

**Research Assessment
Centre for Science and
Technology Studies
(CWTS)**

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Report on the Research Assessment of CWTS

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1. The review committee and the review procedures

Scope of the assessment

The review committee of the Centre for Science and Technology Studies (CWTS) has been asked to perform an assessment of the quality and relevance to society of the research conducted by CWTS in the period 2008-2015, as well as to assess its strategic targets and the extent to which the Centre is equipped to achieve them.

The committee was asked to judge the Centre's performance according to the criteria of the Standard Evaluation Protocol (SEP) 2015-2021. In the assessment, current international trends and developments in science and society should, according to the terms of reference, be taken into account.

In addition to the SEP assessment criteria, the board of Leiden University also asked the committee to assess CWTS in relation to:

- its strategic targets
- the governance and leadership skills of its management
- its PhD program
- research integrity

Composition of the Committee

The composition of the Committee was as follows:

- Linda Butler (chair), consultant, former head of a performance evaluation research unit at the Australian National University Australia;
- Henry G. Small, senior scientist at SciTech Strategies, Inc.;
- Ulrike Felt, professor of Science and Technology Studies University of Vienna, Austria;
- Reinhilde Veugelers, professor Business and Economics, University of Leuven, Belgium;
- Eduard Klasen, advisor to the Board of Leiden University Medical Centre, professor in Management of Health Research, University of Leiden.

Independence

All members of the Committee signed a statement of independence to ensure they would assess the quality of CWTS and its research programme in an unbiased and independent way. Any existing personal or professional relationships between Committee members and the programme under review were reported and discussed in the Committee 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 has received the Self-evaluation report of the unit under review, including all the information required by the Standard Evaluation Protocol (SEP), with appendices.

The Committee also received the following documents:

- the Terms of Reference
- the SEP 2015-2021

- CWTS Midterm Self-evaluation report 2012
- CWTS evaluation report 2008
- CWTS Research Programme 2012-15

Procedures followed by the Committee

The Committee proceeded according to the Standard Evaluation Protocol 2015-2021 (SEP). Prior to the first Committee meeting, all Committee members independently formulated a preliminary assessment of the Centre. The final assessments are based on these, the documentation provided by CWTS, and the interviews with the management and representatives of CWTS. The interviews took place on October 14 and 15 2015 (see the schedule in Appendix 3) in Leiden.

Preceding the interviews, the Committee was briefed by QANU about research assessment according to SEP, and the Committee discussed the preliminary assessments and decided upon a number of questions to put to CWTS representatives during the interviews. The Committee also agreed upon procedural matters and aspects of the assessment. After the interviews the Committee discussed the responses to their questions, and other points raised by the interviewees. The Committee then came to an agreement on the category gradings for the assessment, and the comments and recommendations to be included in the final report. The final version was presented to CWTS, for factual corrections and comments. The comments were discussed in the Committee. The final report was printed after formal acceptance.

The Committee used the criteria and categories of the Standard Evaluation Protocol 2015-2021 (SEP). For more information see Appendix 2. The committee wants to remark that this protocol has consequences for the way the research centre is evaluated. The evaluation report has a stronger focus on the societal relevance and impact of the research than the previous appraisal, the assessment criteria have changed, and the quantitative rating is reversed. A comparison with the last review is therefore – deliberately – not possible.

2. Strategy and aims of CWTS

The Centre for Science and Technology Studies (CWTS) is an interdisciplinary institute within the Faculty of Social Sciences of Leiden University. The Centre was created 25 years ago to undertake research on science indicators and to provide the management of research organisations with objective information about scientific performance on the basis of their published scientific and scholarly literature. Until 2008, the Centre was largely financed through external research contracts. Since 2008, it has received additional funding from the university's first stream.

The Centre's traditional strengths are in the development and application of citation-based indicators for research evaluations and assessments at all levels of aggregation (international and national studies, university-wide evaluations, assessments of research groups, benchmark studies, and bibliometrics at the level of individual researchers).

In 2010 the new Director instigated a major expansion and reorganisation of the Centre. This took into account the recommendations of the 2008 Review Committee and saw the additional funding used to achieve a significant broadening of both its research focus, and the methodologies it employs. The current research program, *Merit, Expertise and Measurement*, started in December 2012.

