QANU Research Review

Communication and Information Sciences
Tilburg School of Humanities

Quality Assurance Netherlands Universities (QANU)
Catharijnesingel 56
PO Box 8035
3503 RA Utrecht
The Netherlands

Phone: +31 (0) 30 230 3100
Telefax: +31 (0) 30 230 3129
E-mail: info@qanu.nl
Internet: www.qanu.nl

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Preface

This report summarizes the results of the peer review assessment of the research programmes in the Creative Computing and the Language, Communication and Cognition programmes in the Tilburg Center for Cognition and Communication (TiCC) in the Tilburg School of Humanities (TSH) at Tilburg University for the period 2006-2011. This evaluation was carried out by a committee of three members. The areas of expertise of the Committee covered spoken and written language science and technology. The Committee wants to express its gratitude for the efforts made by all involved parties to prepare the documentation required for this evaluation. It contained valuable information and formed a very useful basis for an objective evaluation procedure.

On 9 and 10 October 2012, the Committee met in person with the Rector of the University, the TSH board, members of the Research Advisory Board of Humanities, representatives of the TiCC and of each programme, and a selection of faculty and PhD students. The discussions, usually about 45 minutes for each group, took place in a pleasant, informal atmosphere and were very important in helping the Committee to reach its conclusions. The Committee is very thankful to all representatives for their willingness to share their opinions and concerns with us in a very open manner.

The Committee particularly acknowledges the support of QANU, in the persons of Dr. ir. Femke Merkx, QANU Secretary to the Committee, and Dr. Meg Van Bogaert, Research Coordinator of QANU, for all administrative matters and technical guidance during the evaluation procedure. The organization of the trip and follow-up help in preparing the report have been exemplary, and we are most grateful.

Let me take this opportunity, as chair of the Committee, to thank my fellow committee members, Eduard Hovy (Carnegie Mellon University) and Björn Granström (KTH Stockholm) for their commitment and dedication to this evaluation process. We have worked together as a real team, open-minded and thoughtful. I am pleased to be able to convey that this report reflects the consensus opinions of the Committee.

Julia Hirschberg, Chair of the Committee
Professor and Chair of Computer Science
Columbia University

The Review Committee and the Review Procedures

Scope of the Assessment

The Review Committee (Committee) was asked to perform an assessment of the research in the Department of Communication and Information Sciences (DCI) in the Tilburg School of Humanities (TSH) at Tilburg University. This assessment covers the research in the period 2006-2011[1]. In accordance with the Standard Evaluation Protocol 2009-2015 for Research Assessment in the Netherlands (SEP), the Committee's tasks were to assess the quality of the institute and the two research programmes on the basis of the information provided by the institute and through interviews with the management and the research leaders, and to advice how this quality might be improved.

Together the two research programmes under review form the Tilburg Center for Cognition and Communication (TiCC). The Tilburg School of Humanities plans to nominate TiCC as the School's candidate to become one of the University's Centers of Excellence. This research assessment will be used as an input for the Tilburg University internal mid-term evaluation of TiCC. In addition to assessing TSH and the Department of Communication and Information Sciences, the Committee was asked to advice on TiCC.

Composition of the Committee

The members of the Committee were:

- Prof. Julia Hirschberg (Columbia University, USA);
- Prof. Björn Granström (KTH – Royal Institute of Technology, Sweden);
- Prof. Eduard Hovy (Language Technologies Institute, Carnegie Mellon University, USA).

A profile of the Committee members is included in Appendix A. Dr. Femke Merkx of the QANU office (Quality Assurance Netherlands Universities) was appointed secretary to the Committee.

Independence

All Committee members asserted that they would assess the quality of TSH and research programmes in an unbiased and independent way. Any existing personal or professional relationships between Committee members and the programmes under review were reported and discussed in the first meeting. The Committee concluded that there were no unacceptable relations or dependencies and that there was no specific risk in terms of bias or undue influence.

Data provided to the Committee

The Committee received detailed documentation consisting of the following parts:
1. Self-evaluation report of the unit under review, including all the information required by the Standard Evaluation Protocol (SEP), with appendices;
2. Copies of five key publications per research programme;
3. TiCC's business plan.

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[1] The Language, Communication and Cognition (LCC) evaluation period ranges from 2006 to 2011, with the addition of the highlights of 2012. The Creative Computing (CC) evaluation is divided into two periods: 2006 up to August 31, 2008, and September 1, 2008, up to and including 2011. The first period was incorporated in the subprogramme Language Technology. This part of the Language Technology research was reviewed by a mid-term review committee in 2008. In light of this background information, the current review committee was requested to focus its assessment in particular on the achievements of the CC programme in the evaluation period ranging from 2008 to 2011, with the addition of the highlights of 2012.

Procedures followed by the Committee

The Committee proceeded according to the Standard Evaluation Protocol 2009-2015 (SEP). Prior to the first Committee meeting, each programme was assigned to two reviewers, who independently formulated a preliminary assessment. The final assessments are based on the documentation provided by the Institute, the key publications and the interviews with the management and leaders of the programmes. The interviews took place on 10 October 2012 (see the schedule in Appendix C) in Tilburg.

