



RESEARCH ASSESSMENT

LANGUAGE, COMMUNICATION AND
COGNITION

VRIJE UNIVERSITEIT AMSTERDAM

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REPORT ON THE RESEARCH REVIEW OF THE RESEARCH UNIT LANGUAGE, COMMUNICATION AND COGNITION OF VRIJE UNIVERSITEIT AMSTERDAM

1. FOREWORD BY COMMITTEE CHAIR

Regular review of a research institute is an essential instrument to guarantee its scientific quality, societal relevance and viability. A panel of international experts had the challenging task to form a balanced judgement of the Language Communication and Cognition (LCC) cluster of the Vrije Universiteit Amsterdam (VU) on the basis of a self-evaluation report, a site visit (which was organized virtually this year) and a variety of discussions with research leaders, senior and junior staff, and PhD students. In the case of LCC this task was even more challenging, because the committee had been asked to focus on LCC alone, while it became clear very soon, and even more so after the online site visit, that LCC is not an autonomous research structure. Indeed, the interviews helped the committee understand what the precise position of LCC is in relation to other management levels. It became clear that in practice, LCC does not function as a strategic unit of research. The university as a whole is moving from an organization in which research is organized along disciplinary lines to one structured along interdisciplinary lines, across faculties. The infrastructural consequences of the current developments are still in flux, which is why the committee was asked to evaluate LCC, even though it currently has no autonomy in directing and supporting research as an academic unit. For future assessments it would probably make more sense to assess LCC as such, i.e. as one of the clusters fulfilling research strategies at the interfaculty level. This being said, the committee members were impressed by the high quality of the research produced in the LCC cluster, which is without any doubt linked to the very research-friendly atmosphere and the good working conditions in the different research units.

Given the particular circumstances of this year's online visit, I would like to stress the keen organization and the smooth interaction before and during the assessment visit. The researchers of the LCC cluster were assiduous in providing us with a great deal of additional information on their work, thus providing us with the necessary means to sketch the whole picture of the ongoing research at LCC. I am certain that I speak for all committee members when I acknowledge how much we profited from this very cooperative atmosphere.

Many persons were involved to make the effort as enjoyable as it turned out to be. On behalf of the review committee I would like to thank them all, in particular Prof. dr. Piek Vossen and dr. Liesbeth Geudeke. Last, but not least, Qanu provided invaluable professional assistance in person of Peter Hildering MSc (project coordinator) and dr. Jetje De Groof (secretary).

Prof. dr. Liesbeth Degand
Chair of the committee



2. THE REVIEW COMMITTEE AND THE PROCEDURES

2.1. Scope of the review

The review committee Linguistics was asked to perform a review of research conducted between 2013 and 2019 in the research cluster Language, Communication and Cognition (LCC) of the faculty of Humanities of the Vrije Universiteit Amsterdam (VU).

In accordance with the Standard Evaluation Protocol 2015-2021 (SEP, amended version September 2016) for research reviews in the Netherlands, the committee's tasks were to assess the quality, the relevance to society and the viability of the scientific research at the research unit as well as the strategic targets and the extent to which the unit is equipped to achieve these targets. A qualitative review of the PhD training programme, research integrity policy and diversity also formed part of the committee's assignment.

The Board of the LCC provided the committee with Terms of Reference concerning the assessment. In this document, the Board asked the committee to pay special attention to and offer recommendations in the assessment regarding the following two aspects:

1. The inter- and cross-disciplinarity of LCC's research projects and goals (according to the faculty research policy and targets);
2. Services for other research groups working with digital humanities.

2.2. Composition of the committee

The composition of the committee was as follows:

- Prof. dr. Liesbeth Degand, Professor of General and Dutch Linguistics, Université catholique de Louvain (chair);
- Prof. dr. Harald Baayen, Professor of Quantitative Linguistics, Universität Tübingen;
- Dr. Kristof Baten, General Linguistics and Second Language Acquisition, Universiteit Gent;
- Prof. dr. Jeannette Littlemore, Professor of Applied Linguistics, University of Birmingham;
- Prof. dr. ir. John Nerbonne, emeritus Professor of Computational Linguistics, Universiteit Groningen;
- Prof. dr. Karin Raeymaeckers, Professor of Communication Studies, Universiteit Gent.

The committee was supported by Peter Hildering MSc., who acted as project coordinator, and Dr. Jetje De Groof, who acted as secretary on behalf of Qanu.

2.3. Independence

All members of the committee signed a statement of independence to safeguard that they would assess the quality of the LCC unit of the Vrije Universiteit Amsterdam in an unbiased and independent way. Any existing personal or professional relationships between committee members and the research unit(s) under review were reported and discussed in the first 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.

2.4. Data provided to the committee

The committee received the self-evaluation report from the unit under review, including all the information required by the SEP.

The committee also received the following documents:

- case studies scientific and societal results;
- scientific staff of the LCC unit;
- research output of the LCC unit;
- research funding of the LCC unit;
- success rates of PhD candidates;
- key publications per research group;



- list of output according to SEP output indicators.

During the site visit, further data was provided by the LCC unit:

- Overview of joint publications by LCC staff.

2.5. Procedures followed by the committee

The committee proceeded according to the SEP. Prior to the first meeting, all committee members independently formulated their preliminary findings of the unit under review, and additional questions for clarification based on the written information that was provided prior to the site visit.

The final report is based not only on the documentation provided by the research unit, but also includes the information gathered during the interviews with management and representatives of the research unit. The interviews took place on 20 and 21 October 2020. Due to restrictions as a consequence of Covid-19, the site visit took place digitally. Preceding the interviews, the committee was briefed by QANU about research reviews according to the SEP. It also discussed the preliminary findings and questions, decided upon a number of comments and questions, and agreed upon procedural matters and aspects of the review. After the interviews the committee discussed its findings and comments, allowing the chair to present the preliminary findings and the secretary to draft a first version of the review report.

The draft report was presented to the research unit concerned for factual corrections and comments. In close consultation with the chair and other committee members, the comments were reviewed by the secretary and incorporated in the final report. The final report was presented to the Executive Board of the University and to the management of the research unit.

The committee used the criteria and categories of the Standard Evaluation Protocol 2015-2021 (SEP). For more information see Appendix 1.

