

Date
July 8, 2022

Our reference
Position Executive Board

General Affairs Department
Executive Board

T +31 (0)40 247 2178
a.r.t.v.eerd@tue.nl

www.tue.nl

Position of the Executive Board of Eindhoven University of Technology regarding the assessment of Computer Science

In January 2022 an international review committee assessed the research of Computer Science conducted by nine research institutes and three research schools in the reference period 2015-2020.

The research institutes are:

- Subdepartment of Computer Science, Eindhoven University of Technology (TU/e);
- Department of Computer Science and Department of Information Science, Open University (OU);
- The Leiden Institute of Advanced Computer Science (LIACS), Leiden University (UL);
- Department of Data Science and Knowledge Engineering, Maastricht University (UM);
- Institute for Computing and Information Sciences, Radboud University (RU);
- Department of Computer Science, University of Twente (UT);
- Informatics Institute, University of Amsterdam (UvA);
- Department of Computer Science, VU University Amsterdam (VU);
- Utrecht Research Institute of Information and Computing Sciences, Utrecht University (UU).

The research schools are:

- Advanced School for Computing and Imaging (ASCI);
- Institute for Programming research and Algorithmics (IPA);
- Netherlands Research School for Information and Knowledge Systems (SIKS).

The assessment was carried out using the Strategy Evaluation Protocol 2021-2027 for the research assessment of public organizations in the Netherlands.

The committee assessed the scientific quality and relevance and utility to society of research conducted in the reference period 2015-2020, as well as its strategic targets and the extent to which it is equipped to achieve them. Accordingly, three main criteria are considered in the assessment: research quality, relevance to society, and viability. Also, the following four specific aspects were incorporated: Open science, PhD policy and training, academic culture, and human resources policy.

The assessment committee consisted of:

- Prof. Jos Baeten, Centrum Wiskunde en Informatica (chair);
- Dr. Christine Morin, Inria Rennes (National Institute in Digital Science and Technology), France;
- Prof. Ann Nowé, Vrije Universiteit Brussel, Belgium;
- Prof. Paola Inverardi, University of L'Aquila, Italy;
- Prof. Karl Bringmann, Saarland University and Max Planck Institute for Informatics, Germany;
- Prof. Laurie Williams, North Carolina State university, USA;
- Prof. Alan Smeaton, Dublin City University, Ireland;
- Prof. Eero Hyvönen, Aalto University, Finland;
- Tim Gubner MSc, Centrum Wiskunde en Informatica (PhD candidate).

The committee made the following assessment for TU/e:

Research Quality

- 'Research-wise the CS/e unit is clearly among the top Computer Science departments in the Netherlands, as indicated by 29 best paper awards, a large number of prestigious doctoral dissertation awards for the PhD candidates, and many research grants (including 3 VENI, 1 VICI, 4 TOP, 1 ERC Starting grant).'
- 'The committee noticed that the referenced publications were all in top international journals and high-quality conferences (rated A* or A) in their respective domain for most of the clusters.'
- 'The CS/e unit has also contributed to highly recognised software and datasets.'
- 'The CS/e unit also participates in various partnerships, national and international. For example, the CS/e unit participates with the university of Amsterdam, Leiden University and CWI in the Networks 10-year Gravitation project funded by the Ministry of Education. Nevertheless, the committee noticed that the slope of increase of grants and contracts does not follow the same rate of increase as the direct income (which depends on the number of bachelor and master students).'
- 'The CS/e unit is visible in the international research community. (...) The committee recommends keeping a healthy balance between second- and third-stream income. In addition, applying to competitive personal grants should not be neglected to get funding for fundamental research.'

Relevance to society

- 'The CS/e unit has excellent connections with industrial partners, taking advantage of its geographical location in the heart of the Brainport region. Strong links with industry are established through different means: collaborative projects, PhD candidates funded by industry, PDEng programmes (software technology and automotive system design) hosted in the department, thesis projects in industry for master students, and joint professorships.'
- 'The large number of co-publications with industrial partners (more than 15%) is an indicator of successful collaborations. However, the drop-out rate of PhD candidates funded by industry is high. The committee recommends a close monitoring of PhD candidates funded by industry.'
- 'The CS/e unit targets high socio-economic impact through technology transfer to industry.'
- 'Several researchers contributed to the shaping of research agendas in cybersecurity, big data, and connectivity systems. There are a few contributions to standardisation in data and information systems (e.g., NIST (CVSS), Open AIS in IoT).'
- 'The committee was impressed by the number of MOOCs (13) produced during the evaluation period and their success in terms of the number of learners (thousands of learners for all of them).'

