DELIVERABLE

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1 INTRODUCTION

As planned in the Description of Work, during the last year PREFORMA organised an international conference with the aim to present the final results of the project to the wider audience, to share the consortium’s plans for the adoption and the sustainability of the project’s outcomes and to discuss about future challenges and opportunities in digital preservation.

The conference was originally supposed to be organised in Stockholm, hosted by the PREFORMA project coordinator, the National Archives of Sweden. However, due to the fact that the Estonian EU Presidency have been anticipated by 6 months as a consequence of the BREXIT, taking place in the second half of 2017, the PREFORMA consortium discussed the possibility to move the conference in Tallinn in order to have the possibility to link it to the programme of the EU Presidency. This change has been proposed then to the EC Project Officer and, once agreed, it was formalised in an amendment of the PREFORMA contract.

The Estonian Ministry of Culture, which is one of the PREFORMA partners and procurers, took over the organisation of the conference which was hosted at the National Library of Estonia. No budget shift was planned between Riksarkivet and the Estonian Ministry of Culture and all the direct costs for the organisation of the conference has been invoiced to the PREFORMA project coordinator, as originally planned.

This deliverable provides a report of the conference and it is composed by 6 main chapters and 1 Annex:

- Chapter 1 is the introduction.
- Chapter 2 describes how the conference was organised and how the programme was structured.
- Chapter 3 represents the core of the deliverable and provides a report of what has been discussed during the conference.
- Chapter 4 describes the dissemination activities that have been carried out to promote the event.
- Chapter 5 provides an overview of the people who attended the conference.
- Chapter 6 provides the conclusion.

The deliverable is complemented by an Annex which includes all the presentations that have been delivered by the speakers.
2 EVENT ORGANISATION

2.1 CONFERENCE VENUE

The PREFORMA International Conference was hosted by the National Library of Estonia. The National Library of Estonia (in Estonian: Eesti Rahvusraamatukogu) is the custodian of Estonian national memory and heritage, and acts as the repository centre of the Estonian literature and national bibliography, the main information provider for the Estonian parliament and many other constitutional institutions, a national centre of library and information sciences, a site for the continuing education of librarians, and also as a cultural centre.

The National Library building at Tõnismägi in Tallinn, specially designed for the library, was constructed between 1985 and 1993 and it is until now the largest library in the Baltic countries. It houses 20 reading rooms with 600 reader’s seats, a large conference hall, a theatre hall and numerous exhibition areas.

Due to its convenient location in the centre of Tallinn and a wide range of conference rooms and services, the National Library is a unique venue for holding different events, offering comfortable and stylish conference rooms, modern technical facilities and flexible service packages. The Conference Centre is located on the ground and first floor of the Library with an adjoining spacious foyer and a catering complex. In the foyer there are two cloakrooms for visitors, a book shop, and an exhibition hall.

The plenary sessions and the main track of the conference were held in the Conference Hall, a very big and modern auditorium which can accommodate up to 300 persons and which is already equipped with all the necessary technology and facilities to serve the needs of PREFORMA.

Simultaneous interpretation (two interpreters’ booths), audio-visual technology, a slide projector, computers, and Internet connection are available in the room. The Conference Hall is provided with an excellent sound and lighting apparatus, stage (4 x 9 m), large screen (9 x 6,5m), partially
ascending floor, and a grand piano. During the PREFORMA conference the stage was equipped with a desk for the keynote speeches and tables and armchairs for the panel discussions.

![Conference Hall](image1)

**Fig. 2 Conference Hall**

The coffee breaks and the networking lunch have been organised in the foyer, a very spacious area besides the entrance of the beautiful building. The foyer hosted also posters and demo sessions in order for participants to have the possibility to talk with the authors of the posters and to see live demos of the PREFORMA tools while having their coffee and lunch break.

![National Library foyer](image2)

**Fig. 3 National Library foyer**
2.2 PROGRAMME COMMITTEE

A Programme Committee (PC) was set up including the following representatives from the project consortium:

- Claudio Prandoni (AEDEKA Srl)
- Marju Niinemaa (Estonian Ministry of Culture)
- Eva-Maria Artus (National Library of Estonia)
- Börje Justrell (National Archives of Sweden)
- Antonella Fresa (Promoter Srl)

The PC focused on the definition of the programme and on the logistics and organisational aspects (venue, catering, registration, promotion, etc.). In particular, the PC main role was to:

- Define the Call for posters
- Structure the event programme
- Select and invite the keynote speakers
- Coordinating the logistics of the event
- Coordinating the speakers
- Setting up and monitoring the event registrations
- Establishing strategic partnerships with international, national and local authorities and initiatives
- Coordinating the dissemination of the event and the participants' recruitment activities
- Selecting and Coordinating the external providers
- Monitoring the event budget

2.3 EVENT PROGRAMME

The compilation of the programme was done taking also into consideration the following aspects:

- **two plenaries**: an opening plenary with welcome addresses by local authorities and a speech about PREFORMA to be delivered by the project coordinator, and a closing plenary summarising the discussions and presenting the plans for the future

- **two parallel sessions**: a main track discussing current and future challenges in digital preservation, how the PREFORMA tools can help memory institutions to improve their preservation workflow and policy, and how these tools can be sustained as open source projects after the end of PREFORMA; a demo track where participants can have a closer look at the PREFORMA tools, try to use them and ask questions to the developers

- **five keynote speeches** to be accommodated

- **two panels** (experiences from memory institutions using the PREFORMA tools and business models around open source software) to be included

- **a poster session** to be accommodated.

Thus, for the development of the programme of the Conference, the PREFORMA consortium decided to schedule the Conference as it follows:
**Wednesday 11 October 2017**

10:00 – 11:00 Registration and welcome coffee

11:00 – 12:30 Opening Plenary: Shaping our Future Memory Standards, Conference Hall

*Chair: Antonella Fresa, Promoter Srl, Technical Coordinator of PREFORMA project*

- Welcome messages (Kristel Veimann, National Library of Estonia; Tarvi Sits, Estonian Ministry of Culture)
- Conformance checking and file format validation in PREFORMA (Börje Justrell, National Archives of Sweden, Coordinator of the PREFORMA project)
- Why can’t they (files, formats, software, users, standards…) all just get along? (Julia Kim, American Folklife Center, Library of Congress)

12:30 – 13:00 Demo & poster pitches

13:00 – 14:00 Lunch break and visit to the poster session

14:00 – 15:30 Main Track: Long-term preservation of digital cultural content, Conference Hall

*Chair: Antonella Fresa, Promoter Srl*

- The digital preservation landscape: challenges and opportunities (Raivo Ruusalepp, National Library of Estonia)
- Safeguarding Digital Heritage through Sustained Use of Legacy Software (Natasa Milic-Frayling, University of Nottingham, UNESCO/PERSIST)

