Benefits of geographical, organizational and collection factors in digital preservation cooperations: The experience of the Goportis consortium

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ABSTRACT
Digital preservation is a resource intensive task, requiring specific systems, well-trained staff and an ongoing commitment to adopt new strategies and approaches as technology and/or user expectations change over the course of time. Cooperations to tackle this task are not a new idea - one of the first reports on digital preservation, commissioned by the Center for Preservation and Access (CPA) and the Research Library Group (RLG), recommended a "national system of digital archives" [12]. In the library context consortia date back to the 1970s, where they rose in the context of shared cataloguing efforts. Over the years experiences have been gained in different forms of cooperations and consortia. Some are focused on a grouping of institutions based on institution type or regional factors, while others are more cross-sectional services, focused around factors like material type. The Leibniz Library Network for Research Information (Goportis) consists of the three German National Subject Libraries [19]. Goportis conducted a digital preservation pilot project between the years 2009-2011 and is now operating a collaboratively used central digital preservation system. The paper highlights the lessons learned from experiences in the collaborative approach to digital preservation, focusing on the influence the factors "geographical location", "organization type" and "collection" have on a shared system implementation and operation. Based on a literature study of international best practices, guidelines and recommendations a thesis will be formulated for each of the three factors, which will then be checked against the experience gained by the Goportis consortium.

Categories and Subject Descriptors
H.3 [**INFORMATION STORAGE AND RETRIEVAL**]: Systems and Software – *Information Networks.*

General Terms
Management, Documentation, Reliability, Human Factors, Standardization, Legal Aspects

Keywords
Library Network, cooperative conducted Digital Archive, Consortial Digital Preservation

1. INTRODUCTION
Forming cooperations to tackle complex tasks is not a new phenomenon in the world of cultural heritage institutions. Collaboration, in contrast to a mere cooperation, refers to an "in-depth sharing and pooling of resources" [6]. The main motivation for engaging in library consortia is the benefit of sharing resources and experience. Collaborative cataloguing efforts and digitization projects date back to the 1970s. It thus comes as no surprise that the digital preservation world is now looking back at many years of experience in collaboratively run systems. Early initiatives in consortial digital preservation systems include system developments like DAITSS (Dark Archive In The Sunshine State), the preservation repository system of the Florida Center for Library Automation, targeted towards the 11 publically funded universities in Florida or the MetaArchive, an international collaboration and one of the first private LOCKSS networks in the world.

When looking for partners for collaboration, three factors usually play a role:

- geographical distance or association, e.g. in the form of city-wide or national cooperations
- organizational association, e.g. in the form of collaborations of library consortia or state archives
- collection factors (subject and/or material type based), e.g. in the form of collaborations to handle geospatial information or web-archiving

Goportis - the Leibniz Library Network for research information - consists of the three German national subject libraries: The German National Library of Science and Technology (TIB), the German National Library of Medicine (ZB MED) and the German

National Library of Economics (ZBW). The three Goportis partners have been conducting a digital preservation project since 2010, first an 18-months pilot and since the end of 2011 a running digital preservation system. It is our aim to support individual scientific workflows and research. We want to build a sustainable trustworthy digital preservation system for the three National Subject Libraries in Germany. Our three institutions have the mandate for Archiving and the responsibility for the long-term-access of our digital objects. Cooperative work supports learning from each other, bundling our resources and avoiding redundant work. Therefore, we can handle the task of digital preservation more cost-effectively and engage in efficient workflows.

The benefit of consortial digital preservation lies in working more effectively or efficiently, usually by bundling resources like staff skills and expertise. Furthermore, consortial digital preservation can be more cost-effective, if an out-of-the-box system is bought by the whole consortium or the storage is organized centrally (positive economies of scale). This definition meets the aim of the Goportis digital preservation collaboration, which, in contrast to a mere cooperation, refers to an "in-depth sharing and pooling of recourses" [6].

The chapters 2, 3 and 4 of this paper highlight the experiences gained by the three libraries by analysing the influence the factors "geographical location", "organization type" and "collection" have on a shared system in implementation and operation. Based on a literature review of international best practices, guidelines and recommendations, theses for each of the three factors are formulated and checked against the experience gained by the Goportis consortium. Within the scope of this paper, the analysis will focus on collaborations of different institutions in running a jointly operated digital preservation system. Collaborations with a mere focus on standardization or knowledge exchange, as well as collaborations where one partner only provides the development of the system, are out of scope.

