the average scientific journal article was cited 1.9 times (according to the analysis based on the Scopus database by the UTA Library). Thus other researchers refer to the work of the School of Education.

The sample of publications, which has been read by the evaluation commission, appeared to be theoretically and methodologically sound. In many cases the topic was indeed original and context-relevant.

The UoA hosts quite a breadth of different research methods: interviews, focus-groups, discourse analysis, Bayesian statistics, and mixed methods and a wealth of designs: cross-sectional, longitudinal, cross-national, and historical comparisons. There are few studies using randomized control trials or interventions. Such studies provide evidence in the form of effect sizes and on how theory-driven applications work. There do not appear to be students and staff who utilize available secondary data (e.g., in the social sciences’ data archive). The use of secondary data eliminates costs for data collection and it can encourage methodologically apt students.

The Panel has a positive impression of much of the work, but it nevertheless has a question for the School of Education. Is it not *also* the task of educational research to try to answer questions about what it is that we, internationally, do not yet *understand* in relation to the functioning of classes, teachers, schools and school systems? The Panel is convinced, however, that the Tampere educational researchers also have to do research occasioned by practical problems in their local context.

Rating: 4 (Very Good)

2.3 *Scientific impact of the research*

In the SAR scientific impact is linked to relevance to societal change. A combination of research and development is considered to be the way to go, not least because it increases support for national and international collaboration between research groups. Such collaboration is considered to be essential in order to receive external funding.

Researchers of the School of Education were and are involved in several national and international research consortia. One very convincing example of a national and an international network is given. The School of Education was successful in getting funding within several EU Framework programs and is at this moment leading two such projects, next to a European Social Fund project and two Academy projects.

During the last part of the assessed period the School of Education was less successful in getting funds from the Academy, maybe because of its rather ‘applied’ approach.

Several academics of the UoA are editors-in-chief or members of the board of important journals, internationally or in Finland. Some are involved in the board of associations of researchers.

Of the doctoral graduates some became university lecturers or professors in a university in Finland or abroad.

As to the impact factors of the journals the researchers have published in, the SAR lists *Childhood* (impact factor 0.882 [journal homepage]), the *Cambridge Journal of Educational Research* (impact factor 1.6 [journal homepage]) and *Teaching and Teacher Education* (impact factor 1.8 [SJR]). If the UoA wants

to boost its international standing, authors should consider submitting to journals with higher impact factors (e.g., *Learning and Instruction*).

Rating: 4 (Very Good)

2.4 Societal impact of the research

The research of the School of Education is to a high extent societally relevant, at several levels. We give some examples to illustrate this, from the local to the international level. The School established a regional partnership with 53 selected centers for early childhood education in six municipalities. A professor of the School was also influential on the national policy on early childhood education. In cooperation with 5 other Finnish universities and 3 student organizations, the School carried out a project financed by the European Social Fund to produce practices which promote the engagement of students with the expert community to support optimal learning of students. A project on Migration and Transnationalism was also relevant at the national level, not only in Finland but also in 7 other countries, and also at the international level (with a conference in Brussels and 2 jointly authored books).

It is our conviction that thanks to developmental projects of the School of Education an optimization of the educational practices in many contexts has taken place. Indirectly this was of course also the case through the contribution of the School of Education to the research based education and training of many teachers.

More than 2 million euro, i.e. the majority of the external funding of the School of Education in the period of 2010–2013, came from Tekes, the European Social Fund and other public funding (including the city of Tampere).

Many of the projects are characterized by a strong collaboration between researchers, professionals and practitioners. One of the evidences is that several doctoral graduates are employed in expert positions in national organizations, such as Advisor at the Ministry of Culture and Education, Senior Planning Officer at the National Institute of Health and Welfare, Chair of the Finnish Teachers' Trade Union, Director of the Finnish Board of Education, and President of the Finnish Association of People with Physical Disabilities.

In its statement of Strategic Research Policies the UoA subscribes to a particular focus on “socially- and pedagogically-oriented education and training research in a national and international context”. This policy line positions the School as an integral part of the ‘social and health research’ profile of the University of Tampere and distinguishes it from educational faculties and schools of other universities. The “health” aspect in this strategic document is missing from the UoA’s research profile but some ongoing research projects are linked to this domain.

The committee has the impression that to a very high degree the School of Education lives up to the ambitions of the University of Tampere to contribute to developmental change in society.

Rating: 5 (Excellent)

2.5 *Quality of the research environment*

The UoA is physically located in the Virta building. The merger of previous departments into the UoA is part of the recent large-scale changes implemented at the UTA. The relocation provides opportunities for collaboration, but as became clear during the interviews, these are just the first steps within a longer-term project.

The research is mainly done within sometimes rather small research groups, some of which are to a large extent dependent on one or two externally funded projects.

The UoA has appointed a professor to direct research development in the department, it appointed a full-time research coordinator, and it commissioned a joint steering group of research. The appointed professor is clearly pro-active, as evidenced by the preparation of the comprehensive SAR. The steering group faces a big challenge in balancing top-down initiatives in the form of university reforms, and bottom-up demands from researchers and research groups. According to the SAR their next major task is to draw the contours of an internal research funding policy and continue to build capacity for sustained research income to researchers in the UoA.

It is quite a daunting task for a student to publish 4 papers during the PhD period, and a challenge for supervisors to support the stamina needed for such a task. On the question whether professors were comfortable with the volume of articles they co-authored with their students, responses were mixed. One was comfortable with two students out of 30 doing a PhD by publication. Another member had weekly seminars to keep the production going. The UoA has plans to allocate two supervisors for future (and maybe also current) PhD students. It would be beneficial to specify the roles of the two supervisors, by, for example, defining one of the supervisors as a main supervisor (who might meet the student frequently) and the other as a second supervisor (who might meet the student at longer intervals). Another solution could be to have one “substantive” supervisor and the other a “method” supervisor. The latter solution, when functional, could enhance each supervisor’s knowledge, and through this, contribute to capacity building in the UoA.

Six academic staff have visited foreign universities and the UoA received three short-term visitors from abroad. Three post-docs visited foreign universities for research collaboration. Many of the research groups had international collaborations. PhD student mobility is included as a standard expectation in Finnish Academy applications. The UoA is clearly going in the right direction. Not all students and staff are keen to go abroad, however, so international mobility should not be mandatory.

During the interviews with the UoA the role of the research coordinator was not further specified. From interviewing PhD students and post-docs it became clear that there is extensive knowledge about preparing EU grants. The University offers courses about how to complete Finnish Academy applications and about article writing. Such research support, which students and staff can turn to directly, is a valuable asset. There are several measures that research services can offer to staff, for example: circulating advance warnings of deadlines for grant proposals (say half a year in advance), help searching for collaborators within the university, assistance in finding secondary data analysis, and hands-on help with budget preparations. In another UoA there are examples of research which could be conceived of as “educational”, e.g. research on second language acquisition, bilingualism, and UTA websites refer to studies on students’ and teachers’ well-being carried out by the School of Health Sciences. There are funds available for students and staff to attend conferences each year.

Overall, we see a UoA which has implemented structural and organizational changes within a short period of time, to accommodate demands from both above and below. The goals are bold, and staff are aware of the risks they are taking. Some short-term fruits of the considerable efforts are already visible (e.g., many students have opted for a PhD by publication; many grant proposals have been submitted). Success will at least be contingent on stable resources allocated to the UoA. Funding is key during times when the state has reduced the resources for universities. There are some clear risks with this high-stakes endeavor, such as increased competition for resources between members of staff and between different institutions. Mechanisms for coping with drawbacks and rejections at the individual and institutional level would be important to consider.

Rating: 4 (Very Good)

2.6 *Future potential of the Unit of Assessment*

As pointed out in the previous section the UoA was evaluated shortly after large-scale changes to its structure and organization.

The research groups are gathered around quite coherent research themes and there are pockets of excellence. Whether the UoA should let “all flowers bloom” (such “blue skies thinking” is good for creativity and innovation) or put in place mechanisms which promote a more stringent direction of research should be discussed within the UoA. Concentrating efforts into fewer larger grant applications might improve chances of success, but such joint efforts might need to be initiated at grassroots level in order to engage all participants.

There are certainly themes and groups that have potential to achieve higher research quality and a greater scientific impact. As we did not have the opportunity to evaluate each research group we can only mention some examples.

Characteristics of Vocational Excellence and Learning (CharVEL): researchers carry out projects which fit well under Nokelainen’s theoretical model. Concurrent and planned outputs are in the form of articles, including a PhD by publication.

Early childhood education in a changing society and Early Childhood Education Institutions, Policies and Practices: researchers carry out many interesting sub-projects, within an overarching policy framework. Concurrent and planned outputs are in the form of articles, and a PhD by publication.

International Perspectives on Educational Discourses, Policies and Practices: researchers carry out policy relevant studies in developing countries; it is admirable to persist in research on education in developing countries, although impact can appear slow and indirect.

Learning and Development in School (LDS): researchers carry out many sub-studies in schools in four regions (through existing links with other Finnish universities, through collaborations forged during the Finnish Academy funded research schools); planned outputs are in the form of articles, and a PhD by publication.

Migration, transformation and transnationalism: two large studies having secured European Framework funding have collected large sets of interviews with immigrants in multiple countries; the educational implications are indirect and planned outputs are articles and books.

The research group on Engagement and change in academic communities already has a tradition in publishing refereed articles in international journals.

Recruitment into doctoral training at UTA and in Finland in general is competitive. In the interviews with PhD students and early career staff, marked differences between the two groups were expressed however. PhD students expressed enthusiasm and engagement with their research and teaching (the latter absorbs 5% of their time). Some negative experiences of excessive project assistance were expressed. Early career staff expressed disappointment and lack of career opportunities (e.g., calling the university a “dead end”). There appeared to be some mismatch between criteria for career progression and opportunities for engaging in activities that matter. For example, supervision of PhD students is a requirement for the subsequent career step, but few opportunities for co-supervision were available. Some described heavy teaching workloads. When asked about negotiation of workloads, there was no consensus on whether the teaching/research-balance was reasonable. With respect to career guidance, there does not appear to be any “neutral” person, other than one’s line-manager, to turn to. There were negative experiences of “career counseling”. Not everyone saw internationalization as an attractive career stage. The lack of positions to apply for was criticized. Assistance with EU applications was available.

In the interviews staff expressed both hopes and worries about the ambitious goals of the UoA. Given the substantive and methodological breadth of research, the elaborate plans and the restructured organization, we think there is a clear potential for the realization of the goals.

The steering group for research has been established and its mission specified. We expect that the group will grow with its task. And we hope and expect to witness considerable progress in the next 3 to 5 years.

2.7 Recommendations and suggestions

a) What are the main strengths and weaknesses of the UoA?

As a main strength we must emphasize that we observed a highly motivated group of senior and junior researchers, who do very valuable research and are also mostly internationally active. Also very positive is that during the recent period a common reflection on the research policy has been started and some important innovations have already been introduced.

As potential weaknesses we first consider the rather diverse research groups, some of which are rather small. A second weakness is that the senior staff are struggling with different views on the main purpose of educational research: is it applied research on local practical problems as the starting point, or is it participating in the international endeavor of obtaining new knowledge?

b) What are the opportunities and challenges of the UoA?

The integration of teacher education at all levels in the University is an opportunity in the longer term, but in the shorter term it is also a challenge. For the researchers, who are working on subject-specific didactics, getting research money is not easy. Because it is nevertheless essential to have research-based teacher education, both the UoA and the University should for a limited period invest in this research group on condition that this group is able to develop a collective and focused research program.

Another challenge is the fact that having a strong research program as a basis for attractive teaching is not yet the collective conviction of all staff in the School.

- c) *Did you find research areas or research groups that stand out from the general level of the UoA? ☞*
- d) *Did you find research areas or research groups that have potential to become international flagships in their research area?*

It was observed that several research groups are already frequently publishing in international peer-reviewed journals, such as the groups doing research on vocational excellence and learning, and on learning and development in school. But researchers on early childhood education, on higher education, and on migration and other issues also do very valuable work.

- e) *What measures should the UoA take to improve its performance?*

Our suggestions are

- to intensify the innovation process of the research policy, which has already been started,
- in some cases, to gradually develop a smaller number of bigger research groups, so that the functioning as a group is not dependent on one externally funded project,
- to enhance the cooperation with several other disciplines of the social and behavioral sciences, e.g., by looking to these fields for second supervisors for PhD's where appropriate,
- to stimulate more PhD students to work on a PhD based on articles in international peer reviewed journals, and to encourage them to spend a semester or a year abroad.

Another recommendation is to give some university lecturers the title of junior professor.

In order to attract and retain engaged early career researches, the UoA should consider a bigger investment in tenure track positions. For early career researchers co-supervision opportunities with senior staff should be made available. For career progression systematic staff appraisals by someone other than the line-manager could enhance realistic goal-setting, sustained goal realization and competitiveness for positions outside of the UoA.

3. Language Studies (UoA16)

3.1 *Volume, profile and organization of the research*

During the assessment period some relevant numbers have increased, viz. the number of publications (by 44%), the number of peer reviewed publications (by 85%), and the volume of external funding. This bodes well for the future.

The total number of scientific publications is 404 (or 403, according to the bibliometric analysis). The staff comprises 62 members, though probably not all of them were present for the entire period and some of the 22 junior members might have been 'very junior'. If one is allowed to divide the total number of publications by 62, the result is 6.5 publications a person, which divided by 6 (the number of years) gives 1 publication a person a year. This figure is low. The figure does not differentiate between articles, monographs, of which there are 10, and edited volumes. The overall low number is due to the less than ideal time allotment for research, in proportion to the time allotted for teaching and administration. During the visit staff members confided that the heavy teaching load is the major obstacle to conducting research. Nevertheless it is also said that research time increased from 12.31% in 2007–2010 to 17.53% in 2010–2012, and, at least for the School at large, to 26.2% now. In the current climate refereed articles in journals are valued most, and it is good to see an increase in this category. It is also noticeable that output is quite diverse across the focal areas. This is no doubt linked to their critical mass.

Critical mass is partly a matter of the number of researchers in a specialism, and these numbers are less high for languages other than English and Finnish. If we characterize the number of researchers relative to the four focal areas, the numbers are very encouraging (23, 23, 16 and 21 for the respective areas). However, as the SAR (p. 1) acknowledges, the line-up between the languages and the focal areas 'does in some respects form a challenge'. Another component is internal cohesion with, ideally, senior members providing leadership. This kind of leadership is manifest most clearly with respect to English linguistics, but is less apparent for the other languages and for Translation and Interpreting ('T & I') Studies. The report also states that 'most researchers are linked to external networks and groups'. This is, of course, very good, but it does not itself, contrary to what the report says, 'help to achieve a critical mass'.

The focal area that the SAR promotes most strongly is 'Language in Society'. This is fully in line with the UTA's research strategy, but the UoA still struggles with seeing this as an opportunity for proving the value of its research. 'Language in Society' is conceived of very broadly, which is appropriate. Thus it is presented as an umbrella for all research. However, 'Language in Society' also functions as a label for one of the four more specific areas listed in the SAR, which is confusing: it could give the impression that the other three areas fall outside the research focus of the School and thus also outside the University strategy. Moreover, the differences between these four areas are not always clear-cut. For example, the second focal area is 'Language variation and change'. As the SAR acknowledges, two of three articles of the third area, i.e. 'Descriptive and theoretical studies', concern linguistic change. Also, T & I Studies is presented as an area of its own with a wider profile in the School's strategy paper, whereas in the SAR it is put together with lexicography and language for special purposes.

It also strikes the eye that the four points under T & I Studies in the School summary document have nearly disappeared in this specific UoA16 SAR. T & I Studies are largely underrepresented in the SAR, which makes one wonder how much attention and strategic thinking is given to this area. Most of the

research conducted here seems to be of a traditional nature, although there is some indication of promising topics (audio-visual translation, interpreting in churches), which fit the more recent focus in T & I Studies internationally, on socio-cultural, socio-political, ideological aspects, on agency and institutional policies.

Arguably the strongest theme overall is English linguistics, which is addressed from various angles, such as that of historical sociolinguistics, English Celtic contacts, and the divergence and unity in Englishes. These topics do indeed fit under the 'Language in Society' label.

Most of the research is conducted within linguistics proper, although the sociolinguistic and psycholinguistic research endeavors are interdisciplinary. The BEDLAN project adds a very unusual interdisciplinary project to the portfolio, this time linking up linguistics with biology. It is also encouraging to see an ongoing PhD project (The language skills of immigrant physicians) in which forces are joined with the Medical School. This project furthermore addresses the challenges of migration in a globalizing world and shows the social significance of research on language.

Most of the research is basic research, but applications are visible in T & I Studies and in lexicography and in L1 and L2 research.

3.2 *Scientific quality of the research*

To the extent that one can judge from 25 publications, the UoA's research is very solid and to a fair extent also original and creative. Section 2 of the SAR, which puts each of the publications in its context, is persuasive. It is also very positive that the list contains four publications written by doctoral students and a good number by authors that are not characterized as 'senior staff'.

Some of the publications are prestigious, but it is not clear that they profile more than just their authors rather than the focal area or a theme. For example, the high profile work on Celtic Englishes and that on the history of medical writing in English are both under 'Language variation and change' and they both concern English, but it is not clear that they together provide a strong profile. For this we would have to see a few Tampere researchers working on Celtic Englishes or on the history of medical writing in English or, of course, on the other topics. However, it is clear that some projects funded by the Academy of Finland have led to group formation around the senior PIs (Change Tampere, Multilingual practices in the history of written English). There is much less evidence of such research group formations for themes in T & I Studies.

There is a general worry about the listing though. The choice of the 25 publications was motivated by two not quite harmonious, even contradictory, goals. On the one hand, the choice is to represent 'the scientific quality of the research carried out in the UoA'. 'Represent' would normally imply that most of the research is of this quality, which is not the case. On the other hand, and more appropriately so, the 25 publications were chosen because of 'their outstanding or excellent quality'. This choice does not easily allow for an evaluation of the totality of the research.

According to the analysis by the UTA Library, the percentage of peer reviewed articles in the Publication Forum level 2 and level 3 categories was 29% in 2009 and 23% in 2013. Since these relate to low absolute numbers in the first place, they should be seen as an incentive for improvement. The SAR also makes it explicit that the PF3 and PF2 publications are not 'distributed evenly between the different research areas'. One could have expected that for each of the four areas at least one PF3 publication would have

been listed. This is not the case for 'Language in Society' nor for 'Descriptive and Theoretical Linguistics'.

Of the 25 publications a bit less than half are single authored and the greater half is multi-authored. This is fine and it is a good reflection of the publication culture in linguistics. Of the multi-authored publications most have co-authors (and co-editors) from other universities. This is very good. However, there is only one publication with more than one Tampere co-author or co-editor (publication 5). One would ideally want some measure of group formation (critical mass) reflected in Tampere co-authorship or co-editorship. This is, of course, difficult to achieve, given that the group deals with six languages, studied in different research traditions.

The list of 25 publications contains a relatively large number of (co-)edited volumes (4) and (co-)edited special issues of journals (2), together 6 out of the total 25. They demonstrate the results of international cooperation, but again, more of individual scholars than of a Tampere team. It is thus difficult to use edited work as evidence for the quality of the research group itself, *qua* research group.

A good number of the published articles, books and collections explore new empirical domains or expand earlier work in a more detailed way (e.g. Uralic classification, Celtic Englishes, careful descriptive analysis of English complementation, L1 development). Nearly half of the 25 selected publications concern English, with Finnish or, more generally Uralic, in second position.

The methodology in the linguistic research is sound and in some cases innovative. This is most clearly the case in the BEDLAN project but also in the project on multilingual practices in the history of written English, which advances methods of corpus linguistics combined with other methods. In the research on language for specific purposes and the linguistically-oriented work on translation the methods are solid, even if not highly innovative. One exception is the auto-ethnography of interpreting research.

Next to the list of 25 selected publications, there is the window on the selected publications listed in the 14 CVs of the senior staff members. The first thing to notice is that the overall impression is positive. Even though these publications are not classified with the PF labels, we see a very good selection of original and important publications. The comment concerning the lack of co-authorship or co-editorship noted for the 25 publications is no less real for the publications in the 14 CVs. It is a cause of some concern that for six of the CVs (including all the T & I professors) the publications do not make it into the list of the 25 publications.

Another window on the scientific quality is the bibliometric analysis conducted by the UTA Library. The most relevant information is provided in Figure 4. Remembering again that the staff has 62 researchers, 40 of whom are senior, the number of PF3 publications is too low (4 in 2009 and 2013, 1 in 2008 and 2012, and 0 in 2010 and 2011). Admittedly, the classification system arguably undervalues books and book chapters, which can only reach the PF2 level, but even so, there should be more top level journal articles. The fact that basic, local and even unrated publications are present in good numbers is itself by no means bad: linguists most clearly have a responsibility on the local levels, too. Nevertheless, to reach an international standing, a more powerful presence in PF3 and PF2 levels is necessary.

To conclude: most clearly, some individuals have outstanding or excellent publications, but the UoA as a whole is not at this quality level, although the UoA does acquit itself well in its duties to publish research with local relevance.

Rating: 4 (Very Good)

3.3 *Scientific impact of the research*

The international visibility of the research can be appreciated through Table 4 of the bibliometric analysis carried out by the Tampere University Library. The data for this table come from Scopus. The table lists citation results for 24 publications and of these 75% have not been cited at all. Of the 13 refereed journal articles 61.5% have not been cited. These negative figures must be treated with care though. In the humanities, publications will be cited less fast but over longer periods of time. Furthermore, publications in languages other than English will be cited by fewer people, but specifically for the language sciences, non-English publications remain important. It is also possible to get a sense of the visibility of the individual authors of the UoA. Not surprisingly, some members of the UoA are much more visible than others. This observation too must be treated very carefully. Authors writing on English are bound to be more visible than authors writing on e.g. Nganasan. Of course, writing in English about English does not guarantee scientific merit. It is clear, however, that Tampere research on English is internationally recognized. A good illustration is that two members of the UoA have been commissioned by internationally leading publishing houses (Oxford UP, Cambridge UP) to edit two prestigious handbooks.

A large number of the members of the UoA take up important service roles in associations, on boards of journals and in academic committees. The unevenness seen in directly research related aspects of academic life is not visible here.

External research funding mostly comes from the Academy of Finland, which is excellent, since it is highly competitive. It is also good to see that the funding for 2013 is higher than for previous years. What is lacking is funding at the European level. The success rate is uneven among the senior members: if one checks the 14 CVs of the senior people for fund raising during the 2008–2013 period, it is clear that a little more than half (8) have not acquired any external funding. This unevenness also relates to the different focal areas and their critical mass. For instance, no significant funding has been won for research in T & I.

To the extent that one can see this in the publication lists, both the 25 ones chosen for the UoA as a whole and the ones that go with the 14 CVs shown to the Panel, Tampere linguists overwhelmingly find collaborators in Finland. To the extent that the research concerns the Finnish language, this is perfectly justified. But the dominance of collaborations with Finns is too high – for the UoA as a whole, albeit with a few clear exceptions. This underdeveloped internationalization is also reflected in the paucity of longer research stays abroad or of longer stays by foreign researchers at Tampere. These two aspects of academic life are related. Given that 24% of the staff is foreign, one would have expected more international collaboration.

It is difficult to judge the employment history of Tampere doctoral graduates. The SAR does contain five good examples of Tampere doctoral graduates who are now in leading academic positions in Finnish

academia, with some of them also having achieved high standing in the international community of their field of expertise.

The conclusion is that individual members do very good if not excellent impactful work and attract excellent external funding. International collaboration is modest.

Rating: 4 (Very Good)

3.4 Societal impact of the research

A good part of the research is fundamental research, not applied, and hence the societal relevance is less urgent. Nevertheless, it is clear that individual members bring their work into society and the case studies described in the SAR are most worthwhile, most clearly with respect to language teaching and translation. The first case study is a good example of the collaboration with the City of Tampere and local schools. The second case study is extremely interesting and highly promising. It shows social relevance and is an example of interdisciplinarity (collaboration with the Medical School). The third one shows good examples of academics being involved in professional accreditation (translation, interpreting) as well as awareness-raising and training for users of T & I services. However, the link between the research and its application to a professional practice is not explicitly addressed, except in the second case study.

Funding for the relevant projects is modest, and very much like what one sees in the rest of the world; the employment history of the UoA's graduated doctors is also modest. The UoA should give more consideration to societal relevance in its research strategy.

It is not obvious to what extent holding positions outside academia is evidence of societal impact. There is no information on what exactly was achieved, or on which policy was put in place thanks to the activity of academics.

One element of societal relevance is that the UTA staffing reflects society with a decent gender balance. The gender balance does not distinguish between the levels of the academic hierarchy. For 58 staff members the proportion is 28% male vs 62% female. For the 14 senior members the proportion is the opposite (57% male vs 43% female), but it is still very good. So it looks like the UTA sets a good example for society.

Rating: 4 (Very Good)

3.5 Quality of the research environment

For coordinating and strengthening research in the School, the research center *Plural* was created in 2013. However, the effect and effectiveness of *Plural* is not clear. The little that is said about it strongly suggests that this element of management does not have a big effect on the various stages of research. *Plural* furthermore takes care of literary studies too: the organization unites all of the 62 researchers in linguistics plus the 30 researchers in literature. This structure may therefore be too big.

The research center *Plural* coordinates research for LTL but it does it only for one of the four focal areas, viz. for 'Language in Society'. It is also an aim of *Plural* to bring together the research of the linguists and that of the scholars of literature. This can no doubt be done, but given the very diverging

directions that both disciplines have taken in the last half century, it is not clear that this aim should attract much energy. One could certainly imagine cooperation (narrative theory, stylistics, text analysis, communicative strategies, multilingualism, immigrants and their communicative needs, etc.). The Tampere linguists have so far not brought these issues within their research range. A good point is that *Plural* has addressed the needs for research support and has started organizing workshops, for example, for writing applications.

One very important obstacle to research excellence is the very high amount of teaching, necessary in language proficiency, visible in contact hours, preparation and correction work and, at least for some languages, the high staff-student ratio.

As to mobility, it has also already been mentioned that the number of research visits, both incoming and outgoing, is low, which limits possibilities for joint research, funding applications and publications.

For a unit of this size and nature, the number of doctoral students is good and evenly distributed across the research areas. The new generation is increasingly provided by training and supervision (after the dismantling of the national program LANGNET), they are involved in meetings, go to conferences and start writing papers. There seem to be relatively few 'old style' doctoral students left. The SAR says that 'supervision in almost any field of linguistics and translation studies is available' - this is ambitious, but one wonders whether the focus should not rather be on the 4 focal areas so as to contribute to the aim of achieving a critical mass.

It is said explicitly that PhD positions are filled after an international call, although so far this has not attracted students from outside of Finland.

There are currently only 3 postdocs. This figure is too low. There is no clear career path and insufficient employment opportunities in academia.

The physical facilities are excellent and conducive to collaboration.

Rating: 4 (Very Good)

3.6 *Future potential of the Unit of Assessment*

It is clear that the good track record in funding, even though uneven, gives promise of future success, which, unfortunately, is likely to remain uneven. The successful themes of the past and the present, with a focus on the study of English and Finnish, and some very forward looking topics (e.g. Language Proficiency of immigrant physicians), will remain attractive for national funding agencies. There have also been positively unusual projects, such as BEDLAN, which are deserving of follow-up studies. If funding applications are successful, there will be temporary staff, but this does not lead to new structural positions. However, in retirement situations, the UoA should consider devoting the new positions to new cutting edge research areas, which should be identified within the UoA's research strategy. The latter is not currently spelled out sufficiently, however, and there is a lack of ambition. The promise of continuing good research along well-known paths is no longer a guarantee for securing funding in the modern competitive research environment in Finland and in Europe.

The overall theme of 'Language in Society' has the potential for high quality future research. One of the components is 'Language' and the theme certainly allows for analysis of language on its own, which is

what is happening with great success. Furthermore, language proficiency is also relevant for social development more widely, both for Finnish citizens in an increasingly globalized world and for the integration of immigrants. Research into language proficiency, foreign language acquisition, translation and interpreting, professional communication is thus also needed.

The six measures enumerated for realizing the UoA's potential are rather vague (SAR, p. 14). The same goes for the section about contacts with other disciplines, in part concerning the potential for multidisciplinary projects with researchers in other Schools. It is not obvious what the measures are that will increase cooperation between researchers of different languages. This is mentioned (SAR, p. 15) as a great potential asset, which needs work. Cooperative research needs to be boosted too for topics involving one language only. The formulation of the development targets shows a good awareness of what needs to be done, but it is less clear how these aims are to be achieved, nor it is clear that *Plural* is the right structure to manage the planned improvements.

3.7 Recommendations and suggestions

a) *What are the main strengths and weaknesses of the UoA?*

The main strength is that the UoA is home to a good number of strong individuals and a concentration of intellect on a broadly conceived 'Language in society' theme. There are highly motivated and enthusiastic junior researchers (doctoral students and postdocs). The language that is studied with the best visibility is English. There is also a great infrastructure.

Linguistics as part of the LTL School is 'teaching-intensive' and also practically oriented. This is a strength and it shows a commitment to the community. For achieving excellence in research, the figure for research time reported on page 2 of the introduction to LTL (17.53% on average) is too low. It is promising that the time allocated for research in the workload has now gone up to 26.2%, although this is the average for the School as a whole.

The main weakness is that the quality and the quantity of the research are (too) uneven. We see this along various dimensions, viz. number of publications, citation analysis by the University of Tampere, and evidence of external funding. This is, of course, the case at many institutions, and academic staff have teaching and administrative obligations, next to research obligations. It is possible that the teaching or administrative obligations are too heavy or that some colleagues are simply much better in these tasks. Another weakness is the fact that the Tampere linguists, though they often study matters of interest beyond Finnish, do not sufficiently collaborate with non-Finns, they also do not travel enough or get enough international visitors (not counting short term visits). It is not clear that German, French, Swedish and especially Russian and T & I Studies are strong enough to attract major funding.

Under future potential, the SAR (pp. 13–14) just mentions the same list of four areas as before. But it is not clear how future-oriented the third and the fourth areas are.

The paragraph in the middle of p. 14 is rather vague in speaking of new concentrations and promising nuclei – there is a reference to research synergy with literary studies here and other Schools. This should be made more concrete.

b) What are the opportunities and challenges of the UoA?

Some of the members of the UoA have been successful in project funding for the future. There is no reason why the future – and the ongoing – projects could not be more collaborative than the earlier ones have been. Collaboration with colleagues from other Finnish universities is already in place. What is lacking too much is cooperation within the UoA itself and between the Tampere linguists and international colleagues. From all languages, colleagues could explore scope for joint projects. The development of a distinctive profile is a challenge for the T & I specialists.

c) Did you find research areas or research groups that stand out from the general level of the UoA? ☺

d) Did you find research areas or research groups that have potential to become international flagships in their research area?

It is clear that some members are more successful both in publications and in project funding – and there is a good overlap. The most visible work focuses on English. 'Variation and change' captures a fair amount of this work. It is strong, but it is not sufficiently profiled, paradoxically in part because there is good collaboration with other centers. Some of the T & I research does have the potential to produce good results since it is addressing new topics (e.g. audio-visual translation, user-centred translation) or is using innovative methods (e.g. autoethnography for church interpreting).

e) What measures should the UoA take to improve its performance?

The researchers in the UoA should embrace the new challenges created by the restructuring of the University more than simply adjust to the new reality and go on as before. The UoA should aim more at identifying emerging research topics and developments in the discipline to be able to compete in the arena of funding.

The UoA could try as much as possible to simplify organizational structures, perhaps by not having both a doctoral program and a research program and then having to make them collaborate, but by having one program, which sets out the research, inclusive of the doctoral research.

With respect to *Plural*, one should either explore anew the possibilities of joint research or lower its ambitions and consider it only as an administrative.

The UoA should be realistic and modest about the potential for research in collaboration with the scholars of literature, and not structure this too much, or show with a joint project that the cross-fertilization potential is real.

If UTA wants to focus on research and to increase the volume and the impact of the publications, time will unavoidably have to be taken away from other tasks, the administrative ones, but also the educational one. No effort should be spared to tie up the teaching and the research and to involve pre-docs and post-docs (more) in the teaching. Post-docs should of course focus on research, but in the job market teaching experience will be an asset. So they should be given a chance to get this experience. This will also have the effect of giving the more senior staff members more research time. In this and other ways the average time allotted to research could be increased even more. The sabbatical scheme is also a good initiative for supporting research.

There is a general sense in the evaluation of science that publishing in journals is better than in book chapters – this is reflected in the fact that the Finnish Publication Forum does not give the PF level 3

for books and book chapters. The UoA could act on two fronts: (i) join forces with similar organizations to upgrade books and book chapters, but also, not least because success of the first action is far from obvious, (ii) aim to publish more in top journals.

The UoA has 4 senior staff members that are older than 60. This should mean that there will be 4 job openings in the relatively near future. The UoA should prepare these openings well in advance and it should recruit internationally. At the moment very nearly all of the senior faculty members hail from Helsinki or are Tampere graduates. This is not inherently bad, but care should be taken that in the future the best person gets employed in the best position, independently of origin. Of course, Tampere should not discriminate against its own graduates, but even though the UoA should support its own graduates on the job market, it should not favor them for Tampere jobs. Obviously, Tampere should not crusade against Helsinki either.

Due attention should be given to the importance of T & I for the future. The UoA needs a proper strategy on where they want to go with T & I Studies.

In order to profile Tampere linguistics, there should be more internal collaboration, visible in co-authorship, ideally in more than one variant, i.e. with 2 or more senior members, 2 or more junior members and with a mix of senior and junior members.

There should also be more long term research visits, in both directions. The new Visiting Professor program, established in 2013, is a step in the right direction, but given the limited funding, one should evaluate the current rule that the appointment is for 3 years. The increased academic mobility should be reflected in co-authorship and/or joint funding applications.

For research themes for which it makes sense, one should strongly support (and make it financially possible) for doctoral students to spend a term (e.g. 3 months) at a foreign institute.

One could consider building in an obligation for doctoral students to publish during the time they write their dissertations.

The UoA should not shy back from organizing major international conferences in linguistics and T & I Studies, ideally related to one of their focal areas, thereby putting Tampere more firmly on the map.

4. Literary Studies (UoA17)

4.1 *Volume, profile and organization of the research*

The Literary Studies Unit of Assessment is a much smaller unit than Language Studies. It comprises 30 researchers only, of whom 16 full-time-equivalent are of lecturer or higher rank. So the output of 300 items, approximately half of which were peer-reviewed articles or monographs, looks quite impressive and is certainly productive. The percentage of this work that is classified as international seems reasonable, but we believe there is scope for faculty to secure international publication for more of their work—or sometimes (depending on the topic) to see national publication of their work as not precluding subsequent international publication.

In terms of numerical output, the following may be noted: a total of 159 refereed scientific publications were produced across the six years of interest. This equates to nearly one publication (0.88) per staff member per year, assuming a steady complement of 30 staff for that period. The frequency of scientific *peer-reviewed* publications per year per staff member, where only the 25 salaried staff are included in the calculation, is only slightly lower: 0.81 publications per faculty member per annum, or four items in five years. We also note, outside the above calculations, an impressive number of scientific monographs produced by the salaried staff in the 6-year period: 37 volumes, all peer-reviewed.

We are confident that there is a critical mass of researchers in the first of the three research areas, Narrative; it is less clear that the question can at present be answered affirmatively for the other two research areas. The UoA boasts 3 senior narratologists together with high-achieving younger scholars also, whereas in the fields of spatiality and intermediality there are simply fewer personnel, although the output so far in these areas is commendable. The UoA has acted strategically in identifying these three areas of concentration, which accommodate the research of all faculty.

The scope of the research in the UoA is largely defined by the three research areas, which give the UoA a mostly clear, interesting and promising profile. The members of the UoA have done an excellent job, identifying their main strengths, defining them clearly, and developing a cutting edge research profile which maps well onto the stated strategic research priorities of the University. These three research areas are as follows. First, narrative theory, where ‘staunch metatheoretical’ commitments are combined with interesting links with social sciences. Here there seems to be a genuinely inter- and transdisciplinary orientation, and this should lead to innovative work. A second concentration is in spatiality and intermediality: outputs falling under this category (or categories) seem quite wide-ranging, and here it was less clear whether there was a strong and specific focus to the work. But this is a far more recent theme than the narrative one, and it may be that an energetic hub and identity to work in this area is only emerging at present. Finally, literary history is nominated as a concentration: this is a more mainstream disciplinary preoccupation, of the kind one would expect to find in most Literature departments, but by no means the worse for that.

The research center, Narrare: Centre for Interdisciplinary Narrative Studies, now constitutes a particularly interesting and new venture, and reflects the ongoing highly visible work on narrative at UTA of both senior and junior researchers, national figures in the field.

The researchers in this UoA are well qualified, having already acquired excellent track records and equally impressive publication lists, including many peer-reviewed articles and several monographs in Finnish and English (for details see above).

Both narrative studies and the research on water strike us as inter- and transdisciplinary work of high quality. It is still rare to find researchers in literary narratology who have managed to forge interdisciplinary collaborations with colleagues in the Schools of Social Sciences and Humanities and of Education, as well as with other disciplines (e.g. Psychology, Philosophy, and Health Sciences). The members of the UoA already have a very good record of interdisciplinary collaboration, resulting in a series of interesting publications bringing together literary studies and the social sciences.

The research areas are inter- and trans-disciplinary in an interesting and innovative way in that they bring together researchers from the fields of literary studies and the social sciences in order to study intermedial forms and practices of, for example, life-writing and meaning-making from complementary disciplinary angles. The added value of interdisciplinarity in this UoA consists in combining the metatheoretical and methodological expertise of literary studies, especially in narratology, and the interpretation of complex sign systems (like fictional narratives) and of social scientists in the analysis of empirical sociocultural factors.

Although the traditional focus in literary studies is on basic research, this UoA seems mostly to have a good balance between basic and applied research. This is especially true of the scholars working in interdisciplinary narrative studies, and in the literary history project (such as the Russian oral history project).

4.2 *Scientific quality of the research*

The quality of the Unit's disseminated research, as evidenced by recent publications, is mostly very high, including a number of substantial items (among those to which our attention was directed) that are excellent by international standards. To assess fairly the Unit as a whole, it would have been useful to have had early sight of a listing of all recent publications and other research outputs of all staff (not just professors); but we understand—and appreciate—the more selective initial presentation. Those preliminary documents and url links were supplemented by the visit to the department, poster presentations, displays of books and offprints, and inspiring conversations with a range of members of the Unit, from doctoral students up to the most senior professors. On the evidence of all these forms of assessment, we can state that the Literary Studies UoA has produced work that is highly original, and innovative. Categories like 'narrative', 'water', and 'space' are in a sense ancient and certainly powerful ones. But the Unit is exploring and applying these concepts in intellectually invigorating ways, in relation to a range of real-world challenges (healthy ageing, worker identity in Russia and Finland, self-expression in current social media, the function and meaning of rivers in the past and today, etc.).

In terms of originality, significance and methodological rigor, the research of the UoA is of excellent quality in all of the areas that have been defined as the main research priorities. Work done in the UoA has already begun to be an important point of reference in both literary narratology and in interdisciplinary narrative studies in the social sciences, bridging the gap between two research traditions that have so far developed largely independently, to the detriment of both. The same holds true, albeit to a lesser extent, of the research and publications of the two other research areas, which however also stand out by virtue of their productivity and scientific quality.

There is considerable evidence of methodological sophistication and sound empirical foundations underpinning the work in Literary Studies. In the nature of this discipline, and its necessary tasks of contextualised interpretation and evaluation, literary research cannot fully conform to the kinds of controlled empirical enquiry expected in the natural sciences; and accomplished literary scholars like those in the UoA are well aware of these background conditions. But there is no evidence here of the researchers simply endorsing the concepts and methods of others, and uncreatively applying them to new texts or new media. In fact one of the strengths of the Unit's work, especially on narrative but also on water and space, is its eagerness to develop new methodological instruments for revealing just how cultural members use narratives, water or space in their making sense of their own lives and circumstances. In these ways the work of the Unit promises to be highly relevant to society (to Tampere and Finland first, but to the wider academic and social world also).

The UoA's decision to focus on metatheoretical issues and to develop "a staunchly metatheoretical and interdisciplinary approach to narrative with a commitment to methodological innovation and comparative analysis of diverse narrative environments" (SAR) is likely to foster interdisciplinary collaboration among the Schools of UTA, and speaks to the strategic research priorities of the University on health and society. The UoA has the potential to share their metatheoretical and methodological research skills, especially in textual analysis, with colleagues working in other Schools and Units at UTA. By the same token the work done in this UoA stands to benefit from the methodological skills in empirical research developed in, e.g., the Social Sciences, the School of Communication, Media and Theatre, and the School of Education, and we would encourage further exploration of such possible collaborations.

In conclusion, some extant and emerging research in the UoA is on several occasions of outstanding quality in terms of originality, scientific significance and methodological rigour, while the other research is mostly of excellent quality.

Rating: 5 (Excellent)

4.3 *Scientific impact of the research*

Some of the research done in the UoA has attained a significant degree of visibility internationally as well as nationally. Researchers of the UoA have organized and chaired several panels and given keynote lectures at major international conferences (see SAR, pp. 4–5). Additional evidence includes international publications in renowned book series and peer-reviewed journals, positions in influential international academic associations, as well as participation in Chair appointments and research assessments in prestigious foreign universities. The research of the UoA has attracted a great deal of interest in the international academic community and has a notable impact on the development of the fields identified as the core research areas.

Placing the concepts of mediation and intermediality at the core of human experience, interaction and meaning-making, the UoA researchers argue that mediation and media transposition are essential for a better understanding of the forms and functions that storytelling practices have taken in today's media culture society, both in the realm of literature and the arts at large, and natural forms of storytelling in the everyday world. The generic, medial and thematic scope is broad and ambitious as well, ranging from intermedial autobiographies to emergent narrative practices in social media and everyday storytelling.

The UoA has well-established national and international research networks, with evidence of fruitful collaboration and networking, which already includes most of the leading centers and figures in the field of narrative studies (cf. SAR, p. 2: Ohio State University's Project Narrative, Aarhus University's Centre for Fictionality Studies, Linköping University's Centre for Dementia Research, and the American University of Paris). Moreover, researchers on spatiality and popular culture collaborate with the University of Zurich and have already established successful links with universities in St Petersburg, Yekaterinburg and Perm. The Unit has managed to establish an impressive list of renowned international collaborators from disciplines that have bearing on the Unit's interdisciplinary research concentrations. The list of collaborators and short-term visitors in recent years (see SAR, pp. 8–9) includes some very distinguished colleagues in the fields in question. Coming from different disciplines and fields, the international collaborators and their disciplines bring complementary expertise to the UoA's projects.

The UoA has an impressive record of placing their best doctoral graduates, several of whom have been hired by universities in Finland and internationally, including professorships in Estonia and the USA. Moreover graduates from the UoA have found positions as university lecturers in a number of Finnish universities. The research of the UoA has already attracted a great deal of interest in the international academic community and has had notable impact on the development of the fields of narrative studies, intermediality, spatiality, as well as on Finnish and Russian literary history.

Several members of the UoA have also attained national and international visibility by being prominent in academic associations, committees, conferences, and editorial boards. The UoA has a relatively significant amount of external funding from national sources, and it has the potential to secure international research funding as well.

Rating: 5 (Excellent)

4.4 *Societal impact of the research*

Although research in literary studies is assumed to be without immediate societal relevance, this can easily be overstated. The UoA has managed to develop its research profile and interdisciplinary collaboration with the social sciences in such a way that its research does have considerable potential to become societally relevant, both locally and nationally. The range of cultural bodies and NGOs that the Unit is already collaborating with is impressive and clearly beneficial to both parties in each case.

Thanks to well-established collaborations with non-academic partners, including cultural associations and non-governmental organisations, the research is much more visible in society than one would tend to expect in the field of literary studies. The UoA has successfully carried out research projects with non-academic partners, as the two case studies described in the SAR demonstrate (cf. SAR, pp. 7–8). The Café Voltaire project merits singling out for commendation, as it serves to promote public literary debate and make research on contemporary literature visible and accessible to the wider public.

The UoA has secured a creditable amount of non-academic funding, which testifies to the sustained and successful attempts to broaden its funding base in any way possible, while also forming alliances to non-academic partners that could be very beneficial over the longer term. The researchers have established various kinds of collaboration with non-academic partners, ranging from the promotion of literary debate to the wider public to securing funding from non-academic partners. This has resulted

in a range of kinds of impact, including making research on literature accessible to the wider public and establishing sustained links with societal institutions.

Although most of the doctoral graduates of the UoA find employment in academe, nationally or internationally, there have been a few impressive cases of PhDs proceeding to prestigious employment in the non-academic world. Examples include a lectureship at the Classical High School of Tampere and, most notably, the directorship of the Finnish Institute for Children's Literature, held by an alumna from UTA.

As the above commentary and examples serve to testify, the members of the UoA clearly consider the societal relevance of their research an important aspect of their activities. The UoA has an impressively wide conception of its societal relevance in that it highlights outreach to the wider community, and this is particularly noticeable in some of the ways that the impact agenda is being instilled in its younger researchers, at doctoral level, by their supervisors.

In conclusion, the UoA engages with society extensively in its research and outreach activities. Due to its interdisciplinary nature, the research conducted at the UoA is potentially highly relevant for society, both as far as the production of new knowledge and methodologies, and its service to civil society (and potentially also the health care system), are concerned. The members and doctoral graduates of the UoA are sought-after experts and employees in the academic, public, and private sectors.

Rating: 5 (Excellent)

4.5 *Quality of the research environment*

Despite its limited size and personnel, the UoA has managed to create a high quality research environment with the organization, staff structure and other resources supporting that research. The researchers working in the UoA have established an excellent team of senior and junior colleagues, i.e., researchers in different stages of their careers, working in relevant and complementary fields. Although some of the members of the research Unit have only fairly recently defended their PhD theses, they are all well-qualified for the research projects currently pursued and envisaged in the UoA. The UTA has become very well-known for some excellent work in narratology, and in a larger unit, an even larger impact should be possible. Despite or perhaps because of the limited size of the UoA, its leadership and management structure appear to function very satisfactorily; i.e., they are fit for purpose. In some ways, the highly constructive and creative ways in which the researchers of the UoA have responded to the ongoing change at UTA could be seen as a model of how to manage and implement policies and actions in comparably small UoAs.

The four-tier seniority structure of the academic staff and the limited opportunities for career development neither really support nor hinder high quality in research. The site visit, however, revealed that there is a desire among the junior staff members for more flexibility in the system as far as career development is concerned. The career paths and possibilities for younger researchers, especially in the post-doctoral phase, seem somewhat limited and may cause unnecessary insecurity that in turn could adversely affect research performance.

There is considerable international mobility among the members of the UoA, which has also enabled them to attract high-level visiting scholars from abroad, albeit so far only for short-term visits. More

and longer exchanges, including at the (pre-) doctoral level, are to be encouraged. The recently-founded center, *Narrare*, could become a magnet for intellectually exciting and invigorating international visitors.

While the research funding seems to be adequate for present purposes and the current size of the UoA, the funding stream has neither a clear profile nor a sufficient degree of sustainability, in being partly reliant on external funding. Applications for funding rely on the initiative and additional workload that individual researchers are willing to invest, and these are proportionately more onerous in a small Unit. The University might consider providing additional incentives for researchers who are willing to “go the extra mile” in the securing of external funds, with seed money to assist in the preparation of the very strongest external grant applications. In order to be fully operative and to develop its full potential, the new *Centre for Interdisciplinary Narrative Studies*, like other initiatives for setting up similar interdisciplinary centers and projects that create synergy among and across the Schools, will need some form of adequate and sustained funding. We suggest that UTA may need to be ready to cope with changes in the national climate if, for example, the government partially withdraws the funding of humanities degree teaching (as has occurred in England). In English universities this has caused Humanities staff (especially) to devote more time and energy to teaching undergraduates (now fee-paying), while also trying to satisfy personal and management expectations that faculty be research-active and –visible at an international level: dual and sometimes conflicting pressures.

Despite funding constraints and a relatively small staff complement, the Unit can rely on a fairly good research infrastructure, including very good opportunities for researcher training, and for fruitful cooperation with doctoral programs in Tampere and elsewhere. Although the researchers have managed to use the infrastructure efficiently, we have some concerns that, if the Unit is successful with its ambitious but realistic strategy and its bids for external funding of large projects, the extant levels of infrastructure and resource may be insufficient.

Currently there are adequate support services, both at the Unit, School, and University levels. But in order to realize their ambitious plans, additional support may be highly desirable and justifiable. This might include, e.g., the model of a research coordinator (as implemented in the School of Education) and support for the fostering of international mobility.

Although there seems to be a reasonable balance of activity among research, teaching and doctoral supervision, the impression prevails that the teaching burden is quite heavy in the School of Language, Translation, and Literary Studies, and that this impinges on the time and energy necessary for research and the writing of funding applications. Besides sabbaticals, the UoA could perhaps explore organizing light teaching semesters for research-active staff, with courses covered by doctoral TAs.

Overall, and mindful of the greater vulnerability of a small Unit if staff movements occur, especially with regard to sustainability and ongoing critical mass, the environment we rate at very good.

Rating: 4 (Very Good)

4.6 Future potential of the Unit of Assessment

As delineated above, the research conducted by the UoA and its thematic subgroups is highly promising in terms of its research agenda, quality of research, scientific and societal impact, and research environment. The Panel is convinced that the UoA has great potential and could become a catalyst and hub for generating successful internal collaboration across the Schools.

There are, however, some themes and groups that have the potential to achieve even higher research quality and make a greater scientific and societal impact, despite the limited numbers of faculty. This pertains to those research areas where the research is largely dependent on just one or two scholars. We should like to hasten to add, however, that the researchers working in the UoA could not reasonably be expected to do more, although they could perhaps be encouraged to explore fuller engagement with one or more of the already-established areas of research for the study of intermediality and spatiality.

The UoA has so far managed to recruit excellent staff both at the professorial and post-doctoral level as well as below in recent years. It has also managed to attract very good doctoral students, as evidenced by the poster presentations to the Panel. Different trajectories could be envisaged for the further research development, if it were possible to increase the size of the Unit, in terms of both staff and student numbers.

The UoA has a realistic understanding of its manifold strengths and few weaknesses, the latter being due to limitations in size rather than academic quality. Researchers have demonstrated that they have a keen eye for the possibilities that the ongoing changes at UTA and in the wider university sector entail, focussing on the academic strengths of the UoA and building upon them.

The UoA has an ambitious but realistic and achievable strategy, and a viable plan for carrying out that strategy. The power of the strategy derives from directly and constructively addressing the most challenging characteristic of the UoA, viz., its limited size and manpower, with a focused research agenda and profile, and a coordinated set of policies and actions. The researchers have managed to redesign their collective profile in such a way that the UoA can showcase its impressive strengths, while accommodating a sufficiently broad range of different research themes and interests. The three research priorities are by no means small or niche positions, but have the potential of becoming hubs of inter- and transdisciplinary research ventures, attracting top-quality doctoral students and renowned international scholars.

The expertise and personal merits of the senior researchers are appropriate and sufficient for the ambitious strategy and goals that the UoA has devised. With the limited current size and resources of the UoA, it has done an excellent job and achieved highly impressive results. As for advancing to even higher international visibility for this already top-quality research activity, much depends on the Unit winning large external funding support for their ambitious but coherent strategy.

4.7 *Recommendations and suggestions*

a) What are the main strengths and weaknesses of the UoA?

One of the main strengths of the UoA is that it has managed to respond to the restructuring changes in a very productive way. As outlined above, the UoA has developed an excellent strategy to focus on the core competencies and research areas of its faculty, thus creating strength and coherent research design. Instead of pursuing multiple goals and objectives that might be unconnected with one another, the Unit has created a clearly-focused profile and a cutting-edge research agenda, revolving around three main research priorities (see 3.1 and 3.2), in which the researchers have already established a strong track record of high quality work.

Additionally, the research done in the UoA has high scientific and societal impact, not only nationally but also internationally. Moreover, with the newly-established *Centre for Interdisciplinary Narrative*

Studies (Narrare), the UoA is in the process of developing an excellent research environment that is likely to become a hub of transdisciplinary narrative studies, and attract first-rate national and international scholars.

The main weakness concerns critical mass: the senior academic personnel are uniformly of outstanding quality, and this in turn will make them attractive to many competitor institutions, not limited to Finland. Without a larger body of professors, if even only a few of the present cohort were to move on, the sustainability of the current very high quality research production would be much less certain.

b) What are the opportunities and challenges of the UoA?

One of the opportunities for the UoA would be to increase its size both in terms of student numbers at BA and MA level especially, and in terms of post-doctoral and more senior researchers. The consequential challenge of such an increase in size would be the need for further assiduous maintenance of focus and coherence in both research and organization. There are clear risks in expansion, which accompany the potential benefits.

c) Did you find research areas or research groups that stand out from the general level of the UoA?

The Panel is convinced that the research group on narrative studies and the recently-founded center, *Narrare*, stands out from the generally very high level of the research quality at the UoA, having an even greater scientific and societal impact. It could even be an academic catalyst and a model to be emulated, with regard to how a small UoA can creatively respond to the University's declared research strategy in an innovative way. It could also be a model for how interdisciplinary work and synergies across a number of Schools could be encouraged at UTA. We note that the collaborative links with the Social Sciences have been firmly established and resulted in a series of joint events and publications of international interest (evidenced by the use of publishers such as de Gruyter and Palgrave). On the same basis, with adequate support (e.g., some seed-funding), similar collaborations could and should be fostered with Psychology, History, and Philosophy. We would like to encourage the UoA to get colleagues from the Health Sciences involved, because any research conducted in future at the *Narrare* center could become a player in the development of Narrative Medicine, which could further advance the scientific and societal impact of the Unit's work.

d) Did you find research areas or research groups that have potential to become international flagships in their research area?

As noted above, the research group working in the area of interdisciplinary narrative studies has the potential to become an international flagship, if the new center is provided with adequate seed-money and manages to obtain additional external funding. In the process of solidifying its developing international networks and partnerships, the UoA should continue to target its visiting professor positions to those scholars whose work it particularly believes will be of benefit to the Unit.

The positive atmosphere and upbeat morale in the UoA are hallmarks of the admirable team spirit and enthusiasm that the Panel found pervasive. It is such a positive and supportive team spirit that will increase the likelihood that this UoA develops rapidly into a flagship institution.

e) *What measures should the UoA take to improve its performance?*

The function of *Plural* we believe needs a thorough re-think, to clarify whether it has a coherent role to play as an agency or forum that genuinely brings the Language/Translation and Literature Units of the School together, or whether it is a purely notional or managerial attempt at administrative alliance. At present, we see more of the latter and less of the former, and our impression with regard to Literary Studies, for example, is that centers like *Narrare* are where the chief research energies of the faculty are directed, so that *Plural* does not perform much of a function.

The Panel would recommend that the University consider providing further incentive to the UoA researchers, who have not only excelled in their recent research performance but also have been eager to invest considerable energy and research time in setting up *Narrare*. Some seed money to help the UoA in the preparation of the very strongest external grant applications could be a judicious investment. In order to be fully operative and develop its full potential, the new Centre for Interdisciplinary Narrative Studies, just like other initiatives for setting up similar interdisciplinary centers and projects that create synergy among and across the Schools, will clearly need some form of adequate and sustained funding.