14:00 – 15:30 Demo Track: Live demos and hands-on sessions, Exhibition Desks

*Exhibitors: veraPDF Consortium, Easy Innova, MediaArea*

- Live demos of the conformance checkers
- Hands-on sessions showing how to install, configure and use the conformance checkers, how to define your own preservation policy using the tools, and how to check whether your digital files comply with the standard specifications and with your own acceptance criteria

15:30 – 16:00 Coffee break and visit to the poster session

16:00 – 17:00 Panel discussion: Experiences from memory institutions using the PREFORMA tools, Conference Hall

*Chair: Bert Lemmens, PACKED vzw*

- Panellists: Erwin Verbruggen, Netherlands Institute for Sound and Vision; Erik Buelinckx, Belgium Royal Institute for Cultural Heritage; Klas Jadeglans, National Archives of Sweden, Media Converting Centre; David Iglésias Franch, Municipality of Girona, Centre for Image Research

16:00 – 17:00 Demo Track: Live demos and hands-on sessions, Exhibition Desks

*Exhibitors: veraPDF Consortium, Easy Innova, MediaArea*

- Live demos of the conformance checkers
- Hands-on sessions
Thursday 12 October 2017

09:00 – 09:30 Registration

09:30 – 11:00 Main Track: The future of digital preservation, Conference Hall

Chair: Mirjam Rääbis, Estonian Ministry of Culture

- Situation and perspectives for digital preservation among cultural heritage institutions (Monika Hagedorn-Saupe, Prussian Cultural Heritage Foundation, Institute for Museum Research)
- Back to the future? Digital preservation needs of future users anticipated today (Milena Dobreva-McPherson, University College London Qatar)

09:30 – 11:00 Demo Track: Live demos and hands-on sessions, Exhibition Desks

Exhibitors: veraPDF Consortium, Easy Innova, MediaArea

- Live demos of the conformance checkers
- Hands-on sessions

11:00 – 11:30 Coffee break and visit to the poster session

11:30 – 12:30 Panel discussion: Business models around open source software, Conference Hall

Chair: Peter Bubestinger-Steindl, AudioVisual Research & Development

- Panellists: Carl Wilson, Open Preservation Foundation; Klas Jadeglans, National Archives of Sweden, Media Converting Centre; Jérôme Martinez, MediaArea.net

12:30 – 13:00 Closing Plenary: Conclusion, Conference Hall

- Looking after PREFORMA (Börje Justrell, National Archives of Sweden)

2.4 SPEAKERS AND PANELLISTS

In the occasion of the final conference of PREFORMA, several experts, inside and outside the PREFORMA consortium, have been invited to present their views and share with the audience the state of the art and future challenges in the digital preservation landscape.

As external speakers and chairs, the conference organising committee invited:

- Kristel Veimann, Director of Library Services in the National Library of Estonia
- Tarvi Sits, Undersecretary (Cultural heritage) at the Estonian Ministry of Culture
- Julia Kim, Digital Assets Specialist at the American Folklife Center at the Library of Congress
• Raivo Ruusalepp, Head of development at the National Library of Estonia
• Natasa Milic-Frayling, Professor and Chair of Data Science at the School of Computer Science, University of Nottingham and Chair of the Technology and Research Workgroup for UNESCO PERSIST
• Milena Dobreva-McPherson, Associate Professor at the University College London Qatar and principal investigator for projects in digital preservation and digital libraries funded by the European Commission, JISC, and the Scottish Funding Council
• Peter Bubestinger-Steindl, specialised in coordinating and deploying paid Open Source solutions for high-quality demanding use-cases in professional institutions

Several representatives of the PREFORMA partners also contributed to the conference, either chairing some session or participating as panellists in the round table discussions:

• Börje Justrell, former Director and Head of Operational Support at the National Archives of Sweden and Coordinator of the PREFORMA project
• Antonella Fresa, Director of Promoter Srl and Technical Coordinator of the PREFORMA project
• Claudio Prandoni, Managing Director of AEDEKA Srl and Innovation Manager of the PREFORMA project
• Bert Lemmens, researcher at PACKED vzw
• Erwin Verbruggen, User Studies and Digital Preservation Expert at the Research & Development department of the Netherlands Institute for Sound and Vision
• Erik Buelinckx, responsible for several Belgian and European projects at KIK-IRPA’s department of documentation and for the institute’s documentary image databases
• Klas Jadeglans, IT-architect at the Media Conversion Centre (MKC) department of the National Archives of Sweden
• David Iglésias Franch, archival technician at the Centre for Image Research and Diffusion (CRDI) from Girona City Council
• Bengt Neiss, IT-architect and operation manager at the National Library of Sweden
• Marju Niinemaa, Chief Specialist of Cultural Heritage Department at Estonian Ministry of Culture
• Mirjam Rääbis, adviser on museum at the Ministry of Culture
• Monika Hagedorn-Saupe, Head of the department “Visitor related museum research and museum statistics” of the Institut für Museumsforschung (Staatliche Museen zu Berlin, Stiftung Preußischer Kulturbesitz) and Deputy Director of the Institute
Finally, Carl Wilson from the Open Preservation Foundation, Boris Doubrov from Dual Lab, Josep Lluis De La Rosa and Víctor Muñoz from the University of Girona and Jérôme Martinez from MediaArea provided an introduction to the PREFORMA tools and participated in the final panel about sustainability and open source representing the suppliers who worked as subcontractors in PREFORMA for the development of the conformance checkers.

More detailed information about the speakers and the panellists is available at http://finalconference.preforma-project.eu/speakers/.
3 EVENT REPORT

3.1.1 MAIN TRACK

Day 1. Wednesday 11 October 2017

Participants were welcomed by Kristel Veimann, National Library of Estonia and Tarvi Sits, Estonian Ministry of Culture.

Borje Justrell, PREFORMA coordinator gave an overview of the project which aims to give memory institutions full control over the digital files they receive by ensuring they conform to the format specification. PREFORMA is now in the final phase of testing the three conformance checkers for PDF/A (veraPDF), TIFF (DPF Manager) and Matroska, Linear Pulse Code Modulation and FF Video Codec 1 (MediaConch). As well as developing software, each supplier has contributed to the creation or improvement of the respective standard specification. The conformance checkers check that files conform to the standard and allow memory institutions to apply their own policy restrictions. Borje remarked that there are still a large number of other formats for which there is no conformance checker available.

Fig.5 Introduction to PREFORMA by Borje Justrell

Julia Kim from the American Folklife Center at the Library of Congress gave a talk called ‘Why can’t they (files, formats, software, users, standards…) all just get along?’ She feels the value in the PREFORMA project is not just in the tools and papers published, but also development of a community.

