Research Assessment 2017

Behavioural Science Institute (BSI)

2011-2016
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1. Introduction

1.1 The Netherlands System of Quality Assessment of Research

An external committee of peers evaluated the research quality of the Behavioural Science Institute (BSI) of Radboud University during a site visit in October 2017, and reports its findings in this document. The Executive Board of Radboud University commissioned the assessment. This quality assessment (peer review) is part of the assessment system for all publicly funded Dutch research organizations, as organized by the Association of Universities in the Netherlands (VSNU), the Royal Netherlands Academy of Arts and Sciences (KNAW) and the Netherlands Organization for Scientific Research (NWO). The aims of this assessment system are: (1) improvement of research quality, and (2) accountability to the board of the research organization, and towards funding agencies, government and society at large. The assessment takes place at the level of research institutes and research programmes within the institutes. The site visit to each institute by an external committee, once every six years, is an essential part of the assessment system. A committee of peers is appointed and asked to review the research. Important elements of the site visit are the interviews the evaluation committee conducts with the management, the institute’s director and the group leaders, as well as with PhD students, post-doctoral researchers and junior staff members.
1.2 The Members of the Evaluation Committee

The Evaluation Committee consisted of:

Prof. Theo Wubbels  
(Utrecht University, The Netherlands), Chair  

Prof. John F. Dovidio  
(Yale University, USA)  

Prof. Pol Ghesquière  
(KU Leuven, Belgium)  

Prof. Shirley Reynolds  
(University of Reading, UK)  

Prof. Leslie Sneijder  
(University of Connecticut, USA)  

Prof. Marion K. Underwood  
(University of Texas, Dallas, USA)  

Prof. Maureen F. Dollard  
(University of South Australia, Australia)

Dr. Jetje De Groof (Antwerp, Belgium) was appointed as secretary to the Committee.  
A short bio of each of the members is included in Appendix 1.

All members of the Committee signed a statement of independence to ensure that they would judge without bias, personal preference or personal interest, and that their judgment is made without undue influence from persons or parties committed to the institute or programmes under review, or from other stakeholders.

Due to unforeseen circumstances, Prof. Maureen Dollard was unable to attend the site visit. However, she provided her preliminary findings and her questions to the Committee prior to the site visit so that they could be included in the discussions. In addition, Prof. Dollard provided her feedback to the draft of the present report.

1.3 Scope of the Assessment

The Behavioural Science Institute (BSI) was founded in 2003 and is one of the three research institutes of the Faculty of Social Sciences of Radboud University. It strives for excellence in three broad areas of behavioural science: development and learning; psychopathology, health and well-being; and social processes and communication. At the moment of the site visit, the BSI included seven research programmes: Behaviour Change and Well-being; Communication and Media; Developmental Psychopathology; Experimental Psychopathology and Treatment; Learning and Plasticity; Social Development; and Work, Health and Performance. A description of the Institute can be found in section 2.1 of this report.

The current peer review of BSI focuses on two levels of the research organization, i.e. the level of the Institute and the level of the research programmes. It covers the period 2011-2016; recent developments have been taken into account as much as possible. The Executive Board of Radboud University provided Terms of Reference for the Committee (TOR). At the level of the Institute, the main evaluation questions regard its management and research policies in relation to the mission, strategy, research programming and resources of the Institute. The assessment committee was requested to formulate a judgment of the Institute in qualitative terms. The Committee was asked to address and evaluate several strategic issues regarding the current state of the Institute and its future. In addition, the Committee was also asked to critically evaluate, in qualitative terms, four other aspects at the Institute level: (1) PhD supervision and training, (2) academic integrity, (3) research facilities and (4) diversity.

At the level of the research programmes, the evaluation entails an assessment of the output,
impact, reputation and activities of the research groups, and the societal relevance of their work. The Committee is expected to do so by judging the programme’s performance on the three SEP assessment criteria (‘research quality’, ‘relevance to society’ and ‘viability’), taking into account current international trends and developments in science and society in their evaluation. The Committee is also asked to provide recommendations for improvement both at the Institute level and at the programme level.

The Committee was asked to operate according to the Standard Evaluation Protocol (SEP) for public scientific research in the Netherlands 2015-2021, which was drawn up by the KNAW, VSNU and NWO. The protocol specifies the information that must be provided to the Committee and the criteria for the research assessment.

1.4 Data provided to the Committee

A month before the site visit, the Committee members received a self-evaluation report, containing the mission of the Institute, the objectives of each of its research groups, a description of the results that have been achieved in the groups during the period 2011-2016 (including quantitative data about staff composition, PhD’s, publications, financial resources), and developments anticipated in the future. Additional information was accessible on a secure website.

1.5 Procedures followed by the Committee

Before the visit, the Chair of the Committee assigned one or more research programmes to each Committee member to focus on and to take the lead during preparation, interviewing, discussion and reporting. Committee members were asked to read the self-evaluation report and send their preliminary judgement on the Institute and the assigned research programmes prior to the site visit, as input for the closed preparatory meeting on the evening before the visit.

During the site visit (for the programme, see Appendix 2), the Committee members were welcomed by the Rector Magnificus of Radboud University. They met with the Dean of the Faculty; the BSI Director; the heads of the research programmes (who each gave a short presentation of their group); post-docs and assistant professors of the research programmes; a group of PhD students; the PhD coordinator and representatives of the BSI Committees. The Committee visited the on-site facilities. Between the interviews, time was available to the Committee to discuss the various findings. At the end of the visit, the Chair presented the main preliminary conclusions to the staff of BSI and the Faculty Board; the Rector Magnificus of Radboud University also attended this meeting.

After the site visit, the evaluation report was written, based on a specific template provided by Radboud University. When all Committee members had included their additions and comments, a final version was drawn up and sent to BSI for a check on factual errors. Finally, the report was delivered to the Executive Board of Radboud University.

1.6 Criteria and Assessment Scale

The Protocol requires the Evaluation Committee to assess the research on three main criteria of the Standard Evaluation Protocol:
- Research Quality (the level of the research conducted)
- Societal relevance (social, economic and cultural relevance of the research)
- Viability (strategy, governance and leadership)

The qualitative assessments of the programmes are supplemented by assigning discrete categories (1-4): Excellent (1); Very good (2); Good (3); Unsatisfactory (4). The meaning of the categories in this four-point scale used in the assessment is described in the Standard Evaluation Protocol (see Appendix 4).
2. Assessment of the Behavioural Science Institute

BSI was founded in 2003. The substantive structure of the Institute has three levels: three overarching themes, seven research programmes and the lab groups. The seven programmes fall under three overarching research themes: Development and Learning (Theme 1); Psychopathology, Health and Well-being (Theme 2); and Social Processes and Communication (Theme 3). From 2003 to 2014, BSI consisted of six programmes, which were known as Experimental Psychopathology (now Experimental Psychopathology and Treatment - EPT); Social Development (SD); Work, Stress and Health (now Work, Health and Performance - WHP); Social Cognition (now Behaviour Change and Well-being - BCW); Learning and Plasticity (LP); and Developmental

Director of the Institute  Professor dr. Toon Cillessen
Tenured staff in 2016  35.67 FTE

2.1 Description of the Institute

The mission of the BSI is to be a successful and productive centre of excellence for behavioural research, with a strong national and international reputation. It has the ambition to be known for its academic work through excellent publications and by attracting grants that support this work. In addition to basic science, it greatly values translating research into practice. In this regard, BSI develops and tests applications that are useful to society. The Institute strives to build strong connections with a number of societal partners. Also, it prioritizes research integrity and responsible research in the behavioural sciences.
Psychopathology (DP). In 2013, an existing programme from outside the Institute was added, Communication and Media (CM), because its mission fits that of BSI. As a result, BSI now includes seven research programmes. Research topics within an overarching topic on which a number of faculty collaborate, can be identified as suitable for a lab group. While the BSI themes are stable over time, lab groups are more dynamic and fluid in response to changes in the field or in personnel.

2.2 Assessment of the Institute

In this section, the Committee evaluates the performance of BSI as a whole on the three criteria of research quality, relevance to society and viability. In addition, the Committee gives its evaluation of PhD supervision and education, academic integrity, facilities and diversity as stipulated in the Terms of Reference (see also 1.3.). For each of the sections, the report first provides an overview of the Committee’s observations on the basis of the preparatory documents and the site visit. Next, the Committee gives its assessment for each of the topics, based on the observations made. An overview of the Committee’s recommendations is given in section 3 of this report.

2.2.1 Research Quality

2.2.1.1 Scientific relevance and academic reputation

BSI reports a substantial increase in the number of publications in international peer-reviewed journals from 1425 in the period 2005-2010 to 2155 in the period 2011-2016, while their quality in terms of journal impact factor remained roughly the same (21% and 23% in the top 10%; 48% and 49% in the top 25%, see Appendix 3, Table 4 ). That many of the published papers have been widely cited is evidenced by the high Google Scholar h-index of several BSI’s faculty members (e.g. Dijksterhuis 56, Kompier 53, Holland 39, Sanfey 38). The Committee learned that BSI prefers to work with Google Scholar over Web of Science as the latter misses about one third of the scientific journals in some of the fields that BSI researchers work in. In addition BSI researchers produced a number of peer-reviewed papers in Dutch journals, non-refereed publications, edited books, book chapters and professional publications (Appendix 3, Table 3).

In the assessment period, 150 PhD dissertations were completed – an average of 25 per year. BSI provides further evidence in the self-evaluation report for the academic reputation of its staff by means of citation indexes, awards, memberships of editorial review boards, conference presentations, invited addresses, presenting at and organizing international conferences, and grants obtained.

During the site visit the Committee explored what BSI considers to be its peer institutes, both nationally and internationally. The Committee learned that for each of the themes, there are strong competitors both nationally and internationally. Yet the Institute management said that comparing BSI to other institutes is a difficult exercise due to the specificity of the Institute, which lies in its multidisciplinary nature and the combination of fundamental and applied research. This specific combination is not present in one peer institute.

2.2.1.2 Organization

During the site visit, the Committee explored with different groups of interviewees the optimal structure for BSI. The Committee learned from the Institute Director that the current structure, with its seven programmes (see 2.1), is on the one hand the result of the way research was
the other hand a consequence of the fact that BSI’s researchers normally have at least half of their appointment in a teaching school, which also guides their research identity. The Director explained that while it is the impression that BSI has been successful in working along the lines of the seven programmes, the intention is also to further increase cohesion and collaboration in the Institute.

The panel learned from the self-evaluation report that not all staff completely buy into BSI. The Institute Director explained that this applies only to a small number of researchers. Pilot money is available to bring in grants and BSI covers the costs of external speakers. The Committee explored with members of the different programmes and with junior staff whether they experienced being part of BSI as a surplus value. Consistently, junior and senior staff expressed their appreciation for the supportive atmosphere of BSI and the facilities that are available. Some of the staff mentioned that being part of an interdisciplinary Institute was one of the motivating factors in choosing to belong to BSI.

BSI being a broad and large institute, working towards more cohesion is always high on the agenda. Throughout the site visit, the BSI PhDs were in this regard mentioned as an important policy instrument. Each year, BSI funds seven PhD positions (one per programme). One of the aims of this initiative is to foster collaboration and integration between BSI programmes through joint supervision from two different programmes. In addition a number of events are organized each year, such as the BSI day, the PhD day and the Research Master’s Thesis Conference. The BSI day is organized according to the BSI themes. Moreover, BSI organizes theme afternoons and brainstorm sessions to formulate potential common projects.

In order to implement BSI’s joint strategy, the Director (0.5 FTE), a Management Coordinator and a Management Assistant handle the daily management. A Programme Leader heads each programme. The Research Master’s and PhD programmes each have a Coordinator/Director. Together, they meet once a month in the Advisory Board to discuss on-going business. During the site visit it was confirmed that the Advisory Board consists of internal BSI-members only. The Director agreed that running the Institute takes up more of his time in reality than the available 0.5 FTE, and explained that he tries to actively involve BSI staff by means of the committees that support BSI. The Science Committee reviews research and dissertation proposals and conducts ad-hoc evaluations for the director. The Lab Committee evaluates proposals for the purchase of research equipment and advises the director on short- and long-term investments in equipment. The Colloquium Committee reviews applications for guest speakers and workshops. The Director indicated that these committees not only help him in running the BSI, but are also an important factor in improving cohesion as they serve the joint BSI mission rather than that of separate programmes. The Committee learned from the preparatory documents that the Director of the Institute also is the head of one of the programmes. Both the Dean and the Director agreed that an alternative solution needs to be found for this situation.

2.2.1.3 Resources

Human resources

Appendix 3 (Tables 1 and 2) shows that the total volume of research staff has grown slightly from 123.77 FTE to 127.53 FTE during the reporting period. While both the amount and the portion in total research staff of tenured and non-tenured
staff has grown (tenured staff 31.02 and 25.2% in 2011 and 35.67 and 28% in 2016; non-tenured staff 14.75 and 12% in 2011 and 21.96 and 17.2% in 2016), the number and portion in total staff of PhD students has decreased (77.45 and 62.9% in 2011 and 69.9 and 54.8% in 2016).

The Institute has approximately 100 internal (university-employed) and 60 external PhD students (employed externally). BSI also employs a small number of support staff.