With regard to securing further funding for projects, we agree with the view stated in the SAR, that yet more could be achieved. Currently the source of external funding is almost exclusively the Academy of Finland (at present, no EU- or Tekes-sourced funds have been secured). Perhaps a consultation day could be devised, in which selected academics from cognate departments at UTA or sister Schools of other Finnish universities participated, presenting their best recommendations and guidance concerning the best ways that the UoA might approach funding bodies other than their usual sources. It might be worth considering bidding for Marie Curie or equivalent funding agencies (e.g., Fulbright), to bring appropriate and carefully targeted younger foreign scholars to Tampere, to mutual benefit. We believe there would be obvious benefits, for example, for a visiting young narratologist, in being mentored by the UoA's professors; there would be some benefits, too, for UTA from the input of a talented scholar who came with a partly different training from one of the other main centers of narrative research around the world. This would of course involve identifying and encouraging suitable applicants, possibly with advice from overseas colleagues.

We also wonder whether the UoA – or the School as a whole – might benefit from fuller guidance, from the relevant government department, the Academy of Finland, or other relevant stakeholders (e.g., publishers and arts organizations) as to what those bodies believed to be the most noteworthy or effective means of publication or dissemination. Those stakeholders may also offer an interestingly distinct view as to the most fundable and potentially important research projects for which the UoA has demonstrable expertise and suitability. The UoA has many of the resources and competencies to secure their own reputation for research excellence, but it would be desirable for the Unit (and School) always to have the benefit of well-informed external advice as to how best to meet the University's identified goals, including those of greater internationalization, greater interdisciplinarity, and fuller engagement with such themes as health and society.

5. Communication, Media and Theater Studies (UoA18)

5.1 *Volume, profile and organization of the research*

The research volume of the School of Communication, Media & Theatre Studies is excellent with 58 staff publishing 701 pieces equating to roughly 2 pieces per staff member per year over the six-year period of assessment. Over the past six years, each active researcher on average has published 5.2 refereed scientific articles. Of these, roughly half were in refereed journals. Furthermore, 38 monographs were published within the assessment period. Overall, this is a high volume of quality publications and a remarkable number of monographs. Among the 509 scientific publications (including non-refereed scientific contributions) over the six-year period nearly 59% were peer reviewed and 47% were published internationally. There is room here for increasing the number of international peer-reviewed contributions. However, this should not be to the detriment or discouragement of monographs that can advance both empirical and theoretical research in a more sustained and detailed manner. There seems to have been a substantive drop in the number of scientific monographs from 15 in 2008 to 6 in 2013. This may just be a distortion of publication timetables becoming ever longer but it requires vigilance. In the push to gain more internationally refereed journal articles this should not be at the expense of extended think pieces that evolve over time or those premised on large scale empirical projects that may take longer to come to fruition.

With the above in mind, we appreciate the CMT's awareness of the importance of the continuation and enhancement of journal placement in highly rated English-language journals. Such efforts will undoubtedly go far in increasing visibility and competition with other exemplary Schools and Departments internationally.

The external research funding is notable in many regards. The three main competitive funding bodies – the Academy of Finland, Tekes, and the European Union – constitute on average 45% of the overall research funding of the unit over the assessment period. However, there has been a significant variance between the years, ranging from 3,268 million Euros in 2010 to 1,743 million Euros in 2013. This is largely attributable to a reduction in European funding (including ERC) that dropped from 10% of the overall funding in 2010 to 1% in 2013. As this work is done primarily with other European partners this would seem to be limiting for the School on both grounds of increasing internationalization and sustainable funding. While the overall amount of funding dropped in 2013, competitive research grants increased as an overall percentage of the external research income. These figures should be treated with caution due to the fluctuations in external research calls and variations in available funding year on year. However, the unit needs to be ever vigilant in orienting themselves towards future European funding, particularly Horizon 2020.

The department has a critical mass of researchers in the UoA and in its main research areas that cover both social scientific and humanities based approaches. It was formed in 2011 from a merging of disciplines of 4 former departments. The newly formed School is still finding its way in relation to its new configuration and it would appear that there is clear dominance of Journalism, Media and Communications in relation to the other areas. Although there are claims for multi/trans/inter-disciplinarity, in general this does not appear to be the case in practice with the majority of work falling into single/original specialisms. There is one main research Center COMET, where all research projects

from across the School are situated. There is also another research center T7 (The Centre for Practice as Research in Theatre) that focuses mostly on artistic production and technical practices.

There are 58 research active staff but only 26 of these are lecturer or Professor level and only 23 have a permanent contract. It seems that the majority of the Professors are in the areas of journalism, media and communications, which is where the perception of the dominance of this (broad) area doubtless stems from. With respect to the three disciplines assessed here – journalism and mass communication, speech communication, and theatre and drama research, there is clearly an uneven distribution of staff with both speech communication, and theatre and drama research underrepresented as a construct of the merging of the four disciplinary areas in 2011.

This has some consequences for defining the scope of research in this Unit of Assessment for the outside world and for internal coherency. The four priorities for future research activities, namely (i) Change in communications, journalism and theatre; (ii) Mediatization of society; (iii) Interaction in a changing world; (iv) Dimensions of performing, are too broad to be of value. While offering an adequate description of research undertaken in the School these priorities do not seem to reflect actual research groupings. These require further thought and development. The School could better speak to the overall University research aims, particularly in relation to ‘society’ and seek to actively organize shared research activities more explicitly within this theme.

This does not necessarily mean that the research activities of the School should always seek to include all of the four merged disciplines as this will not always be appropriate. Indeed, such an artificial construct is unlikely to map onto broader research agendas of funding bodies or publication lists. However, where it does appear to make more sense – for example, the links between research in interpersonal and professional communication and journalism and mass communication, more effort could be made to make these linkages more explicit and encourage research collaboration and innovation. Such efforts could foster more cross-fertilization within the School. In this endeavor, CMT should not lose sight of expertise in other Schools such as Social Sciences and Computing that may at times be more appropriate to co-research with.

There is an excellent balance between basic and applied research within the School with some exemplary knowledge transfer and collaborative work being done with media industries. This is often extremely difficult to do and the School should be congratulated for its significant efforts in this regard. The School's contribution to debate on vital issues in the Finnish polity that are reflected in the research of the School is notable (for example, migration and hate speech).

5.2 *Scientific quality of the research*

Excellent research is being conducted in the department. The work is creative and original and in the areas of journalism, media and communications as well as in speech communication much of this research is excellent or outstanding. Of particular note is the broad range of research in journalism, media and communications that appears to feed and drive a rich and diverse research agenda that offers an holistic approach to media and society – from structures, policy, organizations, management and production, professional identities and subjectivities to content and use of media, broader philosophical questions relating to journalism and democracy and development of media theory – the School is contributing to research and knowledge and often at the cutting-edge of the field. This is reflected through publication of much of the research in international refereed journals and books by reputable

publishing houses. Many senior colleagues have been publishing at this level for some time but it is clear that a new publishing culture is emerging in the department among the younger scholars with international publishing increasing in the areas of journalism, media and communications as well as in speech communication.

CMT has been part of very many large scale multinational comparative projects that have added significantly to our contextual understanding of the range and nature of different forms of media and their use in the face of important concerns such as media accountability, global leaks, online risks for children, the state of journalism and many others. The extent and range of such international collaborative projects marks UTA CMT out as the 'go to' partner in Finland for international collaboration. Furthermore, researchers in speech communication form one of only two sites of this field in Finland.

CMT has also been successful in gaining funding for more theoretical projects where it is recognized that it is much harder to get funding and it is likely to continue to be so. Nonetheless, this research is important in the field and efforts should be made taken to ensure its continuity.

In general, the research draws on a range of methodologies that are appropriate to the research topics and questions – it covers qualitative and quantitative methods, is sound, rigorous and often innovative. In several areas it is comparable to research conducted in the most well-respected communication departments in the field internationally.

Rating: 5 (Excellent)

5.3 *Scientific impact of the research*

The research in this UoA attracts great interest in the international academic community and has notable impact on the development of the field in journalism, media and communications. The journalism, media and communications aspect of CMT's work has international reach and wide ranging scientific impact within this research field through academic associations, work in the international academic community and hosting of important academic events. Its ranking of between 51 and 100 in World University Rankings for communication and media studies is indicative of the high prestige in which it is held. Its strong external reputation in the areas of journalism, media and communication and speech communication is reflected in the broader contributions the department makes to the international academic community through tenure-committees, chair appointments, research assessments etc. The international reach of the research is extended not only by senior scholars in international networks but also by younger scholars and PhD students who regularly attend the most prestigious international conferences in the field.

Some of the members are not only highly prolific, their work is also often quoted by leading authors in the field. In particular, the area of journalism as well as speech communication is visible, considering the *h*-index and citations of the members in the database *Scopus*. Many people in the School take an active and prominent role in important and significant international networks, often linked to international collaborative research projects and hold key roles in the most influential international subject associations, editorial boards etc.

The research staff, particularly in journalism, communication and media as well as in speech communication, is strongly networked internationally and have firmly established a recognized and

respected profile for CMT. Several members of CMT have spent short- and long-term visits at prominent places in media & communication science, such as Stanford, Berkeley, Oxford University, UCL, Goldsmiths, and London City University. Also, the unit regularly has visitors coming from the US (Iowa, Illinois) and Ireland (Dublin). Furthermore, the list of publications includes several papers published with colleagues from abroad in highly respected international journals.

However, research in theatre studies appears to be far more limited – indeed there are only few mentions of their work in the Self-Assessment Report. It would seem that much more support is required for this aspect of CMT to enable this to extend to a national/international level of excellence.

CMT has been very successful in placing their PhD students in communication departments mainly at Finnish universities. The selection of PhD students for the doctoral program has been made carefully in the past and attracted international applicants. However, more fully funded doctoral positions are required in order to maintain the high level of candidates and sustain a high quality research culture.

Rating: 5 (Excellent)

5.4 *Societal impact of the research*

Although societal impact is notoriously difficult to ascertain, the department has very strong links to the media industries and works hard to collaborate and connect with them seeing this area of their activity as integral to their work. Part of CMT's strategy is to contribute positively to society in areas where communications play a dominant role. This approach is fully embraced by the entire unit and is a key characteristic of CMT's work. Three case studies are provided to illustrate this and it would appear that much effort has been expended and success achieved in this regard. It is deeply impressive to read of the collaborative work with media industries – this is often the aim of research in these fields but rarely achieved to the extent evidenced here. Not only do researchers carry out projects with industry partners but they also occupy prominent positions on major national organizations contributing forcefully to society in a myriad of ways. It is also notable that graduate doctors go on to work in prominent positions in industry. It would, however, have been useful to have some reflections from the external collaborators to ascertain their views of the relationships forged and knowledge exchanged.

The relevance of societal impact appears to relate mostly to local/national contexts with some international reach (although this would be expected in deeply contextualized research). The research in CMT has a strong public profile and public outreach. A good level of Tekes funding which has increased by 6% to 14% in 2013 reflects the centrality and success of this research. Nonetheless, the actual amount of this funding has dropped from 328,000 Euros in 2008 to 237,000 Euros in 2013. Also, it is remarkable that CMT increased significantly in the recent years the amount of funding from the Academy of Finland despite an increasingly competitive funding environment.

Many efforts are made by researchers in CMT to take their research beyond the academy and actively engage with society and industry. There are examples of direct collaboration with news organizations and journalists that have impacted on working practices, as well as collaborations with industrial partners on the project on 'novel forms of evental space'; and research in speech communication has influenced the teaching of communication skills to professionals. Researchers have public profiles in the media as experts and publish popular articles and in professional journals to enhance societal impact. Researchers

also contribute to policy making through acting as consultants for public bodies and government and providing training to journalists, teachers and other specialists.

This Unit of Assessment engages extensively with society in its research activities and occupies a prominent role in the production of knowledge that offers solutions to industry and public bodies that benefit society. It is highly commended in these endeavors.

Rating: 6 (Outstanding)

5.5 *Quality of the research environment*

In the last two to four years there have been determined efforts to organize and support the various research activities within the School. This has involved the development of thematic multi-disciplinary research groups, monthly research seminars, manuscript workshops (with external reviewers from the US or the UK), reading groups (highly appreciated by the PhD students and postdocs), and international lecture series. These activities are hosted by the research center COMET, which has been in existence since 1996. This center also distributes travel grants to younger scholars and supports common efforts to prepare funding applications.

While the most recent activities of the center are already showing signs of success, more involvement of senior staff would help the laudable activities of the center to become even more effective in achieving the strategic aims of the CMT. Since the reorganization in 2011 and the bringing together of the three or four disciplinary areas, it is fair to say that CMT has struggled to address the new mix within the structure. Hence, despite the development of multi-disciplinary research groups there still seems to be a lack of organizational structure that would facilitate multi-disciplinary research. Further consideration to this aim is important to prevent one disciplinary area from dominating the research direction of the School.

Particularly in Journalism, Media and Communications a strong leadership from senior professors has helped to form and consolidate a strong and internationally visible profile. Considering the transition to a newly constructed School further efforts are required in order to ensure a management structure adequate to the new arrangement is in place. The School would benefit from increased clarity on their strategic vision relating to the make-up and coherency of the CMT. This should include how and in what ways theatre arts (and music studies in the near future) can be better integrated into the CMT. Or alternatively, a different combination of disciplines with more potential for cross-fertilization should be considered. In particular, there is a danger that too much distance is developed between journalism media and communications and the social sciences, where productive relationships have existed previously and should be encouraged to do so in the future.

The four priority areas in the research strategy as they have been presented in the SAR, are not well articulated. Furthermore, they do not seem to find full support from all members within the School. An ongoing conversation about the organization of priority research areas within the School would be helpful in order to better develop a clearer description of the research activities within it and more specific strategic aims that the School could then work towards collaboratively. The revisioning of the four priority areas should speak more lucidly to the University's focus on health (well-being) and society since so much of the research within CMT could very easily and usefully materialize these foci areas.

It seems as if there is very little career structure for scholars who are not full professors. This is unsatisfactory and not conducive to best research practice. There seems to be a bottleneck at the top of the lecturer level. This is particularly worrying given the gender imbalance at Professorial level where only 4 of 13 Professors are women. This requires urgent attention. It is highly recommended that all applications be advertised on an international basis. There is also an issue with the proliferation of short-term contracts of junior researchers who find themselves in a continuous process of seeking additional funding instead of focusing on their research.

Care should be taken to ensure that research career development of younger scholars is fully supported as well as simply supporting visits abroad and the presentation of papers at conferences. There is also a need for university postdoctoral researchers, teachers, lecturers and senior researchers to have continuous professional development built into the School structure and practice.

Staff are encouraged and supported to seek productive periods abroad. In the past six years, 14 staff have spent periods abroad and eight international visitors have come to CMT in the same period. This is unusually high and has clearly been beneficial, both for the visiting scholars themselves and also for the development of the School. Furthermore, it shows remarkable evidence of internationalization within the School and there is every indication that this will continue.

Of course, there is always a requirement for more time to do research. Currently, for teaching staff the ambition is to have every fourth period of the academic year devoted to research. Permanent research staff are expected to devote roughly a third of their time to research. But there is a continuous need for improvement in this area to achieve a better and sustainable balance between research, doctoral supervision and teaching. This is a particular concern for the area of speech communication with two senior lecturers who appeared to have heavy teaching loads. The development of a transparent and equitable work-load allocation system would be of great benefit to the School.

There has been a tradition in the department of a flat structure that has tended to encourage the democratic participation of teaching and research staff in the functioning of the unit. This is to be commended; however, care should be taken to ensure that this approach does not just result in a lack of structure or leadership. For example, if there was a research committee, which could be constructed from a range of scholars at different points of their career, this would allow for issues relating to the research environment to be discussed and developed in a more systematic and transparently democratic fashion.

Rating: 4 (Very Good)

5.6 Future potential of the Unit of Assessment

There is an enormous potential of the unit in several respects. First of all, the CMT can continue to contribute forcefully towards the societal focus of the University. In particular, research relating to media organizations, media innovations sustainable funding models for journalism as well as professional speech communication, is directly relevant for contemporary mediated society. The research in CMT might be also linked more closely to the area of health and well-being, in areas that are obvious such as communication between health professionals or with patients, but also in less immediately obvious areas such as media and democracy. Secondly, there is huge potential to make a virtue of the different disciplinary perspectives in media and communications by pursuing research combining humanities and social scientific approaches that could genuinely progress and develop theoretical insights in the field.

Thirdly, the strong international reputation of the unit puts the members of CMT into a good position to apply for further European funding. Indeed, the development of a funding bid to research the NSA and data privacy is one such example. This type of research in particular would benefit greatly from collaboration with computing further increasing funding potential, bearing in mind that the area of big data which is named as a research priority within Horizon 2020. Fourthly, there is potential for an increase of research activities between theatre arts and music in the near future.

We were greatly encouraged by the level of critical reflexivity of the staff members and doctoral students regarding the recent reorganization and institutional challenges they have faced. This bodes well for the realization of an effective and dynamic research environment that given adequate time and resources could flourish. This will require further consideration in order to develop a more explicit implementation plan with clearer objectives and research priorities.

Recruitment of doctoral students and staff has the potential to be more international; the ever-growing reputation of the unit could be used to attract more international and more diverse scholars. With the greater integration of all professorial staff into the broader research activities of the School, the potential for more research funding and international refereed publications will increase.

While the area of journalism media and communications appear to have a viable number of senior staff, this is not the case for the area of speech communication. Increased resources in terms of staff in this area would enable the group to fulfill their research potential, which is particularly strong in the key strategic area of society and health (and well-being). Research in journalism media and communications could improve the likelihood of continuous success if the research and teaching staff on short-term contracts had better security of employment, enabling better long-term planning and the realization of research objectives.

5.7 Recommendations and suggestions

a) What are the main strengths and weaknesses of the UoA?

The CMT is the leading national School in the field. It possesses a strong international profile, a remarkable reputation both at home and abroad and is part of lively and prolific research and practice networks. The societal impact at the core of the unit's work is notable. The School succeeds in contributing to business and management of media industries and carefully nourishes the partnership and collaboration with media industries. The CMT has a solid research funding base, and in fact, in some areas of competitive funding, the revenue seems to be increasing. The academic work displays a strong ethos of research and determination to further develop the link between research and teaching. The doctoral students are well integrated into the research culture of the department. COMET provides an active research center that consciously develops a number of activities in order to achieve the objectives of the unit. Involvement of all senior research staff in the activities of the center would strengthen its overall performance and help to increase the research development of the more junior scholars.

b) What are the opportunities and challenges of the UoA?

The four research priorities do not adequately reflect the research undertaken in the unit and need further thought and refinement to reach a consensus view within the CMT. In the refinement of the four research priorities there is an opportunity to increase the integration and cross-fertilization of the

existing disciplinary groupings. Furthermore, with the revisioning of the center, there is an opportunity to better link applied research to basic research and increase the synergy between the two and in turn, develop the sophistication of each. Further opportunities exist through increased collaboration between those researchers situated in cultural studies and those with a more social scientific perspective reflecting some of the most innovative and exciting research endeavors in the field. This could lead to more consideration of what areas such as social theory and contemporary European philosophy could bring to social and applied sciences. While there is a clear dominance in terms of the number of staff in the broad disciplinary areas of journalism media and communications, and this is very successful in research output, there is a danger that the smaller disciplinary areas are drowned out.

- c) *Did you find research areas or research groups that stand out from the general level of the UoA? ☞*
- d) *Did you find research areas or research groups that have potential to become international flagships in their research area?*

The journalism, media and communications section is an international flagship in this research area but for it to continue operating at this level it needs to continue receiving competitive funding from the Academy of Finland, the European Union and other competitive funding agencies.

- e) *What measures should the UoA take to improve its performance?*

The School should constitute a research committee consisting of research active staff at all levels; it should meet regularly and seek to constantly revisit the research strategy and steps taken to achieve strategic research aims. This should be communicated to all members of the School. The research center COMET should reach out and include other strongly related fields, such as social sciences and possible others by invitation to center events and seminars where appropriate. The center should also develop an affiliation membership with relevant researchers outside the School. It should aim at increasing the level of international refereed journal articles, but not at the expense of research monographs. Further, it should take additional steps to enhance a greater cohesion within the School of Journalism, Media and Communications, which may include: developing and better projecting the School's strategic vision for future research sustainability. On the School level, a coherent and comprehensive plan should be developed for the continuous support of career development of PhD students and post docs. Before Music Studies is integrated into the School, further conceptual clarification of the overall research coherency is needed. Theatre arts in particular will require further support in order to develop a more rounded research culture. Speech Communication will also require additional staffing in order to enable staff members to fulfill their research potential. Finally, there are two minor suggestions relating to the presentation of the identity of CMT. Firstly, the website needs to be improved; in particular, information about the all staff should be presented. Also, information about members of the School should be given under another category than 'contact'. Secondly, there is constant reference both by the staff and within the SAR to the discipline of journalism and *mass* communication. This does not seem to adequately reflect the range of work within this field in CMT. We suggest that this is replaced with the title 'journalism, media and communications'. This ties in better to the name of the new School and is more inclusive of the work undertaken within it.

6. Final Remarks

The past few years have seen many and strong changes within UTA. These changes were furthermore largely top down, in good measure as a reaction to wider changes in academia, most clearly the decreasing funding opportunities, the higher competitiveness and the growing importance of international and/or refereed scientific publications, and especially, journal articles. The four UoAs all resulted from mergers from earlier academic units and they have dealt with these changes in different ways, addressing challenges and opportunities more or less proactively.

The impression prevailed that the Units of Assessment could have benefitted greatly from more guidance on how the above changes could be best managed and implemented while also encouraging bottom-up initiatives and collaborative projects within and across Schools.

The School of Education has a strong practical orientation and has difficulties in accommodating itself in the area of competitive funding and international publishing.

The School of Language, Translation and Literary Studies is composed of two UoAs, on the one hand, Language Studies, inclusive of Translation Studies, and, on the other hand, Literary Studies. The latter has coped well with the changes, in part because of its smaller size and because several scholars have a proactive unitary and innovative research vision. In Language Studies and particularly in its Translation section the change has not yet led to a strong strategic plan.

A good part of the new Communication, Media and Theatre Studies School was outstanding before the merger and it has kept that high standing. However, ties with the Social Sciences have been weakened and the inclusion of the Theatre unit cannot yet be considered a success.

Excellent research is found in all UoAs, but it is always uneven. All the work is of national significance, with the strongest concentration of internationally significant work to be found in the School of Communication, Media and Theatre Studies. UTA's focus on society is present in all UoAs. Most of the senior researchers in the UoAs have heavy teaching loads, which obstructs research, yet it should not be forgotten that teaching is no less a duty to society than research. All of the UoAs have insufficient structural, internal funding and would benefit from a more sustainable funding model.

To end on an unqualifiedly positive note, the Panel was impressed by the level of organization in relation to the evaluation process and the hospitality of the University.

Appendix 1

Guidelines for Panellists



UNIVERSITY
OF TAMPERE

Research Assessment Exercise 2014



Guidelines for Panellists

7 February, 2014

Contents

1. Introduction.....	1
2. Objectives of the Assessment.....	1
3. Implementation of the Assessment.....	2
4. Assessment criteria and the rating scale.....	3
5. Panel Reports.....	9
6. Working arrangements of the Panels.....	10
7. Timetable.....	11
Appendix 1. Assessment Organisation.....	12
Appendix 2. Panels and Units of Assessment.....	13

1. Introduction

This document provides guidelines for the Expert Panels in the Research Assessment Exercise of the University of Tampere (UTA).

The University of Tampere is a multi-disciplinary university which conducts research in social sciences, medicine and health sciences, humanities and information sciences. Research on society and health are areas of strength at UTA. Currently the University employs a staff of over 2,000, of whom 1,150 are academic staff. There are a total of 15,800 undergraduate and postgraduate students at UTA.

At the beginning of 2011 the University reorganised its former faculties and departments into nine Schools: BioMediTech; School of Communication, Media and Theatre; School of Education; School of Health Sciences; School of Information Sciences; School of Language, Translation and Literary Studies; School of Management; School of Medicine; and School of Social Sciences and Humanities.

The objective of the University of Tampere is to be a world-class university in its areas of strength and a nationally significant university in all the other fields. To achieve this goal and to prepare its new strategy, the University and its Schools need knowledge and perspectives on the current status and potential of the research conducted at UTA in comparison to the international level. The University invites renowned international scholars to provide such knowledge and perspectives and to give suggestions and recommendations for the future development of research activities at the University.

The planning of the Research Assessment Exercise began in autumn 2012 in a working group chaired by Prof. Pertti Haapala, Vice-Rector for Research. In autumn 2013, an external Steering Group was formed to lead the preparations for the Research Assessment (see Appendix 1).

2. Objectives of the Assessment

The University of Tampere is conducting the Research Assessment Exercise in order to:

- develop the University of Tampere into a high-level research university;
- support the strategic work of UTA and its Schools and help allocate resources for the best and most promising research;
- get up-to-date knowledge and perspectives on the current status and potential of the research conducted at UTA in comparison to the international level;
- identify strong research areas and groups as well as areas and groups that have the potential of becoming strong;
- get recommendations and ideas on how to strengthen the quality of the research at UTA and its scientific and societal impact;
- assess the functionality of the current research organisation and its support services;
- develop research monitoring at UTA.

3. Implementation of the Assessment

The Research Assessment Exercise comprises three elements:

- self-assessments of the Units of Assessment (UoA),
- publication and citation analyses, and
- assessments by the Panels of international experts.¹

For the purposes of the RAE, the University is divided into 18 Units of Assessments which are assessed by five Panels. The Panels and the Units of Assessment are listed in Appendix 2.

In assessing the Units of Assessment, the Panels will utilise the following materials:

- background material concerning the UoAs, consisting of statistics on research output, doctoral degrees, expert tasks, funding, staff, as well as of bibliometric analyses based on data from the Web of Science, Scopus and UTA publication database.
- self-assessment reports of the UoAs, including information on their research areas and groups.
- information gained during the Site Visit Week through interviews, discussions, etc.

The time period of the background statistics, publication analyses and self-assessment reports is 2008–2013 (six years). However, information on research funding covers the period of 2010–2013, and the citation analyses the period of 2008–2012. As a part of their self-assessments, the UoAs may also mention significant achievements in 2014.

The assessment materials include the research performance of the following persons, regardless of whether they had joined the UoA before or during the assessment period and regardless of whether the research submitted had been carried out at the UoA or elsewhere:

- persons who were employed at UTA on the Census Day, 1 October 2013, and whose work duties included research, including those doing part-time work with a minimum of 20% contract with UTA.
- persons who conducted research and were affiliated to the University on the Census Day (e.g., researchers funded by personal grants working at the University).

Research carried out by full-time doctoral students working at the Units of Assessment is included in the assessment.

¹ There is an option that a post-assessment meeting of the Chairs of the Panels with the University leadership is organised to review and discuss the performance and potential of the University as a whole.

4. Assessment criteria and the rating scale

There are six assessment criteria which are introduced in more detail in sections 4.1– 4.6 of this document. With the exception of criteria 4.1 and 4.6, the Panels are asked to rate the Units of Assessment in each criterion on a scale of 1–6 and to motivate the numerical rating with written statements. The written statements and numerical ratings together form the rating of the Unit of Assessment. The rating should be based on the materials submitted by the Assessment Office and on information gained during the Site Visit Week.

The numerical rating scale is the following:

- 6 Outstanding
- 5 Excellent
- 4 Very good
- 3 Good
- 2 Fair
- 1 Weak

When applying the scale, the research conducted at the Units of Assessment should be compared to the international level of research in the field.

Please note that the Units of Assessment in fields that have a national focus and where publishing for a national audience is common should be able to receive the highest grade in the case that their research is indisputably comparable to the best research in the same fields in other countries.

In their written statements, the Panels are also invited to comment on the performance and potential of the different research areas and individual research groups at the UoAs.

4.1 Volume, profile and organisation of the research

For this criterion, the following questions are relevant:

- What is the volume of research at the Unit of Assessment in terms of staff, research output and funding?
- Is there a critical mass of researchers in the UoA and its main research areas?
- What is the scope of the research? Does the research have a clear and interesting profile?
- Are there interesting and strong thematic research areas and groups in the UoA?
- Is the research multi-, inter- and/or transdisciplinary?
- Is there a good balance between basic and applied research in the UoA?

The Panels are advised not to give a numerical rating for this criterion, but to present a written statement on the volume, profile and organisation of research at the Units of Assessment.

4.2 Scientific quality of the research

For this criterion, the following questions are relevant:

- Is the research creative and original?
- What are the theoretical and empirical contributions of the research in its field?
- Is the research methodologically and empirically solid and innovative?

The numerical rating scale is the following:

Outstanding (Grade 6)

The research of the Unit of Assessment is of world-leading quality in terms of originality, significance and rigour. It produces new creative ideas and/or approaches and is comparable to the research conducted in the best units in the same field of research. Work at this level ought to be a primary point of reference in its field, i.e. a theoretical and/or empirical contribution which the leading actors in that field ought to be aware of. UoA rated as 6 will need to be exceptional in research quality, but the Panels should consider 6 to be a realistic and attainable rating.

Excellent (Grade 5)

The research of the Unit of Assessment is of excellent quality in terms of originality, significance and rigour. Work at this level is or could be published by leading international publishers and journals with the most rigorous standards.

Very good (Grade 4)

The research of the Unit of Assessment is of very good quality in terms of originality, significance and rigour. Work at this level is or could be published by well-known international publishers and journals.

Good (Grade 3)

The research of the Unit of Assessment is of good quality in terms of originality, significance and rigour. Work at this level is or could be published internationally by established international publishers and journals.

Fair (Grade 2)

The research of the Unit of Assessment is of fair quality in terms of originality, significance and rigour. Work at this level is or could be published by respected publishers and journals.

Weak (Grade 1)

The quality of the research at the Unit of Assessment is weak in terms of originality, significance and rigour. Work at this level could not be published by well-known publishers and journals.

4.3 Scientific impact of the research

For this criterion, the following questions are relevant:

- Is the research visible internationally and nationally?
- What is the impact of the research on the scientific development of the field?
- What is the position and influence of the members of the Unit of Assessment in the field?
- What is the level of competitive academic funding at the UoA?
- Who are the international and national research collaborators of the UoA and what are the results of the collaboration?
- What kind of positions do the UoA's graduated doctors find in academia?

The numerical rating scale is the following:

Outstanding (Grade 6)

The research of the Unit of Assessment attracts great interest in the international academic community and has a notable impact on the development of the field. The publications of the UoA are highly cited by leading researchers in the field. The members of the UoA occupy important positions in the most influential academic associations in the field, are internationally sought-after experts in tenure committees, chair appointments, research assessments etc. They are regularly invited to speak at the most significant conferences in the field. The doctoral graduates of the UoA are routinely hired by leading universities. The UoA participates actively in the most important research networks and projects in its field. The UoA is successful in securing competitive academic research funding (primarily from the Academy of Finland, the ERC and the EU Framework Programmes). The UoA may include a national or international Centre of Excellence.

Excellent (Grade 5)

The research of the Unit of Assessment attracts wide attention within the international academic community and is highly cited. The members of the UoA are prominent in academic associations and as experts in the field. The UoA and its members are valued partners in international research projects and networks. The UoA has a significant amount of external academic funding from national and international sources.

Very good (Grade 4)

The research of the Unit of Assessment attracts serious attention within the international academic community and is frequently cited. The UoA and its members have an established position as experts in the field and as partners in research projects and networks.

Good (Grade 3)

The research of the Unit of Assessment attracts some attention within the international academic community. The UoA and its members have partly established their position as experts in the field and as partners in research projects and networks.

Fair (Grade 2)

The research of the Unit of Assessment attracts limited attention within the international academic community while having the potential to make a wider impact in its field. The UoA and its members are in the process of establishing their position as experts in the field and as partners in research projects and networks.

Weak (Grade 1)

The research of the Unit of Assessment has a very limited impact in its field. The UoA and its members are not visible as experts in the field and as partners in research projects and networks.

4.4 Societal impact of the research

For this criterion, the following questions are relevant:

- Is the research societally relevant? Is it relevant mainly locally, nationally and/or globally?
- Is the research visible in society and what kind of impacts does it have?
- What is the level of competitive non-academic funding at the Unit of Assessment (e.g. by Tekes – the Finnish Funding Agency for Innovation, cities, companies)?
- What kind of collaboration do the researchers at the Unit of Assessment have with non-academic partners and what kind of impacts does this collaboration produce?
- What kind of jobs do the UoA's graduated doctors find outside academia?
- Does the UoA consider the societal relevance of its research an important aspect of its activities? In what way(s) does the UoA itself perceive the societal relevance of its research?

Please note that societal impact only refers to the impact the research and doctoral education have on society. Thus for example the employment of the Bachelor's and Master's level graduates is beyond the scope of this Assessment.

Please also note that even the highest grade does not necessitate a primarily international impact and interaction. A Unit of Assessment should be able to receive the highest rating if its societal impact is comparable to the impact of the best corresponding units in other countries.

The numerical rating scale is the following:

Outstanding (Grade 6)

The Unit of Assessment engages with society extensively in its research activities. The research at the UoA is highly relevant in the production of new knowledge and solutions for, e.g., policy-makers, the civil society, business life, the environment and the health care system on the national and/or global scale. The members and doctoral graduates of the UoA are sought-after experts and employees in the public and private sectors. The UoA attracts significant amounts of research funding from several non-academic sources in the public and private sectors. The interaction between the UoA's research and society is comparable to that of leading international units in the same field.

Excellent (Grade 5)

The Unit of Assessment has wide and dynamic interaction with society. The research at the UoA is very relevant for producing new knowledge and solutions that benefit the society. The UoA is able to secure funding from several non-academic sources.

Very good (Grade 4)

The Unit of Assessment has lively interaction with society and its research is relevant for producing new knowledge and solutions for society.

Good (Grade 3)

The Unit of Assessment has established interaction with society. For most parts, the research at the UoA is relevant to society.

Fair (Grade 2)

The Unit of Assessment is developing interaction with society. The research at the UoA has limited societal relevance but has the potential for making a wider impact on society.

Weak (Grade 1)

The Unit of Assessment has little interaction with society. For most parts, the research at the UoA is not relevant to society.

4.5 Quality of the research environment

For this criterion, the following questions are relevant:

- Do the organisation, staff structure and other resources support high quality in research?
- Has the Unit of Assessment organised its research areas and research groups in the best and most effective way?
- Are the leadership and management structure of the UoA functional?
- Do the structure of the academic staff and its career development support high quality in research?
- Is there sufficient international mobility among the members of the UoA? Is the UoA able to attract high-level visitors and staff from abroad?
- Is the research funding adequate and does it have a sustainable profile? Are there systematic processes for applying for funding?
- Is there a sufficient research infrastructure? Is it used efficiently?
- Does the research have adequate support services (at the unit/School level and at the university level)?
- Is there a sustainable balance between research, doctoral supervision and teaching?

The numerical rating scale is the following:

Outstanding (Grade 6)

The research environment of the Unit of Assessment is fully comparable to the best international units in the field in terms of research organisation, staff, infrastructure and support services. The leadership and management structures of the UoA are functioning optimally. Teaching tasks work to promote research. There are no obstacles in the UoA's research environment that prevent it from realising its full potential for excellence in research.

Excellent (Grade 5)

Compared to the best international units in the field, the Unit of Assessment provides an excellent research environment in terms of research organisation, staff, infrastructure, leadership and management as well as support services. There are few obstacles in the UoA's research environment that prevent it from realising its full potential.

Very good (Grade 4)

The Unit of Assessment provides a very good research environment in terms of research organisation, staff, infrastructure, leadership and management as well as support services. There are some obstacles in the UoA's research environment that prevent it from realising its full potential but the Panel expects that the UoA is able to overcome them.

Good (Grade 3)

The research environment of the UoA is on the same level with established academic units in the field across the world.

Fair (Grade 2)

The research environment is still developing towards the level expected from a reputable unit in the international scientific community in the UoA's field of research.

Weak (Grade 1)

The research environment of the Unit of Assessment is weak in international comparison. There are several obstacles that prevent the UoA from realising its full potential.

4.6 Future potential of the Unit of Assessment

For this criterion, the following questions are relevant:

- Is the research conducted by the Unit of Assessment and its thematic groups promising in terms of its research agenda, quality of research, scientific and societal impact, and research environment?
- Are there themes and groups that have the potential to achieve higher research quality and make a greater scientific and/or societal impact?
- Is the UoA able to recruit staff and doctoral students who are needed for the further development of its research activity?
- Does the UoA have a realistic understanding of its strengths and weaknesses, and threats and possibilities?
- Does the UoA have a realistic and sufficiently ambitious strategy as well as a viable plan for carrying out the strategy? Does it have the necessary leadership for this purpose?
- Is it likely that the UoA and/or some thematic areas and/or groups within it will achieve better results within the next 5 years and on what conditions?

The Panels are advised not to give a numerical rating for this criterion, but to present a written statement.

5. Panel reports

The Panels are asked to present a written statement and a numerical rating on the criteria discussed in sections 4.2–4.5, and a written statement on the criteria discussed in sections 4.1 and 4.6 of this document.

In addition, the Panels are asked to give their recommendations and suggestions for the future and to advise the Units of Assessment in developing their research. Key questions to be addressed are:

- a) What are the main strengths and weaknesses of the UoA?
- b) What are the opportunities and challenges of the UoA?
- c) Did you find research areas or research groups that stand out from the general level of the UoA?
- d) Did you find research areas or research groups that have potential to become international flagships in their research area?
- e) What measures should the UoA take to improve its performance?

The Panels will be provided with a report template.

6. Working arrangements of the Panels

A Chair is appointed for each Panel to lead the work. It is the Chair's responsibility to ensure that the Panel produces its report on time. Each Panel should ensure through discussions that the Panel Members have a similar understanding of the application of the assessment criteria and the rating scale. The Panel should also ensure that the assessment report takes into account all the material available to them, including the statistics and publication analyses, self-assessments, Site Visits and interviews.

The Panels are expected to complete the final drafts of their assessment reports during the Site Visit in Tampere.

The Assessment and its organisation are funded by UTA, which will pay expert fees to the Panel Chairs and Panel Members as well as reimburse all the travel and accommodation expenses relating to the Site Visit Week and the possible post-assessment meeting of the Chairs.

The reports of the Panels will be included in the Final Report without any changes to the substance.

Confidentiality

The Panel Members agree to refrain from making use and/or divulging to third parties any non-public material, facts, information, documents or other matters presented to the Panel during the Research Assessment Exercise. The materials included in the Assessment Reports as well as all the ratings are confidential until the publication of the Final Report that summarises the results.

Conflict of Interest

The Panel Members will be asked to sign a declaration of the lack of conflict of interest. For example, the Panel Members should not have been engaged in joint research projects with

the researchers or units they assess or have written joint publications with them, from the beginning of 2008 until present time.

7. Timetable

The Panel visits to the University of Tampere will take place 20–23 October 2014 (end dates may vary according to the work load of the Panels).

The background materials will be sent to the Panellists in June (by email and by post), except for the publication analyses, which will be sent to the Panellists in August.

Appendix 1. Assessment Organisation

Steering Group

Professor Pertti Haapala, Vice-Rector for Research at the University of Tampere (Chair)

Professor Marja Järvelä, University of Jyväskylä

Dean Arto Mustajoki, University of Helsinki

Vice-Rector Taina Pihlajaniemi, University of Oulu

Dean Ulla Ruotsalainen, Tampere University of Technology

Assessment Office

Dr. Johanna Hakala, Head of Research Development (rae2014@uta.fi, johanna.k.hakala@uta.fi, +358-(0)40-190 1356, office: Main Building, C130)

Mr. Otto Auranen, Research Assessment Coordinator (rae2014@uta.fi, otto.auranen@uta.fi, +358-(0)50-318 6996, office: Main Building, C128)

Website of UTA RAE: <http://www.uta.fi/rae2014/en/index.html>

Appendix 2. Panels and Units of Assessment

Each Panel will assess 3–4 Units of Assessment and write a report on each UoA. The Panels shall consist of a Chair and 5–8 Panel Members.

Panel I

1. Regional and Environmental Studies
2. Public Administration
3. Business and Economics
4. Political Science

Panel II

5. Biomedical Technology
6. Medicine
7. Health Sciences

Panel III

8. Computer-Human Interaction
9. Information and Media
10. Information and Systems

Panel IV

11. History and Philosophy
12. Psychology and Logopaedics
13. Social Sciences
14. Social Work

Panel V

15. Education
16. Language Studies
17. Literary Studies
18. Communication, Media and Theatre Studies

Appendix 2

Instructions for Self-Assessment

University of Tampere Research Assessment Exercise 2014**Instructions for Self-Assessment of the Units of Assessment**

These instructions are meant to help the Units of Assessment (UoAs) to write their self-assessment reports.

The University Services will provide the UoAs and Panels with information on the funding, staff, research achievements (e.g. publications, expert tasks), doctoral degrees and international researcher mobility of the UoAs. The purpose of the self-assessment report is to provide a qualitative description of and reflection on the aims, activities, resources, results and impacts of the research at the UoA.

The UoAs are free to include additional considerations not mentioned in the instructions as long as all the questions included in the instructions that apply to the UoA are answered. Please construct the report using the titles, structure and page limits provided by this document.

Please also read through the Guidelines for Panellists document which defines the assessment criteria.

The maximum length of the self-assessment report depends on the size of the Unit of Assessment:

- Small units – UoAs having less than 50 staff (including professors) and nine, or less than nine, professors – **11 pages plus a table of 15 research achievements.**
- Large units – UoAs having more than 50 staff (including professors) and more than nine professors – **15 pages plus a table of 25 research achievements.**

The reports must be submitted in doc- or rtf-format to coordinator Otto Auranen (otto.auranen@uta.fi) no later than 12 May 2014. The title page of the report should bear the title “UTA RAE 2014 Self-Assessment Report”, the name of the UoA and the name of the UoA contact person, and a table of contents. Please use the report template provided by the Assessment Office (Arial 11 font, all margins 2,3, line spacing 1,15).

In addition to the report, each UoA must deliver the CVs (max 3 pages) of the UoA's Professors and other senior staff as instructed separately.

1. Volume, profile and organisation of the research

[recommended length: max 1.5 page (small units) / max 2.5 pages (large units)]

Please describe and evaluate the current profile and volume of the research conducted at the Unit of Assessment in terms of thematic research areas and their staff, research output and funding. Is there a critical mass of researchers at the UoA and in its main research areas? How is the research organised in the UoA (e.g. research centres and/or research groups)? What kind of connections do they have to other groups etc. within the UoA and within the University of Tampere?

What is the balance between basic and applied research in the UoA? Are there elements of multi-, inter- and/or transdisciplinarity in the UoA's research? How do they show?

How is doctoral education and supervision organised and connected to the research activities?

How does the Unit perceive itself in the national and international context? What are the most relevant partners, competitors and benchmarks (university departments or other research institutions) of the Unit? (Collaboration partners and activities can be described in more detail in sections 3 and 4.)

2. Scientific quality of the research

2 a *[recommended length: max 0.5 page]*

Please describe shortly how your Unit of Assessment understands scientific excellence in its research field(s). How would you evaluate the current scientific quality of research at your UoA? Are there big internal differences?

2 b

Please list in the table **a maximum of 15 (small units) or 25 (large units) publications or other research achievements** (e.g. patents, software) of the UoA accomplished during the assessment period (2008–2013), or after, and considered by the UoA to present high scientific quality (i.e., originality, significance and rigour) in their field(s) of research.

Please indicate with **bold** five achievements which best illustrate the profile of the UoA.

Table 1.

Title and publication information (or equivalent) of the research achievement	Year	Type (refereed article, monograph, book chapter, doctoral dissertation, patent, etc.)	Author and a link to the full text, if possible <ul style="list-style-type: none"> ○ always indicate authors from UTA with bold ○ if there are more than 3 authors, indicate the first three authors and the position of authors from UTA in the author list

2 c [recommended length: max 1.5 pages (small units) / max 2.5 pages (large units)]

Please describe how the listed achievements (including the five achievements indicated with bold) reflect the profile of the UoA.

Provide a short description of the listed research achievements explaining *why* the UoA considers them to represent high scientific quality in the field. Please provide a short description of each achievement or groups of achievements (that is, you may group the achievements, e.g., according to research theme, research group or project).

3. Scientific impact of the research

[recommended length: max. 2 pages (small units) / max 2.5 pages (large units)]

Please describe and evaluate the scientific impact of the research done at the Unit of Assessment: Does the research attract interest in the international and national scientific community? Do the research and the members of the UoA have a notable impact on the development of the field?

Describe the ways in which such impact materialises, in particular:

- Do the members of the UoA have positions in the influential academic associations of the research field? Have they been acting as experts in tenure committees, chair appointments and research assessments in Finland and abroad? Are they invited to speak in significant conferences of the field? Please give examples.
- In what kind of research networks and projects do the members of the UoA participate and what are the results of the collaboration? Is the UoA successful in securing competitive academic funding (in particular, by the Academy of Finland, ERC and EU Framework Programmes)? Please give examples of the most significant academic research projects – and the research collaboration included in them – during the assessment period. Projects (contracts) already obtained for the coming years can also be mentioned here.

- Where do the doctoral graduates of the UoA find employment in the academic world? Please give examples of placements in the academic world in Finland and abroad (name, graduation year, position, affiliation; graduates from 2000-2013 may be included).

Please note that citation analyses will be presented separately and they are not available to the Units during the self-assessment.

4. Societal impact of the research

Please describe and evaluate the societal relevance and impact of the UoA's research. Is it relevant mainly locally, nationally and/or globally? Is the research visible in society and what kind of impacts does it have?

Describe the ways in which such impact materialises, in particular:

- What are the most important research projects the Unit has carried out with non-academic partners and funding (e.g., Tekes, companies, cities) during the assessment period? What kind of results and impacts has the collaboration produced? Projects (contracts) already obtained for the coming years can also be mentioned here.
- Are the members of the research staff popular experts also outside the academia? Please give examples of the most important expert positions in society (name, academic position, expert position and tasks).
- Where do the doctoral graduates of the UoA find employment in the non-academic world? Please give examples of recent placements of doctoral graduates outside the university sector in Finland and abroad (name, graduation year, position, organisation; graduates from 2000-2013 may be included).

[recommended length: max 1 page]

* * *

Please present **2 (small units) or 3 (large units) case studies** of the societal impact of research by your UoA during the assessment period or after: What did the research concern and how did the societal impact come about? Please provide as concrete evidence of the impact as possible.

[length: max 0.5 pages per case]

5. Research environment of the Unit of Assessment

[recommended length: max 1.5 pages (small units) / max 2 pages (large units)]

Please describe and evaluate the organisation, staff structure and other resources of research at the Unit of Assessment, as well as the leadership and management structure of research at the UoA.

Please comment on the development and profile of the external research funding at the UoA. Is there a strategy for applying external funding? Describe and evaluate the support for applying funding, at the UoA/School as well on the university level.

Does the structure and career development of academic staff support high quality in research? Is there international mobility among the members of the UoA? Is the Unit able to attract visitors and staff from abroad? Please give a maximum of four examples of long-term research visits (over 1 month) to the Unit and four examples of long-term visits abroad from the Unit (name, position, affiliation, destination, length).

Please describe and evaluate the research infrastructure.

Is the balance of research, doctoral supervision, and teaching sustainable in the UoA (e.g. in terms of the Unit's profile, resources and staff structure). Please justify your answer.

6. Future potential of the Unit of Assessment

[length: max 2 pages (small units) / max 2.5 pages (large units)]

Please describe the research strategy of the Unit of Assessment and evaluate the future research potential of the Unit.

What are the most promising future research directions of the Unit? Evaluate the expected impact of the Unit on scientific community and society over the next five years. How do you see your role as part of the overall research profile of UTA?

What is the recruitment strategy of the UoA? How does the Unit plan to attract the best national and international talent to join the Unit in the future?

What is the UoA's strategy for obtaining external funding? What kind of plans do you have to develop the national and international collaboration networks of the Unit? What kind of goals for publishing (and other research outputs) are there and how will these goals be achieved?

Is doctoral training and the recruitment of postgraduate students connected to research in the best possible way? Please justify your answer.

Which aspects of the Unit's research environment are assets that should be further strengthened and what should be changed?

Please list a maximum of five of the most important **development targets** in the research activity of the UoA. If the Unit has taken measures or is planning measures for realising these targets, please give a short description of them.

Appendix 3

Bibliometric Analyses by
Tampere University Library

Panels I - V

UTA RAE 2014, Panel I

Bibliometric analysis by Tampere University Library

Data and methods

Tampere University Library conducted bibliometric analysis on the scientific publishing of the Units of Assessment (UA) of the UTA RAE. A team of information specialists of various fields conducted the analysis to supplement the bibliometric analysis by the Centre for Science and Technology Studies (CWTS) of Leiden University. A supplementary analysis by the Library was considered necessary as the Web of Science citation index used by CWTS does not properly cover the scientific publishing of many of the UAs.

The main source of data in the Library analysis was the UTA SoleCRIS database. The publication data set was used to analyse the overall scientific publishing activity, as well as the language and quality of scientific publishing (Sections 1-3). The data included the scientific publications authored by UTA researchers (employed or affiliated at UTA on the Census Date 1 October 2013) in 2008-2013 at UTA regardless of where the researchers had been working at the time of the publication.

The scientific publications included in the analysis comprised publications in the categories A-C of the Finnish Ministry of Education and Culture's classification of publications. (See the results section for the description of the publication types.)

The quality of scientific publishing (Section 3) was analysed using the national Publication Forum Rating (JuFo) of scientific journals, publication series and publishers. The Publication Forum – 23 panels comprising approx. 200 members of the academic community – has rated some 20,000 journals, publishers and publication series according to their quality. Journals and publication series have been rated into three levels: 1 = basic; 2 = leading; 3 = top, and publishers into two levels: 1 = basic; 2 = leading. The rating system is continuously updated and expanded.

The citation impact of the UAs' publications was studied based on the Scopus citation database (Section 4). The Scopus analysis included the scientific publications authored by UTA researchers (employed or affiliated at UTA on the Census Date 1 October 2013) in 2008-2012 at UTA (regardless of where the researchers had been working at the time of the publication) and citations to those publications in 2008-2013. The scientific publication output and citation impact of the UAs in Scopus are described by the following indicators: P_{Sci} = Number of scientific publications in UTA publication database, P_{Scd} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications. It is noteworthy that the Scopus indicators calculated by the Library team are not normalised for differences in scientific fields.

Scientific publishing: activity, language, quality and impact

UA01 Regional and Environmental Studies

1. Scientific publishing activity

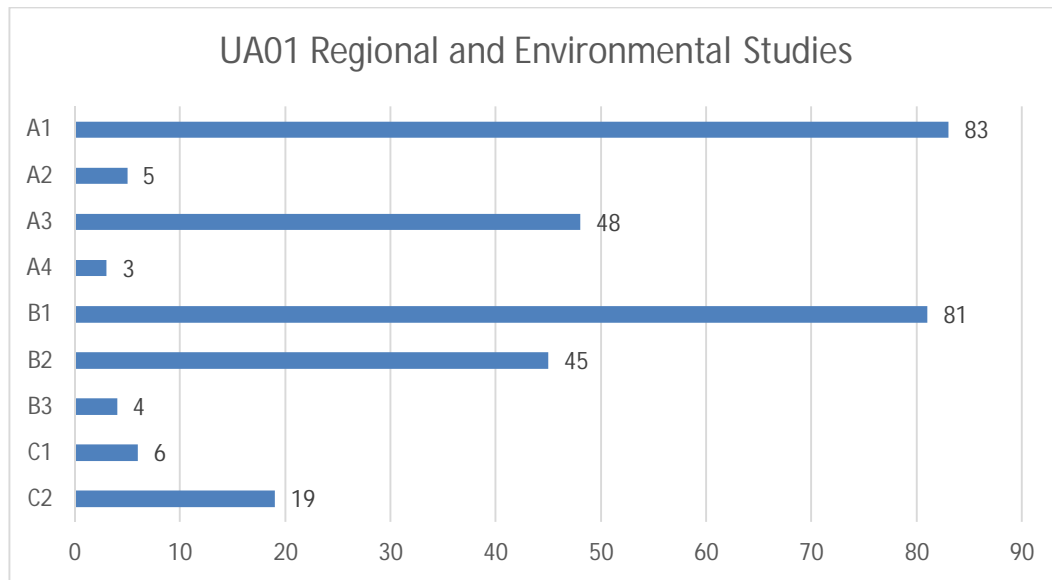


Figure 1. Number of scientific publications (publication types A-C) by UA01 by type in 2008-2013 (n=294).

Publication types according to the classification by the Finnish Ministry of Education and Culture

- | | |
|----|---|
| A1 | Refereed scientific articles in journals |
| A2 | Refereed scientific review articles, literature reviews, systematic reviews in journals |
| A3 | Refereed scientific articles in edited books |
| A4 | Refereed scientific articles in conference proceedings |
| B1 | Non-refereed scientific articles in journals |
| B2 | Non-refereed articles in edited books |
| B3 | Non-refereed articles in conference proceedings |
| C1 | Scientific monographs |
| C2 | Scientific edited books, conference proceedings and journal special issues |

2. Language of scientific publications

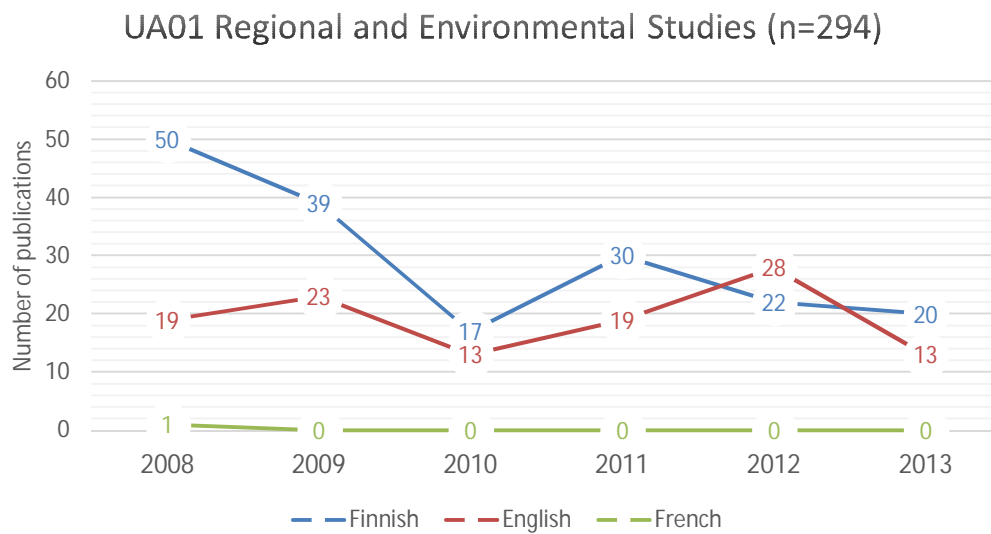


Figure 2. Number of scientific publications (publication types A-C) by UA01 in different languages in 2008-2013 (n=294).