Institutions increasingly rely on tools where documentation is not available while standards are not necessarily widely followed or adopted – and can be interpreted differently. This can be exacerbated by a lack of clarity as to where responsibility for these tools and standards lie. A
study by the National Digital Stewardship Residencies titled “What makes a digital steward”, ranked standards and best practices skills last in importance.

Julia described the language of PREFORMA as revolutionary; ‘taking full control’ is at odds with the neutrality statements often used by memory institutions. Archivists are usually at the end of the lifecycle and it is difficult for some organisations to enforce submission guidelines after content has been created.

![Fig. 6 ‘Why can’t they (files, formats, software, users, standards…) all just get along?’ by Julia Kim](image)

PREFORMA provides a unique opportunity to determine the rules of the game. Many want a yes or no answer to their questions. The Federal Agencies Digital Guidelines Initiative (FADGI) has similarities to PREFORMA. If they want new tools, standards or technical guidelines they collectively commission a third party contractor to create them. FADGI also helps to creative long lasting relationships amongst the agencies, and promotes widespread adoption of the standards and outputs.

The talk ended with a question about what happens after PREFORMA ends. It is important that the tools and relationships are sustained and there an opportunity to expand the model for other formats.

The morning session concluded with pitches for the validator demos and posters.
After lunch, the conference programme continued with a talk about the digital preservation landscape and the challenges and opportunities by Raivo Ruusalepp from the National Library of Estonia.

Estonia currently hosts its first presidency of the Council of the European Union. This involves a large number of meetings, discussing topics such as culture, education and e-government. Raivo noted that the words efficiency, access and trust are often mentioned when addressing these topics, but preservation is not. A contributing factor to this is that the standards in our community are not as widely adopted as standards in other communities.
Raivo compared digital preservation to cooking, and described how we have our own traditions (processes), but adopt ingredients (standards, tools) and make them our own.

At the beginning of 2017 a new Legal Deposit Copy Act law was introduced in Estonia. The library now receives a copy of anything serialised or printed deposited as a digital version. Digitisation is a finite project. It is a new era and they do not need to digitise contemporary material. There has been an anticipated step up in the volume and complexity of files they receive and, in response, the library updated its digital preservation policy, revised its list of accepted file formats and has defined new service levels based on the NDSA matrix of digital preservation services.

The library has implemented more automated processes in their workflows to check the quality of files they receive. They have reconceptualised their digital preservation system to encompass all content types. Information needs to outlive the system(s) that produced it and standards act as tools for systems’ interoperability.

They need to make appraisal decisions for the future. This is a question of judgment when building collections, helping inform the decision regarding the type of repository required. The library is focusing on ingest to reduce the preservation workload, and is pushing responsibility upstream to the creators. They plan to use veraPDF to not only to defend position of library, but to raise awareness amongst publishers about the quality of the content they are producing.

There are lots of tools, widgets and services available, too many. They recently assessed over 200 digital preservation tools to find out if they are still alive or supported and if documentation is available. They found that only a fraction actually are maintained. The community still needs similar software to the conformance checkers that PREFORMA has commissioned. Memory institutions do not have specialist staff for every format they need to preserve. Returning to his cooking metaphor, Raivo said there is a maturity in the field; organisations can choose to be in the ‘kitchen’ and create their own products, or they can commission a service or tool they need – go to a restaurant. By investing in open source tools, organisations can understanding what it happening inside them.

Raivo called on organisations to become more resilient. We should not just be looking at longevity, sustainability, and automation but we should ‘have the capacity to prepare for disruptions, recover from shocks and stresses, and adapt and grow from a disruptive experience’.

He concluded that as digital preservation continues to mature, we as a community need to:

- Learn to be resilient
- Make good use of standards
- Build new competencies and skills

Natasa Milic-Frayling from the UNESCO PERSIST Programme was up next talking about ‘Safeguarding Digital Heritage through Sustained Use of Legacy Software’. She explained that innovation happens because there is demand in the market. The biggest danger to software sustainability and access to content that is rendered on that machine, happens when the company who created the software no longer exists. Open source is a good way of eliminating this dependency, however, there is still little understanding about the standards.
The digital ecosystem is complex with a large number of dependencies and different layers. As well as the technologies used such as the operating system and servers, and the digital assets that are created such as data streams and documents, the user experience has become more important. Digital assets cannot be used without a programme to interpret the bits and consistency is important.

Both digitised and born digital copy are subject to the same issues of obsolescence, and they still need a reader to view e.g. PDFs. The questions is, how do we enable prolonged use of software? We are facing different threats: the hardware may still be available, but the expertise about that system may disappear if the creating organisations folds. Standards evolve, we need to be prepared for the next versions and think about how to manage the lifecycle of a document. IT companies can bring technology to the community and take it away again – their goal is to attract customers, the do not necessarily share a vision for long term preservation.

There are a number of digital preservation strategies used today. Migration means you say goodbye to the original file, and perhaps lose some interaction within it. Another option is to keep the original file and port the application to the new environment. You could virtualize legacy software environment through a virtual machine using the old computing stack and run the original files and software. Natasa recommended a hybrid strategy combining virtualization and format transformation.

She introduced the UNESCO memory of the world programme and their objective to:

- Ensure that documentation is available to all, without barriers and obstructions
- Embarked on digitization of physical artefacts to preserve and disseminate information and preserve cultural heritage

They plan to establish a foundation to host legacy software and negotiate licences with industry e.g. Microsoft.
The first day finished with a panel exploring experiences from memory institutions using the PREFORMA tools. Five organisations from the PREFORMA consortium were represented on the panel, chaired by Bert Lemmens from PACKED vzw. As an introduction, panellists were asked to raise their hands to some quick questions about the PREFORMA tools:

- All had used the tools, and had convinced colleagues to try them
- 3 of 5 are deploying the tools in their production environment
- 3 of 5 would be willing to pay for development of the tool

One of the issues with adopting the tools is that investigating the standards they are using internally takes time. Adoption of tools comes after the adoption of standards.

Although the PREFORMA project has been running since 2014, the tools have only reached a production-ready level within the last year. It is important to test the tools, and integrating a tool into a production workflow takes time. They need to consider if it is efficient and how it works with what they already have in place.

The panellists commented that they had found the three suppliers very responsive to their questions and willing to help and makes changes to the software. Feedback from both sides has been really important and has created very productive relationships.

There are still some issues with trust with regards to open source from management. There is a perception by some that ‘you get what you pay for’ so if the software is free, or the organisation does not pay a lot, then it is seem as low quality. In the past, software was adopted by institutions through a procurement process. Without this framework, institutions are having to rethink the process of adopting the software they need. With the PCP model, much more engagement is needed. However, the positive aspect of this is the ability to influence and get exactly what you want.
The next step is to bring the tools to a wider market. One of the key offerings the panel would like to see is expertise. They would like help to analyse files and understand the issues and what they mean for the archival process.