2. Factor: Geographical location

A consortium of memory institutions, founded to cooperatively conduct a digital archive, can be based on geographical location, which means that all partners are located in the same country or even in the same state or county. As for implications, this may include national legislature or legal restrictions.

Public institutions like libraries, archives or museums, which are located in the same country or even in the same state, typically share other commonalities like the legislation and similar tasks and responsibilities. Digital preservation can be one of them. For German national libraries, for example, digital preservation is mandatory.

Institutions based in the same region are likely to belong to the same scientific community and to have already worked together before. Libraries which are located in the same part of Germany may be connected to the same union catalogue.

2.1 Analysis of existing guidelines, best practices and reported experience

The location of the collaboration is crucial [6] and geographical closeness makes collaboration "more likely to occur and easier when it happened"[7]. Besides, general cooperation benefits like sharing "physical resources such as space and conservation of collection" [7], carry more weight when the collaboration partners are located in the same region.

Collaboration based on geographical location bears specific benefits as well. In the UK, for instance, memory institutions like libraries and museums share the same policies, have to support the conservation of collective memory and share the same cultural identity [11].

In the following, three examples of geographically defined consortia in digital preservation are described. DAITTS - if you consider the FCLA service as well - is limited to the state of Florida; nestor and kopal are limited to Germany.

The long-term preservation repository service DAITTS, Dark Archive in the Sunshine State, was developed by the Florida Center for Library Automation (FCLA) and supported by the IMLS (Institute of Museum and Library Services). It is used by ten of the eleven publicly funded universities in Florida.

As all institutions are located in the same state, the same law is valid for all of them. When dealing with copyright issues, the same laws and rules are valid for all partners. Hence, findings should be shared to avoid redundant work and to use synergy possibilities of the cooperation.

Metadata standards often differ - sometimes even within the same institution and "different standards are often based on different formats"[4]. Interoperability is crucial when running a digital archive together.

The metadata schemas and standards used for the several catalogues in the University Libraries of Florida are heterogeneous, MARC21 is widely spread, but so are ALEPH, Dublin Core, AACR2 and many more. Although the university libraries are located in the same state, the commonalities do not extend to the metadata standards used, so a central solution or one workflow for all partners is not possible for reasons of heterogeneity. DAITTS is capable of dealing with the needs of the different consortium members, as it uses PREMIS and METS, so it is possible to embed several different kinds of standards in the metadata information of the Archival Package. Within DAITTS, the archiving institution is responsible for adding adequate descriptive metadata to its objects itself [5].

Nestor, the German competence network for digital preservation, was founded in 2006, and with 14 members it is the biggest consortium for digital preservation in Germany. The network aims to generate guidelines for topics related to digital preservation and to develop standardizations, e. g. for trusted repositories [22]. All partners contribute with their knowledge and experience and establish infrastructures (eight topic-based nestor working groups, public websites, internal wiki, newsletter via email, downloadable publications and guidelines) to share their findings and research transparently for either the other partners or even for the whole German community so that everybody can benefit. For instance, as memory institutions in Germany all share the same legislation, a new nestor working group was founded in 2012 to establish a guideline to develop preservation polices [22].

Kopal [21] started in 2004 and the partners were the National Library of Germany (DNB) [18], the State and University Library of Göttingen (SUB Göttingen), IBM Germany and the data centre GWDG (Gesellschaft für wissenschaftliche Datenverarbeitung in Göttingen). The project aimed to establish a cooperatively built and managed long-term preservation system for digital objects [1]. The system intended to implement the components of the OAIS model and to create the technical prerequisites for digital preservation. The storage solution is based on the DIAS system (developed by IBM), the ingest and access tools are based on the

open source software library koLibRI. The system was created in a way that several partners would be able to use it [2]. From the first, the metadata management of the DIAS system was configured generically, so that the needs of the different partners could be fulfilled [2].

The kopal test system was fully developed in 2010. Although the segmentation of the responsibilities between the project partners and the communication about technical standards and details proved to be complex, practical experience showed that it is functional and feasible [2].

Based on kopal, there was a follow-up-project, DP4Lib, funded by the German Research Foundation (DFG), which aimed to offer digital preservation as a service for public institutions in Germany [17].