UA01 Regional and Environmental Studies (n=294)

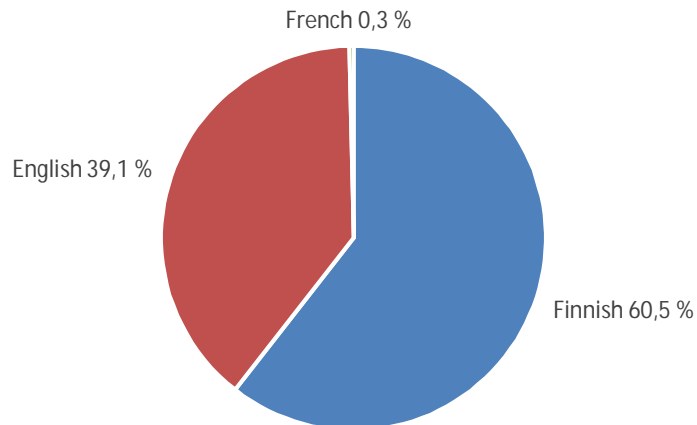


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by UA01 in 2008-2013 (n=294).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA01.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

-
- 1 basic
 - 2 leading
 - 3 top (applicable only to journals and series, not to book publishers)
 - other identified publication channels that have not received level 1 rating
-

UA01 Regional and Environmental Studies

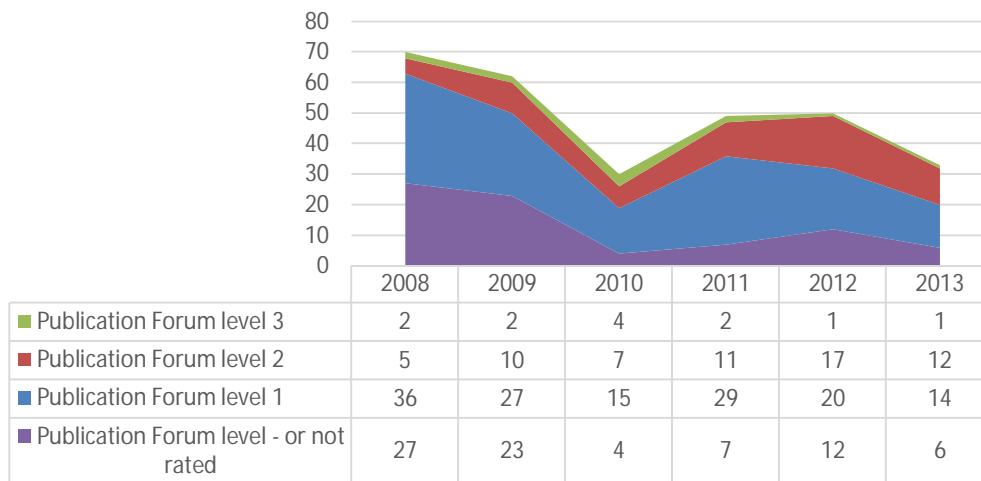


Figure 4. Number of scientific publications (publication types A-C) by UA01 according to the Publication Forum levels per year (n=294).

Scientific publication channels

Table 1. Refereed scientific journals in which UA01 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 39 % of the refereed scientific journal article output, publication types A1, A2) by UA01 in 2008-2013 (n=88).

Journal title	Publication Forum level	Number of publications
Alue ja Ympäristö	1	9
Terra	1	8
Kunnallistieteellinen aikakauskirja	1	4
Tiede & edistys	1	4
Planning Theory & Practice	2	3
Space and Polity	1	3
Yhdyskuntasuunnittelu	1	3

Table 2. Scientific publishers which cover the majority of the publication output of UA01. A threshold of 50 % was used. The list includes all the publishers which achieved the threshold value (covering altogether 52 % of the scientific publication output, publication types A3, C1) by UA01 in 2008-2013 (n=54).

Publisher	Publication Forum level	Number of publications
Vastapaino	2	6
University of Tampere	-	6
Tampere University Press	1	4
Routledge	2	4
Ashgate	2	4
Springer	2	4

4. Publication output and citation impact based on the Scopus database

The scientific publication output and citation impact of UA01 was analysed using the Scopus database. The analysis included the scientific publications by UA01 in 2008-2012 and the citations to those publications in 2008-2013. The number of scientific publications by UA01 in the UTA publication database was included as a reference.

Table 3. Publication output and citation impact (UA01, publications 2008-2012, citations 2008-2013, publication types A-C, sources: Scopus, UTA publication database).

Publication type	P _{Sci}	P _{Sco}	TCS	MCS	NC	%NC
A1	72	40	160	4,0	11	27,5 %
A2	4	3	158	52,7	2	66,7 %
A3	44	1	0	0,0	1	100,0 %
A4	3					
B1	68	8	9	1,1	6	75,0 %
B2	41					
B3	4					
C1	6					
C2	19	1	0	0,0	1	100,0 %
Total	261	53	327	6,2	21	39,6 %

P_{Sci} = Number of scientific publications in UTA publication database, P_{Sco} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications

Publication types according to the classification of the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

Scientific publishing: activity, language, quality and impact

UA02 Public Administration

1. Scientific publishing activity

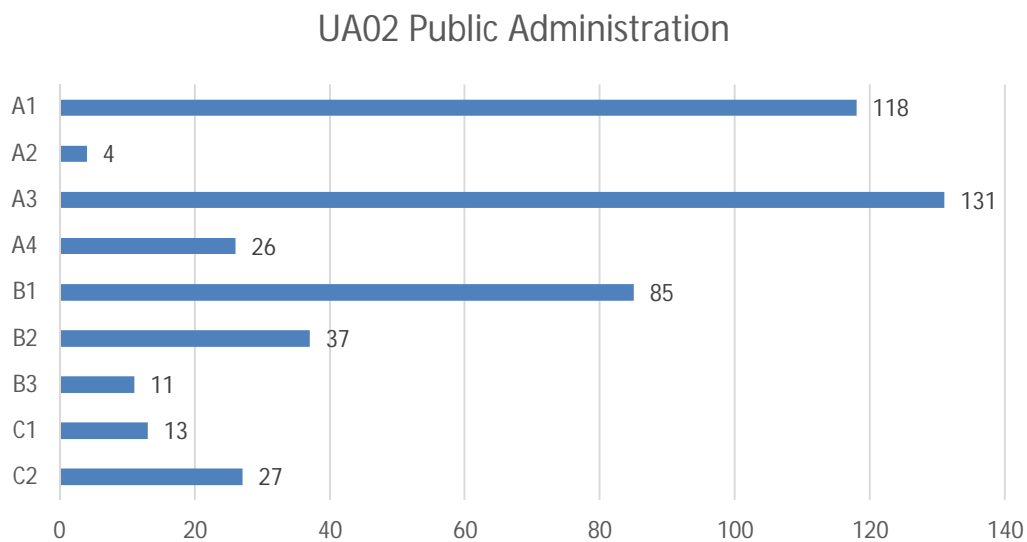


Figure 1. Number of scientific publications (publication types A-C) by UA02 by type in 2008-2013 (n=452).

Publication types according to the classification by the Finnish Ministry of Education and Culture

- A1 Refereed scientific articles in journals
 - A2 Refereed scientific review articles, literature reviews, systematic reviews in journals
 - A3 Refereed scientific articles in edited books
 - A4 Refereed scientific articles in conference proceedings
 - B1 Non-refereed scientific articles in journals
 - B2 Non-refereed articles in edited books
 - B3 Non-refereed articles in conference proceedings
 - C1 Scientific monographs
 - C2 Scientific edited books, conference proceedings and journal special issues
-

2. Language of scientific publications

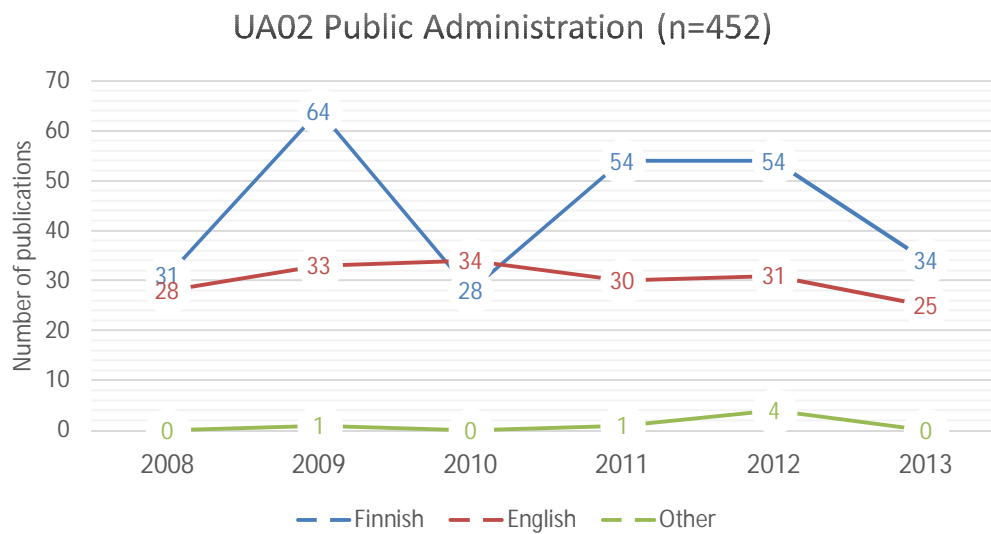


Figure 2. Number of scientific publications (publication types A-C) by UA02 in different languages in 2008-2013 (n=452).

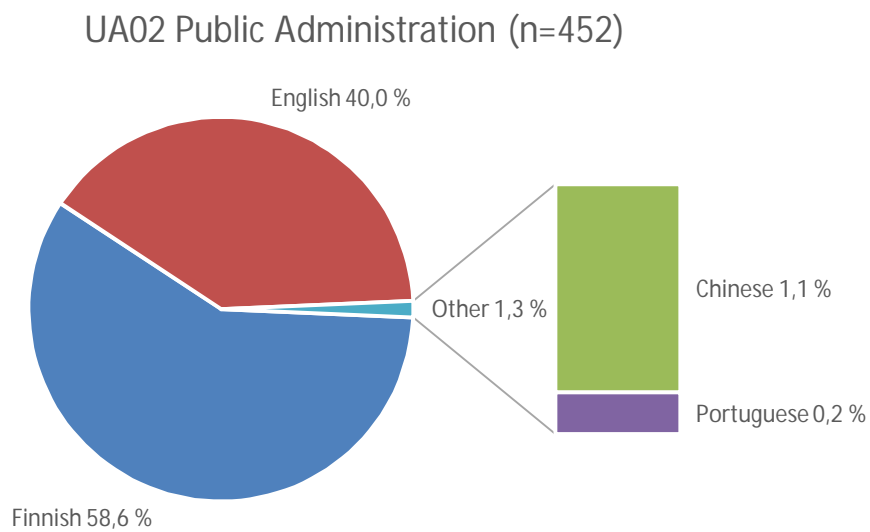


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by UA02 in 2008-2013 (n=452).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA02.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

-
- 1 basic
 - 2 leading
 - 3 top (applicable only to journals and series, not to book publishers)
 - other identified publication channels that have not received level 1 rating
-

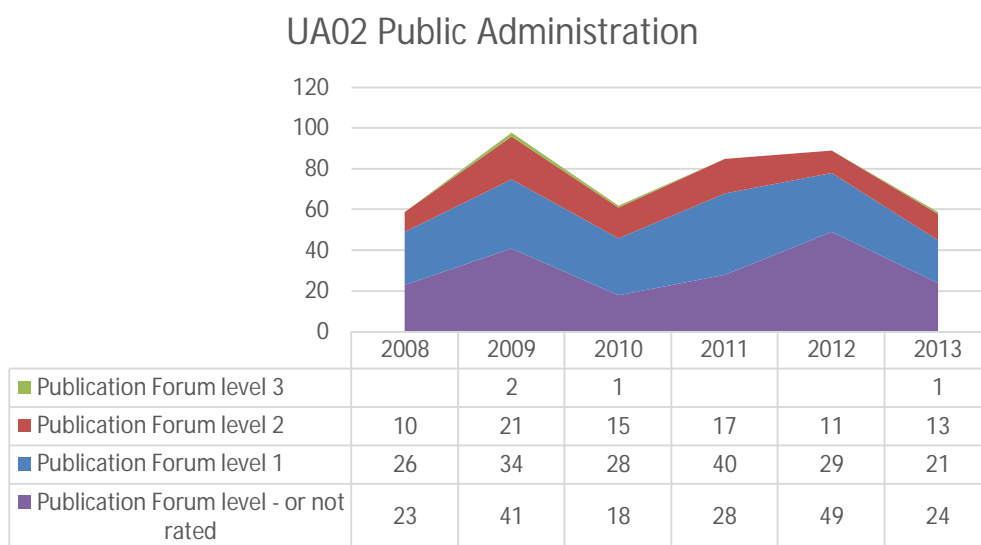


Figure 4. Number of scientific publications (publication types A-C) by UA02 according to the Publication Forum levels per year (n=452).

Scientific publication channels

Table 1. Refereed scientific journals in which UA02 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 35 % of the refereed scientific journal article output, publication types A1, A2) by UA02 in 2008-2013 (n=122).

Journal title	Publication Forum level	Number of publications
Kunnallistieteellinen aikakauskirja	1	17
Hallinnon Tutkimus	2	11
Local Government Studies	2	5
Tiedepolitiikka	1	4
Public Administration	3	3
Työelämän tutkimus	1	3

Table 2. Scientific publishers which cover the majority of the publication output of UA01. A threshold of 50 % was used. The list includes all the publishers which achieved the threshold value (covering altogether 54 % of the scientific publication output, publication types A3, C1) by UA02 in 2008-2013 (n=144).

Publisher	Publication Forum level	Number of publications
University of Tampere	-	21
Tampere University Press	1	20
Suomen Kuntaliitto	-	11
Palgrave Macmillan	2	10
University of Jyväskylä	-	9
Gaudeamus	2	7

4. Publication output and citation impact based on the Scopus database

The scientific publication output and citation impact of UA02 was analysed using the Scopus database. The analysis included the scientific publications by UA02 in 2008-2012 and the citations to those publications in 2008-2013. The number of scientific publications by UA02 in the UTA publication database was included as a reference.

Table 3. Publication output and citation impact (UA02, publications 2008-2012, citations 2008-2013, publication types A-C, sources: Scopus, UTA publication database).

Publication type	P _{Sci}	P _{Sco}	TCS	MCS	NC	%NC
A1	97	34	74	2,2	12	35,3 %
A2	4					
A3	119	5	0	0,0	5	100,0 %
A4	19					
B1	74	1	0	0,0	1	100,0 %
B2	32	2	0	0,0	2	100,0 %
B3	11					
C1	13					
C2	24	1	0	0,0	1	100,0 %
Total	393	43	74	1,7	21	48,8 %

P_{Sci} = Number of scientific publications in UTA publication database, P_{Sco} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications

Publication types according to the classification of the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

Scientific publishing: activity, language, quality and impact

UA03 Business and Economics

1. Scientific publishing activity

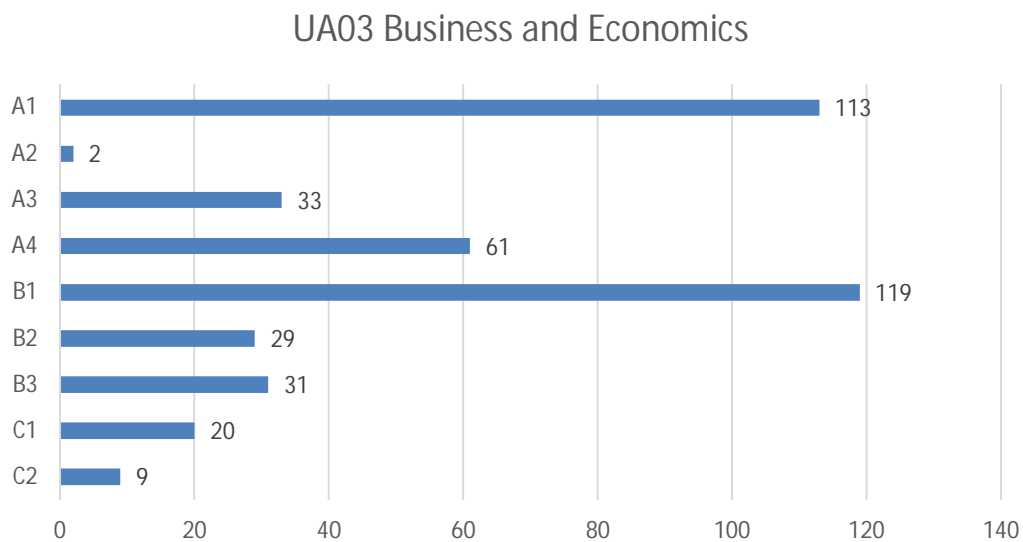


Figure 1. Number of scientific publications (publication types A-C) by UA03 by type in 2008-2013 (n=417).

Publication types according to the classification by the Finnish Ministry of Education and Culture

- A1 Refereed scientific articles in journals
 - A2 Refereed scientific review articles, literature reviews, systematic reviews in journals
 - A3 Refereed scientific articles in edited books
 - A4 Refereed scientific articles in conference proceedings
 - B1 Non-refereed scientific articles in journals
 - B2 Non-refereed articles in edited books
 - B3 Non-refereed articles in conference proceedings
 - C1 Scientific monographs
 - C2 Scientific edited books, conference proceedings and journal special issues
-

2. Language of scientific publications

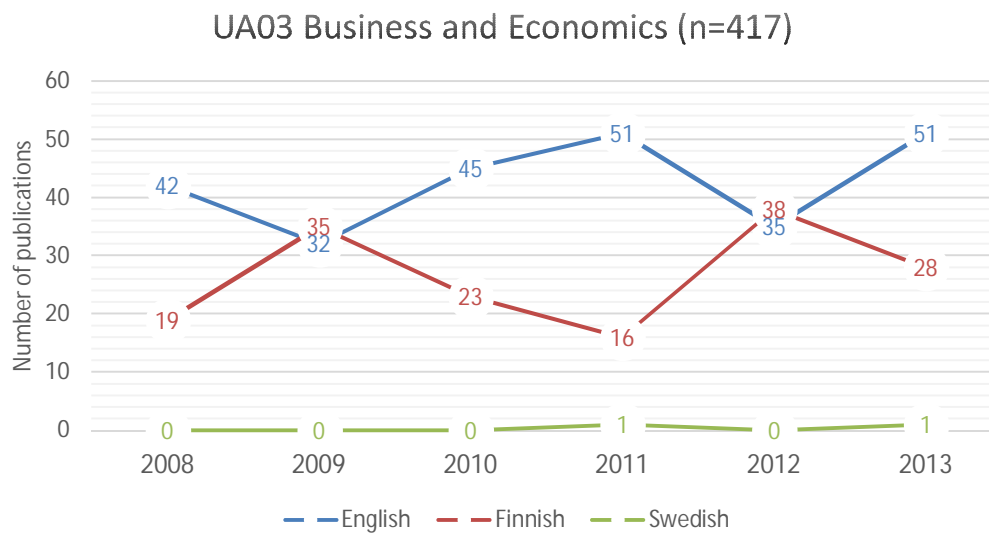


Figure 2. Number of scientific publications (publication types A-C) by UA03 in different languages in 2008-2013 (n=417).

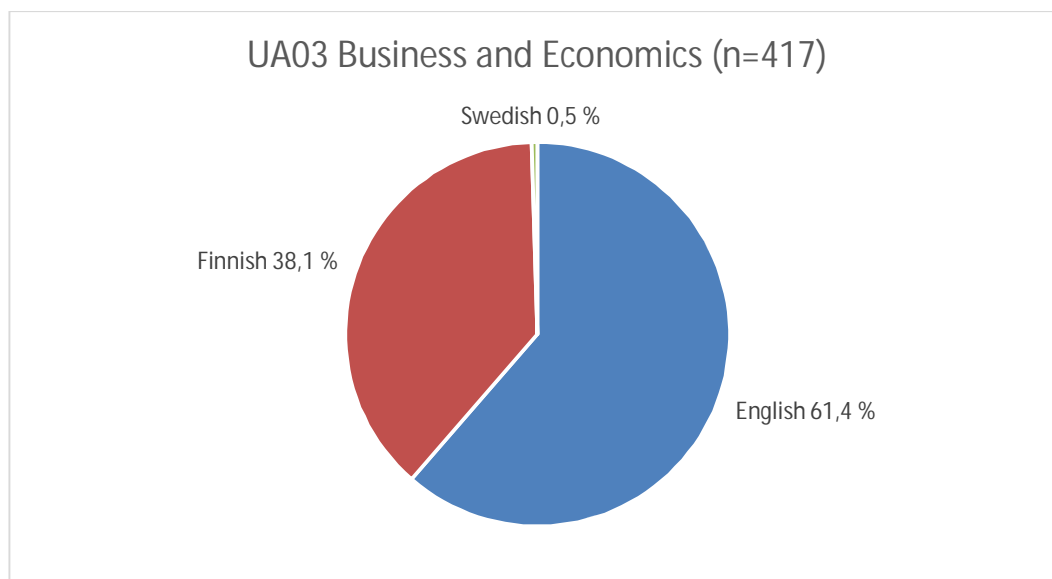


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by UA03 in 2008-2013 (n=417).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA03.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

- 1 basic
- 2 leading
- 3 top (applicable only to journals and series, not to book publishers)
- other identified publication channels that have not received level 1 rating

UA03 Business and Economics

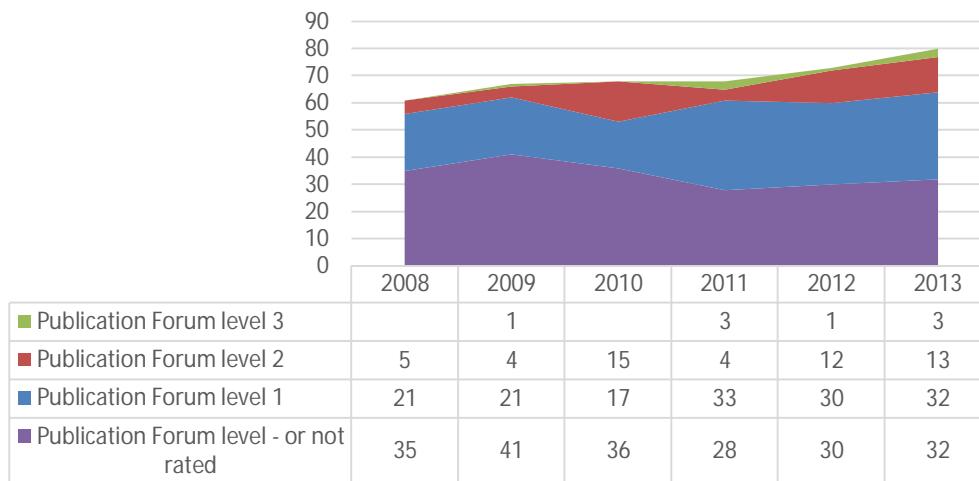


Figure 4. Number of scientific publications (publication types A-C) by UA03 according to the Publication Forum levels per year (n=417).

Scientific publication channels

Table 1. Refereed scientific journals in which UA03 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 42 % of the refereed scientific journal article output, publication types A1, A2) by UA03 in 2008-2013 (n=115).

Journal title	Publication Forum level	Number of publications
Journal of Business Ethics	2	6
Liiketaloudellinen aikakauskirja	1	5
International Journal of Innovation Management	1	4
Kunnallistieteellinen aikakauskirja	1	4
International Tax and Public Finance	2	4
Defensor Legis	1	3
Lakimies	2	3
Accounting, Auditing and Accountability Journal	2	3
Finnish Economic Papers	1	2
International Journal of Accounting, Auditing and Performance Evaluation	1	2
Critical Perspectives on Accounting	2	2
Economica	2	2
Lifelong Learning in Europe	1	2
European Accounting Review	2	2
European Journal of Innovation Management	1	2
Scandinavian Journal of Economics	2	2

Table 2. Scientific publishers which cover the majority of the publication output of UA03. A threshold of 50 % was used. The list includes all the publishers which achieved the threshold value (covering altogether 70 % of the scientific publication output, publication types A3, C1) by UA03 in 2008-2013 (n=53).

Publisher	Publication Forum level	Number of publications
Tampere University Press	1	11
University of Tampere	-	10
Talentum	1	4
University of Vaasa	-	2
Bloomsbury Academic	2	2
Gaudeamus	2	2
Kunnallisalan kehittämissäätiö	-	2
Routledge	2	2
Atiner	1	2

4. Publication output and citation impact based on the Scopus database

The scientific publication output and citation impact of UA03 was analysed using the Scopus database. The analysis included the scientific publications by UA03 in 2008-2012 and the citations to those publications in 2008-2013. The number of scientific publications by UA03 in the UTA publication database was included as a reference.

Table 3. Publication output and citation impact (UA03, publications 2008-2012, citations 2008-2013, publication types A-C, sources: Scopus, UTA publication database).

Publication type	P _{Sci}	P _{Sco}	TCS	MCS	NC	%NC
A1	84	54	245	4,5	15	27,8 %
A2	1					
A3	28					
A4	56					
B1	95	1	0	0,0	1	100,0 %
B2	19					
B3	28					
C1	17					
C2	9					
Total	337	55	245	4,5	16	29,1 %

P_{Sci} = Number of scientific publications in UTA publication database, P_{Sco} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications

Publication types according to the classification of the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

Scientific publishing: activity, language, quality and impact

UA04 Political Science

1. Scientific publishing activity

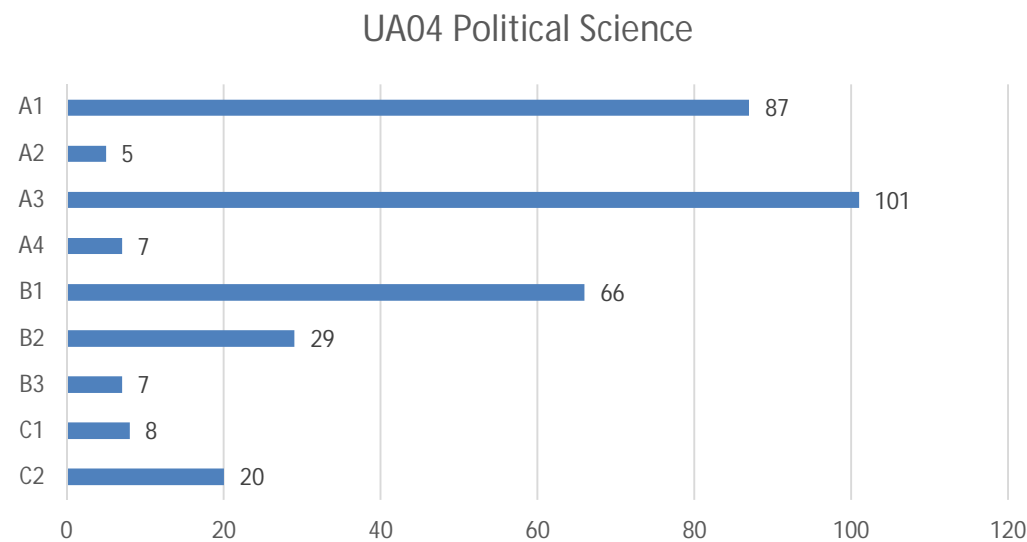


Figure 1. Number of scientific publications (publication types A-C) by UA04 by type in 2008-2013 (n=330).

Publication types according to the classification by the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

2. Language of scientific publications

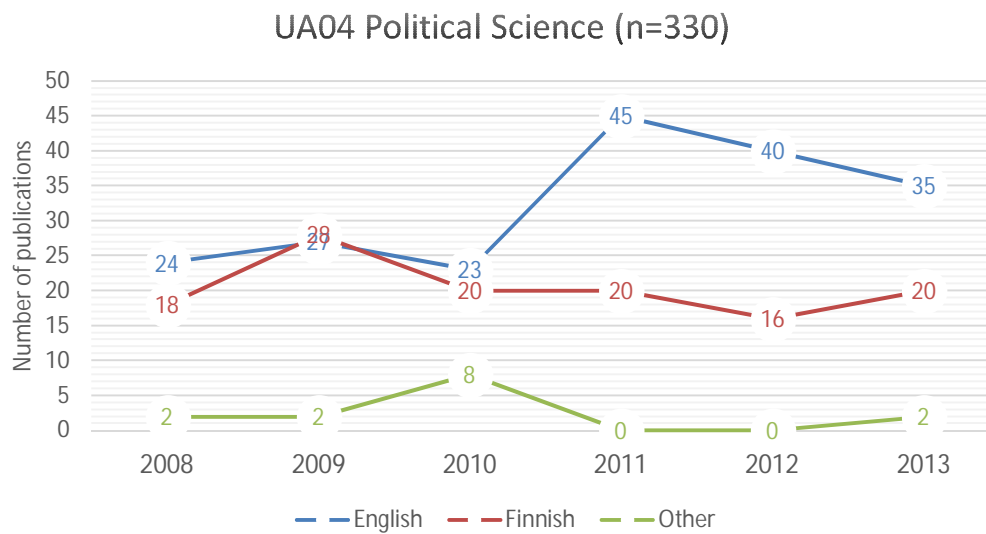


Figure 2. Number of scientific publications (publication types A-C) by UA04 in different languages in 2008-2013 (n=330).

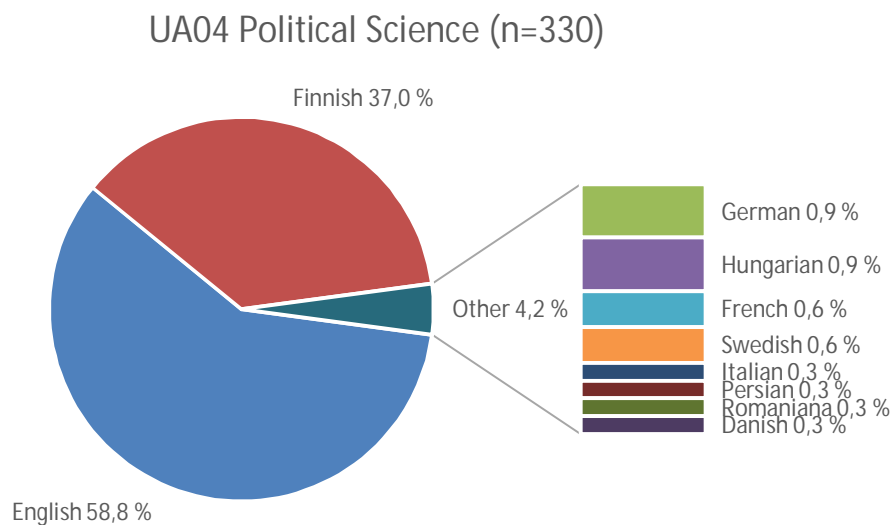


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by UA04 in 2008-2013 (n=330).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA04.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

- 1 basic
- 2 leading
- 3 top (applicable only to journals and series, not to book publishers)
- other identified publication channels that have not received level 1 rating

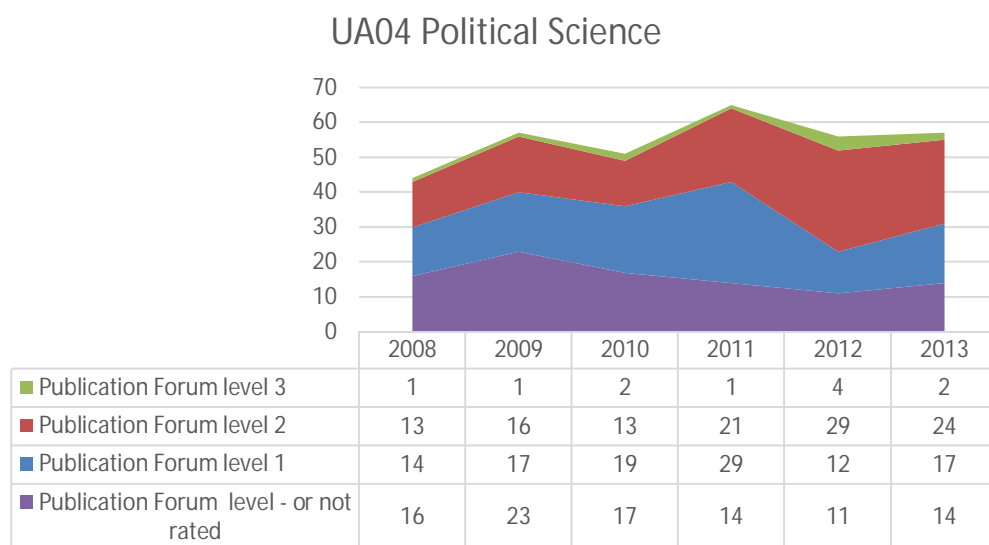


Figure 4. Number of scientific publications (publication types A-C) by UA04 according to the Publication Forum levels per year (n=330).

Scientific publication channels

Table 1. Refereed scientific journals in which UA04 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 36 % of the refereed scientific journal article output, publication types A1, A2) by UA04 in 2008-2013 (n=92).

Journal title	Publication Forum level	Number of publications
Politiikka	2	11
Kosmopolis	1	8
Geopolitics	2	3
Idäntutkimus	1	3
Cooperation and Conflict	2	2
West European Politics	3	2
Scandinavian Political Studies	2	2
Politikatudományi Szemle	-	2

Table 2. Scientific publishers which cover the majority of the publication output of UA04. A threshold of 50 % was used. The list includes all the publishers which achieved the threshold value (covering altogether 51 % of the scientific publication output, publication types A3, C1) by UA04 in 2008-2013 (n=109).

Publisher	Publication Forum level	Number of publications
Ashgate	2	11
Palgrave Macmillan	2	10
Routledge	2	10
Gaudeamus	2	10
Vastapaino	2	5
Tampere University Press	1	5
Edward Elgar Publishing	2	5

4. Publication output and citation impact based on the Scopus database

The scientific publication output and citation impact of UA04 was analysed using the Scopus database. The analysis included the scientific publications by UA04 in 2008-2012 and the citations to those publications in 2008-2013. The number of scientific publications by UA04 in the UTA publication database was included as a reference.

Table 3. Publication output and citation impact (UA04, publications 2008-2012, citations 2008-2013, publication types A-C, sources: Scopus, UTA publication database).

Publication type	P _{Sci}	P _{Sco}	TCS	MCS	NC	%NC
A1	63	26	76	2,9	5	19,2 %
A2	3					
A3	85	5	0	0,0	5	100,0 %
A4	6	2	0	0,0	2	100,0 %
B1	57	1	1	1,0		0,0 %
B2	26					
B3	7					
C1	8					
C2	18	1	2	2,0		0,0 %
Total	273	35	79	2,3	12	34,3 %

P_{Sci} = Number of scientific publications in UTA publication database, P_{Sco} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications

Publication types according to the classification of the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

UTA RAE 2014, Panel II

Bibliometric analysis by Tampere University Library

Data and methods

Tampere University Library conducted bibliometric analysis on the scientific publishing of the Units of Assessment (UA) of the UTA RAE. A team of information specialists of various fields conducted the analysis to supplement the bibliometric analysis by the Centre for Science and Technology Studies (CWTS) of Leiden University. A supplementary analysis by the Library was considered necessary as the Web of Science citation index used by CWTS does not properly cover the scientific publishing of many of the UAs.

The main source of data in the Library analysis was the UTA SoleCRIS database. The publication data set was used to analyse the overall scientific publishing activity, as well as the language and quality of scientific publishing (Sections 1-3). The data included the scientific publications authored by UTA researchers (employed or affiliated at UTA on the Census Date 1 October 2013) in 2008-2013 at UTA regardless of where the researchers had been working at the time of the publication.

The scientific publications included in the analysis comprised publications in the categories A-C of the Finnish Ministry of Education and Culture's classification of publications. (See the results section for the description of the publication types.)

The quality of scientific publishing (Section 3) was analysed using the national Publication Forum Rating (JuFo) of scientific journals, publication series and publishers. The Publication Forum – 23 panels comprising approx. 200 members of the academic community – has rated some 20,000 journals, publishers and publication series according to their quality. Journals and publication series have been rated into three levels: 1 = basic; 2 = leading; 3 = top, and publishers into two levels: 1 = basic; 2 = leading. The rating system is continuously updated and expanded.

Scientific publishing: activity, language, quality and impact

UA05 Biomedical Technology

1. Scientific publishing activity

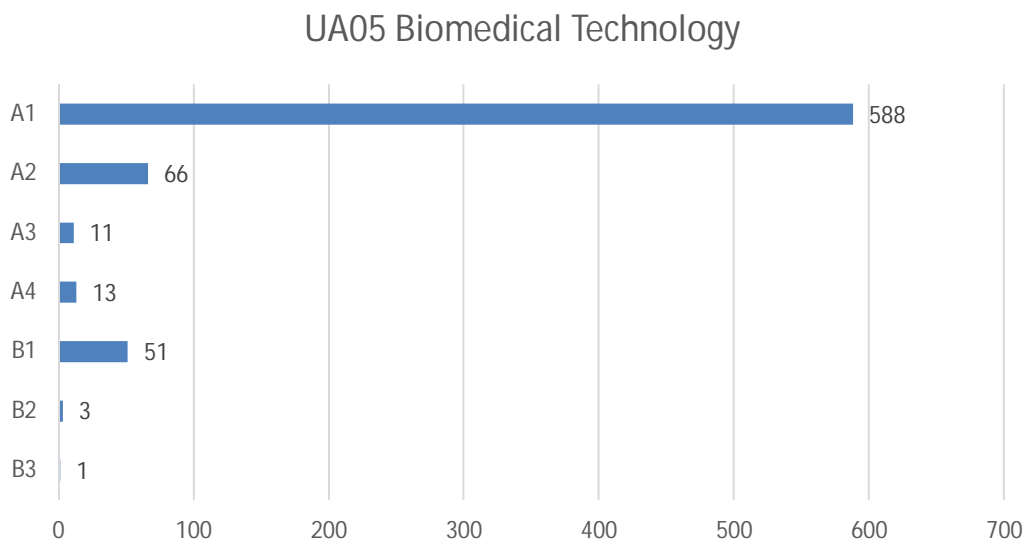


Figure 1. Number of scientific publications (publication types A-C) by UA05 by type in 2008-2013 (n=733).

Publication types according to the classification by the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

2. Language of scientific publications

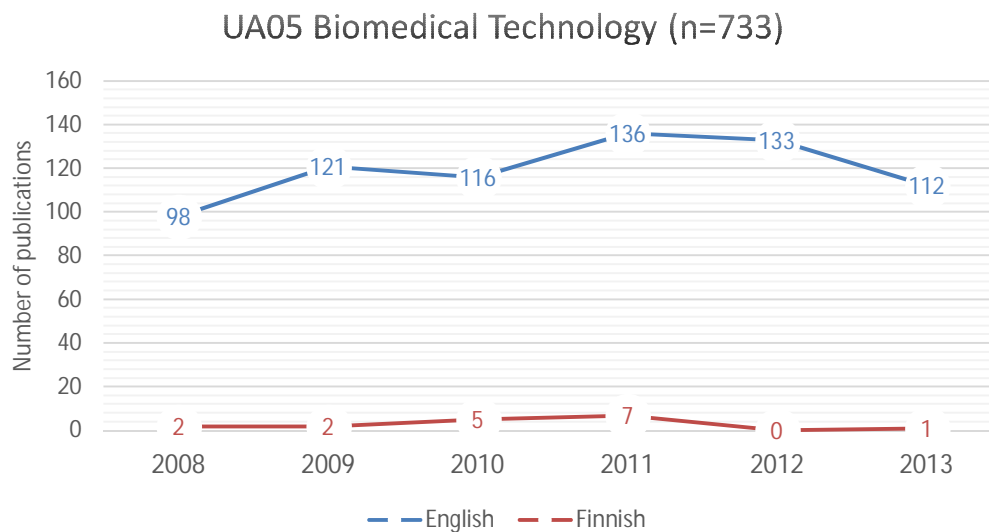


Figure 2. Number of scientific publications (publication types A-C) by UA05 in different languages in 2008-2013 (n=733).

UA05 Biomedical Technology (n=733)

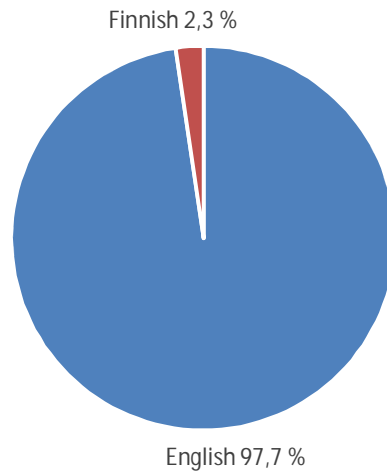


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by UA05 in 2008-2013 (n=733).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA05.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

-
- 1 basic
 - 2 leading
 - 3 top (applicable only to journals and series, not to book publishers)
 - other identified publication channels that have not received level 1 rating
-

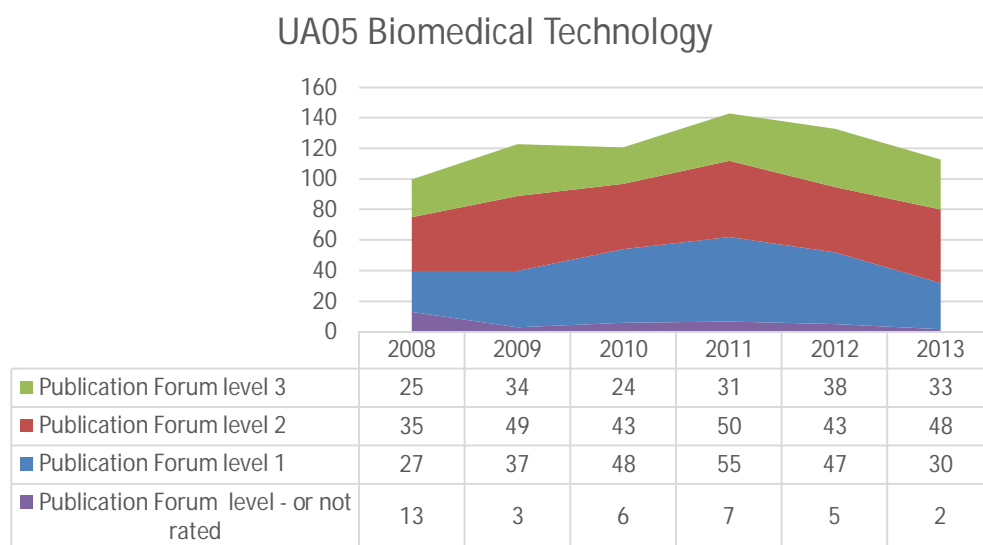


Figure 4. Number of scientific publications (publication types A-C) by UA05 according to the Publication Forum levels per year (n=733).

Scientific publication channels

Table 1. Refereed scientific journals in which UA05 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 34 % of the refereed scientific journal article output, publication types A1, A2) by UA05 in 2008-2013 (n=654).

Journal title	Publication Forum level	Number of publications
PLoS ONE	2	42
Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontics	2	12
International Journal of Cancer	2	10
European Urology	2	10
Duodecim	1	10
Clinical Cancer Research	3	9
BMC Cancer	1	9
Journal of Biological Chemistry	2	9
Atlas of the Oral and Maxillofacial Surgery Clinics of North America	-	8
Journal of the Canadian Dental Association	1	8
Journal of Clinical Oncology	3	8
The Prostate	2	7
Cancer Research	3	7
Developmental & Comparative Immunology	2	6
Cancer	2	6
Genes, Chromosomes & Cancer	2	6
Breast Cancer Research	2	6
Oncogene	3	6
Proceedings of the National Academy of Sciences of the United States of America	3	6
Journal of the Royal Society Interface	1	5
Cancer Letters	2	5
Nature Genetics	3	5
BJU International	1	5
Tissue Engineering. Part A	2	5
Clinical Chemistry	3	5
Human Molecular Genetics	3	5

Table 2. Scientific publishers which cover the majority of the publication output of UA05. A threshold of 50 % was used. The list includes all the publishers which achieved the threshold value (covering altogether 55 % of the scientific publication output, publication types A3, C1¹) by UA05 in 2008-2013 (n=11).²

Publisher	Publication Forum level	Number of publications
InTech	1	3
Springer	2	2

¹ No articles by publication type C1 in UA05

² The list does not include publishers with only one publication.

Scientific publishing: activity, language, quality and impact

UA06 Medicine

1. Scientific publishing activity

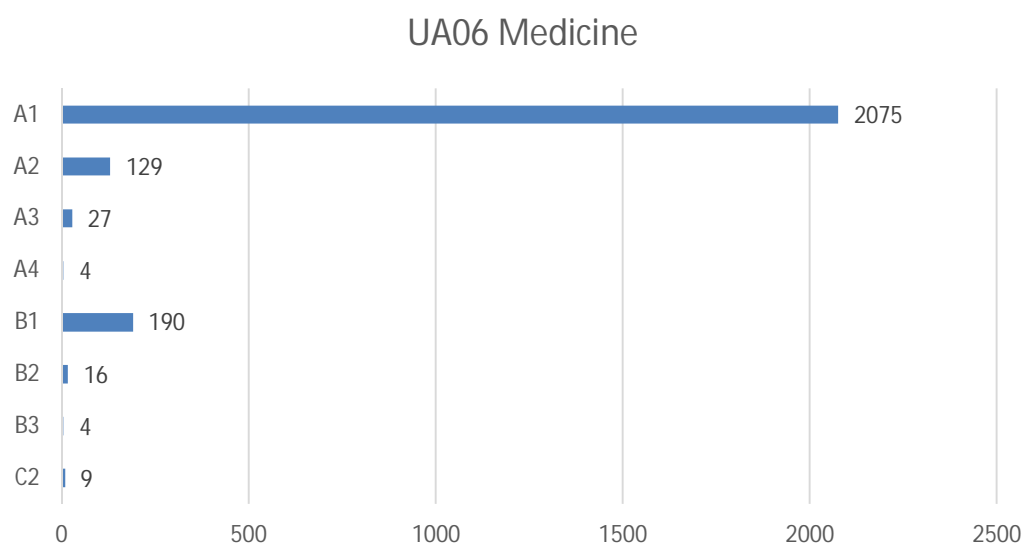


Figure 1. Number of scientific publications (publication types A-C) by UA06 by type in 2008-2013 (n=2454).

Publication types according to the classification by the Finnish Ministry of Education and Culture

A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

2. Language of scientific publications

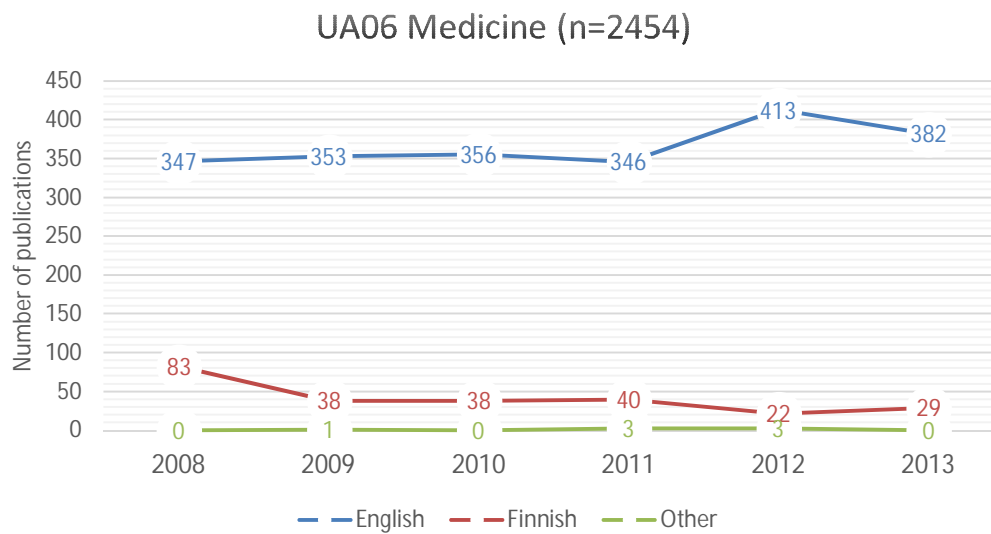


Figure 2. Number of scientific publications (publication types A-C) by UA06 in different languages in 2008-2013 (n=2454).

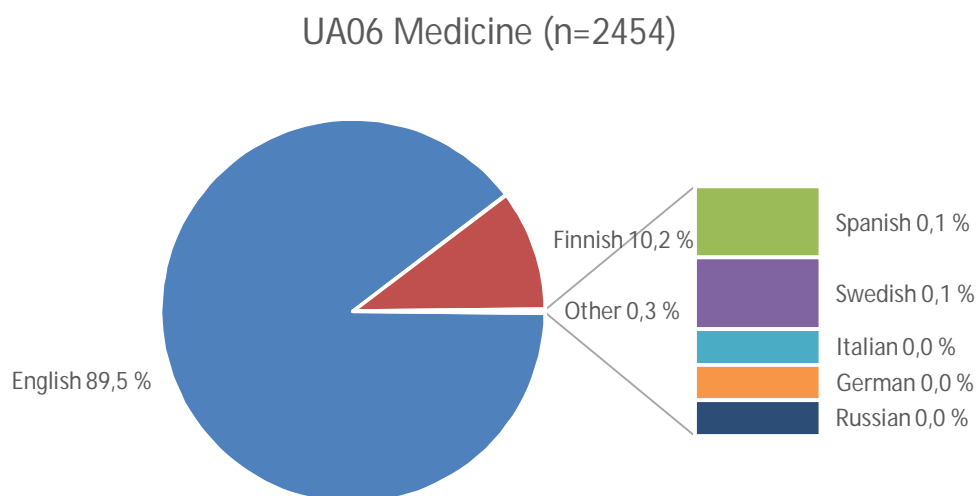


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by UA06 in 2008-2013 (n=2454).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA06.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

- 1 basic
- 2 leading
- 3 top (applicable only to journals and series, not to book publishers)
- other identified publication channels that have not received level 1 rating

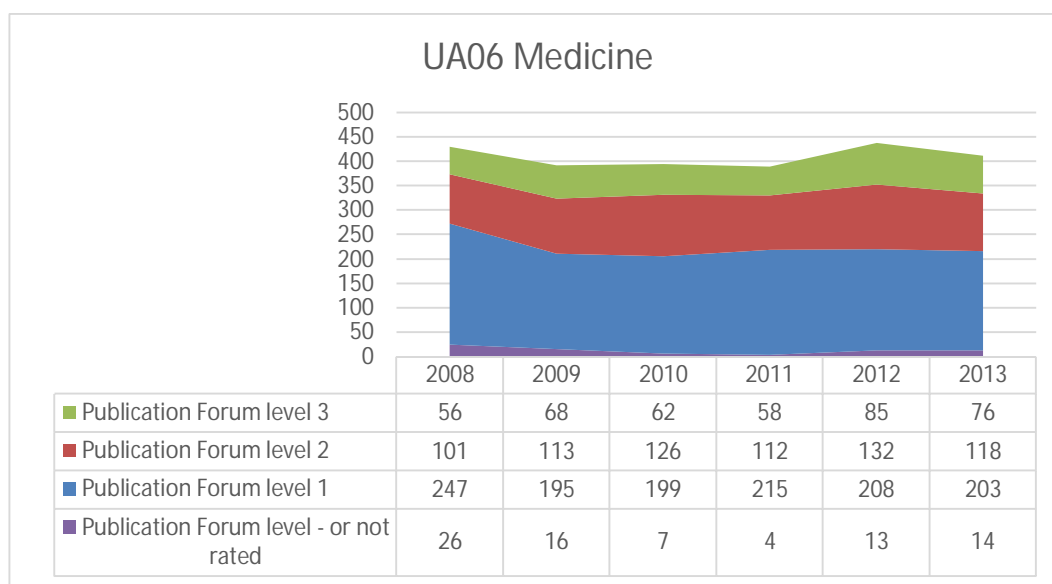


Figure 4. Number of scientific publications (publication types A-C) by UA06 according to the Publication Forum levels per year (n=2454).

Scientific publication channels

Table 1. Refereed scientific journals in which UA06 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 38 % of the refereed scientific journal article output, publication types A1, A2) by UA06 in 2008-2013 (n=2204).

Journal title	Publication Forum level	Number of publications
Duodecim	1	68
Suomen Lääkärilehti	1	61
PLoS ONE	2	43
Acta Paediatrica	1	33
Nature Genetics	3	32
Annals of Medicine	2	32
Atherosclerosis	2	32
The Pediatric Infectious Disease Journal	2	18
Scandinavian Journal of Clinical & Laboratory Investigation	1	17
Journal of Pediatric Gastroenterology and Nutrition	1	16
Scandinavian Journal of Gastroenterology	1	15
PLoS Genetics	3	15
Social Psychiatry and Psychiatric Epidemiology	2	13
Vaccine	2	13
European Urology	2	13
Human Molecular Genetics	3	13
International Journal of Cancer	2	13
Neurology	3	12
Nordic Journal of Psychiatry	1	12
New England Journal of Medicine	3	12
Acta Ophthalmologica	2	12
Journal of Neurology, Neurosurgery and Psychiatry	2	11
Clinical and Experimental Immunology	1	11
BJU International	1	11
Circulation	3	11
Scandinavian Journal of Infectious Diseases	1	10
Journal of Affective Disorders	2	10
Journal of Clinical Virology	1	10
American Journal of Human Genetics	3	10
Arteriosclerosis, Thrombosis, and Vascular Biology	3	10
Neuroscience Letters	1	9
Neuromuscular Disorders	1	9
European Journal of Human Genetics	1	9
Anticancer Research	1	9
BMC Public Health	2	9
BMC Gastroenterology	1	9
Diabetes	3	9
Scandinavian Cardiovascular Journal	1	8
The Journal of Urology	2	8
Journal of Neurology	2	8

European Child & Adolescent Psychiatry	1	8
Amino Acids	1	8
Diabetes Care	3	8
British Journal of Cancer	2	8
Neurochemical Research	1	7
The European Respiratory Journal	2	7
Sosiaalilääketieteellinen aikakauslehti	1	7
The Journal of Infectious Diseases	2	7
The Prostate	2	7
The Journal of the Acoustical Society of America	3	7
Pediatrics	3	7
The Lancet	3	7
Journal of Bone and Joint Surgery: American Volume	3	7
European Journal of Neurology	2	7
Journal of Clinical Oncology	3	7
Journal of Neuroimmunology	1	7
European Heart Journal	3	7
Circulation: Cardiovascular genetics	1	7
BMC Musculoskeletal Disorders	2	7
Acta Anaesthesiologica Scandinavica	2	7
Bioorganic & Medicinal Chemistry Letters	2	7

Table 2. Scientific publishers which cover the majority of the publication output of UA06. A threshold of 50 % was used. The list includes all the publishers which achieved the threshold value (covering altogether 56 % of the scientific publication output, publication types A3, C1¹) by UA06 in 2008-2013 (n=27).

Publisher	Publication Forum level	Number of publications
Springer	2	7
Wiley & Blackwell	2	2
University of Washington	-	2
Kustannus Oy Duodecim	1	2
Vastapaino	2	2

¹ No articles by publication type C1 in UA06

Scientific publishing: activity, language, quality and impact

UA07 Health Sciences

1. Scientific publishing activity

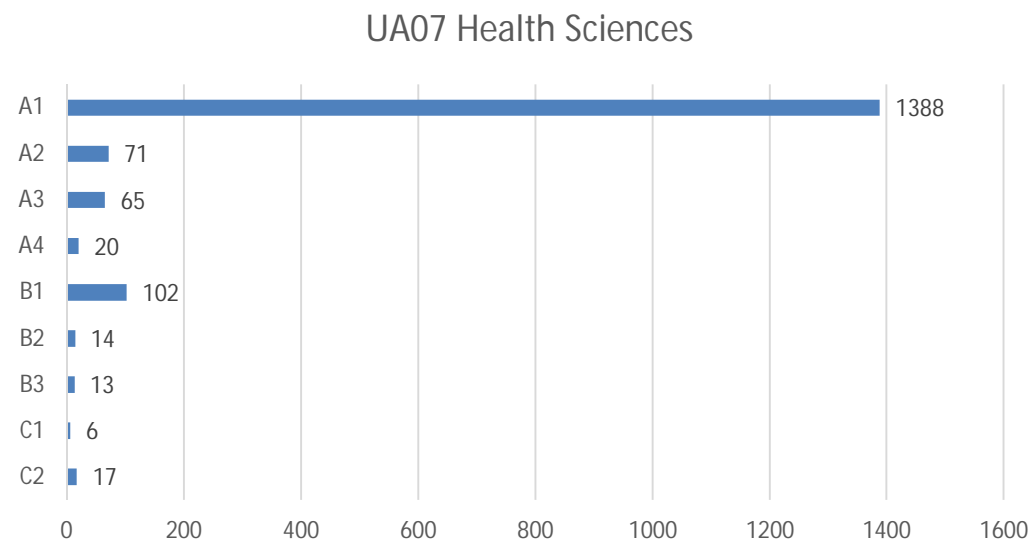


Figure 1. Number of scientific publications (publication types A-C) by UA07 by type in 2008-2013 (n=1696).