In terms of lessons learned, the panellists all felt they had had an impact on evaluation of the results and discussed the added value of working together for the implementation of a joint procurement. This proved to be good practice for the memory institutions partnering in PREFORMA as it led to a clearer definition of the requirements, a better control on the process, and made the outcome easier to evaluate. Overall they found it a positive experience as vendors, developers and archivists pooled their expertise to create the final products.

The panel remarked that it is very important to think about file formats and standards internally. PREFORMA has laid the groundwork for increasing knowledge about file formats within their institutions and helped them to prepare for the future.

Day 2. Thursday 12 October 2017

Monika Hagedorn-Saupe from the Prussian Cultural Heritage Foundation was the first speaker on day 2 of the conference. She spoke about the ‘Situation and perspectives for digital preservation among cultural heritage institutions’.

She has been involved in the nestor network which aims to raise awareness about digital preservation and build a network among organisations in Germany. Their aim was not to develop a technical solution.

Nestor produced some of the first reports on digital preservation. They carried out a survey of their network in 2005 and found very few organisations had a strategy or plan for digital
preservation, and that knowledge about file formats was very low. Very few organisations had someone responsible for digital preservation within their institution.

They have since produced a handbook for digital preservation, scientific reports and guidelines, and have set up the Nestor seal for trustworthy archives. They have a dedicated working group investigating format detection and have introduced veraPDF and DPF Manager as important tools to their network.

Development of digital preservation knowledge is still quite uneven. Some organisations are yet to be convinced about the importance of file format validation, however, in other areas, there is an increasing understanding, particularly around text and image formats and standards. AV formats are still being evaluated and they are at a stage of monitoring the formats validated by MediaConch.

The second talk of the day was ‘Back to the future? Digital preservation needs of future users anticipated today’ by Milena Dobreva-McPherson of University College London Qatar. She commented that through the summaries of the projects she can see that a lot of useful work has been done, but also recognised that many other topics remain for future work. It is difficult to address the subject of the future and compared it to Alice in Wonderland: how to do know if you have got there, if you don’t know where you are going?

Fig. 12 ‘Back to the future? Digital preservation needs of future users anticipated today’ by Milena Dobreva-McPherson

Preservation has many aspects to it. It is seen as a roadmap, users are today’s users – we cannot predict who the future users are. There are many horror stories about how much data might be lost – but it is based on projections, you don’t hear that many actual horror stories of lost data.

Research data has many similar challenges to digital preservation, but it remains a separate area at the moment. Digital preservation funding has been replaced by research data in the EU funding streams. Again, there was a question about responsibility in relation to preservation. Who should

Milena observed that there are two ways of looking to the future: speculating verses creating. PREFORMA has taken the second approach: it is creating tools, new models and thinking in digital preservation.

We need joint efforts to take digital preservation forward. There are not many new initiatives coming up. We need to think about the next steps and what kinds of projects we want in future. We need to define what makes digital preservation skills unique and explain how they are connected to the issues. Milena called on participants to blend with other communities and be stronger in communicating our value. We are good at hiding behind the words ‘long term’. Users want results now. We have success stories and we should be more active in sharing them.

The final panel sessions addressed ‘Business models around open source software’ chaired by Peter Bubestinger-Steindl, AudioVisual Research & Development. The discussion began with a show of hands – all of the audience uses some kind of open source software, however, only some of them have ever paid for it.

Open source is often perceived as free work and commercial software is seen as the ‘opposite’. Open source is also confused with freeware. Jérôme Martinez from MediaArea said that his organisation is commercial and they develop open source software. He still needs to explain what open source is nearly every day. Someone needs to pay for it – developers don’t just work for free, they need to make a living.

Carl Wilson explained how the Open Preservation Foundation’s business model is different. OPF was set up off the back of a large research project (Planets) to sustain the results. OPF is not raising revenue from software sales, their income currently comes from membership fees and projects. It means that any organisation can download the software for free, and OPF members
get support using the tools they maintain including JHOVE, fido and now veraPDF. The software OPF adopts is driven by their members’ interests.

As a user, Klas Jadeglans at the National Archives of Sweden, explained that open source software can be problematic to adopt. When memory intuitions want to buy software they are used to going through a procurement process. Without anything to procure it is difficult to spend money on open source software. Klas tests and uses open source software to demonstrate the benefits internally. It is easier to get funding later to improve the software.

Julia Kim explained that the Library of Congress recently became members of the BitCurator consortium. It was difficult to find a logical accounting code with the administrators and managers for the membership. More transparency around different business models would help users to ‘sell’ the idea of open source software internally. She commented that JHOVE is integrated into their repository – it has become a standard because everyone uses it. She is now also relying on MediaConch for her work, but is uncertain of how long it will take to integrate it into their production environment.

There is still a lot of confusion about open source business models. If there is not a price tag, how do you deal with it? Users want to pay for it, as otherwise it ‘feels like stealing’ but there is not a process in place.

Secondly, there is still a problem with perception about the quality of open source software in management. Many users are so reliant on it now that this perception is gone, but it’s still an issue at management level. It’s difficult to pay for add-on services if the price point it zero – that sets that anchor for additional costs. We need to break this link between price and quality. Quality is independent of a licence.

Carl pointed out that the internet is built on open source software. It’s reliable and runs 24 hours a day. This was highlighted by the Heartbleed bug. It transpired that it was maintained by one guy in Germany, it was fixed and internet commerce continues to use it. Encryption is another area where open source has benefits that aren’t always intuitively apparent. Open source means that the code can get lots of eyes on it and it can be thoroughly tested. When Sony Blu-ray encryption was released it was cracked within 24 hours. Open source is not a new alternative that came later, it is the foundation of a lot of the software and systems we use today.

One of the main advantages of open source is that you can test and quality assure your software. By doing this you can mitigate the perception of lack of quality. The community is also very important. We are working in a niche area and using open source means you are not dependent on a single developer (or company). If you want to modify the software you can pay someone else to do it.

Borje Justrell gave the closing remarks for the conference ‘Looking after PREFORMA’. He explained that the three conformance checkers would be sustained by the suppliers through different means, and thanked everyone for their participation in the conference, and for their feedback throughout the project. He encouraged the audience to read the new PREFORMA handbook, summarising the project’s work.

3.1.2 DEMO AND POSTER SESSION

After the opening session on the first day, the conference split into two streams, allowing participants to choose between the conference main track and the possibility to visit the demonstration desks where the three suppliers were available for questions and further demos of their software. Hands-on demonstrations have been organised for those who wanted to find
out more about the conformance checkers where delegates were shown how to install, configure and use the PREFORMA software. This format, that had also been used in the previous PREFORMA workshops in Stockholm, Berlin and Padua, proved to be successful, as it led to interesting and more personal one-on-one conversations.