3. ASSESSMENT OF LANGUAGE, COMMUNICATION AND COGNITION

3.1. Strategy and targets

Organizational context and governance

The faculty cluster LCC is part of the *Taal, Literatuur en Communicatie* (Language, Literature and Communication) department of the Faculty of Humanities, which covers a broad spectrum of topics on language, media and communication. Research at LCC is organized within seven research groups, each headed by a full professor: General Linguistics, Applied Linguistics, English Linguistics, Language Use and Cognition, Computational Linguistics, Journalism Studies, and Language & Communication. LCC had 28.8 fte research staff in 2019.

LCC was a research focus group within the faculty until 2012, with a strong identity in the area of effective communication. The organizational context in which LCC operates has changed dramatically since the last review, however. Research at the VU is now organized in terms of interfaculty research institutes and four university-wide profile themes, explicitly promoting inter- and cross-disciplinary research. Currently, LCC is one of the clusters embedded in the Network Institute (NI), an interfaculty research institute which is host to more than 200 researchers spread over different faculties (humanities, social sciences, computer science, business and economics, and law, among others), and which feeds into the VU profile theme of Connected World.

The committee explored the governance structures and management instruments that drive research at LCC with different groups of interviewees. The interviews helped the committee understand what the precise position of LCC is in relation to other management levels. It became clear that in practice, LCC does not function as a strategic unit of research. The university as a whole is moving from an organization in which research is organized along disciplinary lines to one structured along interdisciplinary lines, across faculties. The infrastructural consequences of the current developments are still in flux, which is why the committee was asked to evaluate LCC, even though it currently has no autonomy in directing and supporting research as an academic unit. The governance of the unit and the tools for research governance and management, such as hiring, funding, equipment, research facilities, are spread over the department, faculty and NI. In this sense, LCC is one of the voices between the departments and the faculty, where most decisions are made in coordination. LCC argued during the site visit that this reflects how the VU is organized: cross- and interdisciplinary require that researchers collaborate at every level.

In talking to the different groups of interviewees, it became clear to the committee that, even though this governance structure looks complex to an outsider, the structure is working well at the moment. The organization of LCC into smaller units allows each group to operate freely within their specific fields of research, while the NI and the Connected World theme provide opportunities for interdisciplinary research. In terms of identity, researchers seem to feel at home primarily within their individual research groups, yet LCC members at different levels of seniority also expressed a sense of belonging to LCC. Junior and senior staff reported appreciating LCC as a facilitating structure for organic collaboration. The committee learned that LCC researchers are not experiencing problems navigating this seemingly complex structure. They are satisfied and feel served by the way it is organized.

Even though LCC cannot fully determine its own strategy, the committee thinks that LCC currently has sufficient impact on the decision-making at the different organizational levels it has to coordinate with to function as a strategic unit at the moment. The chair of the department of Language, Literature and Communication, Professor Lourens de Vries, is the head of one of LCC's research groups. The head of another LCC research group, Professor Piek Vossen, is the faculty's vice-dean of research, and in this capacity he is close to the decision-making on policies and financial arrangements of the NI. The committee noted that this situation is not embedded in the governance structure, but results from appointments that can be subject to change (see also 3.4. 'Viability').



Mission and strategy

The self-evaluation report states that LCC aims to understand language and media and their functioning within communicative processes in interpersonal and institutional settings. Its ambition is to extend its empirical and data-driven cross-disciplinary research lines. In its research it addresses language as a system, studying the full spectrum of language. It considers this comprehensive approach a key factor in creating opportunities for cross-disciplinary collaborations with other disciplines and societal partners.

LCC's first main strategy during the evaluation period, according to the self-evaluation report, has been to leverage these opportunities and exploit its embedding in the VU's interfaculty and university-wide research institutes, given the expertise of the researchers in the different groups. In particular, the aim has been to achieve bottom-up alignment of its researchers with selected research foci. This strategy seems to be bearing fruit. LCC is highly networked within the university and strongly embedded within VU's NI. The committee noted that there is an increasingly strong commitment by researchers to collaborate. The cross-disciplinary strategy of the VU is widely supported by the chairs and other researchers alike. LCC is strategically involved in many collaborative interdisciplinary research efforts, involving disciplines ranging from religious studies and health sciences to information science. Prominent examples include research into cochlear implants that is being conducted by the Applied Linguistics group (the Audiological Center), and research into automatic news reading that is being conducted by the Computational Lexicology group. Both of these lines of research are being pursued in collaboration with other parts of the university under the auspices of the NI. The committee noted however that collaborative research is taking place primarily outside of LCC, either with international experts or with colleagues in other faculties at the VU. As mentioned later in this report (see 3.4. 'Viability'), there is room for improvement at the LCC level to facilitate interaction between its different groups.

LCC's second main strategy in the review period has been aimed at broad collaboration with societal partners in line with the societal challenges of national and European funding schemes. The committee is of the opinion that this strategy has also been successful, as witnessed by the LCC's research group's success in these funding schemes. LCC clearly plays an important societal role and has received funding from public-private partners in this context.

Research environment and talent management

The self-evaluation report mentions that it took eight years to find a new professor for the Language and Communication group. In addition, junior staff expressed their worries about the threat to continuity posed by some retirements of professors in the near future. These observations led to a discussion on the LCC's hiring strategy. In its interview with the faculty board, the committee learned that the replacement took so long because three rounds of applications were needed. It was reassured to hear that the succession planning for upcoming retirements is firmly on the department's radar. Moreover, the chairs aim to build a pyramid-like age structure in their groups, where this is possible, to ensure continuity in the long run, but some groups would require additional staffing for this to be a possibility.

The committee learned that vacancies are filled by taking into account both teaching and research requirements. The head of department communicates with the chair(s) so that a balanced profile from both perspectives can be attracted. The more groups are successful in attracting grants or collaborating with third parties, the more say they have over their own hiring.

The current agreement is that LCC staff are able to devote at least 30% of their time to research, from which PhD supervision is excluded (this is counted as education). At the team level, decisions can be made to distribute this time differently, according to current needs. All groups of interviewees admitted that their research time is under pressure due to the high teaching load, which has further intensified due to the Covid-19 pandemic. The committee gained the impression that this applies to junior staff even more than to others.