Publication types according to the classification by the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

2. Language of scientific publications

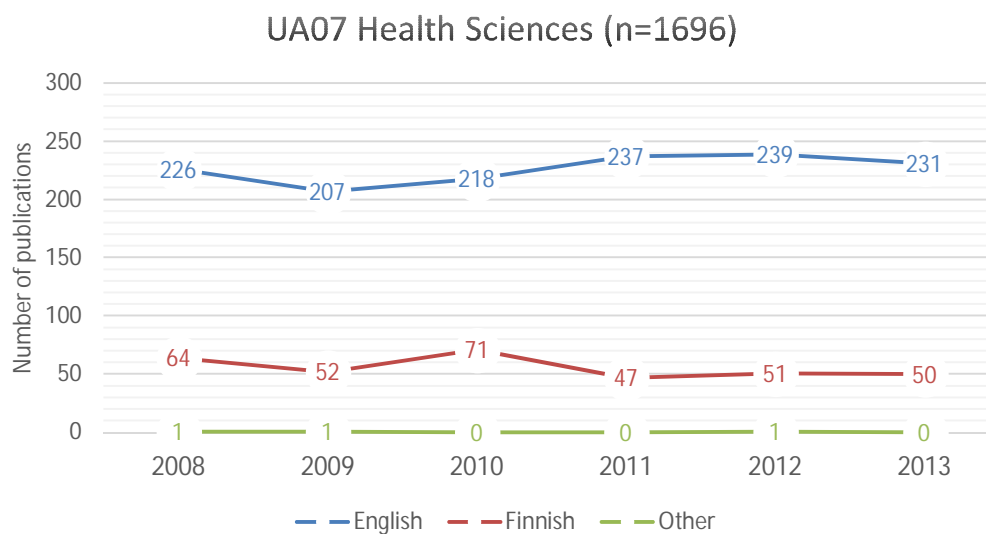


Figure 2. Number of scientific publications (publication types A-C) by UA07 in different languages in 2008-2013 (n=1696).

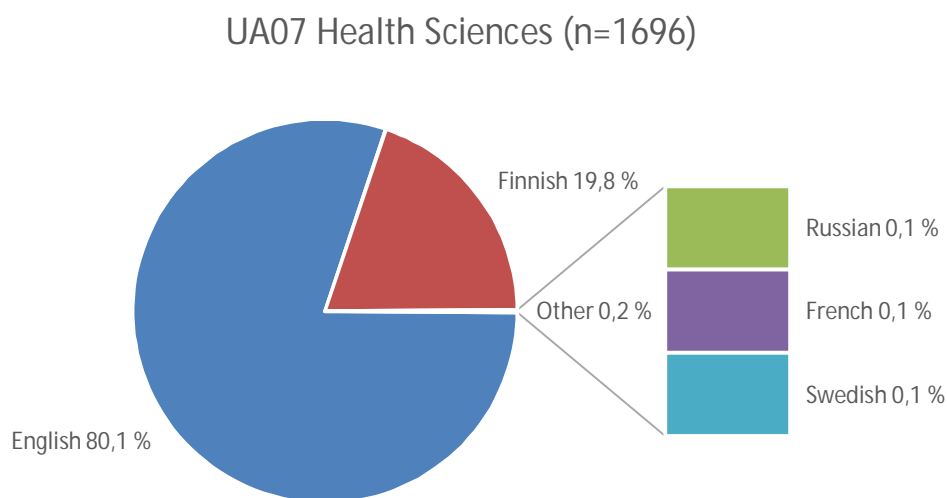


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by UA07 in 2008-2013 (n=1696).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA07.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

- 1 basic
- 2 leading
- 3 top (applicable only to journals and series, not to book publishers)
- other identified publication channels that have not received level 1 rating

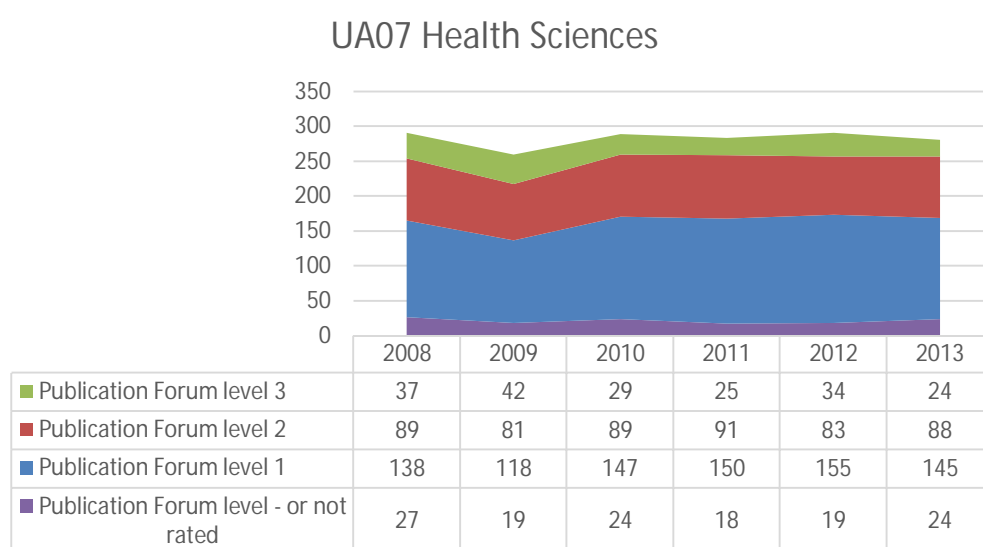


Figure 4. Number of scientific publications (publication types A-C) by UA07 according to the Publication Forum levels per year (n=1696).

Scientific publication channels

Table 1. Refereed scientific journals in which UA07 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 36 % of the refereed scientific journal article output, publication types A1, A2) by UA07 in 2008-2013 (n=1459).

Journal title	Publication Forum level	Number of publications
Hoitotiede	1	51
International Journal of Cancer	2	49
Suomen Lääkärilehti	1	42
Tutkiva Hoitotyö	1	33
European Journal of Cancer	2	23
Scandinavian Journal of Caring Sciences	2	21
Sosiaalilääketieteellinen aikakauslehti	1	20
Scandinavian Journal of Public Health	1	18
Journal of Clinical Nursing	2	17

PLoS ONE	2	17
Public Health Nutrition	2	14
Cancer Epidemiology, Biomarkers & Prevention	3	13
European Journal of Public Health	2	13
Nordic Journal of Psychiatry	1	12
American Journal of Epidemiology	3	12
Acta Oncologica	1	11
BMC Public Health	2	11
BMJ Open	1	11
British Journal of Cancer	2	11
Yhteiskuntapolitiikka	2	10
Social Psychiatry and Psychiatric Epidemiology	2	10
International Journal of Nursing Practice	1	10
European Journal of Clinical Nutrition	2	9
Cancer Causes & Control	3	9
Psychiatry Research	1	8
Occupational and Environmental Medicine	3	8
Scandinavian Journal of Gastroenterology	1	8
BMC Health Services Research	2	8
Pediatric Diabetes	1	7
Social Science & Medicine	3	7
Journal of Advanced Nursing	3	7
Experimental Gerontology	1	7
Asian Pacific Journal of Cancer Prevention	1	7
Duodecim	1	7

Table 2. Scientific publishers which cover the majority of the publication output of UA07. A threshold of 50 % was used. The list includes all the publications which achieved the threshold value (covering altogether 52 % of the scientific publication output, publication types A3, C1) by UA07 in 2008-2013 (n=71).

Publisher	Publication Forum category	Number of publications
Tampere University Press	1	10
Terveyden ja hyvinvoinnin laitos	-	9
Gaudeamus	2	6
Stakes	not rated	4
Springer	2	4
Kansaneläkelaitos	-	4

UTA RAE 2014, Panel III

Bibliometric analysis by Tampere University Library

Data and methods

Tampere University Library conducted bibliometric analysis on the scientific publishing of the Units of Assessment (UA) of the UTA RAE. A team of information specialists of various fields conducted the analysis to supplement the bibliometric analysis by the Centre for Science and Technology Studies (CWTS) of Leiden University. A supplementary analysis by the Library was considered necessary as the Web of Science citation index used by CWTS does not properly cover the scientific publishing of many of the UAs.

The main source of data in the Library analysis was the UTA SoleCRIS database. The publication data set was used to analyse the overall scientific publishing activity, as well as the language and quality of scientific publishing (Sections 1-3). The data included the scientific publications authored by UTA researchers (employed or affiliated at UTA on the Census Date 1 October 2013) in 2008-2013 at UTA regardless of where the researchers had been working at the time of the publication.

The scientific publications included in the analysis comprised publications in the categories A-C of the Finnish Ministry of Education and Culture's classification of publications. (See the results section for the description of the publication types.)

The quality of scientific publishing (Section 3) was analysed using the national Publication Forum Rating (JuFo) of scientific journals, publication series and publishers. The Publication Forum – 23 panels comprising approx. 200 members of the academic community – has rated some 20,000 journals, publishers and publication series according to their quality. Journals and publication series have been rated into three levels: 1 = basic; 2 = leading; 3 = top, and publishers into two levels: 1 = basic; 2 = leading. The rating system is continuously updated and expanded.

The citation impact of the UAs' publications was studied based on the Scopus citation database (Section 4). The Scopus analysis included the scientific publications authored by UTA researchers (employed or affiliated at UTA on the Census Date 1 October 2013) in 2008-2012 at UTA (regardless of where the researchers had been working at the time of the publication) and citations to those publications in 2008-2013. The scientific publication output and citation impact of the UAs in Scopus are described by the following indicators: P_{Sci} = Number of scientific publications in UTA publication database, P_{SCO} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications. It is noteworthy that the Scopus indicators calculated by the Library team are not normalised for differences in scientific fields.

Scientific publishing: activity, language, quality and impact

UA08 Computer-Human Interaction

1. Scientific publishing activity

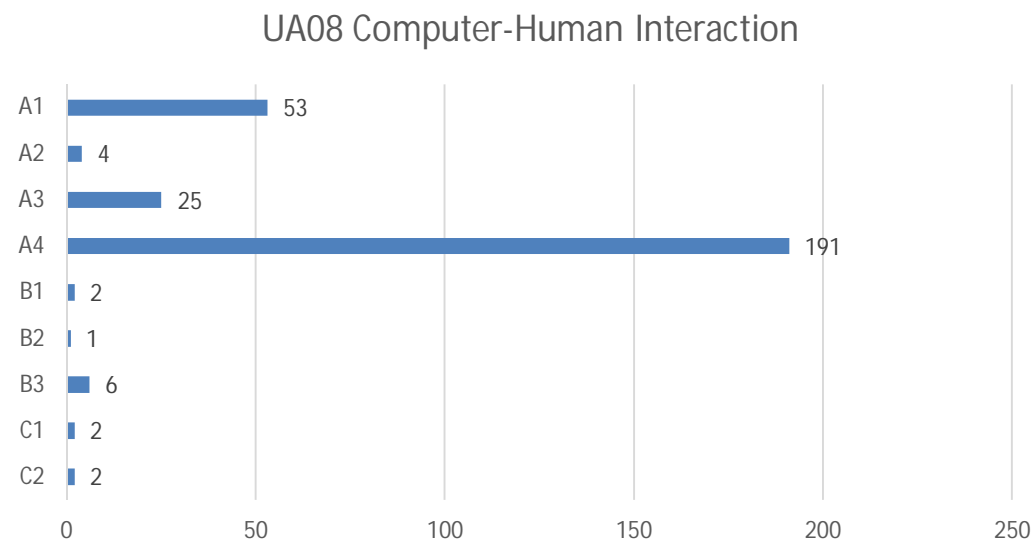


Figure 1. Number of scientific publications (publication types A-C) by UA08 by type in 2008-2013 (n=286).

Publication types according to the classification by the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

2. Language of scientific publications

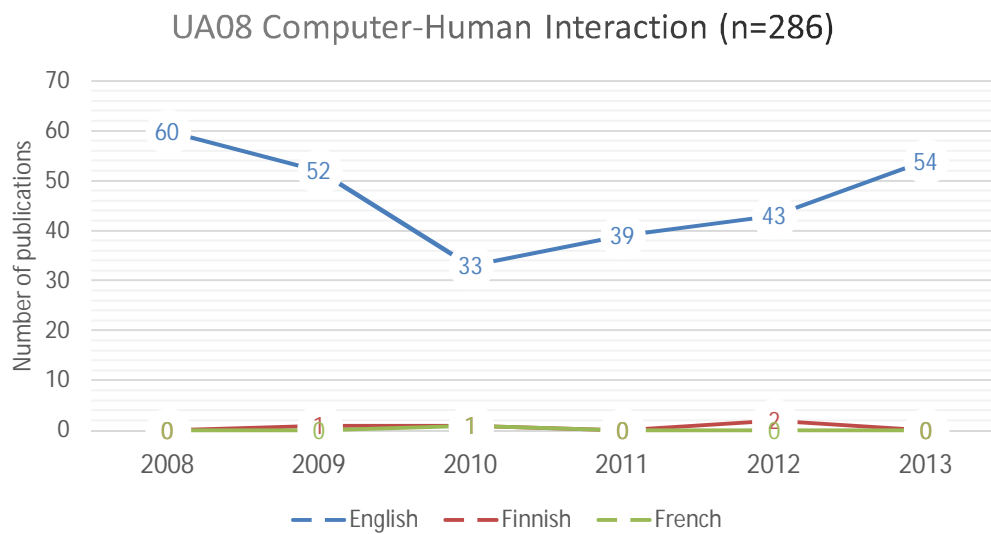


Figure 2. Number of scientific publications (publication types A-C) by UA08 in different languages in 2008-2013 (n=286).

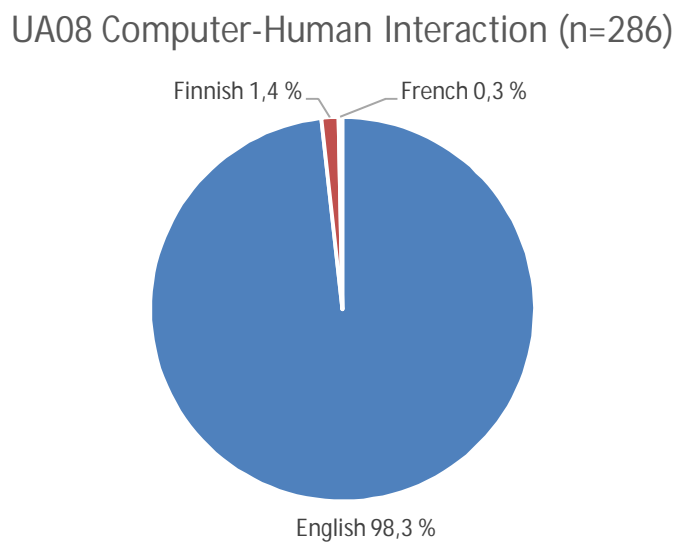


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by UA08 in 2008-2013 (n=286).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA08.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

- 1 basic
- 2 leading
- 3 top (applicable only to journals and series, not to book publishers)
- other identified publication channels that have not received level 1 rating

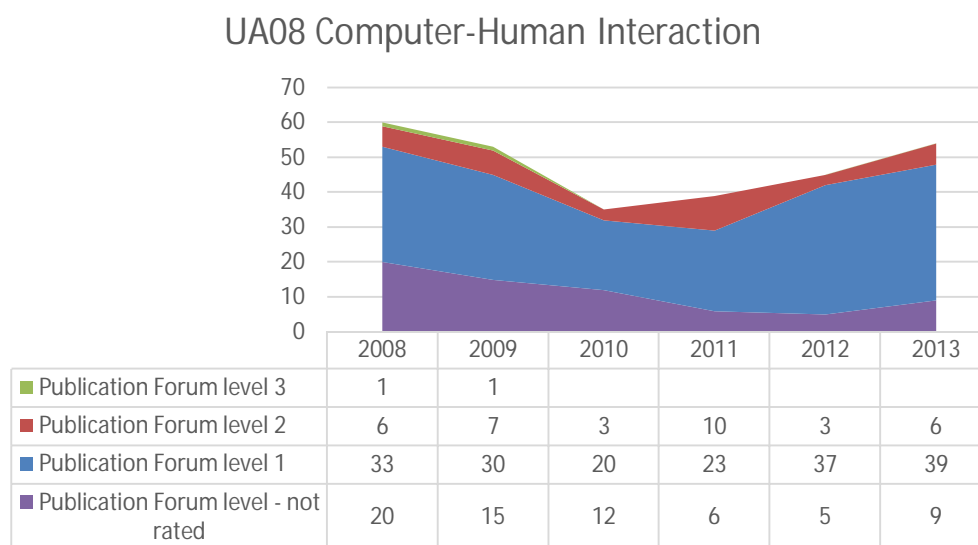


Figure 4. Number of scientific publications (publication types A-C) by UA08 according to the Publication Forum levels per year (n=286).

Scientific publication channels

Table 1. Refereed scientific journals in which UA08 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 37 % of the refereed scientific journal article output, publication types A1, A2) by UA08 in 2008-2013 (n=57).

Journal title	Publication Forum level	Number of publications
Universal Access in the Information Society	1	6
Advances in Human - Computer Interaction	1	6
Journal of Eye Movement Research	1	3
IEEE Transactions on Haptics	1	3
Interacting with Computers	1	3

Table 2. Scientific publishers which cover the majority of the publication output of UA08. A threshold of 50 % was used. The list includes all the publishers which achieved the threshold value (covering altogether 56 % of the scientific publication output, publication types A3, C1) by UA08 in 2008-2013 (n=27).

Publisher	Publication Forum level	Number of publications
IGI Global	1	10
Springer	2	5

4. Publication output and citation impact based on the Scopus database

The scientific publication output and citation impact of UA08 was analysed using the Scopus database. The analysis included the scientific publications by UA08 in 2008-2012 and the citations to those publications in 2008-2013. The number of scientific publications by UA08 in the UTA publication database was included as a reference.

Table 3. Publication output and citation impact (UA08, publications 2008-2012, citations 2008-2013, publication types A-C, sources: Scopus, UTA publication database).

Publication type	P _{Sci}	P _{Sco}	TCS	MCS	NC	%NC
A1	42	31	225	7,3	9	29,0 %
A2	3	2	12	6,0	1	50,0 %
A3	24	2	0	0,0	2	100,0 %
A4	150	118	154	1,3	66	55,9 %
B1	2	1	0	0,0	1	100,0 %
B2	1	1	1	1,0		0,0 %
B3	5	1	0	0,0	1	100,0 %
C1	2					
C2	2	1	0	0,0	1	100,0 %
Total	231	157	392	2,5	81	51,6 %

P_{Sci} = Number of scientific publications in UTA publication database, P_{Sco} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications

Publication types according to the classification of the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

Scientific publishing: activity, language, quality and impact

UA09 Information and Media

1. Scientific publishing activity

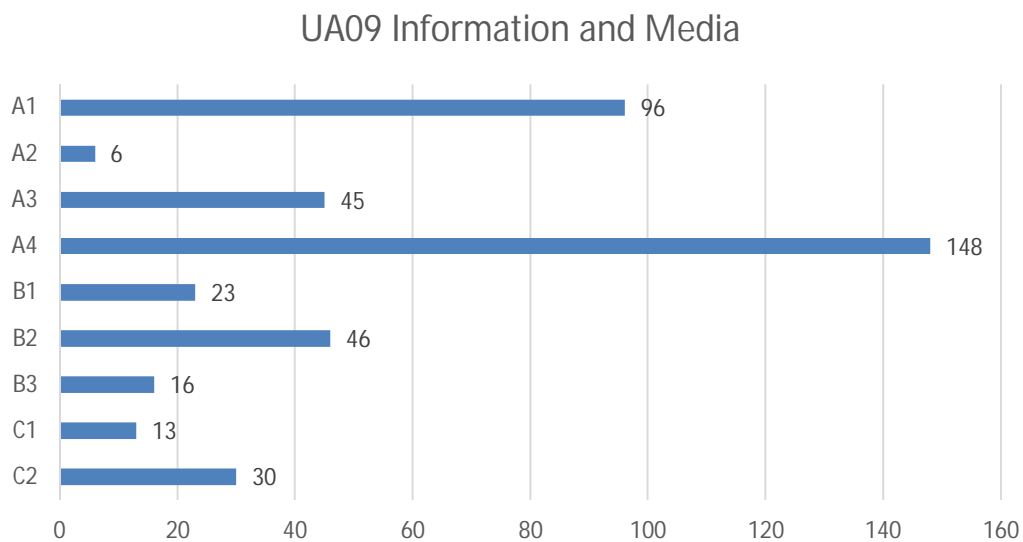


Figure 1. Number of scientific publications (publication types A-C) by UA09 by type in 2008-2013 (n=423).

Publication types according to the classification by the Finnish Ministry of Education and Culture

- A1 Refereed scientific articles in journals
 - A2 Refereed scientific review articles, literature reviews, systematic reviews in journals
 - A3 Refereed scientific articles in edited books
 - A4 Refereed scientific articles in conference proceedings
 - B1 Non-refereed scientific articles in journals
 - B2 Non-refereed articles in edited books
 - B3 Non-refereed articles in conference proceedings
 - C1 Scientific monographs
 - C2 Scientific edited books, conference proceedings and journal special issues
-

2. Language of scientific publications

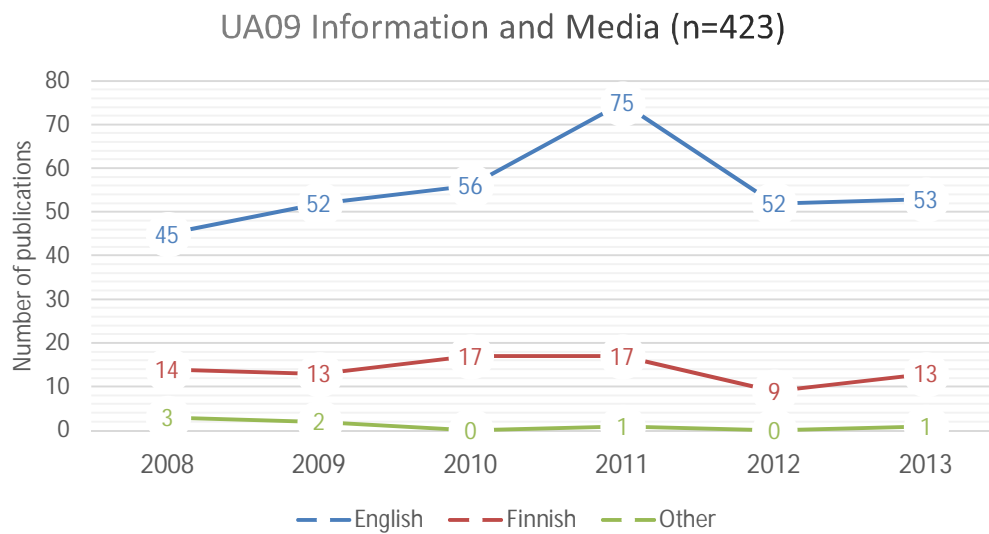


Figure 2. Number of scientific publications (publication types A-C) by UA09 in different languages in 2008-2013 (n=423).

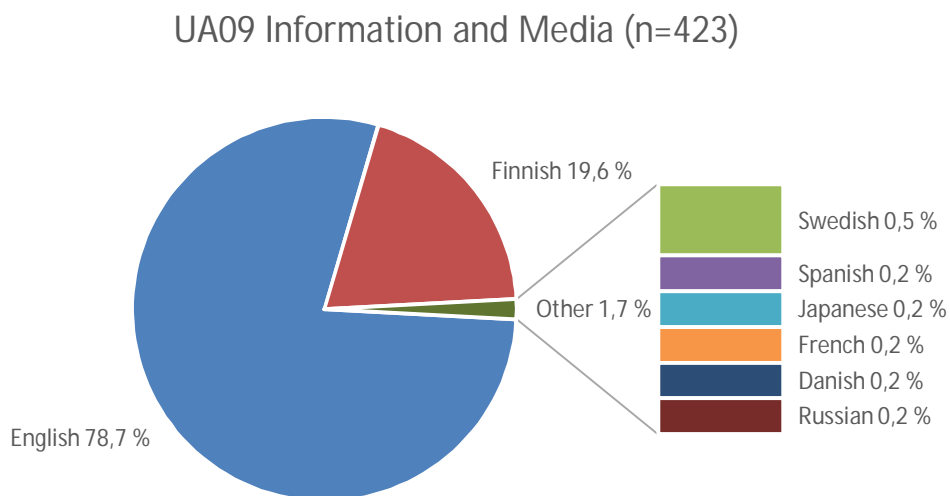


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by UA09 in 2008-2013 (n=423).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA09.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

-
- 1 basic
 - 2 leading
 - 3 top (applicable only to journals and series, not to book publishers)
 - other identified publication channels that have not received level 1 rating
-

UA09 Information and Media

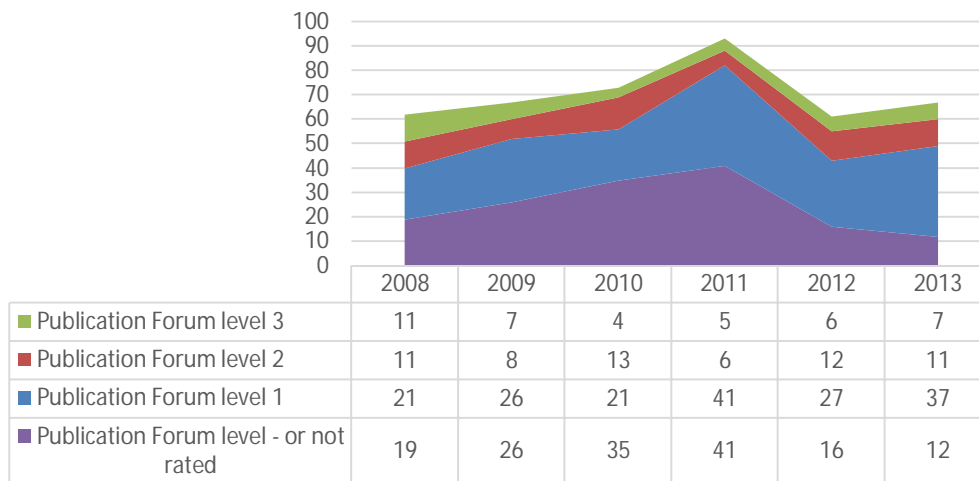


Figure 4. Number of scientific publications (publication types A-C) by UA09 according to the Publication Forum levels per year (n=423).

Scientific publication channels

Table 1. Refereed scientific journals in which UA09 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 39 % of the refereed scientific journal article output, publication types A1, A2) by UA09 in 2008-2013 (n=102).

Journal title	Publication Forum level	Number of publications
Information Research	2	14
Journal of Documentation	3	10
Journal of the American Society for Information Science and Technology	3	9
Informaatiotutkimus	1	7

Table 2. Scientific publishers which cover the majority of the publication output of UA09. A threshold of 50 % was used. The list includes all the publishers which achieved the threshold value (covering altogether 69 % of the scientific publication output, publication types A3, C1) by UA09 in 2008-2013 (n=58).

Publisher	Publication Forum level	Number of publications
University of Tampere	-	12
Tampere University Press	1	6
Suomalaisen Kirjallisuuden Seura	2	4
Springer	2	3
University of Jyväskylä	-	3
Gaudeamus	2	2
Vastapaino	2	2
CRC Press	2	2
Charles Sturt University	-	2
IGI Global	1	2
Taylor & Francis	2	2

4. Publication output and citation impact based on the Scopus database

The scientific publication output and citation impact of UA09 was analysed using the Scopus database. The analysis included the scientific publications by UA09 in 2008-2012 and the citations to those publications in 2008-2013. The number of scientific publications by UA09 in the UTA publication database was included as a reference.

Table 3. Publication output and citation impact (UA09, publications 2008-2012, citations 2008-2013, publication types A-C, sources: Scopus, UTA publication database).

Publication type	P _{Sci}	P _{Sco}	TCS	MCS	NC	%NC
A1	83	59	208	3,5	10	16,9 %
A2	5	1	3	3,0		0,0 %
A3	36					
A4	116	72	115	1,6	32	44,4 %
B1	20	4	1	0,3	3	75,0 %
B2	38					
B3	16					
C1	13					
C2	29	3	4	1,3	2	66,7 %
Total	356	139	331	2,4	47	33,8 %

P_{Sci} = Number of scientific publications in UTA publication database, P_{Sco} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications

Publication types according to the classification of the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

Scientific publishing: activity, language, quality and impact

UA10 Information and Systems

1. Scientific publishing activity

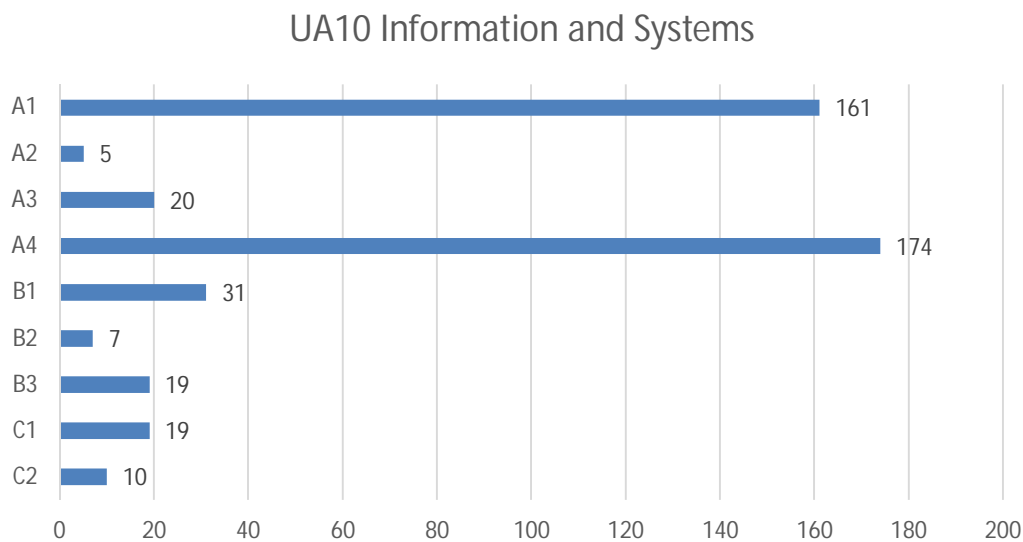


Figure 1. Number of scientific publications (publication types A-C) by UA10 by type in 2008-2013 (n=446).

Publication types according to the classification by the Finnish Ministry of Education and Culture

- A1 Refereed scientific articles in journals
 - A2 Refereed scientific review articles, literature reviews, systematic reviews in journals
 - A3 Refereed scientific articles in edited books
 - A4 Refereed scientific articles in conference proceedings
 - B1 Non-refereed scientific articles in journals
 - B2 Non-refereed articles in edited books
 - B3 Non-refereed articles in conference proceedings
 - C1 Scientific monographs
 - C2 Scientific edited books, conference proceedings and journal special issues
-

2. Language of scientific publications

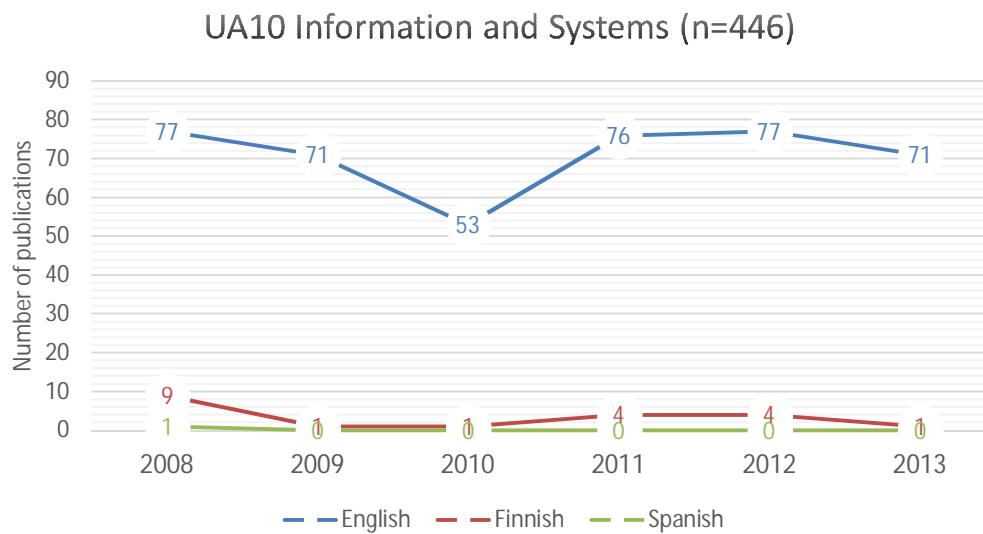


Figure 2. Number of scientific publications (publication types A-C) by UA10 in different languages in 2008-2013 (n=446).

UA10 Information and Systems (n=446)

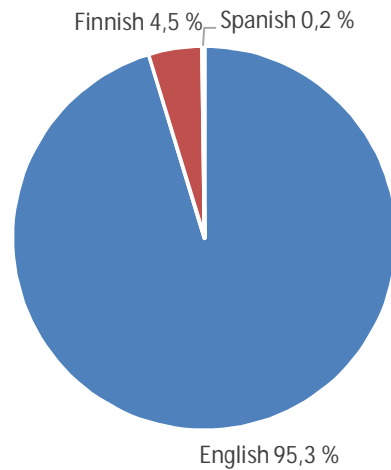


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by UA10 in 2008-2013 (n=446).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA10.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

- 1 basic
 - 2 leading
 - 3 top (applicable only to journals and series, not to book publishers)
 - other identified publication channels that have not received level 1 rating
-

UA10 Information and Systems

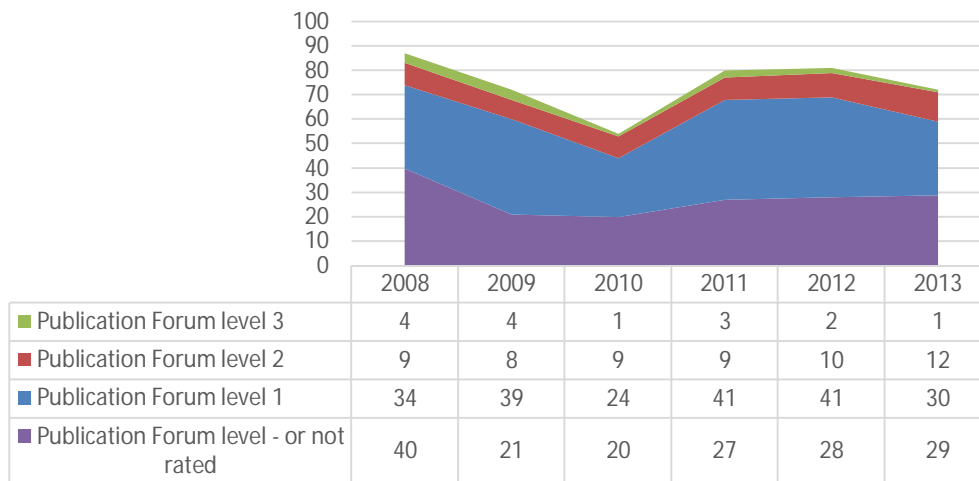


Figure 4. Number of scientific publications (publication types A-C) by UA10 according to the Publication Forum levels per year (n=446).

Scientific publication channels

Table 1. Refereed scientific journals in which UA10 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 37 % of the refereed scientific journal article output, publication types A1, A2) by UA10 in 2008-2013 (n=166).

Journal title	Publication Forum level	Number of publications
Statistical Papers	1	5
Journal of Statistical Planning and Inference	1	4
Linear Algebra and Its Applications	1	4
Computers in Biology and Medicine	1	4
International Journal of Medical Informatics	3	4
Artificial Intelligence Review	1	3
Computer Methods and Programs in Biomedicine	1	3
East-West Journal of Mathematics	-	2
Journal of Information Science	3	2
International Journal of Human Capital and Information Technology Professionals	1	2
Ars Combinatoria	1	2
Journal of Software Engineering and Applications	-	2
Aequationes Mathematicae	1	2
Information Retrieval	3	2
Audiological Medicine	1	2
Acta Cybernetica	1	2
Communications in Statistics: Theory and Methods	1	2
Journal of Medical Engineering & Technology	1	2
Linear and Multilinear Algebra	1	2
Applied Clinical Informatics	1	2
Pakistan Journal of Statistics	-	2
The International Journal of the Academic Business World	-	2
Discussiones Mathematicae: Probability and Statistics	1	2
International Journal of Number Theory	1	2

Table 2. Scientific publishers which cover the majority of the publication output of UA10. A threshold of 50 % was used. The list includes all the publishers which achieved the threshold value (covering altogether 59 % of the scientific publication output, publication types A3, C1) by UA10 in 2008-2013 (n=39).

Publisher	Publication Forum level	Number of publications
University of Tampere	-	15
Springer	2	8

4. Publication output and citation impact based on the Scopus database

The scientific publication output and citation impact of UA10 was analysed using the Scopus database. The analysis included the scientific publications by UA10 in 2008-2012 and the citations to those publications in 2008-2013. The number of scientific publications by UA10 in the UTA publication database was included as a reference.

Table 3. Publication output and citation impact (UA10, publications 2008-2012, citations 2008-2013, publication types A-C, sources: Scopus, UTA publication database).

Publication type	P _{Sci}	P _{Sco}	TCS	MCS	NC	%NC
A1	139	108	270	2,5	50	46,3 %
A2	5	2	214	107,0	1	50,0 %
A3	16	4	2	0,5	3	75,0 %
A4	142	85	36	0,4	65	76,5 %
B1	23					
B2	7					
B3	14					
C1	18					
C2	10					
Total	374	199	522	2,6	119	59,8 %

P_{Sci} = Number of scientific publications in UTA publication database, P_{Sco} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications

Publication types according to the classification of the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

UTA RAE 2014, Panel IV

Bibliometric analysis by Tampere University Library

Data and methods

Tampere University Library conducted bibliometric analysis on the scientific publishing of the Units of Assessment (UA) of the UTA RAE. A team of information specialists of various fields conducted the analysis to supplement the bibliometric analysis by the Centre for Science and Technology Studies (CWTS) of Leiden University. A supplementary analysis by the Library was considered necessary as the Web of Science citation index used by CWTS does not properly cover the scientific publishing of many of the UAs.

The main source of data in the Library analysis was the UTA SoleCRIS database. The publication data set was used to analyse the overall scientific publishing activity, as well as the language and quality of scientific publishing (Sections 1-3). The data included the scientific publications authored by UTA researchers (employed or affiliated at UTA on the Census Date 1 October 2013) in 2008-2013 at UTA regardless of where the researchers had been working at the time of the publication.

The scientific publications included in the analysis comprised publications in the categories A-C of the Finnish Ministry of Education and Culture's classification of publications. (See the results section for the description of the publication types.)

The quality of scientific publishing (Section 3) was analysed using the national Publication Forum Rating (JuFo) of scientific journals, publication series and publishers. The Publication Forum – 23 panels comprising approx. 200 members of the academic community – has rated some 20,000 journals, publishers and publication series according to their quality. Journals and publication series have been rated into three levels: 1 = basic; 2 = leading; 3 = top, and publishers into two levels: 1 = basic; 2 = leading. The rating system is continuously updated and expanded.

The citation impact of the UAs' publications was studied based on the Scopus citation database (Section 4). The Scopus analysis included the scientific publications authored by UTA researchers (employed or affiliated at UTA on the Census Date 1 October 2013) in 2008-2012 at UTA (regardless of where the researchers had been working at the time of the publication) and citations to those publications in 2008-2013. The scientific publication output and citation impact of the UAs in Scopus are described by the following indicators: P_{Sci} = Number of scientific publications in UTA publication database, P_{SCO} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications. It is noteworthy that the Scopus indicators calculated by the Library team are not normalised for differences in scientific fields.

Scientific publishing: activity, language, quality and impact

UA11 History and Philosophy

1. Scientific publishing activity

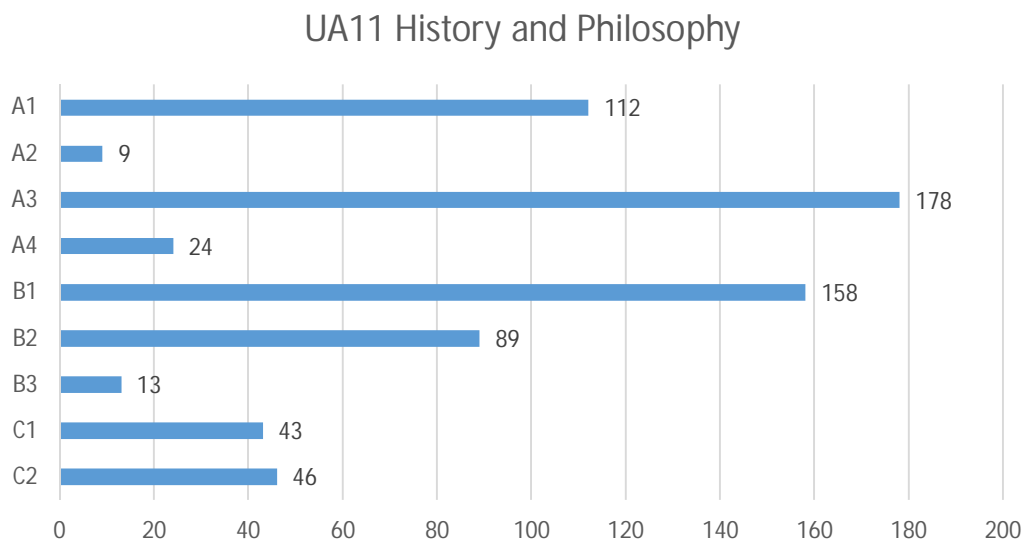


Figure 1. Number of scientific publications (publication types A-C) by UA11 by type in 2008-2013 (n=672).

Publication types according to the classification by the Finnish Ministry of Education and Culture

- A1 Refereed scientific articles in journals
 - A2 Refereed scientific review articles, literature reviews, systematic reviews in journals
 - A3 Refereed scientific articles in edited books
 - A4 Refereed scientific articles in conference proceedings
 - B1 Non-refereed scientific articles in journals
 - B2 Non-refereed articles in edited books
 - B3 Non-refereed articles in conference proceedings
 - C1 Scientific monographs
 - C2 Scientific edited books, conference proceedings and journal special issues
-

2. Language of scientific publications

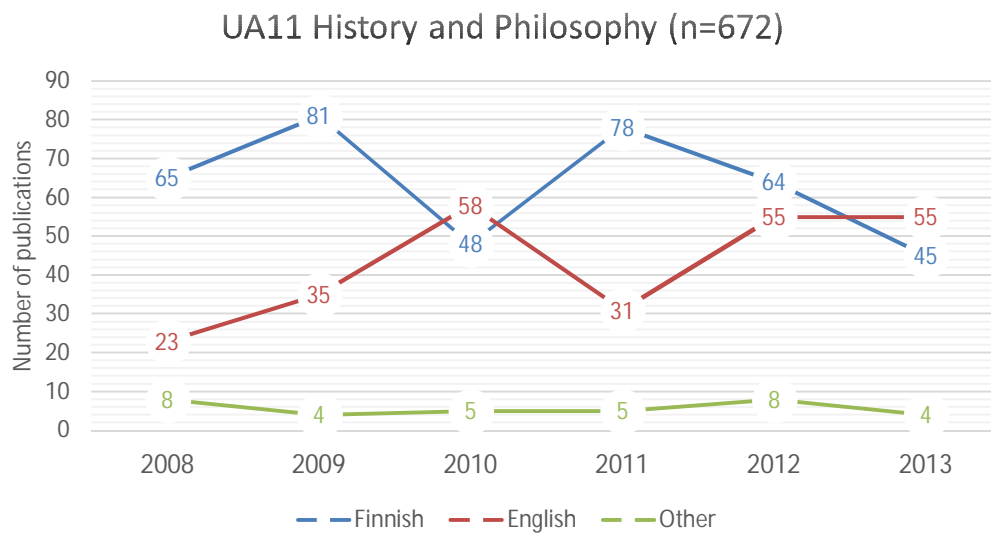


Figure 2. Number of scientific publications (publication types A-C) by UA11 in different languages in 2008-2013 (n=672).

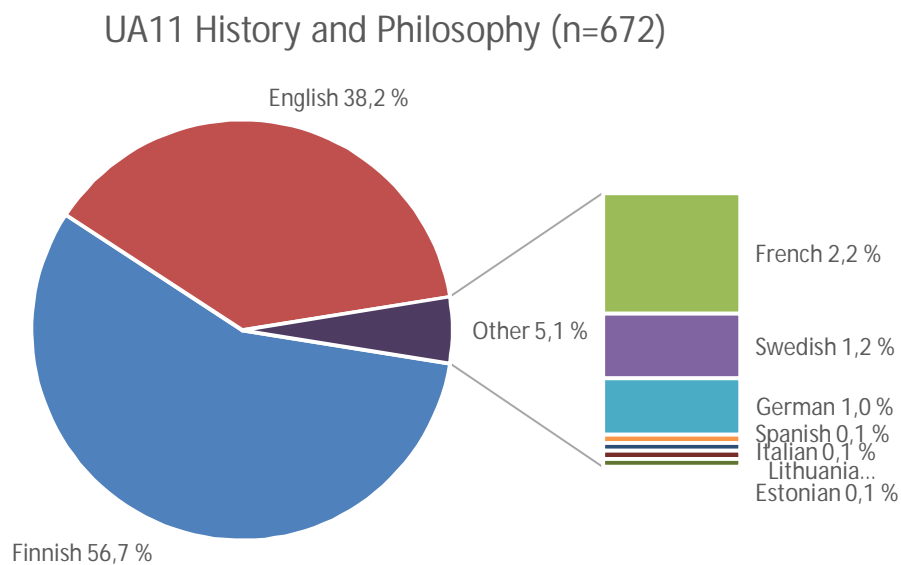


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by UA11 in 2008-2013 (n=672).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA11.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

- 1 basic
 - 2 leading
 - 3 top (applicable only to journals and series, not to book publishers)
 - other identified publication channels that have not received level 1 rating
-

UA11 History and Philosophy

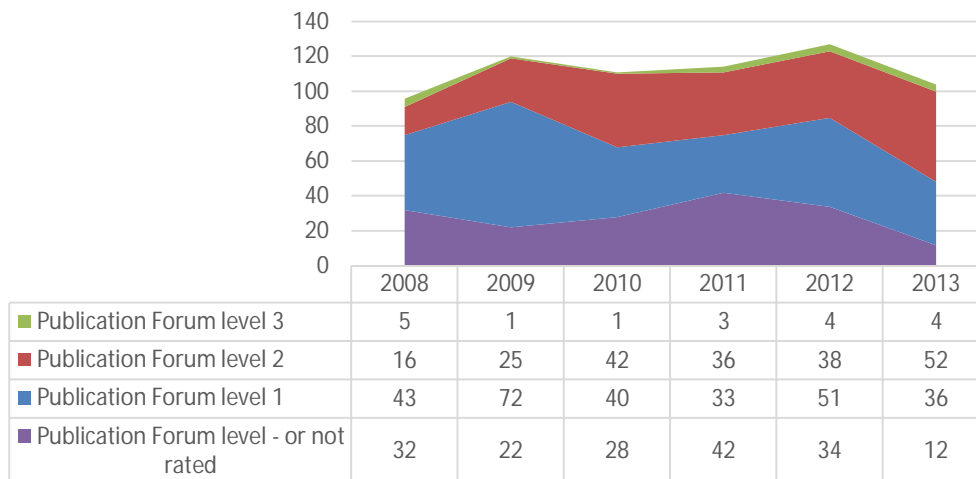


Figure 4. Number of scientific publications (publication types A-C) by UA11 according to the Publication Forum levels per year (n=672).

Scientific publication channels

Table 1. Refereed scientific journals in which UA11 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 41 % of the refereed scientific journal article output, publication types A1, A2) by UA11 in 2008-2013 (n=121).

Journal title	Publication Forum level	Number of publications
Historiallinen Aikakauskirja	2	9
Genos	1	4
Scandinavian Journal of History	3	4
Tiede & edistys	1	3
Janus	1	2
Metaphysica	1	2
Environment and History	2	2
Idäntutkimus	1	2
Genos	1	2
Kasvatus ja aika	1	2
Revue philosophique de Louvain	1	2
E-water	-	2
Ajatus	2	2
Studia Neophilologica	1	2
Theoria	2	2
History and Theory	3	2
Ympäristöhistoria: Finnish Journal of Environmental History	-	2
Homo Oeconomicus	1	2
Journal of Australian Political Economy	1	2

Table 2. Scientific publishers which cover the majority of the publication output of UA11. A threshold of 50 % was used. The list includes all the publishers which achieved the threshold value (covering altogether 56 % of the scientific publication output, publication types A3, C1) by UA11 in 2008-2013 (n=221).

Publisher	Publication Forum level	Number of publications
Suomalaisen Kirjallisuuden Seura	2	40
Gaudeamus	2	19
Satakunnan museo	-	13
Oxford University Press	2	9
Brill Academic Publishers	2	8
Routledge	2	8
Palgrave Macmillan	2	6
Tampere University Press	1	5
University of Helsinki	-	4
Brepols	2	4
Philosophical Society of Finland	1	4
Vastapaino	2	4

4. Publication output and citation impact based on the Scopus database

The scientific publication output and citation impact of UA11 was analysed using the Scopus database. The analysis included the scientific publications by UA11 in 2008-2012 and the citations to those publications in 2008-2013. The number of scientific publications by UA11 in the UTA publication database was included as a reference.

Table 3. Publication output and citation impact (UA11, publications 2008-2012, citations 2008-2013, publication types A-C, sources: Scopus, UTA publication database).

Publication type	P _{Sci}	P _{Sco}	TCS	MCS	NC	%NC
A1	98	34	15	0,4	27	79,4 %
A2	8	1	1	1,0		0,0 %
A3	142	1	0	0,0	1	100,0 %
A4	22					
B1	132	3	1	0,3	2	66,7 %
B2	82	1	1	1,0		0,0 %
B3	13					
C1	33					
C2	38					
Total	568	40	18	0,5	30	75,0 %

P_{Sci} = Number of scientific publications in UTA publication database, P_{Sco} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications

Publication types according to the classification of the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

Scientific publishing: activity, language, quality and impact

UA12 Psychology, Logopaedics and Vocology

1. Scientific publishing activity

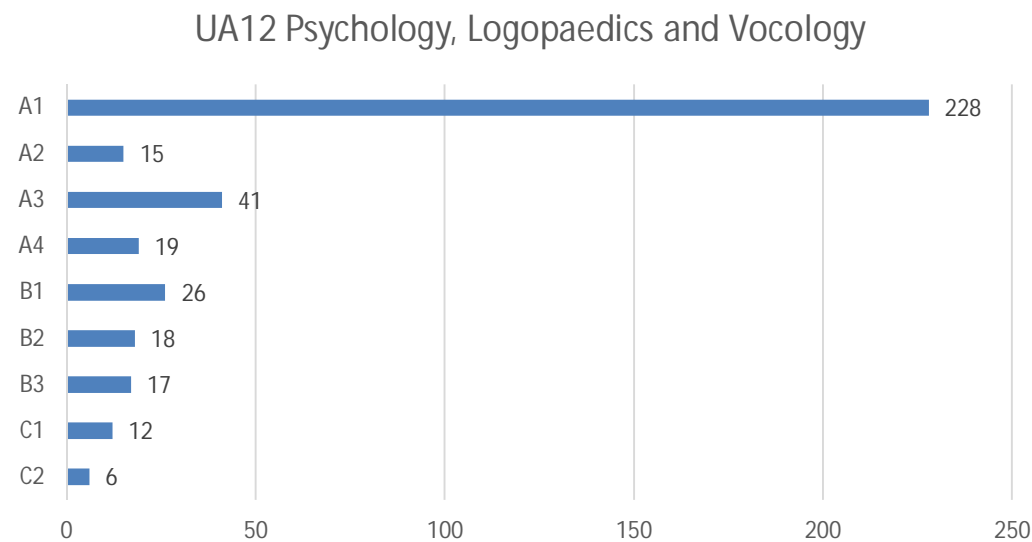


Figure 1. Number of scientific publications (publication types A-C) by UA12 by type in 2008-2013 (n=382).

Publication types according to the classification by the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

2. Language of scientific publications

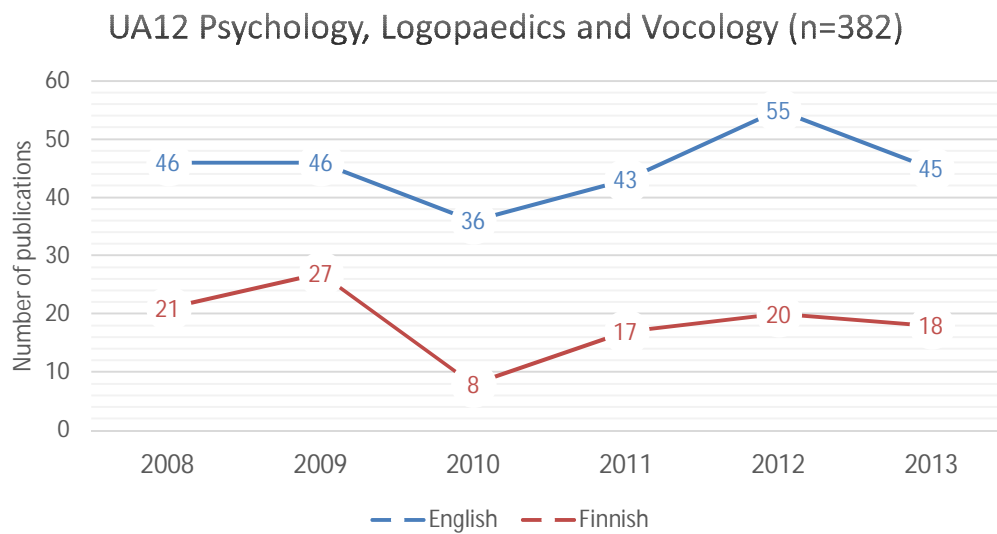


Figure 2. Number of scientific publications (publication types A-C) by UA12 in different languages in 2008-2013 (n=382).