In parallel, a poster session has been organised in the exhibition area close to the demonstration desks. PREFORMA invited anyone working in the field of digital cultural heritage, digital preservation and file formats standardisation to present his/her innovative products, services, projects, technologies and R&D interests as a poster. Posters have been displayed for free throughout the whole duration of the Conference and people were encouraged to visit them particularly during the coffee and lunch breaks. A short presentation by each poster’s author has been also included in the programme of the Conference.

The posters which has been accepted and displayed at the Conference are:

- Automated Quality Assurance in Digital Preservation Service Architecture
- I-Media-Cities – Innovative e-environments for Research on Cities and the Media
- Enabling shared solutions for effective and efficient digital preservation by Open Preservation Foundation
- Juurtega Jouad Kaugemale… Digiteerime Sinu Pereparandit by the National Library of Estonia
- Digitisation of glass negatives at the SA EVM conservation and Digitisation Centre Kanut in 2001-2017 by Mari Sîner, Martin Sermat, Joel Leis, Kairi Kruus, Jaanus Heinla

Further information about the posters is available at http://finalconference.preforma-project.eu/poster-session/, from where it is possible to download a high resolution digital version.
Fig. 15 Poster session
4 EVENT DISSEMINATION

The dissemination approach adopted to promote the PREFORMA Conference was multichannel in order to ensure an effective outreach. This consisted on:

- Creating a dedicated event website
- Linking the conference website directly form the PREFORMA project’s homepage
- Leveraging the PREFORMA community database (more than 550 people interested in digital preservation and in PREFORMA around the world) and the contacts of the media partner Digital Meets Culture
- Creating dedicated online material and asking for its publication on different websites
- Creating dedicated newsletters and e-announcements to be published on relevant portals and mailing lists
- Promoting the Conference via social media (particularly Twitter and Facebook)
- Creating dedicated printed dissemination material to be distributed at relevant conferences and workshops
- Promoting the event among related projects and initiatives, memory institutions, research organisations, technology providers, standardisation bodies and anyone dealing with digital preservation of images, documents and audiovisual files

Based on the visual identity that have been ideated for the conference, based on PREFORMA’s visual identity and graphic guidelines, the Conference website has been the main dissemination channel to promote the Conference and to attract participants.

The Content Management System that has been selected as the base technology upon which the Conference website has been implemented is WordPress (http://wordpress.org), an open source Content Management System (CMS), blog tool and publishing platform licensed under the GNU General Public License (GPL).

The website, which can be reached at http://finalconference.preforma-project.eu/, has been launched in April 2017 with basic information and then enlarged as long as the programme and the various activities of the Conference were taking shape, in particular starting from the 1st of September 2017. The main vertical navigation bar features the following menus:

Home. The landing page of the website, a clean-looking and intuitive access point from which all further navigation begins.

Overview. A webpage describing the context and the objectives of the conference and of the PREFORMA project, as well as the main target groups.

Registration. The access point through which it was possible to register to the conference. Registration was free of charge.

Programme. This is the webpage dedicated to the presentation of the full programme of the event. After the end of the Conference, it has been enriched with the possibility to download all the presentations delivered.

Speakers and Panellists. A webpage featuring the description and CV of the main speakers and panellists.
Exhibitors. This page provides a short description of the open source projects that were demonstrated during the Conference.

Poster session. The section gave access to the call for posters that was launched in September and it was then updated to provide a description of the posters that were accepted with the possibility to download a high resolution version.

Venue. This page provides information about how to reach the venue.

Contacts. An easy-to-use access point for communications with the Conference organisers.

PREFORMA website. A link to the PREFORMA project’s main website.

Videos. This webpage gives access to the videos that have been recorded during the Conference.
The graphs below offer a detailed overview on the overall trends of the PREFORMA conference website in the period 1st of September – 31st of October 2017 according the audience overview and to the country of provenance of the audience provided by Google Analytics toolkit.

![Graph 17: Accesses to the conference website, 1 September – 31 October 2017](image)

The data are positive: more than 1,200 visitors reached the conference website in two months, with about 2,700 pageviews. The two peaks in the number of visits was correspond to the two main announcements that were launched through the PREFORMA mailing lists and online channels in mid-September and a few days before the Conference.

The audience geographic provenance of the conference website is also very broad and the results are satisfactory: visitors come from 50 countries spanning all the continents, with a clear peak in Estonia (43,6%).
In terms of acquisition, direct access and organic search are those which demonstrated to have a greater impact in the way visitors reached the Conference website. Among the referrals, in the top-six list we can found the social media (Twitter and Facebook), the project’s website, the official media partner Digital Meets Culture, the website of the National Library of Estonia and the Open Preservation Foundation website.
Fig. 20 Accesses to the conference website, referrals channels

Based on the Conference outreach kit produced by the PREFORMA dissemination team to provide sample texts and images to be used to promote the conference on portals and mailing lists, a wide number of newsletters, press releases, blog posts, articles and news items were published by all the partners during the months before the event to announce the conference and the call for posters and to invite people to register.
Promotional banners available in 4 different formats as well as a dedicated A3 flyer were produced and distributed to all the partners to support them the online and offline promotion of the Conference.
Finally, all the speeches delivered during the conference have been recorded and the videos are available at the Conference website for the benefit of future users interested in PREFORMA and in digital preservation.

Fig. 23 Video recordings of the Conference
5 PARTICIPANTS

Registration for the PREFORMA international conference was managed online via Eventbrite. It was opened on the 4th of April 2017 and closed the 8th of October 2017 to allow the preparation of the badges and folders for the participants. It was anyway possible to register directly onsite at the registration desk that was set up at the entrance of the Conference Hall where the main sessions took place. The majority of registrations have been collected online. At the registration desks, the badges and the branded folder with the Conference documentation was handed-in to each delegate.

The event attracted in total 131 participants. The PREFORMA Consortium was well represented (20 people + 7 representatives of the PREFORMA suppliers) because project partners have been heavily involved in the Conference not only as members of the Organising Committee and presenters, but also by chairing the different sessions and participating in panel discussions. Staff from the National Library of Estonia was also present to deal with all the aspects related to the logistics: registration and delegate desk, Conference secretariat, supervision and technical assistance during the presentations and the demos, supervision of the different providers (e.g. catering, video recorders), etc.

Fig. 24 Participants in the Conference

Participants came from 28 different countries with a natural predominance of participants from Estonia. The countries which were most represented were Estonia (40%), Sweden (5%), Finland, Ukraine, Germany, Great Britain, Latvia and Slovakia (4% each).

In terms of organisational breakdown, attendance to conference mainly included representatives from public institutions (61%, the majority of which are cultural institutions with a 3% of institutions belonging to other sectors), research centres and universities (17%) and private companies (16%). Public administrations and government are also represented (6%).
The full list of participants in the PREFORMA international conference is reported in the table below, which includes the affiliations and the geographical breakdown.

