Report for External Advisory Board of the Göttingen *e*Research Alliance

Reporting period 01/2017 - 02/2018

The Göttingen *e*Research Alliance (*e*RA) is run mutually by the Niedersächsische Staats- und Universitätsbibliothek Göttingen (SUB) and the Gesellschaft für wissenschaftliche Datenverarbeitung mbH Göttingen (GWDG). The *e*RA operates in association with the Research Department of the University and the University Medical Center (UMG) Göttingen. The *e*RA is a member of Göttingen Campus.

Last modified: 2018/02/16 by the Göttingen eResearch Alliance.

Georg-August-Universität Göttingen

Facts by numbers

Category	**Number**
Students	**31.471**
International Students	**4.050**
Graduates	**4.329**
International Graduates	**413**
Graduation/Doctorates	**727**
Third Party Funding	**148,4 Millions**
Employees	**12.438**

The Göttingen *e*Research Alliance - Current Structure and Changes during the Reporting Period

The institutional structure of the Göttingen *e*Research Alliance has remained mostly the same within the reporting period. SUB[1] and GWDG[2] mutually coordinate and implement the tasks of the *e*RA. The cooperation with the UMG[3] has been strengthened.

Since the fields of repository development and publication management are of utmost importance to the services of the *e*RA for the Göttingen Campus (GC), the steering committee decided to involve an additional department of the SUB to intensify the service provision at the campus in the beginning of 2017. Since then, the head and deputy head of the department “Digital Library”[4], Frank Klaproth and Mustafa Dogan, attend the meetings of the steering committee and contribute their expertise and ideas to the further development of the Göttingen *e*Research Alliance. A stronger involvement is also planned for the Electronic Publishing department (EPU) of the SUB in the near future. In Appendix F, a list of the current members of the *e*RA steering committee can be found.

On the staff level, the *e*RA underwent some major changes within the last year. Dr Ann-Cathrin Fender did not return to her position after her parental leave and left the *e*RA by the End of June 2017. Dr Jens Dierkes and Jessika Rücknagel left the Göttingen *e*Research Alliance at the end of July to take on positions in Cologne and Hannover, respectively. The department heads from Research and Development Department (RDD)[5] at SUB, Dr Jan Brase, and AG eScience[6] at GWDG, Dr Philipp Wieder, took over the coordination of the team and activities of the *e*RA by the beginning of August 2017. Recently Christopher Menke left the *e*RA by the end of 2017.

Unfortunately, not all of the vacancies could be filled again so far. This concerns in the first place the position of the coordinator, for whose position adequate replacement could not yet be found. Together with the Presidential Board of the University, the Board of Directors is currently trying to resolve this situation - which could possibly also have an impact on the organisational level in both SUB and GWDG.

Team member Timo Gnadt was selected to take over the position of Jessika Rücknagel and now occupies a full-time position within *e*RA as of January 1st 2018. The team was happy to welcome Claudio Leone on a 50% position, also from January 1st 2018 on. Claudio Leone

[1] https://www.sub.uni-goettingen.de/en/news/
[2] https://www.gwdg.de/home
[3] http://www.med.uni-goettingen.de/de/content/ueberuns/218_357.html
[4] https://www.sub.uni-goettingen.de/en/contact/departments-a-z/departmental-and-unit-details/abteilunggruppe/digitale-bibliothek/
[5] https://www.sub.uni-goettingen.de/en/contact/departments-a-z/departmental-and-unit-details/abteilunggruppe/forschung-und-entwicklung/
[6] https://www.gwdg.de/web/guest/about-us/organization/departments/escience

has prior working experience for DARIAH-DE. Within the *e*RA, he will attend to the fields of repository certification and general repository recommendation.

The *e*RA also welcomed two new associated members through the project start of "Göttingen Research Data Exploratory (GRAcE)"[7] in June 2017. Claudia Engelhardt (SUB) and Dr Sven Bingert (GWDG) started working for the project. They are accompanied by one colleague at UMG. The cooperation and exchange of information with the *e*RA core team is very close, and the GRAcE colleagues from SUB and GWDG also attend the weekly team meetings of *e*RA. In the near future, two more associated members will start their work by March 1st with a 25% position each within the INF-project of the new CRC 1286 "Quantitative Synaptology"[8].

Independently of the profound changes in the team situation, the Board of Directors was successful in requesting funding to turn three positions in the *e*RA into permanent positions by the University from the beginning of 2018 on. This was confirmed by the University's Presidential Board in August 2017. The Board of Directors, the Steering Committee and the University have, as part of the sustainability process, discussed mid and long-term directions of the *e*RA. The process is ongoing, but will lead to the implementation of the post-project strategy for the *e*RA in summer 2018.[9] This will also be the time when a decision will be made on the arrangement of the contracts for the current team members, some of which are ending at the end of September and some at the end of December 2018.

[7] See chapter "Projects: GRAcE", p. XXX
[8] http://www.uni-goettingen.de/de/3240.html?cid=5837 (press release in German)
[9] See also chapter "Future plans 2019-2020", p. XXX

Addressing the Feedback from the *e*RA External Advisory Board (January 2017)

We would like to acknowledge the effort and the time invested by the External Advisory Board to analyse and assess the directions and deliverables of the Göttingen *e*Research Alliance. As a result of the first meeting of the Board, we received a feedback report, which is attached to this document as Appendix B. In this section, we address this report.

In general, we see four major topics being addressed in the feedback report:

1. Concise definition and communication of the strategy of the *e*RA
2. Clearer definition of the objectives of the *e*RA
3. Measuring the success of the work done by the *e*RA
4. Consolidation and scalability of the *e*RA offerings

Regarding **Topic 1**, the "Concise definition and communication of the strategy of the *e*RA", a number of actions have been executed. To address strategic directions on a higher level, a regular jour fixe has been implemented with the Vice President for Infrastructures, Prof. Dr Lossau, and the leadership of the *e*RA. Recurrent topics discussed at this meeting are the overall strategy, personnel, service development, and integration into campus activities. Furthermore, the objectives of the *e*RA (see Topic 2) are aligned with the overall strategy regarding campus infrastructures and research support. Feedback from these meetings is brought into the *e*RA steering group and the team meetings for proper communication.

One result of the strategy discussion during the reporting period was the decision to put a stronger focus on the development and provision of services for the Göttingen Campus. First steps into this direction have already been taken resulting in service offers and development projects (see section on services, page 9ff). It has also been decided to strengthen the *e*RA brand and increase the work force by complementing the core team with experts from the participating organisations, in particular in the areas of service development and consulting. Furthermore, the *e*RA will keep to seek for third-party funding to complement its portfolio and increase its network and outreach efforts. The GRAcE project (see page 14) is a good example for the successful implementation of this strategic objective.

This strategy assessment and definition process is, of course, ongoing. Nevertheless, the *e*RA will use the first half of 2018 to align its strategy further related to the excellence strategy of the university and it will communicate the outcomes concisely to all stakeholder, customers, and collaboration partners in summer 2018. This will, in parallel, result in the communication of the main objectives (see also Topic 2).