The BSI has additional faculty (professors by special appointment), mainly for most of their working time employed outside the university. There is a mixture of junior, mid-career and senior faculty, but BSI reports to currently have a relatively large number of junior and a relatively small number of mid-career faculty. The Committee observed that there is indeed an under-representation of Associate Professors in some of BSI’s programmes. The Committee learned that some Assistant Professors are considered for promotion to Associate Professor. During the site visit, the Committee discussed several topics connected to the human resources policy of the Faculty and the Institute. A first broad topic was the division of time between research and teaching. The Committee learned that the goal is to have an equal portion of teaching and research time. Talking to representatives of the different programmes the Committee found that in reality there is variation between faculty members and between programmes in the teaching-research ratio. On the one hand, some faculty members buy out part of their teaching time if they are successful in grant acquisition. There are no strict buyout rules or guidelines, yet the Committee learned that the university adheres to a model where excellent researchers remain active in teaching, which means that a complete buyout is not an option. On the other hand, an important portion of faculty has less than 50% research time. Institute Management and Programme Leaders explained that for some groups the teaching volume has grown at a quicker pace than the research income. Whereas it would be ideal to come to a 50/50-division of time, this is in practice not always achievable. All interviewees agreed that it is necessary to have within the programmes a large enough group with a large enough appointment since research comes with the least deadlines and therefore is always endangered. In the context of the discussions on the negotiations for buyouts of teaching time the Committee discussed whether it is possible to install an official policy instead of relying on individual negotiations as individual negotiations tend to lead to imbalances across individuals and potentially systematically (e.g., by gender).

The Committee discussed what instruments are available to BSI to stimulate excellent performance on the one hand and intervene when staff underperforms on the other. Issues linked to performance are systematically raised during the annual performance reviews. Assistant and Associate Professors normally discuss the research and teaching issues with the responsible Full Professor, who in some cases also is Programme Leader or Department Chair. Full Professors have a yearly appraisal interview with the Dean. The Committee learned that staff members that underperform on research can shift (part of) their appointment towards teaching. Bonuses for one-time achievements are also given. Another HR-issue that was discussed is the tenure track system. The Dean explained that good promotion opportunities exist for Assistant and Associate Professors that perform excellently. Junior faculty clarified that criteria do exist at the faculty level, but that there is room for improvement in making clear what it means to be ‘excellent’ or ‘good’.
The Committee talked with different groups of interviewees about the work-life balance. Junior faculty said that it remains a struggle but that the BSI is a very supportive environment. The Committee learned that no time is allocated for senior staff who serve as Programme Leaders.

**Research funds**

A detailed overview of BSI’s funding sources can be found in Appendix 3 (Table 3). BSI concludes that the total volume of the budget increased (with approximately €2.3 million over a six-year period), but that the distribution across sources remained very similar over the entire assessment period. Across the six years of the assessment period, there was a 4.7 percentage point shift in income away from grants and contracts (second and third stream) to direct funding (first stream). Within the acquisition of external grants, there was a slight shift from second stream to third stream. BSI explains that in the Netherlands second-stream funding is increasingly competitive and researchers are searching for alternatives in the third. During the assessment period, BSI received eleven Veni, two Vidi and one Vici grant. Five NWO Research Talent grants for PhD projects were acquired. Five members of staff obtained European Research Council grants. During the site visit, the Committee heard various examples of applications for research grants evaluated very positively that were nevertheless not granted. The low chances of success for some grant schemes were repeatedly a topic of discussion.

The Committee talked with different groups of BSI faculty on the support that is available for grant applications. The Committee learned that on the one hand, Radboud University provides support in terms of budgets, planning, and ethics requirements. Also, practice grant application interviews are organized. Faculty was very positive about the internal teamwork within BSI regarding grant proposals. Junior faculty writing for the same calls are brought together in peer groups. Senior members who have experience with (evaluation in) the training schemes give feedback. Within the separate programmes support is available in a more informal way. Junior faculty mentioned that BSI’s interdisciplinarity is an important advantage due to the breadth of expertise available when writing proposals. The Committee observed that some programmes have more experience with schemes that require an international consortium than others.

**Assessment of ‘research quality’ by the Committee**

BSI is, by all metrics the Committee consulted, a healthy Institute. Its research output is steadily increasing and its PhD programme is vibrant and productive. For a young institute with relatively junior faculty, it is remarkable that 23% of peer-reviewed papers during the reporting period were in the top 10% of journals. The BSI faculty has clearly earned recognition, as is evidenced by their h-indexes and many prestigious editorships. Even as funding has grown more competitive, the BSI has maintained a robust funding stream. The Committee observed that the metrics show important differences between BSI’s research programmes regarding research output and earning capacity. The Committee advises BSI to systematically encourage peer learning within BSI.

The Committee has a very positive assessment of the research environment BSI creates for its researchers. The Institute’s organization with Lab Groups, Programmes and Themes provides a solid foundation. The Committee finds that the value of the themes lies predominantly in their potential to showcase to the external world the Institute’s unique profile. Yet it is not convinced that the themes bring added value to the internal organization of the Institute.
The Committee finds the Lab Groups the most powerful element in BSI’s internal structure, as this is where researchers are inspired by and learn from each other. Also, the Lab Group’s flexible nature allows BSI to react quickly to changes in the field. The Programmes are an adequate intermediate level between the Institute and the Lab Groups, yet the Committee advises BSI to thoroughly reflect on what number and composition of programmes will be most effective in supporting research excellence.

The Committee has confidence in the governance structure of BSI, with its Institute Director, Programme Leaders, and Advisory Board. The Committee has found that the resources are efficiently and fairly managed. The leadership plays an important role in providing a supportive environment for all junior staff and PhD students. The Committee found that BSI has a set of well-functioning Committees that act as an important lever to create more cohesion. The same holds true for the BSI PhD scholarships and the BSI activities. Yet, working towards more cohesion should remain an important point of attention. The Committee advises BSI to more systematically monitor metrics on collaboration within BSI, e.g. joint publications, joint grant proposals and joint PhD projects.

Attracting national and international research grants remains an issue of constant attention. During the reporting period, there has been a slight shift away from research grants from national and international agencies. The Committee understands that this is an issue that impacts all research institutes in The Netherlands and found that different forms of support are available for writing grants. Yet, it is also of the opinion that BSI could be more proactive in formulating a strategy to gain more individual and consortium grants and in ensuring that all BSI faculty is engaged in writing grant applications.

The Faculty should explore ways to increase the influence of the Director of BSI in evaluations of junior and senior staff. The Committee advises that the Director systematically gives input when staff is formally evaluated. The Committee also is of the opinion that the Director should have more influence on the evaluation of full professors.

The Committee welcomes that the total volume of staff is constantly growing and that the gender division is very balanced throughout the academic ranks (see also 2.5). Yet, the Committee also found that the level of Associate Professors is underrepresented in some programmes and asks BSI to monitor this more actively. The Committee welcomes in this sense that some Assistant Professors are considered for promotion to the level of Associate Professor. Yet, it strongly advises to look for other ways to enlarge the volume of Associate Professors in some programmes if this planned promotion round does not lead to a more balanced structure. The Committee advises BSI and the Faculty moreover to make the promotion criteria and modalities for Assistant and Associate Professors more transparent and specific. Also, the Committee is of the opinion that Programme Leaders should be allocated explicit time for their role in leading the programmes to avoid that they become even more overstretched. In the same vein, the Committee is of the opinion that the function of Institute Director cannot be combined with that of Programme Leader.

Finally, the Committee learned that the BSI’s unique profile makes it difficult to find a benchmarking institution. Still, the Committee feels it is important to look for benchmarks and advises BSI to continue to look for benchmarking Institutions. If it is not possible to find one benchmarking institution, the solution might be to combine the features of different institutes and use them as a benchmark.
2.2.2 Societal relevance

BSI reports that an estimated 80% of its research is directly interesting for practitioners or applicable in practice. From the list of partners outside of academia the Committee gathered that the Institute collaborates systematically with external partners. BSI identifies seven main indicators of societal impact in which most of its translational work can be classified. The first indicator is research appointments at the BSI funded by an external partner, such as professors by special appointment and external PhD students. At the moment of the site visit, BSI had eleven professors of special appointment and sixty external PhD students. A second indicator is grants that are obtained with external partners. BSI reports that from the almost 200 funded projects during the assessment period, 136 involved applied research on topics with direct implications for society. In nearly all of these projects, the researchers worked together with societal partners. Two thirds of the 136 projects were funded by private foundations, companies, non-profit organizations or charities. The third indicator is professional publications, of which BSI researchers produced 274 in 2015 and 2016 combined. A fourth indicator is the products that have resulted from research. These include, for example, games, apps, clinical protocols, popular books, interventions, educational methods, media campaigns, etc. Published interventions, protocols for diagnosis or treatment, policy reports and popular books are most prominent in this category, although websites, apps and serious games are also on the rise. A fifth indicator is the media appearances by BSI-staff, of which 543 were registered for 2015 and 2016 combined. As this element was very prominent in the self-evaluation, the Committee explored how the different programmes experienced its importance within BSI. The Committee learned that although media appearances are more important in some programmes than in others, the original feeling that these were the most crucial element in creating societal impact has changed and they are now given less value. A sixth indicator relates to the employment of staff members in a practical institution or company where they apply academic knowledge or engage in other activities related to their academic work. Over 15 BSI researchers are working part-time in other non-profit organizations or foundations; 8 BSI researchers own a company; others do permanent advisory work for institutions or government agencies. A final indicator is professional committees or activities. More than 20 BSI researchers are volunteer members of advisory or supervisory boards. In 2016, over 120 cases of participation in expert meetings, discussions and courses for professionals were registered. The Committee learned from the Institute Director that being active in all the different categories is not systematically imposed on programmes and that there is room for flexibility.

During the site visit, the Committee discussed with different groups of interviewees how BSI monitors the impact of the professionally or societally oriented output. Some programs provided clear indicators of such impact whereas others had to stick to describing the activities undertaken to facilitate societal impact. From the Institute Director, the Committee learned that the Institute is in a transition phase. The current indicators for societal relevance were chosen during a retreat with the Programme Leaders from an overview of 44 possible indicators that were provided by the university and were ranked in descending order of importance. In a next phase the distribution and impact of the products will be more closely monitored at the Institute level. During its discussions with representatives from the different programmes, the Committee
also found that some programmes have a clear strategy on connecting with and reaching out to societal partners and keeping track of impact, while this is still in development for others.

The Committee had the opportunity to speak with representatives of BSI’s societal partners. They were very appreciative of the respectful middle ground on which collaboration takes place and found that the impact of their own work had improved due to the scientific insights BSI brings to the partnership. They also acknowledged the input of practice on the Institute’s research projects. The Committee observed that most of the collaborations have been longstanding, and that the developed trust allows for the research to develop from the start in co-creation with the partners. On being asked, the representatives mentioned that they would welcome a structural BSI body where they could proactively impact the BSI research agenda.

Assessment of ‘societal relevance’ by the Committee

The Committee is of the opinion that the starting point for BSI on societal relevance is very good as its programmes have for years been doing research that is highly relevant for society. BSI has produced a high volume of professional publications and products for the community. Relationships with external stakeholders are fostered by research appointments at BSI funded by external entities, funded research projects in collaboration with external partners, part time appointments of BSI faculty in external settings, and BSI faculty involvement on advisory boards, professional symposia, or consulting.

Yet the Committee also finds that BSI should now take the next step and develop a thoughtful, more deliberate strategy to achieve societal impact. Although the Committee endorses that BSI works with a clear list of indicators for societal relevance, it feels that another round of development of these criteria will allow the further selection of those criteria that are key to having real societal impact. The way the Institute orders these indicators will have immediate and enduring impact on the priorities that faculty members make in their use of time and resources. The Committee recommends that this task merit attention soon, both within and across programmes, and be clearly communicated to faculty.

Given the relatively new emphasis placed by the Dutch government on societal relevance, it is important for BSI to track in more detail and reward accomplishments related to societal impact. Consideration could be given to the transformation of research into policies and practices by professional groups and organizations, dissemination of products, models, interventions, and curricula, and, where possible, their actual impact. As the Committee learned from the partner organizations, this type of work can take a lot of time, and may warrant greater internal rewards, incentives, and perhaps support of BSI, Faculty and University Board. As some of the programmes have developed their strategy in this sense further than others, great learning opportunities are available within BSI. In addition, the Committee recommends BSI to form an External Advisory Board with members from society in order to inform both the strategy on societal relevance and the research agenda of the Institute.

2.2.3 Viability

The Committee consulted BSI’s SWOT-analysis. Most of its elements were already discussed above (see 2.2.1, ‘Research Quality’). BSI reports to have financial stability, which allows maintaining a well-funded PhD programme. The fierce
competition for grants at the national and European level is a concern, as is the fact that the acquisition of large grants at BSI stems from a relatively small number of faculty. Also, BSI has not yet been able to substantially participate in or acquire large consortium grants (NWO Gravitation Grant or Horizon 2020). The presence of programmes and labs and the multidisciplinary heterogeneity of the Institute are both assets and a challenge and an important future task lies in creating more cohesion. As regards human resources BSI does not yet have a clear tenure track system, and developing a uniform personnel policy within BSI is challenging as BSI faculty have teaching appointments in three different schools. The Committee learned during the site visit that the Institute Director has limited instruments at his disposal to impact human resource decisions. It also observed that a potential threat lies in overstretching the staff that is involved in BSI leadership. All administrative tasks of Programme Leaders fall in their research time. Moreover, the Institute Director is also the Leader of one of the programmes. Another threat regarding human resources lies in the underrepresentation of staff at the level of Associate Professors.

During the site visit, the Committee engaged in discussions on the strategy of BSI to address its weaknesses and possible threats, and to optimally make use of strengths and opportunities. Many of the components of this strategy were already discussed under the headings ‘research quality’ and ‘societal relevance’. The Committee gathered from the discussions that the Faculty imposes no formal obligations to draw up a strategic plan. Yet, strategic issues are discussed during the frequent encounters between the Faculty Board and the Institute Directors.

An important opportunity for the future, so the Committee learned, is that a number of current BSI research topics are well in line with current societal issues. During the site visit, the Dean explained that further opportunities to positively impact the Institute’s viability lie in aligning with the university’s focus theme ‘Healthy Brain’, and the Faculty’s interest in ‘Sport and Exercise’ and ‘Learning’. From the Institute’s Director and the Dean the Committee gathered that the BSI has worked very hard to connect to the ‘Healthy Brain’ theme. The ‘Sports and Exercise’ focus also brings opportunities, notably to the WHP programme.