The Centre consists of an academic institute (CWTS) and a company (CWTS BV). This combination is led by the CWTS director, advised by the management team, and supported by the secretariat. The academic institute has a matrix organization of three chairs and five working groups.

The chairs are:

1. Scientometrics;
2. Innovation studies;
3. Science policy studies.

The five working groups are:

1. ABM: Advanced Bibliometric Methodologies;
2. EPIC: Evaluation Practices in Context;
3. SURE: Societal Use of Research;
4. CPPS: Career Policy and Paths in Science; and
5. WISSH: Social Sciences, Humanities and Law.

The aim in establishing the matrix structure was to stimulate interdisciplinary cooperation and innovation. In addition to the working groups and chairs, two research themes have recently been developed: altmetrics and the potential of indicators based on web data or social media interactions; and open access and its relationship to science & technology indicators and evaluators.

Alongside the broadening of its research base, the Centre has increased its teaching capabilities and portfolio to a series of bibliometric courses and a minor programme 'Science and Technology in Society'.

3. Assessment of the CWTS research unit

The Committee assigned CWTS to the following categories for each of the three SEP categories:

Research quality	2	(The unit conducts very good, internationally recognised research)
Relevance to society	1	(The unit makes an outstanding contribution to society)
Viability	2	(The unit is very well equipped for the future)

The committee would like to state at the outset that it acknowledges that the changes that were commenced after the 2008 assessment, and with the appointment of a new director, are still a work-in-progress. In many instances our review reads as if it is a second interim report flowing from the 2008 review. Given the large-scale changes that have occurred, this is inevitable, and no review committee could in all conscience recommend a complete about-face unless it was believed that things were really starting to go awry, which our review and recommendations make abundantly clear is not the case.

3.1 Research quality

Since the last assessment in 2008, CWTS has maintained its highly visible and internationally recognised leadership in the area of scientometrics/bibliometrics. Its publication output has increased in line with the expansion of the Centre. In the review period the Centre has made a number of landmark contributions to the fields of scientometrics and bibliometrics. In particular, the Committee was impressed by the recent research output in advanced bibliometric methodologies which the committee considers is world leading. CWTS is at the forefront of developing and testing new advances such as a revised journal impact measure (SNIP), new SLM community detection algorithms, and new methods and software for visualising and analysing bibliometric networks (VOSviewer and Citnetexplorer). In addition it has developed principles of indicator consistency and stability. The new CWTS Leiden Rankings are regarded by many as the most authoritative and transparent university research rankings in the world.

Given the strong assessment of its academic reputation in the 2008 review, CWTS could have decided to continue on its traditional path, focussing solely on quantitative research. Instead it took the bold step to reorient and broaden its activities by incorporating the use of qualitative methods and expanding its thematic interests. Its strategy for the re-orientation and expansion of the centre, which builds on the strengths of the CWTS tradition, was enunciated in a mid-term review undertaken by the new director in 2011. At that time, the Centre's ambition for the five years (2012-2016) was enunciated, and subsequently updated in the self-evaluation report provided to this Committee. It is for CWTS to be an international leader in:

1. quantitative STI studies, including indicator development and research evaluation;
2. integrating knowledge from scientometrics with insights from science and technology studies and the social sciences more generally; and
3. the analysis of the role of indicators in research (including social sciences, arts and humanities).

The Committee fully supports these aims, the direction the Centre taken by its Director, and the diversification of research disciplines that have been introduced. It is our view that the strategy has huge potential for further enhancing its academic standing. From our interviews with staff, the committee came to the view that this strategy was starting to pay dividends, although this is not yet evident to a great extent in publications integrating qualitative and quantitative research methods. The complementarity of the two approaches should become the strongest pillar of the quality of the research in the Centre as the two approaches mutually form the context for each other.

The Committee felt that while CWTS publications in the research themes embodied in four of their five working groups (Evaluation Practices in Context; the Societal Use of Research Evaluation; Career Policy and Paths in Science; and, Social Sciences, Humanities and Law) were of high standard, they were not yet at the level of the output in CWTS' more traditional research themes from the Advanced Bibliometric Methodologies group. Many of these topics are new to CWTS and need more time to come to maturity and integrate fully with the Centre's traditional strengths. The committee is confident that as these topics develop and mature, the resulting output will achieve the same high impact as publications from the Centre's more traditional topics. The epistemic enlargement achieved through including more qualitative empirical work is valued as a key improvement.