Nevertheless, the LCC's research groups seem to be successful in creating a dynamic and warm research environment. Junior staff and PhD students explicitly mentioned the supportive atmosphere, with chairs willingly



providing access to their networks. Significantly, junior staff is coached towards finding the right publication venues, especially when this proves to be more difficult, like in the case of cross- and interdisciplinary research. Targets do apply, for instance for publications and grant applications, but these targets are approached with flexibility. The committee strongly values that quality seems generally to prevail over quantity. Indicative of this conclusion is the fact that *applications for* and not *acquisition of* grants are counted. Junior researchers can start their own research lines, and this academic freedom seems to be an important point of attraction for junior researchers. Notwithstanding the clear orientation towards cross-disciplinary research, researchers are still very active in their international networks. In conclusion, the leadership of LCC's research groups clearly succeeds in creating a warm and stimulating atmosphere that fosters young talent.

Resources and facilities

The self-evaluation report describes how research is financed for the most part from external sources (FP7, NWO, NWA, ERC) and through the first money stream via the salaries of staff who have part of their time set apart for research tasks. As a whole, LCC impressed the committee with its high success rate in acquiring external research funding. Also, there are some central financial means available for special purposes, such as matching support for large-scale projects with added value for the research profile of the VU as a whole.

If researchers are in need of extra resources, they can turn towards different levels, like the department, the faculty or the NI. The committee learned from the self-evaluation report that the dean and associate dean of research of the faculty are responsible for implementing VU-wide policies, especially concerning research services (e.g., ethics review, grant facilitation) and infrastructure (e.g., ICT services, registration of output). They are supported in these tasks by various central VU services. The committee clearly saw that LCC's researchers are adept in finding their way to funding when required. One specific and much appreciated instrument of the NI that was mentioned is the Network Academy Assistants providing annual funds for 10 to 15 short-term projects (10 months), with which two staff members from two faculties hire two (master) students to work together on a project. This instrument seems to be successful in fulfilling its role as an incentive for collaborative research. The committee did learn from staff members that a larger travel budget would be welcome, especially for staff members who do not have a research budget of their own.

As regards services and facilities, it is VU policy to channel the central services to researchers either directly or via personnel embedded in the faculty. The university provides important central facilities that researchers can use for free. Technical facilities to support research include eye trackers, a media lab, an entertain lab for innovative interactions, a robot lab, and a wide range of servers (including virtual). LCC's researchers told the committee they are happy with and effectively make use of what the university has to offer.

3.2. Research quality

The committee considered the performance indicators formulated by the unit in the self-assessment report. They include the research output as well as marks of recognition from peers such as research grants, awards and membership of prestigious organizations. The committee's findings are qualitatively discussed for the unit's research programmes separately, and quantitatively assessed for the unit as a whole.

Applied Linguistics

The Applied Linguistics research group, led by Professor Martine Coene, stands out for its collaborative, impactful work on language impairment, in particular the use of language by children with dyslexia and by children with hearing impairments. The research conducted in this centre consists mainly of behavioural and experimental research and focuses on a range of disorders and impairments. The research conducted in this group is clearly of a very high academic caliber. The seven key publications that are listed in the self-evaluation document appear in some of the top Linguistics journals as well as in leading Psychology journals. This is particularly impressive as it can be difficult to publish interdisciplinary research in leading discipline-specific journals. Of particular note are the special edition of the journal *Lingua*, the Hakvoort et al. piece in the *Journal of Experimental Child Psychology* and



the Knijff et al. piece in the *International Journal of Language and Communication Disorders*. Although these are relatively recent pieces so the citations are not yet high, the calibre of these journals speaks to high levels of academic rigour, significance and originality in this research. The centre is clearly conducting work that has strong and sustained societal impact, and possibly potential for further impact. It has strong collaborations across the university and plays a leading role in the Language and Hearing Centre, which brings it together with the Audiological Centre. Ground-breaking research is being conducted into the acquisition of oral language by congenitally deaf children. The focus is on the ways in which auditory, cognitive and linguistic skills interact in the understanding of speech by deaf children. This centre hosts the 'Hearing Minds' project, and the research conducted as part of this project clearly has a strong societal impact (see 3.3. 'Relevance to Society'). The impactful nature of the research carried out by this research group is clearly helping it to attract research funding.

Computational Lexicology

Computational Lexicology (CL), also referred to as 'Computational Linguistics' in some parts of the self-assessment report, is the largest and most successful group in the LCC cluster, led by the LCC director and Spinoza Laureate, Professor Piek Vossen. CL has several very promising younger staff members as well. It is impressive how smoothly CL has managed the transition from knowledge-based processing (their work on lexica) to contemporary computational linguistics methods dominated by machine learning. The group publishes in selective venues, and their work is often cited. The group lists five key publications from the reporting period which have garnered in total nearly 200 citations, which is impressive. It is unusually strong in acquiring research funding and was recently invited to join an NWO 'gravitation' program, Hybrid Intelligence, which will ensure external funding for the next ten years. The group's work clearly attracts the attention of industry and government, as is reflected in the several large companies that have been interested in the EU project Newsreader (see 3.3. 'Relevance to Society'). LCC sees itself strategically as functioning within the larger, interfaculty NI, and it is clear that CL will play a prominent role there, perhaps as an LCC vanguard.

English Linguistics

Researchers in the English Linguistics research group, led by Professor Alan Cienki, study spoken and written English from a contrastive and cross-linguistic perspective. Publications from this research centre show how the use of language can shape people's understandings of events. This research has important applications in machine translation, but these applications have yet to be exploited by researchers within the centre. This is potentially an area that could be explored within the context of the Network Institute. International collaboration is less apparent for this research centre than for some of the other centres, but this may be due to the relatively high proportion of early career researchers in the centre in comparison with some of the other centres. The publications that are listed for the reporting period are solid pieces published in reputable international journals with impact factors that are respectable for this field, and the kinds of citation scores that one might expect given the publication dates. The work published by this group has clear potential for impact but it is not clear whether this potential is currently being tapped. For example, the work on the use of metaphor in newspapers (Krennmayr) and the powerful framing function that metaphor can perform (Reijnierse et al.) are particularly pertinent in the current geo-political context, where the framing of messages around Covid-19 and the imminent vaccination programme in the era of 'fake news', have a direct effect on health and wellbeing on a global scale. One would expect some highly impactful research proposals to be coming out of this group in the coming months as there is potential here to be tapped.