Prior to the interviews, the Committee was briefed by QANU about research assessment according to SEP, and it discussed the preliminary assessments. For each programme a number of comments and questions were decided upon. The Committee also agreed upon procedural matters and aspects of the assessment. After the interviews the Committee discussed the scores and comments. The drafts for the committee report were finalised through e-mail exchanges. The final version was presented to the faculty for factual corrections and comments. The replies were discussed by the Committee. The final report was printed after formal acceptance.

The Committee used the rating system of the Standard Evaluation Protocol 2009-2015 (SEP). The meaning of the scores is described in Appendix B.

Part 1: Review of the Institute

The Tilburg School of Humanities (TSH)

Humanities at Tilburg aims at understanding how society is in the process of understanding itself, i.e. at understanding society as a culture. This 'double hermeneutics' constitutes a distinctive feature of the School.

The School currently incorporates the <u>following eight research programmes</u>, the first two of which were examined in this research assessment exercise of the Department of Communication and Information Sciences:

- Language, Communication and Cognition;
- Creative Computing;
- Language and Globalization;
- Literature and Visual Art in the European Public Sphere;
- Religion and Ritual;
- Theoretical Philosophy (TiLPS);
- Practical Philosophy;
- History of Philosophy.

Research at TSH can be described in terms of large thematic focuses and one overarching approach:

- <u>Communication</u>: This theme covers a broad range of communication and information science, focussing on human communication. The research approach is characterized by a combination of computational and experimental research. The new field of e-Humanities is being strategically explored.
- <u>Cultural Consequences</u>: This theme covers cultural complexity and dynamics in the context of current major processes of change (globalization, diversification, localization, regional identity). Research is focused on the cultural consequences of these processes for language, culture and religion (and their use).
- <u>Grounds & Values:</u> This theme focuses on philosophical and ethical questions concerning the contemporary knowledge society. This includes reflection on the concept of knowledge and on the separation between knowledge and moral values.
- <u>e-Humanities Lab:</u> The new field of e-Humanities is being explored as an overarching methodological approach. The e-Humanities Lab has been set up as a platform for siting, stimulating and coordinating e-Humanities projects carried out by the school.

TSH encompasses a Graduate School for Humanities, which plays a pivotal role in training PhD students and offers three research master's programmes:

- Research Master's programme in Communication and Information Sciences: Language and Communication (in collaboration with Radboud University Nijmegen);
- Research Master's programme in Philosophy;
- Research Master's programme in Theology and Religious Studies (in collaboration with TST);

In addition, the possibilities for a Research Master's programme in Cultural Studies are being explored.

TSH is a small school. In the 2006–2011 period, the <u>number of research staff</u> varied between 142 and 164, which is between 60 and 68 fte. TSH is managed by the management team.

<u>Midterm Review</u>
The 2009 Midterm Review judged TSH's progress since its 2007 reorganization favourably, especially its attempt to establish a new interdisciplinary approach to combining the humanities with computer and information sciences under the umbrella of a new programme in "e-Humanities". It also recommended defining the research management more clearly, with transparent lines of responsibility, paying attention to the organization of an evident route for research masters, PhD students, and postdoctoral staff, and establishing a new Research Master's in Culture Studies.

Several steps were taken to address these issues: Communication and Information Sciences were brought together in the Tilburg Center for Cognition and Communication (TiCC) In 2011 the platform for e-Humanities was created (called the e-Humanities Lab), with contributions from all research programmes. TSH has also embarked on a programme to recruit young academic staff, increase the number of PhD students and postdocs, and provide more support for faculty who apply for research funds. It has also acquired good facilities for research in the Dante Building. A research school for philosophy is being established. At the programme level, the Midterm Review found the TiCC and the research programmes involved to be 'excellent'.

Assessment of Tilburg School of Humanities

1. Policy on scientific quality and academic reputation

TSH considers high-quality and profiled research as a basis for legitimization of its existence. This takes into account both internal legitimacy within Tilburg University, which aims to be a specialized university, as well as Dutch governmental policy, which requires Dutch universities to specialize and focus on their strengths.

The visibility of individual academic excellence and the attractiveness of TSH educational programmes are important criteria for making strategic choices and setting priorities. When allocating research time, academic quality is an important criterion.

Through the e-Humanities platform the school aims to promote interdepartmental collaboration. There is funding available for 3 postdocs and 4 PhDs to work on cross-departmental projects. Thus, the school aims to make its exceptional departmental composition into its strength.

TSH aims for research management with great emphasis on the primary research process, i.e. the research programme, the supporting research group, and the programme leader. The Department is a management unity that is primarily concerned with personnel policy (integral HR responsibility). In a general sense, the research policy is given form in the teamwork of the Vice-Dean of Research, the programme leader/research group, and the department chair/department.

Assessment and remarks

The Committee judged the quality and academic reputation of TSH to have great potential, due to its unique combination of Humanities topics and computational systems and due to its new e-Humanities initiative. TSH also has a good foundation in terms of research infrastructure and appears to have good leadership, with well-thought-out methods of encouraging interdisciplinary work among its students and faculty. It has also developed good connections with other universities and research programmes.