While the strategy is still in the process of implementation, the committee feels that it is not too soon to reassess what has been achieved, and to strategically focus in the medium term on areas of research where the synergy between the qualitative and the quantitative orientation has the potential to grow.

The interaction between the contract work undertaken by CWTS BV and basic research is clearly visible in the CWTS. All researchers were very eager to reach a balance between contract work and basic research and could see the advantages of working for the BV to sharpen their research questions. In general this balance appears to have been achieved, though a few staff reported concerns in this regard. The Committee endorses the continued close relationship between the academic and commercial arms of the Centre.

3.2. Relevance to society

Clearly the work of CWTS has had, and continues to have, a very large impact on policy and management strategies within higher education, and research institutions more generally. It has a history of closely working with policy makers and institutional research leaders and successfully continues on this path. The staff has extensive external connections and professional memberships as documented in the Centre's Impact Matrix.

There appears to be a new emphasis on reaching out into the wider scientific community, and engaging in debates with broader audiences. CWTS was one of the senior authors of the Leiden Manifesto, which lays out ten principles to guide research evaluations, and has been very active in seeking to disseminate it as broadly as possible. The CWTS Leiden Rankings has a broad outreach, both nationally and internationally. The committee also notes and approves the centre's open source policy of sharing its newly developed visualisation software (VOSviewer and CitNetExplorer) which are showing significant uptake by the community.

The Committee believes the potential for broad societal impact is even greater when the newly established research disciplines are integrated with their existing quantitative strengths. The committee finds that CWTS is making good progress in this regard and wish to encourage CWTS to continue in this direction. They can make an important contribution by

publishing papers that deal with science and society issues such as careers, health, science policy and the effects of evaluation.

As the use of quantitative evaluation methods rises within the research sector, it has also been accompanied by an increase in the number of commentaries critical of their use. The Centre has been proactive in responding to these criticisms. This is where the Committee sees considerable benefit for the Centre in gaining insights from qualitative methods to assist them in responding to these criticisms. However, such insights also carry with them a risk that the findings of this qualitative research may undermine the efficacy of their more traditional quantitative methods. The management team of the Centre will need to monitor these potential tensions closely and work to resolve any epistemic conflicts should they arise.

Teaching is not only a way of reaching wider audiences but also the basis for innovation and a source for attracting new talent. CWTS's contribution to society through education is growing. The Committee notes the development of additional bibliometric courses and a minor program, *Science and Technology in Society*. The committee supports the efforts of the CWTS in these developments, and in particular their desire to develop a master's program.

The committee also supports CWTS in its collaborative efforts on the development of a new bachelor program on the "information society" in which the Centre would ultimately have significant involvement. While this project is still in its infancy, the committee believes that the addition of a bachelor programme would add institutional legitimacy to the expanded CWTS within the Faculty and the University.

During our interviews with CWTS staff, there was much discussion about the obstacles they face in acquiring the necessary accreditation certificates which are a necessary precursor to achieving the Centre's aim of an expanded teaching role. They are in the "Catch-22" situation faced by any unit focussing on a small and rapidly evolving discipline where there are limited opportunities to obtain the required teaching experience. The committee understands the need for certification, but urge the Board of the University to be flexible in their approach to this issue to enable the staff of CWTS to qualify for BKO (*Basiskwalificatie Ondervijis*).

3.3. Viability

CWTS has able leadership, is on a sound financial footing, has put together a very comprehensive plan for the future, and has an excellent infrastructure for conducting large-scale studies. However, the future holds a number of uncertainties.

Strategy

The Centre is in a period of rapid transition from its traditional emphasis on quantitative studies of science and technology to a more qualitative empirical approach. The internal organisation of CWTS instigated by the new director to meet the challenges of this changing environment, in particular the five working groups and their topics, were well chosen and complement each other. The matrix structure has worked well in facilitating a change in culture and an expansion of research methodologies and topics. By the inclusion of external members, the groups have also worked well in strengthening and expanding the centre's research networks. However, the Committee believes it is now time to review the working groups and to reflect on which strands have been successful, and which have been less so. In particular, which show the greatest potential for tapping into their outstanding strengths on the quantitative side.

