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Article — Published Version

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LIBER Quarterly

Suggested Citation: Zarnitz, Monika; Bähr, Thomas; Arning, Ursula (2019) : Ten Years of Strategic Collaboration of Libraries in Digital Preservation, LIBER Quarterly, ISSN 2213-056X, Igitur, Utrecht, Vol. 29, Iss. 1, pp. 1-22,
<https://doi.org/10.18352/lq.10278>

This Version is available at:
<http://hdl.handle.net/11108/422>

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Ten Years of Strategic Collaboration of Libraries in Digital Preservation

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Abstract

The German National Specialist Libraries cooperate closely in the field of digital preservation. One of the partners hosts the preservation system, while each library creates its own workflows and is free to ingest its digital material into this system. This paper delineates the factors for success of this collaboration. It describes the different aspects of collaboration in digital preservation and describes the benefits and costs of cooperation in this field as a case study.

Digital preservation is resource intensive and the required technology is complex. Therefore the libraries benefit from synergy effects: Reduced cost by sharing the preservation system, usage of similar workflows and formats of digital objects, work sharing in networking activities and staff training.

The paper also stresses the advantages and difficulties while applying for certificates in a consortium. Their collaboration extends to intensive national and international networking activities, which yield more contacts than a single library could maintain if it acted on its own. The libraries' staffs are active in working groups of nestor—the German network for digital preservation—and in working groups of the Open Preservation Foundation.

Key Words: cooperate digital preservation; German National Specialist Libraries; synergies

1. Introduction

Systems for digital preservation are technically challenging and the handling of the systems and the data in these systems is a job for specialists (Bähr, Lindlar, & Vlaeminck, 2011). Therefore the German National Specialist Libraries decided to cooperate in this field and to share the preservation system (and its costs) for this task (Bähr, Friese, Lindlar, & Vlaeminck, 2012, p. 4 and 7).

Substantial synergy effects are obvious: Cost-sharing for soft- and hardware, work sharing in the organization of workflows and staff training as well as in national and international networking and many other advantages.

The aim of this paper is to describe the German National Specialist Libraries' cooperation in the field of digital preservation, the governance structure and its networking activities as a case study of good practice in national and international strategic collaboration. It describes the advantages and challenges of this type of cooperation and the synergy effects for the libraries.

In the German-speaking world there are no other collaborations of independent organizations of this kind. There are few libraries, archives and museums which already have a digital archive for their digital collections. That is why this paper can give valuable practical hints to organizations which plan to cooperate with other institutions in this field.¹

2. The German National Specialist Libraries

The German National Specialist Libraries are the Leibniz Information Centre for Science and Technology—University Library in Hannover (TIB) (<https://>

www.tib.eu/en/), ZB MED Information Centre for Life Sciences in Cologne and Bonn (ZB MED) (<https://www.zbmed.de/en/>) and ZBW Leibniz Information Centre for Economics in Kiel and Hamburg (ZBW) (<https://www.zbw.eu/en/>). These libraries are responsible for the sustainable provision of information in their subject areas. These information centers complete the German National Research Library system, which consists of the German National Library (https://www.dnb.de/EN/Home/home_node.html), and the libraries that belong to the Specialized Information Services Program of Deutsche Forschungsgemeinschaft (https://www.dfg.de/en/research_funding/programmes/infrastructure/lis/funding_opportunities/information-service_science/index.html) and cover other subject areas.

TIB serves as the national subject library for the disciplines of science and technology as well as architecture, chemistry, computer science, mathematics and physics. Materials of these subjects are collected regardless of language and publication type and aim to serve the needs of customers with a background either in industry of academia and research. TIB has a strong focus on grey literature, patents and standards and is actively engaged in Open Access.

The goal of ZB MED is to ensure the national provision of information and literature in the Life Sciences, like the fields of medicine, health care, nutritional, environmental and agricultural sciences—including the relevant basic sciences and related subject areas—for the purpose of research, teaching and practical application. ZB MED acquires, catalogues, archives and provides access to German and foreign literature and all other types of analog and digital information media, like grey literature. ZB MED is also a player in the field of Open Access Publishing and Advisory Services.