General Linguistics

The focus of the research group of Professor Lourens de Vries is on Austronesian and Papuan languages. De Vries is well known as a world-class expert on these languages, which explains why he received an 'International Collaborative Award' from the Australian Research Council. The quality of this research group is also evident from a recent ERC starting grant being awarded to his research unit. A milestone publication is a 250-page monograph on West Papuan Languages. The ERC project that has been acquired is proposed in the self-evaluation report as an instrument to strengthen the group after the retirement of de Vries. Although the committee highly values that the



ERC grant has been acquired, it recommends a more substantial strengthening of the research group in view of its viability (see also 3.4., 'Viability').

Journalism Studies

The Journalism Studies research group, led by Professor Irene Costera Meijer, is a rather small entity but highly productive in acquiring research funding and achieving dissemination through a diversified publication strategy that includes relevant high-ranking academic journals as well as publications for the general public. The group is internationally well-connected as is witnessed by collaborative research projects with the University of Bergen, but also Costera Meijer's implication in PhD trajectories in Ghent and Antwerp. Its research is closely related to the needs of the media stakeholders as well as the relevant policy actors. The focus of the research is strongly on the audience, with international network activity for comparative media and journalism research from the user's perspective. The director's well-established network with media companies offers valuable options for applied research, while the international collaboration opens the way for acquiring high-value research projects. The small scale of the research group is a possible threat for the development of the field in the longer term. It is essential to develop a strategy to sketch the future of this research field as Professor Costera Meijer has only a few years before retirement (see also 3.4. 'Viability').

Language Use and Cognition

The Language Use and Cognition research group produces world-leading research on multi-modal communication in context. Led by Professor Alan Cienki, it has established itself as a leading international centre for this kind of research. The research produced by this centre is important on a theoretical level as it shows how studying the ways in which different semiotic systems work in combination provides a much deeper and better understanding of the ways in which humans package their thoughts in order to communicate them. It thus pushes at the boundaries of traditional thinking in Linguistics. The publications produced in the reporting period are in very highly respected international journals and have high citation scores for the field. A key publication from this research centre is the Handbook on multi-modality in human interaction, which is co-edited by Professor Cienki. This is a key point of reference in gesture studies, reflecting the international standing of research on language and gesture at the VU. The centre has a wide range of strong international collaborations, particularly with Moscow State Linguistic University, which boasts an influential Linguistics Department. The potential impact of this research could be exploited further, especially given the focus on human-computer interaction and robotics that characterizes the research carried out in the Network Institute. The grant capture is relatively low for this research group but there is potential for it to increase if a more interdisciplinary approach is taken.

Language and Communication

Researchers working in the Language and Communication research group, led by Professor Hedwig te Molder, are conducting research that has a strong societal impact. Much of this research focuses on communication around healthcare and illness. It takes place in real-life healthcare settings and is conducted in collaboration with healthcare professionals. It has much to contribute on a theoretical front as well. It focuses on how the design of texts and images influences readers, whether customers, voters or patients. It thus takes theories that have been developed in the field of Critical Discourse Analysis and tests them in real-world settings. The arrival of the new chair and the corresponding refocusing on interactions between experts and the general public in communication around important social issues such as vaccination, food and climate change suggests that this research group has a promising future. The publications produced within the reporting period are in some very high impact journals for the field which testifies to their importance and rigor. There is untapped potential here in terms of the impact that some of this research might have on language teaching and journalism. Members of the research group could usefully develop stronger links with researchers and practitioners in both of these areas in order to secure more grant income.



LCC

Adding up the work of the seven research groups, the committee concludes that the LCC conducts very good, internationally recognized research. It sees some very strong areas of research, many of them being conducted in collaboration with other parts of the university. Beyond the VU, it is also clear that the different research groups of LCC are well-connected and are playing key roles in their field: witness the acquisition of large projects, the invitations as keynote speakers, the scientific prizes, the various board and committee memberships, etc.

The LCC's scientific output is very good, with a clear publication strategy and a clearly appreciated open access policy for the databases and tools. The work is being published in venues important to the respective groups, which necessarily vary. Both the quality and quantity of publications are very high, especially for a unit of this size. The strength of the groups in acquiring research funds surely indicates that their peers on selection committees judge LCC's ideas to be significant. The staff are very prominent internationally and manage some very prestigious projects. The committee recognizes that the Computational Lexicology group may claim world leadership in some research lines.

Digital Humanities

The panel was invited to comment on services provided by LCC to other research groups working with the digital humanities. With regard to *resources*, the LCC's research groups have made various corpora, language tools and software available to the rest of the university, indicating that LCC is providing useful resources to other parts of the university. In this sense LCC contributes strongly to the cluster. In particular, the Computational Linguistics group is clearly poised to contribute *services* to research groups in the digital humanities, both at the VU and elsewhere. The digital humanities workbench is mentioned, but not described in enough detail to allow comment on its success or its significance, and the work within the CLARIN programme was designed to promote the digital humanities, among other aims. The committee considers *services* to other groups working with the digital humanities as an area that could be explored further. The group's interests would also be well served if it could lead research projects in this area in addition to being a service provider.

3.3. Relevance to society

The self-evaluation report presented by LCC documents the attention paid to societally relevant research, and the committee's interviews during the virtual site visit confirmed the impression that the groups aim to engage with society. While conceding that not every subgroup in LCC is poised to develop or improve products or services in a practical way, i.e. to contribute to applied research in a strict sense, every subgroup demonstrates its awareness of the need for societally relevant research by its evident activity either in applied research (in the strict sense just noted) or in scientific popularization, or by producing advisory documents on the policy of government agencies or similar organizations.

All of the subgroups in the cluster are active in making their work accessible to the scientifically interested public, e.g. by delivering lectures in the *Studium Generale* series (and to other non-specialist audiences), by granting interviews in the popular press, by lecturing to audiences from government and industry, by providing up-to-date scientific information and handbooks for teachers and therapists, and by editing periodicals for professionals. In addition, the researchers in this cluster have taken on various tasks of serving on advisory boards for governmental or educational bodies, as well as writing advisory reports for various government agencies in an effort to ensure that government policy is scientifically well informed.