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<td>University College London Qatar</td>
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<td>Gulsina Khakimova</td>
<td>State Committee on archives of the Republic of Tatarstan</td>
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<td>Gumer Gaiazov</td>
<td>State Committee on archives of the Republic Tatarstan</td>
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**Count**

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- Great Britain Count: 5
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- Croatia Count: 1
- Ireland Count: 1
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- Luxembourg Count: 2
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<td>Aleksei Butakov</td>
<td>State archives of the Republic of Tatarstan</td>
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<td>Thomas Wikman</td>
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<td>Therese Nykvist</td>
<td>Kemikalieinspektionen</td>
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<td>Marit Bengtsson</td>
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<td>Benjamin Yousefi</td>
<td>Riksarkivet</td>
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<td>Margareta Ödmark</td>
<td>Stockholm university</td>
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<td>Borje Justrell</td>
<td>Riksarkivet (National Archives of Sweden)</td>
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<td>Klas Jadeglans</td>
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<td>Bengt Neiss</td>
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<td>Krister Persson</td>
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<td>Tatjana Hajtnik</td>
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<td>Boris Domajnko</td>
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<td>Juraj Strnisko</td>
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<td>Štefan Sebeš</td>
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<td>Andrej Bališ</td>
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<td>Olena Chaikovska</td>
<td>Kyiv National University of Culture and Arts</td>
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<td>Anatolii Humenchuk</td>
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<td>Heorhii Borodkin</td>
<td>The National University of Life and Environmental Sciences of Ukraine</td>
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<tr>
<td>Julia Kim</td>
<td>American Folklife Center, Library of Congress</td>
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Table 1. List of registered participants
6 CONCLUSION

Hosted by the National Library of Estonia, the PREFORMA International Conference “Shaping our future memory standards” brought together more than 130 people worldwide to discuss the importance of standardisation and file format validation for the long term preservation of digital cultural content, discover the potential of the open source conformance checkers developed in PREFORMA and look at future challenges and opportunities. It represented a great opportunity to ask questions of, and exchange ideas with, international experts, fellow archivists and Open Source developers about file format issues and challenges we are facing today.

The event attracted representatives from memory institutions, research centres, SMEs and public administrations dealing with digital preservation of images, documents and audiovisual files.

The programme of the conference had a nice balance of presentations, panels and demonstrations, including speeches by international experts in digital preservation, live demonstrations of the software, examples and good practices of memory institutions that are integrating the PREFORMA tools in their environments, and panel discussions to reflect on how to sustain and further develop the results of the project.

The event was recorded and all the videos and the presentations are available online on the conference’s website http://finalconference.preforma-project.eu/.
Project Aim and Objectives

- **The aim**: to implement good quality files in various standard formats for preserving content long-term.
- **The main objective**: to give memory institutions full control of the process of conformity tests or files to be ingested into archives.
- **The main objective of the PFC launched by PREFORMA**: to develop an open source software for the management of the whole conformance test process, supporting a range of standards, addressing the needs of any memory institution or other organizations with a preservation task.

Open Source approach

- PREFORMA is following an open source approach, with the aim of establishing a sustainable research and development community comprising a wide range of contributors and users from different stakeholder groups.
- The open source nature ensures long-term availability of the software beyond the memory institutions and suppliers involved in PREFORMA.
- **Licenses**
  - All software developed during the PREFORMA project will be provided under two specific open source licenses: “GPLv3 or later” and “NPLv2 or later”.
  - All digital assets developed during the PREFORMA project will be provided under Creative Commons CC-BY v4.0, and in open file formats.

Target users and stakeholders

- **Memory institutions**: and cultural heritage organisations, involved in (or planning for) digital culture initiatives.
- **Developers**: contributing code for the PREFORMA open source tools.
- **Research organisations**: providing technical advice to cultural stakeholders.
- **Standardisation bodies**: maintaining the technical specifications of the preservation formats covered in PREFORMA.
- **Funding agencies**: such as Ministries of Culture and national/minor civil administrations, that own and manage digitisation programmes and may endorse the use of the PREFORMA tools in the digitisation process.
- **Other projects in the digital cultural heritage domain**.

Project implementation schedule

- **Design phase** (4 months): November 2014 – February 2015
- **Prototyping phase** (23 months): March 2015 – January 2017
  - First prototypes: March 2015 – October 2015
  - Re-design: November 2015 – February 2016
  - Second prototypes: March 2016 – January 2017
- **Testing phase** (6 months): February 2017 – July 2017

PREFORMA Suppliers in the Design phase

1. yerAPDF Consortium (led by Open Preservation Foundation and PDF Association) – The PDA conformance checker accepted industry-wide (PDF/A)
2. Pressyia - Digital Preservation Validation Framework (PDF/A)
3. EasyInnova – Digital Preservation Formats Manager (TIFF)
4. LIBIS - LIBIS/Aware checker for TIFF (TIFF)
5. Mediaarea – PREFORMA MediaConC - CONFOrmance Checking for audiovisual files (MKV/TTV/LPCM)
6. UCL - OpenMedia.Check (MKV/MPED2000/CH)

Challenge Research and Development (R&D)

Empower memory institutions to gain full control over the technical properties of digital content intended for long-term preservation.
**Challenge R&D Strategy**

- Develop an open source conformance checker that:
  - checks if a file complies with standard specifications
  - checks if a file complies with the acceptance criteria of the memory institution (policy checking)
  - reports back to human and software agents
  - performs simple flux
- Establish an ecosystem around an open source reference implementation that:
  - generates useful feedback for those who control software
  - advances improvement of the standard specification
  - advances development of new business cases for managing preservation files

**File Formats: Conclusion**

- TEXT (strengthen the consensus)
  - ISO 33000-1:2008 (POF 1.1)
  - ISO 19005-3:2012 (POF-A-3)
- IMAGE (improve the consensus)
  - ISO 13239-2004 (TIFF/FIT)
- MOVING IMAGE (virgin path...)
  - MKV
  - FFV1
  - LPCM

**Open Source Conformance Checkers Deployment**

The Conformance checkers are all available both for local use and as a web-based application. They allow for deployment in different infrastructures and environments:

- as a stand-alone executable
- as a client-server application to be deployed in network-based solutions
- as a plugin to be integrated in third party systems (legacy or future ones) via API.

**Follow us!**

**PREFORMA Website**

[www.piforma-project.eu](http://www.piforma-project.eu)

**PREFORMA Blog**

[www.digitalmeetculture.net/projects/piforma/](http://www.digitalmeetculture.net/projects/piforma/)

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**Why can't they all just get along?**

(files, formats, software, users, standards)

Julia Kim
American FolkLife Center, Library of Congress
@jy_kim29

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**Compact Disc Digital Audio**

From Wikipedia, the free encyclopedia.