Some potential weaknesses of the TSH strategy lie in the way different parts of the School define the concept of e-Humanities — from 'e' meaning 'electronic' to 'e' meaning 'enhanced', and with 'humanities' being defined very broadly; different individuals have different ideas about what e-Humanities means. This can be a strength, since it gives flexibility, but it presents a possible weakness, since it does not suggest a clear picture and plan when presented to the outside world (evaluators, potential students and collaborators). It would be beneficial to draw a clearer picture of what exactly Humanities and e-Humanities are in the context of the School, especially in a way that goes beyond the traditional view of Humanities as a purely scholarly endeavour to suggest ways in which the computational strengths can be incorporated and the work can be brought closer to general societal relevance. Thus, applications with a clear Humanities focus that employ computational tools, such as work already in progress (e.g. PILNAR), represent a good example of collaboration between cultural studies and computation. But what kinds of social activities and what types of computational tools are considered within the scope of the programme? Would something like speech-activated photo albums for the aged be relevant? Is the actual activity limited to one of the traditional scholarly fields of the Humanities, or can it include more practical social practices that involve schoolchildren, the aged, and the infirm? By defining the strategy clearly and widely, TSH has the potential to demonstrate its relevance to society in ways that are simultaneously attractive to the general population (and prospective students) and generate political interest (and hence funding).

2. Resources and resource policy

During the assessment period (2006–2011), time spent on research in the school varied between 60 to 68 fte, with no clear decreasing or increasing trend. Total expenditure on research staff rose over the years from €13.5 million in 2006 to €16.7 million in 2011. The percentage of direct funding increased from 66% in 2006 to 74% in 2011. The percentage of funding by research grants remains around 25% a year (27% in 2006 and 24% in 2011), and the percentage of contract funding decreased from 7% in 2006 to 3% in 2011.

Most of the School's budget for attracting new faculty goes towards PhD and postdoc students. The School receives €400,000 per year from the sustainable humanities fund and has added from its own funds €1.1 million for PhDs and €1.1 million for postdocs. These funds for PhDs and postdocs are not, as yet, a structural provision.

The University believes that the Humanities need to be supported by targeted funding. TSH has a policy to support its academic personnel in writing external research applications. Recently, the Board decided to reserve a budget targeted at stimulating the acquisition of external research funds. It believes that e-Humanities provides a good topic for future funding. To obtain EU funding in the framework programme, TSH will seek to be a partner with others (rather than a project leader) since the school feels that initiating a project involves more administrative work than a small school such as TSH can handle.

TSH also has a policy of enrolling external, mid-career professionals as PhD students, called Reflective Practitioners, which also adds to its income. Of the 115 PhD students, 50 in TSH are external students who are not employed by the university but are employed elsewhere and have an agreement with their employer that they can spend part of their working hours on writing a PhD.

Assessment and remarks

TSH has a good foundation in terms of research infrastructure: libraries, computer infrastructure, and buildings. However, the Committee noted some problems in the skewed nature of current funding, with some departments contributing much more than others; only the Department of Communication and Information Sciences is profitable in terms of both research and teaching performance. Some groups apparently do not understand the importance of obtaining funding and how to go about winning major grants. The Committee very much liked the School's strategy of attracting Reflective Practitioners: They provide great possibilities for good connections to the outside world and potential funding opportunities. They offer a very interesting opportunity to set up internships for other students, to define and host practical humanities-oriented and computationally driven projects, and to propagate the good work and general message of TSH into society. The Committee also applauded its efforts to provide seed funding to help researchers obtain external grants and agreed with the TSH Board's decision to focus on partnering with other institutions to seek EU funding. However, it encourages TSH to move towards leading such projects in carefully selected areas where it has the leadership expertise on hand.

3. Productivity strategy

In a school with many students, a strong synergy between teaching and research is an important way to increase research productivity since research master students can contribute to scientific output. Since many students are interested in social media and digital communication, the School has asked the Department of Communication and Information Science to strengthen its research in these areas and to find a professor in the field of Business Communication and Social Media.

Assessment and remarks

The Committee heard about problems with attracting sufficient numbers of high-quality research master's students to further the Faculty's research interests, so that staff spend considerable time supervising master's theses that do not add to its research themes. In particular, there are very few research students in the Philosophy and Theology/Religious Studies programmes. There is also a need to attract more PhD students. It was not clear to the Committee how new PhD students will be attracted or whether there are sufficient plans at the School level to help the programmes accomplish this. It is possible that research master's students who prove to be very good could be recruited into the PhD programmes, but since there are few of them, this may not be enough. This must be a focus of the TSH Board in the future.

One possible strategy would be to initiate a practice (perhaps in place of a master's thesis) in which one or more Humanities students will work together with one or more computation-side students for 6 - 9 months to define, create, and demonstrate applications with clear relevance for society within a general Humanities focus. For example, making social media such as Twitter and/or online discussion groups easier for the aged to access by using iPads (as a focus in Social Work within Theological Practice); developing language-oriented games to help children and immigrants learn Dutch and other topics in the Humanities; creating specialized and clearly indexed repositories of not-yet-digitized philosophical works; and even reaching out to the Economics and Law Faculties at Tilburg with relevant projects.

A well-crafted and energetically promoted programme can attract students and be a method for generating potential spin-off companies and a way for Humanities students to ready themselves for the job market.

4. Societal relevance

The TSH Vision Memorandum 2012–2015 defines valorization to be one of the central goals of the School. For TSH valorization means making academic knowledge socially, culturally, politically and economically valuable. It expects that the projects initiated in the context of the e-Humanities Lab will have a strong valorization dimension. The Social Advisory Council (Maatschappelijke Adviesraad) advices the Faculty Board on issues concerning the social embedding of TSH research and teaching.