The "Clearer definition of the objectives of the *e*RA" (**Topic 2**) is a task of high importance, in particular to prevent mismatch between stakeholder expectations on the one hand and capabilities as well as capacity of the *e*RA on the other hand. To achieve that, three major processes have been implemented:

1. Establishment of a process to prioritize the objectives of the *e*RA in relation to the campus strategy, the mid and long-term resource availability, and the demand of core

stakeholders. This process includes *e*RA governance as well as the Presidency of the University (see also Topic 1).

2. Increased stakeholder involvement. To get a broader view on the stakeholders' requirements, the *e*RA implemented a systematic approach to acquire, evaluate and quantify requirements from its stakeholders. In particular the large cluster initiatives, comprising dozens of PIs from campus partners, have been the source of requirements and thus input to a clearer definition of objectives in accordance with process 1.
3. Concise communication. The Board's feedback on this topic has been backed up by the day-to-day experience once the *e*RA became more visible on the campus. As the four pillars consulting, training, networking, and services span quite a broad area, it became evident that the communication of the objectives (and therefore the offerings) needed to become clearer. As a result of the other two processes, the *e*RA communicated the re-defined objectives to disseminators, stakeholders, and various fora during the reporting period.

Once the means laid out under Topic 3 are fully implemented, it will be possible to further re-define and sharpen the objectives of the *e*RA based on KPIs and measurements.

Regarding **Topic 3**, "Measuring the success of the work done by the *e*RA", the suggestion of introducing KPIs and measuring the performance of the eRA has been carefully considered and discussed. We think that having consistent information about certain activities of the *e*RA to better plan and execute its activities is the right step to be taken. In particular regarding consulting and services, the two most resource-intensive activities of the *e*RA, this information helps to design and operate better services (and to decide whether to keep certain offers) and to tailor the consulting process. On the other hand, we think that the processes to implement this should not be over-engineered and very much hands-on.

As GWDG is ISO 9001:2008 certified and has experience with the definition of KPIs and the implementation of quality management systems, existing processes and KPIs have been analysed. It was decided to use mainly three KPIs for the *e*RA and its processes: user satisfaction, usage and reliability. The respective means for the *e*RA will be implemented in 2018 and be applied in particular to the areas consulting, training and services. This includes a proper definition of the KPIs, the definition of goals as well as means to measure them. With respect to consulting and training, user satisfaction will be measured through feedback from customers and participants in trainings. With respect to services, usage statistics will be measured and technical information regarding the reliability of the services will be collected. This information will be regularly discussed at steering group meetings and will also be communicated in a consolidated manner towards the various boards and fora related to the *e*RA.

These KPIs will help to check whether the offerings of the *e*RA reflect the real requirements and whether the target groups are satisfied with what they receive. As also the assessment of the KPIs is part of any plan-do-check-act cycle, the *e*RA will discuss regularly the applicability of the defined KPIs and goals to the process.

Topic 4, the “consolidation and scalability of the *e*RA offerings”, has three major implications:

1. Focus on service and knowledge integration
2. Exploitation of “economy of scale”
3. Improvement of eRA internal processes

Being one of a number of service providers on the campus, it is essential that the *e*RA is in close contact with those providers to integrate services and knowledge. First steps into this direction have been already taken, in particular through the extension of the *e*RA steering group (see above) and though the implementation of various knowledge exchange groups, in particular regarding the development of the common service architecture see section on services. page 9ff). However, there is potential for improvement, in particular regarding common software and service development and cross-institutional service provisioning and support. Improving this is one of the core topics of the campus-internal collaboration steered by the *e*RA.

In particular the provision of services for the Göttingen Campus offers opportunities to better exploit what is called the “economy of scale”. Instead of e.g. operating multiple research data repositories at various institutions of the university, a centrally developed service allows to consolidate resources, prevent unnecessary redundancy, and allow better sustainability planning. Furthermore, a clear focus on the provisioning of self-services helps to scale services without a linear increase of service requests,

In addition, also the internal processes of the *e*RA, e.g. those targeting service development, training preparation, or consulting, are currently evaluated regarding the potential for optimization. This process includes concise definition of processes, consolidation of information sources, and improvement of knowledge management.

Last, but not least, these means have to be complemented by suitable communication and marketing actions to raise awareness for services and other offerings. The *e*RA therefore plans to visit selected faculties of the university in the first half of 2018 to communicate the current developments and services. Further means will be developed in the coming reporting period, well aligned with strategy, objectives, and KPIs.

*e*RA Report for 01/2017 - 02/2018

As a consequence from the feedback from the Advisory Board meeting in January 2017, and in order to more substantially support the proposals for the Excellence clusters, the *e*RA in the reporting period concentrated on developing and promoting central services for the Göttingen Campus researchers which had already been in the planning phase for some time. These include a central DOI registration service, a university-wide repository for publications and data, and a database together with a web portal for large equipment. These services are described in more detail in the subsection “Services”.

The other main tasks in the past year were the consultation of the already mentioned Excellence cluster proposals and the organization of the first Göttingen Data Science Summer School.

Consulting

Although in the past year the focus of the *e*RA was mainly on developing and promoting central *e*RA services, consulting research proposals regarding *e*Research aspects remained one major pillar in the *e*RA portfolio.

One significant change in the cooperative workflow with the university’s Research Department concerns the delivery of an official *e*RA statement to be used in the quality assurance process involving the Research Commission. In mid-2017, the university VP for Infrastructure Prof. Dr Lossau requested to change the workflow in order to avoid a situation in which the *e*RA would be regarded by researchers mainly as a “data management police”. As a consequence, the imperative of an *e*RA consultation and the formality of the proposal assessment by the *e*RA were dropped. The current workflow includes only a recommendation for using the *e*RA consulting service, given to the researchers by the Research Department, a notification of the eRA of new proposals and a subsequent consultation offer from the *e*RA to the persons responsible for the respective proposal. In preparation of the Research Commission meeting deliberating on the proposal in question, the *e*RA is then asked by the Research Department to provide a short summary of the consulting process. This informal statement should include the general response and engagement of the researchers with respect to the *e*RA consultation and highlight any potentially critical points remaining in the proposal. This evaluation is then included in the feedback by the Research Department to the researchers in the Research Commission meeting, eventually resulting in a revision of the proposal by the researchers with potential further consulting from the *e*RA.

The consulting tasks in the reporting period were added to and dominated by the *e*RA consultation of the university cluster proposal drafts (6) and full proposals (4) within the German Excellence Strategy[10]. Upon feedback from researchers and request by the Presidential Board, this consultation process was mainly conducted by members of the *e*RA

[10] http://www.dfg.de/en/research_funding/programmes/excellence_strategy/clusters_excellence/index.html

Steering Committee. In this consulting process, the *e*RA developed RDM strategies for the individual cluster proposals and was actively part of the writing process for the individual draft proposals.

The decision by the DFG in late September 2017 to invite four out of the university's six draft proposals to submit a full proposal by February 2018 is definitely a success for Göttingen university.