2.2 Theses

2.2.1 Thesis 1: Being located in the same country simplifies the sharing of findings referring to legislation issues

A consortium based on geographical location bears an advantage referring to legislation. If all partners belong to the same country - or even to the same state - the same laws like e. g. the copyright law and telecommunications act apply to every partner. This makes it easier to stick to the same rules, to act upon the same policies and to organize issues like storing the objects and providing access for users similarly.

2.2.2 Thesis 2: Using the same union catalogue bears synergies referring to metadata workflows

Members of a consortium based on geographical location are likely to belong to the same library network and to use a common union catalogue. However, institutions from the same state (Bundesland) do not necessarily belong to the same network. In fact, it may even occur within the same library that diverse catalogues and metadata standards are used.

But if the partners actually do belong to the same library network, it can be useful to build on already existing infrastructure and established standards. A common standard which several partners have already agreed on usually has a twofold purpose: First, redundant work can be avoided. If a document already has an entry in the union catalogue, the other partners are able to re-use and/or extend the metadata. Second, standardization is supposed to improve interoperability and collaboration possibilities between several partners. In terms of ingesting objects into a cooperatively conducted digital preservation system by institutions which use the same union catalogue, metadata enrichment workflows are possibly the same for several partners and can be re-used, which saves personnel time and money.

2.3 Goportis' experience

As mentioned in the introduction, the Goportis consortium members all are located in Germany; but in different states.

2.3.1 Thesis 1: Being located in the same country simplifies the sharing of findings referring to legislation

The German national library and the German national subject libraries all have a collective order, the mandate, to ensure long-term-accessibility for their digital material. Hence, all three Goportis partners have to fulfill the same task, as prescribed by German legislation. Furthermore, the copyright issues are the same for every partner. Problems and tasks about copyright law can be solved in one of the three institutions, by the legal department, and the answers will be valid for all three partners. This bears synergy possibilities as the findings of the legal department of the institution are valid for all consortium members. Copyright limitations are the same for each partner, which makes it easier to formulate a common preservation policy for the Goportis consortium as well. To be subject to the same legislation has simplified consortial work for the three Goportis institutions.

2.3.2 Thesis 2: Using the same union catalogue bears synergies referring to metadata workflows

Although the three libraries are located in different states (Bundesländer) of Germany, two of them - the TIB and the ZBW - both use the union catalogue GVK of the GBV consortium, which uses PICA as a metadata standard. The ZB MED, however, uses a different one, which is based on ALEPH. For the metadata enrichment it is necessary to transform the metadata form PICA and ALEPH to Dublin Core, which is used as a metadata standard in the Goportis digital preservation system. The ZB MED developed its own metadata mapping from ALEPH to Dublin Core, which was installed separately and did not cause any problems.

The other two institutions intended to develop a common metadata mapping to use possible synergies. This, however, did not work out, as the needs and priorities of the catalogue departments of the two institutions differ too much. Lots of compromises had to be made and the different opinions on the mapping caused a time delay. In the end, the responsible staff members could not agree on some last important metadata fields and it was decided that the two institutions will have separate mappings to be able to fulfill their wishes. In the end, trying to agree on one common metadata mapping had not only not worked out but caused a time delay and much more work than it would have been if the two institutions had had two different mappings from the start. Surprisingly, this commonality has turned out to be more of a disadvantage in the end. The thesis is not supported by the experience of the Goportis consortium so far.

3. ORGANIZATION TYPE

Harold Leavitt defined an organization as "a particular pattern of structure, people, tasks and techniques" [9].In common discourse within the digital preservation context, differentiation mainly takes place at the organization purpose level, that is whether addressing businesses or cultural heritage institutions - or, to be more specific within the latter - whether talking about libraries, archives or museums. But even within an organizational purpose like "library", one needs to distinguish further. One factor is the "level", where the organization is located, whether it is an organization that operates at a national, state, city or institutional level. This is furthermore closely tied to the governance over the institution. That "level" and "governance" do not need to be congruent for comparable institutions is easily demonstrated in the case of national libraries, which can be tied to a specific governmental ministry or be independent acting branches.[1]

[1] To state a few examples: while the Library of Congress is directly administered by Congress, the National Library of New Zealand is a branch of the Department of Internal Affairs. In Germany, the national library would theoretically be part of a ministry of culture - due to federalism, such a ministry does not exist at a national level, which puts the German National

The mission of an organization is often based on "level" and "governance" - i.e. a university archive, a national museum or a state library. Size in budget, staff or collection are other ways to distinguish between organizations. A last factor, which is often overlooked but plays a big role in cooperation, is the difference in methods of operation.