The ZBW supports economists working in academia and students in their learning, researching and publishing processes. It provides the information infrastructure and the content for the subject business and economics so that researchers can concentrate on their research and publishing activities. Similar to the other German National Specialist Libraries, the ZBW provides access to German and foreign literature and information on business and economics in printed and digital format, especially to grey literature. A large share of its holdings is offered in Open Access.

There has been a long history of cooperation between the German National Specialist Libraries since they have comparable functions (with different user

groups) and mutual interests concerning library politics in Germany. Since 2009, the German National Specialist Libraries have intensified their collaboration. They collaborate closely in the fields of digitization, licensing and digital preservation.²

3. Cooperation in the Field of Digital Preservation

3.1. Digital Preservation

Digital preservation is becoming more and more important since researchers at universities and enterprises as well as students rely increasingly on electronic resources and their sustainable provision. The aim of digital preservation is to keep digital documents and objects usable in the course of time.

All the digital holdings need digital preservation, because data formats as well as soft- and hardware and data carriers change constantly and can become obsolete. To restore the usability of these electronic objects, they have to be transferred to a preservation system and kept under observation. When formats etc. become unusable, they should be migrated to a new format in time. This is a suitable process when pdf, tiff and other similar formats have to be preserved and this is the method of choice for the German National Subject Libraries at present.

Digital preservation is a complicated matter and has many aspects that concern, e.g., identification of formats, solutions for the ingestion of data and different types of metadata into the preservation system, their transformation into a package for the treatment and observation in the digital preservation system and finally the inclusion of the data into a package, which is necessary if the data have been migrated into new formats and have to be exported from the digital preservation system into the presentation system to replace the data which had become obsolete.³ This is the idea of a so called "dark archive." There are solutions possible that offer access to the preservation system for end-users. The digital preservation system of the German National Subject Libraries is a dark archive at present.

Collaboration in this field is possible since the challenges of digital preservation are independent of the content that has to be preserved. All three

libraries work with the same data formats and have the same technical challenges to solve although their target groups and content are different.

All three libraries host digital resources which have the same file type (pdf-documents, tiff files from retro-digitalization and other material that belongs to common digital collections of libraries), but there are also differences. For instance, the TIB holds videos and films or architectural models in digital format, which require special treatment in the digital archive. There is knowledge spillover to the other partners related to the solutions TIB develops for its own purpose, and there is the potential for reusing workflows of other partners when collection material is similar. Therefore both the common ground and the diversity of material add to the advantages of this collaboration.

The German National Specialist Libraries started their cooperation in digital preservation at the same time as they established organizational units for this topic. The first big decision of the libraries was about the preservation system to be implemented. The libraries developed a catalog of criteria for such a system and on this basis chose the Ex Libris' Rosetta system (<https://www.exlibrisgroup.com/products/rosetta-digital-asset-management-and-preservation/>). At the time this was the only system able to support a digital archive in all functions that were needed. It is a modern system which is up to date with the current best practice.

The main criteria for this choice were:

- I. The system includes OAIS-comparable modules for
 - ingest, storage and access
 - preservation planning
 - data and risk management
- II. in addition to the files of the documents and objects, enrichment of technical, administrative and bibliographic data is possible
- III. There must be experience with the archiving of non-textual media
- IV. The system is adapted to the needs of libraries (connection to library catalogues, access-procedures and administration of licensing)
- V. A modular preservation planning is integrated. There are no pre-built migration rules.
- VI. A technical exit-function is implemented

This method of selection had the advantage that all libraries could bring in their individual needs and that in this process all of them were able to build human capital in digital preservation through market research.⁴ It ensured that the preservation system fitted all needs of the individual partners on the one hand, and that on the other hand the system is modular and can be used by all the three partners differently and in a flexible way.

3.2. Shared Usage of Rosetta

Rosetta from Ex Libris (<https://www.exlibrisgroup.com/products/rosetta-digital-asset-management-and-preservation/>) is a digital preservation system that is used in many countries all over the world. It is a complete digital asset management and preservation solution covering the full life cycle of any type of content, from deposit to delivery to archiving.