Regarding the regular consultation tasks, in 2017 in total four CRCs, four RTGs and five RUs were consulted by the *e*RA in their proposal process. Of these, two CRC proposals were already evaluated as positive, one RTG negative, while all other proposal evaluations are still pending.

Training

The *e*RA conducted 3 regular training events on research data management during 2017, namely for a RTG (1 day), a Graduate School (1,5h) and a research group (1,5h). The training events were again organized jointly by the *e*RA and the respective group leaders. In a personal meeting, the target group and content were discussed, and the presentations and group work was then realized by the *e*RA while the organizational issues like rooms, equipment and beverages were taken care of by the research group leaders.
The reception of the events was again very good. Many comments appreciated the parts on Backup, Data Documentation and available services, while some comments were asking for more real world or practical examples in the presentations.

In addition to these events, the *e*RA organized the first Göttingen Data Science Summer School[11,12] as one of three newly installed short term programs on the Göttingen Campus, together with Göttingen International[13]. While the organizational issues were to a great part taken care of by Göttingen International, the *e*RA tasks involved the compilation of the Summer School program[14], acquiring speakers and helpers as well as selecting participants from over 400 applications. In the end, 35 participants from eleven countries worldwide visited Göttingen for two weeks and learned about Data Science topics, such as research data management, statistics, data visualization, data analysis, infrastructure and legal and ethical questions in 47 lectures and hands-on sessions, and exchanged ideas at social events. 42 researchers from the Göttingen Campus and the Japanese partner network HeKKSaGOn[15] were involved in designing and presenting the content to the students. The social events included a Welcome Reception and a Summer School Dinner as well as a Research Bazaar, where young researchers from the Göttingen Campus discussed their work with the Summer School participants during a poster session. The overall feedback to this event was very encouraging, and as a result in 2018 another Data Science Summer School[16] will be organized by the *e*RA.

[11] http://www.eresearch.uni-goettingen.de/de/content/1007-21072017-data-science-summer-school
[12] https://www.uni-goettingen.de/de/data+science+2017/569623.html
[13] https://www.uni-goettingen.de/en/311055.html
[14] https://goo.gl/4gSy8N
[15] Foundation of a German-Japanese University Consortium, http://www.hekksagon.net/.
[16] http://www.uni-goettingen.de/de/data+science/575381.html

Networking and Outreach

Within the reporting period, the *e*RA continued informing researchers on the Göttingen Campus about *e*Research topics in multiple ways.

We organized a number of information events and workshops. Two examples of successful events are the Info-Events at UMG and the meetings of the *e*Research Council of the Göttingen Campus[17], which both take place twice per year. The biggest event has undoubtedly been the two-week Data Science Summer School. Aimed at international students as well as students from Göttingen, 35 participants took the chance to learn more about the facets of Data Science and improved their practical skills in this field. Beside international students, we were glad to welcome lecturers from Japan during the summer school.

Aside from the Summer School, members of the *e*RA team as well as its associated members presented *e*RA or *e*Research related topics on diverse occasions in national and international contexts.[18] Presentations for example were held at conferences, workshops or at other academic institutions to present results and to exchange experiences. Some highlights were

- the seminar on “RDM-policy/high-level implementation best practice” on 21/02/2017 in Copenhagen
- the “Open Data in Horizon 2020” meeting in Bonn on 21/02/2017,
- the CODATA conference in St. Petersburg on 09/10/2017
- the EUDAT conference “Putting the EOSC vision into practice” in Porto on 23-25/01/2018

The feedback was mostly very positive regarding the achievements of the *e*RA and thus encouraging for the future work.

The same holds true for the networking activities of the directors of the *e*RA. Prof. Dr Yahyapour and Prof. Dr Horstmann are still actively involved in the various networks listed in the previous report. Beside this, Dr Brase and Dr Wieder are engaged in the additional networks as described in the following.

Jan Brase is president of the International Council of Scientific and Technical Information (ICTSI)[19], delegate to the Committee on Data of the International Council for Science (CODATA)[20], co-chair of the CODATA-ICSTI Data Citation Standards and Practices tasks group[21] and in his role as ICSTI president observer to the UNESCO Information for All

[17] For a short summary of the meetings see Appendix C
[18] See Appendix A
[19] http://www.icsti.org/
[20] http://www.codata.org/
[21] http://www.codata.org/task-groups/data-citation-standards-and-practices

Programme (IFAP)[22]. He is furthermore working as an evaluator for the German Research Foundation (DFG) on INF-projects as part of their CRC program.

Philipp Wieder is mainly involved in national collaborations regarding the implementation and operation of research (data) infrastructures. His networking activities include ongoing collaborations with various universities on topics like metadata management, IT service management, sustainable operation of research infrastructures, or virtual data centres. Furthermore, he regularly discusses similar topics with members of the Fraunhofer Gesellschaft, the Max Planck Society, and Helmholtz Gesellschaft.

In addition to presenting the *e*RA, we put quite some effort into finishing the second project leaflet.[23] It represents the condensed service portfolio of the *e*RA and emphasizes our core pillars Consulting, Training and Developing. Furthermore, we contributed a chapter to the publication “Handreichung Forschungsdatenmanagement” by the subgroup “AG Forschungsdaten”[24] of the DINI initiative[25]. This chapter, titled “Beratungsangebote für Forschende”, deals with the question how to set up and maintain consultation offers for researchers regarding research data management. The chapter is accompanied by a progress report about the Göttingen *e*Research Alliance case. The Handreichung will be published in the first half of 2018.

The webpage of *e*RA was developed further and new content was prepared and published. Some changes were for example made in the site structure to better reflect the new demands to the webpage. The project webpage of GRAcE[26] is a new and important part of the *e*RA website. To ensure that stakeholders, researchers or other interested parties are able to access the GRAcE homepage easily, the Main menu was changed by moving some pages to new places. This process is still ongoing.

Services

In the reporting period, the design and development of campus-wide service offers has become a primary focus of the Göttingen *e*Research Alliance. In cooperation with campus partners and in collaboration with the *e*Research Council for the Göttingen Campus, the university’s presidency, and projects as well as individual researchers, *e*RA designs and develops a number of campus-wide services to support research in Göttingen. As of today, the following services are included in the portfolio:

- Persistent Identifier Services (DOI/ePIC PIDs) - productive
- Collection database – productive
- Project-specific virtual research infrastructure - productive
- Publication repository – open test period
- Research data repository – internal test period
- Large equipment portal - internal test period
- Data management planning – internal test period

