

RESEARCH REVIEW

**THE NETHERLANDS INSTITUTE FOR
PERMANENT ACCESS TO
DIGITAL RESEARCH RESOURCES
(DANS)**

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

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

Project number: 0689
© 2018 QANU

Text and numerical material from this publication may be reproduced in print, by photocopying or by any other means with the permission of QANU if the source is mentioned.



REPORT ON THE RESEARCH REVIEW OF THE NETHERLANDS INSTITUTE FOR PERMANENT ACCESS TO DIGITAL RESEARCH RESOURCES (DANS)

Table of Content

- 1. FOREWORD BY COMMITTEE CHAIR 4
- 2. INTRODUCTION 5
- 3. THE REVIEW COMMITTEE AND THE PROCEDURES 6
 - 3.1. Scope of the review and assessment criteria 6
 - 3.2. Composition of the committee 6
 - 3.3. Independence 6
 - 3.4. Data provided to the committee 6
 - 3.5. Procedures followed by the committee 7
 - 3.6. Application of the SEP and scores 7
- 4. STRATEGY AND ORGANISATION 8
 - 4.1. Strategy and targets 8
 - 4.2. Organisation, governance and leadership 9
 - 4.3. Resources and funding policies 9
- 5. REVIEW OF SERVICES AND RESEARCH OF DANS 11
 - 5.1. Quality of services 11
 - 5.2. Quality of research 12
 - 5.3. Relevance to society and the research community 12
 - 5.4. Viability 13
 - 5.5. Conclusion 13
- 6. REVIEW OF RESEARCH INTEGRITY POLICY AND DIVERSITY 14
 - 6.1. Integrity 14
 - 6.2. Diversity 14
- 7. RECOMMENDATIONS 15
- APPENDICES 16**
 - APPENDIX 1: EXPLANATION OF ASSESSMENT CRITERIA AND CATEGORIES 17
 - APPENDIX 2: CURRICULA VITAE OF THE COMMITTEE MEMBERS 19
 - APPENDIX 3: PROGRAMME OF THE SITE VISIT 20
 - APPENDIX 4: QUANTITATIVE DATA 22

1. FOREWORD BY COMMITTEE CHAIR

When DANS started in 2005, few could have envisaged how thoroughly the data landscape would change in the next decade. The changes pertain to more than just the rise of big data, although new ways of data-collection and in particular the increasing variety of data, in itself provides complex challenges. The institutional setting also proved very dynamic. The debates on open science and open data have gained momentum. The awareness that data need not just to be stored but also be made FAIR has grown.

The committee that visited DANS in November 2017 was fully aware of these developments as the members, in different capacities, are actively involved as experts in the field. We found a professional organisation that manages to keep up with these rapid developments and has adjusted its services to new needs for data management and curation, including back-office services to professionals that support researchers in meeting new requirements.

This report summarises the assessment by the committee of DANS's performance using the criteria from the latest SEP protocol: the quality of its services, the relevance to the research community and society and the viability of its strategy.

Prof. P. Hooimeijer, chair

2. INTRODUCTION

The Netherlands institute for permanent access to digital research resources (DANS) is a joint institute of the Royal Netherlands Academy of Arts and Sciences (KNAW) and the Netherlands Organisation for Scientific Research (NWO). The main task of DANS is to encourage sustainable access to digital research resources. The most important target group of DANS includes data producers and data users from the scientific research community and public and private organisations that carry out research commissioned by the authorities.

DANS provides certified services for data management and archiving and offers training and consultancy. By participating in (inter-)national data infrastructure consortia, projects and research DANS also contributes to continued innovation of the global scientific data infrastructure. One of the ways in which it wants to contribute to society and academic community is by backing recent policy developments concerning Open Science.

DANS's core services include:

- EASY, an online archiving system for depositing and downloading research data;
- DataverseNL, an online storage system for sharing and registration of research data during the research period and up to the prescribed term of ten years after its completion;
- NARCIS, a national portal for scientific information and descriptions of research projects, experts and research institutes in the Netherlands.

At the moment the core service EASY primarily focuses on data from the humanities and the social sciences. Narcis and DataverseNL cover all disciplines.

At each KNAW institute strategy, governance and research are assessed by an external evaluation committee once every six years. DANS stands out among other KNAW institutes because of its focus on services. At DANS doing research is a secondary activity and is focused on innovation and improvement of core services. As a result, the assessment criteria have been somewhat adapted.

3. THE REVIEW COMMITTEE AND THE PROCEDURES

3.1. Scope of the review and assessment criteria

In accordance with agreements between the Association of Universities in the Netherlands (VSNU), the Royal Netherlands Academy of Arts and Sciences (KNAW) and the Netherlands Organisation for Scientific Research (NWO), this review follows the Standard Evaluation Protocol 2015-2021 (SEP). DANS is reviewed as one unit.