Digital preservation as such, and especially the operation of Rosetta, demands special skills and it takes time to get familiar with the different functions. At the beginning of their cooperation, the libraries performed a gap analysis to identify traditional and new skills that they already had and skills that had to be acquired in the course of implementing their digital archive (Bähr et al., 2011). There are basic skills all libraries need (e.g. for ingesting content or for preservation planning of their digital objects) and special skills that mainly the TIB requires in its function as host for the Rosetta system.

The TIB is hosting the Rosetta system and is responsible for the systems administration. It maintains also the computing center where the system is located. So far there are special tasks that only the TIB performs. All libraries work with this system and ingest their digital material on their own. They can develop their own workflows and preservation planning devices.

The organization of data and functions in Rosetta is complex. Therefore the libraries developed agreements that document the different spheres of responsibility when working in the system. Some tasks are centralized with the TIB, e.g. the communication with Ex Libris in case of bugs in Rosetta.

Due to this organizational structure there arise several synergies:

- There is the work sharing concerning the hosting activities of the TIB. The TIB performs more tasks than the other libraries. As a consequence of this, the teams in ZB MED and ZBW which work in the field of digital preservation can be smaller than the team in the TIB and can have other qualifications.
- The libraries share the costs for the administration of Rosetta by the TIB and its computing center. These costs are lower than they would be if each library maintained its own system.
- Workflows in Rosetta developed by one library can be reused by the other libraries so that there are also synergies in development.
- Staff can specialize in special functions of Rosetta. There is a vivid exchange of knowledge about processes in Rosetta among the three partners that enable them to work very efficiently.

3.3. Cooperation in Research and Development

Digital preservation is still a relatively new working area. Working on digital preservation in Germany and abroad in libraries started around 2002. Digital objects became more and more important in libraries and the question of how to conserve them became pressing. nestor—the network for expertise in long-term storage of digital resources in Germany (https://www.langzeitarchivierung.de/Webs/nestor/EN/Home/home_node.html) was founded, which is the most important network for this topic in Germany. Other foreign and German libraries started activities in this field as well, e.g. Deutsche Nationalbibliothek (https://www.dnb.de/EN/Home/home_node.html) and Koninklijke Bibliotheek (<https://www.kb.nl/en>). Bayerische Staatsbibliothek (<https://www.bsb-muenchen.de/en/>) worked out projects for its digital archive (Schoger, 2011). The digital archive of ETH Foundation Zurich⁵ (ETH) (<http://www.library.ethz.ch/en/>) (Sesartic & Töwe, 2016) has been productive since 2012 and the Digital Preservation System of the New Zealand National Library (Rosin & Smith, 2014) (<https://natlib.govt.nz/>) went live in 2008. The technical environment is changing rapidly. The community of specialists for digital preservation is still occupied with applied research and development in this field, e.g. concerning format detection and the tools needed for it.

The German National Subject Libraries are in close contact with all networks that develop new processes and tools for digital preservation (see below, section 5) and they are performing applied research on topics that are important for their own archives. The special research topic of TIB and ZBW is format detection and format validation. ZB MED is going to specialize in digital preservation of research data.

Dissemination of knowledge in the whole world is considered important. Library team members work on posters and papers and present them at international conferences. The TIB and the ZBW presented several papers and posters at the International Conference on Digital Preservation (iPRES) (e.g. <https://ipres2019.org/>) and the International Digital Curation Conference (IDCC) (<http://www.dcc.ac.uk/events/international-digital-curation-conference-idcc>). Examples are a paper for the IDCC: How valid is your validation? A look behind the curtains of JHOVE (Lindlar & Tunnat, 2017) and a paper for the iPRES: A PDF Test-Set for Well-Formedness Validation in JHOVE—The Good, the Bad and the Ugly (Lindlar, Tunnat, & Wilson, 2017). These colleagues organize workshops, hackathons and webinars together.

Library staff can save travel activity because there is a form of work sharing regarding conferences: Colleagues from different partners write papers and posters together, but only one person participates at the conference to present the paper. This raises the visibility of the libraries in the community and simplifies exchange on topics of interest. It is another important synergetic aspect in this collaboration.

3.4. Labels for Good Practice

The German National Specialist Libraries want to prove their excellence. This is important for the relations with all stakeholders of these organizations (users, funding bodies, advisory boards and the like). The Libraries can signal their expertise and trustworthiness in this field with the certificates.