Assessment of ‘viability’ by the Committee
The Committee is of the opinion that BSI is well equipped for the future. The observations supporting this conclusion were already mentioned above (see 2.2.1 and 2.2.2), but include that BSI has a leadership within and across programs in BSI that is doing a very good job in cultivating a climate of collegiality and creativity and a structure to support this. Maintaining the balance between traditional affinity groups and larger integrative programmes will require continued attention in order to consolidate and further improve BSI’s cohesion. BSI is financially healthy, but will have to continuously work on a strategy to attract research grants. Staff appreciates the working atmosphere and the opportunities BSI’s interdisciplinarity offers, but more transparency is needed on rules and modalities of promotion of junior staff into the academic ranks in order to attract and retain talent. BSI management’s excellent job at managing resources strengthens the Institute’s viability, yet the Institute’s Director needs more instruments to impact the evaluation of the research performance of junior and senior staff working at the Institute. Also, the Committee would welcome the addition of a Deputy Director to share administrative responsibilities and to provide consultation when challenges arise. In addition, the Committee suggests BSI to reconsi-
der the policy allowing an Institute Director to simultaneously serve as a Programme Leader. The Programme Leaders should be allocated time for their role as they are at constant risk of being overstretched. Finally, the Committee advises BSI to form an international advisory Council to ensure a constant influx of new ideas from international peers.

The Committee appreciated BSI’s open communication and found that BSI has a clear view on strengths, weaknesses, opportunities and threats. Yet the Committee is of the opinion that there is room for improvement in developing a concrete and specific strategy using the insights from the SWOT-analysis. The Committee would in this sense welcome a strategic plan with clear goals and steps to reach these goals. A thorough benchmarking exercise could further inform this strategy. The Committee feels the Institute could be more proactive in ensuring that all opportunities that are present, are used to further strengthen the Institute’s position and research. In this sense the Committee sees the strategic themes of the university as excellent opportunities BSI should use to position itself. The Committee feels that adding a Deputy Director to the Institute’s management would act as an important lever in this respect, so that tasks can be shared in this large Institute.

2.3 PhD programmes, training and supervision

BSI requires that PhD students are supervised by at least two supervisors. The supervision team includes at least one Full Professor (the ‘promotor’). One member of the team is the daily supervisor. For the BSI funded PhD positions, it is a requirement that the members of the supervision team work in different programmes. During the site visit, the Committee discussed the modalities and quality of supervision. The Committee learned that there are explicit rules on minimal frequency of meetings with supervisors and promotors. Yet these rules are not always adhered to and the Committee observed that there are differences between the programmes in the intensity of supervision. Although most PhD students the Committee spoke meet with their daily supervisor at least once a week, frequency and quality of meetings with the promotor reportedly vary across programmes. Accordingly, although students were generally happy with the daily supervision provided to them, appreciation of supervision provided by the promotor varied. The Committee learned from the Dean that there is no strict maximum on the number of PhD students a promotor is allowed to supervise. A PhD questionnaire does address the quality of supervision but BSI is working towards a monitoring system that allows to better pinpoint problems regarding supervision.

The Committee explored with different groups of interviewees whether giving Associate Professors the Ius Pomovendi would help to improve the quality of supervision or would be a better representation of the actual supervision process. Both the Dean and the Institute Director approved of giving the Associate Professors who have sufficient experience in supervision the right to be a promotor. PhD students also welcomed the idea, but those PhD students who felt that their promotor was the main expert on their topic explained that any solution would have to allow that the staff member with the most expertise, be it Full or Associate Professor, is involved in supervision.

The Committee learned from the PhD students that they receive the necessary resources for their research. They explained they get more than ade-
research stays. The students were very pleased with the supportive environment BSI provides and highly valued the various opportunities available at the level of BSI, within the programmes and in the lab groups, to share their research with and get input from more senior researchers.

The BSI PhD programme includes both internal PhD students that are employed by the university, as external students, who are employed elsewhere. Contracts for students are for four years for 1.0 FTE (full-time) and five years in the case of a 0.8 FTE-appointment. Occasionally students are on three-year contracts. The Committee learned from representatives of the BSI Science Committee that research proposals of all PhD students, including external candidates, have to be approved by this Committee that looks at design, methodology and feasibility of the proposal. On being asked, PhD students explained that in general, students have flexibility in carving out their research questions, but this also depends on the type of PhD project. The Committee observed that BSI is successful in attracting students who have done their bachelor or (research) master at another university.

The Committee took note of the fact that BSI actively monitors progress of its internal PhD students. Within the first three months of their project, PhD students write a Training & Supervision Plan. At the end of each calendar year, students submit a Progress Evaluation Form (PEF), in which they also comment on communication with their supervisors. With the PEFs as input, the progress of each PhD student is discussed in a yearly meeting. It is possible to end the student’s contract within the first 18 months of employment. The Committee learned from the PhD coordinator that the yearly progress evaluation now also applies to external PhD students.

Regular PhD students take 26 EC of training activities. PhD students with a three-year contract have an obligation to obtain 19 EC. Three courses are required: Scientific integrity, Presentation skills and Publishing skills. In addition, PhD students have the option to take statistical and methodological courses for PhD students organized by BSI, or follow courses in the Research Master’s programmes Behavioural Science or Cognitive Neuroscience on specific topics or skills. Also, Radboud University has a broad offering of Generic Skills courses. PhD students are required to organize at least one BSI workshop or symposium themselves. The Committee learned that Radboud University does not participate in a structural way in the national research schools, but that individual students do partake in courses offered by these schools. Students explained during the site visit to be happy with the broadness and quality of the courses that are offered. The PhD coordinator explained that one of the three required courses has recently been rescheduled so that it takes place in the evenings. This allows external PhD students to participate. Students valued that some of the Research Master courses are now also available online. The Committee learned from the PhD students that they found their methodological and statistical skills to be up to standard.

The Committee talked about why external students are exempted from the requirement of following courses and students with a three-year contract have to do less EC’s than students with a four-year contract. The PhD coordinator explained that this is done to guarantee these students the necessary research time to complete their PhD thesis and that the PhD degree is awarded solely on the basis of this thesis. The PhD coordinator indicated moreover that students with a three-year contract have already completed the Research Master. The PhD coordinator agreed
with the Committee that this is also the case for most students with a four-year contract, but explained that external funding agencies such as NWO and ZonMW in some funding schemes only finance three-year PhD positions and that this is a reality BSI has to work with. Adding an extra year to all three-year contracts would be an option, but would mean abandoning the funding scheme for the BSI PhD positions. As the latter are considered crucial to the cohesion of BSI, this route is therefore not taken into consideration.

The BSI describes its PhD programme as effective, both in quantitative and qualitative terms. An average of 25 PhD students graduate per year. More than 85% of the students who begin a PhD project finish their dissertation. On average, PhD students finished their manuscript around six months after their contract had ended, their defence usually being 4-6 months after that. Many of the students work 0.8 FTE for five years, or are granted an extension after maternal leave, which explains why the median completion times in the table in Appendix 3 (Table 6) are approximately five years. Dissertations typically consist of four or five published or potentially publishable articles (thesis by publication) and/or articles under review in peer-reviewed international journals. The Committee consulted several PhD theses during the site visit, found them to be of high quality and appreciated the multi-article format. During the site visit, the Committee inquired about the completion rates for the external PhD students and found that no specific data on this group are available.

BSI PhD students have a 10% teaching obligation in one of the three teaching schools in the Faculty of Social Sciences. PhD students with a three-year contract and external PhD students are exempted from the teaching requirement. On being asked, PhD students explained that they value the teaching obligation, but that for starting PhD students, the teaching is time consuming and requires often more than 10% of the time.

At the end of their contract, PhD students are assisted with labour market orientation and further career planning. An inventory of current positions of BSI PhD alumni who graduated in the period 2014-2016 shows that the majority are employed at a university or college across the country or abroad (55%), approximately 10% have a job in industry, while almost 35% work for a non-profit organization and a small number work for the government (1%).

Assessment of ‘PhD education’ by the Committee
The Committee found that BSI has a vibrant, well-designed PhD programme. The procedures for admission are solid and the Committee values that all PhD students, also the external ones, are carefully monitored and given feedback throughout their PhD trajectory. Regarding monitoring procedures of external PhD students, the Committee recommends to consider introducing a go/no-go evaluation moment after 18 months. A special strength of the programme is the appointment of supervision teams as all doctoral student projects are under the guidance of more than a single faculty member. The Committee welcomes that some PhD students have supervision from two programmes as this gives them a broader input and contributes to the Institute’s cohesion. Students are generally happy with their supervision, yet the Committee recommends continuing the current initiatives to more systematically monitor the quality of supervision. In line with recent evolutions in The Netherlands the appropriately experienced Associate Professors should be given the right to be promotors of PhD students. The Committee
understands that this is a decision that has to be taken by the Executive Board of the University.

The Committee found that BSI offers its students a broad range of both disciplinary and general courses, which are of good quality. That students have to draw up a Training and Supervision Plan facilitates a well-structured planning and enables necessary monitoring. The Committee highly values the learning experience offered to PhD students in the lab groups and the research meetings within the programmes and endorses that PhD students are required to organize a symposium.

All this leads to a high retention rate of internal PhD students and good time to completion. The Committee advises to systematically monitor the completion rates of all types of PhD students, most notably external PhD students. Also, the Committee recommends BSI to reconsider the course requirements for external PhD students and PhD students on a three-year contract as ultimately all graduating PhD students have to meet the same criteria. For disciplinary training, the Committee recommends that the policy regarding participation in national research schools be periodically reviewed within the Institute. The Committee found that the job placement of BSI’s PhD students is strong and that adequate steps are taken to guide students in the process of finding a job after the PhD be it inside or outside academia.

2.4 Policy on academic integrity

In its self-evaluation report, BSI explains that research integrity and ethics embodies (1) the ethical treatment of research participants, (2) the ethics of quantitative research methods, (3) intellectual property and authorship and (4) conflict of interest and abuse of power in the research environment. It lists activities that have been initiated to create an open research culture. These include a mandatory graduate course on academic integrity, workshops for staff and the invitation of speakers on various aspects of academic integrity on a regular basis.

All research proposals, including PhD project proposals, are evaluated by the Ethics Committee of the Faculty of Social Sciences. The BSI Science Committee, as the Committee learned during the site visit, also has to approve all proposals of PhD students, which allows to carefully monitor suggested methodology. There is no requirement for dissertation studies to have yielded significant results. BSI moreover encourages the publication of unexpected and/or non-significant research results by PhD students and staff. Confidentiality officers are present at different levels of the organization and ethical dilemmas are discussed openly.

BSI has a research data officer who guards the implementation of responsible data documentation and storage according to national and international guidelines. The Institute has a research data protocol for the secure storage of raw and processed data, which includes guidelines for the protection of participants’ privacy. Junior faculty explained to the Committee that implementing the new data protocol is very intensive, but that they felt that it had been a worthwhile investment. The fact that there are limits to data storage space, however, makes implementing the plan difficult on some levels. A new course on data management will be obligatory for PhD students and will be offered from January 2018 onwards.

From the PhD students, the Committee gathered that the rules and regulations on authorship vary between the different programmes. Whereas in some programmes only staff with a substantial
contribution to the research can figure as an author on a publication, other approaches are accepted in other programmes.

Assessment of ‘academic integrity’ by the Committee

BSI has created a culture in which academic integrity is supported at all levels. An excellent academic integrity policy is in place. The Committee welcomes that a data protocol has been introduced, but urges BSI to ensure that sufficient data storage space is available in order to be able to fully implement the data plan. Also, BSI should develop transparent rules on authorship for papers and monitor their application in the different programmes. In addition, the Committee suggests BSI consider drafting guidelines covering the ethics of qualitative research methods.

2.5 Policy on Diversity

The panel gathered from the preparatory documents that approximately 50% of the full professors in BSI are female; the percentage of female staff is higher among mid-career and junior staff and even higher among PhD students. The number of persons of non-Dutch descent is around 15% for faculty, and higher among the younger generations. During the site visit, the Committee inquired why this portion is rather low and learned that an important factor is that many of BSI’s research programmes work on topics that require proficiency in Dutch for the fieldwork. About 27% of PhD students are from non-Dutch descent. The human resource policy allows female faculty and PhD students to take maternity leave, with an extension of contracts for the PhDs for the duration of this leave. Both male and female faculty and PhD students can take paid parental leave. The Mohrmann Stipendium is a University award for promising female PhD students in the middle phase of their projects. In terms of recruiting, all positions are open to applicants irrespective of gender, ethnic origin, or nationality. Positions appear in general websites and the BSI’s international networks are used for recruitment. All of communications at BSI are in English and there are a number of social activities that help international faculty to integrate.

The Committee talked with different groups of interviewees about how BSI, the Faculty and the University could install a policy to attract minority students from within the Netherlands. The Committee learned that a national funding scheme, Mosaic, has been discontinued. Currently, no specific efforts are being made by Radboud University and BSI, which also has to do with the fact that there are not many minority students in the region even at the undergraduate level. The Dean and Institute Director agreed with the Committee that BSI and Radboud University could take a more proactive stance to attract PhD students with minority backgrounds into the Research Master, which is the gateway to the PhD. The Committee learned that attracting international Research Master students and PhD students is high on the agenda and this is also a way of making BSI more diverse. Progress has been made in this respect in the reporting period. The Committee took note of the fact that some of the programmes of BSI target minority populations in their research activities. An additional approach that was discussed during the site visit is to involve the study of minority populations more consistently in all of the programmes.

Assessment of ‘diversity’ by the Committee

The Committee is of the opinion that it is praiseworthy that women represent 50% of the full professors and larger proportions among
the junior ranks. Yet at the senior management level (Institute Directors of the faculty of Social Sciences, Dean) this gender balance is yet to become apparent. The Committee found that the policy geared towards creating a gender balance is adequate but asks BSI and the Faculty to evaluate whether attributing teaching buyouts on the basis of individual negotiations does create gender imbalances.