UA12 Psychology, Logopaedics and Vocology (n=382)

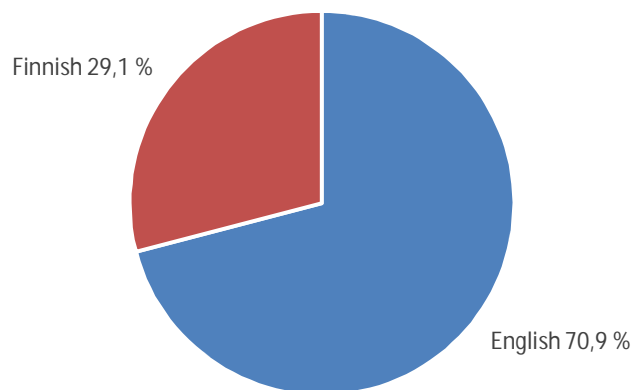


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by UA12 in 2008-2013 (n=382).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA12.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

-
- 1 basic
 - 2 leading
 - 3 top (applicable only to journals and series, not to book publishers)
 - other identified publication channels that have not received level 1 rating
-

UA12 Psychology, Logopaedics and Vocology

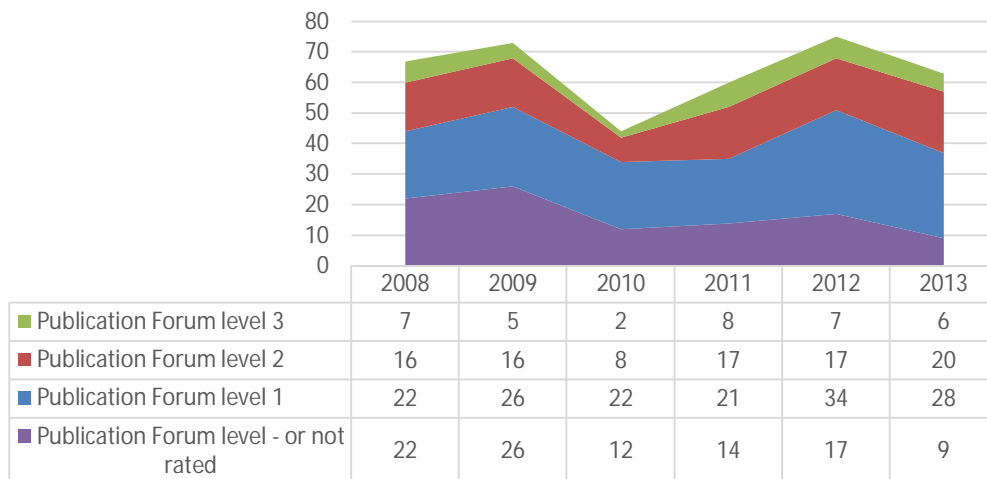


Figure 4. Number of scientific publications (publication types A-C) by UA12 according to the Publication Forum levels per year (n=382).

Scientific publication channels

Table 1. Refereed scientific journals in which UA12 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 34 % of the refereed scientific journal article output, publication types A1, A2) by UA12 in 2008-2013 (n=243).

Journal title	Publication Forum level	Number of publications
Käyttätymisanalyysi ja -terapia	-	10
Logopedics Phoniatrics Vocology	1	10
Folia Phoniatrica et Logopaedica	2	10
Journal of Voice	1	8
Psykologia	2	6
International Journal of Behavioral Development	1	6
Work & Stress	3	6
Puhe ja kieli	1	5
International Archives of Occupational and Environmental Health	1	5
Infant Mental Health Journal	2	4
Suomen Lääkärilehti	1	4
Journal of Occupational and Organizational Psychology	2	4
Journal of Vocational Behavior	2	4

Table 2. Scientific publishers which cover the majority of the publication output of UA12. A threshold of 50 % was used. The list includes all the publishers which achieved the threshold value (covering altogether 57 % of the scientific publication output, publication types A3, C1) by UA12 in 2008-2013 (n=53).

Publisher	Publication Forum level	Number of publications
University of Tampere	-	10
Suomen Käyttätymistieteellinen Tutkimuslaitos	-	9
PS-kustannus	-	6
Springer	2	5

4. Publication output and citation impact based on the Scopus database

The scientific publication output and citation impact of UA12 was analysed using the Scopus database. The analysis included the scientific publications by UA12 in 2008-2012 and the citations to those publications in 2008-2013. The number of scientific publications by UA12 in the UTA publication database was included as a reference.

Table 3. Publication output and citation impact (UA12, publications 2008-2012, citations 2008-2013, publication types A-C, sources: Scopus, UTA publication database).

Publication type	P _{Sci}	P _{Sco}	TCS	MCS	NC	%NC
A1	188	162	1067	6,6	22	13,6 %
A2	11	3	44	14,7		0,0 %
A3	34	5	6	1,2	2	40,0 %
A4	15	1	0	0,0	1	100,0 %
B1	26	3	17	5,7	1	33,3 %
B2	16	3	0	0,0	3	100,0 %
B3	12					
C1	12					
C2	5					
Total	319	177	1134	6,4	29	16,4 %

P_{Sci} = Number of scientific publications in UTA publication database, P_{Sco} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications

Publication types according to the classification of the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

Scientific publishing: activity, language, quality and impact

UA13 Social Sciences

1. Scientific publishing activity

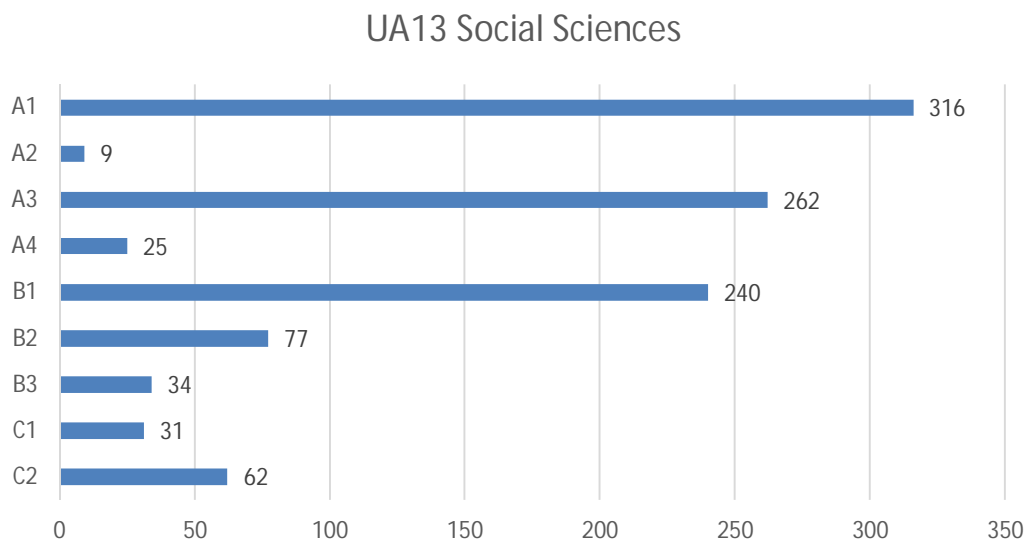


Figure 1. Number of scientific publications (publication types A-C) by UA13 by type in 2008-2013 (n=1056).

Publication types according to the classification by the Finnish Ministry of Education and Culture

- A1 Refereed scientific articles in journals
 - A2 Refereed scientific review articles, literature reviews, systematic reviews in journals
 - A3 Refereed scientific articles in edited books
 - A4 Refereed scientific articles in conference proceedings
 - B1 Non-refereed scientific articles in journals
 - B2 Non-refereed articles in edited books
 - B3 Non-refereed articles in conference proceedings
 - C1 Scientific monographs
 - C2 Scientific edited books, conference proceedings and journal special issues
-

2. Language of scientific publications

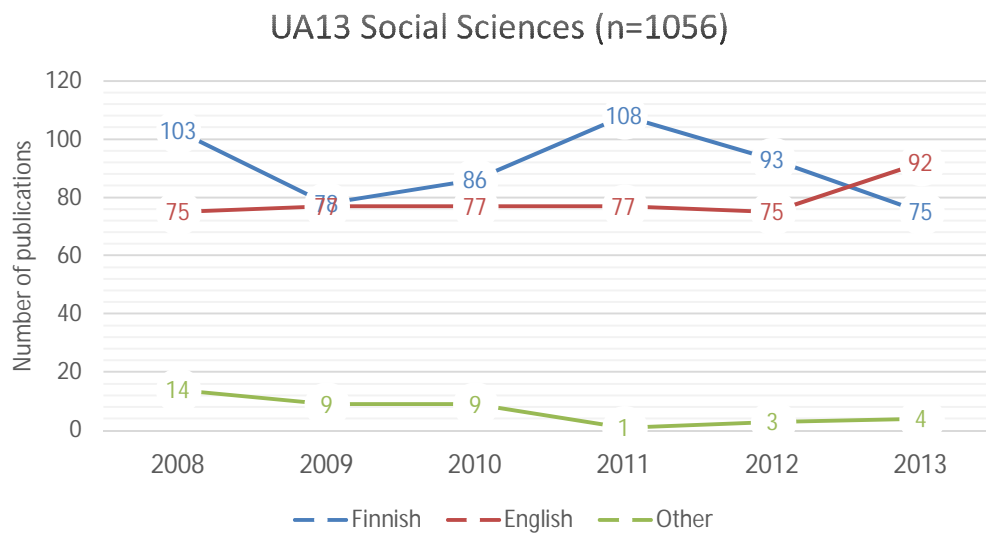


Figure 2. Number of scientific publications (publication types A-C) by UA13 in different languages in 2008-2013 (n=1056).

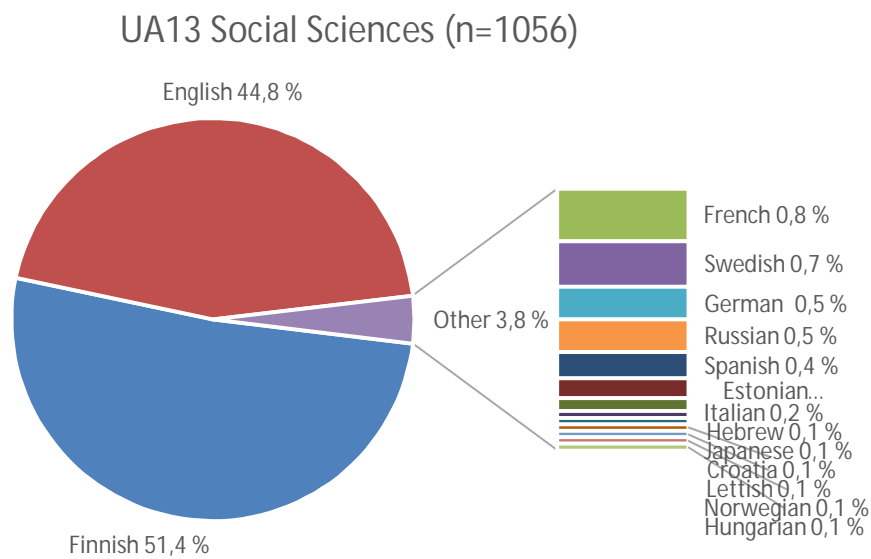


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by UA13 in 2008-2013 (n=1056).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA13.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

- 1 basic
- 2 leading
- 3 top (applicable only to journals and series, not to book publishers)
- other identified publication channels that have not received level 1 rating

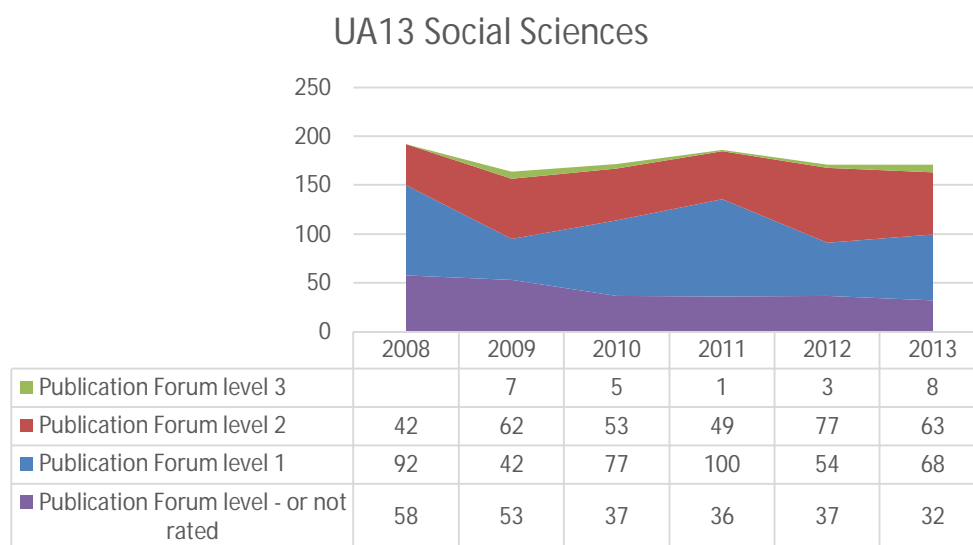


Figure 4. Number of scientific publications (publication types A-C) by UA13 according to the Publication Forum levels per year (n=1056).

Scientific publication channels

Table 1. Refereed scientific journals in which UA13 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 35 % of the refereed scientific journal article output, publication types A1, A2) by UA13 in 2008-2013 (n=325).

Journal title	Publication Forum level	Number of publications
Työelämän tutkimus	1	15
Yhteiskuntapolitiikka	2	10
Janus	1	8
Naistutkimus	2	7
Sosiologia	2	6
Alue ja Ympäristö	1	5
Työpoliittinen aikakauskirja	-	5
Hallinnon Tutkimus	2	5

Aikuiskasvatus	1	4
Journal of Scandinavian Studies in Criminology and Crime Prevention	1	4
Kunnallistieteellinen aikakauskirja	1	3
Psykologia	2	3
Duodecim	1	3
Alcohol and Alcoholism	2	3
European Child & Adolescent Psychiatry	1	3
European Planning Studies	2	3
Maaseudun uusi aika	1	3
Communication and Medicine	1	3
Nordic Journal of Working Life Studies	1	3
Journal of Pragmatics	3	3
Dve domovini - Two Homelands	1	3
European Journal of Cultural Studies	2	3
Gerontologia	1	3
Kosmopolis	1	3
Journal of Workplace Learning	1	3

Table 2. Scientific publishers which cover the majority of the publication output of UA13. A threshold of 50 % was used. The list includes all the publishers which achieved the threshold value (covering altogether 56 % of the scientific publication output, publication types A3, C1) by UA13 in 2008-2013 (n=293).

Publisher	Publication Forum level	Number of publications
Vastapaino	2	35
Tampere University Press	1	28
Gaudeamus	2	27
Routledge	2	24
Palgrave Macmillan	2	15
Suomalaisen Kirjallisuuden Seura	1	8
Peter Lang Publishing Group	1	7
Edward Elgar Publishing	2	7
Cambridge Scholars Publishing	1	7
University of Tampere	-	7

4. Publication output and citation impact based on the Scopus database

The scientific publication output and citation impact of UA13 was analysed using the Scopus database. The analysis included the scientific publications by UA13 in 2008-2012 and the citations to those publications in 2008-2013. The number of scientific publications by UA13 in the UTA publication database was included as a reference.

Table 3. Publication output and citation impact (UA13, publications 2008-2012, citations 2008-2013, publication types A-C, sources: Scopus, UTA publication database).

Publication type	P _{Sci}	P _{Sco}	TCS	MCS	NC	%NC
A1	248	122	333	2,7	39	32,0 %
A2	7	1	1	1,0		0,0 %
A3	221	14	5	0,4	10	71,4 %
A4	16					
B1	210	7	7	1,0	4	57,1 %
B2	70					
B3	31					
C1	28					
C2	54	3	6	2,0	2	66,7 %
Total	885	147	352	2,4	55	37,4 %

P_{Sci} = Number of scientific publications in UTA publication database, P_{Sco} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications

Publication types according to the classification of the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

Scientific publishing: activity, language, quality and impact

UA14 Social Work

1. Scientific publishing activity

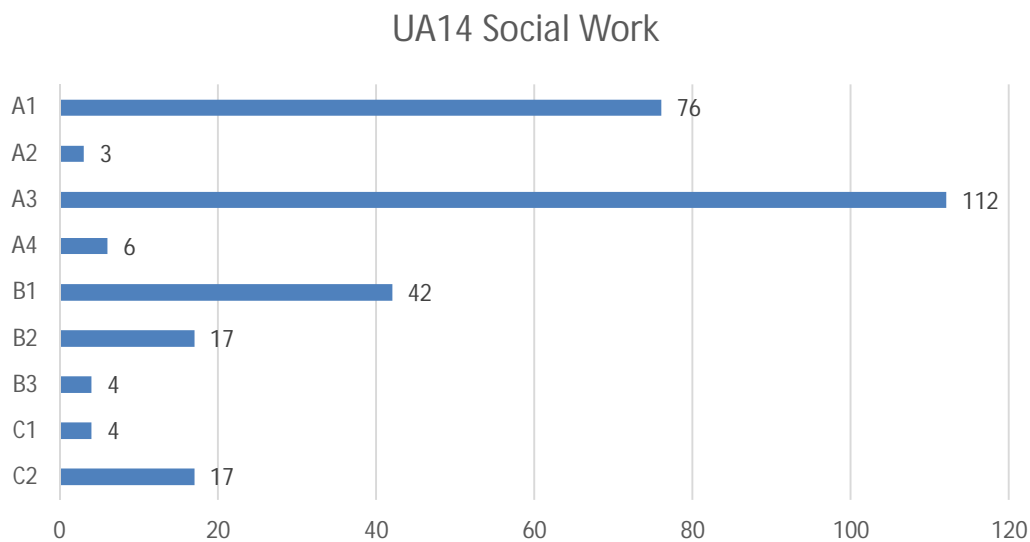


Figure 1. Number of scientific publications (publication types A-C) by UA14 by type in 2008-2013 (n=281).

Publication types according to the classification by the Finnish Ministry of Education and Culture

- A1 Refereed scientific articles in journals
 - A2 Refereed scientific review articles, literature reviews, systematic reviews in journals
 - A3 Refereed scientific articles in edited books
 - A4 Refereed scientific articles in conference proceedings
 - B1 Non-refereed scientific articles in journals
 - B2 Non-refereed articles in edited books
 - B3 Non-refereed articles in conference proceedings
 - C1 Scientific monographs
 - C2 Scientific edited books, conference proceedings and journal special issues
-

2. Language of scientific publications

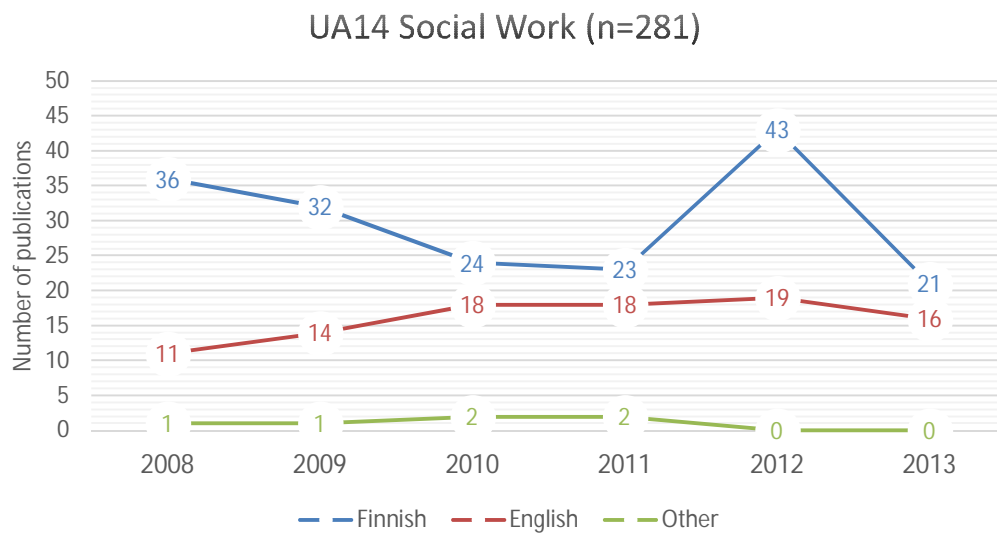


Figure 2. Number of scientific publications (publication types A-C) by UA14 in different languages in 2008-2013 (n=281).

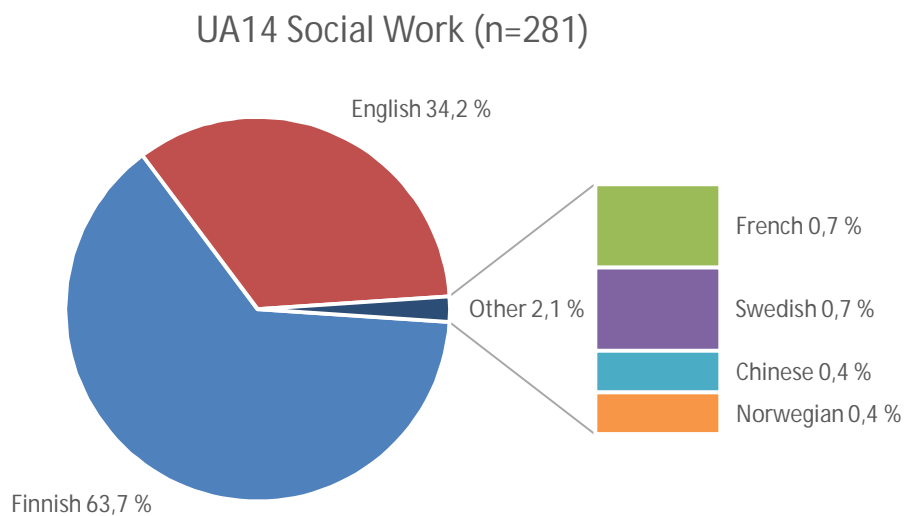


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by UA14 in 2008-2013 (n=281).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA14.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

-
- 1 basic
 - 2 leading
 - 3 top (applicable only to journals and series, not to book publishers)
 - other identified publication channels that have not received level 1 rating
-

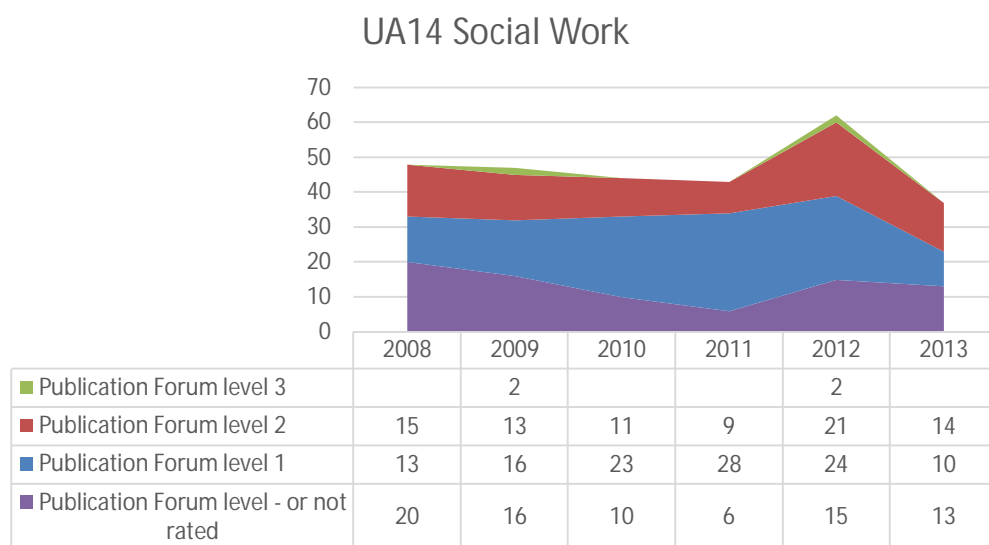


Figure 4. Number of scientific publications (publication types A-C) by UA14 according to the Publication Forum levels per year (n=281).

Scientific publication channels

Table 1. Refereed scientific journals in which UA14 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 57 % of the refereed scientific journal article output, publication types A1, A2) by UA14 in 2008-2013 (n=79).

Journal title	Publication Forum level	Number of publications
Janus	1	11
Yhteiskuntapolitiikka	2	5
Qualitative Social Work	1	4
European Journal of Social Work	1	3
Children & Society	1	2
Counselling Psychology Quarterly	1	2
Addictive Disorders & Their Treatment	1	2
Nordic Social Work Research	1	2
Nordisk Sosialt Arbeid	1	2
Nuorisotutkimus	1	2
Oikeus	2	2
Child & Family Social Work	2	2
Alcoholism Treatment Quarterly	-	2
International Journal of Social Welfare	2	2
Journal of Substance Use	1	2

Table 2. Scientific publishers which cover the majority of the publication output of UA14. A threshold of 50 % was used. The list includes all the publishers which achieved the threshold value (covering altogether 53 % of the scientific publication output, publication types A3, C1) by UA14 in 2008-2013 (n=116).

Publisher	Publication Forum level	Number of publications
Vastapaino	2	35
PS-kustannus	-	13
UNIpress	1	8
Nuorisotutkimusseura	1	6

4. Publication output and citation impact based on the Scopus database

The scientific publication output and citation impact of UA14 was analysed using the Scopus database. The analysis included the scientific publications by UA14 in 2008-2012 and the citations to those publications in 2008-2013. The number of scientific publications by UA14 in the UTA publication database was included as a reference.

Table 3. Publication output and citation impact (UA14, publications 2008-2012, citations 2008-2013, publication types A-C, sources: Scopus, UTA publication database).

Publication type	P _{Sci}	P _{Sco}	TCS	MCS	NC	%NC
A1	69	37	51	1,4	19	51,4 %
A2	2	1	20	20,0		0,0 %
A3	93					
A4	6					
B1	36	1	0	0,0	1	100,0 %
B2	15					
B3	4					
C1	4					
C2	15					
Total	244	39	71	1,8	20	51,3 %

P_{Sci} = Number of scientific publications in UTA publication database, P_{Sco} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications

Publication types according to the classification of the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

UTA RAE 2014, Panel V

Bibliometric analysis by Tampere University Library

Data and methods

Tampere University Library conducted bibliometric analysis on the scientific publishing of the Units of Assessment (UA) of the UTA RAE. A team of information specialists of various fields conducted the analysis to supplement the bibliometric analysis by the Centre for Science and Technology Studies (CWTS) of Leiden University. A supplementary analysis by the Library was considered necessary as the Web of Science citation index used by CWTS does not properly cover the scientific publishing of many of the UAs.

The main source of data in the Library analysis was the UTA SoleCRIS database. The publication data set was used to analyse the overall scientific publishing activity, as well as the language and quality of scientific publishing (Sections 1-3). The data included the scientific publications authored by UTA researchers (employed or affiliated at UTA on the Census Date 1 October 2013) in 2008-2013 at UTA regardless of where the researchers had been working at the time of the publication.

The scientific publications included in the analysis comprised publications in the categories A-C of the Finnish Ministry of Education and Culture's classification of publications. (See the results section for the description of the publication types.)

The quality of scientific publishing (Section 3) was analysed using the national Publication Forum Rating (JuFo) of scientific journals, publication series and publishers. The Publication Forum – 23 panels comprising approx. 200 members of the academic community – has rated some 20,000 journals, publishers and publication series according to their quality. Journals and publication series have been rated into three levels: 1 = basic; 2 = leading; 3 = top, and publishers into two levels: 1 = basic; 2 = leading. The rating system is continuously updated and expanded.

The citation impact of the UAs' publications was studied based on the Scopus citation database (Section 4). The Scopus analysis included the scientific publications authored by UTA researchers (employed or affiliated at UTA on the Census Date 1 October 2013) in 2008-2012 at UTA (regardless of where the researchers had been working at the time of the publication) and citations to those publications in 2008-2013. The scientific publication output and citation impact of the UAs in Scopus are described by the following indicators: P_{Sci} = Number of scientific publications in UTA publication database, P_{Scd} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications. It is noteworthy that the Scopus indicators calculated by the Library team are not normalised for differences in scientific fields.

Scientific publishing: activity, language, quality and impact

UA15 Education

1. Scientific publishing activity

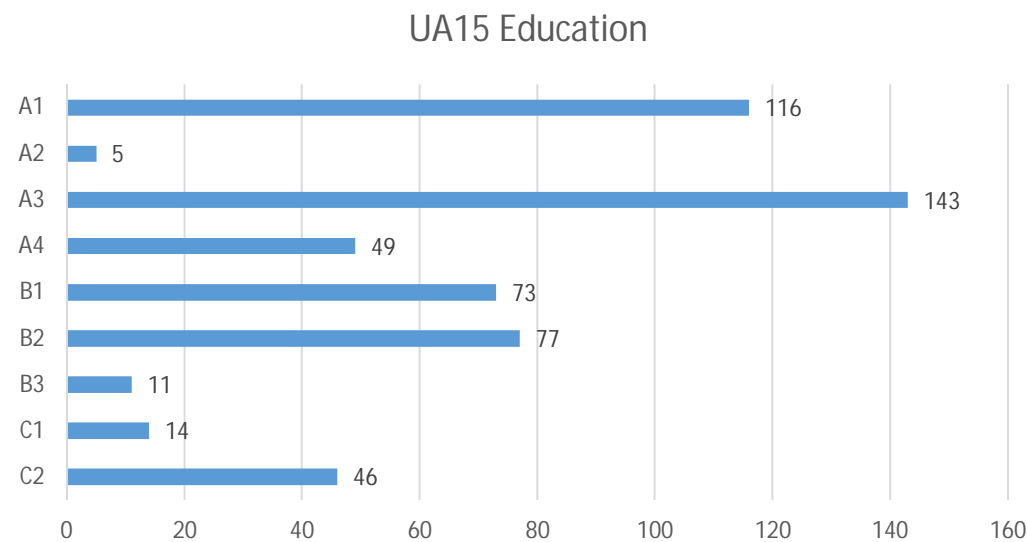


Figure 1. Number of scientific publications (publication types A-C) by UA15 by type in 2008-2013 (n=534).

Publication types according to the classification by the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

2. Language of scientific publications

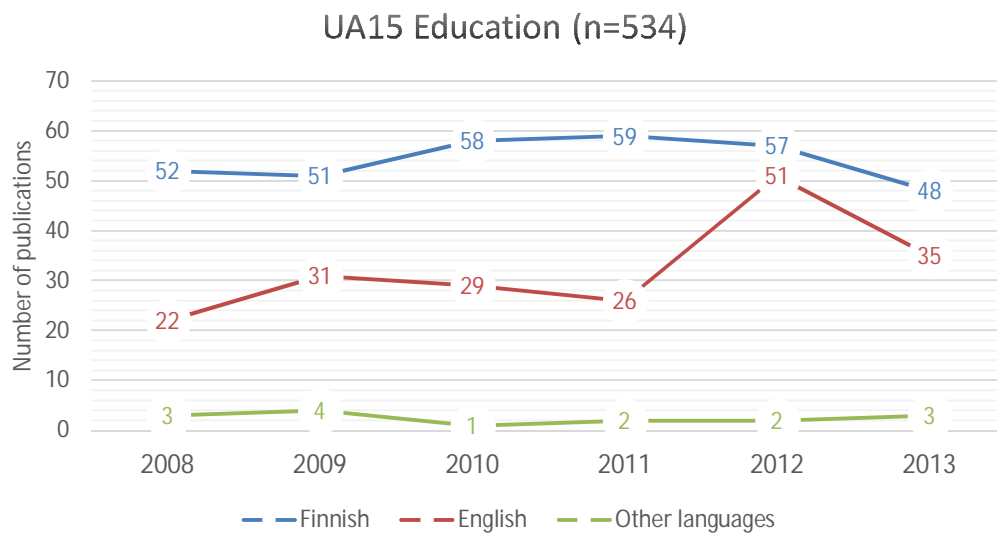


Figure 2. Number of scientific publications (publication types A-C) by UA15 in different languages in 2008-2013 (n=534).

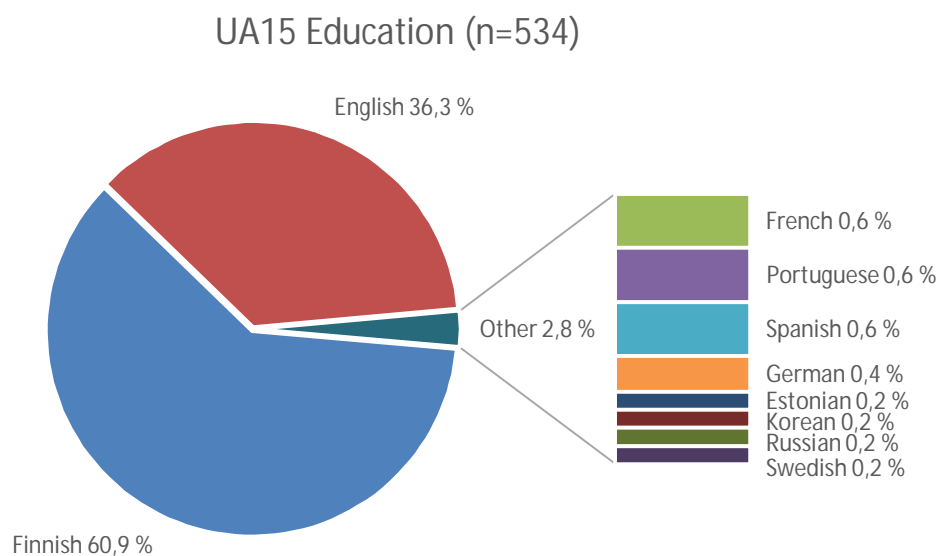


Figure 3 Percentage of different languages of scientific publications (publication types A-C) by UA15 in 2008-2013 (n=534).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA15.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

-
- 1 basic
 - 2 leading
 - 3 top (applicable only to journals and series, not to book publishers)
 - other identified publication channels that have not received level 1 rating
-

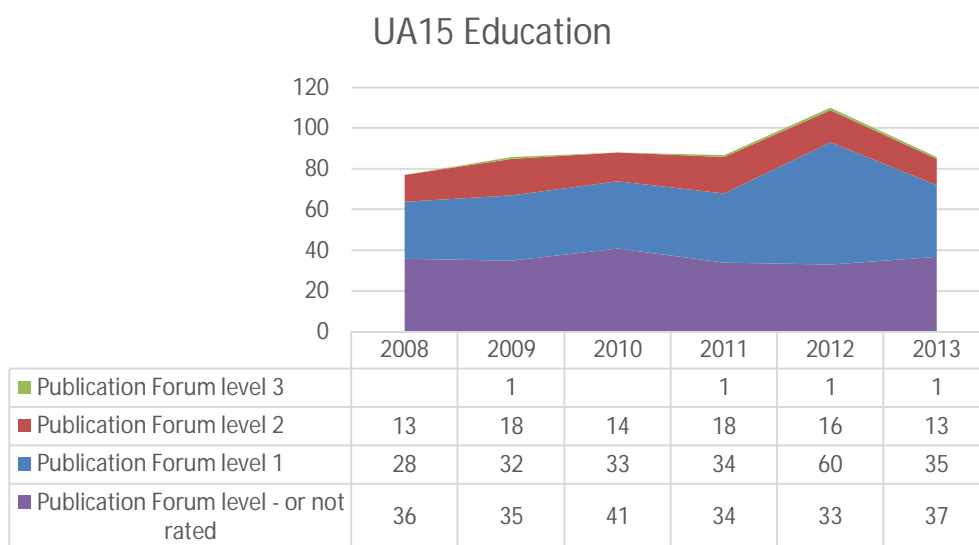


Figure 4. Number of scientific publications (publication types A-C) by UA15 according to the Publication Forum levels per year (n=534).

Scientific publication channels

Table 1. Refereed scientific journals in which UA15 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 39 % of the refereed scientific journal article output, publication types A1, A2) by UA15 in 2008-2013 (n=121).

Journal title	Publication Forum level	Number of publications
Kasvatus ja aika	1	7
Kasvatus: Suomen kasvatustieteellinen aikakauskirja	2	7
Aikuiskasvatus	1	5
Liikunta & Tiede	1	4
Ammattikasvatuksen aikakauskirja	1	4
Procedia: Social and Behavioral Sciences	1	2
Nordisk Barnehegeforskning	1	2
Global Academic Society Journal: Social Science Insight	-	2
Teaching and Teacher Education	2	2
Nuorisotutkimus	1	2
Athletic Insight	-	2
Studies for the Learning Society	1	2
La nouvelle revue de l'adaptation et de la scolarisation	-	2
High Ability Studies	1	2
Tiedepolitiikka	1	2

Table 2. Scientific publishers which cover the majority of the publication output of UA15. A threshold of 50 % was used. The list includes all the publishers which achieved the threshold value (covering altogether 50 % of the scientific publishing output (publication types A3, C1) by UA15 in 2008-2013 (n=157).

Publisher	Publication Forum level	Number of publications
Tampere University Press	1	36
University of Tampere	-	11
Suomen Kasvatustieteellinen Seura	1	9
Peter Lang Publishing Group	1	8
Routledge	2	8
PS-kustannus	-	7

4. Publication output and citation impact based on the Scopus database

The scientific publication output and citation impact of UA15 was analysed using the Scopus database. The analysis included the scientific publications by UA15 in 2008-2012 and the citations to those publications in 2008-2013. The number of scientific publications by UA15 in the UTA publication database was included as a reference.

Table 3. Publication output and citation impact (UA15, publications 2008-2012, citations 2008-2013, publication types A-C, sources: Scopus, UTA publication database).

Publication type	P _{Sci}	P _{Sco}	TCS	MCS	NC	%NC
A1	90	30	56	1,9	16	53,3 %
A2	5	1	5	5,0		0,0 %
A3	119	1	0	0,0	1	100,0 %
A4	38	1	1	1,0		0,0 %
B1	64					
B2	67					
B3	10					
C1	13					
C2	41					
Total	447	33	62	1,9	17	51,5 %

P_{Sci} = Number of scientific publications in UTA Publication database, P_{Sco} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications

Publication types according to the classification of the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

Scientific publishing: activity, language, quality and impact

UA16 Language Studies

1. Scientific publishing activity

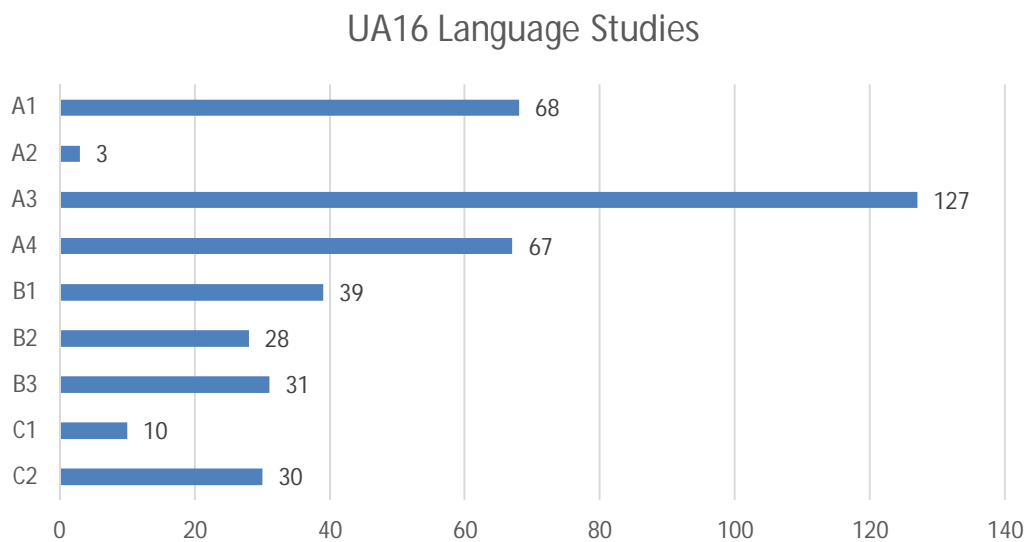


Figure 1. Number of scientific publications (publication types A-C) by UA16 by type in 2008-2013 (n=403).

Publication types according to the classification by the Finnish Ministry of Education and Culture

- A1 Refereed scientific articles in journals
 - A2 Refereed scientific review articles, literature reviews, systematic reviews in journals
 - A3 Refereed scientific articles in edited books
 - A4 Refereed scientific articles in conference proceedings
 - B1 Non-refereed scientific articles in journals
 - B2 Non-refereed articles in edited books
 - B3 Non-refereed articles in conference proceedings
 - C1 Scientific monographs
 - C2 Scientific edited books, conference proceedings and journal special issues
-

2. Language of scientific publications

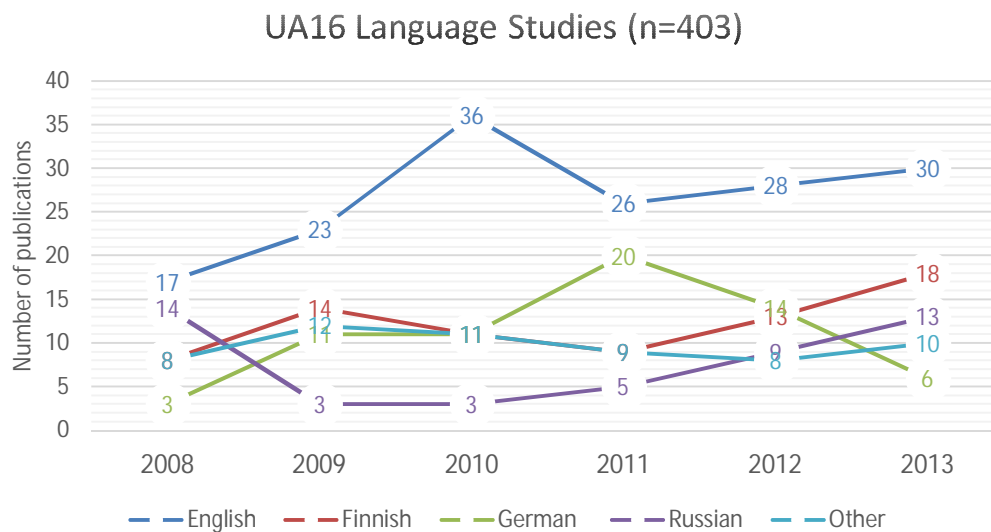


Figure 2. Number of scientific publications (publication types A-C) by UA16 in different languages in 2008-2013 (n=403).

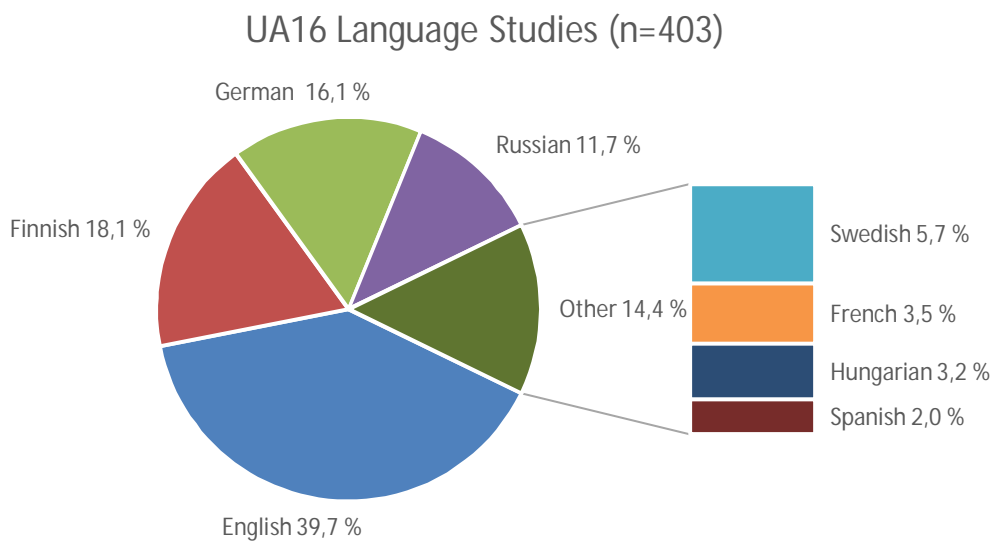


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by UA16 in 2008-2013 (n=403).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA16.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

-
- 1 basic
 - 2 leading
 - 3 top (applicable only to journals and series, not to book publishers)
 - other identified publication channels that have not received level 1 rating
-

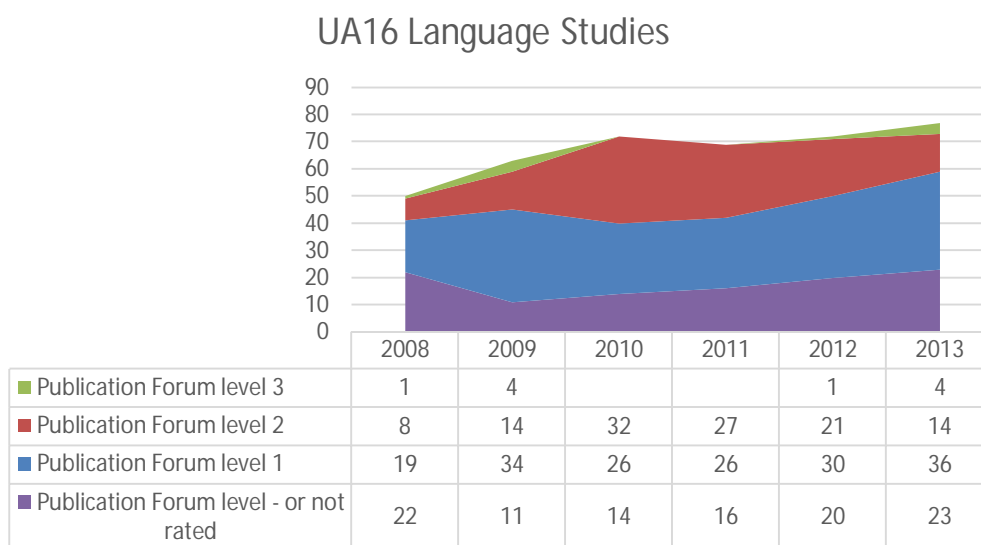


Figure 4. Number of scientific publications (publication types A-C) by UA16 according to the Publication Forum levels per year (n=403).

Scientific publication channels

Table 1. Refereed scientific journals in which UA16 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 41 % of the refereed scientific journal article output, publication types A1, A2) by UA16 in 2008-2013 (n=71).

Journal title	Publication Forum level	Number of publications
Russkij jazyk v shkole	1	10
Virittäjä	2	4
German as a Foreign Language	1	3
Lähivördlusi. Lähivertailuja	1	2
English Language and Linguistics	3	2
Neuphilologische Mitteilungen	2	2
Historisk tidskrift för Finland	2	2
Folkmålsstudier	2	2
Voprosy jazykoznanija	3	2

Table 2. Scientific publishers which cover the majority of the publication output of UA16. A threshold of 50 % was used. The list includes all the publishers which achieved the threshold value (covering altogether 51 % of the scientific publication output, publication types A3, C1) by UA16 in 2008-2013 (n=137).

Publisher	Publication Forum level	Number of publications
John Benjamins Publishing Company	2	21
Mouton de Gruyter	2	12
Suomalaisen Kirjallisuuden Seura	2	12
Cambridge University Press	2	8
Rodopi	2	6
Oxford University Press	2	6
Savaria University Press	-	5

4. Publication output and citation impact based on the Scopus database

The scientific publication output and citation impact of UA16 was analysed using the Scopus database. The analysis included the scientific publications by UA16 in 2008-2012 and the citations to those publications in 2008-2013. The number of scientific publications by UA16 in the UTA publication database was included as a reference.

Table 3. Publication output and citation impact (UA16, publications 2008-2012, citations 2008-2013, publication types A-C, sources: Scopus, UTA publication database).

Publication type	P _{Sci}	P _{Sco}	TCS	MCS	NC	%NC
A1	50	13	16	1,2	8	61,5 %
A2	3	1	0	0,0	1	100,0 %
A3	100	3	1	0,3	2	66,7 %
A4	54	4	0	0,0	4	100,0 %
B1	31	1	0	0,0	1	100,0 %
B2	25	1	0	0,0	1	100,0 %
B3	26					
C1	10	1	0	0,0	1	100,0 %
C2	27					
Total	326	24	17	0,7	18	75,0 %

P_{Sci} = Number of scientific publications in UTA publication database, P_{Sco} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications

Publication types according to the classification of the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

Scientific publishing: activity, language, quality and impact

UA17 Literary Studies

1. Scientific publishing activity

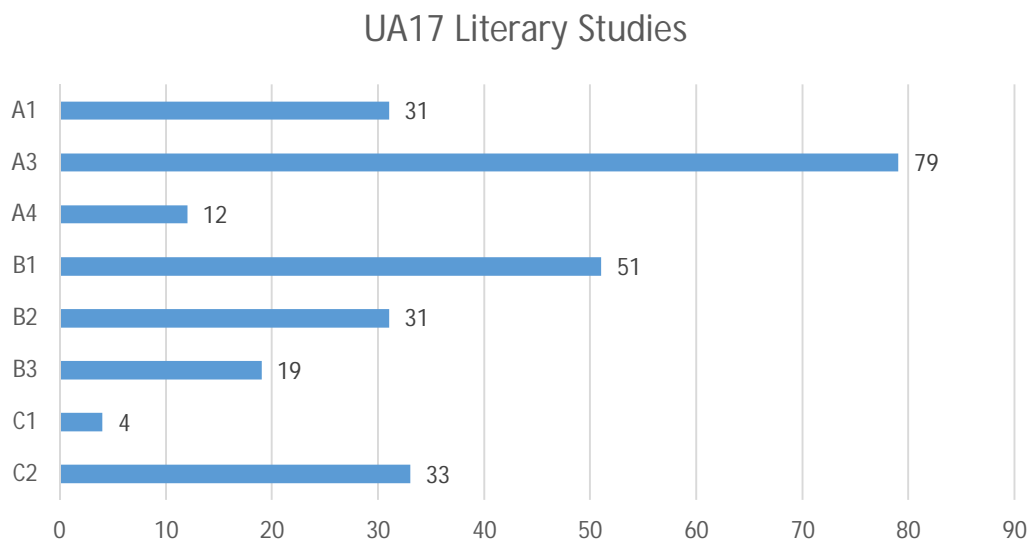


Figure 1. Number of scientific publications (publication types A-C) by UA17 by type in 2008-2013 (n=260).

Publication types according to the classification by the Finnish Ministry of Education and Culture

A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

2. Language of scientific publications

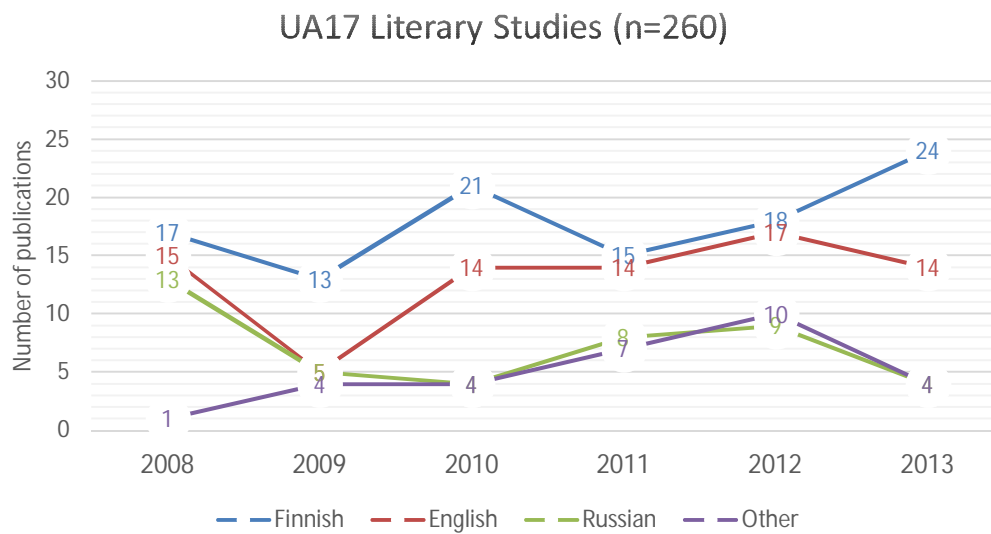


Figure 2. Number of scientific publications (publication types A-C) by UA17 in different languages in 2008-2013 (n=260).

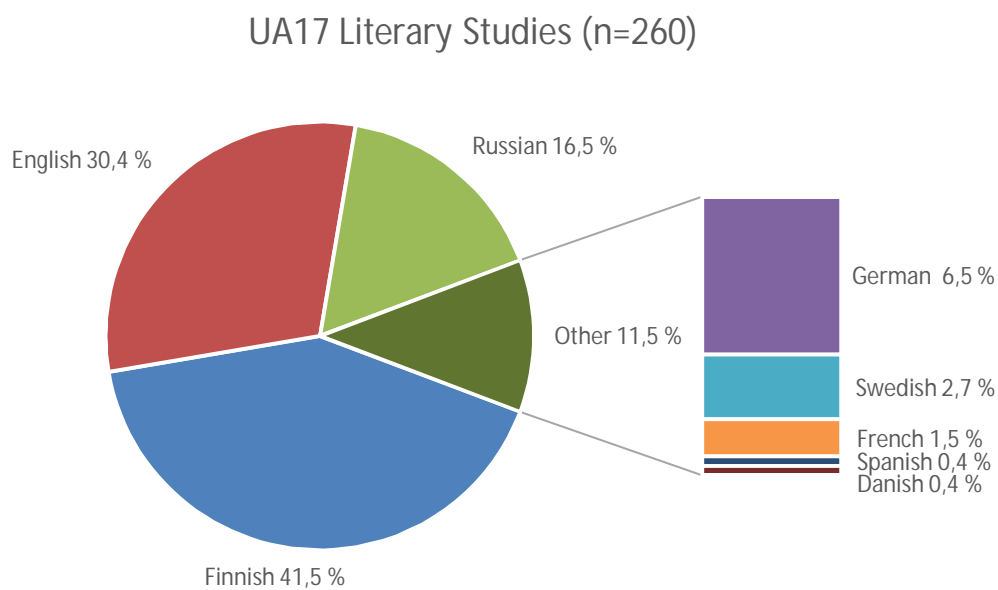


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by UA17 in 2008-2013 (n=260).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA17.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

- 1 basic
- 2 leading
- 3 top (applicable only to journals and series, not to book publishers)
- other identified publication channels that have not received level 1 rating

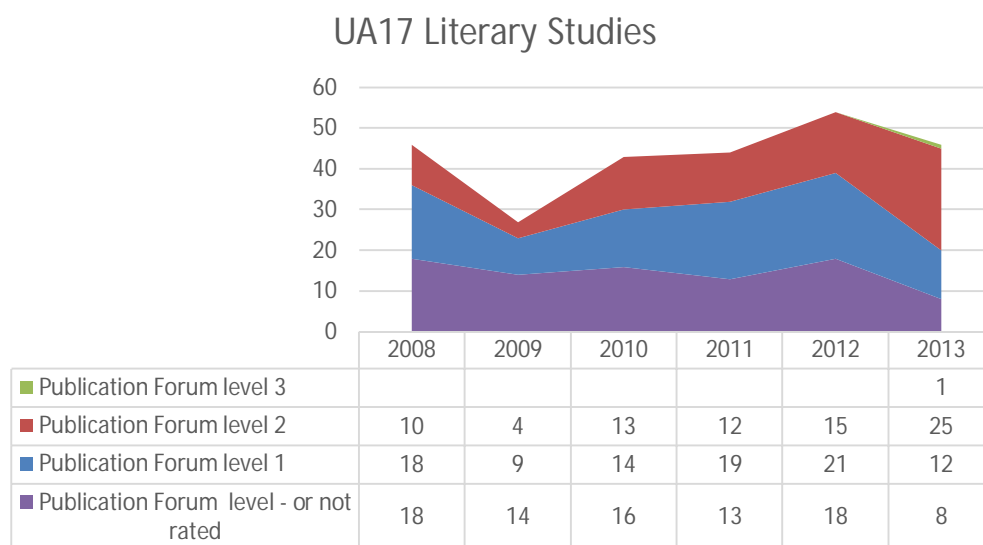


Figure 4. Number of scientific publications (publication types A-C) by UA17 according to the Publication Forum levels per year (n=260).

Scientific publication channels

Table 1. Refereed scientific journals in which UA17 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 35 % of the refereed scientific journal article output, publication types A1, A2¹) by UA17 in 2008-2013 (n=31).

Journal title	Publication Forum level	Number of publications
Kirjallisuudentutkimuksen aikakauslehti Avain	2	8
K og K: kultur og klasse, kritik og kulturanalyse	1	3

¹ No articles by publication type A2 in UA17.