Compact Disc Digital Audio (CD-DA) or CD-A is the standard format for audio compact discs. The standard is defined in the Red Book, one of a series of "Red Books" (named for their binding colors) that contain the technical specifications for an compact disc formats.

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<tr>
<th>Contents</th>
<th>Notes</th>
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<td>2 Audio bitmap</td>
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<td>21 Sample rate</td>
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<td>3 Storage capacity and playing time</td>
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<td>4 Error correction</td>
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</table>
Recurring topics

Digital preservation cookbook

First months of digital legal deposit at NLE

- Volume of deposited files is up by 70%
- The average object size has increased by 30%
- A greater variety of file formats
- Quality checking of file formats shows a larger proportion of files with preservation issues (e.g., fonts not embedded in PDF, epub conformity)
- User expectations for how fast the library can process the submitted files have become more demanding

This is all within the bounds of what was expected and anticipated
Library’s response

- Updating the digital preservation policy
- A new recommended file format list
- Explicit definition of service levels based on the NOIDA matrix of DP services
- Design of more automated workflows for checking the quality of files as early as possible in the process
- Reconceptualising the digital preservation system to encompass all content types that the library is mandated to preserve for the long term
- Eventually adopting a new repository system and migrating all content to a new platform

Digital preservation remit of the NLE

- Born digital
- Digitised
- Software
- Web archive
- Digital inserts

Library’s response in summary

- The focus of ‘heavy lifting’ is on ingest (and Pre-Ingest) as ways of reducing the preservation workload
- Automating the ingest workflow
- Pushing the responsibility and preservation concerns ‘upstream’ towards the creators of digital objects
- Overwhelmed by the plethora of individual tools, widgets and services
- Struggling to define interoperability rules for migrating content from different platforms to a single repository environment

Reconceptualising preservation function

- Interoperability between systems, supported by standards, presents a different angle of the preservation problem, taking it from the granular level of processing individual files to thinking about longevity of digital objects with their content held in a software system
- Information needs to live longer than the system(s) that produced it
- Standards should really be seen as tools for systems’ interoperability that can save us from the digital death spiral of obsolescence problem

Resilience

- Maturity of the digital preservation core concepts
- Longevity
- Automation / workflow
- Sustainability / risk / trust
- Up next: (?) resilience – ability to survive in changing conditions

Conclusions

Learn to be resilient to survive the ‘tsunami’
Start by making good use of standards
Build new competences and skills

Thank you!

Ravo.Rumainop@nfb.be
Safeguarding Digital Heritage through Sustained Use of Legacy Software

PREFORMA International Conference
10 October 2017
Tel Aviv, Israel

Professor Natasha Milic-Frayling
UNESCO/COMEST Programme Chair, Chair of Technology & Research
University of Nottingham, Chair in Data Science
Inact Digital Ltd, Founder, CEO

From Mark 1 to contemporary computers
1951
First display at the Manchester Mark 1 http://www.mark1.com
2017

Computational Nature of Digital
Digital cannot be used without a program that can ‘play’ it, i.e., interpret digital encoding (the bit)
Digitalized content requires software

Software — decoder
- Digital artefact
- Permitted part of the digital artefact
- Hardware to process and display

When software is not available or cannot be used, digital information cannot be accessed.

That applies to software that we use for curation, preservation, access to information.

Tamal Vista Insights
http://www.taminisight.com/
Enabling preservation and dissemination of knowledge

- Automated and semi-automated indexing of digitized manuscripts
- For digital artefacts that standard OCR cannot handle
- Software: Cust&Search

Fo Guang Shan Collection of Digitized Buddhists’ Manuscripts

Fo Guang Shan has over 200 branch temples around the world.
Aim: Propagate Humanistic Buddhism and establish a Pure Land on earth.

Digitalization and Dissemination
Thousands of volunteers embark on projects that last years and have impact over decades.

Museum of Fo Guang Shan History
Challenge

How do we enable prolonged use of software to protect value of digital assets?

Availability of software is key

File format migration

File wrapping or porting

Virtualize legacy software environment

EC Grant agreement no: 619568
Winning strategy: hybrid

Virtualization of original software
- Ensures access to the digital artefacts

Format transformation services
- On demand transformation within a specific context

UNESCO Memory of the World Programme
- MoW objective:
  - Ensure that documentation is available to all, without barriers and obstructions.
  - Embarked on digitization of physical artefacts to preserve and disseminate information and preserve cultural heritage

UNESCO PERSIST Initiative
- Preserve Digital Heritage
- Initiated in December 2013 with the UNESCO Conference in the Hague
- Led by the UNESCO Netherlands Office, under the MoW programme

UNESCO PERSIST Initiative
- Vision:
  - Keep the World’s Digital Heritage safe and accessible forever

- Empower and enable governments and memory institutions to preserve digital heritage by:
  - Developing policies and legal frameworks for lifecycle management of digital technologies.
  - Providing a technology platform for registering, hosting, and monitoring legacy software.
  - Promoting best practices and fostering research and innovation in managing the obsolescence.
Safeguarding our digital information and our digital future

Working together with the ICT community is key to securing access to digital information now and in the future.
Panel: Experiences using PREFORMA tools

Tallinn 11 October 2017

Introducing conformance checking in organisations?
Introducing open source software?
Participating in a PCP?
Developing tools in collaboration with suppliers?
Contributing in standard specification?

Introduction

Empower memory institutions to gain full control over the technical properties of digital content intended for long-term preservation.

Adoption

Thresholds for adoption?
Services to overcome them?
Situation and perspective for digital preservation among cultural heritage institutions

...quite fast...
Welcome!

My name is Monika Hagedorn-Bische. I am from Germany, and I am

Professor for Museology,
Deputy Director of the Institute for Museology-Research, National Museums in Berlin
President of the Working Group Documentation of German Museums Association
President of ICOM-CIDOC

... Since 2003 involved in many activities focusing on digital preservation in cultural heritage institutions in Germany that are now pursued under the roof of the German network "nestor". 

2003: Not yet large scale mass digitisation activities in Cultural Heritage institutions.

"nestor" was concentrating on awareness raising and network building only.


(2008)
PREFORMA - Future Memory Standards
PREservation FORMAts for culture information/e-archives
EC Grant agreement no: 619568

**Situation and perspective for digital preservation among cultural heritage institutions**

**Some survey outcomes**
- Very many different databases were used in the museums (if any).
- Most museums at that time did not control photographs of objects in their databases.
- Many museums had only physical assets as objects.
- Very few museums had own IT departments.
- Very few museums had a strategy or plan for digital preservation.
- Next to no museum had defined a person responsible for digital preservation.

Many had never thought about digital preservation.
Many had difficulties in understanding for file formats or databases.