The Committee values that initiatives are being taken to attract international graduate students but would welcome more initiatives geared at attracting international staff. The Committee finds that there is clear room for improvement in attracting PhD students and staff from non-Dutch or minority backgrounds. The Committee urges BSI, the Faculty and Radboud University to provide incentives in order to increase staff diversity in nationality and minority status. The Committee is of the opinion that incentives at the level of the Research Master are particularly interesting, as this is the gateway that leads to the PhD programme. A further way to promote diversity within BSI is to ensure that minority populations are studied throughout the Institute.

2.6 Facilities

BSI has its own laboratory space. Labs are maintained for general use and for all BSI. The Committee visited the BSI facilities and observed that the BSI labs include cubicles with computers for online experiments by individual participants or participants in dyads; observational rooms with one-way screens and cameras for the observation of dyads and groups; a bar lab for the study of contextual and peer effects on substance use; Virtual Reality labs; and flexible rooms for individual testing or interviewing. BSI also has an EEG lab and a sports lab, together with the Donders Centre for Cognitive Neuroscience (DCC). BSI has a participant agreement with the fMRI scanning centre of the DCC. Much BSI research takes place in applied settings in the field, and the Institute has equipment available for field research.

BSI equipment is purchased and maintained for general use. Applications for materials are addressed to the Lab Committee. During the site visit, the Committee spoke to the Chair of the Lab Committee and learned that this Committee manages the daily procedures with support of the Institute’s Lab Coordinator. These daily procedures include application for available lab space and equipment by BSI researchers and applications for new equipment. The Lab Committee has a representative of each of the BSI programmes so that requirements for the different programmes can be weighed. The lab facilities and the faculty’s excellent technical support group were consistently brought to the fore during the site visit as important strengths of BSI. The Committee observed during the tour of the facilities that this support group delivers support of a very high standard, e.g. with the programming for the virtual reality lab.

Assessment of ‘facilities’ by the Committee

The Committee is of the opinion that the BSI has very good facilities at its disposal. The funding for facilities is allocated in line with the BSI mission and the facilities are run transparently, notwithstanding the large size of BSI. Through the excellent work of the Lab Committee, the Lab Coordinator and the Technical Support Staff, the facilities work very well in practice.
3. Recommendations

In this section the Committee summarizes its recommendations for BSI’s future. These recommendations should be read against the background of the Committee’s assessment of BSI in section 2.

3.1 The quality of the research institute as a whole

The Committee advises BSI to

1. Be more proactive in formulating its future strategy to cope with important challenges, such as, among others, further improving the cohesion within BSI; safeguarding the Institute’s earning capacity; participating in the university strategic themes and further strengthening its impact on society. The Committee would welcome developing a strategic plan, with clear goals and actions to reach these goals.

2. Reflect on appropriate indicators of success and implement a strategy to monitor whether the goals have been reached. In this respect, the Committee advises to review indicators on societal impact and monitor these systematically. The way the Institute orders these indicators will have immediate and enduring impact on the priorities that faculty members make in their use of time and resources. The Committee recommends that this task merit attention soon, both within and across programmes, and be clearly communicated to faculty. Furthermore
grant submissions and awards warrant systematic monitoring as well as success, placements and accomplishments of different types of PhD students.

3. Continue to look for institutions that can serve as a benchmark as this can inspire its strategy.

4. Thoroughly reflect on the number and composition of its research programmes.

5. Consider allocating explicit time for Programme Leaders in their management role. In the same vein, the Committee suggests BSI to reconsider the policy allowing an Institute Director to simultaneously serve as a Programme Leader. Considering the size of the Institute, the Committee also suggests that the Institute Director is given the support of a Deputy Director.

6. Form two External Advisory Boards. One board would consist of international peers, which could enhance the flow of new research ideas and exposure to critical viewpoints, and organizational suggestions by peers on an on-going basis. Another External Advisory Board would consist of members from society, which could potentially inform the strategy for societal relevance and amplify the impact of the research agenda of the Institute.

7. Not only look at the Google Scholar h-index, but also the Scopus or Web of Science h-index because these two are much more reliable than the Google Scholar index.

8. Explore ways to give to the BSI-director more leverage to influence human resource decisions.

9. Make the criteria and modalities for promotion of Assistant and Associate Professors more transparent and specific.

10. Look for ways to increase the volume of Associate Professors in some of the programmes of BSI.

### 3.2 The internal collaborations between the constituting research groups

*The Committee advises BSI to*

1. Systematically monitor metrics on collaboration between units, like joint publications, grant proposals and PhD students as indicators of progress towards more cohesion.

2. Systematically encourage the exchange of ideas about best management practices, organization, and use of resources between research groups.

### 3.3 The institute’s PhD programmes

*The Committee advises BSI to*

1. Continue the current efforts to more systematically monitor the quality of supervision. For external PhD students, the Committee recommends to consider introducing a go/no-go evaluation moment after 18 months.

2. Give the appropriately experienced Associate Professors the right to promote PhD students, in line with recent legal evolutions in The Netherlands, however, this decision has to be taken by the Executive Board of the University.

3. Systematically monitor the completion rates of all types of PhD students, most notably external PhD students.

4. Reconsider the course requirements for external PhD students and PhD students
on a three-year contract as ultimately all PhD students have to meet the same criteria.

5. Periodically review the policy regarding participation in national research schools.

3.4 The institute’s policy on academic integrity

The Committee advises BSI to

1. Develop transparent rules on authorship for papers and monitor their application in the different programmes.

2. Consider the ethics of qualitative research methods, in addition to the ethics of using quantitative methods.

3. Ensure that sufficient data storage space is available in order to be able to fully implement the data management plan.

3.5 The Institute’s diversity policy

The Committee advises BSI to

1. Develop more initiatives geared at attracting international staff.

2. The Committee urges BSI, the Faculty and Radboud University to provide incentives in order to make the student and staff population more diverse in terms of nationality and ethnic origin. Beyond gender diversity and greater international diversity, the programme might also make special efforts to recruit faculty from minority groups within the Netherlands, as well as faculty members whose research involves these populations.
4. Assessments per programme
4.1 Behaviour Change and Well-Being

Chair
Prof. dr. A. Dijksterhuis

Tenured staff in 2016
4.57 FTE

Assessment
Research Quality: 1
Societal Relevance: 2
Viability: 2

4.1.1 Description of the programme
The Behaviour Change and Well-Being (BCW) group combines advanced, theory-driven research with a desire to change behaviour in order to enhance the well-being of people and improve society as a whole. The research programme covers a wide range of topics, mostly in the field of social psychology. BCW is currently organized into six lab groups. In 2016 14.21 FTE research staff worked at BCW. Appendix 3 (Table 8) contains an overview of the human resources available to the programme. The BCW has a Chair (Prof. Dijksterhuis) and vice-Chair (Prof. Holland). The group is managed by a Management Committee.

4.1.2 Assessment of the programme
Research Quality
BCW is very strong overall in its achievements. Collectively, the amount and quality of scholarship by faculty in the programme is impressive. The faculty have consistently published yearly about 40 peer-reviewed scientific articles (and across the assessment period, 235 peer-reviewed articles and a total of 328 publications overall), with over a quarter (27%) of the peer reviewed articles published in leading (top 10%) journals and over half (56%) of the papers published in top 25% journals. Key publications by BCW faculty members include prestigious review papers and multi-study empirical articles in elite journals. These works are widely cited and highly respected. The faculty members have excellent scholarly track records, and they have made a number of important, sometimes groundbreaking, contributions to the scientific literature. Seven have h-indexes of 28 or higher. Also, many of the faculty members currently occupy major editorial positions.

BCW has attracted 38.32 FTE in external funding during the assessment period, equalling yearly 1.33 FTE per tenured FTE. During the assessment period covered by this review, 17 PhDs were awarded to graduate students in this programme, a yearly rate of .59 PhDs per tenured FTE. The prominence and productivity of the faculty members has allowed the programme to attract a relatively large number of PhD students supported by external funding. Having students with external funding is an asset particularly when research grant funding is limited; it also contributes to diversity within the programme and the BSI.

A substantial proportion of faculty members in the current BCW programme were associated with an earlier social cognition programme. In many ways that background represents both a strength and challenge for the present programme.
In terms of a strength, it provides a strong core of researchers with related scholarly interests who have high professional visibility and are recognized for their scholarly innovation and leadership. In addition, the programme represents a breadth of interests appropriate to the unifying theme, drawing from diverse areas of social psychology, health psychology, and the neural and hormonal bases of behaviour and behaviour change. The faculty members in the programme frequently collaborate with one another, and these collaborations seem to stimulate genuine intellectual integration of the work of the various collaborators. In addition, there is a healthy distribution of faculty members across various levels of professional experience. The background of the BCW programme however also presents a challenge for the future (see ‘viability’).

In summary, the BCW programme merits a rating of ‘excellent’ for Research Quality based on the impressive scholarly productivity of its faculty during the assessment period; the sustained high quality of scholarship that has earned members of the faculty and the BCW group as a whole enviable international reputations.

Societal Relevance
Individual faculty members have brought their work to the attention of the general public through widely accessible books, community activities, and companies that consult on related topics. One of the stated goals of the programme is to be widely recognized as a knowledge centre for behaviour change and well-being. Members of the programme have indeed received considerable media attention and regularly give public talks on these topics, and frequently consult (including through their own spin-off companies) with government and industry. However, although the overall societal output of the BCW programme for 2015-2016 was strong in the overall tally of activities (n = 200), the vast majority of these were media appearances (n = 132). While the programme is committed to societal relevance, achieving this goal would be further facilitated by developing programme-wide (vs. individual initiative) strategies for disseminating research findings and/or creating more products to benefit society (in ways other than through consulting). The programme did recently improve its website and has organized conferences for bringing together academics and non-academics, but it did not articulate a clear programme-wide strategy for having even greater societal impact. It would also be valuable for the programme to assess and track its societal impact. The programme would benefit by identifying appropriate measures and systematically assessing the impact of its socially relevant activities and contributions.

Viability
While currently strong and vibrant, the programme might attend now to potential future challenges to its viability. The cohesiveness of the core faculty may make it difficult to fully integrate and benefit from faculty members whose interests and expertise lie not in the heart of social psychology. Not surprisingly, collaborations among faculty members trained in different sub-disciplines of psychology were much less frequent than co-authored publications among the faculty members who were trained as social psychologists.

One potentially negative consequence of having so many graduate students supported by external funds (see ‘research quality’) is that it may relax the motivation of faculty members to seek research grants. Although there is grant activity among the faculty members at various levels of experience, the grant funding for research is not as strong as one might expect or desire, particularly given the quality of the faculty in this programme. The programme is currently planning for a change
in leadership. That transition is proceeding very smoothly. This would also be an opportune time for the programme to plan for staffing in the short and long-term. The composition of the faculty in this programme in terms of gender and nationality is less diverse than other programmes within the BSI. The programme could be more pro-active in identifying promising candidates that would help diversify the faculty as senior faculty reduce their commitment to BSI or move into university administrative positions. Also, cross-programme collaborations would further strengthen the programme’s viability.

**Recommendations for the programme**

*The Committee advises BCW to*

- Make extra efforts to diversify its faculty in terms of gender, international representation, and inclusion of underrepresented groups within The Netherlands.
- Pursue more major grant funding across faculty in all ranks within the programme.
- Develop specific programme-wide initiatives for enhancing outreach to both the general public and leaders in government, industry, and academia.
- Create more and stronger intellectual bridges through collaborations among faculty members with diverse interests within the programme and with faculty in other programmes in BSI.
4.2 Communication and Media

Chair
prof. dr. M.A. Buijzen

Tenured staff in 2016
5.12 FTE

Assessment
Research Quality: 2
Societal Relevance: 1
Viability: 3

4.2.1 Description of the programme
The main aim of the Communication & Media (CM) programme is to study the psychological mechanisms underlying uses, processes, and effects of media, while taking into account the social-cultural mechanisms of the dynamic media landscape. CM’s research features a multidisciplinary focus and a multi-method approach, with links to all of the BSI themes. In addition to primary research, the research programme develops and tests media interventions. Research is arranged in four topical lab groups. CM became part of BSI in 2013. Integration into the BSI has been accompanied by considerable growth in staff numbers (+28%) between 2011 and 2016, mainly through BSI support of PhD students. In 2016 13,95 FTE research staff worked at CM. However, there is only one full Professor (.75 FTE research time) for the research program, three having retired or left during the assessment period, and no Associate Professors. There are plans to hire an additional Professor. Appendix 3 (Table 9) contains an overview of the human resources available to the programme. The Chair organizes monthly research meetings.

4.2.2 Assessment of the programme
Research Quality
The work that CM is doing is cutting edge, and their key publications are very good. Their work includes reviewing the literature, proposing and testing theoretical models, creating interventions based on the models, and testing the impact of their interventions and refining the theories. They also conduct qualitative research both to understand fundamental processes of communication and to develop interventions. The productivity of the unit is generally good (140 peer-reviewed articles over the evaluation period). The percentage of publications in the top journals (15% in the top 10%, and 18% in the top 10-25%) is good, with room for improvement. Outlets for their work are wide ranging, including journals in their discipline, communication, but also in psychology, health, general social science and other areas. Three members of the group are on editorial boards of highly respected journals. While recognizing that the meaning and norms for h-indexes vary by fields, only one faculty member has a Google Scholar h-index greater than 15: Prof. Buijzen at 26. This may be due to factors discussed below under viability, including lack of additional scholars at the full and Associate Professor level, and lower than 0.5 FTE time commitment for research by many staff in the programme. Since joining BSI CM has shown a substantial increase in research funding from 1.35 FTEs in the first year of joining BSI (2013) and 4.35 FTEs in 2016, including an ERC consolidator grant. Over the review period, CM attracted a total of 11.23 FTE
of external funding (0.42 FTE yearly per tenured FTE). Similarly, the PhD programme has grown from 2.6 FTEs in 2011 to 3 FTEs in 2013 to 6.5 FTEs in 2016. Over the review period CM had 9 PhD graduations (0.34 per FTE yearly tenured FTE). The growth in the PhD programme may help explain the rise in publications in 2016, despite the shortage of full and associate professors, and bodes well for the future.