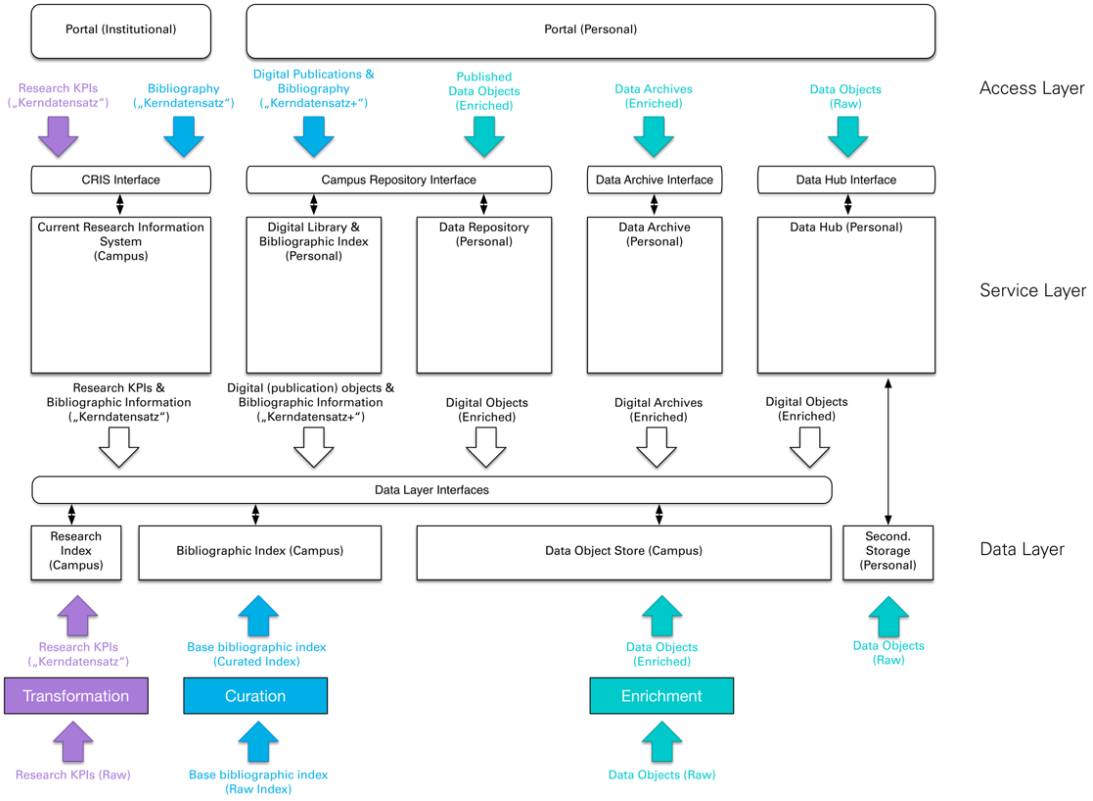
[22] https://en.unesco.org/programme/ifap
[23] http://www.eresearch.uni-goettingen.de/sites/default/files/Flyer_eResearch_150917.pdf.
[24] http://www.forschungsdaten.org/index.php/AG_Forschungsdaten
[25] https://dini.de/
[26] http://www.eresearch.uni-goettingen.de/content/grace

- Electronic lab notebook – product evaluation
- Research data archive – under development

Details regarding the service developments during this reporting period can be found in the subsections below.

Overall Goal and Architecture

The overall goal of the service developments taking place under the umbrella of the *e*RA is to provide integrated services for researchers on the Göttingen Campus. Obviously, this has



to be done in close collaboration with campus stakeholders and in close cooperation with the other service and administrative units. The architectural figure shown above[27] serves as a guide for this development and integration work, highlighting the different data sources and streams into the core data management systems operated within a university. In particular, the distinction of data, service and access layers helps to clearly define interfaces and responsibilities. This architecture only depicts the high-level baseline for research data-oriented services; similar figures exist for further services and other purposes.

[27] CRIS – Current Research Information System: Services to collect, manage and share information about research outputs of universities or research institutions in general. Further information e.g. here: http://www.eurocris.org/.
Kerndatensatz – German for “core data set”: Schema to capture information about research activities, outputs, and personal. Envisaged standard for Germany. Basis for CRIS systems in Germany. Web site (German): http://www.kerndatensatz-forschung.de/.
Note: A number of auxiliary components and services are not depicted here. This includes metadata management (accessible through the data layer interfaces), AAI, and more.

Developments in 2017

Persistent Identifier Services

Since late 2016, the SUB Göttingen functions as official DataCite registration partner for the humanities in Germany. The operational business of consulting DataCite clients in questions of DOI registration is handled by the *e*RA. The consultation process involves informing the clients about the SUB DOI registration service and the required steps, negotiating and finalizing the DOI contract with the clients, providing access to the DataCite Metadata Store and assisting with any questions regarding the DOI registration process.

In the reporting period in total 12 contracts were concluded with clients from academic institutions, for which the DOI service is free of charge. Currently three more requests are being negotiated, two of which coming from Polish academic institutions.

Another service for Persistent Identifiers (PIDs) is offered by the GWDG as member of ePIC [28]. It has a strong focus on supporting the research data management processes, e.g. making data objects findable, which is part of the FAIR[29] principles. As member of the Digital Object Numbering Authority (DONA), the GWDG can assign namespaces, so-called Prefixes, to e.g. institutes, projects or collaborations. The technical PID services are hosted at the GWDG and are mirrored within partners of ePIC. Consulting of the services is done by the eRA. Users of these services are among others libraries, university data centres, and CRCs.

Collection Database

The University of Göttingen maintains one of the most important academic collections in Germany. Spread across 30 locations on the Göttingen campus, over 70 sub-collections reflect the variety of subjects covered at the University of Göttingen. They include everything from the Culture Collection of Algae to the Teaching Collection of Pre- and Protohistory at the Museum of Zoology. In addition, there are the Special Collections of Göttingen State and University Library (SUB) and the Göttingen University Archives.

There is an ongoing endeavour to create digital representations of the collections' objects. These digital collections are put into a collection database and made gradually accessible through an Online Collection Portal[30]. The *e*RA contributed to the generation and population of the collection database and will continue to contribute in 2018.

[28] http://www.pidconsortium.eu/

[29] http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf

[30] Sammlungsportal, http://sammlungen.uni-goettingen.de/ (German only).

Project-Specific Virtual Research Infrastructure - Research Data Management Archiving Tool for FOR 2432 ("FOR 2432 Datasafe")

The FOR 2432 Datasafe[31] is a Drupal-based research data management tool created for the German-Indian research collaboration FOR 2432, which is an interdisciplinary research on a specific region in India, investigating agricultural, ecological, economical, and societal aspects. The purpose of the tool is to provide a place where the researchers can upload field data and attach appropriate metadata. The research group created a custom metadata schema for all subdomains of the researchers. The tool implemented these schemas as an interactive wizard, where the users (researchers) are assisted in uploading data. The tool also implements a fine-grained authorization scheme which reflects the hierarchy of the research group with its different roles (such as PIs, researchers, students) and groups (Indian and German research groups on different topics). The uploader can define who can access the data and what he/she can do with it. Simply speaking, the tool is a front-end wrapper around GWDG's CDSTAR[32] tool, which takes care of reliable data storage, search and retrieval. The front-end is developed as a Drupal 8 module.