But there was also an internal effect of the application for the certificates: The libraries were able to scrutinize their practice in digital preservation and fill gaps concerning issues where there were no good solutions at that point in time. Thus the certificates were part of the quality management of digital preservation in the institutions. The libraries also had to provide evidence in

the form of a joint preservation policy (<https://www.zbw.eu/en/about-us/key-activities/digital-preservation/preservation-policy-national-libraries/>) presented in Open Access. Therefore the libraries reworked their documentation of processes and the like. This enhanced also the transparency of their work for internal and external purposes.

They applied for the Data Seal of Approval (DSA)⁶ and the nestor-seal⁷—two internationally renowned labels for good practice in digital preservation.

The TIB and the ZBW applied for the DSA at the same time. It was helpful to prepare the list of criteria together because of the special client—provider situation concerning Rosetta. A part of the questionnaires had to be harmonized, e.g. the text describing the IT-infrastructure, IT-security and storage since the TIB provides it. The ZBW referred to documents from the TIB in these cases. The reviewers were able to compare the application forms and easily got an overview of the common activities of TIB and ZBW.

The application for the DSA was the first step in a multi-level system of evaluations. Whereas the DSA is a basic self-evaluation with a lower scale of difficulty, the nestor seal is based on an extended certification process that is based on DIN 31644. The list of questions that have to be answered is longer (34 questions against 16 criteria for the DSA) and it is necessary to add more background material as additional evidence. The ZBW started the application for the nestor seal at the same time as the TIB. The questions where the responses needed harmonizing and which required much communication necessary between the ZBW and the TIB were manifold.

All applications were successful and the TIB and the ZBW have been awarded the DSA in 2015 and the nestor-seal in 2017. All three libraries are currently working on the Core Trustworthy Data Repository Requirements (<https://www.coretrustseal.org/>).

4. Governance Structure of the Collaboration

4.1. General Collaboration of the German National Specialist Libraries

Since 2009, German National Specialist Libraries have worked out a joint strategy for the preservation of digital documents and objects. The collaboration

started with a pilot project (Bähr et al., 2011, p. 2). Its function was to foster the awareness of digital preservation in these organizations and to determine the institutional and technical requirements for a productive system with the help of a digital preservation system (Rosetta) that had been implemented for this purpose. The specific tasks of the pilot project included:

- Analysis and implementation of selected workflows for simple and complex digital objects
- Implementation and configuration of the test system
- Integration of the test system into the existing technical system infrastructures
- Interface adjustments
- Testing of the system under production conditions

The pilot phase began in 2009. During this phase the libraries developed a concept for their digital archive and improved their collaboration in this field. The libraries implemented the Rosetta system and developed the first workflows for ingesting digital material into the digital archive. At that time they learned a lot about working together and jointly developed the agreements that support and document their collaboration in this field and form the basis for the government. This phase was terminated in 2012 and the preservation system went productive in April 2015.

During and after the pilot phase, the organization of information and communication as well as decision rules were crucial. Today, well-established organizational structures are implemented:

The heads of the departments where the digital preservation teams are located and their teams prepare the strategic decisions concerning digital preservation. The “big” strategic decisions are made by the directors of the libraries. Strategic decisions are not very numerous. The last “big” decision was the choice of Rosetta as preservation system.

Decisions that are necessary for “bigger” issues on the operative scale and that pertain to the collaboration of the libraries are taken by the heads of departments and a group that includes all colleagues from the three libraries working in the field of digital preservation (librarians, IT-specialists, specialists for digital preservation and administration as well as cataloging). An example is the decision for this group to meet once a year and to agree on certain rules for the topics the group is concerned with.

All tasks on the operative scale which are important for the common maintenance of the digital archive are in the hands of the colleagues who directly work with the preservation system. These decisions are the most numerous. The colleagues who work with Rosetta meet in telephone conferences regularly and discuss practical questions concerning the system, workflows, bugs, attendance at conferences and articles they write together. They also exchange experiences with tools, e.g. for the format recognition of material that is to be ingested and many other topics.