Although the fields of communication and psychology would seem to share strong overlapping interests, the paradigms and scholarly traditions of these two disciplines can be very different, and there is typically only limited exchange between them. The inclusion of CM within the BSI thus faces unusual challenges but also is appropriate and uniquely promising. There have been some scholarly collaborations between faculty members in CM with faculty members from other programmes, yet there is ample opportunity for increasing amounts of collaboration within the BSI in the future for example on positive communication and well-being, inclusion of a developmental perspective in theory and research, use of media-based interventions testing theories of social interaction and perception in virtual reality. The fact that all PhD students within CM are supervised by at least one member from another group will facilitate greater collaboration among faculty. Furthermore, situating the communication and media researchers within a broader behavioural science institute is potentially an advantage compared to other communication research programs in the Netherlands. The structure should increase opportunities for cross-fertilization and interdisciplinary work.

Societal relevance
CM addresses important social problems, and their work also explores the impact of and intervention possibilities of leading-edge communication technologies, including social media, virtual reality, video games, and text messaging. Many of the conclusions and recommendations from their research have implications for parents, individuals, and policies. Therefore, it is commendable that the group reaches out to the public and policy makers. The unit has been active in the press, with 60 media appearances in 2015 and 2016, produced 26 professional publications, and served on 33 professional committees or engaged in other professional activities. The programme maintains FaceBook and Twitter accounts to communicate directly with the public. Furthermore, personnel within the research programme have advised numerous governmental organizations. CM members are employed at eight external organizations, which provides a ready outlet for research translation and application. CM’s collaborations have led to concrete policy changes and six products/programmes.

Given their achievements to date in the creation and adoption of socially important interventions across a range of social institutions, commitment to ‘translational’ work disseminating research findings to the general public, and their continued consultation with national governmental and nongovernmental organizations, CM is rated as excellent in societal relevance.

Viability
Leadership of the unit is strong and productive labs have been established. The opportunities identified in the self-study – including ways to uniquely position themselves vis-a-vis competing Communication Sciences units at other universities and strategies for external funding – seem viable. While the programme has strong positive momentum, the productivity could be improved and structural challenges to the unit’s viability have to be dealt with. As noted in the self-evaluation report, there is only one full professor and no associate professors, and this affects
research and management quality. A second full professor is being recruited this year. A successful hire in this position—a person who is not only strong in research accomplishment in a complementary area but also is strong in management and mentorship—is critical to the viability of the programme. In addition, for continuity, it would be necessary to have more representation at the rank of Associate Professor in the program.

Another challenge is that some faculty in this unit do not have 0.5/0.5 research/teaching appointments, which is the norm for most other BSI faculty, but have 0.3/0.7 research to teaching ratios. In addition, the programme is making due with fewer externally attracted resources (grants and contract research) per tenured FTE than any other unit.

**Recommendations for the programme**

*The Committee advises CM to*

- Ensure, as much as possible, that CM faculty have appointments at 50/50% teaching research ratio. The Committee also recognizes that there may be a strategic concern—whether it is better to have more faculty with at least a slight appointment to BSI, or support fewer faculty at a level that is more likely to be productive. Based on experiences at other institutions, the Committee recommends the latter strategy.

- Hire additional Full and Associate Professors in CM with international reputations and funding histories.

- Aim for publishing more in the most prestigious outlets.

- Collaborate more with other BSI programmes. Many interventions developed at BSI involve media, and would benefit from consultation and collaboration across disciplinary boundaries to incorporate state-of-the-art communication research. In addition, future population-based longitudinal studies spearheaded by other programmes could incorporate media usage variables, to examine the intersection of psychological and educational outcomes and changing communication patterns over time.
4.3 Developmental Psychopathology

Chair
prof. dr. I. Granic

Tenured staff in 2016
4.31 FTE

Assessment
Research Quality: 1
Societal Relevance: 1
Viability: 2

4.3.1 Description of the programme
The Developmental Psychopathology (DP) programme studies the development of internalizing (depression, anxiety), externalizing (delinquency) and addictive behaviour problems (smoking, cannabis use and over-eating) among children and young people. With its commitment to conducting longitudinal and intervention studies, bridging multiple levels of analyses (biological, cognitive and social) and translating its empirical results into real-world outcomes, DP aspires to become a leading research programme in the global developmental psychopathology community. In 2016 18.70 FTE research staff worked at DP. Appendix 3 (Table 10) contains an overview of the human resources available to the programme. Since 2011, the DP programme has undergone a major transition in terms of tenured staff. The number of faculty has gone down from 5.77 FTE in 2011 to 4.31 FTE in 2016). Prof. Granic currently chairs the research programme.

4.3.2 Assessment of the programme
Research Quality
DP has been extraordinarily productive and consistently successful in publishing large numbers of papers in top quality journals, with a total of 621 publications during the evaluation period, with 22% of these in the top 10% journals and 30% in the top 10-25%. The quality of the key publications is excellent and all are published in journals with high impact factors. DP has also been highly successful in attracting external funding, with a total of 58.03 FTE from external funders (2.18 FTE yearly per tenured FTE). In addition, DP has also been very successful in guiding PhD students to completion in a timely manner, with 30 dissertations completed since the last review, an average of 1.13 yearly per tenured FTE. The faculty use an impressive breath of methods and approaches to answer critically important questions. It is remarkable that in addition to conducting innovative investigations, this group has also conducted meta-analyses that have already had a large impact. Both senior investigators seem to provide excellent leadership and to share the responsibilities of leading the group. The regular meetings, writing retreats, and symposia seem to work well in creating a rich, generative climate for faculty and PhD students alike.

In sum, DP is rated as world-leading/excellent for research quality because of the number and impact of research publications, success in attracting external funding, impressive record in graduate training, and because of the innovation of the methods and the research approaches used.
Societal relevance

The research of the DP programme is highly relevant to society, both in the focus of the research questions and the types of outputs produced. The societal output of the DP group includes 50 professional publications, 5 products, 45 media appearances, 2 instances of employment in a practical institution or company, and 10 memberships on professional committees. Their work on the bio-psychosocial origins of antisocial behaviour and substance use is vitally important for preventing these disorders that are such a major cost to society. The research on using serious games as interventions to reduce anxiety is creative and has the potential to make Cognitive Behavioural interventions widely accessible to many more youth and to capitalize on young people’s enthusiasm for video games. It is impressive that this group conducts Randomized Clinical Trials to test and refine the quality of these interventions. The researchers in the DP programme seem to be capturing the attention of the popular media and using it well to communicate their science.

In summary, the societal relevance of the DP programme is rated as world leading/excellent because of the high quantity and quality of the contributions to society and for the potential for these research products to contribute to programmes to prevent serious disorders of childhood and adolescence.

Viability

Overall, this unit seems strong and stable despite a great deal of recent turnover. This is due to the efficient team leadership of the two senior professors, and also due to their success in attracting grant funding. However, the number of staff and funding has decreased in recent years. The two senior professors were attracted to work at BSI by another senior professor who has recently left the BSI. The professor who left the BSI continues to collaborate with the group and to supervise PhD students but this relationship might reduce in future. One concern about the viability of the group is the reliance on only two senior faculty members. The future leadership of the group appears to be strengthened by clear structures and good strategies. This provides a very good context for sustaining an effective, cohesive research team. Another potential concern is that the two main areas of research are not clearly related and could develop in quite distinct directions. The leadership of the programme acknowledges this possibility and seems to be actively working toward an integrated conceptual framework that could lead to more collaboration.

Recommendations for the programme

The Committee advises DP to

- Work toward more integration and collaboration between the two research groups.
- Consider convening targeted community advisory boards for each research group: an adolescent advisory board for Prof. Granic’s game development and a community advisory board of clinicians and clients to guide Prof. Wink’s research on the development of externalizing behaviours and addictions.
4.4 Experimental Psychopathology and Treatment

Chair
prof. dr. E.S. Becker

Tenured staff in 2016
5.48 FTE

Assessment
Research Quality: 1
Societal Relevance: 1
Viability: 1

4.4.1 Description of the programme
The main aim of the Experimental Psychopathology and Treatment (EPT) programme is to contribute fundamental scientific knowledge to the field of abnormal psychology and to test its applicability in clinical practice. EPT conducts experimental studies of cognitive and neurobiological processes that involve psychopathology. It studies the role of these processes in developing and maintaining psychological and somatic dysfunctions and in the changes caused by clinical and preventive interventions. EPT has installed a network of multiple lab groups working on two major areas of interest with clear areas of overlap: (1) the cognitive and neuroendocrine aspects of psychopathology and treatment and (2) bridging fundamental research and applied clinical research. In 2016 19,76 FTE research staff worked at EPT. Appendix 3 (Table 11) contains an overview of the human resources available to the programme. The EPT management is conducted by a five-strong management team under the direction of Professor Becker.

4.4.2 Assessment of the programme
Research Quality
The EPT research group produces high quality research outputs, published in internationally leading peer reviewed journals and attracts impressive levels of research funding to support their work. In the period under review EPT published 628 peer-reviewed papers, of which 39% were in the top 25% of journals (with 17% in the top 10%). EPT hosts a large number of PhD students who are supported by a range of external research funding. 35 students were awarded their PhD during the period (0.98 yearly per tenured FTE). EPT attracted 50.77 FTE of external funding over the assessment period (1.42 FTE yearly per tenured FTE). The world-leading research of this group is based on a coherent model of how research, theory, and practice are related and this model helps translating the results of scientific research into evidence-based information for clinicians. The group has a broad multi-disciplinary approach to research and outstanding expertise in a very wide range of research methods.

This group is very well directed and co-ordinated and the Programme Chair demonstrates excellent leadership. This has facilitated coherence across the research programme and collaboration between team members with multiple methods of sharing social and academic activities. The same ‘vision’ was described by doctoral students and senior professors, suggesting that communication in this
group is very good. There are clear and explicit plans for the future, which build on current success.

Given the excellent quality of the research, the very high productivity, high amounts of grants and PhD students and the excellent scholarly esteem of the faculty this programme was judged to be excellent.

**Societal relevance**
The flexible and extensive range of skills and knowledge and the coherence of the approach taken by the group means that they are able to make a very clear link between fundamental research and its application. The research focus includes understanding and developing treatments for some of the most intractable and costly mental health difficulties, including anxiety, depression and addictions. The programme is well grounded in clinical practice with many individuals continuing to maintain their own practice and registration as clinical psychologists. There are close links with mental health care organizations where the group conduct clinical research. In addition, members of this research group provide evidence based clinical training for qualified psychologists. The scientific research is complemented by clinically relevant publications in professional journals that help translating their research into clinical practice (N=90).

The outputs from this research group include ‘products’ (N = 22) that are directly clinically relevant including new methods to treat mental health problems and evidence based treatment guidelines. There is clear evidence that the work of this group is taken up in national treatment guidelines. There are a large number of externally funded Professorial appointments and external PhD students, both of which reflect the strong relationships between the group and external organizations.

In sum, the work of the group has direct and impressive levels of societal relevance, and as described above, demonstrated in many different ways.

**Viability**
EPT has excellent viability. The leadership and organization of the group is very strong and there is a coherent and shared vision of the mutual aims and objectives. Mentoring and support for research students and junior academic staff is a strength of this group and there are many ways in which support is provided. There is evidence of ongoing critical self-reflection as well as an appreciation of shared success. The clear and explicit plans for the future show excellent strategic thinking. The group has been successful in attracting external funding and in building strong relationships with external organizations. Together with their high quality research output and impressive relevance to society, this provides a very strong platform for future developments.

**Recommendations for the programme**
*The Committee advises EPT to*

- Carefully consider diversifying further. EPT discussed possible opportunities to apply their expertise to new areas of interest, including the police, public health and ehealth. These all seem highly appropriate but the group may wish to consider the opportunity costs involved.

- Develop and perhaps further formalise collaborations with experts in trials methodology (e.g. health economics) as this would help support larger multi-site randomised controlled trials, which will further increase international visibility and improve societal relevance.
4.5 Learning and Plasticity

Chair
prof. dr. L.T.W. Verhoeven (until 09/2016)
prof. dr. B. Steenbergen (from 09/2016 onwards)

Tenured staff in 2016
7.57 FTE

Assessment
Research Quality: 1
Societal Relevance: 1
Viability: 2

4.5.1 Description of the programme
The Learning and Plasticity (LP) programme aims to advance knowledge on the fundamental mechanisms of learning and plasticity and to make this knowledge applicable in diverse societal domains such as schools, rehabilitation institutes and policy making. The programme consists of three research lines: learning difficulties, education and developmental disorders. Learning in both typical and atypical populations is addressed. Special attention is paid to neurocognitive, social and motivational effects on learning as well as the contextual effects of instruction and intervention. Methods include experimental designs, epidemiological studies and neuro(physio)logical measures. In collaboration with institutes outside academia the valorization of basic knowledge is part of the programme. In 2016 up to 34.76 FTE research personnel worked in the LP programme (see Appendix 3, Table 12). Between 2012 and 2013 a total of 8 assistant professors were hired (not all full-time positions) with the aim of strengthening the existing research lines and promoting cross-fertilization among the three lines.

4.5.2 Assessment of the programme
Research Quality
The way LP has been managed and organized during the assessment period has made this research programme very successful. The excellence of its research is witnessed by several indicators. Output in terms of publications is excellent both qualitatively and quantitatively. The research that LP is doing is in line with the state-of-the-art, and their key publications are of an excellent quality. LP published 522 peer-reviewed article publications over the review period and a total of 787 publications overall. 29% of the peer-reviewed scientific articles of LP is published in the top 10% journals of the field and 59% in the top 25%. As regards funding LP was able to attract a very high amount of external research funding: 142.56 FTE based on grants and contracts (3.3 FTE per tenured FTE). With 41 defended PhDs in the assessment period (0.9 per tenured FTE), LP is also very productive in terms of output of PhDs.