The committee was impressed by the narrative of the Applied Linguistics subgroup on their role in the Hearing Minds project, which focuses on the role of auditory perception in oral language acquisition in congenitally deaf children and the delicate interplay between auditory, cognitive and linguistic skills in speech understanding of adult language users. The group has collaborated with the industrial partner FOX (Fitting to Outcome eXpert) to develop expertise on setting the roughly hundreds of parameters needed to advise an audiologist in optimizing the



functioning of cochlear implants. Since parameters may interact, they cannot be optimized in a straightforward (independent) fashion. The quality of the work was evaluated in collaboration with a second industrial partner, Audio Speech Sound Evaluation, and resulted in novel evaluation procedures. The committee wishes to note its particular appreciation of the significance of the chair endowed by the Cochlear Technologies Center, for which LCC is to be congratulated. Indeed, this influenced our judgment of LCC with respect to societal relevance.

The committee was likewise gratified to read that the computational linguists' work on Newsreader has resulted in the product being used by several large companies, including notably Deloitte in contacts with several more, including *De Nederlandse Bank*, *Commerzbank*, Dow Jones and the World Bank.

Nonetheless, even while recognizing that LCC is committed to applied research, it must also be acknowledged that the cluster has in general been less convincingly successful in seeing its research used and recognized societally. Even while repeating its respect for the endowed chair, the committee finds it hard to discern further evidence of impact. The inspiring work in the Hearing Minds project is not reported to have led to any actual industrial implementation of the work; it seems to signify potential – as opposed to an actual – benefit for those with cochlear implants. When the committee asked about the very interesting and potentially useful work on Newsreader, for which there was a plethora of industrial interest, it learned that there simply weren't enough hours in the day for the staff involved to try to coax more substantial industrial involvement from the many existing contacts and collaboration.

Most of the items listed as evidence of the *use* of research products by societal groups are further evidence of excellent work being done by LCC researchers, even if it is unclear what those efforts have led to. As noted above, the committee judges LCC's efforts in this direction quite positively, but the list entitled "Use of research products by societal groups" (Table F, Appendix) mostly contains more of the same – conference papers, policy advisory documents, projects and successful grant proposals, studies on behaviour with respect to the interpretation of health risks, or a KNAW colloquium. The list confirms the positive note struck in our discussion of LCC's efforts in this regard. But it fails to demonstrate that LCC is being used by societal groups, e.g. that policies had been implemented, that products or services had incorporated LCC work, or that societal partners are structurally integrated into LCC's work.

It is also unclear how LCC would support researchers with an opportunity to engage more profoundly with societal partners. The self-evaluation report does not mention support being available either in LCC or in its close partners within the organization: the department, the faculty or the NI. It is clear that societal partners would be asked to bear their share of the burden of more profound engagement, but a researcher should be able to obtain guidance from her own organization as well. This leads the committee to recommend that energy be devoted somewhere within the research organization of the VU – perhaps within LCC, or the faculty, or the NI – to cultivate existing industrial contacts in order to relieve staff members with teaching and research obligations from developing their contacts independently. The committee suspects that the availability of better institutional support could lead to additional funding.

The committee comes to the conclusion that LCC makes a very good contribution to society. In terms of producing research products for societal target groups and marks of recognition by these groups, LCC is very active. Nevertheless, the committee received less proof that its products and services are actually *used*. It urges the VU to provide the necessary support so that LCC's researchers are able to take this next step.

3.4. Viability

Evaluating the viability of the LCC's research is not straightforward in light of the current state of flux the VU's research organization finds itself in (see 3.1.). The interviews revealed that LCC is not envisioned as the primary unit within which collaborative research is supposed to be concentrated and stimulated, nor as a strategic unit for



managing research. Rather it is a group of highly qualified language and communication researchers, resembling an octopus with many arms, to use a metaphor mentioned during the interviews, searching for collaboration across and outside of the university, and looking at language also as a phenomenon that links to other societal phenomena. When considering this metaphor in light of the VU's broader research strategy (see 3.1.), the committee comes to the conclusion that the group is surprisingly well-positioned for the future.

LCC is strategically involved in many collaborative, interdisciplinary research efforts across the university. The self-evaluation report describes its ambition to further solidify its current strong position in the NI and the Connected World profile. The expectation is that LCC's research will also increasingly contribute to the other university profiles. These links will help LCC to continue establishing collaborations, building consortia and developing research proposals. The strong commitment by LCC's chairs, junior and senior researchers alike to increasingly collaborate and align with the cross-disciplinary focus of LCC reflects positively on the chances of LCC to move in the intended direction. That LCC's chairs are highly networked within the organization also bodes well for the future.

Nevertheless, although cross-disciplinary research seems to be at the heart of most of the individual research groups' strategies, the committee failed to see a clear strategy for LCC as a whole. It explored whether LCC has common targets with regard to its cross-disciplinary ambitions. It learned that future research lines are indeed being developed to further strengthen LCC's position in the NI and the VU's profile themes. The topics mentioned, filter bubbles, journalism and news, and health-literacy projects, all seem to the committee to be promising avenues in this regard. Nonetheless, LCC could be more proactive in verbalizing its joint research lines, as this would further clarify the language and communication of researchers' identity in the VU's new research arena. Going forward, it would also be good to see more researchers in LCC leading large interdisciplinary research projects that could have a strong societal impact. This would put language and communication at the heart of such projects and raise the profile of the research cluster within the university and beyond. In doing so, LCC will safeguard that language and communication not only serve inter- and cross-disciplinary work initiated by other disciplines, but take the lead.

With regard to collaboration within the cluster, it became clear that there are few formal mechanisms for researchers to develop research links with members of other research groups within LCC but that collaborations do develop in an ad hoc and organic way. This is not necessarily a problem, as some of the most fruitful cross-disciplinary collaborations begin in serendipitous ways such as this. Nevertheless, the LCC could do more to facilitate interaction between its different groups, as there are other areas of research that have the potential to be conducted in a more interdisciplinary manner. For example, there are researchers in the Language and Communication cluster who are working on language in newspapers, and it would be good to know the extent to which they are collaborating with researchers in Journalism Studies. There is interesting work being conducted in the Language Use and Cognition group into multimodal communication which has potentially strong applications to human-robot interactions.