Viability

- 'TU/e has taken into account the concerns of the previous evaluation. The organisation of the department has been improved.'
- 'There is no plan to increase the number of clusters, but the management team rather seeks to strengthen the existing ones. The CS/e unit wants to support the existing staff with the direct funding which is increasing with the number of students rather than hiring new assistant professors. (...) The CS/e unit should take measures to attract and keep talents, especially in data science and cybersecurity which are domains under pressure.'
- 'A high turnover could be detrimental to future research quality. In the Netherlands, a new system for Recognition and Rewards is being developed to recognise diverse career paths. The committee encourages the CS/e unit to move forward in this direction.'
- 'The CS/e department is well poised to continue to have a socio-economic impact in the coming years thanks to its solid network of industrial partners. The CS/e unit seems to lack space which may become a major issue after the pandemic.'

PhD policy and programme

- 'PhD candidates at TU/e appear to be well embedded in their research groups.'
- '(...) PhD candidate's performance is evaluated yearly and, if necessary, their TSP can be adapted. After the first year, the evaluation is used to make a go/no-go decision.'
- '(...) It is noteworthy that the candidates appeared to be satisfied with the programme. Still, the committee believes that the TSP should be made slightly more standardised and strict i.e., less reliant on the supervisor(s). In particular, the committee imagines mandating a rather open set of courses (e.g., writing and presentation) for general skills and other educational courses (e.g. from Research Schools).'
- 'To reduce the teaching load on the remaining (junior and senior) staff, TU/e introduced a PhD-TA track which includes a higher teaching load (25%) and a longer contract (5yr). While PhD candidates appear to enjoy teaching in general, the actual teaching load should be closely monitored such that it does not (unintendedly) exceed 10%/25%.'
- '(...) Therefore, the committee recommends that both the recent increase in delays as well as the dropout rate should be closely monitored and investigated.'

Open science

- '(...) Overall, the committee applauds the university and M&CS department's commitment to open science and commends that the needed support for open science is already in place. The department should continue to provide high-quality and proximity support to researchers to ensure all new research projects undergo an ethical review before they start and rigorous research data management.'

Academic culture

- 'Several processes have been formalised and good progress has been made towards a good working atmosphere. (...)'
- 'The department has followed the Dutch code of conduct for research integrity from 2018. TU/e has a code of conduct regarding collaboration with industry.'

Human resources policy

- '(...) The committee is of the opinion that all these measures are going in the right direction towards transparency in recruitment and promotion processes, better gender balance, diversity, and support to parenthood. Still the CS/e unit is far from the target regarding gender balance and should pursue its efforts.'

The committee made the following conclusion:

- ‘The quality of the research during the evaluation period was very good to excellent as demonstrated by a number of indicators such as the number of best paper awards, the numerous prestigious PhD awards, the use of the results by peers, the high visibility in the international community, its researchers taking leading role in editorial activities and organisation of scientific events.’
- ‘The TU/e CS unit has maintained strong ties with industry and is thus well poised for its research to continue to have a strong socio-economic impact in the future.’
- ‘During the review period, the TU/e CS unit experienced a considerable growth in the number of bachelor and master students, which was not fully anticipated. Consequently, researchers have had a very high teaching load. The department has taken advantage of the Sectorplan funding and the increase of the first stream funding to hire a large number of assistant professors. Moreover, to alleviate the teaching load it hired PhD-TA and Teaching Assistants. In the future, the department management team should pay attention to the teaching load of its staff, the duration of PhD theses, and career development of the newly recruited research staff members.’

The committee also made concrete recommendations for further improvements in the future:

- ‘The management team needs to continue working hard on appropriate means to alleviate the teaching load as it may have negative consequences on the research quality and attractiveness in the medium to long term.’
- ‘Curiosity-driven research should be encouraged as well as application-oriented research.’
- ‘The department should continue its efforts for increasing the amount of second- and thirdstream funding.’
- ‘The requirements in terms of training and achievements for PhD candidates to be authorized to defend their PhD thesis should be clarified. PhD candidates should have more mandatory courses (e.g., a course on writing a data management plan).’
- ‘Putting in place a clear process involving all relevant stakeholders to ensure that each new research project undergoes an ethical review as well as a review of its data management plan before it starts or at its early beginning.’
- ‘Monitoring the PhD completion time for PhD-TA and analysing the reasons for the high dropout rate, especially for PhD candidates s working on projects with industry. The department should devise processes to better monitor the progress of these PhD candidates to ensure they fulfil the requirements to defend their PhD thesis in a reasonable time.’

The Executive Board highly appreciates the work of the committee and the recognition of the excellent quality of the research of Computer Science at TU/e. It is equally appreciative of the concrete recommendations of the committee. The Executive Board will discuss the recommendations with the management of the research unit.

The Executive Board of TU/e has accepted the report and its recommendations and wishes to thank the assessment committee for the considerable time and effort it has spent on this assessment.

On behalf of the Executive Board,



Prof.dr.ir F.P.T. Baaijens
Rector Magnificus Eindhoven University of Technology