The committee also believes it is time to fully integrate the chairs into a renewed working group structure rather than having them as separate entities. The two new themes on

altmetrics and open access are timely choices; however it is important to avoid simply adding them as extra topics. These new topics should also be integrated into a re-focused working group structure, otherwise overlapping or disconnected chairs, themes and groups may lead to too much complexity and lack of focus for staff who have multiple roles.

The committee noted the re-appointment of the director for a further three years and wish to record our support for his continuation in the position. The wide-ranging changes he has introduced are starting to bear fruit, but for their full potential to be realised the Centre management team need to continue with the same strategy and consolidate the changes. However, as already stated, although the strategy is still in the process of implementation, the committee feels that it is not too soon to assess what has been achieved, and in the medium term to focus strategically on areas of research where the synergy between the qualitative and quantitative orientation, and new and traditional disciplines, has the potential to strengthen and grow.

Funding

Despite the positive statements in the preceding paragraphs, the committee recognises that CWTS faces a number of risks, particularly associated with the company which contributes significantly to its funding.

The fact that the Centre has not been able to negotiate a contract with Elsevier to use their Scopus database for commercial purposes was a significant concern to the Committee, particularly as such arrangements do exist, and the committee urges them to try to reinvigorate negotiations. Reliance on a single data source for much of their contract work is fraught with danger. This concern was heightened by the announcement, as this report was being finalised, that Thomson Reuters is seeking to divest itself of its Intellectual Property and Science business, which includes the Web of Science – and Elsevier is listed as one of the potential buyers.

There is also a risk in the growing competition from other scientific groups who also now have access to large-scale bibliometric databases for scientific analysis. There are also concerns that the database providers themselves are increasingly offering their own bibliometric products, and could well place restrictions on what CWTS can do with their data, particularly in the commercial area.

The diversification of the research agenda of CWTS could be of considerable benefit in lessening some of this risk. By incorporating qualitative methodologies into their commercial work, they may be able to avoid being seen as direct competitors to Thomson Reuters and Elsevier. While this diversification is not yet visible in the type of contracts undertaken, the external SWOT analysis of BV clients commissioned for this review suggests they would be open to such developments. They comment on the Centre's inward focus and heavy reliance on one standard methodology. It is likely that this will increasingly fail to fully satisfy clients' needs as they seek a more nuanced view of the complex notion of research performance. And from the interviews with staff the committee saw that, after a little initial reluctance, there now appears eagerness among members of the new research groups to participate in contract work.

The committee advises CWTS to proactively seek out clients and projects which will increase the demand for this more qualitatively oriented contract research. The centre needs to think "outside the box" to expand its client-base. One type of organisation that appears under-represented is the charities (*collectebus fondsen*). They distribute significant amounts of research funding, particularly for biomedical research, and have a vital interest in assessing the impact

of the research they support. In a number of other national systems, such organisations are common clients for the type of contract work undertaken by CWTS.

Finally, one “risk” is that CWTS BV could become too successful and this could seriously jeopardise their relationship with the data suppliers. There is also a resources issue related to success. Even though many CWTS staff supports the work of the company, it appears to be operating at full capacity. Any increased demand for their services will have to be managed very carefully. In particular, there is a concern that the pressures on the staff of the Advanced Bibliometric Methodologies working group to act as a production team for the contract work may interfere with their ability to build on their significant recent advances. The committee suggests the Centre to look at hiring non-academic staff to undertake routine data extraction and manipulation tasks within CWTS BV, a strategy that has been used successfully in similar units.

The committee also advises CWTS to continue its efforts to attract competitive funding. A bigger share of second stream funding in the budget will not only improve the viability of the institute, but is likely to enhance the quality of its research. It may also go some way to addressing our concerns about career opportunities for staff, which the committee details in the following section.

Governance and human resources

It is important that CWTS maintains its innovative capability in the quantitative area while expanding into the new thematic areas. At the same time, given that indicators, bibliometric assessments and rankings are becoming increasingly prominent in research systems, the committee sees the qualitative approach as an essential asset. The Committee can see that the effort to develop a more reflexive approach in the research orientation of CWTS could potentially cause tensions with the clearly client oriented side of the business side of the organisation. This tension requires close attention and should be more explicitly addressed. However the committee endorses the continued close relationship between the research and commercial arms of the Centre.