4.2. Preservation Policies

Preservation policies (Iordanidis, 2015; nestor AG Policy, 2014) are guidelines that describe the most important basic conditions, principles, structures, and aims of digital preservation in an institution. They have a binding character for a longer period and they are a point of reference for the daily work and for further strategic developments. Preservation policies are important for signaling credibility in the field of digital preservation and are one of the basic documents that have to be included in the questionnaire for the application for certificates. Therefore the libraries developed a joint preservation policy for their collaboration and individual policies for their own organizations.

The joint preservation policy⁸ is the framework for the individual preservation policies of the individual libraries⁹ and describes the collaboration and the duties of the partners (e.g. the financial relationship). It includes the reference to the individual policies of the institutions. In a way it is also a kind of target agreement between the libraries and therefore relevant for the governance structure. It is also important for the certification that has been treated in chapter 3.4. As it is evidence for the relationship between the collaborating, especially for the relationship between the host and the libraries it serves.

The individual policies include statements concerning mission, target groups, collection profile, preservation watch, metadata, juridical framework, support of data integrity and authenticity, technical infrastructure and responsibilities and many more other aspects. They are nearer to the operative layer of digital preservation. They reference the joint policy and they are a form of self-commitment of the individual library that fits into the framework of the joint policy and its own strategy at the same time.

4.3. Agreements on Cooperation for Digital Preservation

The collaboration of the three libraries in the field of digital preservation is based on several agreements that have been concluded.

One of these formalizations of the relationship is the cooperation treaty for digital preservation. It includes statements enumerating rules for digital preservation within this cooperation, e.g. with regard to the fact that the TIB is provider of the Rosetta system, and duties of all three libraries within the collaboration. It describes the governance structure of the cooperation and it regulates communication for actions that are important, e.g. when one partner plans a bigger ingest into Rosetta.

This is complemented by a contract for the sublicensing of the Rosetta system by ZB MED and ZBW and a nondisclosure agreement concerning the business relations with Ex Libris and within the cooperation of the libraries. The contract for sublicensing regulates the rights and the duties of the partners in connection with the hosting of Rosetta by the TIB. The nondisclosure agreement was necessary because the contract with Ex Libris is confidential.

And last but not least, the Libraries closed a contract that regulates the work within Rosetta and its consortium configuration. This is the layer that is nearest to the operative level of working in the digital archive. All agreements have proved to be useful and help to define the spheres of work especially in the Rosetta system. That makes daily work easier.

4.4. Communication and Information

The three libraries are situated in different regions of Germany. The distances are long and therefore contact with each other has to be managed mainly virtually.

At the core of the information and communication structure is a wiki where important information is documented (the preservation policies, the minutes and the agenda of meetings, handbooks and other documentation of processes and rules, and so on).

The management of bugs and other requests for improving the Rosetta system is organized by a ticket system. The TIB is responsible for the communication

of bugs and requests for improvement to Ex Libris, but all other partners can place a call on their own if necessary.

The colleagues who work on the operative level of the collaboration meet in a telephone conference regularly to discuss and coordinate issues like metadata management, state of development of specific workflows, ideas for papers and posters at conferences, preparation of meetings with the Rosetta User Group, and the like.

Once a year, all library staff working in digital preservation meet in Hannover. These meetings serve as an information exchange platform and as a means to present new findings in the applied research that the different libraries perform. At its core, this meeting provides advanced training for staff. In addition to this, the libraries' digital preservation staff members discuss drafts for a new ticket system or agreements which are to be implemented and which concern the whole group. There are also irregular, mostly virtual meetings in smaller groups, when colleagues prepare papers or documents which are important for the collaboration, but the libraries try to minimize the need for travel activity as much as possible.

5. Common National and International Cooperation

Digital preservation is a field that is developing relatively fast and therefore there is a great need to keep up with this development. From the beginning of their common activities, the German National Specialist Libraries have been in close contact with networks and organizations specialized in digital preservation. The aim is to keep up with the community and to add own content to the applied scientific discussion in this field. Within a short time, they have become a visible part of the international community for digital preservation (Bähr et al., 2012, p. 25).