3.1 Analysis of existing guidelines, best practices and reported experience

Little analysis has been done on the impact of organizational structures on digital preservation collaborations. However, it can be assumed that a large number of organizational factors influence cooperations regardless of the subject matter. No significant literature could be found describing collaborations between the industrial sector and the cultural heritage domain.[2] In a report exploring the partnerships between organizations of the cultural and educational domain, Walker et al [15] list compatibility as one of four types of risks, stating that "[...] different institutions can clash — museum curators and librarians disagree on how much and what kind of interpretive materials patrons should receive, as shown in nearly all of the digitization projects and joint exhibitions we reviewed." [15]. The other three types of risks identified are capacity, strategy and commitment. Walker and Manjarrez further describe that these risk types emerge out of 3 risk sources: innovation, complexity and institutional interdependence. The degree to which these principles are integrated into an organization will directly influence the cooperation [15]. The report suggests a number of risk mitigation strategies for collaborations (see table 1).

Table 1. Risk mitigation strategies after Walker and Manjarrez

Define clear goals and objectives	What are the projects about? What are the partners expected to accomplish?
Establish feasible timetables of tasks and deliverables	Who does what, when?
Ensure timely communication among project staff	Who knows what, when?
Make clear and appropriate project assignments	Who is responsible for what?
Recognize contribution	Who gets credit for what?
Connect like with like	Where's the right match-up across institutions?
Borrow models	Has something like this been seen before?
Accept increased risk of failure	What really counts as success when there are no benchmarks?
Create consultative mechanisms	Who should have a say, and how should they say it?
Involve senior staff in project review and decision-making	What problems require high-level resolutions?

In a call for collaborative action amongst libraries, archives and museums in the digital library domain, Liz Bishoff [4] lists the "metadata migraine" as a concrete example for risks or problems in collaborations of different organization types [4]. Different metadata standards can be seen as an epitome of problems associated with different vocabulary in cooperations. As Bishoff states, "Institutions may have common goals and visions, but they lack a common language. This lack of shared vocabulary regularly causes the professionals to talk at cross-purposes. For example, one element in a Dublin Core record is contributor. To librarians, the contributor has a role in the creation of the work - as the illustrator, translator, or photographer. To museum professionals, the contributor is a donor."[4].One benefit of inter-organizational collaborations is that of shared professional resources, offering new perspectives and insights [4].

Gibson et al explored collaborations between libraries and museums, allocating different organizational cultures and roles as the main sources of risk, which are manifested in regard to assets, personnel and professional training as well as in regards to the aforementioned terminology. Major threats derived from these risk sources are the domination of a larger partner, differences in procedure, contrasting funding sources or examples with a finer granularity, such as poor IT provision in one institution. In addition to the benefit mentioned by Bishoff [4], Gibson et al list "fostering of best practice from both institutions" and the sharing of policies [7].

It is questionable that institutions collaborate based on the factor "organizational type" alone. Usually the main drivers lie elsewhere, e.g. in similar collections, in a regional based collaboration or collaborations stimulated by a superordinate institution.

An exception to this seems to be the MetaArchive Cooperation. The foundation of the MetaArchive, which dates back to 2003, was formed by six US libraries. The organization grew into an international cooperation of different cultural heritage institutions, including libraries, museums and archives. Halbert groups most participating organizations together as cultural memory organizations, stating that "By 'cultural management organizations' I mean small to medium-sized libraries, archives, museums, and historical associations, and not enormous national agencies like the US Library of Congress or the British Library" [8]. MetaArchive forms an organizational and technological framework, utilizing a LOCKSS based infrastructure, and sees itself as "not a service provider, but a mechanism for building expertise and skills within a community-run preservation network" [16].

Communication between the members and the organization itself is facilitated through several channels: the organization itself employs a small staff-base which includes the role of the "Program Manager" and the "Collaborative services librarian". Additionally, various committees exist to address strategically and operational issues [16].

An example of an inter-organizational cooperation stimulated by a superordinate institution can be found in New Zealand. The National Library of New Zealand and the Archives New Zealand are two organizations which are comparable in governance and size, but have a different organization purpose. The organizations conduct a close cooperation in digital preservation using a joint system implementation. A joint digital preservation strategy has been written and published, describing mission and scope as well as high-level actions and role and responsibilities. One of the central purposes identified in this strategy is to "create a common understanding of digital preservation across and within the two

Library under the sovereignty of the federal commissioner for culture and media.