The LP programme contains a very diverse range of research topics/lines, and the Committee is of the opinion that the coherence of the programme can be optimized (see also ‘viability’). The programme leader and professors of LP are aware of this and are actively working on strengthening the cohesion. Joint projects, joint PhD supervision, joint lab groups and joint publications are all on the current agenda. Also opportunities for closer collaboration with the other research programs of BSI, that seems rather low at the moment, are now more actively pursued than in the past.
In sum, LP is rated as world-leading/excellent for research quality because of the number and impact of research publications, success in attracting external funding, and impressive record in graduate training. Issues that require continued attention, like the cohesion of the programme, are clearly on the radar of the programme and initiatives for improvement have been taken.

**Societal relevance**
The research topics studied in LP (learning difficulties, education and developmental disorders) are obviously of high relevance for educational practice. The way these topics are tackled further bears witness of the programme’s societal relevance and its ambition to have societal impact. Much of the research is done in close collaboration or in co-creation with the field of practice. LP has also obtained the necessary resources and equipment to realize these in-the-field studies.

The accomplishments with regard to societal relevance are excellent and include, most notably, three external professorships funded by agencies outside the university (and three more under discussion for the moment); an increasing number of external PhD candidates (n=17); a considerable amount of diverse professional committees or organizations (also internationally), taking part in a lot of professional activities, a very good amount of professional publications (n=75); and a high number of professional products (n=14). These accomplishments have moreover resulted in societal impact. The reading fluency app will be included in the reading curriculum that is used by 80% of the Dutch schools; the implementation of the physical education handbook; and the dyslexia protocols created in collaboration with Expertisecentrum Nederlands are examples of how LP is really influencing its field of practice in the Netherlands.

In summary, the societal relevance of the LP programme is rated as world leading/excellent because of the high quantity and quality of the contributions to society and their realized impact on the field of practice.

**Viability**
LP has become a very large research group due to its success in attracting external funding. However, there is an obvious unbalance in size and quality across the three research lines. Although there are no signs at the moment that the quality of the programme is endangered, LP should closely monitor potential threats to the viability of the group, especially as the group is in a transition phase at the moment. Some professors who were important for the past success have taken a step aside and two new professors were about to enter the group at the moment of the site visit. Although the start of two new professors is clearly an opportunity to make the programme more balanced, they will need to integrate in the group and quickly achieve the same level of performance. This will be a challenge as one new professor will have to build up a rather new research line and the other new professor has to more or less ‘restart’ a group that has missed a full professor for too long. Moreover, although initiatives have been taken to decrease heterogeneity, the diversity of LP is still high. Bringing in the new research line on dyscalculia and arithmetic difficulties can hinder the process of looking for more coherence and deepening of the expertise in specific topics. Finally, the workload, specifically in terms of PhD supervision, is for some members extremely high. Unhealthy work-life-balance of key persons may be a threat for the viability of the group.
Recommendations for the programme
The Committee advises LP to

- Keep looking for more coherence in the group and for more affiliation in BSI as a whole. The expertise in longitudinal studies of the social development programme is in this respect a great mutual opportunity.
- Look into learning and developmental disorders more from a dimensional perspective and not mainly from a classification approach, as this would help also to relate better to other programs in BSI.
- Try to better spread the workload in the programme. In this respect especially the supervision of PhD candidates must be taken into consideration. It will help guaranteeing quality of the research and work-life-balance of staff.
4.6 Social Development

Chair
prof. dr. A.H.N. Cillessen

Tenured staff in 2016
5.09 FTE

Assessment
Research Quality: 2
Societal Relevance: 2
Viability: 2

4.6.1 Description of the programme
The Social Development (SD) programme conducts fundamental and applied research on social development from childhood to young adulthood and its related processes. It aims at contributing new basic knowledge to developmental science and the dissemination of findings to a broad audience. SD’s ambition is moreover that this knowledge should be relevant to positive developments in clinical and educational settings. In 2016 11,69 FTE research staff worked at SD. Appendix 3 (Table 13) contains an overview of the human resources available to the programme. The programme leader is nominated by a rotating small group of staff members, who meet monthly. The programme holds weekly research meetings and monthly staff meetings.

4.6.2 Assessment of the programme
Research Quality
SD consists of a few senior and many junior investigators who organize active lab groups examining a wide range of important topics that bear on enhancing positive development. The SD programme has produced research of very good quality since the last review, as evidenced by the high number of peer reviewed articles (N = 254) and the fact that 25% of these appear in the top 10% journals in the field and 47% in the top 25% journals. The quality of the key publications is extremely strong; the papers are innovative, important contributions and many are published in high impact journals. SD has been productive in training PhD candidates, with 18–24 candidates completing their PhD’s in 2011-2016. The number of PhD’s per tenured FTE is .89. Since the last review, the group has responded successfully to the suggestion to focus more on the interplay of biological and social factors, by adding biological factors to its study designs. The on-going longitudinal studies should be considered as an important strength of this research programme.

Although the individual investigators of the SD programme are each conducting important lines of research, these are only somewhat integrated around a focused theme. This research programme looks like a traditional developmental psychology unit, studying a diverse set of developmental topics. In the last six-year period, the SD Programme obtained 22 grants totalling 4.96 million euro. External funding per tenured FTE is 1.09 FTE. Second stream funding for fundamental research has become more competitive, so this group will need to accelerate their efforts in devising creative, collaborative strategies to find funding. This will be especially important for the continuing support of the longitudinal studies.

Societal relevance
The research questions examined by the SD programme are highly relevant to society. Nice
examples are, among many others: how biological and psychosocial factors might interact to explain which infants get colic, how specific features of peer relations in childhood and adolescence contribute to adjustment, and how developing in high adversity contexts may result in positive, adaptive characteristics. Societal outputs include 11 professional publications, 5 products, 104 media appearances, 1 instance of employment in a practical institution or company, and 23 memberships on professional committees. This group seems to succeed in communicating their science to the public as evidenced by the large number of media appearances. The research on classroom seating addresses a practical decision that teachers face every day and investigates the consequences of these decisions on student adjustment. The Musical Chairs online tool is an easily accessible way for teachers to act on these important research findings. Estimates suggest that this software has been accessed by 4000 teachers. This group could be more systematic, intentional, and deliberate in communicating the results of their research to parents, teachers, clinicians, and other interested parties.

**Viability**

The Chair of SD also serves as Director of the BSI. Several other faculty members lead research programmes on the general theme of social development. The leadership of the unit seems strong with important structures in place to enhance communication and collaboration: regular meetings, symposia, and writing retreats. However, although the chair has been doing an admirable job leading this unit, it is unfortunate that he is also the BSI Director because this has to detract from the time he is able to devote to leading this research programme, and vice versa. SD includes one other full professor who seems not to participate in leading this research programme. Another concern related to viability is the increased competitiveness of funding for the type of basic science that is the focus of most members of this group. The SWOT analysis outlines appropriate strategies for addressing this concern, including additional collaborations with other groups and finding ways to do more applied investigations.

**Recommendations for the programme**

The Committee advises SD to

- Contemplate whether it is possible to orient their research around a central theme that could serve as a distinct identity for this group.
- Increase its efforts to write creative, innovative grant applications that will attract funds to support their important research, especially the ongoing longitudinal studies, perhaps in collaboration with each other or with others in BSI.
- Be more deliberate and systematic in increasing and documenting the societal impact of their research. Research findings could be disseminated to the community by electronic newsletters, Facebook, and Twitter. Careful records could be kept to determine the utilization of products produced by this group.
- Have another senior faculty member to step up to lead SD while prof. Cillessen is serving as BSI Director.
- Perform careful strategic planning to determine its aspirational state, specific initiatives to achieve these goals, and metrics by which to measure progress.
4.7 Work, Health and Performance

4.7.1 Description of the programme

The main objective of the Work, Health and Performance (WHP) programme is to build up knowledge of the interaction between task and individual characteristics in shaping task behaviour, health and performance. WHP aims to provide evidence-based guidelines for the design of healthy work, prevent stress and burnout, and promote recovery, motivation, learning and performance. The research programme covers two interrelated lines of research: (1) stress, fatigue and recovery and (2) motivation and performance. With a background in occupational health psychology, it studies these phenomena in the context of work and sport. In 2016 10.17 FTE research staff worked at WHP. Appendix 3 (Table 14) contains an overview of the human resources available to the programme. Professors Kompier and Geurts jointly lead the group until the Fall of 2017, at which point Professor Kompier became Dean of the Faculty.

4.7.2 Assessment of the programme

Research Quality

WHP has published 108 articles in peer-reviewed journals over the assessment period. As measured by publications in top journals, the programme is producing high quality research: 28% of articles were published in the top 11-25% journals; 18% of articles were published in top 10% journals. The research is sound both fundamentally and applied. Integration within BSI is also good: a relatively high percentage of 2016 publications (25%) involved members of other programmes. Several researchers are very well regarded internationally and are highly active, with very good citation rates and Google scholar H-factors. They are respected in the field, with one person serving as an associate editor and three others on the editorial boards of esteemed journals. It is also noteworthy that they have an important collaboration with the TNO, which has enabled analysis of applied longitudinal research datasets.

External funding is good (18.28 FTE over the assessment period, averaging 1 FTE yearly in grant funding per tenured FTE). There have been considerable grants from the NWO, which is prestigious and important for BSI. In absolute terms, external funding provides substantially more support in the current assessment period than before (18.3 2011-2016, vs 5.7 2005-2010). The Committee also notes that external funding provides slightly less support as a percentage of
funding in recent years than in 2011 and 2012. Output of PhDs has been on the low side, with 5 PhDs awarded, averaging 0.28 PhDs yearly per tenured FTE.

While the expansion into the field of sports makes sense given the programme's established research in the field of work, the name and explanation of the mission of the group was difficult to grasp for those not directly in the research area.

**Societal relevance**
The goals of the WHP are clearly aligned to issues of interest to society. The programme studies phenomena that may affect all of us in our lives at work, including factors inhibiting well-being and productivity like stress, burnout, lack of sleep, motivation, and lack of control over work-time arrangements. Their findings are relevant for both the public in general and private sector enterprises. The programme also conducts research into the factors that can boost performance in sports.

The group has been active in conducting outreach to the public and peers. Societal outputs include 5 professional publications, 34 media appearances, 2 instances of employment in a practical institution or company, and 30 memberships on professional committees. WHP has advised the Ministry of Social Affairs and Employment on the annual “Week of Work Stress”, and provided expert testimony for court trials. Important partners are the Dutch and World Anti-Doping Authority. This group seems to succeed in communicating their science to the public, but other than work with the Dutch Olympic Committee, there has not been documentation of impact. While the programme is committed to societal relevance, achieving this goal would be further facilitated by developing strategies for disseminating research findings and creating more products to benefit society.

**Viability**
There are several structural disadvantages faced by the group. First, the group will need to reassess its organization as the implications of one of the directors becoming Dean are better understood over time. The small size of WHP is noted as a weakness in the self-report and by the Committee. The programme does not have any Associate Professors. In addition, the number of PhD students is also of concern, particularly as the Committee’s analyses show that the number of PhD students is directly related to productivity. Finally, the Committee sees the lack of coherence of WHP as a potential threat to its future viability. The inclusion of the field of sports in the programme has made it less coherent and makes it advisable to reconsider the mission of the programme and its future focus.

On the positive side the group has worked to build extensions outside the university, with other universities and industry groups. Similarly, it has cooperative links with other parts of the BSI and joint activities, and is therefore important to the overall goals of the BSI. Grant acquisition has improved but is still comparatively low. Given the sport and workplace implications of the research, there is potential for more external funding from a variety of organizations. The programme could more proactively engage with industry end-users to uncover industry needs and develop joint plans that could be funded.

**Recommendations for the programme**
The Committee advises WHP to

- Reconsider the mission of the programme and its future focus.
- Increase the number of associate professors.
- Develop a plan to secure funding from more external sources. Given their success with the World Anti-Doping organization, they could aim for other international, national, and jurisdictional health and safety agencies. The EU 2020 Vision may be appropriate as well.

- Aim to collaborate more with international agencies concerned with work (ILO, WHO, ICOH, Eurofound) alongside those mentioned in relation to sport (World anti-doping). These organizations are important and desired end-users for translation of research into policy and with their engagement, will increase the likelihood of translation of research results internationally, although they may not be able to provide much direct support for research.

- Appeal directly to very large organizations to develop and test interventions to improve worker productivity. To start, they could hold challenge workshops with industry end-users to uncover industry needs and develop joint plans that could be funded. This would ensure the research is cutting edge, translatable and fundable.

- Do more to translate and disseminate research findings, and measure the impact of dissemination. The establishment of an advisory board of relevant industry and policy-makers could help in developing a dissemination strategy and approaches to evaluate the impact.
5. Response of the Institute

This document describes the results of the assessment of the Behavioural Science Institute over the period 2011-2016 that took place in the Fall of 2017. The assessment was based on the self-evaluation report prepared by the Institute and on a two-day site visit by the evaluation committee. The evaluation committee consisted of international leaders in behavioural science who were also experienced in university administration. They were highly qualified to provide expert opinions on the state of the art and further development of the Behavioural Science Institute. We thank the members of the Evaluation Committee for their careful work during the site visit and for their detailed assessment report.