This model (CDSTAR backend and Drupal frontend) can be followed in other similar projects and has already been included into the proposal of another FOR project in the area of biology. Drupal[33] is one of the most popular open source content manager tool, with a wide range of built-in functionalities (user management, database layer, permission management, layouts etc.) Above the core, there are many community supported modules to extend the system's possibilities.

Publication Repository

Consolidated information about scientific publications is one core pillar for a university to demonstrate its scientific achievements. Moreover, it is essential for researchers to document their output. The Göttingen Campus decided to offer its researchers a publication repository that is based on a thoroughly curated set of publications for campus members, starting with PIs from the large cluster initiatives, which are the basis for the university's excellence initiative. This publication repository is the core of "Göttingen Research Online" (GRO), a set of services supporting the research lifecycle at the Göttingen Campus. It is available for testing at https://gro.uni-goettingen.de (design still under development). Once it is publically available for the whole campus, the publication repository will include functions for individual researchers to manage their own publications. Furthermore, APIs will be available to integrate the respective information about publications, projects, etc. into institutional or personal websites.

[31] http://datasafe.for2432.org/
[32] Common Data Storage ARchitecture, https://info.gwdg.de/dokuwiki/doku.php?id=en:services:storage_services:gwdg_cdstar:start
[33] https://www.drupal.org/

Research Data Repository for the Göttingen Campus

The research data repository for the Göttingen Campus is implemented using Dataverse[34], which is a software for publishing research data and was developed at Harvard University. The *e*RA is currently in the final phase of installing and providing Dataverse for the Göttingen Campus (https://data.gro.uni-goettingen.de). Dataverse is a generic tool with some domain specific customization possibilities. The main motivation for providing an institutional instance in Göttingen is to use it as a standard or fall-back solution for researchers if no dedicated research data repository exists for their specific research domain.

Dataverse is a complex application covering Glassfish Java container, PostgreSQL database and Apache Solr search engine. Regarding the stored units a hierarchy is used (files − datasets − "dataverses"), where each level can be assigned its own metadata. Datasets are simple collection of files, dataverses however have a rights management feature. An administrator can manage users, user groups, and can set up authorization rules based on the functionalities of the system. Dataverses might contain datasets but also other dataverses, which provides a flexible organizational structure. A dataverse could represent a research group, while a dataset could represent a specific research. The owner of the data could define who can access their data, and whether it is a public release, or still a work in progress version. Each published dataset has a version number, and one can follow the different versions of the dataset. It also provides a variety of APIs that make the system transparent, i.e. the data are not "frozen" into the system and can be moved elsewhere if needed. Each file, dataset and dataverse are assigned a DOI. The *e*RA is currently working on connecting the system with the university's authentication system.

Large Equipment Portal

The large equipment portal, realized through the product openIRIS[35], is a service that allows to conveniently manage the pool of scientific instruments available at Göttingen Campus. Each instrument is recorded in the database of openIRIS with its attributes, including the responsible persons and the current location of the instrument. This finally enables scientists to search for specific instruments for their individual use cases and request a utilization.

However, the openIRIS software has to be extended to support the requirements at the Göttingen Campus. In the initial version, each instrument dataset has to be managed by its individual hosting institute, which in turn, is part of a larger organization. Hence, all instruments available at a larger organization are in the previous version managed federatively. To comply with the requirements at Göttingen, this has been changed such that additionally all the instruments can be managed by a central unit (Research Department & *e*RA).

Another issue is related to the instrument dataset itself: The Göttingen instrument dataset is composed of data from different sources. Since each instrument is under the stewardship of a responsible person, the up-to-date information of the responsible person is already

[34] https://dataverse.org
[35] https://gwdg.science-it.ch

available in the university-wide person directory, the uniVZ. Therefore, the idea is to extend openIRIS to connect with an external data source (uniVZ) to retrieve the most current information. Thus, the developers of openIRIS are currently working on such an extension module.

Data Management Planning

The *e*RA is currently evaluating in which form to provide researchers on campus with semi-automated assistance in writing data management plans. In this context, the *e*RA is testing the RDMO[36] planning tool developed by the AIP Potsdam, FH Potsdam and KIT. The project aims at providing a customizable tool to develop project- or institution-specific data management plans for project proposals based on funders' requirements. It is currently in its second project phase, with the *e*RA offering support in terms of feedback to software functionalities and features.

Remaining Services

The remaining services, i.e. the electronic lab notebook and the data management archive, have not been in the primary focus during the reporting period. Once the above mentioned services, in particular the publication repository, the research data repository, and the large equipment portal, are in production, resources will be assigned to the remaining services.

Projects: GRAcE

In June 2017, the two year project Göttingen Research Data Exploratory (GRAcE), initiated by the *e*RA and funded by the Federal Ministry of Education and Research (BMBF), took up its work. This is the first grant that was successfully gained by the *e*RA and can be seen as a great achievement.
The GRAcE project consortium consists of SUB, GWDG and UMG.
GRAcE aims to develop a planning instrument to support the campus-wide establishment and sustainable operation of research data management services, i.e. for example the activities of the *e*RA. To this end, the project investigates two crucial areas in particular: a) costs and b) the scalability / generalisability of specific research data management services. The research will be carried out using the Göttingen Campus as an example, but the results are intended to also be applicable to other locations.
Regarding the costs, the main questions being addressed are: What is the effort – in terms of technology as well as staff – to facilitate research data management services at a campus on a sustainable, long-term basis? Which general criteria can be derived from the results and applied to other campuses? The estimation to determine the costs of sustainable RDM is based on the dissection and analysis of current and foreseeable tasks in researchers' daily routines and their correlation to existing or required roles and phases in the research data lifecycle. Thereby, necessary efforts – both technological and regarding human resources – can be quantitatively estimated for each task and aggregated at increasing levels of organizational complexity e.g. a project, a department or an institution. The work in this area is based on an in-depth examination of the medical sciences by means of interviews and a follow-up survey. In workshops, the results will be discussed with

[36] https://rdmorganiser.github.io/

representatives from Göttingen Campus and thus put into context with other disciplines and institutes in order to extend the cost estimation to the whole campus. A workshop with invited experts on the national level is planned as well. Two workshops with campus representatives (with a focus on the UMG) already took place in August and September 2017, the results of which inform follow-up activities.
With respect to the scalability, GRAcE focuses on the generalisability of RDM services developed in and for a specific research context. For example, large research associations such as the DFG funded Collaborative Research Centres (CRC) often implement subject-specific RDM solutions. The project investigates to what degree and with how much effort such tailor-made solutions can be transferred to other contexts and merged into an RDM infrastructure covering the multi-disciplinary range of subjects on the campus. Based on previous *e*RA work, external reports and own research, e.g. interviews with researchers and infrastructure representatives, GRAcE will analyse the user needs. These will be mapped with existing context-specific solutions on campus, e.g. those developed in the CRCs 755[37], 963[38], 990[39] and 1002[40]. The aim is to identify criteria that determine if a service is suitable for a more widespread use. Solutions with a high potential for reusability will be analysed in terms of the adaptations necessary to facilitate use in other contexts and integration in the campus infrastructure. This will be carried out in cooperation with the German Primate Centre and the Campus Lab “Digitization and Computational Analytics” of the GCDH.
The project results will be disseminated in workshops directed at researchers from Göttingen Campus as well as at a nation-wide audience. Training materials will be developed in collaboration with the *e*RA.