CWTS is a small organisation which attracts young talent but may not have enough career opportunities within the Centre itself. The Centre could face a loss of competence and specific expertise if it is not able to retain ambitious talented researchers. The committee recommends that the centre develop opportunities for career advancement for their junior researchers. One way this could occur is through success in applications for Vein, Vida and Vice awards, and for this the support and assistance of the Centre’s management team is critical. The committee also suggests learning from the experience and best practices of the medical fields to resolve the concerns about chairs in applied disciplines.

With such a major re-organisation as CWTS has gone through, it is inevitable there are still some issues that remain to be addressed. Much focus in the interviews with staff was on the integration of new staff experienced in qualitative methodologies into a Centre that has traditionally focussed on quantitative methods. But there is another side to this issue. Long-term staff of CWTS has been very valuable and productive members of the Centre, and the reorganisation will have just as much impact on their work as those recently arrived in the “new CWTS”. Support, creative solutions, and a little more time may still be required to assist them in finding their niche in the new organisation. Given their talents and loyalty to CWTS, the committee believes the extra effort is warranted.

With the rapid growth of CWTS, it is perhaps time to adopt a more explicit approach to management practices. The committee comments further on a lack of formal policy on

research integrity in section 3.2 and the need for a more formal PhD structure in section 3.1. It also applies to other management issues, such as career advancement, hiring procedures, and gender balance. While the implicit policies appear to have been operating well (e.g. the improvement in the gender balance of the Centre is clearly visible), it is now time for these procedures and policies to become transparent and to be documented.

4. Additional aspects required under SEP

4.1. PhD programme

Recently PhD education has played a more important role in CWTS. The committee finds this a positive development as it sees PhD research and training as an essential part of a research institute. Among other things, PhDs should provide the push from below to raise quality and increase innovation.

While the previous CWTS Review Committee recommended an increase in PhD students, it also recommended that this should not be rushed. This current Committee accepts this, but still feels the number of PhD's in CWTS is relatively small given the size of the Centre and the number of chairs. The committee recommends a further modest increase in the number.

The self-evaluation report claimed the PhD program had been properly embedded in local and national graduate schools, but our interviews with students suggested this was not a universal view. Indeed the committee was surprised at the variety of experiences described by the students that were interviewed. The committee would like to see a more formalised structure in PhD training and would also recommend seeking ways to improve interaction and cooperation between the students, and to develop a set of standard competencies that any PhD graduate of CWTS would be expected to have. CWTS is a unique research centre, now blending qualitative and quantitative approaches with the opportunity to undertake contract work, and the skills of its graduates should reflect this.

During the site visit it became clear that PhD students were also interested in expanding their role in contract work. The committee felt that tapping into this experience with commercial work is a unique selling point for CWTS and could be attractive to many potential PhD candidates.

4.2. Research integrity policy

The committee was impressed by the research integrity policy in place, which was revealed by the director during the site visit, though not well enunciated in the self-evaluation report. The director outlined comprehensive measures that ensured the integrity of all aspects of the work of the Centre. The university's plagiarism detection software was applied to all theses. Senior staff members explicitly discuss the existence of scientific fraud and address the issue in both their research and teaching programs. Some of the current practices of the Centre are indicative of their research integrity. For example, they have undertaken a systematic enhancement of the databases used for their indicators work such as unification of author address variants, the correction of citation errors, and quality control.

The director believed that sloppy research was a greater potential problem than blatant fraud. He believed they had minimised the risk of this by building collaborative teams to ensure data problems did not arise; by discussing draft papers; by focussing on methodology in research seminars; and, importantly, by "making it safe to admit errors".

The committee believes the practices in place give confidence in the research integrity of the Centre. However, this policy is not documented and the Committee recommends that it be made more explicit.

5. Summary and Recommendations

5.1. Summary

In the review period the Centre for Science and Technology Studies of Leiden University was appraised to be a well known research Centre with a broad focus and expertise. The Centre took on board the recommendations of its previous review and has taken crucial and bold steps to broaden its focus, and these are being successfully implemented. They have expanded their activities from a quantitative and mathematical orientation to incorporate more qualitative research methods and projects. The review committee fully supports this strategy. CWTS has been shown to be an influential player in the field of scientometrics, and its work has a large impact on policies and management strategies within the research sector. The research programme of CWTS is and will continue to be important for the academic world and certainly adds to the visibility of Leiden University as a prestigious research university.