The committee evaluated the BSI positively in terms of the core elements research quality, societal relevance, and viability. They concluded: “BSI is, by all metrics the Committee consulted, a healthy Institute” and “the Committee has a very positive assessment of the research environment BSI creates for its researchers” (p. 14). The Standard Evaluation Protocol 2015-2021 specifically asks for separate assessments of the PhD programme and policies on academic integrity. With respect to PhD training, the committee concluded that BSI has a vibrant, well-designed PhD programme. With respect to academic integrity, the committee stated: “BSI has created a culture in which academic integrity is supported at all levels. An excellent academic integrity policy is in place” (p. 24).
In addition to these positive comments, the committee provided a number of recommendations to be addressed in the immediate future and in the long term. The committee gave detailed recommendations for the Institute and the research programmes. When examining the recommendations for the Institute as a whole, we see four issues as primary.

1. Cohesion and structure. The committee made a number of recommendations to promote the internal cohesion and effective functioning of the Institute as one organization. They recommended to plan activities to promote internal cohesion, discuss the internal organization of the institute, and develop initiatives to promote grant writing through internal collaboration and peer learning. The identification of two or three peer institutes, another recommendation, will also help to realize this goal. Peer institutes not only will provide a benchmark for future evaluations, studying role models will also provide guidelines for successful collaboration and organization that can be followed by BSI.

2. Strategic plan. Related to the first goal, the committee recommended to develop a strategic plan. A strategic plan will follow from the efforts mentioned under the first point, and will be developed in parallel with them.

3. Clarifying career development. The committee recommended that BSI be clearer in the criteria for career development. Currently, it is not always clear for researchers what the criteria are. For example, criteria for tenure or promotion have not always been clear. The personnel decisions within BSI are part of the general personnel policies of the Faculty of Social Sciences and the University at large, and follow them. At the same time, their specific implementation at the level of the Institute can be further clarified.

4. Valorisation. The committee recommended to develop a system to monitor valorization output and to create an external advisory board of societal partners. Given the importance of societal relevance of research today, and the identity of BSI as a multidisplinary research institute for fundamental and applied research, this recommendation will also be among the first to address.

In order to reply to these points, BSI has decided to prioritize the following actions:

1. Develop a strategic plan.
2. Identify two or three peer institutes.
3. Organize an internal discussion about the structure of the institute.
4. Based on the previous point, plan activities to promote internal cohesion.
5. Clarify possibilities for career advancement within BSI/FSW/RU.
6. Promote grant writing through internal collaboration and peer learning.
7. Develop a system to monitor valorization output.
8. Create an external advisory board of societal partners.

The following concrete actions are currently being taken. To identify peer institutes, program leaders and other staff have been invited to give suggestions. The director recently visited one example peer institute (Institute for Child Development, Minneapolis, MN, USA). We have developed a list of quantitative and qualitative indicators that we will be collecting for each possible peer institute, to
evaluate which ones are a good fit. These activities are ongoing, all faculty can give suggestions. The director is planning to visit another peer institute in the Fall.

In addition, four workgroups are being formed. The workgroup “Peer Learning in Grant Writing” will consist of the director, one program leader, and two junior faculty who are experienced in grant writing. The workgroup “External Advisory Board” will consist of the management coordinator, one program leader, and two professors by special appointment. A workgroup “Cohesion and Structure” has been formed and consists of the director, management coordinator, and two program leaders. Junior faculty may be added to this workgroup later. The initial work of this committee will serve as input for a heidag later. The workgroup “Personnel Policy” will be formed after the summer. At the same time, the director will initiate work on the strategic plan in the second half of 2018. A time table for these activities is presented below.

These actions are being taken in direct response to the assessment and will contribute to the further development of the Institute. We are grateful to the chair and members of the evaluation committee for their careful assessment of the Institute, and we thank the committee for their valuable recommendations and suggestions.

Sincerely,

Toon Cillessen, Director
Appendix 1:
Short Curricula Vitae of the Evaluation Committee members

Theo Wubbels (Chair) research interests developed in his career from the pedagogy of physics education, via problems and supervision of beginning teachers and teaching and learning in higher education to studies of learning environments and especially interpersonal relationships in education. He received his BSc and MSc in physics of Utrecht University and completed his PhD in Social Sciences in 1984 at Utrecht University. During his career among others he served as director of teacher education, associate dean of the Faculty and dean of the Graduate School of Social and Behavioural Sciences, and Admissions Dean of Utrecht University. He has acted as a chair and member on numerous committees and boards and currently is president of the European Educational Research Association and treasurer of the European Alliance for Social Sciences and Humanities. He published over 200 international journal articles and edited several books in Dutch and English. He is fellow of the American Educational Research Association.

Maureen Dollard is Professor of Work and Organisational Psychology, Director and Head of the Asia Pacific Centre for Work Health and Safety, a World Health Organization Collaborating Centre for Occupational Health at the University of South Australia. Her research and consultancy is in the area of work stress and she holds a PhD on the topic. She has published four edited books and over 140 book chapters and refereed journal articles in the area. Maureen is on the editorial board of the Journal of Organisational Behavior; the European Journal of Work, and Organisational Psychology; Work and Stress; and the International Advisory Board of the International Journal of Rural Management. Her research in the area includes the impact of deregulation on dairy farmers and their families; and a study of organophosphate farm pesticide use and well-being in rural children. Other research focuses on remote health workers, remote development workers in India, and rural women entrepreneurs.

John Dovidio’s research focuses on stereotyping, prejudice, and discrimination; social power and nonverbal communication; and altruism and helping. He received his BA from Dartmouth College and completed his Ph.D. at the University of Delaware. He is currently Carl Iver Hovland Professor of Psychology and Public Health, as well as Dean of Academic Affairs of the Faculty of Arts and Sciences, at Yale University. He previously taught at the University of Connecticut and at Colgate University, where he also served as Provost. He has received the Kurt Lewin Award from the Society for the Psychological Study of Social Issues (SPSSI) and the Donald Campbell Award from the Society for Personality and Social Psychology (SPSP) for his scholarly achievements. John Dovidio has been president of SPSSI, SPSP, and the Society for Experimental Social Psychology, as well as Executive Officer of SPSP. He has also served as Editor of the Journal of Personality and Social Psychology – Interpersonal Relations and Group Processes, Editor of Personality and Social Psychology Bulletin, and Co-Editor of Social Issues and Policy Review.

Pol Ghesquière is Full Professor in Learning Disabilities at the Faculty of Psychology and Educational Sciences of the University of Leuven (KU Leuven - Belgium). His research focuses on the cognitive aspects of dyslexia and dyscalculia and their neurobiological basis, the screening and assessment of specific learning disabilities, effective instruction and remedial teaching for children with reading, spelling and arithmetic problems. He is

Shirley Reynolds is Director of the Charlie Waller Institute and Professor of Evidence Based Psychological Therapies at the University of Reading. She is a clinical psychologist with extensive research experience in evaluating and understanding psychological therapies for people across the lifespan. At the University of Reading she is co-Director of the AnDY Research Clinic for children and adolescents with depression and anxiety. Her primary research interest is in adolescent depression. Current research projects include the delivery of psychological therapies in schools, the relationship between sleep difficulties and depression in adolescents, and between nutrition and depression. Before moving to Reading in 2012 Professor Reynolds was Professor of Clinical Psychology at the University of East Anglia in Norwich Shirley has held a range of national roles including President of the British Association of Behavioural and Cognitive Psychotherapy (2010-2012) and founding co-editor of Evidence Based Mental Health (2001-2006).

Leslie Snyder is Professor of Communication at the University of Connecticut (UConn). She was Director of the Center for Health Communication and Marketing, a CDC Center of Excellence, at UConn from 2006-13, and Interim Department Chair of Communication 2015-17. She conducts research on traditional and new media effects, communication campaigns, health, and international communication. Her research includes design and evaluation of communication-based interventions, meta-analyses of campaign effects, population-based surveys, and experimental work on messaging and communication channels across a wide range of health and environmental topics. She has received over $7 million in research funding from NIH, CDC, and other sources, and regularly consults on national health campaigns. She received the American Public Health Association’s Rogers Health Communication Award for her research, and has been on several National Academy of Sciences committees.

Marion Underwood is one of the foremost researchers in the developmental origins and outcomes of social aggression and how adolescents’ digital communication relates to adjustment. Dr. Underwood’s work has been published in numerous scientific journals and her research programme has been supported by the National Institutes of Health since 1995. In 2003, she authored a book, Social Aggression among Girls and, in 2015, she was featured in a CNN special called “#Being13: Inside the Secret World of Teens.” Since 2003, she and her research group have been conducting a longitudinal study of origins and outcomes of social aggression, and how adolescents use digital communication. Dr. Underwood received the 2001 Chancellor’s Council Outstanding Teacher of the Year Award, was granted a FIRST Award and a K02 Mid-Career Independent Scientist Award from the National Institute of Mental Health, and is a Fellow of the Association for Psychological Science. She earned her bachelor’s degree from Wellesley College and her doctoral degree in clinical psychology from Duke University in 1991.
Appendix 2:
Programme Site Visit BSI

Day 1: Tuesday October 10, 2017
Location: Holthurnschehof Berg en Dal

15.00 Chair and secretary committee meet with Steffie Hampsink for programme logistics and procedures
15.30 Site visit preparation by the Committee (Committee only)
17.30 Welcome reception and introduction with Rector Magnificus, prof. Han van Krieken; Dean of the Faculty, prof. Michiel Kompier; Director of the Institute, Toon Cillessen and BSI Programme leaders
18.30 Dinner (Committee only)
20.00 Further preparation of the site visit (Committee only)

Day 2: Wednesday October 11, 2017
Location: Spinoza building

8.30 Welcome, presentation and interview with Director of the Institute and Dean of the Faculty
9.15 Discussion of findings (Committee only)

9.30 - 10.30 Meetings with BSI Programmes (5 min presentation and 40 min interview, followed by 15 min discussion of findings by the committee only)
9.30 Programme Learning & Plasticity; prof. Bert Steenbergen, prof. Eliane Segers
10.30 Programme Developmental Psychopathology; prof. Isabela Granic, prof. Jacqueline Vink
11.30 Programme Social Development; prof. Toon Cillessen, dr. Anouk Scheres
12.30 Lunch (Committee only, Grotius Building)

13.15 - 17.15 Meetings with BSI Programmes (5 minutes presentation and 40 minutes interview, followed by 15 min discussion of findings by the committee only)
13.15 Programme Communication & Media; prof. Moniek Buijzen, dr. Paul Ketelaar
14.15 Programme Work, Health & Performance; prof. Sabine Geurts, prof. Michiel Kompier
16.15 Programme Experimental Psychopathology & Treatment; prof. Eni Becker, prof. Karin Roelofs
17.15 Break
17.30 Interview with representatives of societal partners of BSI: Peter Biekens, lecturer at Fontys Applied University, Bamber Delver, founder of National Academy for Media and Society, Erik Duiven, head of prevention, Anti-Doping Authority, dr. Cecile Exterkate, member of the general board of Pro Persona Mental Health Care, Owen Harris, Game Designer Anne-Mieke Kruuk, clinical psychologist and orthopedagogist at the Alleskidzzz project, Ron Scholte, director of Praktikon research and development in youth care, policy and education, Frank Tigges, chair of the board of Stichting Klasse, leading 17 schools
18.30 Dinner Committee with Dean of the Faculty, Director of the Institute and Programme leaders (Faculty Club)
### Appendix 2:
**Programme Site Visit BSI**

**Day 3: Thursday October 12, 2017**  
**Location:** Spinoza building

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>08.30</td>
<td>Meeting Committee with Dean of the Faculty</td>
</tr>
<tr>
<td>09.00</td>
<td>Discussion of findings (Committee only)</td>
</tr>
<tr>
<td>09.15</td>
<td>Interview with PhD students:</td>
</tr>
<tr>
<td></td>
<td><em>Lieke Swinkels (BCW), Jonas Dora (WHP), Jesse Fenneman (SD), Nessa Ikani (EPT), Evelien Mulder (LP), Joyce Dieleman (DP), Niklas Johannes (CM)</em></td>
</tr>
<tr>
<td>10.00</td>
<td>Discussion of findings (Committee only)</td>
</tr>
<tr>
<td>10.15</td>
<td>Interview with junior faculty/post-docs:</td>
</tr>
<tr>
<td>11.00</td>
<td>Discussion of findings (Committee only)</td>
</tr>
<tr>
<td>11.15</td>
<td>Interview with BSI committees &amp; coordinators (chair BSI committees, PhD coordinator, and Research Master coordinator):</td>
</tr>
<tr>
<td></td>
<td><em>dr. Debby Beckers (chair Science committee), dr. Arne Nieuwenhuys (chair Lab committee), dr. Hein van Schie (chair Colloquium committee), prof. Eliane Segers (coordinator PhD programme), prof. Rob Holland (coordinator RM programme)</em></td>
</tr>
<tr>
<td>12.00</td>
<td>Lunch (Including discussion of findings by committee only, lunch will be delivered in the meeting room)</td>
</tr>
<tr>
<td>12.45</td>
<td>Interview with Director of the Institute</td>
</tr>
<tr>
<td>13.15</td>
<td>Discussion of findings (Committee only)</td>
</tr>
<tr>
<td>13.30</td>
<td>Tour of BSI facilities</td>
</tr>
<tr>
<td>14.15</td>
<td>Committee meeting to discuss results, preparation of site visit report and presentation</td>
</tr>
<tr>
<td>17.00</td>
<td>Presentation of preliminary findings by the Committee (Donders room)</td>
</tr>
<tr>
<td>17.30</td>
<td>Drinks</td>
</tr>
<tr>
<td>19.00</td>
<td>Dinner Committee (Holthurnschehof Berg en Dal, optional)</td>
</tr>
</tbody>
</table>
### Table 1:
**Research staff 2011-2016**