The committee judged LCC's SWOT analysis to be realistic. LCC harbours many strong research projects. Its alignment with the VU's strategic research themes and the broad collaborations it has established with societal partners reflect positively on its earning capacity in the near future. A very positive element in view of the unit's viability is the vibrant, supportive research culture at LCC's research groups, fostering the development of young talent, and leaving them the freedom to develop their own research lines. The research facilities and services are very good, and researchers effectively make use of what the university has to offer and successfully navigate the different organizational levels to obtain facilities, services and resources. However, the financial resources are limited, especially for post-doctoral junior researchers. For them, more funding should be made available for participation in international conferences.

In terms of personnel, LCC is well-equipped for the future. Two chairs will be retiring soon, and the committee was happy to learn that their replacement is on the department's radar, and LCC's researchers are actively involved in this process. Also, the chairs are working towards a healthier age distribution in their groups. The committee cannot overemphasize the importance of these kinds of initiatives for the continuity of research lines. It regrets that



apparently the professorial positions may be filled only at the assistant or associate level. That Professor de Vries is to retire soon and only a junior ERC grant is available to keep General Linguistics alive seems to be indicative of this policy. It is absolutely crucial that upcoming positions due to retiring senior professors will be filled by new, high-profile professors as this concerns the sustainability of the main research disciplines.

As a small group of researchers with a lot on its plate (disciplinary research with international partners, cross-disciplinary collaboration in the university, services, teaching), LCC is especially vulnerable to organizational changes, changes in funding opportunities, and the continuing reduction of research funding for the humanities, at a time when (1) humanities research depends increasingly on more complex and expensive technical infrastructure, and (2) research councils often require matching for research funding. Changes made at the national level, to the detriment of funding for the humanities, are a real threat. The committee was somewhat reassured to hear that the VU is taking measures to protect the humanities as far as possible, but this remains a real threat to the unit's viability.

LCC is currently in a position to weigh on important decisions at the level of the department, the faculty and the NI (see 3.1.). This leverage has not been structurally anchored, however, and is dependent on key positions currently being filled by LCC chairs. The committee understands that LCC aims to be lean in its governance and management structures, yet it needs to reflect on what minimal governance and management are needed when the faculty's dean of research or the head of the department are not LCC affiliates.

The committee concludes that LCC is very well equipped for the future, under the explicit perspective that this score pertains to a group of loosely organized but very well networked, high-quality researchers who are highly motivated and engage in many relevant crossdisciplinary research projects, under increasingly difficult circumstances (decreasing funding opportunities combined with a slowly but steadily increasing teaching load). The committee notes explicitly that the LCC is neither a research institute nor a research cluster, and that the set-up of the evaluation protocol appears to presuppose that this is the case, even though it allows for the evaluation of research carried out within a faculty (p. 10, section 3.1). This made the committee's task far from easy.

3.5. PhD programme

The PhD programme is in the hands of the faculty's Graduate School. It consists of 20 EC 'compulsory courses and training' and 10 EC 'research skills and elective modules'. In addition, the faculty has appointed a PhD coordinator, who is responsible for the PhD students' overall progress and well-being. To this end, the PhD coordinator organizes regular formal and informal meetings. For example, with regard to the 'training and supervision plan', the PhD student and his/her supervisor decide in close consultation which of the courses are useful and necessary. In addition, after the first year, a formal assessment takes place in which a 'go/no go'-decision is taken for continuation of the PhD programme. After the third year, all parties convene again to discuss the plans for the final year. The committee considers these two meetings to be a very good practice. In general, the committee is positive about the Graduate School and the work of the PhD coordinator. The PhD students can avail themselves of a wide range of opportunities to improve their skills (academic and transferable), ranging from generic courses on academic integrity, key issues in the Humanities and time management, to Dutch-language courses and modules in academic English. It is clear to the committee that everyone at the Graduate School is very dedicated to supporting the PhD students.

During the online site visit, the committee had the opportunity to speak to a number of PhD candidates. They all confirmed the strong personal and professional support they receive from the Graduate School. Indicative of this caring atmosphere are the supportive emails that were sent during the corona pandemic, and the tailor-made solutions that were drawn up for those PhD students experiencing difficulties with conducting their research in these confusing times. The PhD candidates feel very well-supported by their supervisors, with whom they meet on a regular basis. They are especially grateful for the coaching with regard to publishing, meaning that the supervisors discuss the numbers and types of publications expected, as well as possible publication venues. They also highly



appreciate the fact that their supervisors introduce them to their networks, which enables collaboration with other international research groups. During the interview, they indicated that they experience a lot of freedom to pursue their own research interests, and that they have sufficient opportunities to present and discuss their ongoing research (e.g. during meetings with the research group, during informal lunches with the LCC unit, or during the PhD colloquium). In addition, they valued the fact that their research time is safeguarded, as there are no strict teaching requirements. Teaching is seen as an opportunity – not an obligation – for the PhD candidates to engage in during their second and third years, never in their first or final year. The committee finds it commendable that these rules are in place, and that they are clear to the PhD candidates. On the other hand, with regard to funding, it noted that not all students are aware of the fact that extra funding is available to them via the Graduate School.

During the assessment period (2013-2019), 27 PhD dissertations were defended, and currently, 37 PhD projects are ongoing (seven of which are self-funded). Given the size of the research unit and the absence of 'first money stream PhDs', the committee considers these good numbers. It is noteworthy that the majority of PhD graduates has gone on to have academic careers. However, the excess duration of the PhD trajectories is an issue requiring attention and improvement: most of the PhD candidates defend their thesis at a time beyond their original funding period. This was acknowledged during the site visit. Although excess duration is a familiar phenomenon across universities, the committee hopes that LCC and/or the Graduate School will find ways to help candidates finish their thesis on time.

3.6. Research integrity

The committee comes to the conclusion that VU and faculty policy is complied with. Moreover, LCC is bound by, and subscribes to, the Netherlands Code of Conduct for Research Integrity. Research integrity is high on the agenda, institutionalized with a Faculty Ethical Assessment Committee chaired by one of the LCC's professors, which means LCC is directly involved in this matter. This committee recently renewed the faculty's ethical assessment protocol, which means the latter is up to date with recent regulations of the AVG/GDPR.