5.2. Recommendations

Research strategy

1. The last seven years since the previous review has seen a rapid increase in the size of CWTS and a broadening of its research base to incorporate qualitative methods. While this strategy is not yet fully realised, the Committee believes excellent progress has been made and supports the continuation of that strategy to see the various methodologies fully integrated into the research culture of the Centre. That said, the committee believes it is not too early to monitor the effectiveness of the working groups, incorporate the research themes, rationalise the number of groups, and fully integrate the chairs into a refined management structure. In particular, the committee urges the Centre to focus strategically on the research topics and projects where the synergy between quantitative and qualitative methodologies is most compelling, has the most potential for growth, and has the greatest potential for tapping into their outstanding strengths on the quantitative side. CWTS should not hesitate bringing to an end any unproductive activities that are identified in a review of working groups.

Funding

2. While CWTS has been very successful in attracting external funding through the contract work of its commercial arm, there remain inherent risks with their current strategy. These include the entry of other players into the market for contract work, both from other research centres and from the data suppliers themselves; and the belief that the Centre's standard project methods may no longer fully satisfy even its traditional clients. The Committee strongly recommends that the Centre try to reduce its reliance on its traditional client base and standard contracts.
3. The Centre should seek to raise the proportion of its budget that comes from second stream funding. This will not only improve the viability of the Centre's funding base, but will also have its impact on the visibility of its basic research.
4. The committee also recommends that the Centre broaden its client base, proactively seeking clients and projects that will increase the demand for more contract research that is oriented towards the new methods that have been introduced to the Centre.
5. Finally the committee urges the Centre to attempt to reinvigorate negotiations with Elsevier to enable the use of the Scopus database for contract work. Reliance on a single data source for much of their contract work is a significant risk, particularly

given recent reports that Thomson Reuters is seeking to divest itself of the unit that houses the Web of Science, and the uncertainty for the future that now creates.

Governance and human resources

6. The last five years have seen a rapid expansion of the Centre; however management practices and policies have to a large extent existed on an informal basis. The committee had no major reservations about the practices that appeared to implicitly apply and could, for example, see the marked improvement of the gender balance of the Centre. However, the committee believes policies on career development, gender balance, research integrity, and the like should be documented, and thus making them more transparent and more robust when leadership changes in the future.
7. While much of the focus on recent years has, quite rightly, been on achieving the successful integration into the Centre of staff specialising in non-quantitative methods, the management team should now also address some remaining concerns for long-term CWTS members who also face challenges in integrating into the 'new CWTS'.

Education and training

8. The committee endorses and encourages the Centre's desire to expand its teaching role, both at the undergraduate and master's levels. However, CWTS is a leading Centre in a small but rapidly growing discipline. This presents problems for the staff who have limited opportunities to obtain the required teaching experience. The Committee urges the Board of the University to be flexible concerning the requirements for participation in BKO training and to enable the staff of CWTS to qualify for this certification.
9. While the self-evaluation report suggested the students were well integrated in university or national programs, the interviews with students painted a somewhat different picture. The committee would recommend the adoption of a more formalised structure in PhD training and suggest the management team seek ways to improve interaction and cooperation between the students, and to develop a set of standard competencies that any PhD graduate of CWTS would be expected to have. The committee also recommends a further modes increase in the number of students.

Appendices

Appendix 1: Curricula Vitae of the committee members

Linda Butler

Professional experience

- Consultant - current
- School of Politics and International Relations, CASS, ANU School Visitor – current
- School of Humanities and Social Sciences, University of Newcastle Conjoint Professor – current

Academic qualifications

B. Econ. (Qld) 1972

Henry G. Small

Professional experience

Henry G. Small is currently the Senior Scientist at SciTech Strategies, Inc. He was previously the Director of Contract Research and Chief Scientist at ISI, and held senior positions at the American Institute of Physics in New York.