Table 2. Scientific publishers which cover the majority of the publication output of UA17. A threshold of 50 % was used. The list includes all the publishers which achieved the threshold value (covering altogether 51 % of the scientific publication output, publication types A3, C1) by UA17 in 2008-2013 (n=83).

Publisher	Publication Forum level	Number of publications
Suomalaisen Kirjallisuuden Seura	2	19
Cambridge Scholars Publishing	1	8
Gaudeamus	2	6
Peter Lang Publishing Group	1	5
Cambria Press	1	4

4. Publication output and citation impact based on the Scopus database

The scientific publication output and citation impact of UA17 was analysed using the Scopus database. The analysis included the scientific publications by UA17 in 2008-2012 and the citations to those publications in 2008-2013. The number of scientific publications by UA17 in the UTA publication database was included as a reference.

Table 3. Publication output and citation impact (UA17, publications 2008-2012, citations 2008-2013, publication types A-C, sources: Scopus, UTA publication database).

Publication type	P _{Sci}	P _{Sco}	TCS	MCS	NC	%NC
A1	23	4	0	0,0	4	100,0 %
A3	60	1	0	0,0	1	100,0 %
A4	11					
B1	41	1	0	0,0	1	100,0 %
B2	31					
B3	19					
C1	3					
C2	26					
Total	214	6	0	0,0	6	100,0 %

P_{Sci} = Number of scientific publications in UTA publication database, P_{Sco} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications

Publication types according to the classification of the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

Scientific publishing: activity, language, quality and impact

UA18 Communication, Media and Theatre Studies

1. Scientific publishing activity

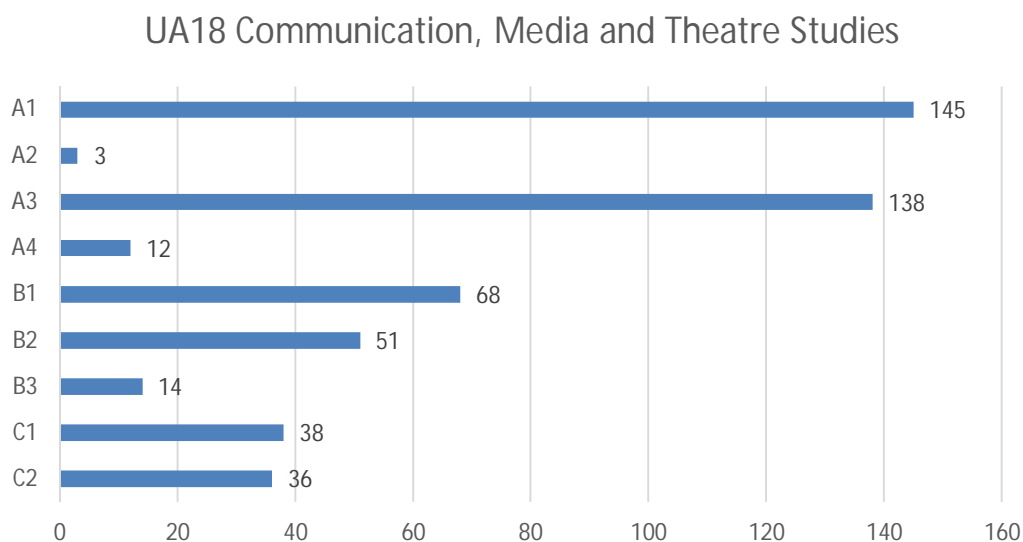


Figure 1. Number of scientific publications (publication types A-C) by UA18 by type in 2008-2013 (n=505).

Publication types according to the classification by the Finnish Ministry of Education and Culture

A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

2. Language of scientific publications

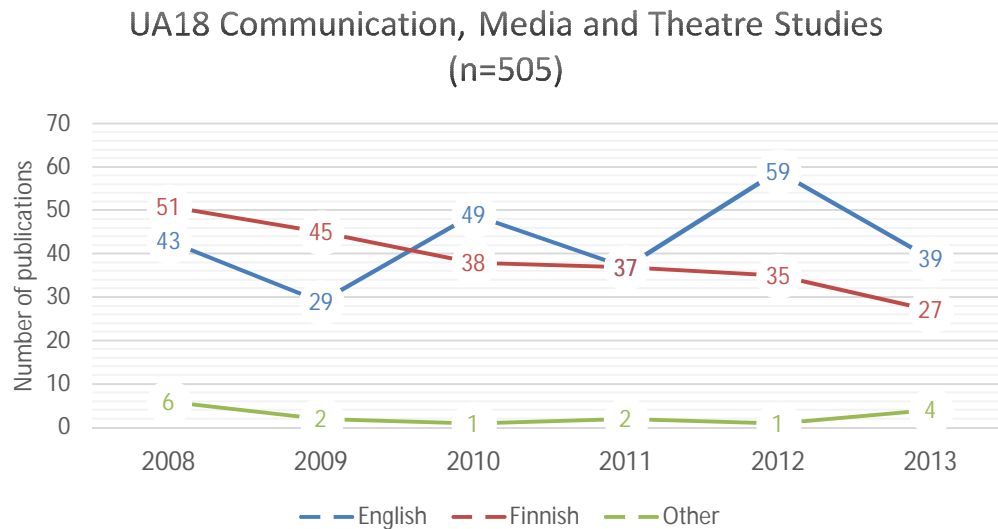


Figure 2. Number of scientific publications (publication types A-C) by UA18 in different languages in 2008-2013 (n=505).

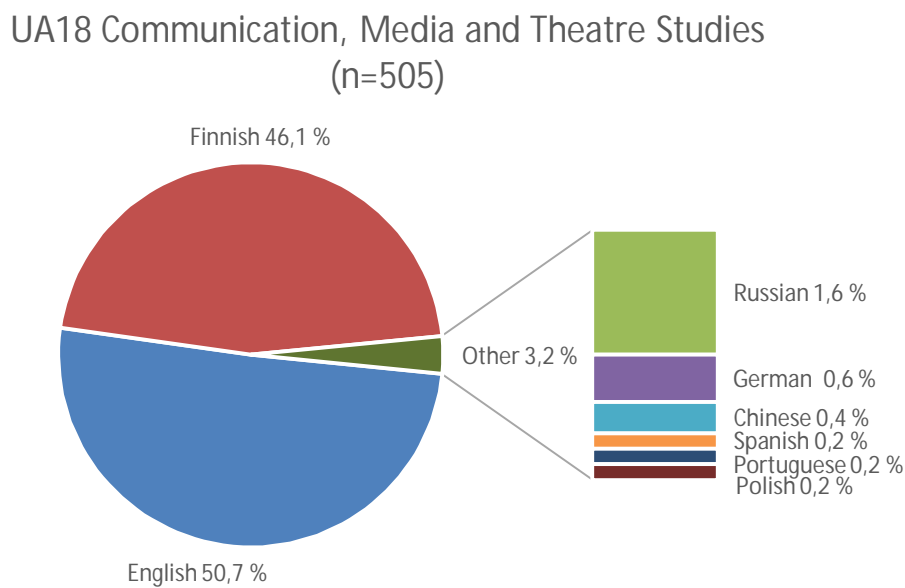


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by UA18 in 2008-2013 (n=505).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UA18.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

- 1 basic
- 2 leading
- 3 top (applicable only to journals and series, not to book publishers)
- other identified publication channels that have not received level 1 rating

UA18 Communication, Media and Theatre Studies

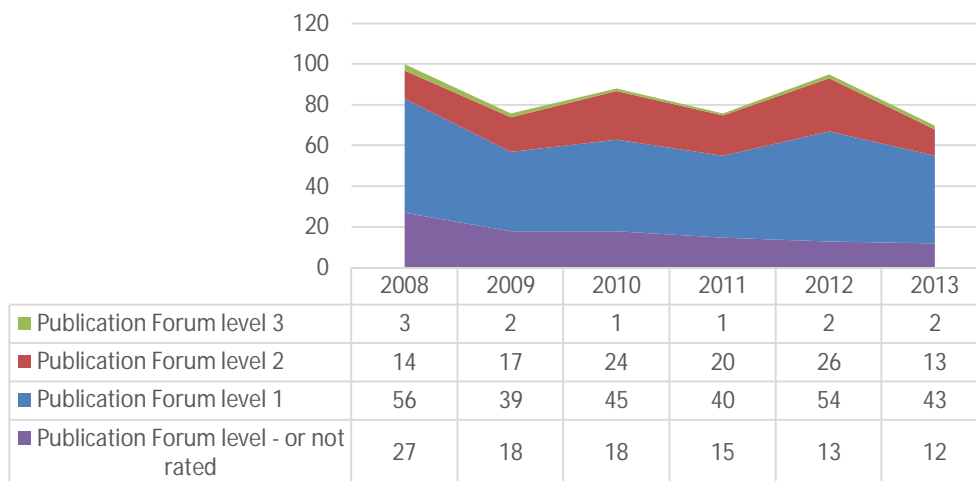


Figure 4. Number of scientific publications (publication types A-C) by UA18 according to the Publication Forum levels per year (n=505).

Scientific publication channels

Table 1. Refereed scientific journals in which UA18 has published most frequently. A threshold of 33 % was used. The list includes all the journals which achieved the threshold value (covering altogether 39 % of the refereed scientific journal article output, publication types A1, A2) by UA18 in 2008-2013 (n=148).

Journal title	Publication Forum level	Number of publications
Media ja viestintä	1	14
Lähikuva	1	10
Prologi: puheviestinnän vuosikirja	1	6
Journalism Practice	1	6
Puhe ja kieli	1	4
Kulttuurintutkimus	2	4
Journalism: Theory, Practice and Criticism	3	4
Journal of Media Business Studies	1	3
Nordicom Review	1	3
Journalismikritiikin vuosikirja	1	3

Table 2. Scientific publishers which cover the majority of the publication output of UA18. A threshold of 50 % was used. The list includes all the publishers which achieved the threshold value (covering altogether 60 % of the scientific publication output, publication types A3, C1) by UA18 in 2008-2013 (n=176).

Publisher	Publication Forum level	Number of publications
Tampere University Press	1	37
Vastapaino	2	16
Nordicom	1	16
University of Tampere	-	16
Intellect	2	10
Routledge	2	10

4. Publishing output and citation impact based on the Scopus database

The scientific publication output and citation impact of UA18 was analysed using the Scopus database. The analysis included the scientific publications by UA18 in 2008-2012 and the citations to those publications in 2008-2013. The number of scientific publications by UA18 in the UTA publication database was included as a reference.

Table 3. Publication output and citation impact (UA18, publications 2008-2012, citations 2008-2013, publication types A-C, sources: Scopus, UTA publication database).

Publication type	P _{Sci}	P _{Sco}	TCS	MCS	NC	%NC
A1	112	32	63	2,0	10	31,3 %
A2	2					
A3	123	2	0	0,0	2	100,0 %
A4	11	6	11	1,8	2	33,3 %
B1	58	1	1	1,0		0,0 %
B2	49					
B3	12	1	0	0,0	1	100,0 %
C1	33	1	0	0,0	1	100,0 %
C2	35					
Total	435	43	75	1,7	16	37,2 %

P_{Sci} = Number of scientific publications in UTA publication database, P_{Sco} = Number of publications in Scopus database, TCS = Number of citations, MCS = Number of citations per publication, NC = Non-cited publications, %NC = Percentage of non-cited publications

Publication types according to the classification of the Finnish Ministry of Education and Culture	
A1	Refereed scientific articles in journals
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A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

Appendix 4

Bibliometric Analyses by CWTS

Panels I - IV

UTA RAE 2014, Panel I

Bibliometric analysis by the Centre for Science and Technology Studies (CWTS) of Leiden University

Data and methodology

Data

The University of Tampere (UTA) requested the Centre for Science and Technology Studies (CWTS) of Leiden University to perform a bibliometric analysis for the UTA Research Assessment. The goal was to gain concrete and detailed insight into the bibliometric performance of the Units of Assessment (UAs) based on the publication output of UAs in 2008-2012 and the citation impact of these publications in 2008-2013, compared with worldwide reference values.

The initial data was provided by UTA and was matched with the CWTS Web of Science (WoS) database, which is produced by Thomson Reuters. The analysis was conducted using the CWTS Citation Index (CI) system. This system is based on an enhanced version of the Thomson Reuters citation indexes: Web of Science version of the Science Citation Index (indexed); Social Science Citation Index; and Arts & Humanities Citation Index.

The initial publication data set was extracted from the UTA publication database (SoleCRIS). It included bibliographic information on publications authored by UTA researchers (employed or affiliated on a Census Date 1 October 2013) in 2008-2012 at UTA regardless of where the researchers had been working at the time of the publication. The data set included only publications that were found in the WoS database and thus had WoS Accession numbers (WoS id).

Methodology

Some of the citation indicators used by CWTS are normalized, meaning that they take into account the age of publications and the differences in citation practices according to scientific field. Usually, more recent publications have received fewer citations than publications that have appeared a number of years earlier. Moreover, for the same publication year, publications in, for instance, mathematics have usually received a much smaller number of citations than publications in, for instance, biology. This is due to the different citation cultures in different fields.

Normalized citation indicators are constructed by calculating the ratio of the actual and the expected number of citations. The expected number of citations is defined as the average number of citations of all publications (i.e., research articles and review articles) that belong to the same field and that appeared in the same publication year. The field (or the fields) is determined by the subject categories (about 250 in all) of the journals in the Web of Science. Each journal is assigned to one or several subject categories in WoS.

Three of the indicators used by CWTS indicate the normalized citation impact of publications of the Unit of Assessment: 1) Mean Normalized Citation Score (MNCS), 2) Number of Top 10% Publications (Ptop10%) and 3) Proportion of Top 10% Publications (Ptop10%). Mean Normalized Journal Score (MNJS) indicates the normalized citation impact of the journals the Unit of Assessment has published in. (see Table 1 for more details).

Table 1. Bibliometric indicators used in the analysis.

P	Number of Publications	Total number of scientific publications by the Unit of Assessment (UA) in 2008-2012 registered in the UTA Publication database (SoleCRIS), covered by the Web of Science (WoS) and belonging to the WoS publication types article or review.
TCS	Total Citation Score	Total number of citations up to 2013 received by P, excluding self-citations.
MCS	Mean Citation Score	Average number of citations per publication, excluding self-citations (TCS/P).
MNCS	Mean Normalized Citation Score	Average normalized number of citations per publication. MNCS is calculated by comparing the citation scores of the UA's publications to the international level of the WoS field, publication type (article, review) and publication year. The world average is 1. For example, the MNCS value of 1.2 indicates that the publications by the UA have on average received 20% more citations than publications of the same age, field and type in the world.
MNJS	Mean Normalized Journal Score	Average normalized journal citation impact. The citation scores of the journals in which the UA has published are compared with the international level in the WoS field. The world average is 1. For example, the MNJS value of 1.2 indicates that the UA has on average published in journals which have received 20% more citations than journals of the same field in the world.
Ptop10%	Number of publications that belong to the top 10% of their field.	Number of scientific publications by the UA that belong to the most frequently cited 10% of their field.
PPtop10%	Proportion of publications that belong to the top 10% of their field.	Proportion of scientific publications by the UA that belong to the most frequently cited 10% of their field. For example, the PPtop10% value of 15% indicates that 15% of scientific publications by the UA are among the most frequently cited 10% in their field.
PPnC	Proportion of uncited publications	Proportion of publications by the UA that have not been cited in WoS in relation to the total number of publications (P) in 2008-2013, excluding self-citations.

In computing the impact indicators, CWTS uses the full counting method. This means that publications by the Unit of Assessment are always fully assigned to it and co-authored publications are not divided, e.g., based on the number of authors or units involved. Self-citations are excluded in the calculation of all impact indicators. A self-citation means that the citing publication and the cited paper have at least one author name (i.e. last name and initials) in common.

To assess the impact of the publications of a group of researchers, the recommendation of CWTS is to rely on a combination of the MNCS indicator and the PPtop10% indicator. The MCS indicator does not correct for differences in scientific fields and should therefore be used only for comparisons of groups that are active in the same field.

In addition to indicators described in Table 1, CWTS calculates indicators of scientific collaboration. They are based on an analysis of affiliations listed in the publications produced by the UA. CWTS first identified publications authored by a single institution ('no collaboration'). Subsequently publications produced by institutions from different countries ('international collaboration') and publications produced by multiple institutions from the same country ('national collaboration') were identified. These types of collaboration are mutually exclusive. Publications involving both national and international collaboration were classified as international collaboration.

Choosing the UAs for Panel I analysis

Panel I has four Units of Assessment (Table 2). When deciding which UAs are represented in this report, the values of both the internal and external coverage of the Units of Assessment were used.

The internal WoS coverage of the Unit of Assessment is defined as the proportion of the references in its total publication output (indexed in WoS) that refer to publications covered by WoS. The internal coverage is important for understanding how well the CI/WoS output reflects the scholarly practice in UA01, UA02, UA03 and UA04: to what extent researchers in these UAs cite publications covered by CI/WoS and to what extent other, non-CI/WoS publications. To analyse the internal coverage of the publications of UA01-UA04, references in the publications (2008-2012) were matched to the extended CI publication database (1980-2012). The external WoS coverage of the Unit of Assessment is defined as a proportion of scientific publications by the UA that are covered by CI/WoS. The UTA RAE Office analysed the external coverage by comparing the number of refereed scientific publications indexed in the UTA SoleCRIS database (2008-2012) to the number of publications indexed in CI/WoS (2008-2012, publication types 'article' and 'review').

The analysis shows that in the case of UA01 and UA03, both the internal and external coverage are above the threshold values (30% and 10%, respectively) (Table 3). Thus the results of the analysis are presented for UA01 and UA03.

Table 2. Units of Assessment (UAs) and number of researchers with WoS publications.

Unit of Assessment	Acronym	Number of researchers
Regional and Environmental Studies	UA01	17
Public Administration	UA02	9
Business and Economics	UA03	20
Political Science	UA04	11

Table 3. Internal and external coverage for UAs of Panel I.

	WoS publications	SoleCRIS publications	Internal Coverage	External Coverage
UA01	22	148	37%	15%
UA02	20	276	32%	7%
UA03	35	193	47%	18%
UA04	27	183	29%	15%

Data for Panel I analysis (UA01 and UA03)

Each publication in WoS has a document type. The most frequently occurring document types are 'article', 'book review', 'correction', 'editorial material', 'letter', 'meeting abstract', 'news item', and 'review'. In the calculation of bibliometric indicators, CWTS only takes into account 'articles' and 'reviews'. In general, these two document types cover the most significant publications.

Table 4. Final data for the bibliometric analyses for UAs of Panel I.

	Articles	Reviews	Total
UA01	21	1	22
UA03	35	0	35

UA01 Regional and Environmental Studies

Figure 1. Research profile for UA01 according to the WoS subject categories, comprising 100% of the total publication output by UA01 (only the WoS subject categories with more than 1% of the publication output are included in the Figure).

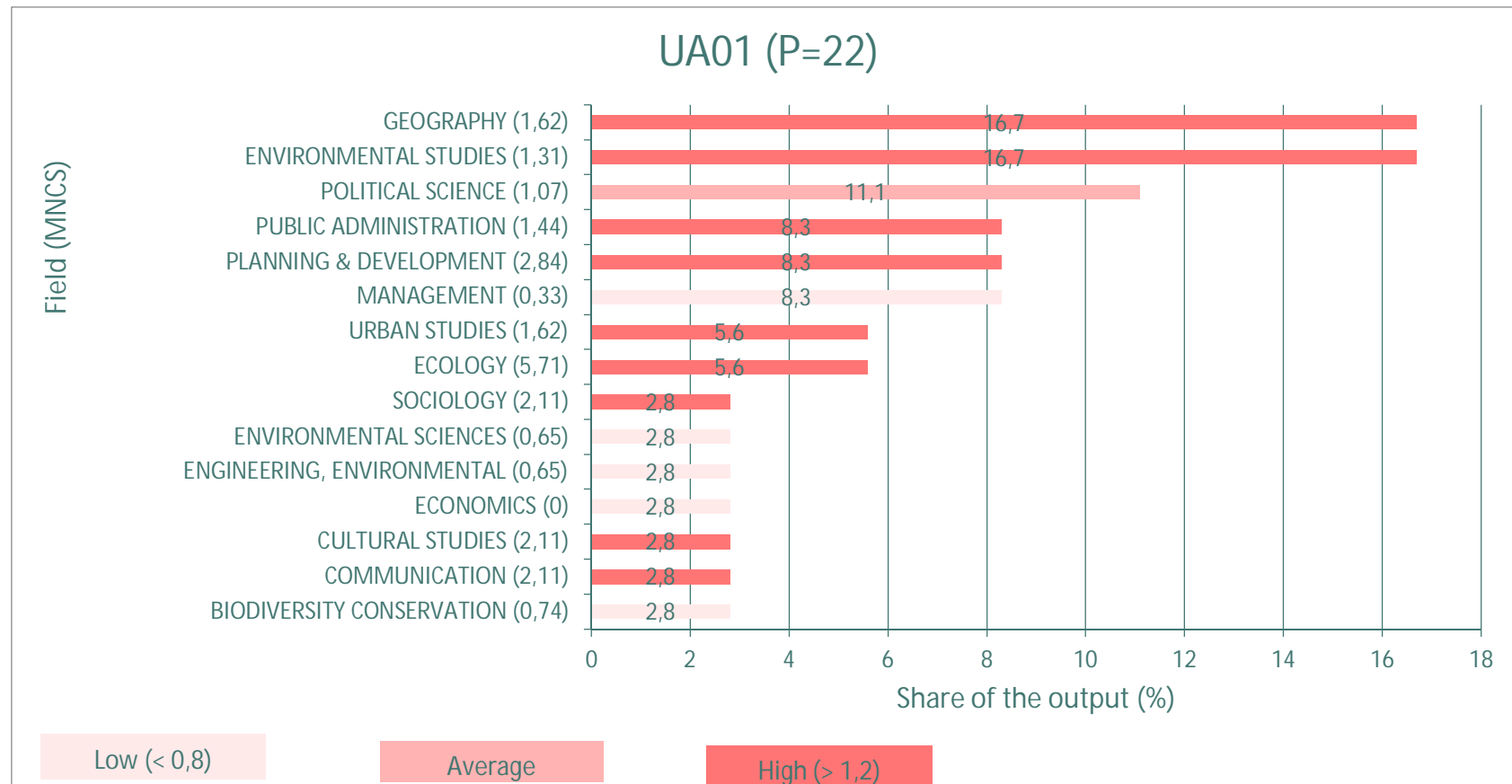


Table 1. Performance indicators for UA01.

	P	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA01	22	228	10.4	1.8	1.2	3	16.4%	13.7%

Figure 2. Trend of the output (P) for Panel I and its UAs.

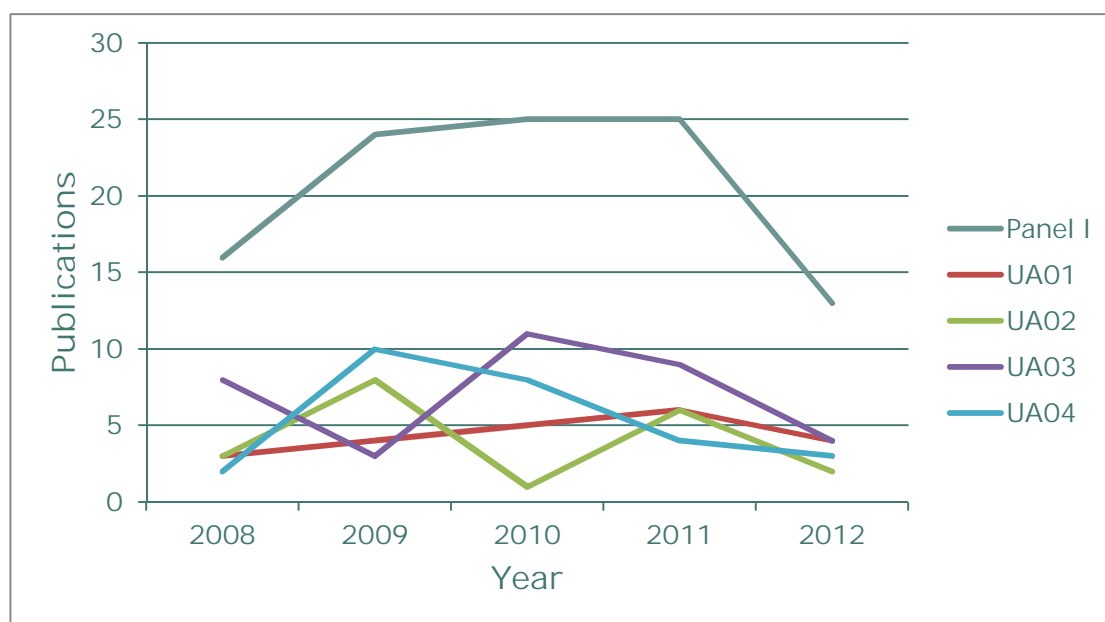


Figure 3. Trend of the impact (MNCS) for Panel I, UA01 and UA03.

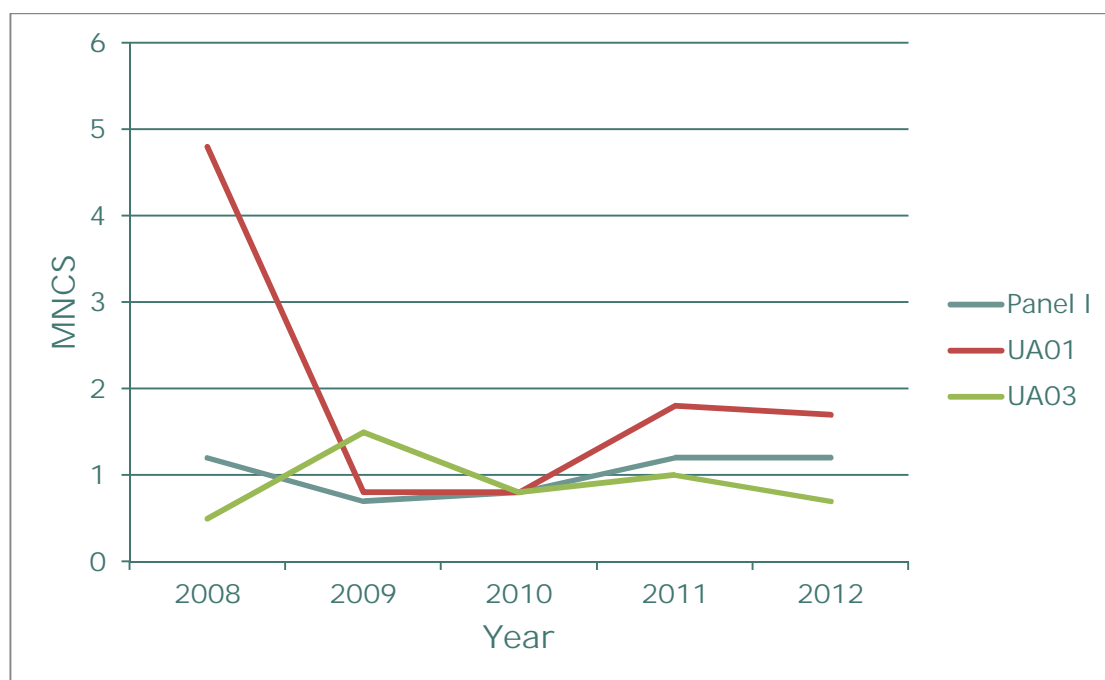
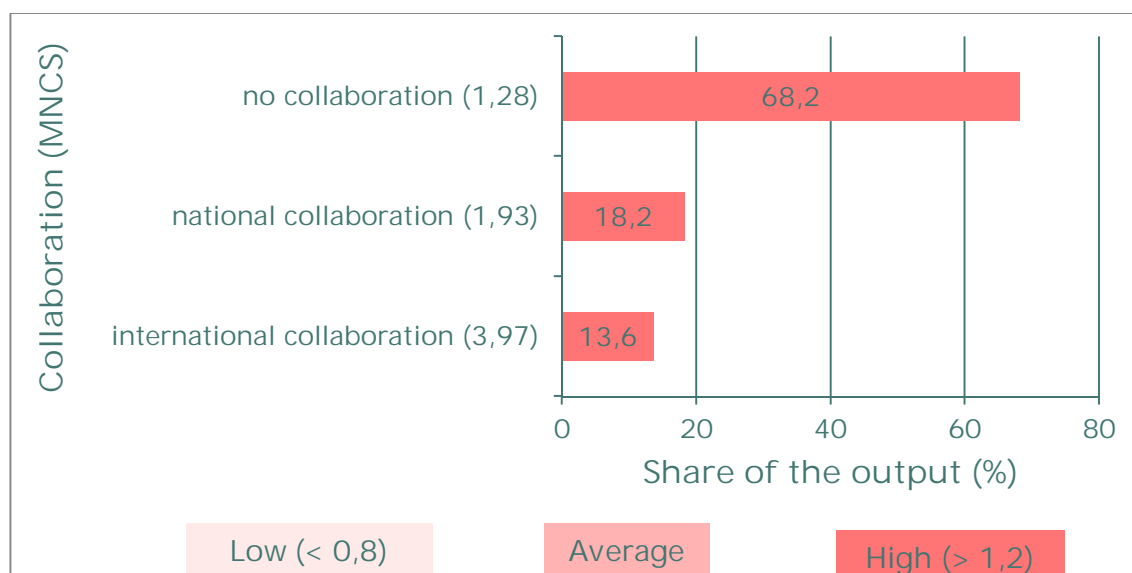


Table 2. Performance indicators for UA01 in terms of collaboration.

	P	%	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA01	22	100	228	10.4	1.8	1.2	3	16.4%	13.7%
International Collaboration	3	68.2%	152	50.7	4	2.3	1	33.3%	33.3%
National Collaboration	4	18.2%	17	4.3	1.9	1	1	25%	0%
No Collaboration	15	13.6%	59	3.9	1.3	1	1	10.8%	13.3%

Figure 4. Collaboration output and impact (MNCS) per collaboration type for UA01.



UA03 Business and Economics

Figure 1. Research profile for UA03 according to the WoS subject categories, comprising 100% of the total publication output by UA03 (only the WoS subject categories with more than 1% of the publication output are included in the Figure).

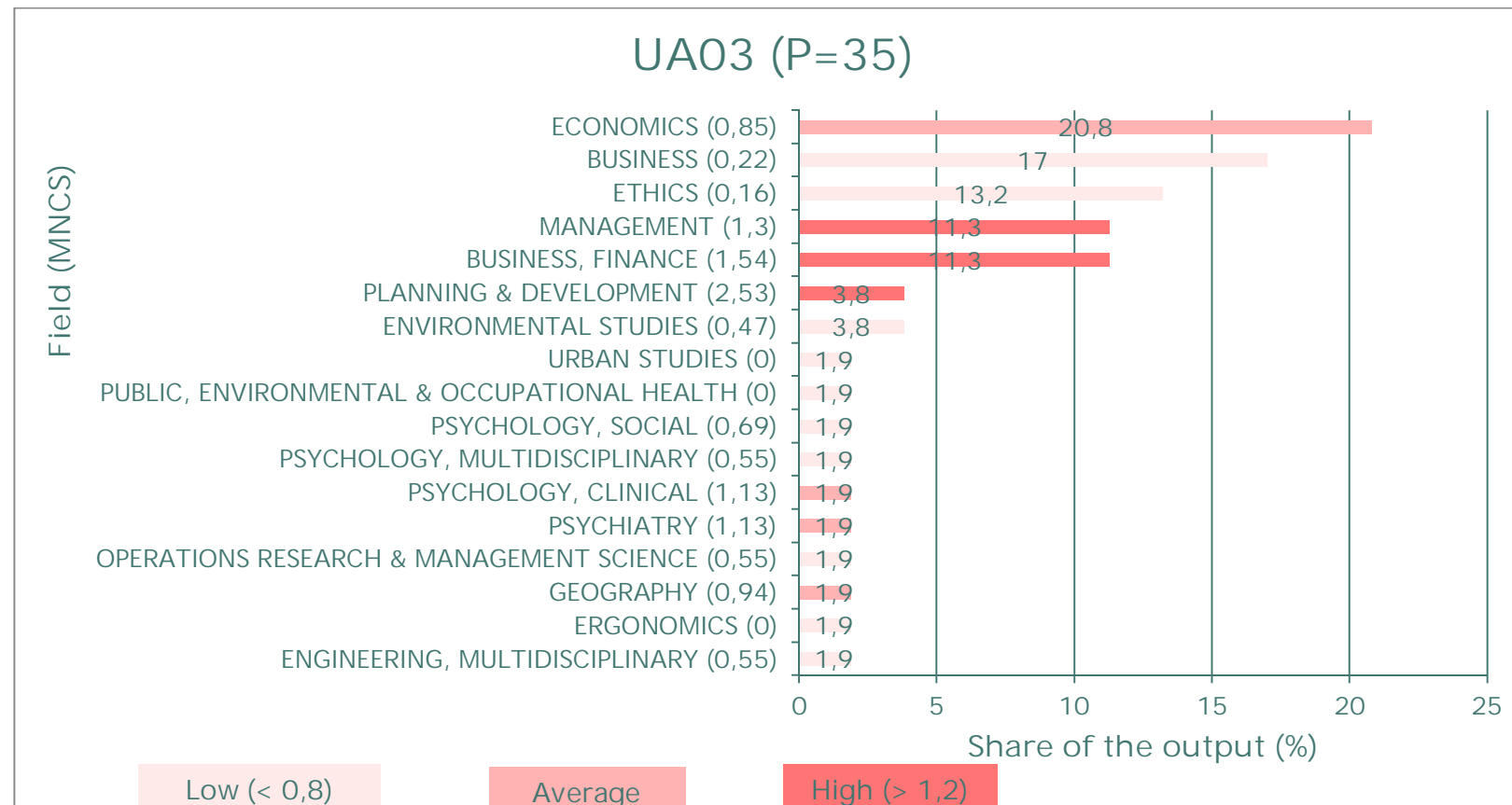


Table 1. Performance indicators for UA03.

	P	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA03	35	107	3.1	0.8	0.9	2	5.7%	35.7%

Figure 2. Trend of the output (P) for Panel I and its UAs.

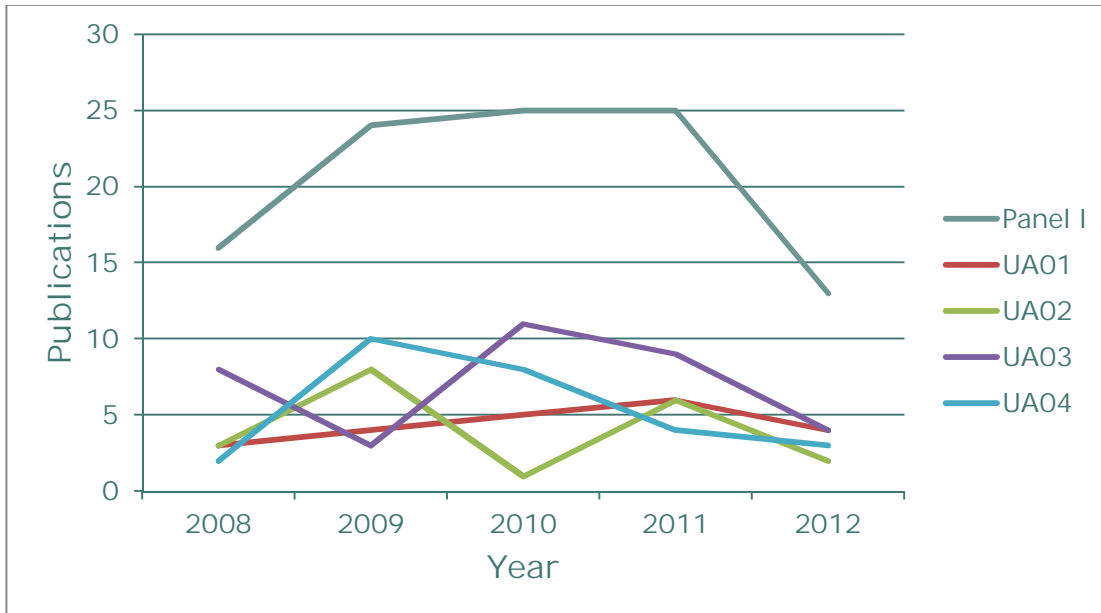


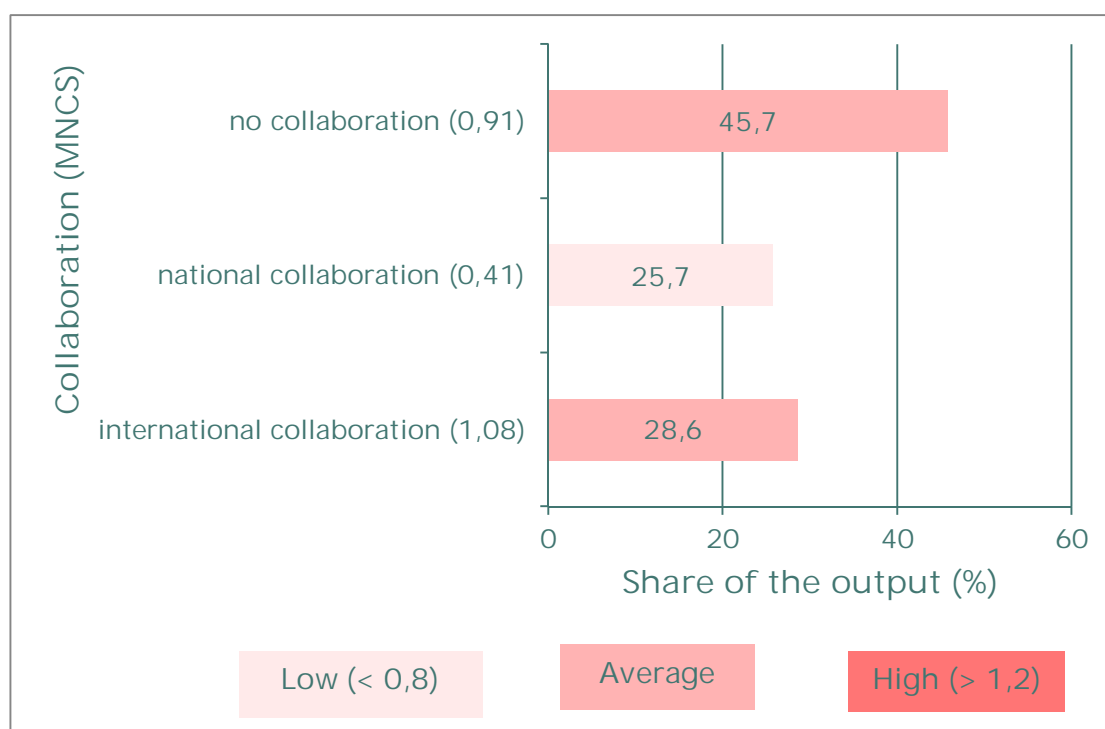
Figure 3. Trend of the impact (MNCS) for Panel I, UA01 and UA03.



Table 2. Performance indicators for UA03 in terms of collaboration.

	P	%	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA03	35	100	107	3.1	0.8	0.9	2	5.7%	35.7%
International Collaboration	10	28.6%	46	4.6	1.1	1.1	1	10%	10%
National Collaboration	9	25.7%	18	2	0.4	0.8	0	0%	33.3%
No Collaboration	16	45.7%	43	2.7	0.9	0.8	1	6.3%	31.3%

Figure 4. Collaboration output and impact (MNCS) per collaboration type for UA03.



UTA RAE 2014, Panel II

Bibliometric analysis by the Centre for Science and Technology Studies (CWTS) of Leiden University

Data and methodology

Data

The University of Tampere (UTA) requested the Centre for Science and Technology Studies (CWTS) of Leiden University to perform a bibliometric analysis for the UTA Research Assessment. The goal was to gain concrete and detailed insight into the bibliometric performance of the Units of Assessment (UAs) based on the publication output of UAs in 2008-2012 and the citation impact of these publications in 2008-2013, compared with worldwide reference values.

The initial data was provided by UTA and was matched with the CWTS Web of Science (WoS) database, which is produced by Thomson Reuters. The analysis was conducted using the CWTS Citation Index (CI) system. This system is based on an enhanced version of the Thomson Reuters citation indexes: Web of Science version of the Science Citation Index (indexed); Social Science Citation Index; and Arts & Humanities Citation Index.

The initial publication data set was extracted from the UTA publication database (SoleCRIS). It included bibliographic information on publications authored by UTA researchers (employed or affiliated on a Census Date 1 October 2013) in 2008-2012 at UTA regardless of where the researchers had been working at the time of the publication. The data set included only publications that were found in the WoS database and thus had WoS Accession numbers (WoS id).

Methodology

Some of the citation indicators used by CWTS are normalized, meaning that they take into account the age of publications and the differences in citation practices according to the scientific field. Usually, more recent publications have received fewer citations than publications that have appeared a number of years earlier. Moreover, for the same publication year, publications in, for instance, mathematics have usually received a much smaller number of citations than publications in, for instance, biology. This is due to the different citation cultures in different fields.

Normalized citation indicators are constructed by calculating the ratio of the actual and the expected number of citations. The expected number of citations is defined as the average number of citations of all publications (i.e., research articles and review articles) that belong to the same field and that appeared in the same publication year. The field (or the fields) is determined by the subject categories (about 250 in all) of the journals in the Web of Science. Each journal is assigned to one or several subject categories in WoS.

Three of the indicators used by CWTS indicate the normalized citation impact of publications of the Unit of Assessment: 1) Mean Normalized Citation Score (MNCS), 2) Number of Top 10% Publications (Ptop10%) and 3) Proportion of Top 10% Publications (Ptop10%). Mean Normalized Journal Score (MNJS) indicates the normalized citation impact of the journals the Unit of Assessment has published in. (see Table 1 for more details).

Table 1. Bibliometric indicators used in the analysis.

P	Number of Publications	Total number of scientific publications by the Unit of Assessment (UA) in 2008-2012 registered in the UTA Publication database (SoleCRIS), covered by the Web of Science (WoS) and belonging to the WoS publication types article or review.
TCS	Total Citation Score	Total number of citations up to 2013 received by P, excluding self-citations.
MCS	Mean Citation Score	Average number of citations per publication, excluding self-citations (TCS/P).
MNCS	Mean Normalized Citation Score	Average normalized number of citations per publication. MNCS is calculated by comparing the citation scores of the UA's publications to the international level of the WoS field, publication type (article, review) and publication year. The world average is 1. For example, the MNCS value of 1.2 indicates that the publications by the UA have on average received 20% more citations than publications of the same age, field and type in the world.
MNJS	Mean Normalized Journal Score	Average normalized journal citation impact. The citation scores of the journals in which the UA has published are compared with the international level in the WoS field. The world average is 1. For example, the MNJS value of 1.2 indicates that the UA has on average published in journals which have received 20% more citations than journals of the same field in the world.
Ptop10%	Number of publications that belong to the top 10% of their field.	Number of scientific publications by the UA that belong to the most frequently cited 10% of their field.
PPtop10%	Proportion of publications that belong to the top 10% of their field.	Proportion of scientific publications by the UA that belong to the most frequently cited 10% of their field. For example, the PPtop10% value of 15% indicates that 15% of scientific publications by the UA are among the most frequently cited 10% in their field.
PPnC	Proportion of uncited publications	Proportion of publications by the UA that have not been cited in WoS in relation to the total number of publications (P) in 2008-2013, excluding self-citations.

In computing the impact indicators, CWTS uses the full counting method. This means that publications by the Unit of Assessment are always fully assigned to it and co-authored publications are not divided, e.g., based on the number of authors or units involved. Self-citations are excluded in the calculation of all impact indicators. A self-citation means that the citing publication and the cited paper have at least one author name (i.e. last name and initials) in common.

To assess the impact of the publications of a group of researchers, the recommendation of CWTS is to rely on a combination of the MNCS indicator and the PPtop10% indicator. The MCS indicator does not correct for differences in scientific fields and should therefore be used only for comparisons of groups that are active in the same field.

In addition to indicators described in Table 1, CWTS calculates indicators of scientific collaboration. They are based on an analysis of affiliations listed in the publications produced by the UA. CWTS first identified publications authored by a single institution ('no collaboration'). Subsequently publications produced by institutions from different countries ('international collaboration') and publications produced by multiple institutions from the same country ('national collaboration') were identified. These types of collaboration are mutually exclusive. Publications involving both national and international collaboration were classified as international collaboration.

Choosing the UAs for Panel II analysis

Panel II has three Units of Assessment (Table 2). When deciding which UAs are represented in this report, the values of both the internal and external coverage of the Units of Assessment were used.

The internal WoS coverage of the Unit of Assessment is defined as the proportion of the references in its total publication output (indexed in WoS) that refer to publications covered by WoS. The internal coverage is important for understanding how well the CI/WoS output reflects the scholarly practice in UA05, UA06 and UA07: to what extent researchers in these UAs cite publications covered by CI/WoS and to what extent other, non-CI/WoS publications. To analyse the internal coverage of the publications of UA05-UA07, references in the publications (2008-2012) were matched to the extended CI publication database (1980-2012). The external WoS coverage of the Unit of Assessment is defined as a proportion of scientific publications by the UA that are covered by CI/WoS. The UTA RAE Office analysed the external coverage by comparing the number of refereed scientific publications indexed in the UTA SoleCRIS database (2008-2012) to the number of publications indexed in CI/WoS (2008-2012, publication types 'article' and 'review').

The analysis shows that in the case of all the UAs of Panel II, both the internal and external coverage are above the threshold values (30% and 10%, respectively) (Table 3). Thus the results of the analysis are presented for all the UAs of Panel II.

Table 2. Units of Assessment (UAs) and number of researchers with WoS publications.

Unit of Assessment	Acronym	Number of researchers
Biomedical Technology	UA05	92
Medicine	UA06	123
Health Sciences	UA07	63

Table 3. Internal and external coverage for UAs of Panel II.

	WoS publications	SoleCRIS publications	Internal Coverage	External Coverage
UA05	483	566	95%	85%
UA06	1613	1837	92%	88%
UA07	959	1285	80%	75%

Data for Panel II analysis (UA05-UA07)

Each publication in WoS has a document type. The most frequently occurring document types are 'article', 'book review', 'correction', 'editorial material', 'letter', 'meeting abstract', 'news item', and 'review'. In the calculation of bibliometric indicators, CWTS only takes into account 'articles' and 'reviews'. In general, these two document types cover the most significant publications.

Table 4. Final data for the bibliometric analyses for UAs of Panel II.

	Articles	Reviews	Total
UA05	453	30	483
UA06	1552	61	1613
UA07	930	29	959

UA05 Biomedical Technology

Figure 1. Research profile for UA05 according to the WoS subject categories, comprising 75.9% of the total publication output by UA05 (only the WoS subject categories with more than 1% of the publication output are included in the Figure).

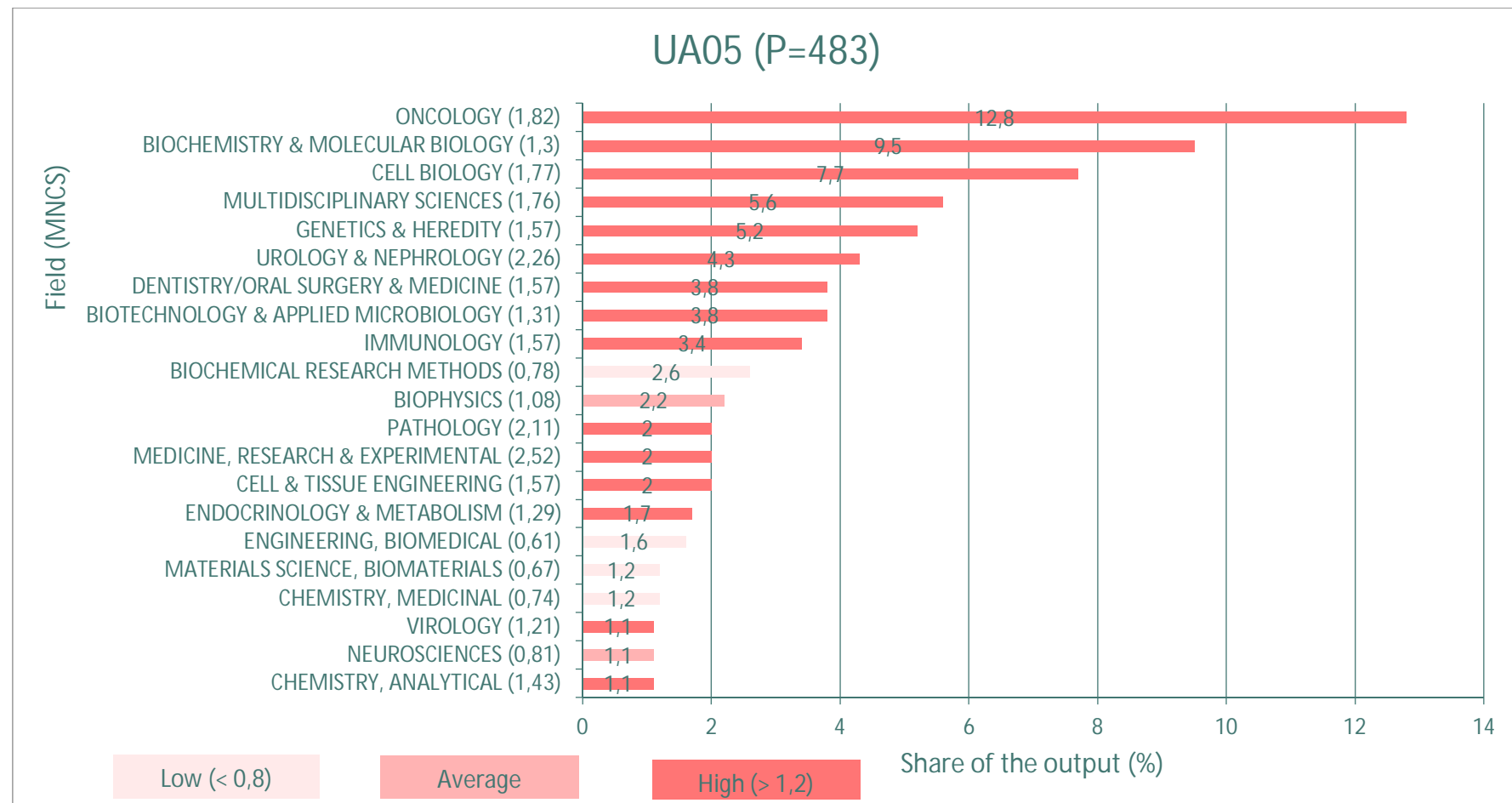


Table 1. Performance indicators for UA05.

	P	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA05	483	7094	14.7	1.5	1.5	92	19.1%	8.5%

Figure 2. Trend of the output (P) for Panel II and its UAs.

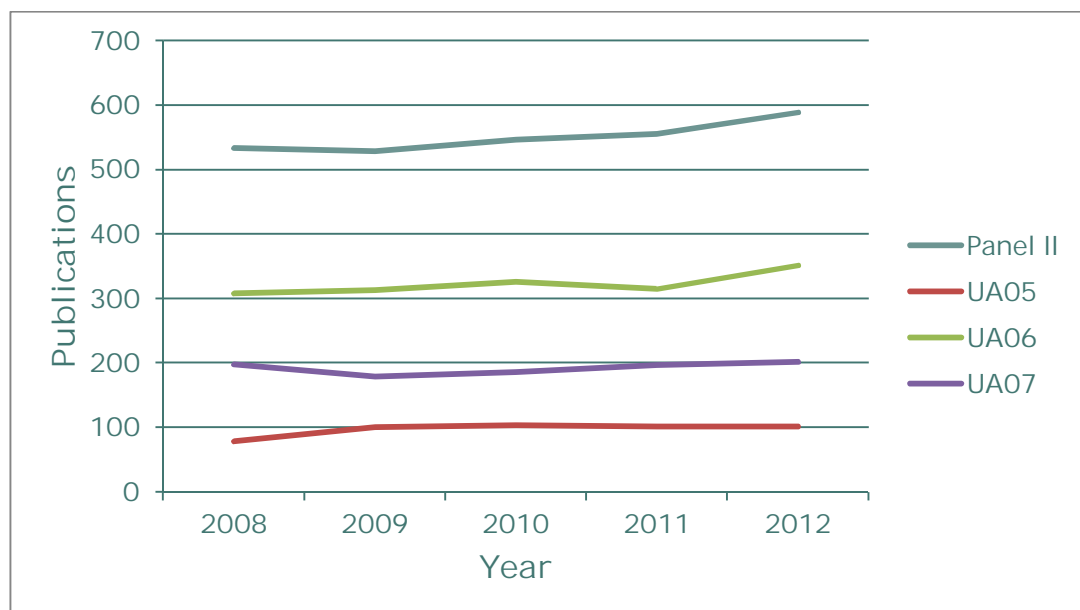


Figure 3. Trend of the impact (MNCS) for Panel II and its UAs.

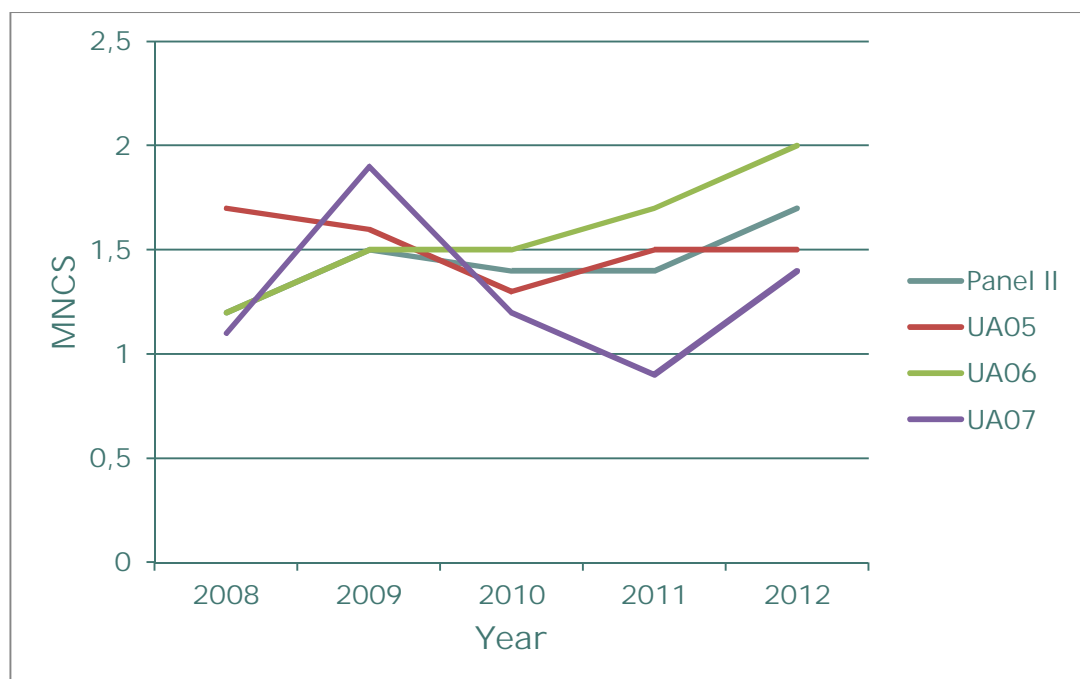
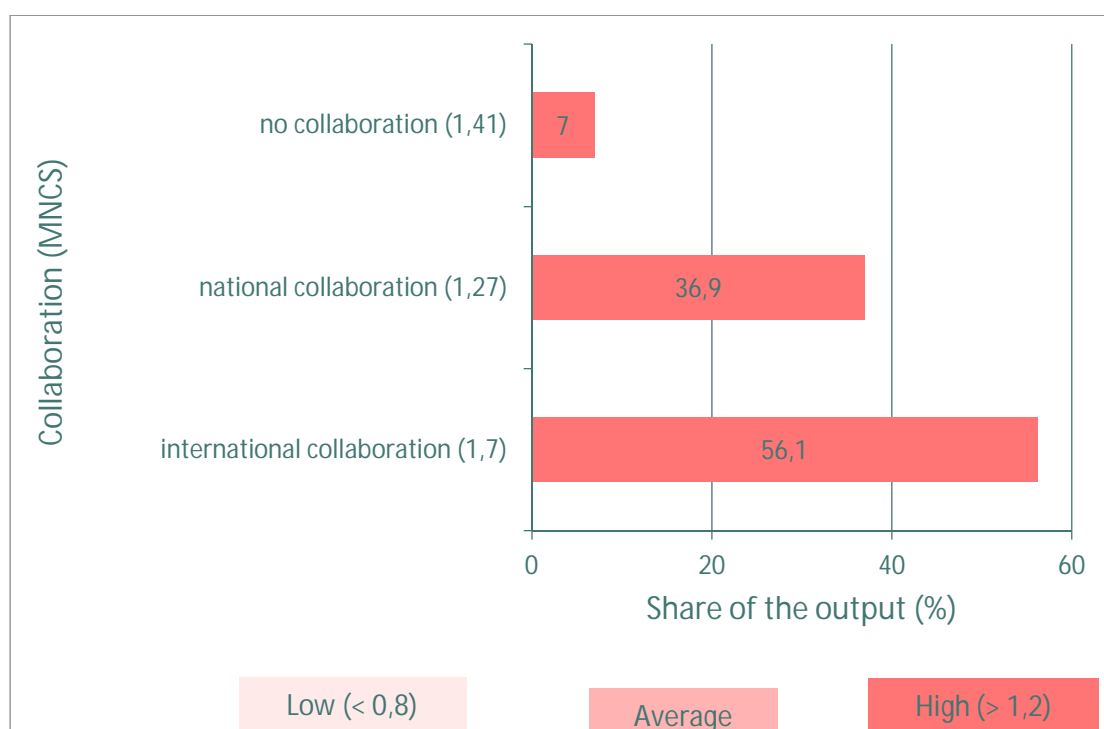


Table 2. Performance indicators for UA05 in terms of collaboration.