**To summarize the situation for digital preservation at that stage (around 2006)**

**Meanwhile...**

**NESTOR II**

**PUBLIKATIONEN**

[Image of a publication]

[Image of a publication]

**Daisy**

[Image of a publication]
More and more people get acquainted with digital technology – files and folders replaced cards and drawers.

The number of people actively involved in questions on digital preservation grows – so does the network.

Development still is uneven.
Where we are today
- often a clear concept for preservation necessities is missing
- often not clearly defined responsibility for digital preservation
- awareness is growing
- importance of the formats and standards is seen more often
- more studies and seminars at universities
- institutions start building their own repositories
- formats to choose is clearer for texts and images
- In Germany format recommendation for Viedeo

From Germany to Europe
In 2016 the European Commission published the report

Cultural heritage
Digitisation, online accessibility and digital preservation

Situation and perspectives for digital preservation among cultural heritage institutions

1.1. Strategy for long-term preservation of digital material, implementation plans, exchange of information?
- YES 50
- NO 13
- NA 1

Q. 11. Are there arrangements made to ensure access and digital preservation measures under long-term preservation of digital content?
- YES 31
- NO 17
- NA 1
Situation and perspective for digital preservation among cultural heritage institutions

Perspectives

- situation is improving

next steps

- establishment of real and certified digital repositories on a large scale
- involve everybody involved
- include also the smaller institutions
- next survey on European level is intended

Thank you very much!

Back to the future?
Digital preservation needs of future users anticipated today

Milena DOBREVA-MCPHERSON

Prologue
Where are we now?
Where do we want to be in the future?
How to get there?
Who are the future users?
What would they need?

Some of our hindering blocks
- Defining the domain
  - "Interoperability with the future"
- The 'mythical' stakeholder
  - Stereotypes
- The complexity
- The way we think about DP

Preservation as...
...strategy

Preservation as...
...roadmap

Preservation as...
...research domains (DPE Research Roadmap 2007)

Preservation as...
...current users
Preservation as...

- ... horror story

Can we think out of those boxes?

- Preservation as cooking experience
- Preservation as service

25 Aug 2017, Terry Pratchett’s unpublished works destroyed by a steamroller

... after Alberto Manguel
("The Library at Night")

- Digital preservation as Myth
  - ... As Order
  - ... As Space
  - ... As Power
  - ... As Shadow
  - ... As Shape
  - ... As Workshop
  - ... As Chance
  - ... As Mind
  - ... As Island
  - ... As Survival
  - ... As Oblivion
  - ... As Imagination
  - ... As identity
  - ... As Home

Diversion: research data
“Research cannot flourish if data are not preserved and made accessible. All concerned must act accordingly.” (Nature, 10 September 2013)

Not just saving for the sake of saving for posterity....

- What about:
  - Evidence on impact
  - Reuse
  - New research based on linking data sets/bigger data volume
  - infrastructures
  - Combinations of data and utilities/services

Science as an open enterprise report (The Royal Society, 2012)

- Scientists need to be more open among themselves and with the public and media
- Greater recognition needs to be given to the value of data gathering, analysis and communication
- Common standards for sharing information are required to make it widely usable
- Publishing data in a reusable form to support findings must be mandatory
- More experts in managing and supporting the use of digital data are required
- New software tools need to be developed to analyse the growing amount of data being gathered
How much time do various data attributes take in different sciences?

Challenges
- Who should be responsible for preserving research data?
  - Librarians
  - Institutional repositories
  - Researchers
  - Research funding agencies
  - New type of professionals?
- How to describe data, relevance to research questions, and processes?

New roles and data management

Aspects of interest...
- Management (not preservation only)
- Strongly linked to the use and re-use of objects
- Users – academics but expanding to citizens
- Still defining whose task is it and what are the skill sets

Memory institutions, humanities and preservation

The specific flavour of humanities/digital heritage
- Humanities are very diverse
  - Roles
  - Digital data
  - Level of participation (individual – small groups – large communities)
- Concern: in surveys responses on data management from the Humanities are usually low compared to other scientific domains
- Roles of digital preservation: considerably with the active involvement of the memory institutions
Information needs

- Information needs are not fundamental but secondary order needs arising from the desire to satisfy primary needs.
- Classification of information needs (Taylor 1988):
  - Visceral need – the actual, but unexpressed need
  - Conscious need – the recognized need at a cognitive level
  - Formalized need – a formal statement of the need.
  - Compromised need – the question (query) as presented to the information system or intermediary.

Wilson’s model (2000)

Information seeking behaviour is the totality of human behavior in relation to sources and channels of information, including both active and passive information gathering and information use. Thus, it includes face-to-face communication with others, as well as the passive reception of information as in, for example, watching TV advertisements, without any intention to act on the information given.

How do we study users?

- Invasive methods (IC)
  - Direct user involvement
  - Questionnaires
  - Focus groups
  - Interviews
  - Observation
  - Eye tracking
- Indirect observation
  - Log analytics
  - Ethnographic studies
  - Pervasive
  - User scenarios
  - Usability testing (e.g., cognitive walkthrough)

What do digital library practitioners need to find out?

- Analytic information
  - How many unique visitors do your collections have per week/month/year?
  - Which collection gets the most use?
  - Which item gets the most use?
  - What types of materials are most popular? (Can inform collecting decisions)
  - Which features are used frequently? Which are used infrequently?
- User information
  - How your collections? (Demographic information)
  - Who are users trying to accomplish/and is your collection?
  - Are users reusing your objects? If so, how?
- Functionality information
  - Are the features of your digital library intuitive and easy to identify?
  - Which tasks do users find easiest to do using your delivery platform? Which tasks are difficult?
  - What might users want to do on your site with your materials that they cannot easily do now?
  - Is it easy to find when users get stuck?
  - What else?
What makes it difficult to get answers?

- Analytics information
- Some analytics tools are incomplete or not as granular as we might want
- Cannot possibly collect and interpret rich analysis data on every piece of data
- Sometimes they break!
- Raw data still needs to be organized and interpreted on a regular basis
- User information
- Toughest to collect this information
- Pins and cores of user accounts
- Other methods (feedback forms) collect incomplete facts
- Functionality information
  - Easily to get at this information if we are willing to design interactions with users, take the time to listen to them and incorporate what we learn into our systems
- Resources and equipment required can be intimidating

What do we offer to users?

Many gaps to fill!

What do we offer to future users?

Many gaps to fill!

Take away points

- People’ include end users (besides managers, product researchers, preservationists, CH institutions professionals)
- Speculations on the future vs creating the future?
Discussion topics

- 'Upgrading' the thinking on digital preservation to a more holistic view
- Infrastructures: in particular putting distributed work together
- Skills of various stakeholders now and in the future (CH professionals, academics, citizens, enabling organisations)
- Open science and open data cloud