Summary of eRA Achievements from 01/2017 to 02/2018

Milestones for 2017	Status / Achieved in
Inaugural meeting of the External Advisory Board	Jan 17
Submission of cluster preliminary applications	Feb 17
RDMO demonstrator: small scale rollout to selected individuals and groups on the GC	planned for summer 2018
Data repository demonstrator: small scale rollout to selected individuals and groups on the GC	Nov / Dec 17
Project-Day as “Internal” roadshow at SUB, GWDG and UMG-INF	Jun 17

[37] http://www.uni-goettingen.de/de/318955.html
[38] https://www.uni-goettingen.de/de/215327.html
[39] https://www.uni-goettingen.de/en/310995.html
[40] http://www.herzzentrum-goettingen.de/en/content/research/906.html

Data Science Summer School together with Göttingen International	Jul 17
Report on evaluation of demonstrators and service concepts and roadshow for Excellence Clusters	Aug 17
Adaption of eRA structure into post-2018 campus strategy concept	Will be task in summer 2018
Submission of proposals for Excellence Clusters	Jan / Feb 18
Research-Bazaar-like Conference: Data carpentry, software carpentry, engage local community	The planned conference has been cancelled. The Pre-RDA Symposium in March 18 will replace

Project plan / Roadmap for 2018

The leading goal for the *e*RA in 2018 is the extension of the service portfolio for campus-wide services, including the establishment of new services and the increase of their outreach, to position the *e*RA as an essential part of University of Göttingen infrastructure. To achieve this we want to:

Establish sufficient resources with clear perspectives
Based on the latest decisions by the University (see also above), the *e*RA has three permanent positions funded by the University complemented by one permanent position from GWDG and SUB each. These five positions will be complemented by further temporary positions in particular for service design and development.

Establish robust services based on the researcher's need
The newly developed basic services will be promoted through the campus in 2018. They will be tested and adapted to fit the overall needs.

Support the university's excellence proposal
Based on the experience with the cluster proposals, *e*Research shall have an important role in the upcoming proposal for excellence by the university. The *e*RA will support the university in developing concepts and defining an overall strategy for a clear *e*Research focus. Additionally we expect at least 2 cluster proposals to be successful. The support of these new clusters will also be an important part of *e*RA's role on campus.

General support for Collaborative Research Center (CRC) proposal
The CRC is the most important funding mechanism for the German Research Foundation (DFG). Each CRC can include an INF-sub project that includes RDM for the CRC. *e*RA is currently involved in 3 CRCs on campus. Based on this experience we will develop central

and modular services to adapt to individual CRC proposals in the future and establish general CRC support in Göttingen as a new role for the *e*RA.

International Outreach

RDM services on campus have become a major topic all over the world. Together with CODATA, the *e*RA will organise a symposium[41] on this topic in Göttingen from March 18th to 20th 2018. The program will feature over 50 presentations and several keynotes. We will use the symposium to establish together with CODATA a platform for exchange on the topic of RDM services on campus. This will help to position the *e*RA on a global scale. Ideally, we will establish a CODATA working group on this topic and will have a session about RDM on campus at the International Data Week 2018 (IDW 2018) in Botswana.

2018		
Date	**Milestone**	**Activities**
February	Proposal submission for Excellence Cluster	Consulting, Strategy
March	2nd meeting of the External Advisory Board	Management, strategic orientation
March	Conference: Pre-RDA Symposium	Outreach
April	7th meeting of the *e*Research Council for the Göttingen Campus	Management, strategic orientation
May	MPG workshop on RDM for PostDocs	Training
Sommer Term	Roadshow on GC: Visit of (three) faculties	Outreach/Training
Summer	Detailed post-2018 concept for eRA	Management, Strategy
August (2-16)	Data Science Summer School	Training/Teaching
Summer	Informed decision about the future structure of eRA based on reports of External Advisory Board and *e*Research Council	Management, Strategy
Autumn	8th meeting of the *e*Research Council for the Göttingen Campus	Management, strategic orientation
November	International data week in Botswana, CODATA general assembly	Outreach
December	Proposal submission for Excellence University	Consulting, Strategy

[41] http://www.eresearch.uni-goettingen.de/content/pre-rda-symposium

Appendix A - Publications

Articles

Bingert, Sven; Hilker, Stephan: Neue Funktion im Kundenportal der GWDG: Persistent Identifier, in: GWDG Nachrichten (04/17), p. 8.

Dierkes, Jens; Steilen, Lena: International Summer School on Data Science, in: GWDG Nachrichten (04/17), p. 9.

Gnadt, Timo; Steilen, Lena: Beratungsangebote für Forschende, in: DINI/nestor Handreichung zum Forschungsdatenmanagement (will be published soon)

Király, Péter; Stiller Juliane: Multilinguality of Metadata. Measuring the Multilingual Degree of Europeana's Metadata, in: Everything Changes, Everything Stays the Same? Understanding Information Spaces. Proceedings of the 15th International Symposium of Information Science (ISI 2017) (Schriften zur Informationswissenschaft), M. Gäde, V. Trkulja, and V. Petras (Eds.), Verlag Werner Hülsbusch, pp. 164–176.

Király, Péter: Towards an extensible measurement of metadata quality, in: *Second International Conference on Digital Access to Textual Cultural Heritage. Conference Proceedings* Göttingen, June 1-2, 2017. Published by ACM. ISBN 978-1-4503-5265-9. pp. 111-115. DOI 10.1145/3078081.3078109

Steilen, Lena: First International Data Science Summer School in Göttingen, in: GWDG Nachrichten (08-09/17), p. 20f.

Project leaflets

Göttingen *e*Research Alliance leaflet: *e*Research support for the GÖTTINGEN CAMPUS (Version October 2017)

Posters

Péter Király: Measuring metadata quality. A quick overview in the context of Europeana metadata[42], #dariahTeach Open Resources Conference (Lausanne, CH), March 23rd 2017

Presentations

"Management von Forschungsdaten als gemeinschaftliche Aufgabe" at Universität zu Köln held by Jens Dierkes in Köln on February 3rd 2017

"Wissensaustausch FDM an der Universität zu Köln" at Universität zu Köln held by Jens Nieschulze in Köln on February 3rd 2017

[42] https://www.researchgate.net/publication/315615133_Measuring_metadata_quality_A_quick_overview_in_the_context_of_Europeana_metadata

“RDM-policy/high-level implementation best practice. The Göttingen case” at The Danish Agency for Science and Higher Education held by Jens Dierkes in Copenhagen on February 21st 2017

“Forschungsdatenmanagement in der Praxis: Erfahrungen aus der Göttingen *e*Research Alliance und einem SFB-INF-Projekt” at Open Data in Horizon 2020 held by Timo Gnadt in Bonn on February 21st 2017