5.1. Networking with nestor

nestor is a collaboration of German-speaking partners from different branches (libraries, archives and museums etc.) who care for digital preservation (<https://www.langzeitarchivierung.de/Webs/nestor/EN/Home/>

[home_node.html](#)). At present, nestor has 19 active members and three associated partners (https://www.langzeitarchivierung.de/Webs/nestor/EN/nestor/Partner/partner_node.html) and there are many more institutions engaged in working groups of nestor. nestor began as a project financed by the Federal Ministry of Education and Research from 2003 to 2009. Since then, nestor has been continued independently by the member organizations.

nestor brings together institutions, experts and active members of projects to exchange information, to share tasks, to develop standards and to use synergy effects. nestor maintains close contacts to comparable organizations in other countries and is involved in European and international initiatives and projects.

From the beginning of their collaboration, the German National Specialist Libraries have been actively networking with nestor. They are members (and in three cases also head) of different working groups of nestor:

- Format identification (TIB, ZB MED, ZBW is head)
- Media (TIB)
- Certification (TIB and ZBW)
- Research data (ZBW, ZB MED, TIB)
- Personal Archiving (TIB and ZBW)
- Concretizing SIPs (TIB, ZB MED)
- Legislation (TIB)
- Documentation of digital preservation (TIB, ZB MED is head)

These working groups dedicate themselves to special aspects of digital preservation and produce handbooks, guidelines, concepts and other information material useful for colleagues in the field of digital preservation. Best practice is also important in this context. The working groups engage in the standardization of processes and tools, and they research and develop new tools for digital preservation. nestor represents the interests of digital preservation in library policy and certifies digital archives. There is an active public relations policy for information specialists and the general public.

The three partners represent their libraries in the nestor coordination group, where the overall topics are discussed and decided. The coordination group prepares drafts for the directors' circle, such as the budget and the annual plan of projects nestor will undertake. TIB and ZBW are members of the directors' circle where strategic decisions of nestor are made.

The activities of the partners in nestor are many-sided. E.g. in 2017, the ZBW and nestor organized an annual conference—the nestor-Praktikertag—(https://www.dnb.de/Webs/nestor/DE/Veranstaltungen_und_Termine/Praktikertag/2017praktikertag.html?nn=182262) at ZBW's premises in Kiel. This conference is a German conference for specialists in digital preservation with speakers from many countries.

Staff from the German National Specialist Libraries worked on nestor-materials (https://www.langzeitarchivierung.de/Webs/nestor/EN/Publikationen/nestor_Materialien/nestor_materialien_node.html), such as the treatment of different media in digital preservation (<http://nbn-resolving.de/urn:nbn:de:0008-2016102107>) and a guideline for preservation policies (<https://d-nb.info/1060881101/34>). All libraries presented papers at nestor-Praktikertag and other events organized by nestor or its working groups.

The networking within nestor has many positive effects on the libraries and their collaboration. A member of the ZBW headed the nestor working group “Preservation policy” which developed a guideline for preservation policies that the ZBW and its partners used as a basis for the joint preservation policy of the libraries and for their own individual policy (Link see above). One member of TIB and one member of ZBW joined the nestor working group “Certification” and communicated their experiences with the application for the DSA and the nestor-seal into this working group.

All three libraries take part in the nestor working group of format identification (https://www.langzeitarchivierung.de/Webs/nestor/EN/Arbeitsgruppen/AG_Formaterkennung/ag_formaterkennung_node.html). This working group was founded in 2014. Since then, several useful articles have been published in the nestor wiki and the working group members have contributed presentations and papers all around the issue of format identification and validation at national and international conferences. In 2017, the working group has organized the yearly conference, the nestor-Praktikertag (see above), which was hosted by the ZBW. All contributors were chosen by the working group experts. The day after the conference, a workshop about format identification and validation took place which was completely run by the working group.

The nestor working group “documentation of digital preservation” (<https://www.langzeitarchivierung.de/Webs/nestor/EN/Arbeitsgruppen/>

AG Dokumentation der digitalen Langzeitarchivierung/ag dokumentation_digital_LZA_node.html) concentrates on which and in what way information needs to be documented in digital preservation. The archive itself, i.e. an organization that intends to preserve information for access and use by a designated community, has to be understandable for the designated communities according to OAIS. The working group was founded in 2018 and is led by ZB MED. Its main goal is to develop a guideline for practitioners who are responsible for documentation in an archive.