TSH aims to focus its research on common culture, as a way to make the research more socially relevant and attract more students. The School's policy of encouraging Reflective Practitioners, professionals who reflect on their profession by doing a PhD, is one way in which academic knowledge is made directly relevant to society.

Assessment and remarks

In the mid-term evaluation report, it was noted that TSH needed more external visibility to produce valorisation. The School addressed this by producing a much more effective website, by relying upon the central university policy, but also by encouraging individual students and faculty to promote their research in the media and in other outreach efforts. Several research projects, including PILNAR, have begun implementing these efforts of bringing together research and society by partnering with groups like TALPA and the Society of St. James. TSH has hired some professional support for the acquisition of external funding. More such efforts should be encouraged, perhaps utilizing the contacts of other faculty members in TSH.

The Committee noted that the practice of encouraging the participation of Reflective Practitioners in the research of the School was an excellent approach to making research relevant to the wider society and increasing valorization.

5. Strategy for the future

The TSH strategy for the future includes several major points:

- Focusing on e-Humanities as a means of uniting the varied interests of the School and improving valorization.
- Partnering with external organizations in new research projects to improve valorization.
- Investing more funds in the hiring of younger faculty and attracting more PhD students.
- Planning and encouraging researchers to apply for EU and other large grants in partnership with other institutions.

Assessment and remarks

The Committee feels that the School's strategies for the future seem well chosen. As mentioned above, it urges the School to focus on defining e-Humanities more clearly so that goals can be elucidated in funding applications and in collaboration with partners. Investing in more funding for PhD students will only be successful if good candidates for these positions can be attracted to the School. Increasing the School's international profile will be an important component of this plan. Obtaining more funding at an international level is also an important goal. Supporting researchers in international partnerships might be a useful means to developing the links that will lead to joint funding applications.

6. PhD training and supervision

The responsibility for the PhD training programme lies with the TSH Graduate School, which also oversees the Research Master programmes. The supervisor makes arrangements with the PhD student about regular consultations and advices him or her on how to deal with possible gaps in their knowledge and skills to ensure a successful completion of the project. The TSH Graduate School recommends that supervisors, while taking full and overall responsibility for a PhD project, share their supervision activities with a colleague in the field, and share credit where this seems fair. In 2011 two sessions were organized to coach supervisors on their role.

The PhD training programme is tailored to the needs of the individual students. The Graduate School strongly supports participation by PhD students in national and international research schools. PhD students receive € 2,000 to take courses at the national research schools as well as a bench fee to be used for books, attending conferences etc.

PhD students can be assigned a limited teaching task, preferably related to their PhD research, now set to a maximum of 10%. No courses are mandatory for PhD students, but students can take the courses they feel they need.

Assessment and remarks

The Committee was quite impressed with the way TSH has organized an interdisciplinary PhD programme. The students appear to thrive in an open atmosphere and report that there is more collaboration and cooperation than competition. They appear undecided about whether a more competitive atmosphere would increase productivity or not. While they seemed to be very happy to participate in teaching, it may affect the time available for research. The Committee suggests that even if the teaching load is restricted to 10% of the student's time, full compensation in terms of a proportionally increased PhD student employment could be implemented.

Internal Mid-term Review of TiCC

The Tilburg Center for Cognition and Communication (TiCC) started its activities on September 1, 2008. Since April 1, 2010, TiCC has offered two programmes: Language, Communication and Cognition (LCC) and Creative Computing (CC). Both programmes have a common ground in the area of e-Humanities. TiCC houses almost 100 researchers, 80 of whom are affiliated with Tilburg University, while 20 are external PhD students or fellows.

As its general mission, TiCC aims to play a leading, agenda-setting role in generating innovative research and disseminating new findings with an emphasis on the transfer of research products to society. TiCC's maxim for the next five years is: Working on innovation of the humanities by utilizing technological innovation.

Stated goals of the overall programme:
Five research topics are specifically designated:
1. Game agents (endowed with Game AI) that learn to operate in gaming environments autonomously;
2. Adaptive agent systems that learn to coordinate their actions;
3. Computer vision systems that learn to recognize shapes, textures, complex objects, and features in photos, video, and art images;
4. Text mining, information retrieval, and recommendation systems that enable smart searching in large document collections as well as intelligent high-level knowledge extraction (smart filtering);
5. Advanced language processing systems that translate, correct, answer, summarize, and paraphrase text and utterances in any language, using memory-based language-processing methods.

Assessment and remarks regarding TiCC deliverables
Tilburg School of Humanities plans to nominate TiCC as its candidate to become one of the University's Centers of Excellence. The current research assessment of LCC and CC will be used as input for the TiU-internal mid-term evaluation of TiCC. In addition, the Committee was asked to evaluate the success of TiCC with respect to the original business plan. In the plan, three categories of targets are distinguished:

(1) scientific output,
(2) acquisition of external funding, and
(3) visibility, i.e. academic reputation, public dissemination and exposure.