The SEP is developed for the evaluation of academic research while DANS mainly provides services. As a consequence, the assessment criteria of the SEP were adapted for the position and mission of DANS. The committee's tasks were to assess the quality of provided services (and where applicable research), the relevance to society and the research community and the viability of the scientific services and research. Furthermore, a qualitative review of research integrity and diversity is part of the committee's assignment. In addition, KNAW and NWO have asked the committee to address the following questions:

- How could DANS strengthen its national and international position?
- Are the mission, strategy and business model of DANS adequate and in compliance with the current Open Science and Open Data developments?
- By collaborations with other national (and international) service providers, DANS' strategy is twofold: (a) to stimulate a wide coverage of long-term data preservation and access functions; and (b) to expand its services to other disciplines than the humanities and social sciences, and even abroad. What is the preferred position of DANS?

For more information on the scope of the review and the assessment criteria, please refer to Appendix 1.

3.2. Composition of the committee

The composition of the committee was as follows:

- Prof. Pieter Hooimeijer;
- Prof. York Sure-Vetter;
- Prof Rūta Petrauskaitė;
- Dr. ir. Salome Scholtens;
- Dr. Barteld Braaksma.

The curricula vitae of the committee members are included in Appendix 2.

Adrienne Wieldraaijer-Huijzer MA, from QANU, acted as secretary for the committee.

3.3. Independence

All members of the committee signed a statement of independence to safeguard that they would assess the quality of DANS in an unbiased and independent way. Any existing personal or professional relationships between committee members and the research unit(s) under review were reported and discussed in the first committee meeting. The committee concluded that there were no unacceptable relations or dependencies and that there was no specific risk in terms of bias or undue influence.

3.4. Data provided to the committee

The committee received the following documents:

- the Terms of Reference;
- the SEP 2015-2021;
- a self-assessment by DANS (including a data-metric analysis);
- a summary of DANS Strategy 2015-2020;

- the programme of the site visit;
- the conclusions and recommendations from previous assessment;
- the response by the board of KNAW to the previous assessment report;

3.5. Procedures followed by the committee

The site visit to DANS took place on 14-15 November 2017 in the Hague. During the site visit, the panel interviewed management, staff members, users of DANS services and the Scientific Advisory Board. The site visit also included a demonstration of the core services of DANS: EASY, NARCIS and DataverseNL. For the schedule of the site visit, please refer to Appendix 3.

Prior to the site visit, the committee members studied the written information provided and independently formulated preliminary assessments on each of the assessment criteria mentioned above. During the first committee meeting, the committee discussed the assessment criteria, the Terms of Reference and procedural matters. It also deliberated on the preliminary assessments and decided upon a number of comments and questions to be raised during the interviews. After the interviews the committee discussed its findings and comments in order to allow the chair to present the preliminary findings and to provide the secretary with argumentation to draft a first version of the review report.

The draft report by committee and secretary was presented to DANS, KNAW and NWO for factual corrections and comments. In close consultation with the chair and other committee members, the comments were reviewed to draft the final report. The final report was presented to the Boards of KNAW and NWO and the management of DANS.

3.6. Application of the SEP and scores

The committee used the criteria and categories of the Standard Evaluation Protocol 2015-2021 (SEP), but adapted them to make them suitable for the evaluation of services and research of DANS. The committee would also like to make two remarks with respect to the interpretation of the SEP scores.

First, the committee agreed that by giving the score 1 (excellent), the committee had to be unanimous that the major part of the work of DANS deserved the judgement: "one of the few leading groups worldwide" (SEP definition). Thereby the committee explicitly applied the scores as were intended in the current SEP. According to the committee a current *very good* (2) score should therefore be valued higher compared to the *very good* (4) score in the previous SEP, since the criteria for obtaining the score excellent are stricter in the current protocol.

Second, the committee was asked to provide full scores. DANS includes many projects and services, each with its own quality, relevance and viability. The committee combined all this work into its findings and scores. This obviously led to an "average" score, which can only be interpreted correctly after reading the qualitative comments in the text.

4. STRATEGY AND ORGANISATION

4.1. Strategy and targets

DANS's mission is 'to promote sustainable access to digital research data' and to 'encourage researchers to make their digital research data and related outputs Findable, Accessible, Interoperable and Reusable (FAIR)'. Its strategy is updated on a regular basis. In its strategy document 2015-2020, DANS has formulated three strategic priorities for the upcoming years. These priorities have been translated as much as possible into quantitative objectives and annual targets.

The three strategic priorities of DANS are:

1. DANS forms a leading building block in national and international data provision;
2. DANS improves services to an increasing number of users;
3. DANS realises efficient and integrated systems to support its core services.

In the view of the evaluation committee, DANS's strategic goals very well reflect the state-of-the-art challenges for data management and balance nicely the "localisation" of services for researchers in the Netherlands (e.g. front-/back-office strategy) with the need for "global leadership", networking and partnerships (e.g. engagement in CESSDA, DARIAH). DANS could further develop its mission and strategic goals with respect to its position in the Dutch data infrastructure landscape and its scope (disciplines, national/international, types of data, new technologies). The fact that research activities at DANS are small and focussed on innovation and improvement of core services is a natural result of DANS's service-orientation.