Reinhilde Veugelers

Current position

- Full professor at the K.U. Leuven, Faculty of Business and Economics, Management, Strategy and Innovation Department
- Senior Fellow at Bruegel, Bruxelles
- Research Fellow at Center for Economic Policy Research (CEPR), London

Eduard Klasen

Current position

Eduard Klasen is Adviseur Executive Board University Medical Centre Leiden and part-time professor Management of Health Research University Leiden. Eduard Klasen is former member of the Executive Board and former dean of the University Medical Centre Leiden. Eduard Klasen is appointed vice chair of the Supervisory Board VU –VUmc until 6 September 2017.

Ulrike Felt

Current position

Ulrike Felt is Professor of Science and Technology Studies since 1999 former head of Vienna STS department and now Dean of the Faculty of Social Sciences.

Appendix 2: Explanation of the SEP criteria and categories

Three criteria that have to be assessed.

Research quality:

- Level of excellence in the international field
- Quality and Scientific relevance of research
- Contribution to body of scientific knowledge
- Academic reputation
- Scale of the unit's research results (scientific publications, instruments and infrastructure developed and other contributions).

Relevance to society:

- quality, scale and relevance of contributions targeting specific economic, social or cultural target groups;
- advisory reports for policy;
- contributions to public debates.

Viability:

- the strategy that the research unit intends to pursue in the years ahead and the extent to which it is capable of meeting its targets in research and society during this period;
- the governance and leadership skills of the research unit's management.

Category	Meaning	Research quality	Relevance to society	Viability
1	World leading/excellent	The unit has been shown to be one of the most influential research groups in the world in its particular field	The unit makes an outstanding contribution to society	The unit is excellently equipped for the future
2	Very good	The unit conducts very good, internationally recognised research	The unit makes a very good contribution to society	The unit is very well equipped for the future
3	Good	The unit conducts good research	The unit makes a good contribution to society	The unit makes responsible strategic decisions and is therefore well equipped for the future
4	Unsatisfactory	The unit does not achieve satisfactory results in its field	The unit does not make a satisfactory contribution to society	The unit is not adequately equipped for the future

Appendix 3: Programme of the site visit

14 October 2015	Location: Faculty Club, Rapenburg
• 9.00-12.00	Committee members assemble
• 12.00-15.00	Preparatory meeting Committee + secretary (lunch at 12.30)
• 15.00-15.15	Welcome to Committee by Paul Wouters
• 15.15-16.15	Interview round 1: Chairs
• 16.15-17.15	Interview round 2: 3 Working Group and Theme leaders
• 17.15-18.15	Interview round 3: 3 Working Group and Theme leaders
• 18.30	Dinner
15 October 2015	Location: CWTS Common room
• 9.00-10.00	Interview round 4: Management team – including ICT and finance
• 10.00-10.45	Interview round 5: BV/PBM
• 10.45-11.15	Interview round 6: Training & education
• 11.15 – 12.15	Interview round 7: PhD's 2x 3
• 12.15-12.45	Interview round 6: Post-docs
• 12.45-13.30	Lunch
• 13.30-14.00	Exit interview Paul Wouters
• 14.00-17.00	Committee assessment meeting
• 17.00-17.15	Feed back to CWTS (all invited) on assessment
• 17.30	Drinks

Appendix 4: Quantitative data

Table 1 CWTS personnel 2008-2014

Research staff fte	2008	2009	2010	2011	2012	2013	2014
Scientific staff	8.9	12.3	12.9	12.1	13.0	12.7	14.2
Postdocs						0.6	1.2
PhD students				0.1	2.5	3.0	3.2
Total research staff	8.9	12.3	12.9	12.2	15.5	16.3	18.5
Support staff	5.1	5.5	5.1	7.4	8.1	8.9	6.7

Table 2 Revenues (x1000)

	2010	2011	2012	2013	2014
University funding	1683.9	1646.0	1663.9	1632.7	1623.3
Contracts Institute	617.7	144.7	446.0	552.1	713.5
Contracts Company	980.5	1045.6	904.4	1021.0	1148.3
Total	3282.0	2836.0	3014.0	3206.0	3485.0

In the period under review the research unit had the following output

Table 3 Aggregated results of the publications of CWTS

	2008	2009	2010	2011	2012	2013	2014
Refereed and non-refereed articles	14	17	25	25	24	22	20
Books						1	1
Book chapters	0	1	0	1	4	9	6
PhD theses	0	0	0	0	2	0	0
Professional publications	0	0	1	11	9	6	8
Total publications	14	18	26	37	39	38	35