“FAIR: Findable, Accessible, Interoperable, Reusable” at Göttingen Open Science Meet-Up held by Jens Dierkes & Jessika Rücknagel in Göttingen on March 1st 2017

“Jahre des Lernens: Aufbau einer institutionsübergreifenden Campus Dateninfrastruktur” at TMF Jahreskongress held by Jens Dierkes, Harald Kusch & Philipp Wieder in Göttingen on March 14th 2017

“Multilinguality of Metadata. Measuring the Multilingual Degree of Europeana’s Metadata”[43] at 15th International Symposium of Information Science (ISI 2017) held by Péter Király and Juliane Stiller in Berlin on March 14th 2017

“Wissenstransfer und Erfahrungsaustausch am Standort Göttingen: Das Zusammenspiel eines medizinischen SFB-INF-Projektes und der Göttingen *e*Research Alliance” at e-Science-Tage-2017 held by Jens Dierkes & Harald Kusch in Heidelberg on March 16th 2017

“Management von Forschungsdaten als gemeinschaftliche Aufgabe” at RWTH Aachen held by Jens Dierkes & Jens Nieschulze in Aachen on March 23rd 2017

“Multilinguality of Metadata. Measuring the Multilingual Degree of Europeana’s Metadata”[44] at 1st Subject Indexing & Information Technology Workshop held by Péter Király and Juliane Stiller in Göttingen on May 11th 2017

“Measuring Metadata Quality and the Europeana use case”[45] (Keynote speech) at 4th Linked Data Quality Workshop held by Péter Király in Portorož (SL), on May 29th 2017

“Disziplinenspezifische Besonderheiten im FDM” at FDM Vernetzungstreffen held by Jan Brase in Berlin on June 1st 2017

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43 https://www.slideshare.net/pkiraly/multilinguality-of-metadata-measuring-the-multilingual-degree-of-europeanas-metadata

44 https://www.slideshare.net/pkiraly/multilinguality-of-metadata-measuring-the-multilingual-degree-of-europeanas-metadata

45 https://www.researchgate.net/publication/317597840_Measuring_Metadata_Quality_and_the_Europeana_use_case

“Towards an extensible measurement of metadata quality”[46] at DATeCH - Digital Access to Textual Cultural Heritage held by Péter Király in Göttingen on June 2nd 2017

“Brückenschläge: Impulse für die Vermittlung Digitaler Kompetenzen am Standort Göttingen” at Wissenschaft im Digitalen Wandel held by Jens Dierkes in Mannheim on June 6th 2017

“”Nothing is created, nothing is lost, everything changes” - measuring and visualizing data quality in Europeana”[47] at 41th ELAG conference held by Péter Király in Athens on June 8th 2017

“Challenges for Data Management in the Context of Research Projects” at Data Science Summer School held by Daniel Kurzawe and Philipp Wieder in Göttingen on July 11th 2017

“Introduction to Infrastructures for Data Analysis and Common Openly Available Tools at Data Science Summer School held by Ramin Yahyapour in Göttingen on July 17th 2017

“Measuring completeness as metadata quality metrics in Europeana”[48] at Digital Humanities 2017 held by Péter Király in Montreal on August 10th 2017

“Extensive Research-Oriented Learning” at Digitalisierung in Studium und Lehre - *e*Research held by Philipp Wieder in Göttingen on August 24th 2017

“Practical Research Data Management” at 3rd Clean Sky Summer School held by Philipp Wieder in Beijing on September 5th 2017

“Erfahrungsaustausch FDM mit der Johannes Gutenberg-Universität Mainz” at Johannes Gutenberg-Universität Mainz held by Jens Nieschulze in Mainz on 12.09.2017

“Measuring cultural heritage metadata quality”[49] at Linked Data quality assessment and improvement - from academia to industry (satellite event of Semantics 2017) held by Péter Király in Amsterdam on September 14th 2017

“Institutional support for research data management - The Goettingen *e*Research Alliance” International CODATA 2017 Conference, “Global Challenges and Data-Driven Science” held by Jan Brase in St. Petersburg, October 9th 2017

“6. Sitzung des *e*Research Rates des Göttingen Campus” at Göttingen University held by Jan Brase and Philipp Wieder in Göttingen on October 23rd 2017

[46] https://www.researchgate.net/publication/317597699_Towards_an_extensible_measurement_of_metadata_quality

[47] https://www.researchgate.net/publication/317597567_Nothing_is_created_nothing_is_lost_everything_changes_-_measuring_and_visualizing_data_quality_in_Europeana

[48] http://bit.ly/mq-dh2017

[49] http://bit.ly/mq-semantics17

“The Göttingen *e*Research Alliance. *e*Research and Data Management Support for the Göttingen Campus” at DANS held by Claudia Engelhardt in Den Haag on November 21st 2017

“Technological Challenges for a Sensible Research Data Management for the Social Sciences and Digital Humanities Example: DARIAH-EU” at SFB 1187 annual conference on „Varieties of Cooperation. Mutually Making the Conditions of Mutual Making“ held by Timo Gnadt & Francesca Morselli in Siegen on November 23rd 2017

“Measuring metadata quality of Europeana records”[50] at ADOCS meeting and metadata quality workshop held by Péter Király in Brussels on November 27th 2017

“Measuring library catalogs”[51] at ADOCS meeting and metadata quality workshop held by Péter Király in Brussels on November 27th 2017

“Hooray and Horror Story of the Data Science Summer School 2017” at EuDAT 2018 held by Sven Bingert in Porto on January 24th 2018

[50] http://bit.ly/adochs-europeana
[51] http://bit.ly/adochs-marc

Appendix B - Feedback from the Göttingen *e*RA Advisory Board, 16th January 2017

General comments

The team has done a really great job during the build-up phase of two years. The immediate goals of coordination and consultancy have been met. The approach has been effective based on the institutional context. The requirement for the *e*RA is clearly there, and there is likely a need to grow in the future. Careful consideration will need to be given as to the direction of this growth, how to prioritise, scale and be sustainable given the size of the team and the complex challenges faced.

What is your opinion on the resource planning of eRA within the last two years? Has it been reasonable and productive?

- The use of resources has been reasonable. A wide range of activities has been started ranging from software development to embedded librarian services
- The pilot seems to be opportunity driven.
- Now is the time to reflect on successes for future planning: What was good? What worked? What changed? What was the impact on university? What are the contingency plans for problems with e.g. scaling up?

What is your opinion on the chosen eRA fields of activity? Were they chosen in a constructive and expedient way?

The fields of activity all look within the scope of the *e*RA mission. The Board think that it would be helpful to more formally use quantitative and qualitative KPIs and indicators to help inform decisions on priorities and strategy. Some questions along these lines include:

- What does success look like? Are there stories to tell in this regard?
- What is the balance between software development and brokering?
- What is the governance structure and its role in decision making/prioritisation? For example: what is the role of the Council - it appears to be a “user forum” rather than a decision making body.
- What is the scope for centering on particular software packages or development languages?
- Tickets: is this number right? Granularity? How do you prioritise?
- Are the services developed in line with general/specific user needs (KPIs would help here).
- What is the impact of the networking activities, website usage?
- “The whole is greater than the sum of the parts” appears to be true but some more specific indication on the value of investment to attract new investment would be helpful

Do you recognize fields of activity eRA should spend more efforts in/focus on?