Research data management procedures are in place, and the committee appreciates that they are continuously fine-tuned. There are also procedures to safeguard data with relevant coding and storing strategies and policy, indicating that the cluster is clearly aware of the growing concern, across all scientific disciplines, for preserving and protecting research data. It is also very positive that the university and LCC promote open access publication and an open science policy. LCC's open and interactive research culture was mentioned repeatedly during the site visit. Its junior researchers and PhD students described LCC as an environment where junior researchers are invited to develop their own ideas in interaction with others.

3.7. Diversity

The committee found it difficult to evaluate the diversity of LCC, taking into consideration the small scale of the group. That being said, the cluster is relatively diverse with respect to gender and nationality, and the situation with respect to diversity has improved during the reporting period. In particular, the percentage of female staff has improved, in all levels of scientific staff.

The international profile of membership comes largely from incoming international students for PhD programmes. At the level of staff, not a lot has changed in the review period. The composition is therefore more related to acquired grants and projects and is not so much a result of a specific strategy.

It is remarkable that the university, faculty and cluster have taken the initiative to raise awareness of the importance of an inclusive research environment. The committee greatly values that a code of conduct, a sensitivity training program, and procedures for counselling and handling complaints were developed.



3.8. Conclusion

The committee concludes that LCC conducts very good, internationally recognized research. LCC's research groups have developed some very strong lines of research, many of them being conducted in collaboration with other parts of the university. Beyond the VU, the different research groups are well-connected and are playing key roles in their field. The LCC's scientific output is very good, with a clear publication strategy and an open access policy for the databases and tools.

LCC clearly plays an important societal role, not only in terms of popular science communication, but also in terms of advice, training given to professionals and publicly available resources. In deploying these activities, it makes a good contribution to society. Nevertheless, taken together, there is less proof of the LCC's research groups' research being used in society. There is clear room for improvement in the support offered to researchers who have an opportunity to engage more profoundly with societal partners.

Evaluating the viability of LCC's research is not straightforward as the VU's research organization finds itself in a state of flux. The committee was asked to evaluate LCC, yet the interviews revealed that LCC is not envisioned as a strategic unit for managing research. Rather, it is to be considered a group of loosely organized, well-networked, and highly qualified language and communication researchers, who engage in collaboration across and outside of the university under increasingly difficult circumstances. When considering this in light of the VU's broader research strategy, the committee concludes that LCC is very well equipped for the future.

LCC harbors many strong research projects. Its alignment with the VU's strategic research themes and its broad collaborations with societal partners reflect positively on its earning capacity in the near future. It has a vibrant, supportive research culture and up-to-standard research facilities and services. LCC is well-equipped in terms of personnel, yet it is absolutely crucial that upcoming positions due to retiring senior professors will be filled by new, high-profile professors as this concerns the sustainability of the main research disciplines. As a small group of researchers with a lot on its plate, LCC is especially vulnerable to organizational changes and changing funding opportunities. Although the VU is taking measures to protect the humanities, this situation remains a real threat. LCC currently has the necessary leverage to impact the decision-making at the different organizational levels it has to coordinate with. Yet in view of future viability, it needs to reflect on what minimal governance and management are needed when the faculty's dean of research or the head of the department are not LCC affiliates.

LCC has a solid PhD programme in place and pays ample attention to issues of research integrity. The cluster is relatively diverse with respect to gender and nationality, and the situation with respect to diversity has improved during the reporting period. The committee appreciates that the initiative was taken to raise awareness on the importance of an inclusive research environment.

Overview of the quantitative assessment

Research quality:	very good
Relevance to society:	very good
Viability:	very good



4. RECOMMENDATIONS

Considering the SEP evaluation protocol and the Terms of Reference provided by the VU, the committee has the following recommendations to make. Some are directed towards the LCC cluster, others towards other levels of governance, such as the department, the faculty, the Network Institute and/or the VU as a whole.

The committee recommends the LCC cluster to

- be more proactive in verbalizing its joint research lines, as this would further clarify the language and communication of researchers' identity in the VU's new research arena;
- ensure (international) visibility through a better web presence for the LCC, this enhanced web presence would also profile the visibility of the cluster's research impact on society but could also foster international academic collaboration;
- do more to facilitate interaction between its different groups, as there are other areas of research that have the potential to be conducted in a more interdisciplinary manner;
- develop indicators and measures that better demonstrate the *impact* of its research to society;
- reflect on what minimal governance and management are needed to ensure it can impact decisions relevant to the LCC in a durable way that is not dependent on current appointments;
- continue to foster a vibrant research culture that supports the development of young talent;

The committee recommends the LCC cluster, in consultation with the levels of the department, the faculty, the Network Institute and/or the VU as a whole to

- closely monitor the research time available to staff, as this is increasingly under pressure, most notably for junior research staff;
- ensure that upcoming positions due to retiring senior professors will be filled by new, high-profile professors, especially where the sustainability of the LCC's main research disciplines is concerned;
- monitor diversity and gender balance in the hiring process;
- make sure that sufficient travel budget is available, especially for staff members who do not have a research budget of their own;
- provide additional institutional support to develop substantial industrial contacts;
- consider developing a reward and/or remuneration system for completed PhD dissertations.



APPENDICES



APPENDIX 1: THE SEP CRITERIA AND CATEGORIES

There are 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.

The point is to assess contributions in areas that the research unit has itself designated as target areas.