For each of these targets, the business plan includes a quantification of deliverables on a 5-year basis. Two things should be noted. First, the deliverables mentioned in the business plan are quantified on a five-year basis, while the committee was asked to evaluate only 2008-2011. Second, the business plan starts from a definition of TiCC as encompassing largely the research unit of Creative Computing, with some researchers from Language, Communication and Cognition added. In 2010, however, the decision was made to merge all the research capacity of the LCC Department into TiCC, which automatically changes the evaluation basis. The Committee did not take this into account in its evaluation.

The Committee concluded that – with respect to the original business plan – most deliverables seemed to have been achieved.[2] There are three that have not yet been fully realised:

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[2] For some deliverables, data were provided that didn't match the review period of TiCC. That was the case for top journal publications. Data were provided for the period 2006-2011, whereas the evaluation of TiCC concerns the period 2008-2011.

1. Partnership in at least two EU-funded projects. At the time of the evaluation, there were two pending project proposals submitted to the European Research Council (ERC).
2. Appropriately targeted media campaigns (newspaper, television, internet) are launched when demonstrable results that are of relevance to a wide audience become available. Whereas individual researchers appear quite frequently in the media, the Committee did not hear of any targeted media campaigns.
3. A public seminar series has been established, which after five years has achieved a wide visibility. In 2008, TiCC started a public seminar series, the TiCC Colloquium, in cooperation with the National Research School of Information and Knowledge Systems (SIKS). While these seminars are open to the general public, the Committee got the impression that they serve primarily as research colloquia and do not primarily address a broader public.

Overall impression and recommendations

In addition to evaluating the TiCC deliverables, the Committee decided to share its overall impression of TiCC and make some recommendations for future research directions. Overall, the research goals are competently and adequately addressed in TiCC. The Committee was very impressed by the TiCC leadership, which works well together and is very strong. It sees good prospects for the next generation of TiCC leadership. The programmes exhibit high scientific quality in terms of research and publications. The open source software delivered is quite exceptional. Since there are many additional opportunities for improving societal relevance through research into social media and games, it is good to have specific strategies for outreach both within the School and outside (such as Reflective Practitioners, TALPA, Society of St. James) and for publicizing their activities. There are many opportunities for finding new sources of external funding, e.g. through greater participation in European projects.

The Committee was very impressed with the TiCC PhD students: engaged, happy, working together, pursuing interesting interdisciplinary projects, very satisfied with the faculty, and unaware of any disciplinary divisions within TiCC. The programmes in TiCC have been very successful in bringing people from different backgrounds together. We suggest that further integration could take place if people's workspaces were intermingled.

TiCC is adviced to consider paying more attention to social media, which is a growing force in the world. Analysis of blogs, Twitter, classroom discussion boards, in-game collaborative planning, etc., are all areas rich with opportunity. Projects in this domain will be attractive to students from both sciences and the Humanities. A focus on developing social media outreach and/or support projects for the elderly, medically challenged, and young children may be something that distinguishes Tilburg's e-Humanities programme. The Social Signal Processing programme can play a large role in this, though it would require widening the programme. The programme's name suggests Social Media, but its focus is entirely different, more like image and audio analysis. This programme is the most media-oriented of the three parts of CC and will be important in future outreach/advertising efforts aimed at attracting more students. As such, there is a chance to become the centrepiece of a coordinated outreach strategy and integrated educational experience. First, though, it is necessary to broaden the scope from lower-level video and audio analysis to something that can be called the pragmatics of communication: adding higher-level pragmatics analysis, linking up with the new focus [under Louwerse] on cognitive and psychological aspects of language processing, and then coordinating with a wider interpretation of (online) games.

Part 2: Assessments per programme

The committee assessed the following programmes of the Department of Communication and Information Sciences at the Tilburg School of Humanities at the University of Tilburg:

		Quality	Productivity	Societal relevance	Vitality and feasibility
DCI1	Language, Communication & Cognition	5	4	4	4
DCI2	Creative Computing	5	5	5	4

The detailed assessments per programme follow in the next two sections of this report.

Programme DCI 1: Language, Communication & Cognition

Programme coordinator:	Prof. Emiel Krahmer (who replaced Prof. Fons Maes as programme leader in 2009)
	Prof. Marc Swerts
Research staff 2011:	6.67 tenured, 16.27 total fte
Assessments:	Quality: 5
	Productivity: 4
	Societal relevance: 4
	Vitality and feasibility: 4

Short description
The Language, Communication and Cognition research programme (LCC; formerly Communication and Cognition) aims to explore cognitive, functional and social aspects of human communication for a broad variety of domains through a multidisciplinary approach. It investigates the process of information exchange between sender and receiver in terms of the content of information, its packaging, and the context in which the information exchange takes place. A key notion of the programme is that communication between humans and between humans and machines is viewed as a highly flexible and adaptive form of social interaction in which language plays a central role. The general approach of the programme is strongly data-driven, often experimental and is multidisciplinary in its combined use of research methodologies, borrowed from linguistics, sociology, psychology, and computer science.

Quality
The quality of the LCC programme is judged as being excellent.

Strengths
Very high-quality publications for such a young group. The group's international reputation is excellent, and they are invited to top-level conferences. Its two-person programme management team appears efficient. Doctoral students reported a very positive, open-minded situation benefitting the combined TiCC environment, with e.g. the two-day annual meeting for staff and PhD students (the Malle meetings).

Weaknesses and recommendations
No particular weaknesses were noted.

Productivity
Productivity is regarded as very good.