DANS's three core products (EASY, DataverseNL, NARCIS) are very significant to the academic research community, particularly to the Social Sciences and Humanities community (SSH community). A large part of DANS's activities focus on this SSH community and the committee recommends that DANS further develops and continues to guard this strong home base. DANS should identify its key stakeholders in this community, strengthen its network here and make sure that stakeholders are always the starting point of DANS's activities. In the committee's view, it is necessary that DANS turns more towards the user perspective in the upcoming years, that is, towards those who want to (re)use data and information that has already been uploaded to DANS.

The strengthening of activities in the SSH domain does not necessarily exclude other national and international activities. DANS's current involvement in international partnerships and projects is impressive and contributes significantly to its innovative strength in the rapidly changing field of data management. DANS has explicit decision rules with respect to project acquisition in which the cost of participating are weighted with the benefits to the core business. Success rates are exceptionally high and a coherent package of projects has been created. In the near future there could be room to make choices on the areas in which DANS would like to take the lead nationally and internationally (e.g. in concrete application of FAIR data, compliance to new data regulations, and standards in research data management processes). At DANS there is continued discussion about moving activities into the Life Sciences domain or into more generic services. In the view of the committee, DANS should be very careful to keep focus. As has been said before, DANS should first make sure that its home-base (the SSH field) is well-served. However, DANS has already successfully expanded to other disciplines with the NARCIS services and with the training/consultancy on research data management. There might be opportunities to also expand other services and expertise, like DataverseNL services to a broader scientific community, for instance into the human life sciences. Also, active collaboration and knowledge exchange with other fields than SSH remains important.

In 2013 DANS adapted its service policy and started to provide back-office services to universities and research institutes. According to the committee, moving to a front-office back-office model well-connects to international and national expert views on the best ways of organizing and serving the

data landscape and to DANS's size and workforce. In the future DANS should continue to be aware of the importance of forging coalitions and collaboration with other parties. At the moment, front offices at universities are not all on the same level of professionalization. Furthermore, it is not always clear where the front offices end and the back office begins. As a result DANS provides different, custom-made, service-levels to universities. Considering this, DANS should continue to communicate and explain its own position to key stakeholders in the near future. The panel advises that this is part of efforts to increase presence and visibility of DANS at universities and to strengthen networks with key stakeholders (universities, data users, data providers, funding organisations and other promoters of 'Open Science').

There could be more room for applying the principles of FAIR data. Collaborating in the production of FAIR data fits DANS's remit excellently and is becoming a pressing need for many researchers. Data archiving will become more distributed in particular when it comes to big-data. In those cases the archiving should be left to those in charge, while DANS could provide additional services, for example to find and access data. DANS has acquired expertise in the interoperability of variable data that could serve potential users. A shift towards support in data management and curation rather than data archiving as such provides more added value to researchers from both the SSH and other communities.

4.2. Organisation, governance and leadership

DANS a joint institute of KNAW and NWO and is governed by both organisations. Organizationally DANS is part of KNAW. DANS consists of three departments (Policy, Research and Innovation, Support), each of which is headed by either the director or one of the two deputy-directors. The three departments are subdivided into six competency groups, led by coordinators. The total staff of DANS consists of about 50 people. DANS holds meetings with external committees on a regular basis: a Steering Committee (KNAW director, NWO director, DANS director), a 'Periodiek Bestuurlijk Overleg (PBO, KNAW director, delegation of KNAW board members and DANS), a Scientific Advisory Board, a DataverseNL Advisory Board and a NARCIS Advisory Board.

In the committee's view, DANS has a small and flexible organisation in place. Management is well adapted to the current strategic targets of DANS and DANS's staff is very knowledgeable, dedicated and skilled. In the past years, it has taken an international leadership role in the development of the DSA (Data Seal of Approval). Now the ambition is to play a similar crucial role in furthering the FAIR principles on a National and European Level. The panel believes that DANS is well-positioned to do so. DANS is a highly professional and mature organisation in terms of time management, project management and financial management. For example, DANS has implemented a well-considered method for project acquisition, uses a custom-made system for time management and hour registration and develops quarterly reports. The committee was also impressed by the project organisation at DANS. Yardsticks for acquisition ensure that projects do not divert from DANS's strategy. Furthermore, the idea of concentrating on specific work packages in international projects is a smart choice; it is clear what DANS can be held accountable for.

DANS's governance structure is also clear and well-balanced. It consists of a matrix structure which on the one hand bundles core competencies to create "in-depth" knowledge and on the other hand assembles projects teams to create cross-disciplinary "width". The organisation has mechanisms in place to continuously monitor and improve the organisational structure. Changes are introduced in an evolutionary manner which ensures their effective implementation.

The current governance structure of DANS with a dual headed Steering Committee from both NWO and KNAW has grown historically and is not ideal in terms of addressing new challenges. The committee advises DANS, NWO and KNAW to rethink this.

4.3. Resources and funding policies

DANS receives funding from KNAW and NWO, as well as from externally funded projects and paid data services. The total DANS budget grew significantly from 3.8 M€ in 2011 to 4.9 M€ in 2017. Over



the past years, project income has increased in relation to permanent budgets. In relative terms, the percentage of externally funded projects grew from about 23% to 35%, the joint contribution of KNAW/NWO decreased from 77% to 65%. The management of DANS is aware of the fact that this changed balance necessitates sustainable and professional project management, time management and financial management structures.