But there are more synergy effects from the collaboration of the German National Specialist Libraries in networking with nestor: the libraries can participate in more working groups than would be the case if they acted on their own. They share the knowledge they gain in nestor and they are able to disseminate their own special knowledge into the nestor network.

5.2. Networking with the Open Preservation Foundation (OPF)

The OPF (<https://openpreservation.org/>) is an international organization that supports collaboration in technology and knowledge creation needed to develop digital archives and digital preservation capacity. It fosters alliances and technology transfer. OPF was founded in 2010 as the Open Planets Foundation to sustain the results of the Planets project which was the starting point for this network. In 2014, OPF changed its name to better reflect its purpose and launched a new vision, mission, and strategy.

- Vision: Shared solutions for effective and efficient digital preservation.
- Mission: The OPF sustains technology and knowledge for the long-term management of digital cultural heritage.

Like nestor, the OPF maintains different working groups. TIB is active in the Board of Directors, and the JHOVE product board. The effects on the collaborating libraries are similar to the ones mentioned in connection with nestor.

JHOVE (<https://jhove.openpreservation.org/>) is a central product of the Open Preservation Foundation (OPF). It is a file format identification, validation and characterization tool that has been developed by Gary McGath of the Harvard University Library. The OPF advances this tool. It is implemented

in Rosetta. Format identification and validation is very important for digital preservation, since the knowledge about the actual format of a digital document or object is crucial for the choice of appropriate preservation planning measures. This is why the German National Specialist Libraries are particularly interested in networking with the OPF and perform research on this topic with the aim of improving the performance of JHOVE.

5.3. Networking within the Rosetta User Groups

The libraries contribute to two user groups for Rosetta.

The Rosetta User Group (RUG) (<https://igelu.org/archives/4082>) is the international user group that assembles members from all countries once a year at different locations. The RUG organizes working groups for different topics and the TIB and the ZBW are active in the format library working group, the system operation working group, the delivery and integrations working group and a digital preservation working group. The TIB heads the digital preservation working group and is a member of the RUG steering committee. In this context, the libraries were in close contact to the National Library of New Zealand, one of the first libraries that used Rosetta (Bähr et al., 2012, p. 26).

The German Rosetta User Group (DRAG)¹⁰ is a network of German-speaking users of Rosetta. This group meets once a year in Germany and engages in lobbying of development requests of particular interest to German users.

6. Benefits and Risks of Collaboration in Digital Preservation

6.1. Risks of the Cooperation

One risk of a cooperation is the risk that a partner is closed down or leaves the cooperation. In 2016 the TIB specifically analyzed the risks associated with losing a consortial member, evaluating impacts on a technical, legal and organizational level (Lindlar, 2016). These publications helped to find ways to improve the collaboration between the three partners. In any case, it is necessary to have an exit strategy, in order to be sure that the effort of all the years can be transferred, if anyone wants or has to leave the cooperation.

There have been other risks as well, but the libraries have treated them as challenges and have found solutions to cope with them. E.g., there is the risk of compatibility related to different vocabulary and metadata (see above). The capacities for digital preservation are different in size and tasks that affect the work sharing in this collaboration. There are different strategies towards digital preservation and its priorities. These latter aspects have been mitigated by the common preservation policy (see above) and do not impact the daily work.

6.2. Lessons Learned

To fully exploit the benefits of collaborations such as the cooperation in digital archiving, those involved have to be aware of existing weaknesses and threats in order to mitigate these risks as early as possible. A classical management tool for strategy development is the SWOT analysis, which analyses strengths, weaknesses, opportunities and threats. Bähr and Lindlar conducted a SWOT analysis specifically for consortially operated digital preservation systems, building on the experience gained in the pilot project between 2009 and 2012 (Bähr & Lindlar, 2013).

The German National Specialist Libraries have special needs for communication and information because of the geographical location of the libraries and their different sites. Two of the libraries (TIB and ZBW) use the same union catalogue, which is an advantage. But there are different needs concerning metadata in these libraries and a common metadata mapping is not easy (Lindlar, Friese, Müller, Bähr, & von Trosdorf, 2013).