- 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 2: PROGRAMME OF THE ONLINE SITE VISIT

20 October 2020

13.00-13.45	Welcome, short presentation on LCC; Faculty Board members
13.45-14.00	Short break
14.00-14.45	Heads of the research groups of LCC
14.45-15.45	Break/ private interim meeting of the committee
15.45-16.30	Senior staff members (associate and assistant professors)
16.30-16.45	Short break
16.45-17.30	Junior staff members (postdocs and assistant professors)
17.30-18.30	Private interim meeting of the committee

21 October 2020

09.00-09.45	PhD candidates
09.45-10.00	Short break
10.00-10.30	Board Graduate School of Humanities
10.30-12.00	Break/ private interim meeting of the committee
12.00-12.30	Faculty Board (second session)
12.30-14.30	Private final meeting of the committee
16.00-16.30	Presentation of provisional findings

APPENDIX 3: QUANTITATIVE DATA

TABLE A. RESEARCH STAFF 2013-2020

reference date 7 July 2020

	2013		2014		2015		2016		2017		2018		2019		2020	
	tot fte	res fte	tot fte	res fte	tot fte	res fte	tot fte	res fte	tot fte	res fte	tot fte	res fte	tot fte	res fte	tot fte	res fte
professor	6.8	2.72	6.87	2.75	6	2.4	6.02	2.08	5.22	2.05	4.2	1.68	5	2	6	2.4
Associate professor	3.2	1.12	4.27	1.49	3.8	1.33	3.75	1.33	3.5	1.23	3.05	1.07	2	0.7	3.9	1.37
Assistant professor	10.15	3.06	9.8	2.95	9.18	2.76	10.23	3.05	10.1	3.07	9.2	2.76	9.43	2.83	8.86	2.88
Postdocs	7.47	7.47	8.53	8.53	9.69	9.69	8.11	8.11	5.65	5.65	4.03	4.03	2.83	2.83	2.66	2.66
PhD candidate	6.59	6.59	6.87	6.87	7.19	7.19	7.6	7.6	7.68	7.68	7.9	7.9	5.43	5.43	7.42	7.42
total re-search staff	34.21	20.96	36.34	22.59	35.86	23.37	35.71	22.17	32.15	19.68	28.38	17.44	24.69	13.79	28.84	16.73
support staff			1.42	0.97	2	1.6	2	1.6	1.97	1.57	0.25	0.15				
total staff / incl supp. staff	51		53/55		52/54		47/49		42/44		36/37		34		37	

total fte: corrected for appointments starting or ending in the year in question

total staff: number of persons

professor: 0,4 fte research time

associate professor: 0,35 fte research time

assistant professor: 0,30 fte research time

post doc: 1,0 fte research time

PhD: 1,0 fte research time

total staff: number of persons

not included: international PhD with funding; 20 in total

5 starting in or before 2013, 1 in 2014, 5 in 2015, 4 in 2016, 3 in 2017, 1 in 2018, 1 in 2019



TABLE B. RESEARCH OUTPUT 2013-2019

SEP output Type	2013	2014	2015	2016	2017	2018	2019	total
Refereed articles	36	37	15	22	19	26	24	179
Non-refereed articles	3	4	0	2	2	1	1	13
Books	10	7	4	8	1	2	4	36
Book chapters	26	16	12	10	9	9	10	92
PhD theses	2	3	0	0	4	4	6	19
Conference papers	36	28	37	34	11	20	15	181
Professional publications	9	10	4	12	10	12	6	63
Publications aimed at the general public	5	5	5	7	1	0	1	24
Other research output (PhD thesis - research external, graduation external)	0	0	0	1	0	0	0	1
Other research output (PhD thesis - research VU, graduation external)	0	1	0	0	1	0	0	2
Other research output (Book/ Film/ Article review)	0	1	3	1	1	1	1	8
Other research output (poster)	0	1	7	7	0	3	1	19
Other research output (abstract)	0	3	10	8	1	4	2	28
Other research output (Paper)	2	3	6	12	1	9	4	37
Other research output (meeting abstract)	0	1	0	0	0	0	0	1
Other research output (special issue (editing))	0	0	0	0	0	0	0	0
Total	129	120	103	124	61	91	75	703

TABLE C. RESEARCH FUNDING 2013-2019

SEP Staff Type	2013		2014		2015		2016		2017		2018		2019	
	FTE	%	FTE	%	FTE	%	FTE	%	FTE	%	FTE	%	FTE	%
Direct funding	7.60	46.99	8.67	37.61	9.43	32.96	6.52	30.14	6.33	29.83	5.97	37.5	5.7	24.31
Research grants	2.73	16.89	5.76	25.0	12.15	42.47	10.76	49.72	10.60	49.96	8.17	51.36	7.61	32.44
Contract research	5.84	36.11	8.61	37.39	7.03	24.58	4.36	20.14	3.29	15.49	1.35	8.5	1.55	6.62
Other									1.0	4.71	0.42	2.64	8.59	36.63
Total	16.16	100.0	23.04	100.0	28.61	100.0	21.65	100.0	21.21	100.0	15.91	100.0	23.45	100.0



TABLE D: PHD CANDIDATES (3TH TABLE: CONFIDENTIAL DUE TO PRIVACY LEGISLATION)

[0,8-1,0 contract and PhDs without employee status, receiving external funding] 2019-T

Enrolment			Success rates					
Starting year	Enrolment F/M	Total M+F	Graduated in year 4 or earlier	Graduated in year 5 or earlier	Graduated in year 6 or earlier	Graduated in year 7 or earlier	Not yet finished	discontinued
2011	1F - 1 M	2		1 / 50%	1 / 50%			
2012	2F - 1 M	3		2 / 66%	1 / 33%			
2013	1F - 3M	4	1 / 25%	2 / 50%	1 / 25%	-		
2014	1F - 4M	5		2 / 40%	-	-	2 / 40%	1 / 20%
2015	6F - 1M	7	2 / 28%	1 / 14%	-	-	4 / 57%	
total	11F - 10M	21	3 / 14%	7 / 33%	3 / 14%		6 / 28%	1 / 5%

Total number of PhD dissertation defences, 2013-2019

Defence year	Gender ratio PhDs			Number of defences		
	Standard & contract PhD, F/M	External PhD F/M	Total F/M	Standard & contract PhD	External PhD	Total defences
2013	1 F	1 F	2 F	1	1	2
2014	2 F - 1 M	1 F	3 F - 1 M	3	1	4
2015	0 F - 1 M	1 F	1 F - 1 M	1	1	2
2016	2 F - 1 M	1 M	2 F - 2 M	3	1	4
2017	5 F - 1 M		5 F - 1 M	6	0	6
2018	2 F - 2 M		2 F - 2 M	4	0	4
2019	1 F - 4 M		1 F - 4 M	5	0	5
total	13 F - 10 M	3 F - 1 M	16F - 11M	23	4	27