Strengths
The considerable volume of high-quality publications at international conferences and in respected journals, especially for such a relatively small group.

Weaknesses and recommendations
The programme is heavily dependent on university financial support (a relative decrease of external support was observed). Productivity in terms of PhDs is low in relation to tenured staff. Effort to attract European funding in particular is suggested. More intense cooperation with the computer science-oriented CC programme, to strengthen the ambition to expand into the Human-Computer Interaction field, may create such opportunities. The intention to create a

mechanism for supporting younger faculty in writing grant applications is commendable. The researchers may be spending too much of their time supervising the work of lower-quality students, which does not contribute to research productivity. The Committee suggests that LCC investigate whether it can be more selective in its admission of master's students.

Societal relevance
The programme's societal relevance appears to be very good.

Strengths
The large number of students reflects a high demand. The group has been very successful in designing popular teaching programmes, highly rated in national evaluations Many of the staff describe socially relevant activities such as invitations as keynote speakers, frequent appearances in the media and consultancy work for the government, media and schools. The application of the research for people with different communication disabilities is an interesting new orientation to demonstrate its relevance.

Weaknesses and recommendations
The outreach and social relevance can be increased. LCC might want to collaborate more closely with the CC half of TiCC to work on games and other products that support activities and studies of interest to the rest of TSH and Dutch society.

Vitality and feasibility
Vitality and feasibility are regarded as very good.

Strengths
The LCC programme leadership appears to be very efficient and has created a positive and productive research environment. Strategies for the future are well founded, like synchronizing curricula and research efforts, intensifying cooperation in the e-Humanities area with other groups and increasing efforts to secure external grants.

Weaknesses and recommendations
Senior staff members felt that they had too heavy a teaching load, especially due to the high volume of undergraduate teaching and MSc thesis supervision. This may have a detrimental effect on the high-quality research output. On the other hand, many PhD students expressed an interest to engage more in teaching. A new strategy allowing for more than 10% teaching should be considered, compensating that with a proportional increase in the PhD employment period.

Conclusion
For a relatively small and young group, the LCC programme shows an impressive and ambitious research agenda with good international visibility that has developed very rapidly and will be essential in moving TiCC towards being a center of excellence.

Programme DCI 2: Creative Computing

Programme coordinator:	Prof. Eric Postma and Prof. Antal van den Bosch (up to September 2011), the latter was then temporarily succeeded by Dr. Pieter Spronck
Research staff 2011:	2.42 tenured, 13.37 total fte
Assessments:	Quality: 5
	Productivity: 5
	Societal relevance: 5
	Vitality and feasibility: 4

Short description

The Creative Computing (CC) research programme aims to perform applied and fundamental computational research on human communication and human-computer communication. Written, spoken, and behavioural communication are being investigated. The research is situated in the domain of Artificial Intelligence and e-Humanities and relies mainly on machine learning and autonomous adaptation as its core methodologies. Computational methods for the automatic analysis and interpretation of written, spoken, and behavioural communication are being developed and evaluated. The Creative Computing research programme consists of three research subprogrammes, I Games and Knowledge Management (led by Prof. van den Herik and Dr. Spronck), II Social Signal Processing (SSP, led by Prof. Postma), and III Language Technology (led by Prof. van den Bosch).

Application-oriented research aims to meet the increasing demand for (1) 'human-like' computing interfaces, (2) advanced serious games for education, training and entertainment, and (3) machine learning methods for extracting information from texts, images, and sounds.

Quality

The quality of the CC programme is judged as being excellent.

Strengths:

International recognition of centre and principal faculty. In addition to the principal faculty, the outstanding connections and name recognition of Prof. van den Herik have served to elevate the CC rapidly to its current level.

High-quality research. All faculty members are engaged in interesting and non-trivial projects, and have strong records of high-quality publications in some of the top international journals.

Weaknesses and recommendations:

None were noted.

Productivity

The productivity of the CC programme is judged as being excellent.

Strengths:

Unusually strong computational toolkit and other deliverables. The NLP (Natural Language Processing) and Machine Learning tools constitute an extraordinary achievement for a centre so young.

Active PhD programme. A high number of PhD students has graduated from the CC given the small number of staff, more than its target for graduates placed in good jobs.

Weaknesses and recommendations:
None were noted.

Societal relevance
The societal relevance of the CC programme is judged as being excellent.

Strengths:
Much of the research reflects current social practice and thinking on issues important to modern society, which is a sign of the vitality and social engagement of the faculty. This gives the CC a modern feel that is attractive to new students.

The large amount of contract funding obtained by the CC is a testimonial to the relevance of the research to current society and to its recognition factor in society.

Weaknesses and recommendations:
The Committee sees no significant weaknesses. It notes in particular the active connections between the CC programme and the Departments of Economics and Law. Regarding the Faculty of Religion, the Committee recommends that members of TSH search for projects in which students from Religion team up with students from the CC (and LCC) to jointly define and construct procedures plus computational artifacts that provide interesting services for the aged, the infirm, etc.

Vitality and feasibility
Vitality and feasibility are regarded as very good.

Strengths:
Excellent management. This is evinced as much in the clear statement of goals as in the achievements to date and the pleasant and constructive atmosphere.