[2] This refers to cooperations in open-ended operative tasks and not to project-based or service based cooperations, as in the case of the development or support of a specific software

organizations" [3]. A number of "Digital Preservation Principles" were agreed upon to realize and express this common understanding. These principles include the recognition of the full preservation scope including constant management and recognition and adaption of international standards. The joint strategy leaves room for institutional decisions in regards to authenticity and integrity of the data, stating "the integrity [the authenticity] (as defined by each organization) will be retained [will be guarded and assured] through all preservation actions". Both institutions agree on not changing the original and leveraging all preservation action on a copy of the original object [3].

3.2 Theses

3.2.1 Thesis 1: Synergies through different organizational views

Organizations bring institutional knowledge and expertise into a collaboration. The knowledge and expertise can be derived from any part of the organization - its structure, people, tasks or techniques. Because no organization is like another one would assume that collaborations can benefit from the knowledge and expertise of its participants regardless of whether the organizations are of similar type or not.

3.2.2 Thesis 2: Similar organization types use similar vocabulary

Different organization types make use of different vocabulary. The literature study shows several examples where this posed a problem, for example in the form of differently used metadata fields. It should be assumed that a high similarity in organization type leads to a high similarity in vocabulary used.

3.2.3 Thesis 3: Different organizational cultures within a collaboration may form a "hidden risk"

Organizational culture demake anines how an institution works. Any organizational culture is formed by a number of factors, personnel and procedures being two of the major ones. Furthermore, organizational culture is not linked to organization type. It should be assumed that different organizational cultures within a collaboration may form a "hidden risk".

3.3 Goportis' experience

As national subject libraries, the three Goportis partners are of identical type. Furthermore, they are the only libraries of that specific type ("Zentrale Fachbibliotheken") within Germany, covering superregional, highly specialized information needs. All three partners share the same mandate of an archival library. Nevertheless, the three partners differ in many aspects, such as subjects, staffing size, holdings size or implemented technological systems.

3.3.1 Thesis 1: Synergies through different organizational views

The Goportis experience in regard to different organizational views can be broken down into three dimensions: a subject-driven synergy, an infrastructure-driven synergy and a personnel-driven synergy.

Beyond the basic scope of information providers, the procedures and furthermore the understanding of the three partners are tailored towards the needs of their respective designated communities, which in return differs based on the subject each library covers. This has a direct impact on the media and information types held in the institutions, on the way this information is presented to the respective designated community, and on overall themes of interest to the library.

As the strongest use of non-textual materials can be found in the area of science and technology, TIB places a focus on that subject matter. With the inclusion of non-textual materials - in particular AV and 3D materials - in the institutional digital preservation strategy, TIB is developing procedures which the other partners can benefit from.

An example for infrastructure-driven synergy can be found in the realized workflows. ZBW, for example, developed a submission application-passing object from ZBW's Dspace-based "EconStor" repository to the digital preservation system. The experience made there was shared with developers from the other institutions and provided valuable input for other developments.

In regard to personnel-driven synergy it has to be said that at the start of the digital preservation pilot project, the subject matter of digital preservation itself was a new task for all three libraries. Nevertheless, the three project managers - one for each library - could draw on experience from different fields of expertise (e.g. project management, information technology, research data). While this constellation of "prior experiences" may have been accidental, it proved to be very beneficial to the project. The project team managed to leverage what Walker calls "borrow models: Has something like this been seen before?" [15] in several ways: in regards to prior work experience, in regards to general procedures within their respective institutions and in regards to concrete project tasks (i.e. questions regarding tools).

3.3.2 Thesis 2: Similar organization types use similar vocabulary

As institutions of the same type with comparable procedures, especially the terminology used by the library experts needed no or little further explaining within the pilot project of the Goportis consortium. Maybe most importantly, Bishoff's "metadata migraine" [4] was not encountered. The thesis of a high similarity in organization type leading to a high similarity in vocabulary used absolutely holds true in that regard. A problem with vocabulary or terminology was, however, encountered in regards to digital preservation vocabulary itself. Concrete examples for this are terms like "preservation planning" and "risks". The partners defined procedures differently or described something as a "risk" which another partner did not see as one. This is certainly tied to the fact that digital preservation is a comparatively new task for the Goportis partners themselves, but also on global perspective - at least in comparison to well established processes like cataloguing in a library context. While the institutions are trying to connect the terminology to concrete tasks and procedures within their institutions, the terminology itself maybe in a state of slight fluctuation, so to speak. The thesis that similar organization types use similar vocabulary can thus not necessarily hold true for new practices. Based on the Goportis experience, it is advisable come to a common understanding of these terms. This can take place on a higher level, still ensuring enough room for institutional developments within a set scope of a certain term.