In the past years, DANS has made effective and efficient use of its financial resources due to good management. It has made informed decisions in which projects to invest, optimizing the returns to its organisation. The current package of projects is well assembled as it gives the institute opportunities to strengthen its core business and increases the visibility at the same time.

5. REVIEW OF SERVICES AND RESEARCH OF DANS

5.1. Quality of services

The three core products DataverseNL, EASY and NARCIS are of good quality and provide very significant and coherent services to the respective communities in the Netherlands. The committee observes and welcomes consistent growth, not only in the number of data being stored, but also in terms of downloading. The products of DANS balance very well the different needs for short-term and long-term data management as well as the need for centralized research information. In further developing the instruments the co-creating with users might be advisable. The committee recommends that the user perspective is taken into consideration more strongly in the future. The viewpoint of data consumers could provide DANS with valuable information about possible improvements in all of its core services. While there is an Advisory Board for DataverseNL and NARCIS, there is none for EASY. The committee recommends that it implements a similar sounding board for this product, which could also advise on the establishment of communities of users of specific data collections.

DataverseNL is based on the well-known Dataverse software maintained by Harvard's IQSS, which is an "open source web application to share, preserve, cite, explore, and analyze research data"¹. In DataverseNL researchers and lecturers can store, share and register their research data during their research and up to the term of ten years after its completion. The most pressing issue for the upcoming years is how to bring together different expectations from all parties involved. The committee agrees with the chair of the Advisory Board that DANS should further develop DataverseNL to strengthen its position in data-management consultancy and services while being transparent on its merits and costs. DANS should make explicit efforts to set the agenda on the policies and practices in producing FAIR data.

EASY is the first service that DANS developed and is an archiving system for depositing and downloading research data sets. It currently gives access to more than 40.000 data sets. The collection reflects the path dependency in archiving research data in the Social Sciences and Humanities as it also encompasses the former Steinmetz Archives and the Dutch Historic Data Archive. The growth of the collection in more recent time is linked to both public (e-depot of Dutch Archeology) and private (Mendeley Data) requirements for researchers to deposit their data. DANS offers services to depositors to meet the quality criteria that enable the re-use of the data. The committee is convinced that archiving is still a crucial activity and welcomes the efforts to improve the efficiency in order to maintain this function. Establishing communities of (potential) users of specific collections could add value to the collections. The vast collection on Archeology is currently underutilized and the discipline could profit from systematic meta-analyses of families of records in the depot. Some of the repeated surveys in the social sciences are downloaded frequently and consistently by registered users and bringing these users into contact might stimulate second order learning about the data.

NARCIS is being hosted and further developed since five years. It includes publications from many disciplines and identifies researchers and their work in the Netherlands. NARCIS has become a valuable instrument in the visibility of Dutch researchers due to the continuous efforts to gain prominence in search engines like Google (Scholar). NARCIS has the potential to become a national portal for online scholarly information by including for instance sources of research data (linking publications to data and to researchers etc), but is not there yet. The main harvesting is done by the repositories of universities; the university libraries are the front offices of NARCIS and agreement between all parties on what to put in NARCIS and how is vital. Linking up with the university libraries and national initiatives that aim to make data FAIR and unlock research information (like BBMRI and Health RI) seems to be the most important and logical choice at the moment. DANS should continue a clear front and back-office approach to help to channel the amount of labour at DANS and to improve the interaction with ambassadors at the universities.

¹ See: <https://dataverse.org/>.



5.2. Quality of research

Research is carried out by the Research and Innovation group of DANS. This group is small (5 fte, 12 part-time researchers) and focuses on questions arising from different projects relating to DANS's core task as a service organisation. Research activities focus on three areas: 1. Communities and archives (datametrics, user studies, studies of archives); 2. Communities supported (pilot services, FAIR data, sustainability of data); 3. The archive innovated (micro-services, linked data, open and protected data). Visiting scholars and professors contribute to the R&I work regularly.

The committee is impressed by the scientific output of the Research and Innovation group. Given the service-orientation of DANS, and the small size of the group, the output is quite remarkable and at the same time the research at DANS adequately supports the core services of DANS. The current balance between services and research is in order. The institute should continue to seek opportunities for collaboration with academic partners, visiting professors and PhD's working on topics related to DANS services.

5.3. Relevance to society and the research community

The core services of DANS primarily target a scientific audience. However, in particular NARCIS draws a much broader audience, such as policy makers and journalists/new media. Archaeological companies, market and public opinion research bureaus and several public parties also make use of the DANS data archive. The committee interviewed several independent data producers and users of the DANS's core services. These interviews revealed a very good and convincing picture. Users describe DANS as a small and flexible organisation and unanimously confirmed strong support for archiving (different types of) data. They also appreciate DANS's ability to come up with tailor-made advice on their data archiving questions. The data archived by DANS create significant impacts in society. Only one example of this is that a number of archived oral history interviews relating to experiences during the Second World War are used during an annual memorial ceremony to remember about the deportation of young men during the so-called "Journey of Razzia" and also in schools for teaching purposes.