Weaknesses and recommendations:
The director transition from Antal van den Bosch to Max Louwerse is going to change the focus of the CC from computational NLP and machine learning to psychology/cognitive language processing. While Louwerse appears to be an excellent replacement in terms of visibility, vision, and leadership, a certain momentum will be lost. The creation and maintenance of machine learning technology to serve the whole centre must be taken over by someone else. Although some of the current faculty are able to do so, none of them have made this their focus in the same way Van den Bosch did. The Committee recommends that the centre consider creating a new faculty position for someone to perform this kind of machine learning work.

Within the CC, a greater integration between Games, SSP, and Natural Language Processing (NLP) can benefit all three and help create a strong and exciting central focus for CC (and even for the whole TiCC). Increasingly, many online games are collaborative, sometimes involving many players from different parts of the world. The challenges that new, original games pose to NLP, vision, HCI, problem-solving, collaborative agents, and other aspects of large-scale Artificial Intelligence (AI) generate many exciting and worthwhile projects, whose roots in serious research support successful funding applications as well as generating national (and international) excitement and attention for Tilburg. These new games and expanding game genres are very effectively addressed by programmes such as the GamePipe at USC, the University of Waterloo's

new Games Center, and others. They are wildly popular and very media-genic. Students come for a two-year Master's degree, design and build original games, and as graduates are very attractive to a burgeoning market in game software design and creation. On the more serious research side, USC's Institute for Creative Technology (ICT) builds game-like training platforms to train military personnel through realistic complex scenarios that include software characters that understand and generate language, interpret gaze and gesture, manage the dialogue, plan, negotiate, etc. The trainee is free to explore the game's 'world' and the effects of an adversarial or collaborative approach, different courses of action, etc. Complex game representation, game optimization, and other strategies are required. The Committee recommends that at least two new positions be created for Games faculty to enable Humanities-oriented games research.

Conclusion
Overall, the CC programme is very strong in both research and training.

APPENDICES

Appendix A: Curricula Vitae of the Committee Members

Professor Julia Hirschberg is Professor of Computer Science at Columbia University and chair of the Department. She does research in prosody, spoken dialogue systems, and emotional and deceptive speech. She received her PhD in Computer Science from the University of Pennsylvania in 1985. She worked at Bell Laboratories and AT&T Laboratories -- Research from 1985-2003 as a Member of Technical Staff and as a Department Head, creating the Human-Computer Interface Research Department at Bell Labs and moving with it to AT&T Labs. She served as editor-in-chief of *Computational Linguistics* from 1993-2003 and as an editor-in-chief of *Speech Communication* from 2003-2006. She is on the Editorial Board of *Speech Communication* and of the *Journal of Pragmatics*. She was on the Executive Board of the Association for Computational Linguistics (ACL) from 1993-2003, has been on the Permanent Council of International Conference on Spoken Language Processing (ICSLP) since 1996, and served on the board of the International Speech Communication Association (ISCA) from 1999-2007 (as President 2005-2007). She is currently the chair of the ISCA Distinguished Lecturers selection committee, is on the IEEE SLTC, and serves on the board of the CRA-W. She has been active in working for diversity at AT&T and at Columbia. She has been a fellow of the American Association for Artificial Intelligence since 1994, an ISCA Fellow since 2008, and became an ACL Fellow in the founding group in 2012. She received a Columbia Engineering School Alumni Association (CESAA) Distinguished Faculty Teaching Award in 2009, received an honorary doctorate (hedersdoktor) from KTH in 2007, is the 2011 recipient of the IEEE James L. Flanagan Speech and Audio Processing Award and also received the ISCA Medal for Scientific Achievement in the same year.

Professor Eduard Hovy is a member of the Language Technology Institute in the School of Computer Science at Carnegie Mellon University. He holds adjunct professorships at universities in China, Korea, and Canada, and is co-Director of Research for the DHS Center for Command, Control, and Interoperability Data Analytics, a distributed cooperation of 17 universities. He completed his PhD in Computer Science (Artificial Intelligence) at Yale University in 1987. From 1989 to 2012 he directed the Human Language Technology Group at the Information Sciences Institute of the University of Southern California. His research addresses several areas in Natural Language Processing, including machine reading of text, question answering, information extraction, automated text summarization, the semi-automated construction of large lexicons and ontologies, and machine translation. He is the author or co-editor of six books and over 300 technical articles and is a popular invited speaker. In 2001 He served as President of the Association for Computational Linguistics (ACL) and in 2001–03 as President of the International Association of Machine Translation (IAMT). He regularly co-teaches courses and serves on advisory boards for institutes and funding organizations in Germany, Italy, the Netherlands, and the USA.

Professor Björn Granström joined the Department of Speech, Hearing and Music, KTH, in 1969, after graduating with an MSc in Electrical Engineering. After further studies in Phonetics and General Linguistics at Stockholm University, he became Doctor of Science at KTH in 1977 with the thesis, "Perception and Synthesis of Speech". In 1987 he replaced Gunnar Fant as Professor in Speech Communication. He has been the director of CTT, The Center for Speech Technology, since its start in 1996. Together with Rolf Carlson, he created the first multilingual text-to-speech system, with extensive use in the disability area. This formed the basis of the speech technology company Infovox (now part of Acapela Group). He is a founding member of ESCA (now Intl. Speech Communication Assoc.) and ELSNET. He has organised several international meetings, like ICPhS '95, Eurospeech 2001, two ESCA workshops and a European

summer school on Multi-modality in language and speech systems (MiLaSS - 1999). He has published numerous papers in the speech research and technology area, including multi-modal speech technology. Present interests include multi-modal verbal/non-verbal communication with applications in human robot interaction, virtual language tutors and human-like spoken dialogue systems.