6.3. Benefits of the Cooperation

Sources of synergies are the different organizational views on challenges of digital preservation. There is always a fruitful discourse on topics of interest because every partner contributes different aspects for solutions and development. As noted above, the German National Special Libraries have similar functions for different user groups and subjects. Therefore it is relatively easy for these libraries to use a similar vocabulary. The problem is digital preservation vocabulary itself. But that's a challenge for the whole community of experts on digital preservation and not bound to an individual partnership.

The collaboration in digital preservation of the German National Specialist Libraries is one of the most successful areas in the general cooperation of these libraries. After about 10 years of working together, there are established structures that support the preservation activities in an efficient way and that help to keep up with the community and yield and disseminate new knowledge in this community.

7. Conclusion

The German National Subject Libraries cooperate already 10 years in the field of digital preservation. Their digital archive is productive since about 5 years. They found ways and means to work together in a field that has quickly changing determining factors because of the fast technical progress of formats and IT-technology. Therefore the cooperation covers not only the common usage of the digital preservation system but also the collaboration in research on format identification, improvement of tools and the like.

There are substantial benefits for this cooperation and also for the communities, in which the partners act. The most important benefits arise from synergies from using the common preservation system, two of the libraries act as customers and the third as host. That saves costs for specialists of the two partners that act as clients. But they pay the host for the outlays of hosting the system and maintaining the IT-infrastructure and the personnel needed for this.

The collaboration with networks and other outside partners is a second source of synergies, because each library can specialize in a field that is necessary for keeping up technologically with the Joneses, and the partners (and the community of specialists in digital preservation) can share the results. The engagement in different networks that cope with digital preservation topics strengthens also the collaboration, since it secures a vivid transfer of knowledge in the community of specialists for this topic.

The German National Specialist Libraries will further develop their organizational model for cooperation, but they are content with the situation as it is at present. It may be that this model can serve as a blueprint for other cooperations.

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Notes

¹ There are some publications on cooperation in digital preservation to be mentioned: Altenhöner and Steinke, 2010; Altenhöner, Brantl, and Ceynowa, 2011; Trehub and Wilson, 2010; Walters and Skinner, 2010.

² Until 2017 the collaboration of the German National Specialist Libraries had the name Goportis. The libraries gave up this label and their cooperation is now known as “the collaboration of the German National Specialist Libraries”. General information about collaboration in digital preservation can be found in <https://phaidra.univie.ac.at/view/o:377394>.

³ There is an abundance of literature on digital preservation. E.g. nestor—network of expertise in long-term storage of digital resources in Germany (<https://www.langzeitarchivierung.de/Webs/nestor/EN/Home/>) offers literature and other information material in English (see https://www.langzeitarchivierung.de/Webs/nestor/EN/Publikationen/publikationen_node.html). Famous is the OAIS-Model that describes the whole process of digital preservation (<http://www.oais.info/>).

⁴ A broad description of the identification of skills needed for digital preservation can be found in Bähr, Lindlar, and Vlaeminck (2011).

⁵ ETH went productive in 2012 with workflows for its E-Collection and in 2014 for the preservation of research data.

⁶ The data seal of approval has been transferred to the Core Trust Seal meanwhile. See <https://www.coretrustseal.org/about/history/data-seal-of-approval/>.

⁷ The nestor seal is an extended self evaluation that is reviewed by members of the nestor working group for certification (https://www.langzeitarchivierung.de/Webs/nestor/EN/Zertifizierung/nestor_Siegel/siegel.html).

⁸ See: <https://www.goportis.de/en/digital-preservation/goportis-long-term-digital-archives-preservation-policy.html>.

⁹ Preservation policy of TIB see: <https://www.tib.eu/en/service/tib-preservation-policy/>, of ZB MED: https://www.zbmed.de/fileadmin/user_upload/Profil/PDFs/ZB_MED_Preservation_Policy.pdf, of ZBW: <https://www.zbw.eu/en/about-us/key-activities/digital-preservation/preservation-policy/>.

¹⁰ Information on DRUG is available at <http://dachela.org/DACHELA>.