The output indicators delivered to the panel (included in Appendix 4) show that the number of datasets stored at DANS as well as the number of downloads have grown consistently over the past years. DANS has limited information on its data users. The committee advises to identify current users and to develop means for identifying new potential users. The impact of the provided data will hopefully soon be measurable by automatic means if data citations with persistent identifiers become state of the art. DANS should now start with developing tools for measuring that.

DANS also contributes to the research community by providing courses, online webinars, written instructions and consultancy on research data management and to society by giving training and advice and by backing the policy development of Open Science. Moreover, together with Brill publishers DANS publishes an on-line Open Access research journal for the Humanities and Social Sciences that describes deposited datasets and enables better sharing of data. Positive examples are the development of a handbook and strategy documents on data management and written instructions for researchers on how to develop a data management plan. DANS has an important role in guiding researchers. The panel believes that the institute could get even more out of this if it would increase its presence and visibility amongst deciders and users at the different university levels.

The DANS director, deputy directors and staff are very well to excellently represented in the international community. The list of community leadership roles (DARIAH CEO, Chair of the CESSDA General Assembly, various roles in RDA, etc) demonstrates the international visibility and (academic) reputation of DANS. Although DANS is highly appreciated internationally, there is still some room to make choices on the exact areas in which DANS would like to take the lead here.

5.4. Viability

DANS is very much aware of its own strengths and weaknesses and is very well positioned to meet the “data challenges of the future”. As DANS points out, its unique selling point is to provide “certified, reliable, long-term preservation and access to research resources, which are as open as possible”. Clearly, this gives DANS a privileged position for the years to come. DANS’s activities in international data networks and infrastructures are well thought through and strengthen its innovative power; the institute has an excellent position here, not in the least because of the combination of theoretical expertise with practical experience.

DANS’s current strategy is very good and has clear goals and objectives. The number of goals and objectives is appropriate given the size of DANS. The institute is on top of upcoming policies and scores very well in terms of flexibility in response to a rapidly changing environment. However, DANS could be more explicit about their aspired position in the rapidly changing data landscape (e.g. international focus points, life sciences, rise of big data and technologies like blockchain). DANS is looking into ways for automatizing archival processes. It is encouraged to strengthen this activity and to thoroughly identify the opportunities for automation and leverage them as far as possible. This might require a shift of competencies over time, therefore this activity should be linked more closely to the strategy of the institute.

The SWOT analysis provided to the committee is realistic and convincing, it addresses relevant current topics. A clear weakness is the visibility of DANS. There is an opportunity for DANS to further expand on the branding of the institute in the context of Dutch universities. These universities are likely to become more in need of a strong partner to provide front- and back-end data management services. However, this clearly depends on having the right visibility at the level of decision makers (a.o. chief librarians). The user perspective is also an area for further improvement. The committee recommends DANS to link up more with users of data and the user perspective.

The DANS leadership has a clear strategy how to acquire new externally funded projects and has effective decision making in place to ensure that the benefits and costs of projects are well-balanced. The institute makes very good use of its financial resources and informed decisions in which projects to invest. By this it is optimizing returns. The current package of projects is well assembled as it gives the institute opportunities to strengthen its core business and increase its visibility at the same time. At the moment the success rates for proposals is high. Given the explosion of the topic data management on a national and global level (“data is the new oil”) it might be the right strategy to acquire additional funds by winning third party funded projects. The current policy shifts towards Open Science and Open Data is changing the requirements of data production, -management, -curation, and -accessibility. The universities and funding organisation like NWO, will have to assume responsibility to cover the costs needed to meet these requirements. DANS could develop a proposition to collectively finance this activity in order to arrive at scale advantages and to further develop the expertise.

5.5. Conclusion

In accordance with the SEP protocol, the committee has reviewed and assessed DANS on three aspects (quality, relevance and viability, see appendix 1). This has resulted in the following quantitative scores:

Overview of quantitative assessment

Quality:	Very good
Relevance to society and research community:	Very good
Viability:	Very good



6. REVIEW OF RESEARCH INTEGRITY POLICY AND DIVERSITY

6.1. Integrity

Integrity policies on research and data management are at the core of DANS's activities. Not only is the institute involved in the development of policies in this area (e.g. the 2013 report of the committee Schuyt on responsible research data management), it is also very committed to compliance with all policies and regulations in place. Naturally, DANS staff is expected to conform to Code of Conduct for Academic Practice of the VSNU and the institute promotes the Code amongst all depositors and users of its research data. Conformity of DANS with regulations on ingest, archiving and use of digital objects is monitored actively.

In the committee's opinion, DANS is excellently positioned for policy making of raw and processed research data. DANS initiated the policy for data storage Data Seal of Approval (DSA) and significantly paved the way for spreading it (70 seals have been acquired so far). Now the institute is heading for the new target to apply the FAIR principles. It is clear that the institute is at the forefront of promoting Open Access and Open Science.

Not only in terms of policy but also in terms of the procedures and measures in place, the data stored at DANS is well protected. On operational means, as to be expected, there are state-of-the-art technical means and organisational processes in place to ensure proper storage and handling of the data donated by data providers. DANS is very much aware of, and responsive to, what is happening in the world of research integrity and data management.