- *e*RA seems already to have solid and broad remit – reviewing current activities and strengths may suggest areas for consolidation
- To scale up with increasing demands, it would be helpful to encourage across-campus exchanges. *e*RA could foster grassroots development (similar to the Open Science/hack days)
- Paths to sustainability for resources developed

How do you evaluate the performance of eRA within the last two years according to the initial strategic goals?

- Initial strategic goals at least in the documentation are not clearly stated
- All the pieces are there (including challenges, approaches, tasks) but they are scattered
- What are the specific goals of the *e*RA at Gottingen? Needs to be made more concrete which will also help building metrics for internal evaluations and impact stories

Do you think it is possible that eRA will achieve all its strategic goals within the next two years?

- They appear to have already been achieved, but it would be helpful to have some metrics and impacts to really make a convincing tight case for going forward.
- Talking with the team at the meeting underlined that there have been significant advancements when serving the researchers. There seems to be a positive impact on internal communication and on the way researchers can be approached now (with one voice, instead of “scattered” messages). This seems very much in line with the strategic goals mentioned during the meeting. It would be good to solidify such anecdotic evidence with data.

Appendix C - *e*Research Council Meetings

5th meeting on 23.03.2017

Dr Dierkes presented the current activities of *e*RA:

- Development of services:
    - Set up of RDMO tool starting the test phase during the summer.
    - The same goes for the large equipment portal.
    - From April on the *e*Research Alliance would set up a DataVerse instance as institutional repository.
- Consulting
    - Consultation for the excellence initiative was very important. *e*RA has been in contact with six groups (cluster initiatives).
- Networking
    - An Open Science Network was established in Göttingen.
    - Start of the *e*Research Alliance blog
- Training
    - semi-annual information events at UMG
    - Planning of Summer School Data Science
    - Workshops

6th meeting on 23.10.2017

Dr Brase and Dr Wieder presented the current activities and developments within and of *e*RA:

- *e*RA lost two colleagues - Dr Dierkes moved to Cologne and Ms Rücknagel to Hannover to start in new positions.
- The presidential board of the university will fund three permanent positions within *e*RA.
- Consulting:
    - Four cluster initiatives were invited to hand in a full proposal. eRA was involved in the next round of consultation. eRA should be a service unit for clusters.
- Training:
    - Data Science Summer School has been completed successfully.
    - Upcoming: FDM-Workshop for Postdocs of Max Planck Society in spring 2018
- Development of Services:
    - Ongoing work for institutional Repository and Large Equipment Portal
    - Development of several data platforms for CRCs and Research Groups at Göttingen Campus
    - DOI-Service has been brought into productional state.
    - The Online Portal for the university collections

Appendix D - Acronyms and abbreviations

AG	Arbeitsgruppe (Working group)
AIP Potsdam	Leibnitz-Institut für Astrophysik Potsdam
API	Application Programming Interface
BMBF	Bundesministerium für Bildung und Forschung (Federal Ministry of Education and Research)
CDSTAR	Common Data Storage ARchitecture
CODATA	Committee on Data of the International Council for Science
CRC	Collaborative Research Center
DARIAH-DE	Digitale Forschungsinfrastruktur für die Geistes- und Kulturwissenschaften - German part of DARIAH-EU (pan-european infrastructure for arts and humanities)
DB	Abteilung Digitale Bibliothek (Department Digital Library) at SUB
DFG	Deutsche Forschungsgemeinschaft (German Science Foundation)
DINI e.V.	Deutsche Initiative für Netzwerkinformation e.V. (German Initiative for Network Information)
DOI	Digital Object Identifier
DONA	Digital Object Numbering Authority
e.g.	for example
EOSC	European Open Science Cloud
ePIC	Persistent Identifiers for *e*Research
*e*RA	Göttingen *e*Research Alliance
EUDAT	European Data Infrastructure
EPU	Abteilung Elektronisches Publizieren (Department Electronic Publishing) at SUB
FH Potsdam	Fachhochschule Potsdam (University of Applied Sciences Potsdam)
FOR	Forschergruppe, equivalent to RU - research unit
GC	Göttingen Campus is an alliance between the university and local non-university research institutions (http://grc.uni-goettingen.de)

GCDH	Göttingen Centre for Digital Humanities (http://www.gcdh.de/)
GRAcE	Göttingen Research Data Exploratory
GRO	Göttingen Research Online
GWDG	Gesellschaft für wissenschaftliche Datenverarbeitung mbH Göttingen
HeKKSaGOn	Foundation of a German-Japanese University Consortium, http://www.hekksagon.net/.
ICTSI	International Council of Scientific and Technical Information
IDW 2018	International Data Week (5.-8.11.2018), Gaborone, Botswana (http://www.codata.org/events/conferences/international-data-week-2018)
IFAP	UNESCO Information for All Programme
INF	Subproject for Infrastructure within joint research projects
ISO	International Organization for Standardization (https://www.iso.org/home.html)
KIT	Karlsruher Institut für Technologie (Karlsruhe Institute of Technology)
KPI	Key Performance Indicator
PI	Principle Investigator
PID	Persistent Identifier
RDA	Research Data Alliance
RDD	Research and Development Department at SUB
RDM	Research data management
RDMO	Research Data Management Organizer
RTG	Research training group
RU	Research unit, equivalent to FOR - Forschergruppe
SUB	Niedersächsische Staats- und Universitätsbibliothek (Göttingen State and University Library)
UMG	University Medical Center Göttingen
UNESCO	United Nations Educational, Scientific and Cultural Organization
uniVZ	Course catalogue and staff data base of Göttingen University
VP	Vice President

Appendix E - Online information (selection)

- Göttingen University – Facts and Figures (German only): http://www.uni-goettingen.de/en/24499.html
- The Göttingen Campus: http://www.goettingen-campus.de/
- Göttingen Campus – Strong Alliance: http://www.goettingen-campus.de/fileadmin/Documents/Broschuere_Campus_Web.pdf
- Göttingen eResearch Alliance: http://www.eresearch.uni-goettingen.de
- GRAcE: http://www.eresearch.uni-goettingen.de/content/grace
- Data Science Summer School 2018: http://www.uni-goettingen.de/de/data+science/575381.html

Appendix F - Members of the *e*RA Steering Committee

Jan Brase - Head of SUB department Research and Development
Mustafa Dogan - Deputy head of SUB department Digital Library
Wolfram Horstmann - Director of the SUB Göttingen
Frank Klaproth - Head of SUB department Digital Library
Harald Kusch - Member of medical informatics, UMG
Jens Nieschulze - Research data officer of Göttingen University
Philipp Wieder - Head of GWDG eScience group and vice director of the GWDG
Ramin Yahyapour - Managing director of the GWDG