Appendix B: Explanation of the SEP Scores

Excellent (5)	Research is world leading. Researchers are working at the forefront of their field internationally and their research has an important and substantial impact in the field.
Very Good (4)	Research is nationally leading. Research is internationally competitive and makes a significant contribution to the field.
Good (3)	Research is internationally visible. Work is competitive at the national level and makes a valuable contribution in the international field.
Satisfactory (2)	Research is nationally visible. Work adds to our understanding and is solid, but not exciting.
Unsatisfactory (1)	Work is neither solid nor exciting, flawed in the scientific and/or technical approach, repetitions of other work, etc.

Quality is to be seen as a measure of excellence and excitement. It refers to the eminence of a group's research activities, its abilities to perform at the highest level and its achievements in the international scientific community. It rests on the proficiency and rigour of research concepts and conduct; it shows in the success of the group at the forefront of scientific development.

Productivity refers to the total output of the group; that is, the variegated ways in which results of research and knowledge development are publicised. The output needs to be reviewed in relation to the input in terms of human resources.

Societal relevance covers the social, economic and cultural relevance of the research. Aspects are:

- societal quality of the work. Efforts to interact in a productive way with stakeholders in society who are interested in input from scientific research, and contributions to important issues and debates in society.
- societal impact of the work. Research affects specific stakeholders or procedures in society.
- valorisation of the work. Activities aimed at making research results available and suitable for application in products, processes and services. This includes interaction with public and private organisations, as well as commercial or non-profit use of research results and expertise.

Vitality and feasibility. This dual criterion regards the institute's ability to react adequately to important changes in the environment. It refers to both internal (personnel, research themes) and external (developments in the field, in society) dynamics of the group. On the one hand, this criterion measures the flexibility of a group, which appears in its ability to close research lines that have no future and to initiate new venture projects. On the other hand, it measures the capacity of the management to run projects in a professional way. Policy decisions and project management are assessed, including cost-benefit analysis.

Appendix C: Programme of the Site Visit

Arrival on Tuesday, October 9, 2012	
15:30 – 17:00	Preparatory meeting QANU secretary and committee chair
17.00 – 18.30	Preparatory committee meeting
19.00	Dinner with representatives of TSH

Site visit Wednesday, October 10, 2012	
9.00- 9.30	Meeting with the Rector Magnificus: Objectives of the RAE Prof. Philip Eijlander
9.30 – 10.15	Meeting with TSH board: Strategic research policy: Prof. Arie de Ruijter, Dean Prof. Paul Post, Vice-Dean of Research Lex Oostrom, Managing Director TSH
10.30 – 11.15	Meeting Research Advisory Board Humanities: Research management and quality care: Prof. Paul Post, Chair Research Advisory Board Humanities Prof. Jaap van den Herik, Programme Leader CC Prof. Emiel Krahmer, Programme Leader LCC
11.30 – 12.00	Meeting with representatives Tilburg center for Cognition and Communication (TiCC): Prof. Fons Maes, Director TiCC (as of October 1st 2012) Prof. Jaap van den Herik, Former Director TiCC (until October 1st 2012) Prof. Eric Postma, Programme Leader CC Prof. Emiel Krahmer, Programme Leader LCC Prof. Marc Swerts, Programme Leader LCC Dr. Menno van Zaanen, Assistant Professor Dr. Marjolijn Antheunis, Assistant Professor Johanna Hellemons, Management Assistant TiCC
13.00 – 13.45	Meeting with representatives of Programme 1 Language, Communication and Cognition (LCC): Prof. Emiel Krahmer, Programme Leader LCC Prof. Marc Swerts, Programme Leader LCC Prof. Fons Maes, Director TiCC (as of October 1st 2012) and Head of Department DCI Dr. Marjolijn Antheunis, Assistant Professor Dr. Martijn Goudbeek, Assistant Professor Dr. Rein Cozijn, Lab Manager / Assistant Professor
13.45 – 14.15	Meeting with PhD candidates LCC and CC: Sander Wubben (PhD candidate CC, year 4) Lisanne van Weelden (PhD candidate LCC, year 4) Ruud Mattheij, MA (PhD candidate CC, year 2) Hans Westerbeek (PhD candidate LCC, year 2) Shoshannah Tekofsky (PhD candidate CC, year 1) Phoebe Mui (PhD candidate LCC, year 1)

14.30– 15.15	Meeting with representatives of Programme 2 Creative Computing (CC): Prof. Eric Postma, Programme Leader CC Prof. Jaap van den Herik, Programme Leader CC Prof. Aske Plaat, Professor by Special Appointment Dr. Paul Vogt, postdoc researcher Dr. Menno van Zaanen, Assistant Professor Dr. Seza Dogruoz, postdoc researcher
15.15 – 16.45	Time for deliberation
16.45 – 17.00	Meeting with TSH board: Presentation of preliminary findings Prof. Paul Post, Vice-Dean of Research Lex Oostrom, Managing Director TSH
17.00 – 18.00	Drinks and informal presentation of preliminary findings