6.2. Diversity

DANS's diversity policy is part of the agreement between DANS and the Royal Academy. During the site visit, the management presented the committee with information about the staff, the workplace conduct and policies in place. The committee noticed that management is highly aware of the value of diversity. It has appropriate means in place to stimulate diversity across function groups and to maintain an inclusive and collaborative workplace culture.

7. RECOMMENDATIONS

Based on the assessment provided in this report, the committee would like to provide DANS with a number of recommendations with which its research and services can be developed further.

1. The first recommendation is about the role of DANS in the SSH domain. The committee recommend that DANS further develops and continues to guard DANS's strong home base in this domain. This can be done by identifying key stakeholders in this community, strengthening the network here and by making sure that stakeholders are always the starting point of DANS's activities.
2. Secondly, the committee thinks it is important to develop more explicit ideas about DANS's aspired position in the rapidly changing data landscape (e.g. international focus points, life sciences, rise of big data and technologies like blockchain). This is in particular relevant when it comes to support services in applying the FAIR data principles.
3. The committee recommends to rethink the current governance structure of DANS with a dual headed Steering Committee from both NWO and KNAW.
4. The committee recommends that DANS implements a sounding board for EASY, which could also advise on the establishment of communities of users of specific data collections.
5. In tandem to the previous point, the committee advises to increase the presence and visibility of DANS at universities and thus to strengthen networks with key stakeholders.
6. Link up with the university libraries, in order to facilitate their efforts in supporting local researchers to make data FAIR, to develop shared standards, and to profit from the distributed storage of data at local institutions.
7. The committee recommends turning towards the user perspective more in the upcoming years. This entails identifying current and potential users of DANS's core services and investigating their experiences with DANS. The committee believes more attention should go to those users who wish to re-use the data that has been uploaded to DANS.
8. Finally the committee believes it is important to continue to seek opportunities for collaboration with academic partners, visiting professors and PhD's working on topics related to DANS services. The field of data science is rapidly expanding and if DANS wants to remain at the international forefront in the development of data services in-depth knowledge of innovations is required.



APPENDICES

APPENDIX 1: EXPLANATION OF ASSESSMENT CRITERIA AND CATEGORIES

The KNAW and NWO organize periodic evaluations of each research institute within their organisations every six years. This is part of the standing agreement with the Ministry of Education, Culture and Science. Together with the Association of Universities in the Netherlands (VSNU), the KNAW and NWO have stated to conduct these evaluations according to the Standard Evaluation Protocol 2015-2021 (SEP).

According to the SEP, there are three criteria that have to be assessed.

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

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

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

As the SEP is aimed mainly at evaluating research while DANS mainly provides services, the assessment criteria for this evaluation are in the spirit of the SEP, but adapted for the position and mission of DANS. The assessment committee evaluates quality and relevance to society and the research community of the permanent access to digital research data for the humanities and social sciences provided by the institute as well as its strategic targets and the extent to which it is equipped to achieve them. The committee does this by taking into account current international trends and developments in science and society in the analysis, and judging the institute's performance. They use the following three SEP assessment criteria, slightly adapted for this evaluation:

- Quality of the provided services, and where applicable research quality;
- Relevance to society and the research community;
- Viability

The committee should also give recommendations for improvement and give a qualitative evaluation on a. Research Integrity, and b. Diversity, that are mentioned in the SE.

In addition to the topics above the boards of the KNAW and NWO have formulated the following three questions:

1. The number of players in the national and international data landscape has considerably increased in the past few years. Many universities and other research institutes are developing their data services to serve their students and researchers. Also, over the past few years an expanding patchwork of policies on different levels (EU, national ministry,



research funders, universities and other research organisations) and on a variety of data-related subjects (such as facilities and infrastructure; data management and open data; privacy and data ownership) has been created. How could DANS strengthen its national and international position?

2. Are the mission, strategy and business model of DANS adequate and in compliance with the current Open Science and Open Data developments?
3. By collaborations with other national (and international) service providers, DANS' strategy is twofold: (a) to stimulate a wide coverage of long-term data preservation and access functions; and (b) to expand its services to other disciplines than the humanities and social sciences, and even abroad. What is the preferred position of DANS?

The committee should score Quality, Relevance and Viability according to the following scoring table, included in the SEP:

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

APPENDIX 2: CURRICULA VITAE OF THE COMMITTEE MEMBERS

Pieter Hooimeijer is professor of Human Geography and Demography at the Urban and Regional Research Centre of Utrecht University. He has published hundred academic (refereed) papers and over a hundred professional publications on household demography, residential mobility, migration and urban development. His main research interest is the recursive relation between population change on the one hand and the dynamics of housing and labour markets on the other at a variety of spatial scales ranging from neighbourhoods to metropolitan areas. Current research projects are based in the Randstad, Chinese cities and Rwanda. Hooimeijer is chair of the Social Science Division of the Netherlands Organisation for Scientific Research MaGW/NWO and former chair of the Social Science Council of the Royal Netherlands Academy of Arts and Sciences (KNAW).