	P	%	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA05	483	100	7094	14.7	1.5	1.5	92	19.1%	8.5%
International Collaboration	271	56.1%	4238	15.6	1.7	1.7	57	20.9%	5.5%
National Collaboration	178	36.9%	2232	12.5	1.3	1.1	28	15.8%	12.9%
No Collaboration	34	7%	624	18.3	1.4	1.5	7	22.1%	8.8%

Figure 4. Collaboration output and impact (MNCS) per collaboration type for UA05.



UA06 Medicine

Figure 1. Research profile for UA06 according to the WoS subject categories, comprising 61.3% of the total publication output by UA06 (only the WoS subject categories with more than 2% of the publication output are included in the Figure).

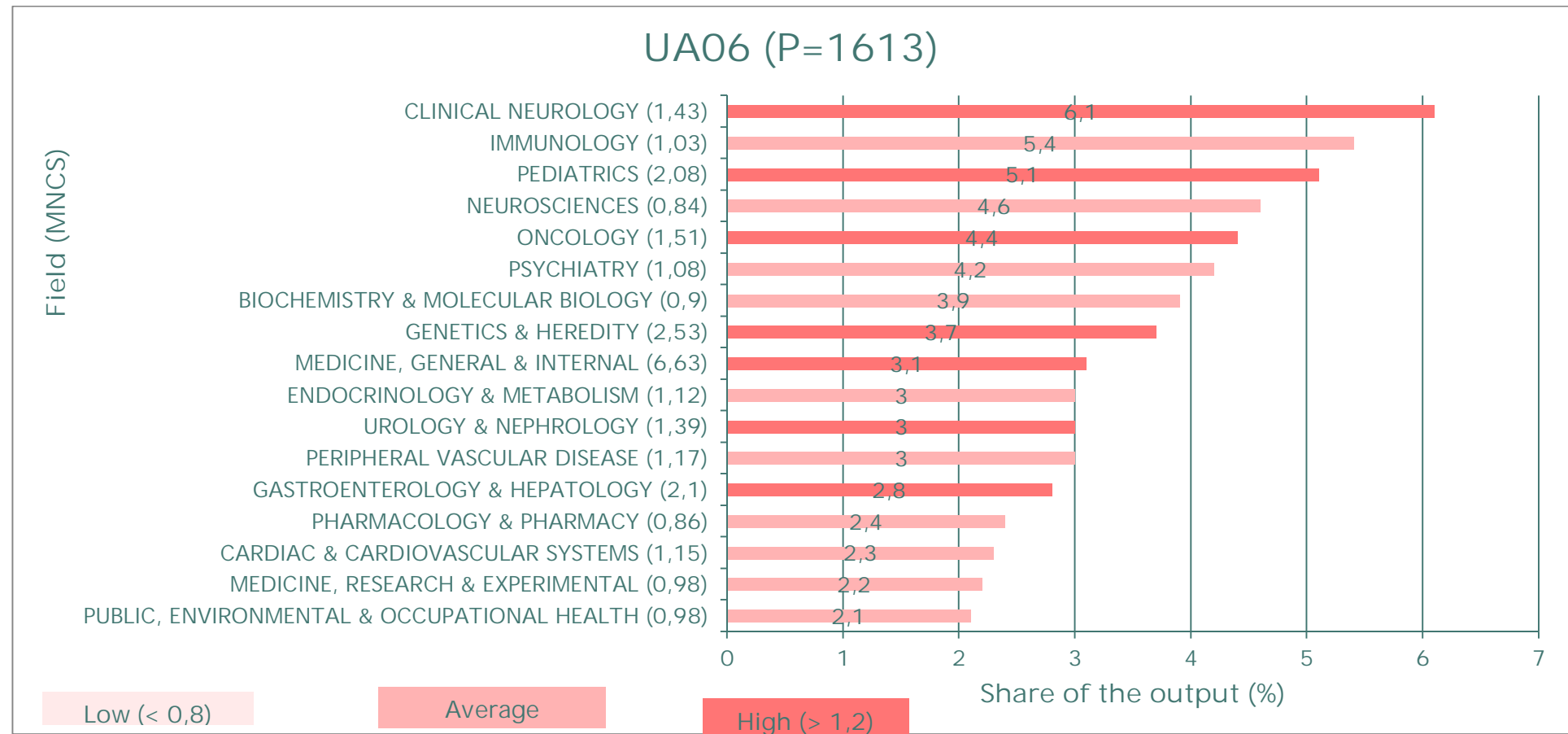


Table 1. Performance indicators for UA06.

	P	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA06	1613	21248	13.2	1.6	1.4	233	14.4%	9.7%

Figure 2. Trend of the output (P) for Panel II and its UAs.

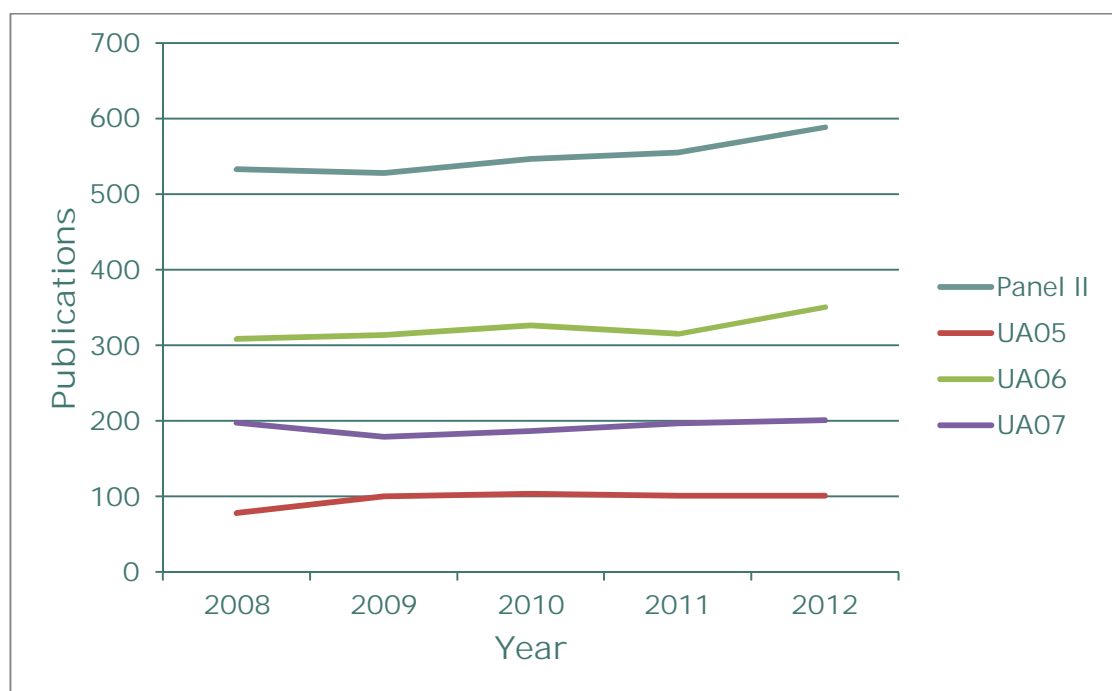


Figure 3. Trend of the impact (MNCS) for Panel II and its UAs.

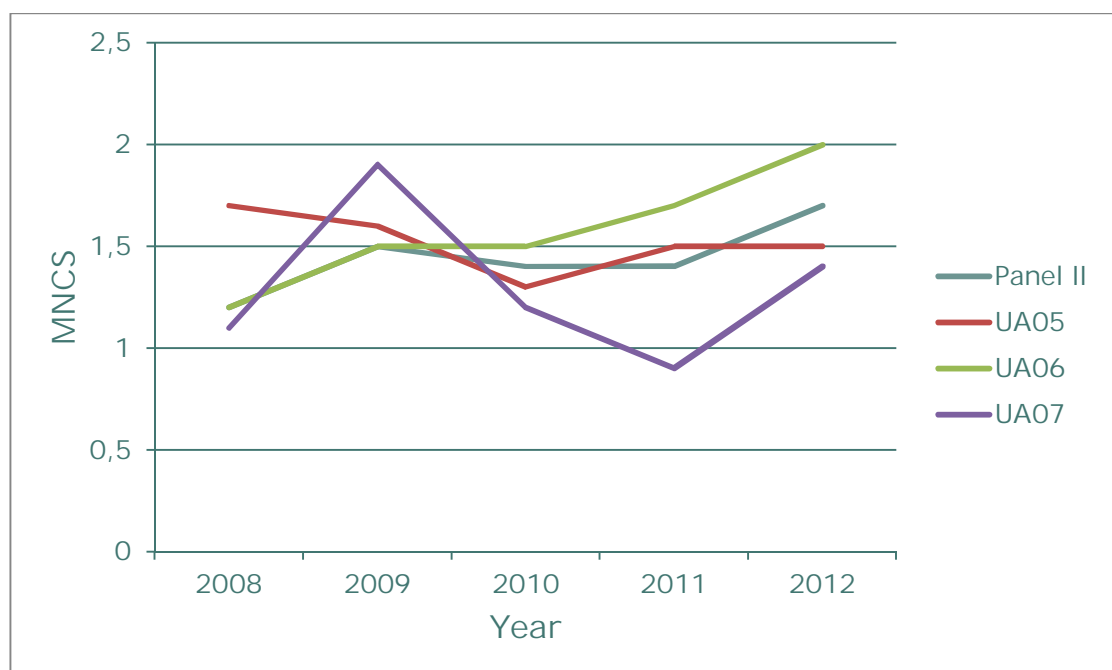
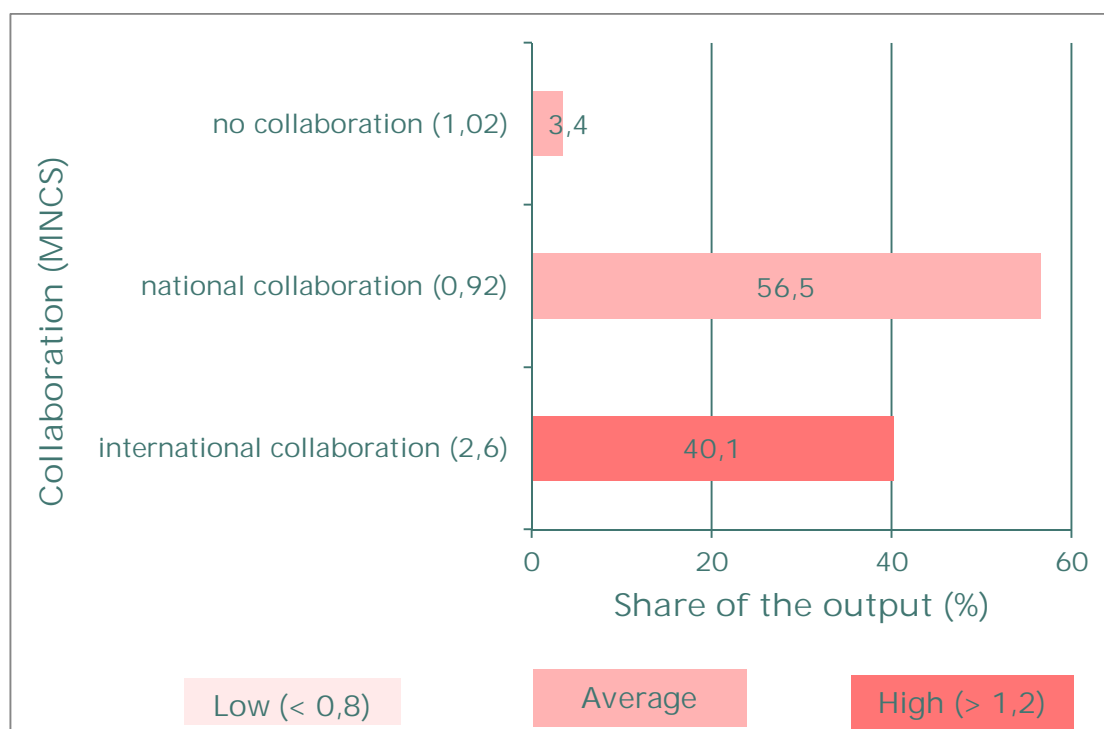


Table 2. Performance indicators for UA06 in terms of collaboration.

	P	%	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA06	1613	100	21248	13.2	1.6	1.4	233	14.4%	9.7%
International Collaboration	647	40.1%	14188	21.9	2.6	1.9	148	22.9%	7.3%
National Collaboration	911	56.5%	6540	7.2	0.9	1	81	8.9%	11.5%
No Collaboration	55	3.4%	520	9.5	1	1	4	6.8%	7.3%

Figure 4. Collaboration output and impact (MNCS) per collaboration type for UA06.



UA07 Health Sciences

Figure 1. Research profile for UA07 according to the WoS subject categories, comprising 59.9% of the total publication output by UA07 (only the WoS subject categories with more than 2% of the publication output are included in the Figure).

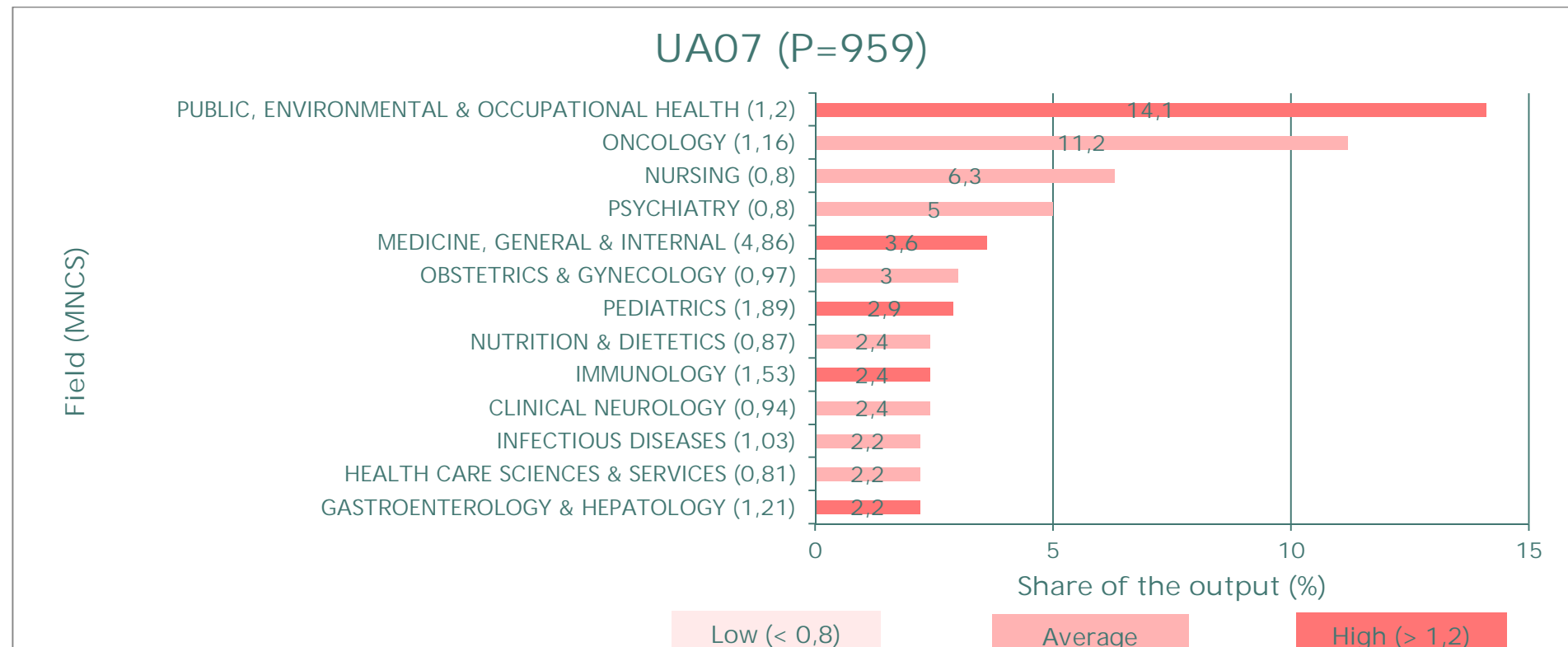


Table 1. Performance indicators for UA07.

	P	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA07	959	10031	10.5	1.3	1.2	114	11.9%	16.2%

Figure 2. Trend of the output (P) for Panel II and its UAs.

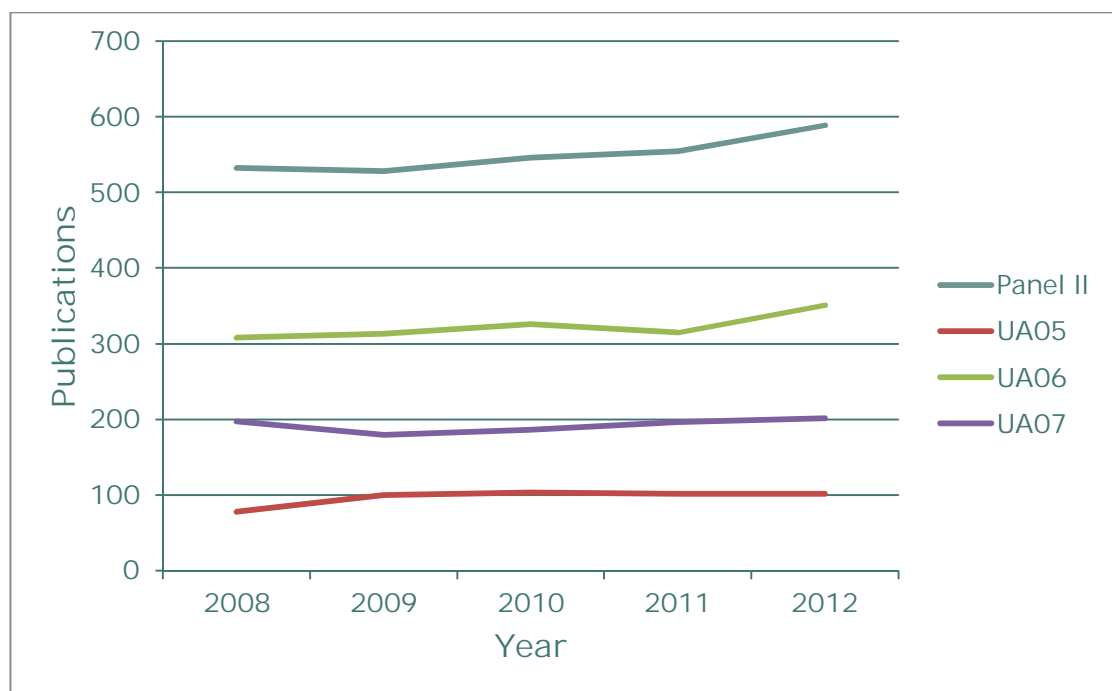


Figure 3. Trend of the impact (MNCS) for Panel II and its UAs.

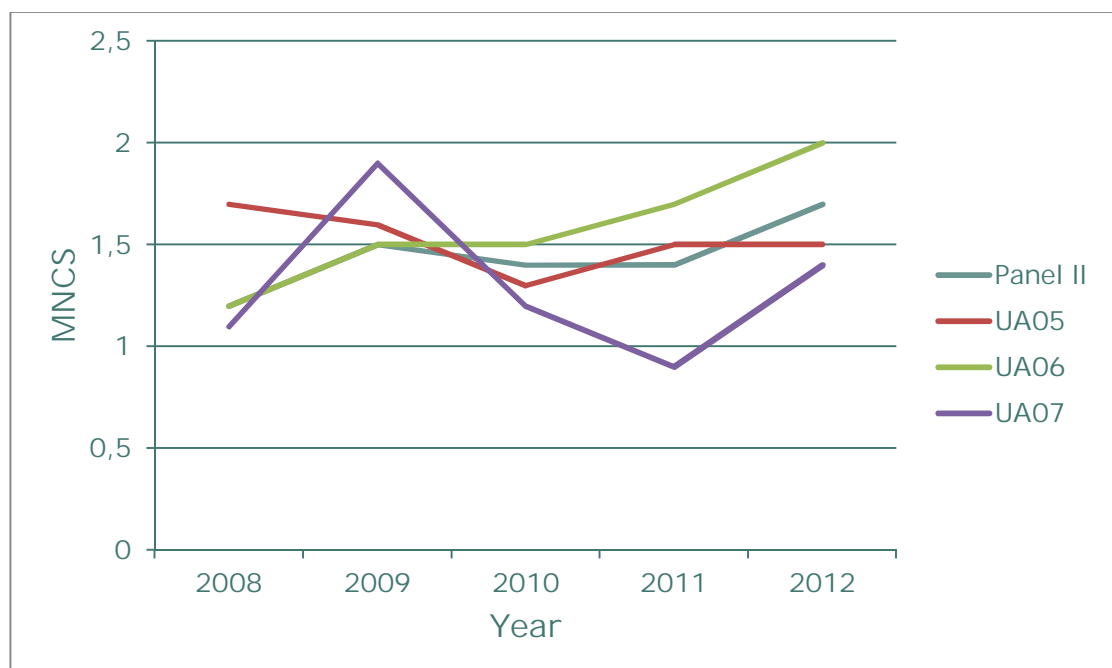
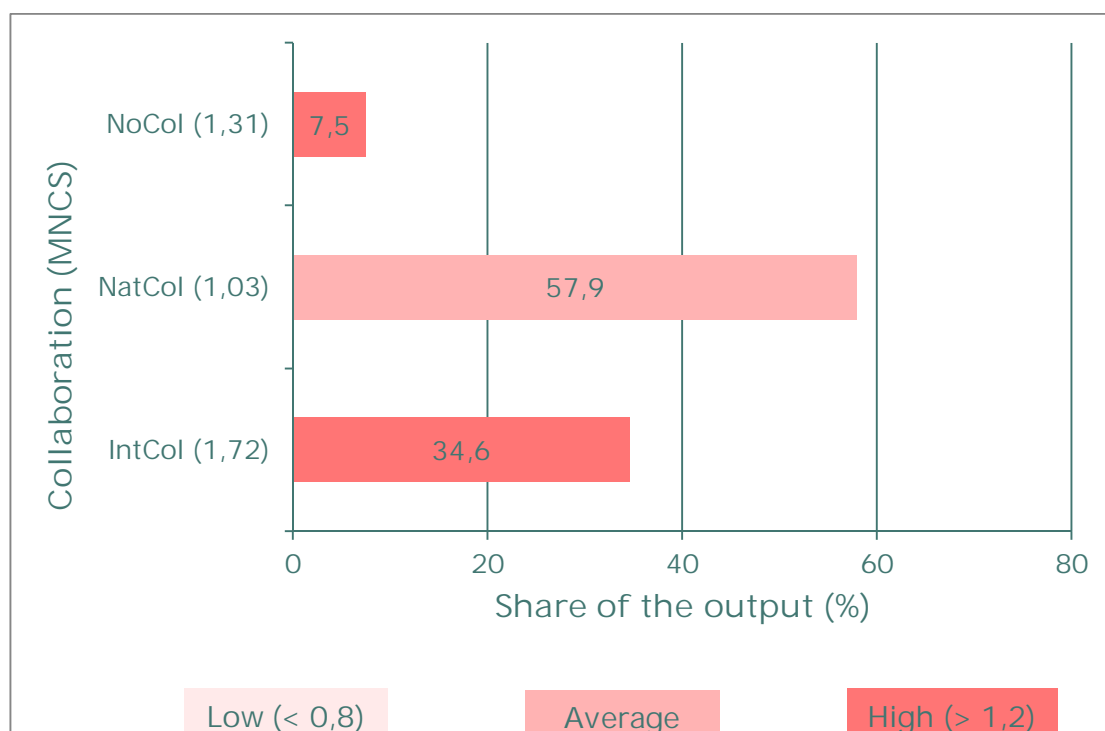


Table 2. Performance indicators for UA07 in terms of collaboration.

	P	%	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA07	959	100	10031	10.5	1.3	1.2	114	11.9%	16.2%
International Collaboration	332	34.6%	5056	7.8	1.7	1.4	45	13.7%	15.1%
National Collaboration	555	57.9%	4332	8.9	1	1	60	10.8%	16.8%
No Collaboration	72	7.5%	643	1.4	1.3	1.1	9	12.4%	16.7%

Figure 4. Collaboration output and impact (MNCS) per collaboration type for UA07.



UTA RAE 2014, Panel III

Bibliometric analysis by the Centre for Science and Technology Studies (CWTS) of Leiden University

Data and methodology

Data

The University of Tampere (UTA) requested the Centre for Science and Technology Studies (CWTS) of Leiden University to perform a bibliometric analysis for the UTA Research Assessment. The goal was to gain concrete and detailed insight into the bibliometric performance of the Units of Assessment (UAs) based on the publication output of UAs in 2008-2012 and the citation impact of these publications in 2008-2013, compared with worldwide reference values.

The initial data was provided by UTA and was matched with the CWTS Web of Science (WoS) database, which is produced by Thomson Reuters. The analysis was conducted using the CWTS Citation Index (CI) system. This system is based on an enhanced version of the Thomson Reuters citation indexes: Web of Science version of the Science Citation Index (indexed); Social Science Citation Index; and Arts & Humanities Citation Index.

The initial publication data set was extracted from the UTA publication database (SoleCRIS). It included bibliographic information on publications authored by UTA researchers (employed or affiliated on a Census Date 1 October 2013) in 2008-2012 at UTA regardless of where the researchers had been working at the time of the publication. The data set included only publications that were found in the WoS database and thus had WoS Accession numbers (WoS id).

Methodology

Some of the citation indicators used by CWTS are normalized, meaning that they take into account the age of publications and the differences in citation practices according to the scientific field. Usually, more recent publications have received fewer citations than publications that have appeared a number of years earlier. Moreover, for the same publication year, publications in, for instance, mathematics have usually received a much smaller number of citations than publications in, for instance, biology. This is due to the different citation cultures in different fields.

Normalized citation indicators are constructed by calculating the ratio of the actual and the expected number of citations. The expected number of citations is defined as the average number of citations of all publications (i.e., research articles and review articles) that belong to the same field and that appeared in the same publication year. The field (or the fields) is determined by the subject categories (about 250 in all) of the journals in the Web of Science. Each journal is assigned to one or several subject categories in WoS.

Three of the indicators used by CWTS indicate the normalized citation impact of publications of the Unit of Assessment: 1) Mean Normalized Citation Score (MNCS), 2) Number of Top 10% Publications (Ptop10%) and 3) Proportion of Top 10% Publications (PPtop10%). Mean Normalized Journal Score (MNJS) indicates the normalized citation impact of the journals the Unit of Assessment has published in. (see Table 1 for more details).

Table 1. Bibliometric indicators used in the analysis.

P	Number of Publications	Total number of scientific publications by the Unit of Assessment (UA) in 2008-2012 registered in the UTA Publication database (SoleCRIS), covered by the Web of Science (WoS) and belonging to the WoS publication types article or review.
TCS	Total Citation Score	Total number of citations up to 2013 received by P, excluding self-citations.
MCS	Mean Citation Score	Average number of citations per publication, excluding self-citations (TCS/P).
MNCS	Mean Normalized Citation Score	Average normalized number of citations per publication. MNCS is calculated by comparing the citation scores of the UA's publications to the international level of the WoS field, publication type (article, review) and publication year. The world average is 1. For example, the MNCS value of 1.2 indicates that the publications by the UA have on average received 20% more citations than publications of the same age, field and type in the world.
MNJS	Mean Normalized Journal Score	Average normalized journal citation impact. The citation scores of the journals in which the UA has published are compared with the international level in the WoS field. The world average is 1. For example, the MNJS value of 1.2 indicates that the UA has on average published in journals which have received 20% more citations than journals of the same field in the world.
Ptop10%	Number of publications that belong to the top 10% of their field.	Number of scientific publications by the UA that belong to the most frequently cited 10% of their field.
PPtop10%	Proportion of publications that belong to the top 10% of their field.	Proportion of scientific publications by the UA that belong to the most frequently cited 10% of their field. For example, the PPtop10% value of 15% indicates that 15% of scientific publications by the UA are among the most frequently cited 10% in their field.
PPnC	Proportion of uncited publications	Proportion of publications by the UA that have not been cited in WoS in relation to the total number of publications (P) in 2008-2013, excluding self-citations.

In computing the impact indicators, CWTS uses the full counting method. This means that publications by the Unit of Assessment are always fully assigned to it and co-authored publications are not divided, e.g., based on the number of authors or units involved. Self-citations are excluded in the calculation of all impact indicators. A self-citation means that the citing publication and the cited paper have at least one author name (i.e. last name and initials) in common.

To assess the impact of the publications of a group of researchers, the recommendation of CWTS is to rely on a combination of the MNCS indicator and the PPtop10% indicator. The MCS indicator does not correct for differences in scientific fields and should therefore be used only for comparisons of groups that are active in the same field.

In addition to indicators described in Table 1, CWTS calculates indicators of scientific collaboration. They are based on an analysis of affiliations listed in the publications produced by the UA. CWTS first identified publications authored by a single institution ('no collaboration'). Subsequently publications produced by institutions from different countries ('international collaboration') and publications produced by multiple institutions from the same country ('national collaboration') were identified. These types of collaboration are mutually exclusive. Publications involving both national and international collaboration were classified as international collaboration.

Choosing the UAs for Panel III analysis

Panel III has three Units of Assessment (Table 2). When deciding which UAs are represented in this report, the values of both the internal and external coverage of the Units of Assessment were used.

The internal WoS coverage of the Unit of Assessment is defined as the proportion of the references in its total publication output (indexed in WoS) that refer to publications covered by WoS. The internal coverage is important for understanding how well the CI/WoS output reflects the scholarly practice in UA08, UA09 and UA10: to what extent researchers in these UAs cite publications covered by CI/WoS and to what extent other, non-CI/WoS publications. To analyse the internal coverage of the publications of UA08-UA10, references in the publications (2008-2012) were matched to the extended CI publication database (1980-2012). The external WoS coverage of the Unit of Assessment is defined as a proportion of scientific publications by the UA that are covered by CI/WoS. The UTA RAE Office analysed the external coverage by comparing the number of refereed scientific publications indexed in the UTA SoleCRIS database (2008-2012) to the number of publications indexed in CI/WoS (2008-2012, publication types 'article' and 'review').

The analysis shows that in the case of all the UAs of Panel III, both the internal and external coverage are above the threshold values (30% and 10%, respectively) (Table 3). Thus the results of the analysis are presented for all the UAs of Panel III.

Table 2. Units of Assessment (UAs) and number of researchers with WoS publications.

Unit of Assessment	Acronym	Number of researchers
Computer-Human Interaction	UA08	26
Information and Media	UA09	18
Information and Systems	UA10	28

Table 3. Internal and external coverage for UAs of Panel III.

	WoS publications	SoleCRIS publications	Internal Coverage	External Coverage
UA08	27	225	32%	12%
UA09	54	282	45%	19%
UA10	88	328	53%	27%

Data for Panel III analysis (UA08-UA10)

Each publication in WoS has a document type. The most frequently occurring document types are 'article', 'book review', 'correction', 'editorial material', 'letter', 'meeting abstract', 'news item', and 'review'. In the calculation of bibliometric indicators, CWTS only takes into account 'articles' and 'reviews'. In general, these two document types cover the most significant publications.

Table 4. Final data for the bibliometric analyses for UAs of Panel III.

	Articles	Reviews	Total
UA08	26	1	27
UA09	53	1	54
UA10	86	2	88

UA08 Computer-Human Interaction

Figure 1. Research profile for UA08 according to the WoS subject categories, comprising 100% of the total publication output by UA08 (only the WoS subject categories with more than 1% of the publication output are included in the Figure).

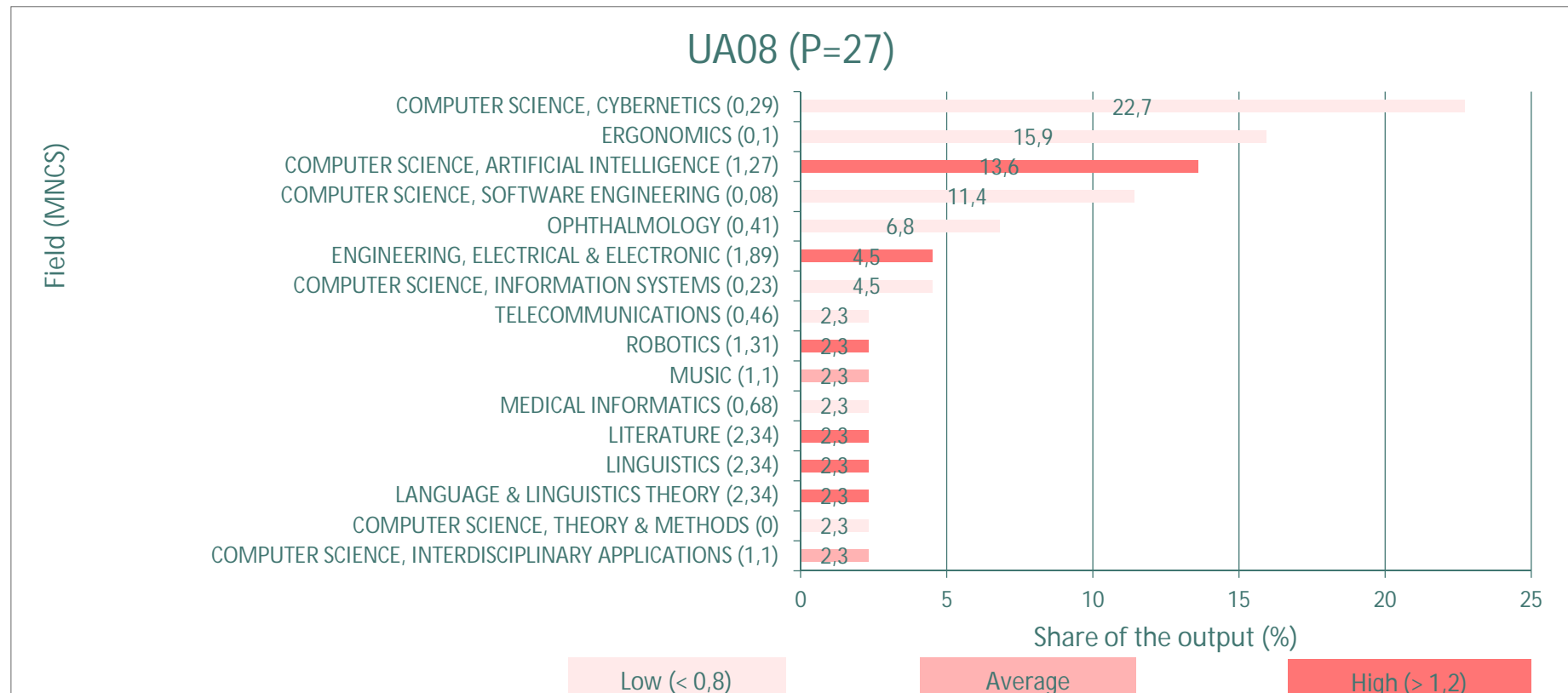


Table 1. Performance indicators for UA08.

	P	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA08	27	70	2.6	0.7	0.9	1	4.5%	44.5%

Figure 2. Trend of the output (P) for Panel III and its UAs.

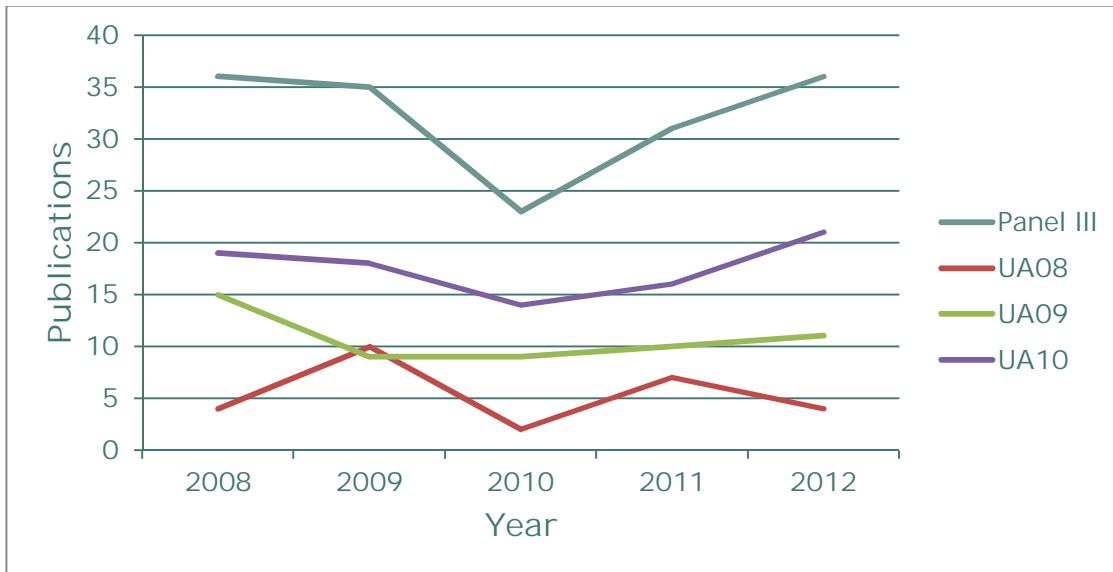
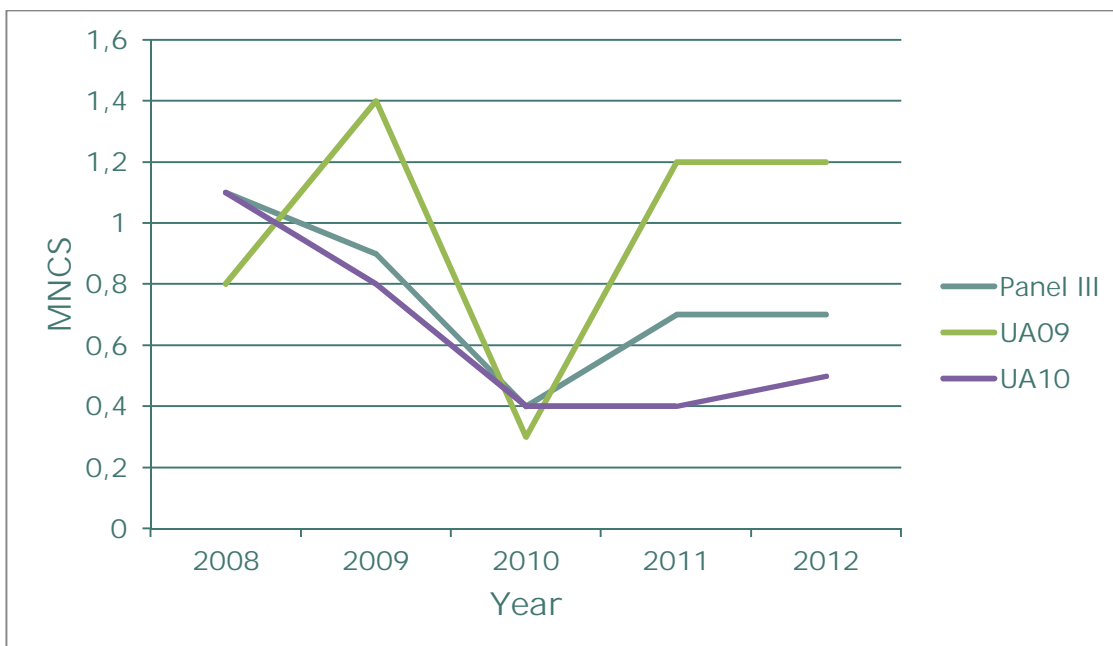


Figure 3. Trend of the impact (MNCS) for Panel III, UA09 and UA10.

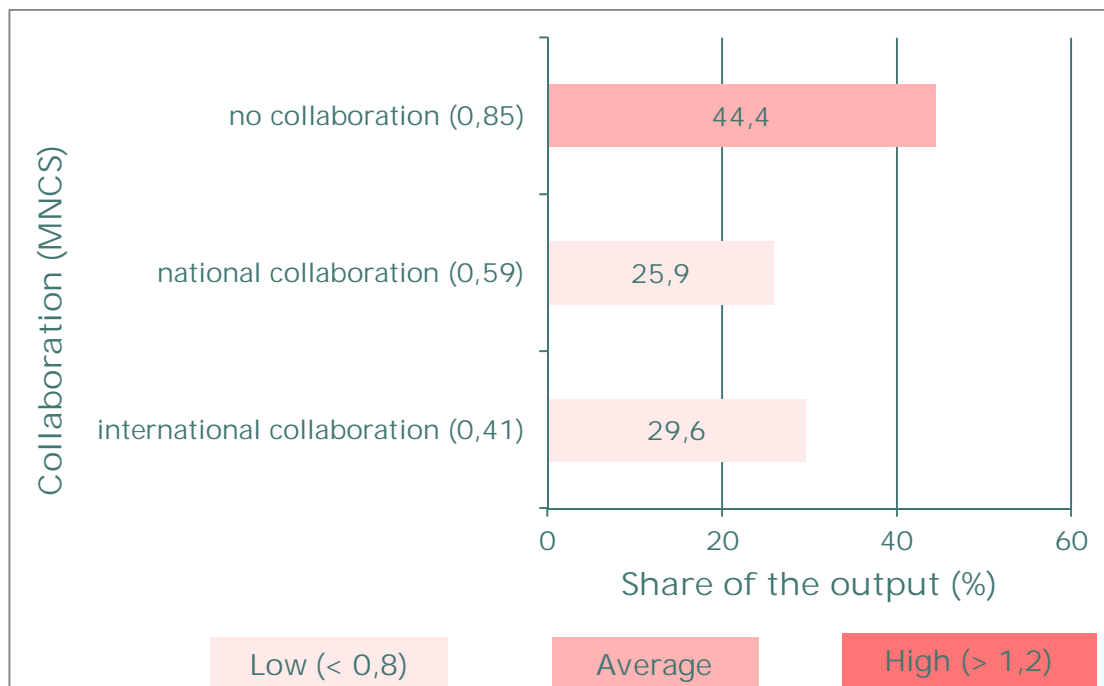


NB. UA08 not included in the Figure 3 due to the low number of publications.

Table 2. Performance indicators for UA08 in terms of collaboration.

	P	%	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA08	27	100	70	2.6	0.7	0.9	1	4.5%	44.5%
International Collaboration	8	29.6%	11	1.4	0.4	1	0	0%	37.5%
National Collaboration	7	25.9%	4	0.6	0.6	0.7	0	0%	57.2%
No Collaboration	12	44.4%	55	4.6	0.9	1	1	8.3%	41.7%

Figure 4. Collaboration output and impact (MNCS) per collaboration type for UA08.



UA09 Information and Media

Figure 1. Research profile for UA09 according to the WoS subject categories, comprising 100% of the total publication output by UA09 (only the WoS subject categories with more than 1% of the publication output are included in the Figure).

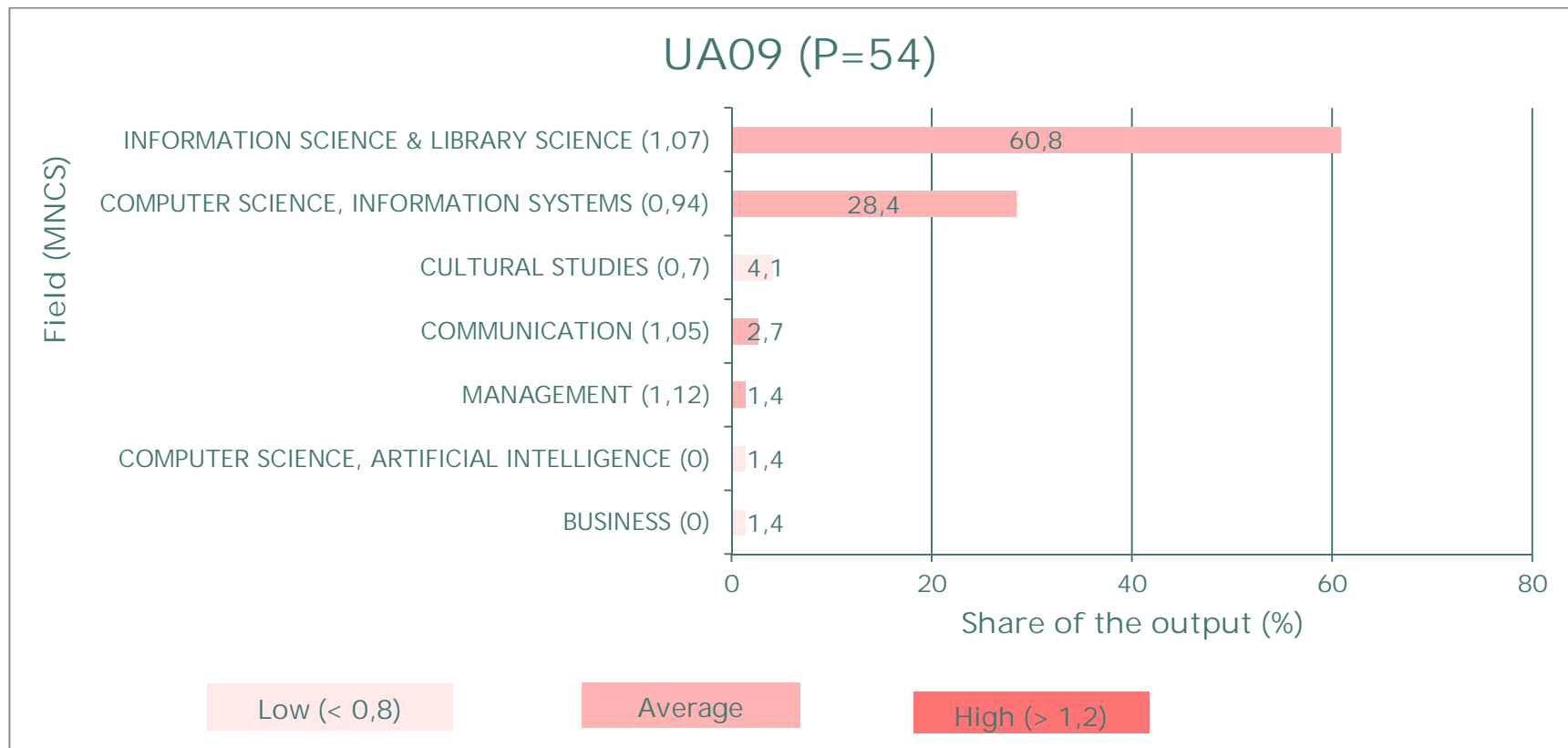


Table 1. Performance indicators for UA09.

	P	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA09	54	142	2.6	1	1.1	5	9.7%	25.9%

Figure 2. Trend of the output (P) for Panel III and its UAs.

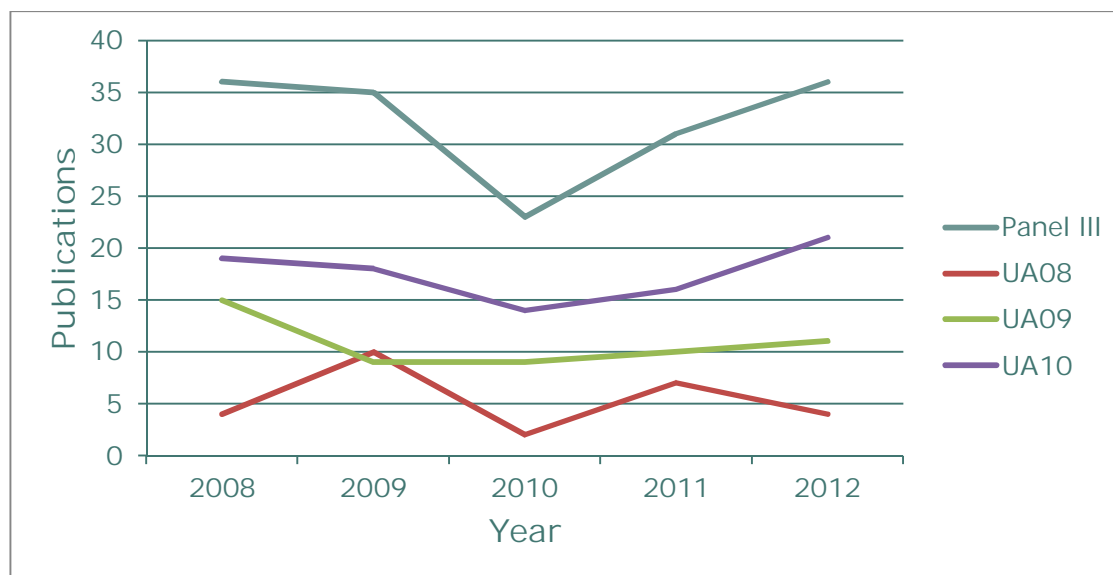
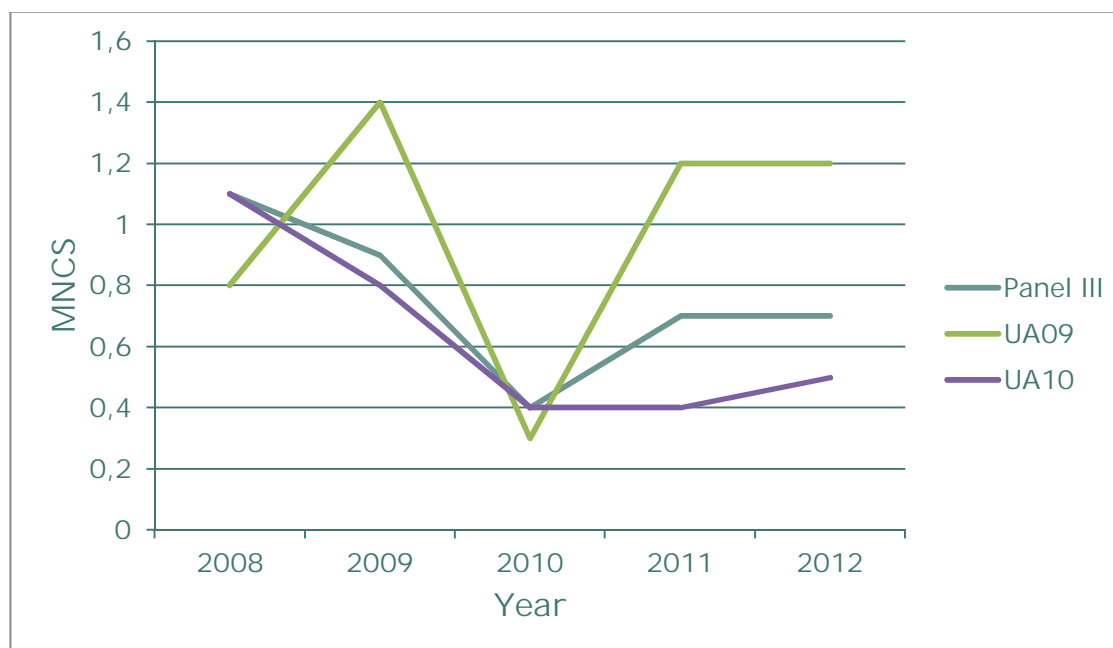


Figure 3. Trend of the impact (MNCS) for Panel III, UA09 and UA10.

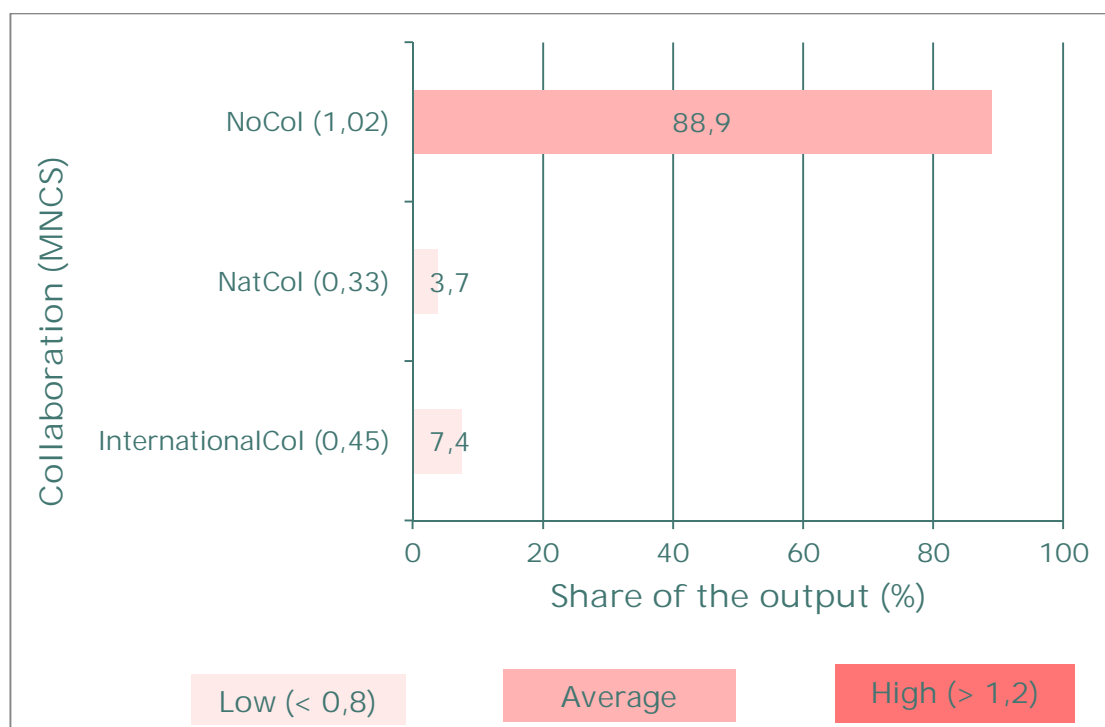


NB. UA08 not included in the Figure 3 due to the low number of publications.

Table 2. Performance indicators for UA09 in terms of collaboration.