3.3.3 Thesis 3: Different organizational cultures within a collaboration may form a "hidden risk"

Organizational culture determines how work is conducted within the institution - hierarchy, communication style and structure are just a few examples of such influences. Not every organizational culture supports projects to allow a certain (limited) "room for

experiment".[3] Simultaneously "room for experiment" is valuable to the learning procedure for personnel and organization as a whole - especially when new tasks are concerned. Furthermore, it fosters a "cross-boundary" thinking, as it was the case in the personnel- driven synergy described in thesis one. Such outcomes are only possible if the organizations within the cooperation either employ the same "room for experiment" or are at a minimum not opposed to it within the context of the cooperation. Another example of an organizational culture-related fact is that of hierarchy and structure. Institutions position digital preservation in different positions within their organization - for some, it may be a cross-sectional task, making use of resources from different departments. For others, there is a dedicated digital preservation team or unit within a larger department. A third solution is digital preservation as a management's staff unit. The Goportis experience showed that especially for the project phase, while the institutions are still trying to define their own institutional needs for a cooperatively run system, the implementation of digital preservation as close to management as possible was extremely helpful. It formed a necessary basis for the decision on where digital preservation shall be positioned within each institution as an ongoing process. Also, the position should be clearly communicated within the cooperation, because understanding decision-making processes within partner institutions constitutes vital information.

4. COLLECTION MATERIAL

Generally collection material or subject are common reasons for libraries to collaborate:

Forming consortia to acquire similar materials is a practice often used in libraries, especially in respect of electronic resources. Advantages consist not only in a bigger market power, but also in sharing technical and legal expertise [13]. Cataloguing offers another possibility for collaboration (e.g. union catalogues, ZDB (Zeitschriftendatenbank, the world's largest specialized database for serial titles [26]).

Subject collaboration between libraries has a long tradition in Germany: the special interest collection plan of the Deutsche Forschungsgemeinschaft (German Research Foundation) supports the cooperatively distributed collection of specialized material in academic and research libraries all over Germany to meet the needs of the research community at German universities and research institutions [25].

4.1 Analysis of existing guidelines, best practices and reported experience

Expertise and technology are substantial factors of digital preservation [16]. To a large extent they depend on the library material which is to be preserved. So it seems probable that consortia with similar collection materials may benefit most from the collaboration.

But there are risks in collaborating with institutions with a similar scope of collection: Halbert [8] claims the necessity of new kinds of collaborative organizational frameworks, because (in his case) Cultural Memory Organizations are competitors for institutional prestige. In case of other institutions, competition for patrons or, directly or indirectly, monetary funds is imaginable.

[3] It has to be said that this may also of course depend on the type of project conducted.

Examples of consortia or collaborations based on common collection materials or subject are Kopal [21], PrestoCentre [24] or the North Carolina Geospatial Data Archiving Project [23].

Kopal, described above, for example developed the software koLibRI [20] to prepare the archival objects, handle the communication with the archival system used in the project and organize workflows for ingest, access and file format migration [1]. So it is evident, even if that fact isn't directly addressed in the papers, that synergies are created by working with library materials which consist of technically identical or closely related files and formats.

Shared interest in the long-term preservation of audiovisual material is the main characteristic of PrestoCentral. The PrestoCentre Foundation is a non-profit organization registered in the Netherlands under KvK54274427. It is a membership-driven organization that brings together a global community of stakeholders in audiovisual digitisation and digital preservation to share, work and learn. PrestoCentre works with experts, researchers, advocates, businesses, public services, educational organizations and professional associations to enhance the audiovisual sector's ability to provide long-term access to cultural heritage (from https://www.prestocentre.org/about-us).