York Sure-Vetter is Full Professor at the Karlsruhe Institute of Technology (KIT), Institute of Applied Informatics and Formal Description Methods (AIFB). His research interests include Web Science, Semantic Web, Linked Data, Data and Text Mining and Service Science. From 2009 to 2015 Prof. Sure-Vetter was President of the GESIS – Leibniz Institute for the Social Sciences. During that time he also held professorship positions at the University of Koblenz-Landau and the University of Mannheim by joint appointment procedures. In 2015 York Sure-Vetter was appointed as professor at the Institute AIFB / KIT. Since then he is also Director at the Karlsruhe Service Research Institute (KSRI) of the KIT and the FZI Research Center for Information Technology at the KIT. Prof. Sure-Vetter was a guest lecturer at the University of Mannheim and at Stanford University. He was awarded with several awards for research as well as for teaching, among others the IBM UIMA Innovation Award, the Wolfgang-Heilmann award of the Integrata Foundation and several times the HECTOR Teaching Award.

Rūta Petrauskaitė is a professor at Vytautas Magnus University, and also a vice-chair of the Research Council of Lithuania as well as the Chair of the Committee of the Social Sciences and Humanities. Her research interests comprise a range of topics from corpus and computational linguistics to discourse analyses. In the last decade she has been involved in the activities of the program committees for Social Sciences and Humanities at the European Science Foundation as well as at two EU Framework Programmes (FP7 and Hprizon2020), COST scientific committee, ERA NET PLUS network board of HERA (Humanities in the European Research Area) and Science Europe Research Data working group. Currently she is a national member of the ESFRI Forum, the president of general assembly of CLARIN ERIC research infrastructure and a member of FAIR data expert group at European Commission.

Salome Scholtens is Community Manager at the Genomic Coordination Center (GCC), Programme Manager Research Data Services and Trainer Medical Leadership at the University Medical Center, Groningen. She is responsible for developing and implementing the support for researchers on research data at the UMCG. Between 2004 and 2008 she worked on a PhD thesis on the prevention and incidence of Asthma and Mite Allergy (PIAMA) at Utrecht University. After obtaining her doctoral degree she held positions as postdoctoral fellow at the Dutch National Institute for Public Health and the Environment (RIVM) and the University Medical Center Groningen (2008-2012); Manager of the LifeLines research office (University of Groningen, 2011-2015); manager operations EnergySense (University of Groningen, 2015-2017) and quartermaster Human Subject Research data infrastructure (University of Groningen, 2016). Scholtens has published 46 publications in international peer-reviewed journals.

Barteld Braaksma is innovation manager at the UN-level and Statistics Netherlands (CBS). In the past years, he was responsible for the CBS innovation program and innovation lab. He contributed to the development of new statistical products and services, including big data, open data, infographics and mobile devices. In this context, he is also very experienced in cooperating with external partners. Braaksma is partner in various international projects on big data and smart cities.



APPENDIX 3: PROGRAMME OF THE SITE VISIT

13 - 15 November, 2017

13 November

18.00 – 21.00 Working dinner committee (private), to be organized by KNAW

14 November

9.00h Welcome (plenary – Peter Doorn)

9.30h Short introduction by the evaluation committee (plenary - Pieter Hooimeijer)

9.45h Meeting of the committee with the directors of DANS (Peter Doorn, Ingrid Dillo, Henk Harmsen)
Subjects: mission and strategy, plans for the future, DANS business and organization, core indicators of the services, SWOT, international position, governance

11.00h Meeting of the committee with the coordinators of the DANS competency groups: Services (Archive, Software development, Project/Office support) and Research & Innovation (Hella Hollander, Jan van Mansum, Lucas Pasteuning, Andrea Scharnhorst)

12.00h Lunch (members of the evaluation committee only)

13.00h Demos of the DANS services:

13.00-13.20: EASY
13.20-13.40: NARCIS
13.40-14.00: DataverseNL

14.00h Tea break

14.30h Meeting of the committee with users of DANS services (I)

EASY user (e.g. Martijn Kleppe, users of oral history archive)
Chair/member(s) of NARCIS advisory board
Chair/member (s) of DataverseNL advisory board
RCE / Archaeological organisation

15.30h Meeting of the evaluation committee (members only)

17.00h Reception, plenary

18.00 – 21.00 Working dinner committee (private)

15 November

9.00h Presentation of DANS Projects

9.00-9.20: Meeting with project acquisition team
9.20-9.40: Project 1 (committee to decide which one)
9.40-10.00: Project 2



10.00h	Meeting of the committee with DANS users (II)
	Leader of a Small Data Project granted by DANS PhD student participating in ICPSR summer school sponsored by DANS Participant(s) of RDNL-course on data management Customer of DANS data vault (Mendeley Data and/or Dryad)
10.45h	Meeting with Scientific Advisory Board (prof. dr. Kees Aarts, chair)
11.30h	Lunch and reflection (members of the evaluation committee only)
13.30h	Final conversation with Peter Doorn (director)
14.00h	Private meeting time (evaluation committee)
14.30h	Presentation of the provisional conclusions & next steps (plenary)
15.00h	Conclusion (farewell drinks, plenary)