	P	%	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA09	54	100	142	2.6	0.95	1.1	5	9.7%	25.9%
International Collaboration	4	7.4%	3	0.8	0.5	1	0	0%	25%
National Collaboration	2	3.7%	3	1.5	0.3	1.1	0	0%	23.6%
No Collaboration	48	88.9%	136	2.8	1	1.1	5	10.9%	72%

Figure 4. Collaboration output and impact (MNCS) per collaboration type for UA09.



UA10 Information and Systems

Figure 1. Research profile for UA10 according to the WoS subject categories, comprising 89.6% of the total publication output by UA10 (only the WoS subject categories with more than 1% of the publication output are included in the Figure).

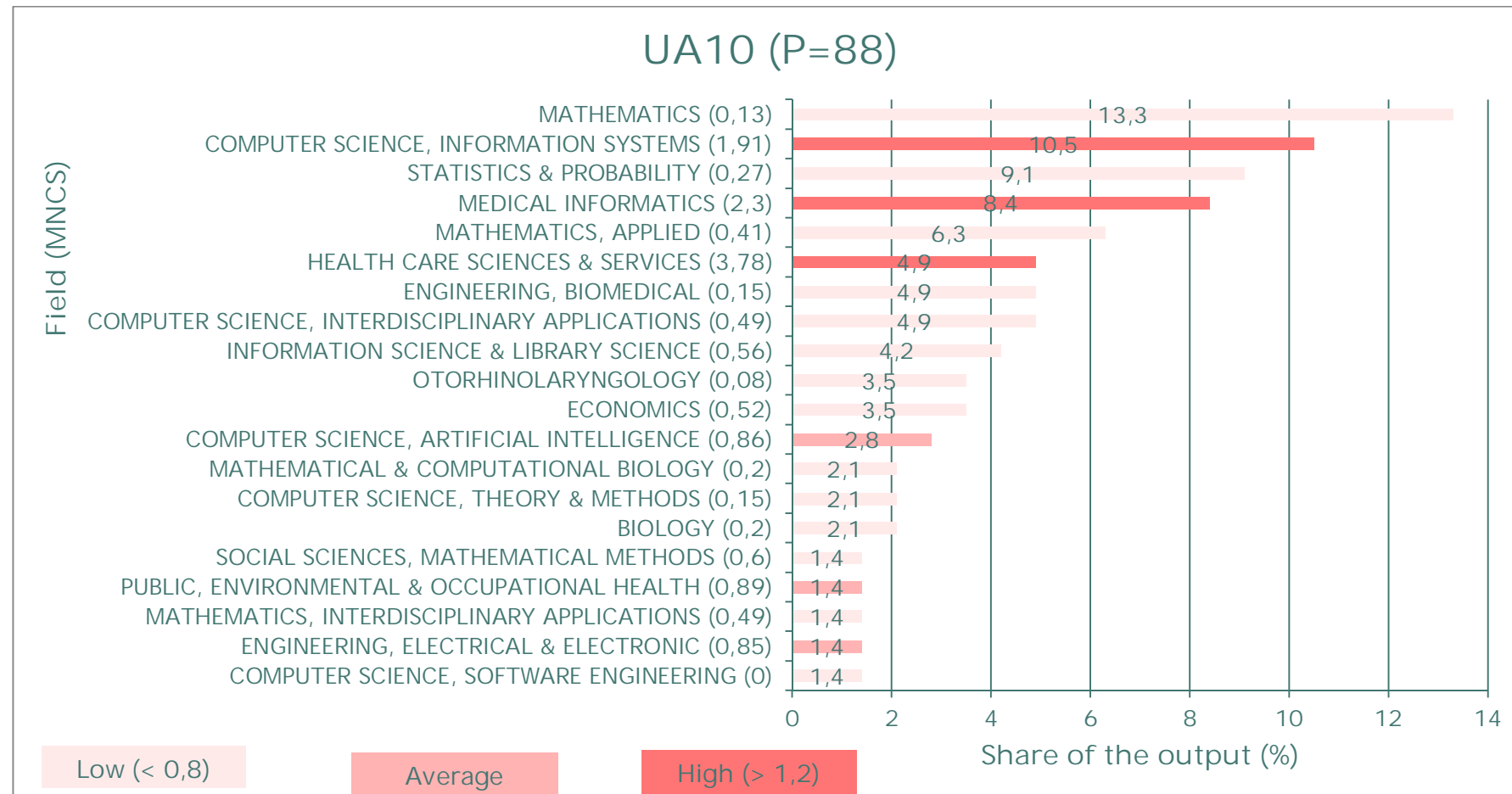


Table 1. Performance indicators for UA10.

	P	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA10	88	269	3.1	0.7	0.8	4	4.5%	55.7%

Figure 2. Trend of the output (P) for Panel III and its UAs.

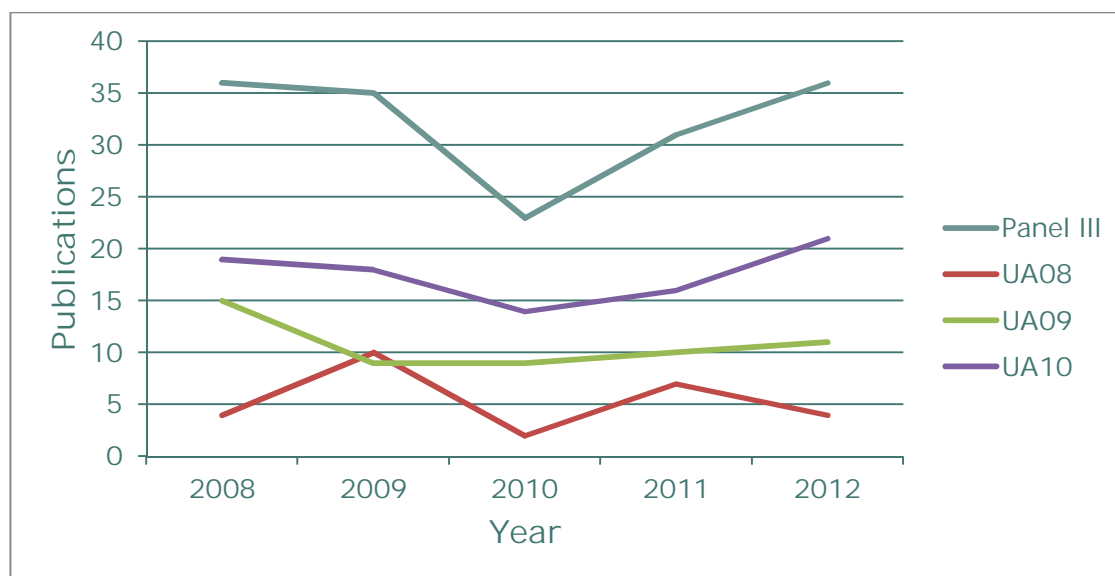
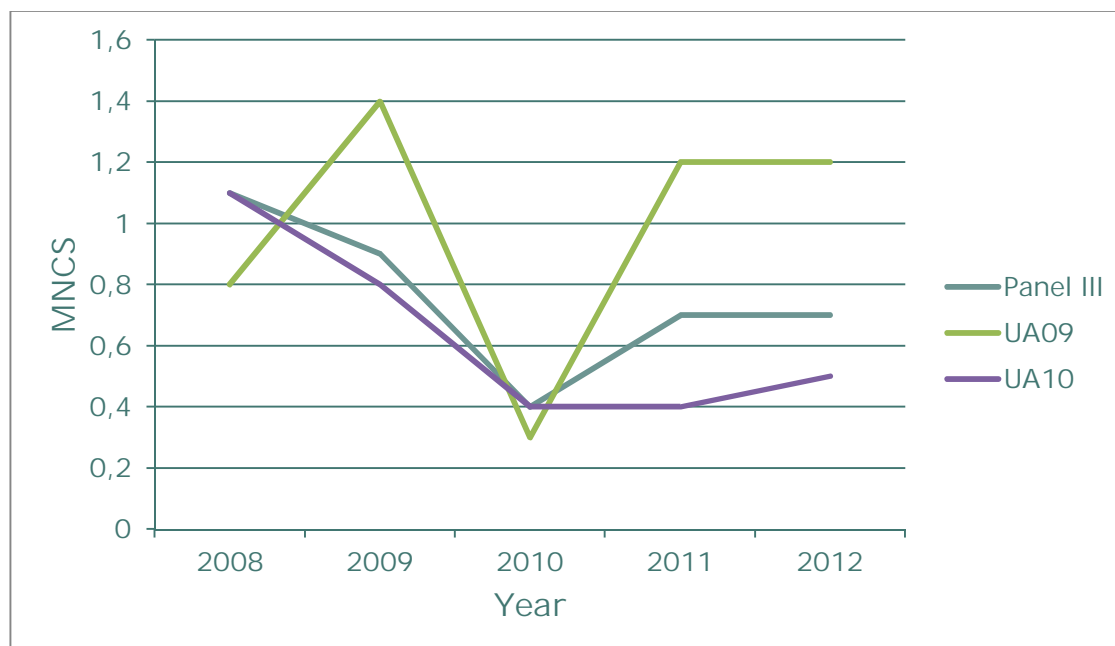


Figure 3. Trend of the impact (MNCS) for Panel III, UA09 and UA10.

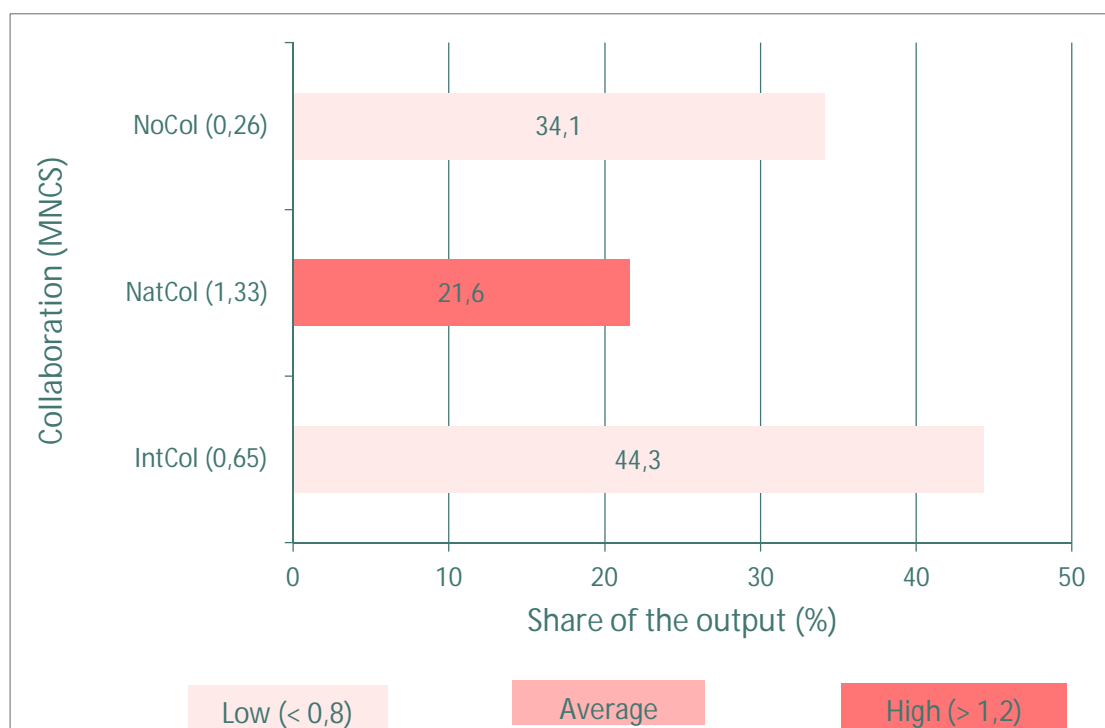


NB. UA08 not included in the Figure 3 due to the low number of publications.

Table 2. Performance indicators for UA10 in terms of collaboration.

	P	%	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA10	88	100	269	3.1	0.7	0.8	4	4.5%	55.7%
International Collaboration	39	44.3%	90	2.3	0.7	0.9	2	4.5%	51.3%
National Collaboration	19	21.6%	156	8.2	1.3	1	2	10.5%	52.6%
No Collaboration	30	34.1%	23	0.8	0.3	0.9	0	0%	63.3%

Figure 4. Collaboration output and impact (MNCS) per collaboration type for UA10.



UTA RAE 2014, Panel IV

Bibliometric analysis by the Centre for Science and Technology Studies (CWTS) of Leiden University

Data and methodology

Data

The University of Tampere (UTA) requested the Centre for Science and Technology Studies (CWTS) of Leiden University to perform a bibliometric analysis for the UTA Research Assessment. The goal was to gain concrete and detailed insight into the bibliometric performance of the Units of Assessment (UAs) based on the publication output of UAs in 2008-2012 and the citation impact of these publications in 2008-2013, compared with worldwide reference values.

The initial data was provided by UTA and was matched with the CWTS Web of Science (WoS) database, which is produced by Thomson Reuters. The analysis was conducted using the CWTS Citation Index (CI) system. This system is based on an enhanced version of the Thomson Reuters citation indexes: Web of Science version of the Science Citation Index (indexed); Social Science Citation Index; and Arts & Humanities Citation Index.

The initial publication data set was extracted from the UTA publication database (SoleCRIS). It included bibliographic information on publications authored by UTA researchers (employed or affiliated on a Census Date 1 October 2013) in 2008-2012 at UTA regardless of where the researchers had been working at the time of the publication. The data set included only publications that were found in the WoS database and thus had WoS Accession numbers (WoS id).

Methodology

Some of the citation indicators used by CWTS are normalized, meaning that they take into account the age of publications and the differences in citation practices according to scientific field. Usually, more recent publications have received fewer citations than publications that have appeared a number of years earlier. Moreover, for the same publication year, publications in, for instance, mathematics have usually received a much smaller number of citations than publications in, for instance, biology. This is due to the different citation cultures in different fields.

Normalized citation indicators are constructed by calculating the ratio of the actual and the expected number of citations. The expected number of citations is defined as the average number of citations of all publications (i.e., research articles and review articles) that belong to the same field and that appeared in the same publication year. The field (or the fields) is determined by the subject categories (about 250 in all) of the journals in the Web of Science. Each journal is assigned to one or several subject categories in WoS.

Three of the indicators used by CWTS, three indicate the normalized citation impact of publications of the Unit of Assessment: 1) Mean Normalized Citation Score (MNCS), 2) Number of Top 10% Publications (Ptop10%) and 3) Proportion of Top 10% Publications (PPtop10%). Mean Normalized Journal Score (MNJS) indicates the normalized citation impact of the journals the Unit of Assessment has published in. (see Table 1 for more details).

Table 1. Bibliometric indicators used in the analysis.

P	Number of Publications	Total number of scientific publications by the Unit of Assessment (UA) in 2008-2012 registered in the UTA Publication database (SoleCRIS), covered by the Web of Science (WoS) and belonging to the WoS publication types article or review.
TCS	Total Citation Score	Total number of citations up to 2013 received by P, excluding self-citations.
MCS	Mean Citation Score	Average number of citations per publication, excluding self-citations (TCS/P).
MNCS	Mean Normalized Citation Score	Average normalized number of citations per publication. MNCS is calculated by comparing the citation scores of the UA's publications to the international level of the WoS field, publication type (article, review) and publication year. The world average is 1. For example, the MNCS value of 1.2 indicates that the publications by the UA have on average received 20% more citations than publications of the same age, field and type in the world.
MNJS	Mean Normalized Journal Score	Average normalized journal citation impact. The citation scores of the journals in which the UA has published are compared to the international level in the WoS field. The world average is 1. For example, the MNJS value of 1.2 indicates that the UA has on average published in journals which have received 20% more citations than journals of the same field in the world.
Ptop10%	Number of publications that belong to the top 10% of their field.	Number of scientific publications by the UA that belong to the most frequently cited 10% of their field.
PPtop10%	Proportion of publications that belong to the top 10% of their field.	Proportion of scientific publications by the UA that belong to the most frequently cited 10% of their field. For example, the PPtop10% value of 15% indicates that 15% of scientific publications by the UA are among the most frequently cited 10% in their field.
PPnC	Proportion of uncited publications	Proportion of publications by the UA that have not been cited in WoS in relation to the total number of publications (P) in 2008-2013, excluding self-citations.

In computing the impact indicators, CWTS uses the full counting method. This means that publications by the Unit of Assessment are always fully assigned to it and co-authored publications are not divided, e.g., based on the number of authors or units involved. Self-citations are excluded in the calculation of all impact indicators. A self-citation means that the citing publication and the cited paper have at least one author name (i.e. last name and initials) in common.

To assess the impact of the publications of a group of researchers, the recommendation of CWTS is to rely on a combination of the MNCS indicator and the PPtop10% indicator. The MCS indicator does not correct for differences in scientific fields and should therefore be used only for comparisons of groups that are active in the same field.

In addition to indicators described in Table 1, CWTS calculates indicators of scientific collaboration. They are based on an analysis of affiliations listed in the publications produced by the UA. CWTS first identified publications authored by a single institution ('no collaboration'). Subsequently publications produced by institutions from different countries ('international collaboration') and publications produced by multiple institutions from the same country ('national collaboration') were identified. These types of collaboration are mutually exclusive. Publications involving both national and international collaboration were classified as international collaboration.

Choosing the UAs for Panel IV analysis

Panel IV has four Units of Assessment (Table 2). When deciding which UAs are represented in this report, the values of both the internal and external coverage of the Units of Assessment were used.

The internal WoS coverage of the Unit of Assessment is defined as the proportion of the references in its total publication output (indexed in WoS) that refer to publications covered by WoS. The internal coverage is important for understanding how well the CI/WoS output reflects the scholarly practice in UA11, UA12, UA13 and UA14: to what extent researchers in these UAs cite publications covered by CI/WoS and to what extent other, non-CI/WoS publications. To analyse the internal coverage of the publications of UA11-UA14, references in the publications (2008-2012) were matched to the extended CI publication database (1980-2012). The external WoS coverage of the Unit of Assessment is defined as a proportion of scientific publications by the UA that are covered by CI/WoS. The UTA RAE Office analysed the external coverage by comparing the number of refereed scientific publications indexed in the UTA SoleCRIS database (2008-2012) to the number of publications indexed in CI/WoS (2008-2012, publication types 'article' and 'review').

The analysis shows that in the case of UA12, UA13 and UA14, both the internal and external coverage are above the threshold values (30% and 10%, respectively) (Table 3). Thus the results of the analysis are presented for UA12, UA13 and UA14.

Table 2. Units of Assessment (UAs) and number of researchers with WoS publications.

Unit of Assessment	Acronym	Number of researchers
History and Philosophy	UA11	17
Psychology, Logopaedics and Vocology	UA12	24
Social Sciences	UA13	43
Social Work	UA14	16

Table 3. Internal and external coverage for UAs of Panel IV.

	WoS publications	SoleCRIS publications	Internal Coverage	External Coverage
UA11	27	338	21%	8%
UA12	157	269	73%	58%
UA13	90	565	40%	16%
UA14	27	184	38%	15%

Data for Panel IV analysis (UA12-UA14)

Each publication in WoS has a document type. The most frequently occurring document types are 'article', 'book review', 'correction', 'editorial material', 'letter', 'meeting abstract', 'news item', and 'review'. In the calculation of bibliometric indicators, CWTS only takes into account 'articles' and 'reviews'. In general, these two document types cover the most significant publications.

Table 4. Final data for the bibliometric analyses for UAs of Panel IV.

	Articles	Reviews	Total
UA12	152	5	157
UA13	90	0	90
UA14	26	1	27

UA12 Psychology, Logopaedics and Vocology

Figure 1. Research profile for UA12 according to the WoS subject categories, comprising 83.3% of the total publication output by UA12 (only the WoS subject categories with more than 1% of the publication output are included in the Figure).

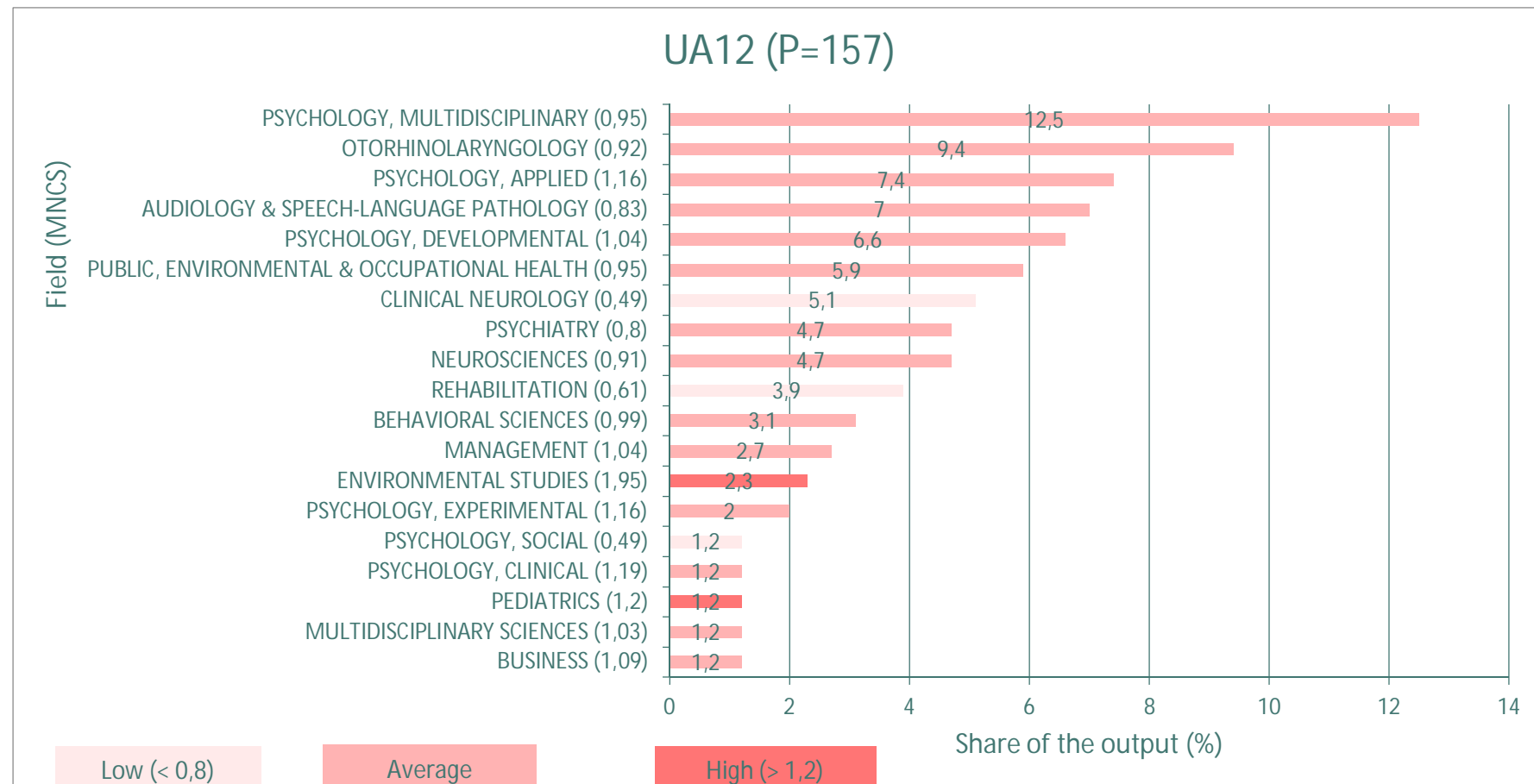


Table 1. Performance indicators for UA12.

	P	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA12	157	922	5.9	1	1	14	8.9%	17.2%

Figure 2. Trend of the output (P) for Panel IV and its UAs.

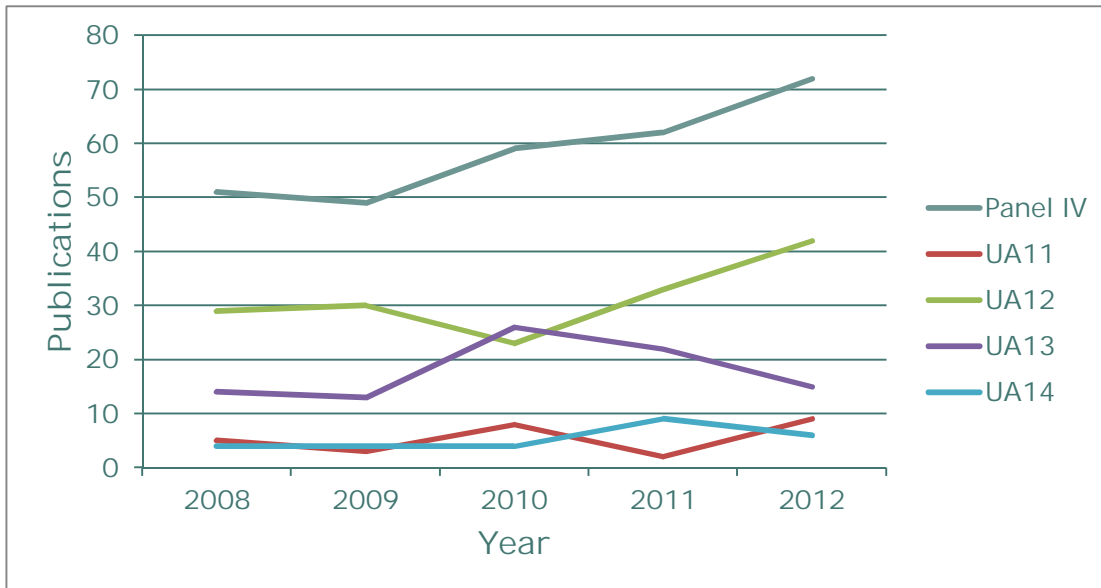


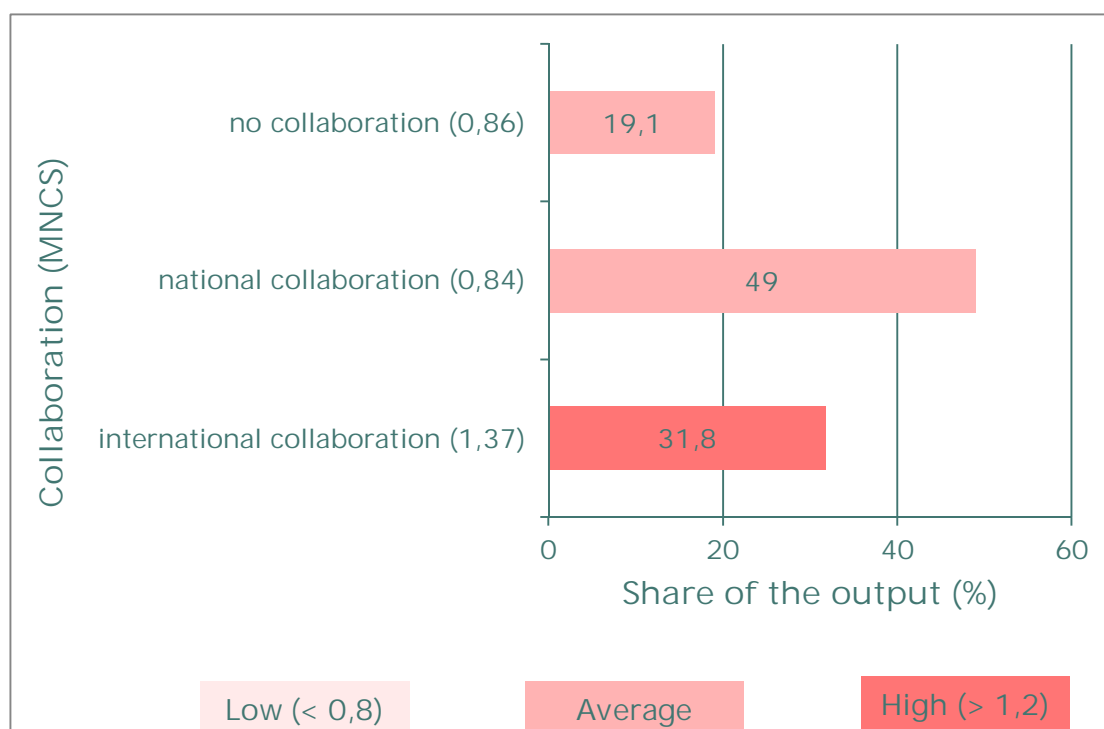
Figure 3. Trend of the impact (MNCS) for Panel IV, UA12, UA13 and UA14.



Table 2. Performance indicators for UA12 in terms of collaboration.

	P	%	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA12	157	100	922	5.9	1.01	1	14	8.9%	17.2%
International Collaboration	50	31.8%	394	7.9	1.4	1.1	8	17.1%	21.1%
National Collaboration	77	49%	365	4.8	0.8	0.9	4	4.8%	23.1%
No Collaboration	30	19.1%	163	5.5	0.9	1.2	2	5.7%	24.9%

Figure 4. Collaboration output and impact (MNCS) per collaboration type for UA12.



UA13 Social Sciences

Figure 1. Research profile for UA13 according to the WoS subject categories, comprising 58.8% of the total publication output by UA13 (only the WoS subject categories with more than 2% of the publication output are included in the Figure).

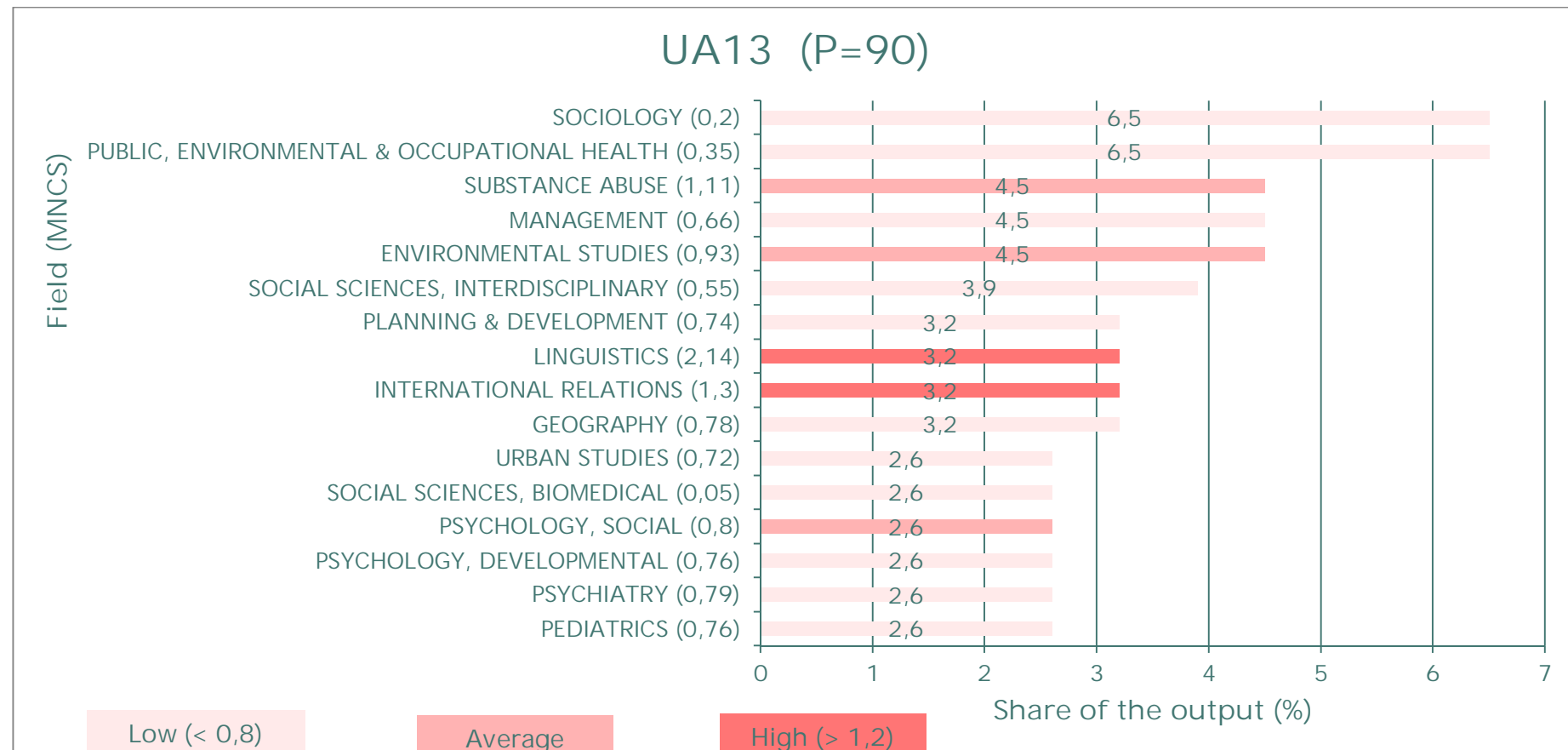


Table 1. Performance indicators for UA13.

	P	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA13	90	256	2.9	1	0.9	7	7.2%	25.9%

Figure 2. Trend of the output (P) for Panel IV and its UAs.

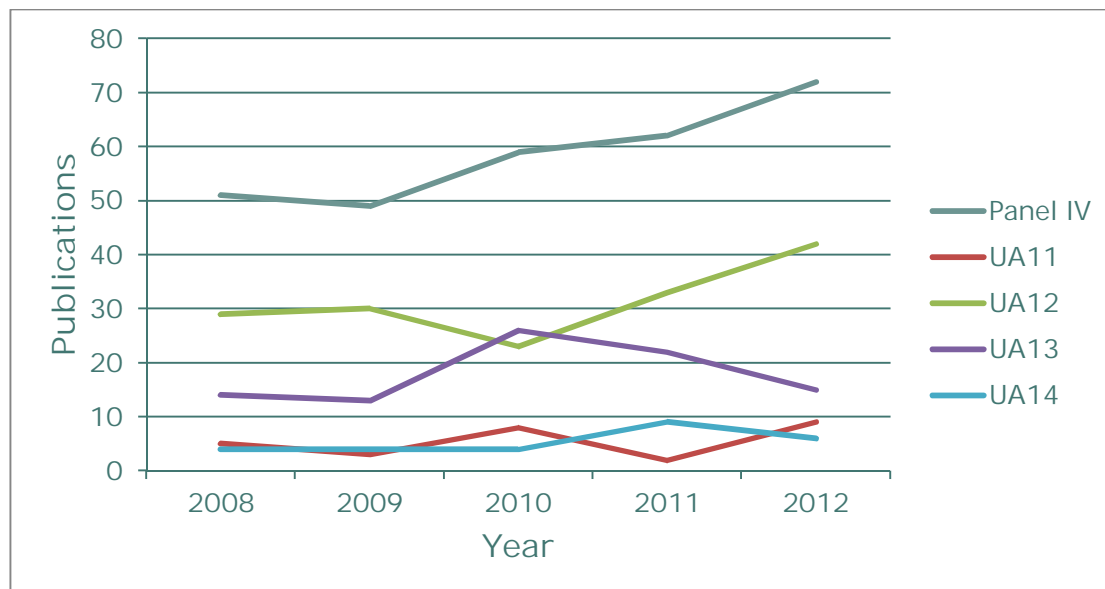


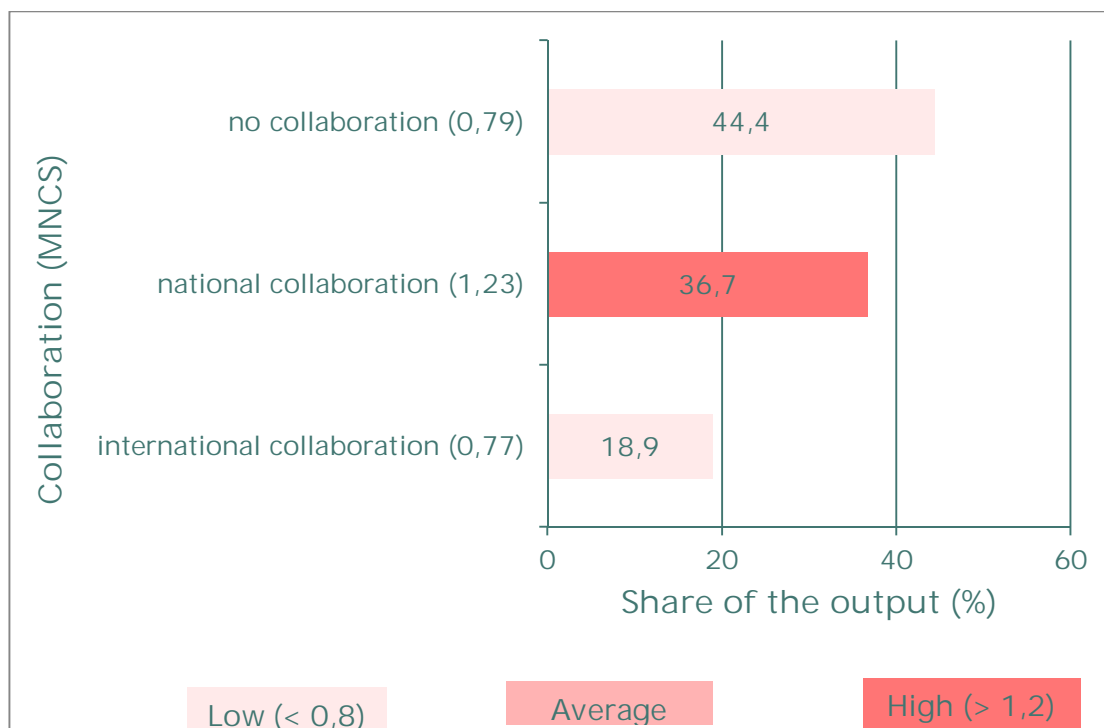
Figure 3. Trend of the impact (MNCS) for Panel IV, UA12, UA13 and UA14.



Table 2. Performance indicators for UA03 in terms of collaboration.

	P	%	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA13	90	100	256	2.9	0.95	0.9	7	7.2%	25.9%
International Collaboration	17	18.9%	54	3.2	0.8	0.9	1	5.9%	17.7%
National Collaboration	33	36.7%	145	4.4	1.2	1	4	10.8%	21.2%
No Collaboration	40	44.4%	57	1.4	0.8	1	2	5.7%	40%

Figure 4. Collaboration output and impact (MNCS) per collaboration type for UA13.



UA14 Social Work

Figure 1. Research profile for UA14 according to the WoS subject categories, comprising 100% of the total publication output by UA14 (only the WoS subject categories with more than 1% of the publication output are included in the Figure).

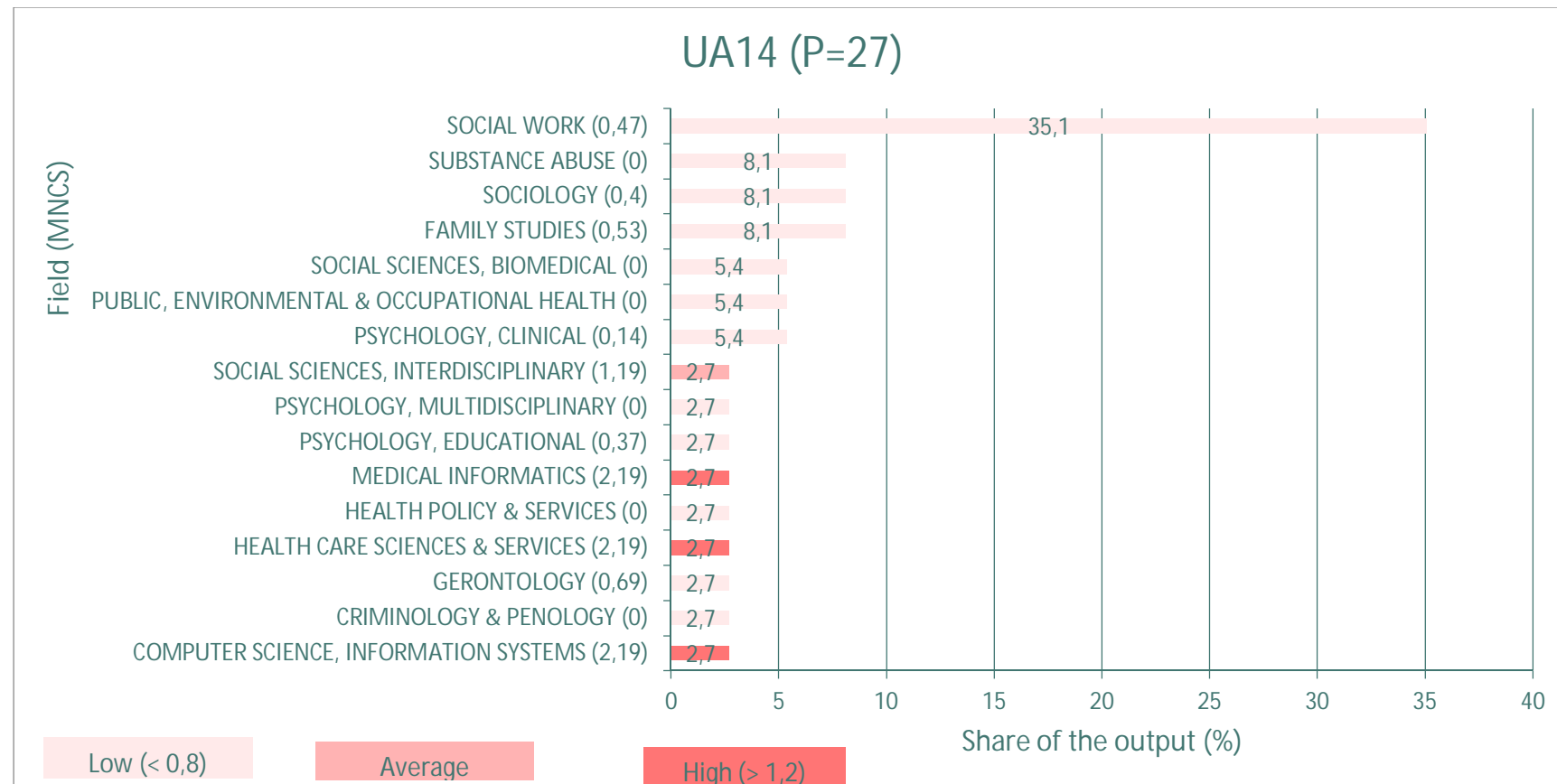


Table 1. Performance indicators for UA14.

	P	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA14	27	35	1.3	0.4	0.8	1	1.2%	55.6%

Figure 2. Trend of the output (P) for Panel IV and its UAs.



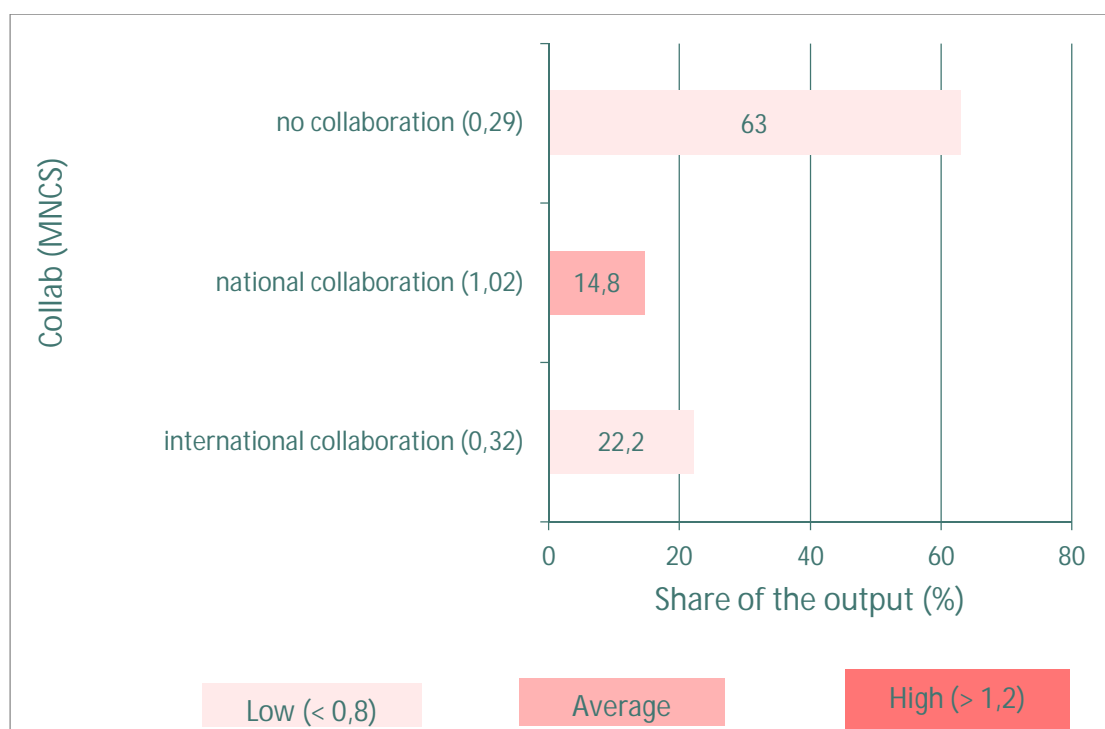
Figure 3. Trend of the impact (MNCS) for Panel IV, UA12, UA13 and UA14.



Table 2. Performance indicators for UA14 in terms of collaboration.

	P	%	TCS	MCS	MNCS	MNJS	Ptop10%	PPtop10%	PPnC
UA14	27	100	35	1.3	0.4	0.8	1	1.2%	55.6%
International Collaboration	6	22.2%	7	1.2	0.3	0.8	0	0%	50%
National Collaboration	4	14.8%	20	5	1	1.2	1	8.3%	25%
No Collaboration	17	63%	8	0.5	0.3	0.7	0	0%	64.7%

Figure 4. Collaboration output and impact (MNCS) per collaboration type for UA14.



Appendix 5

Bibliometric Analysis by
Tampere University Library

University level

UTA RAE 2014, University level

Bibliometric analysis by Tampere University Library

Scientific publishing: activity, language and quality

Data and methods

Tampere University Library has conducted bibliometric analysis on the scientific publishing of the Units of Assessment (UA) of the UTA RAE. A team of information specialists of various fields conducted the analysis to supplement the bibliometric analysis by the Centre for Science and Technology Studies (CWTS) of Leiden University. A supplementary analysis by the Library was considered necessary as the Web of Science citation index used by CWTS does not properly cover the scientific publishing of many of the UAs.

The main source of data in the Library analysis was the UTA SoleCRIS database. The publication data set was used to analyze the overall scientific publishing activity, as well as the language and quality of scientific publishing (Sections 1-3). The data included the scientific publications authored by UTA researchers (employed or affiliated at UTA on the Census Date 1 October 2013) in 2008-2013 at UTA regardless of where the researchers had been working at the time of the publication.

The scientific publications included in the analysis comprised publications in the categories A-C of the Finnish Ministry of Education and Culture's classification of publications. (See the results section for the description of the publication types.)

The quality of scientific publishing (Section 3) was analyzed using the national Publication Forum Rating (JuFo) of scientific journals, publication series and publishers. The Forum – 23 panels comprising approx. 200 members of the academic community – has rated some 20,000 journals, publishers and publication series according to their quality. Journals and publication series have been rated into three levels: 1 = basic; 2 = leading; 3 = top, and publishers into two levels: 1 = basic; 2 = leading. The rating system is updated and expanded continuously.

1. Scientific publishing activity

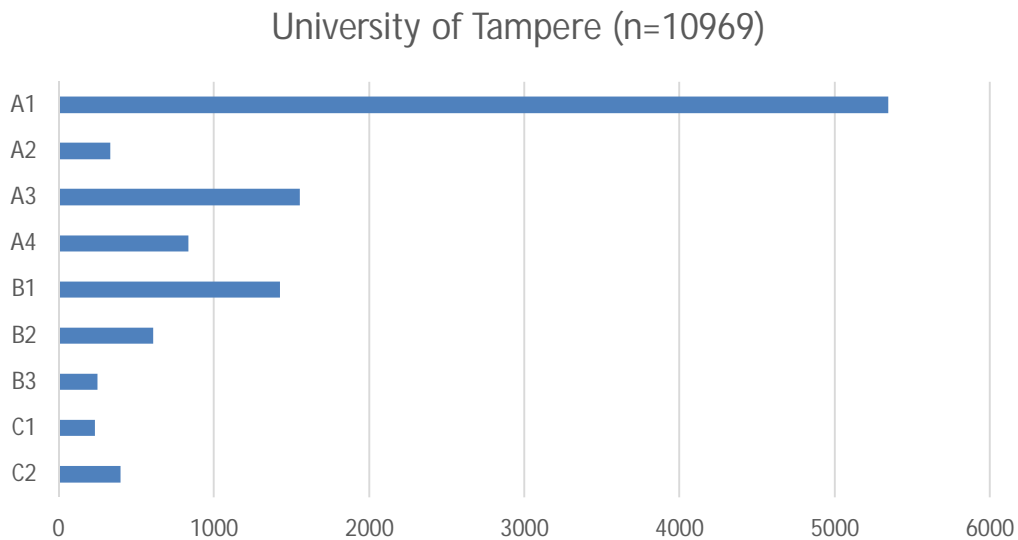


Figure 1. Number of scientific publications (publication types A-C) by University of Tampere by type in 2008-2013 (n=10969).

Publication types according to the classification by the Finnish Ministry of Education and Culture

A1	Refereed scientific articles in journals
A2	Refereed scientific review articles, literature reviews, systematic reviews in journals
A3	Refereed scientific articles in edited books
A4	Refereed scientific articles in conference proceedings
B1	Non-refereed scientific articles in journals
B2	Non-refereed articles in edited books
B3	Non-refereed articles in conference proceedings
C1	Scientific monographs
C2	Scientific edited books, conference proceedings and journal special issues

2. Language of scientific publications

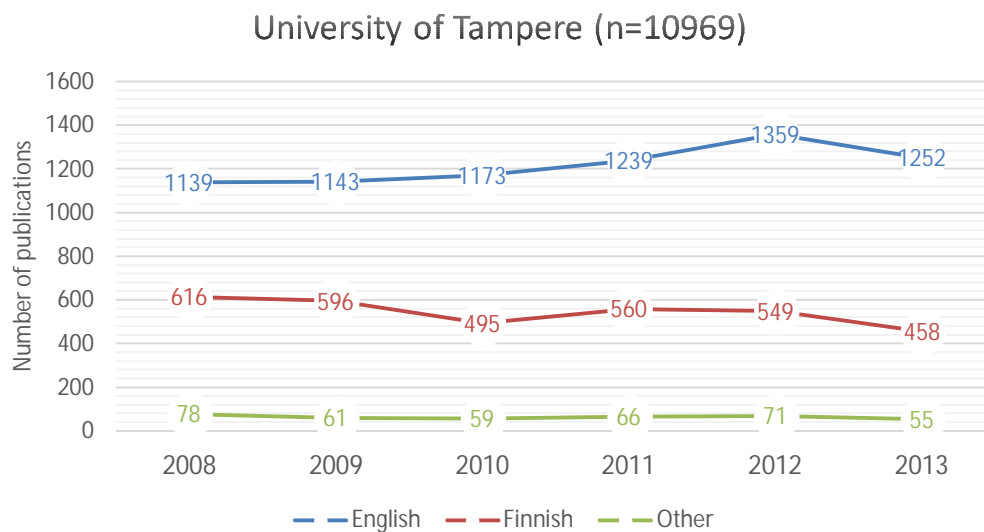


Figure 2. Number of scientific publications (publication types A-C) by University of Tampere in different languages in 2008-2013 (n=10969).

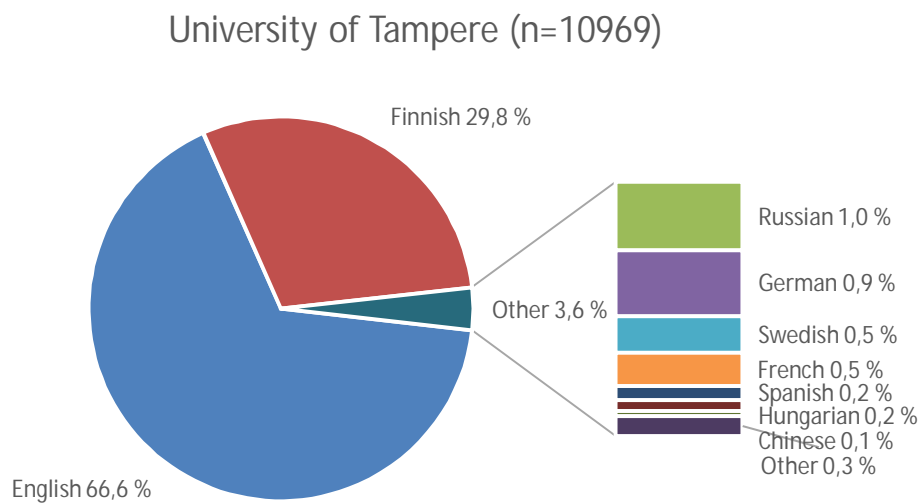


Figure 3. Percentage of different languages of scientific publications (publication types A-C) by University of Tampere in 2008-2013 (n=10969).

3. Quality of scientific publications

Trend of the quality of scientific publications

The Finnish Publication Forum (JuFo) rating is used to describe the quality of the scientific publications by UTA.

The Finnish Publication Forum (JuFo) rating levels for journals and publishers

- 1 basic
 - 2 leading
 - 3 top (applicable only to journals and series, not to book publishers)
 - other identified publication channels that have not received level 1 rating
-

University of Tampere (n=10969)

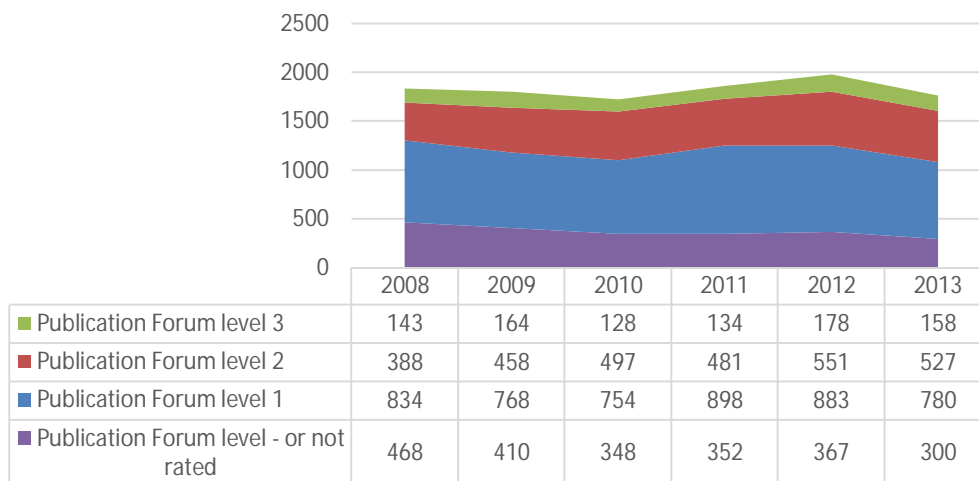


Figure 4. Number of scientific publications (publication types A-C) by University of Tampere according to the Publication Forum levels per year (n=10969).



This Final Report contains the results of the Research Assessment Exercise conducted at the University of Tampere in 2014. It also describes the aims, organisation, methodology and process of the assessment.

UTA RAE 2014 covered all the research at the University of Tampere. The assessment period was 2008–2013. The exercise consisted of the self-assessments of the 18 Units of Assessment, bibliometric analyses and peer-reviews by international panels. The assessment criteria focused on the quality and impact of research, the quality of the research environments and the future potential of the Units.

The assessment was carried out in order to get up-to-date knowledge about the state of the research at the University of Tampere compared to the international level in the respective fields. The assessment helps the University to identify its areas of strength and recognise its potential in the international research community, reinforce its impact on the society, and allocate its resources to the best and most promising research.