The North Carolina Geospatial Data Archiving Project ran from October 2004 to February 2010. The joint project of the North Carolina State University Libraries and the North Carolina Center for Geographic Information and Analysis focused on the collection and preservation of digital geospatial data resources from state and local government agencies in North Carolina [23]. NCGDAP focused less on technical architecture than it does on partnership building and on engagement with spatial data infrastructure. The purpose of the demonstration repository II developed for NCGDAP has been: 1) to catalyze discussion within the geospatial data community about archive development, and 2) to generate learning experiences about domain-specific technical challenges associated with preserving geospatial data. To this end, a demonstration repository using DSpace was deployed, and over four terabytes of data have been acquired. A robust repository ingest workflow was developed to handle the transformation of complex multi-file, multi-formats formats into discrete digital repository items [10]. So in this project the focus was laid on the subject as well as on the formats of the preserved material.

4.2 Theses

4.2.1 Thesis 1: Similar collection materials reduce the overall costs for the collaboration

Similar collection materials enhance the positive effects of the collaboration because of synergies and sharing of technical resources and material specific experience. So in respect to the factor of collection material it makes sense to mention the cost reduction by collaborations, even if this aspect was excluded in the overall paper.

4.2.2 Thesis 2: Similar but not identical subject of collection improves the collaboration

A similar, but sufficiently different subject scope of collection addressing different groups of patrons often results in similar collection materials but avoids competition between the partners. So the collaboration can benefit from the above mentioned synergies but prevents the complications of competition for patrons or monetary funds.

4.3 Goportis' experience

As mentioned above, the three Goportis partners are of one specific type („zentrale Fachbibliotheken") within Germany, covering superregional, highly specialized information needs and sharing the same mandate of an archival library. Nevertheless the three libraries cover different subject areas with overlapping collections at peripheral areas. Their patrons benefit from the collaboration by a broader range of information and comprehensive collections even in the respective peripheral areas of collection.

4.3.1 Thesis 1: Similar collection materials reduce the overall costs for the collaboration

At the beginning of the pilot phase, the three partners concentrated deliberately on collections of the same material type (electronic dissertations and reports) in order to simplify the development of basic workflows. With growing experience and knowledge of the long-term preservation system, the institutions began to preserve technically different collections (for example Press Archives, audiovisual documents, 3D materials). Nevertheless the exchange of experience goes on and facilitates and enriches both the answers to daily problems, such as the treatment of different format types and technical interfaces, and the development of new workflows as mentioned above.

Trehub [14] describes a comparable development for the ADPNet: in the beginning all partners used identical workflows based on identical hardware to reduce costs and maintenance of the system. With the network's growing maturity the necessity of having identical hardware got less critical.

4.3.2 Thesis 2: Similar but not identical subject of collection improves the collaboration

As described above, the three Goportis partners are of the same library type with a similar scope and collections but they serve different subject needs. This fact allows the libraries to collaborate closely but nevertheless to maintain their own specific strategies for long-term preservation. As the strongest use of non-textual materials can be found in the area of science and technology, TIB by example places a focus on that subject matter developing procedures for AV and 3D materials which the other partners can benefit from.

5. Conclusion

The Goportis consortium is based on all three factors analysed in this paper; the consortium members are located in the same country, belong to the same organization type and are similar in terms of the collection material. The literature review shows that these kinds of commonalities not only make a cooperation more likely to happen, but as well simplify cooperative work and increase synergy effects and benefit possibilities for the consortium members.

As for geographical implications, commonalities like the same legislation and affiliation to the same library network with a common union catalogue enable cooperation partners to share findings and workflows more easily. The Goportis partners all belong to the same organization type, thus similar tasks and goals make synergy effects much more likely. Similarities in collection material also bear much potential for reusable workflows among each institution. Self-developed tools and plugins can be exchanged, best practice methods to solve issues with a certain kind of material can be shared and re-used.

The experience from the Goportis collaboration in digital preservation shows that the main benefits of collaboration - bundling resources to install services which might not have been possible to establish alone and reducing personnel costs by avoiding redundant work and sharing findings - have a big effect on the three German subject libraries. It would not have been possible to install an effective and efficient digital preservation system to such an extent for one of the partners alone.

Commonalities, however, can as well be false friends. Even if the pre-conditions are similar and the same infrastructure is used, the output vision can still be very different between the institutions. Driving the consortial engine on auto-pilot can easily lead to problems like failed common workflows or misunderstandings in communication. Especially in a long-term-consortium like Goportis, the daily work and the once established workflows always have to be reviewed and re-evaluated. Watching the cooperation attentively is crucial to avoid organizational blindness and to maintain a successful and beneficial consortial digital archive.

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