APPENDIX 4: QUANTITATIVE DATA

Research quality

D1.1 Research products for peers - cumulative	2011	2012	2013	2014	2015	2016
1a. Number of datasets archived in EASY	21.415	24.305	26.453	28.802	30.775	32.763
1b. Number of files archived in EASY	1.913.558	2.147.048	2.377.248	2.814.052	3.183.407	3.755.069
1c. Number of datasets available via NARCIS	21.025	26.360	29.430	141.212	149.249	161.245
1d. Number of publications available via NARCIS	666.742	738.753	851.342	965.785	1.204.449	1.296.670
1e. Number of studies stored in DataverseNL*	N/A	N/A	N/A	269	341	396
1f. Number of files stored in DataverseNL*	N/A	N/A	N/A	729	1.023	1.166

* DataverseNL became a DANS service in 2014.

D1.2 Use of research products by peers	2011	2012	2013	2014	2015	2016
2a. Number of datasets downloaded from EASY	15.026	25.431	30.118	45.686	31.013	30.723
2b. Number of files downloaded from EASY*	373.553	152.255	180.666	248.145	425.539	627.669
2c. Number of NARCIS users	611.047	476.325	540.267	519.237	728.335	947.414
2d. Number of visits to NARCIS	957.261	784.633	888.718	901.407	1.516.890	2.196.143
2e. Number of downloads in DataverseNL**	N/A	N/A	N/A	2.123	2.990	4.014
2f. Number of DataverseNL partners**	N/A	N/A	N/A	8	9	11

* Download numbers fluctuate due to changing delivery methods for big file quantities

** DataverseNL became a DANS service in 2014

D1.3 Marks of recognition from peers	2011	2012	2013	2014	2015	2016
3a. Invited lectures	4	5	14	55	42	18
3b. Participating in externally funded national research infrastructures and related projects	12	13	15	12	14	13
3c. Participating in externally funded international research infrastructures and related projects	8	11	14	15	19	11

Relevance to society

D1.4. Research products for societal target groups	2011	2012	2013	2014	2015	2016
4a. Reports (policy only)	2	0	1	2	0	4
4b. Articles in professional and popularizing journals for non-academic readers	3	3	2	5	6	7
4c. Number of datasets available via NARCIS - cumulative	21.025	26.360	29.430	141.212	149.249	161.245
4d. Number of publications available via NARCIS - cumulative	666.742	738.753	851.342	965.785	1.204.449	1.296.670

D1.5 Use of research products by societal groups	2011	2012	2013	2014	2015	2016
5a. Number of datasets downloaded from EASY	15.026	25.431	30.118	45.686	76.624	107.385
5b. Number of files downloaded from EASY	373.553	152.255	180.666	248.145	425.539	627.669
5c. Number of NARCIS users	611.047	476.325	540.267	519.237	728.335	947.414
5d. Number of visits to NARCIS	957.261	784.633	888.718	901.407	1.516.890	2.196.143

Research staff

D3a. Research staff	2011	2012	2013	2014	2015	2016
Scientific staff	2	4,25	3	3	3	5,25
Postdocs	0	1	1	1	1	0
PhD students	0	1	1	1	1	0
Total research staff	2	6,25	5	5	5	5,25
Support staff	35,6	40,6	43,4	38,85	30,25	36
Total staff	37,6	46,85	48,4	43,85	35,25	41,25
Visiting fellows	1	1	2	0	1	2

Note: staff numbers based on KNAW personnel registration; fluctuations exaggerated due to changing definitions and ways of registration of temporary project staff, trainees, etc.

Main categories of research output

	2011	2012	2013	2014	2015	2016
Refereed articles	2	7	3	5	7	5
Non-refereed articles	2	4	2	1	3	1
Books	5	0	3	0	0	1
Book chapters	2	7	9	13	11	6
Conference papers, refereed and non-refereed	5	6	14	27	11	12
Professional publications	0	3	2	1	6	7
Publications aimed at the general public	3	0	0	4	0	0
Reports non-refereed	2	0	2	6	3	9
Other professional output: software products, seminars, products over a (research) project	10	4	2	12	6	7
Total	31	31	37	69	47	47

Note: Fluctuations exaggerated due to changes in registration system and interpretations of various categories of informal publications

Total funding of the research institute

Funding in K€	2011	2012	2013	2014	2015	2016
Funding KNAW	2.142	2.577	2.587	2.503	2.535	2.546
Funding NWO	767	667	667	677	677	677
Direct funding	2.909	3.244	3.254	3.180	3.212	3.223
Project funding (including research grants)	858	1030	1178	1545	1024	1373
Other	72	136	104	73	257	140
Total funding	3.838	4.411	4.536	4.798	4.493	4.737
Expenditure						
Personnel costs	2.911	3.462	3.699	3.541	3.088	3.263
Other costs	1.008	1.020	1.053	1.436	1.022	1.001
Total expenditure	3.919	4.482	4.752	4.976	4.110	4.264
Total result	-81	-71	-216	-178	384	474

PhD Candidates

Starting year	Enrolment male/female	Total	Graduated in year 4 / earlier	Not yet finished	Discontinued
2012	M	1	1	0	0
2017	F	1	0	1	0