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenured</td>
<td>31.0</td>
<td>25.2</td>
<td>32.8</td>
<td>32.8</td>
<td>38.0</td>
<td>39.7</td>
<td>208.7</td>
</tr>
<tr>
<td>Non-tenured</td>
<td>14.7</td>
<td>12.0</td>
<td>16.0</td>
<td>12.6</td>
<td>14.5</td>
<td>11.9</td>
<td>109.2</td>
</tr>
<tr>
<td>PhD candidates</td>
<td>27.4</td>
<td>62.9</td>
<td>78.2</td>
<td>78.0</td>
<td>79.7</td>
<td>82.5</td>
<td>453.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>72.9</td>
<td>100.1</td>
<td>119.0</td>
<td>113.4</td>
<td>117.2</td>
<td>123.1</td>
<td>681.3</td>
</tr>
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</table>

### Table 2:
**Research staff in 2016, specified by academic rank (in FTE)**

<table>
<thead>
<tr>
<th>Rank Description</th>
<th>BCW</th>
<th>CM</th>
<th>DP</th>
<th>P</th>
<th>LD</th>
<th>SD</th>
<th>WMP</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full professor</td>
<td>1.64</td>
<td>1.98</td>
<td>1.56</td>
<td>2.27</td>
<td>1.23</td>
<td>1.00</td>
<td>8.68</td>
<td>9.94</td>
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<tr>
<td>Associate professor</td>
<td>1.47</td>
<td>1.09</td>
<td>0.20</td>
<td>0.64</td>
<td>3.25</td>
<td>1.77</td>
<td>8.73</td>
<td>11.31</td>
</tr>
<tr>
<td>Assistant professor</td>
<td>1.42</td>
<td>1.03</td>
<td>0.47</td>
<td>1.35</td>
<td>2.51</td>
<td>1.29</td>
<td>4.69</td>
<td>10.19</td>
</tr>
<tr>
<td>Researcher/post-doc</td>
<td>0.57</td>
<td>0.98</td>
<td>0.32</td>
<td>1.09</td>
<td>0.93</td>
<td>0.71</td>
<td>3.47</td>
<td>5.73</td>
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<tr>
<td>PhD candidate</td>
<td>0.10</td>
<td>0.10</td>
<td>0.07</td>
<td>0.28</td>
<td>0.59</td>
<td>0.37</td>
<td>1.24</td>
<td>1.27</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>14.23</td>
<td>13.99</td>
<td>12.53</td>
<td>19.95</td>
<td>14.79</td>
<td>11.69</td>
<td>94.75</td>
<td>127.55</td>
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### Table 3:
**Research funding 2011-2016**

<table>
<thead>
<tr>
<th>Source</th>
<th>BCW</th>
<th>CM</th>
<th>DP</th>
<th>P</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct funding</td>
<td>14.79</td>
<td>69.2</td>
<td>10.2</td>
<td>58.9</td>
<td>148.2</td>
</tr>
<tr>
<td>Research grants</td>
<td>6.89</td>
<td>27.2</td>
<td>9.0</td>
<td>16.3</td>
<td>71.3</td>
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<tr>
<td>Contract research</td>
<td>1.08</td>
<td>4.6</td>
<td>0.11</td>
<td>7.5</td>
<td>13.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>21.88</td>
<td>107.6</td>
<td>19.8</td>
<td>82.8</td>
<td>234.4</td>
</tr>
</tbody>
</table>

BSI

<table>
<thead>
<tr>
<th>Source</th>
<th>BCW</th>
<th>CM</th>
<th>DP</th>
<th>P</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct funding</td>
<td>10.43</td>
<td>42.7</td>
<td>10.2</td>
<td>58.9</td>
<td>112.2</td>
</tr>
<tr>
<td>Research grants</td>
<td>11.18</td>
<td>47.3</td>
<td>10.2</td>
<td>58.9</td>
<td>127.5</td>
</tr>
<tr>
<td>Contract research</td>
<td>2.45</td>
<td>10.0</td>
<td>1.1</td>
<td>8.5</td>
<td>12.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>24.06</td>
<td>142.0</td>
<td>11.5</td>
<td>79.4</td>
<td>195.9</td>
</tr>
</tbody>
</table>

BSI

<table>
<thead>
<tr>
<th>Source</th>
<th>BCW</th>
<th>CM</th>
<th>DP</th>
<th>P</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct funding</td>
<td>3.07</td>
<td>50.4</td>
<td>10.2</td>
<td>58.9</td>
<td>76.5</td>
</tr>
<tr>
<td>Research grants</td>
<td>6.05</td>
<td>38.4</td>
<td>4.16</td>
<td>25.1</td>
<td>65.6</td>
</tr>
<tr>
<td>Contract research</td>
<td>1.77</td>
<td>12.2</td>
<td>2.08</td>
<td>12.6</td>
<td>18.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15.88</td>
<td>165.0</td>
<td>20.43</td>
<td>23.2</td>
<td>175.8</td>
</tr>
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</table>
Table 4: Peer-reviewed scientific articles in top journals (as percentage of all peer-reviewed scientific articles)

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct funding</td>
<td>217</td>
<td>395</td>
<td>612</td>
</tr>
<tr>
<td>Research grants</td>
<td>117</td>
<td>163</td>
<td>280</td>
</tr>
<tr>
<td>Contract research</td>
<td>35</td>
<td>23</td>
<td>58</td>
</tr>
<tr>
<td>Total</td>
<td>369</td>
<td>581</td>
<td>950</td>
</tr>
</tbody>
</table>

Table 5:

Peer-reviewed scientific articles in top journals (as percentage of all peer-reviewed scientific articles)

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct funding</td>
<td>26%</td>
<td>26%</td>
<td>26%</td>
<td>26%</td>
<td>26%</td>
<td>26%</td>
<td>26%</td>
</tr>
<tr>
<td>Research grants</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Contract research</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Other</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Table 6:

Societal output (total of 2015 and 2016 combined)

<table>
<thead>
<tr>
<th></th>
<th>BCW</th>
<th>CM</th>
<th>DP</th>
<th>Lp</th>
<th>SD</th>
<th>WHP</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional publications</td>
<td>17</td>
<td>26</td>
<td>50</td>
<td>75</td>
<td>10</td>
<td>5</td>
<td>124</td>
</tr>
<tr>
<td>Products</td>
<td>2</td>
<td>6</td>
<td>5</td>
<td>22</td>
<td>14</td>
<td>5</td>
<td>54</td>
</tr>
<tr>
<td>Media appearances</td>
<td>152</td>
<td>60</td>
<td>45</td>
<td>109</td>
<td>59</td>
<td>104</td>
<td>343</td>
</tr>
<tr>
<td>Employment in a practical institution or company</td>
<td>10</td>
<td>8</td>
<td>2</td>
<td>27</td>
<td>19</td>
<td>1</td>
<td>69</td>
</tr>
<tr>
<td>Professional committees or activities</td>
<td>39</td>
<td>33</td>
<td>10</td>
<td>51</td>
<td>21</td>
<td>30</td>
<td>347</td>
</tr>
</tbody>
</table>

Table 7:

Duration and success rate of PhDs

<table>
<thead>
<tr>
<th></th>
<th>Success rates (graduated within 4 years, based upon thesis approved date)</th>
<th>Current status</th>
</tr>
</thead>
<tbody>
<tr>
<td>cohort</td>
<td>graduated</td>
<td>not yet finished</td>
</tr>
<tr>
<td>2011</td>
<td>26%</td>
<td>14%</td>
</tr>
<tr>
<td>2012</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>2013</td>
<td>25%</td>
<td>20%</td>
</tr>
<tr>
<td>2014</td>
<td>28%</td>
<td>15%</td>
</tr>
<tr>
<td>2015</td>
<td>30%</td>
<td>20%</td>
</tr>
<tr>
<td>2016</td>
<td>30%</td>
<td>20%</td>
</tr>
</tbody>
</table>

- Regular PhD candidates are employed by BSI to conduct a PhD project.
- This table does not include external PhD students.
- A significant no. of PhD candidates at BSI work 0.8 FTE for five years instead of 1.0 FTE for four years. Therefore many projects are planned over five years. Also, candidates who take pregnancy or parental leave are granted an extension of their employment contract.
### 2. Programmes

#### Table 8:

BCW research staff and research funding (in FTE)

<table>
<thead>
<tr>
<th>Staff</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenured</td>
<td>5.23</td>
<td>5.49</td>
<td>5.72</td>
<td>5.97</td>
<td>6.21</td>
<td>6.46</td>
<td>37.02</td>
</tr>
<tr>
<td>Non-tenured</td>
<td>5.07</td>
<td>5.35</td>
<td>5.57</td>
<td>5.82</td>
<td>6.06</td>
<td>6.32</td>
<td>36.02</td>
</tr>
<tr>
<td>Total</td>
<td>10.30</td>
<td>10.84</td>
<td>11.29</td>
<td>11.79</td>
<td>12.27</td>
<td>12.78</td>
<td>73.04</td>
</tr>
</tbody>
</table>

#### Table 9:

CM research staff and research funding (in FTE)

<table>
<thead>
<tr>
<th>Staff</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenured</td>
<td>3.27</td>
<td>3.45</td>
<td>3.62</td>
<td>3.70</td>
<td>3.80</td>
<td>3.90</td>
<td>18.80</td>
</tr>
<tr>
<td>Non-tenured</td>
<td>3.14</td>
<td>3.32</td>
<td>3.45</td>
<td>3.59</td>
<td>3.70</td>
<td>3.80</td>
<td>17.90</td>
</tr>
<tr>
<td>Total</td>
<td>6.41</td>
<td>6.77</td>
<td>7.07</td>
<td>7.29</td>
<td>7.50</td>
<td>7.70</td>
<td>36.70</td>
</tr>
</tbody>
</table>

#### Table 10:

DP research staff and research funding (in FTE)

<table>
<thead>
<tr>
<th>Staff</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenured</td>
<td>3.95</td>
<td>4.13</td>
<td>4.31</td>
<td>4.51</td>
<td>4.72</td>
<td>4.93</td>
<td>27.40</td>
</tr>
<tr>
<td>Non-tenured</td>
<td>3.70</td>
<td>3.88</td>
<td>4.06</td>
<td>4.25</td>
<td>4.45</td>
<td>4.65</td>
<td>23.30</td>
</tr>
<tr>
<td>Total</td>
<td>7.65</td>
<td>8.01</td>
<td>8.37</td>
<td>8.76</td>
<td>9.17</td>
<td>9.58</td>
<td>50.70</td>
</tr>
</tbody>
</table>

#### Table 11:

EPT research staff and research funding (in FTE)

<table>
<thead>
<tr>
<th>Staff</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenured</td>
<td>2.28</td>
<td>2.41</td>
<td>2.51</td>
<td>2.64</td>
<td>2.78</td>
<td>2.92</td>
<td>15.20</td>
</tr>
<tr>
<td>Non-tenured</td>
<td>2.11</td>
<td>2.26</td>
<td>2.37</td>
<td>2.51</td>
<td>2.65</td>
<td>2.79</td>
<td>13.30</td>
</tr>
<tr>
<td>Total</td>
<td>4.39</td>
<td>4.67</td>
<td>4.88</td>
<td>5.15</td>
<td>5.43</td>
<td>5.71</td>
<td>28.50</td>
</tr>
</tbody>
</table>
### Table 12:

LP research staff and research funding (in FTE)

<table>
<thead>
<tr>
<th>Staff</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenured</td>
<td>5.89</td>
<td>6.15</td>
<td>7.05</td>
<td>6.85</td>
<td>8.39</td>
<td>8.53</td>
<td>6.11</td>
</tr>
<tr>
<td>Non-tenured</td>
<td>5.26</td>
<td>14.71</td>
<td>5.82</td>
<td>7.55</td>
<td>4.71</td>
<td>10.85</td>
<td>4.95</td>
</tr>
<tr>
<td>PhD candidates</td>
<td>22.11</td>
<td>68.8</td>
<td>28.87</td>
<td>70.9</td>
<td>31.21</td>
<td>70.79</td>
<td>31.21</td>
</tr>
<tr>
<td>Total</td>
<td>33.26</td>
<td>93.72</td>
<td>53.67</td>
<td>75.84</td>
<td>98.27</td>
<td>117.29</td>
<td>98.27</td>
</tr>
</tbody>
</table>

### Table 13:

SD research staff and research funding (in FTE)

<table>
<thead>
<tr>
<th>Staff</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenured</td>
<td>5.42</td>
<td>20.32</td>
<td>1.42</td>
<td>24.32</td>
<td>4.87</td>
<td>31.6</td>
<td>4.02</td>
</tr>
<tr>
<td>Non-tenured</td>
<td>4.91</td>
<td>8.1</td>
<td>1.68</td>
<td>12.0</td>
<td>1.72</td>
<td>11.5</td>
<td>1.72</td>
</tr>
<tr>
<td>PhD candidates</td>
<td>6.0</td>
<td>62.0</td>
<td>8.87</td>
<td>61.4</td>
<td>8.35</td>
<td>55.9</td>
<td>7.48</td>
</tr>
<tr>
<td>Total</td>
<td>24.65</td>
<td>128.0</td>
<td>11.84</td>
<td>116.0</td>
<td>14.21</td>
<td>115.0</td>
<td>14.21</td>
</tr>
</tbody>
</table>

### Table 14:

WHP research staff and research funding (in FTE)

<table>
<thead>
<tr>
<th>Staff</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenured</td>
<td>2.0</td>
<td>25.0</td>
<td>2.0</td>
<td>25.0</td>
<td>2.0</td>
<td>25.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Non-tenured</td>
<td>1.2</td>
<td>14.5</td>
<td>0.4</td>
<td>4.5</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>PhD candidates</td>
<td>5.1</td>
<td>60.3</td>
<td>4.37</td>
<td>19.3</td>
<td>0.1</td>
<td>19.3</td>
<td>0.1</td>
</tr>
<tr>
<td>Total</td>
<td>8.3</td>
<td>81.3</td>
<td>6.77</td>
<td>35.3</td>
<td>0.1</td>
<td>35.3</td>
<td>0.1</td>
</tr>
</tbody>
</table>
## Appendix 4: Explanation of the categories utilized

Extended description of the 4-point scale for categorizing the quality along three criteria

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