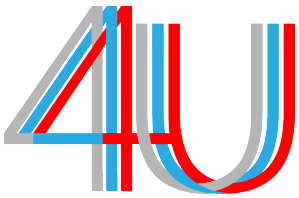

Project Acronym: Presto4U
Grant Agreement no: 600845
Project Title: European Technology for Digital Audiovisual Media Preservation

D2.4: CoP PROGRESS REPORT YEAR 1

Project funded by the European Community in the 7th Framework Programme

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Scope and Executive summary

Presto4U is has created nine Communities of Practice (CoPs), each based on a shared concern, a shared set of problems and a common pursuit of technological solutions related to the particular custodial practices and preservation challenges in a principal sub-sector of audiovisual media. The CoPs, collectively and individually, provide a crucial reference point and exchange environment for all the Presto4U activities. Each CoP is coordinated by a consortium Partner that is well respected and well connected to other CoP members, that is keen to help develop the CoP's practice, and is knowledgeable and passionate about the Presto4U topics.

Now that the Communities of Practice have been created, a large part of the work in Presto4U consists of the maintaining, nurturing and growing of each CoP through online and offline activities, publications and tools. The project will manage the activities for each CoP expert working group through directing, facilitating, stimulating and maintaining interactions and feedback for providing detail on the preservation needs of each Community. This part of the project will also gather data about the various communities, provide analyses of gaps and challenges, define and share information with the supply-side, and maintain feedback mechanisms and broker connections between challenges of each CoP with the project.

This first CoP Progress Report is a collated report describing the individual progress for each Community of Practice since their establishment at Project Month 7, focusing on the actual Community of Practice management progress as well as a first glimpse of the long term digital preservation technological needs, barriers and suppliers.

Not all Communities of Practice have started at an equal level of "pre-development" nor have they developed at the same rate. Therefore, each chapter in this report should be considered as an individual overview of the situation in each Community of Practice. The report will be used further into the project to ensure the efficient mapping of Communities of Practice and the project requirements, and to stimulate combined efforts between two or more Communities of Practice where possible. It will also help set further priorities for work ongoing in Presto4U, notably the dissemination focus of WP5, the research in WP3, the specific challenges for the development of an online Market Place in WP4, and the measuring of impact of the project's efforts in WP6.

1 Learning and Teaching Repositories

1.1 General progress of growing the CoP membership

1.1.1 Introduction

The Community of Practice (CoP) for Learning and Teaching Repositories is an emerging group in audiovisual preservation. While many further (FE) and higher (HE) education institutions have been using audiovisual materials in an educational environment for many years, preservation and access has traditionally been a low institutional priority.
Many collections have been held in analogue format and scattered across various departments without appropriate storage environments to limit physical deterioration.

As the student base evolves and becomes more familiar with digital media technology, audiovisual content specifically supporting teaching and learning is now becoming an area of growth and is transforming the education landscape, radically changing the way classes are taught, and allowing students to study across the globe.
Audio, videos and films are used in classrooms to support lectures and many universities have also started to act as producers of content by recording lectures, making podcasts and sharing videos online using services such as YouTube, iTunes U, Vimeo and virtual learning environments like Moodle.

The growth of demand in distance-learning and the 'open access' movement (with the explosion of MOOCS – Massive Open Online courses) have been a main driver for the production and access of audiovisual resources within this domain, resulting in the increase of born-digital content and pushing preservation to the top of the agenda.

Unfortunately most of the actors involved in the creation of content (mainly teachers and e-learning units) have in general no mission to preserve, so there is a need to raise awareness, share best practices and inform senior stakeholders about the importance of having a preservation strategy. One of the main preservation drivers for FE/HE institutions is the opportunity to share and reuse material, increasing the value of resources and avoiding the duplication of efforts. This could be achieved by defining use cases, training staff, as well as investing in hardware and software capable of satisfying the preservation and access needs within the educational environment.

Although good digital preservation practices are emerging in this field, there are still limited funds and human resources available, as well as a lack of skilled practitioners. Also, in Europe there seem to be major events on audiovisual preservation addressed to key players in the film archives and broadcasting environment and very limited networking opportunities targeted at producers and curators of e-learning materials and other audiovisual education resources.

Within this context, the intrinsic knowledge-sharing component and supportive environment that characterizes a CoP represent the perfect model for increasing digital preservation awareness and improving best practices in a teaching and learning environment. Knowledge exchange and innovation constitute a major driver for institutional strategic change and universities thrive in these types of collaboration and research activities.

Once we recognised the need for a CoP, we proceeded defining the parameters of a structured community that is aligned with Presto4U's strategic purpose to raise digital preservation awareness and improve the adoption of best practices and useful results of research among media users.

The community has been defined as a group of members who share common concerns and problems related to the digitisation, storage, access and long-term preservation of audiovisual holdings in the education domain. They also share a common pursuit of technological solutions that are related to the audio-visual sub-sector of educational repositories.

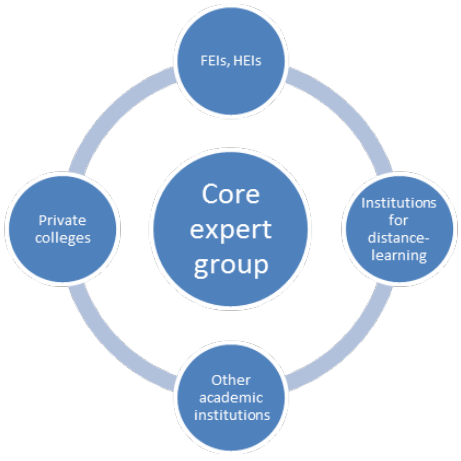
Members come from the FE/HE sector including universities for distance-learning; private colleges; and other academic institutions with one or more audiovisual collections or acting as a producer of audiovisual content to support education.

The CoP for Learning and Teaching repositories has been organised through the appointment of a community leader (King's College London) to provide guidance, stimulate interaction, moderate discussions and encourage participation from the community members. The CoP leader's activities started with the preparation of a detailed project plan providing an overview of the characteristics, structure and objectives that define the community. The document also outlined the constraints, success criteria and a communication plan for the community's launch and implementation.

The CoP will play a key role in the promotion and the exchange of professional and technical expertise in the academic environment.

One of the expected outcomes will be the identification of the status of audiovisual digital preservation practices including existing tools, standards and services used by the community. It will also help to create a body of knowledge on the obstacles for implementing a preservation strategy and the challenges unique to this group. This will be achieved by conducting surveys and interviews, promoting discussions and peer review.

Considering that this is the first attempt to identify the needs of an emerging group in audiovisual preservation, a thorough search has been conducted to define the largest possible number of participants from across Europe within different size institutions and geographic spread.



A preliminary group of seven key experts has been identified and invited to join the community as core experts, with the expectation to act as a steering group and contribute to the identification and documentation of common problems and preservation needs of the community.

Name	Position	Institution	Country
Antonella Scarpa	Audiovisual Librarian	University of Venice IUAV	Italy
Eva Binder **Guenter Muehlberger**	Research Associate Senior Project Manager	University of Innsbruck	Austria
Helen Guerin	Director of Media Services	University College Dublin	Ireland
Ine Van Dooren **Nick Clark**	Screen Archive South East, Archivist Production and Preservation Manager	University of Brighton	UK
Mariella Guercio	Professor of archival science, Coordinator of research for digital archives and repositories at Digilab	University of Rome 'La Sapienza'	Italy
Ruth Cammies	University Archivist	Open University Archive	UK
Sandra Collins	Director Digital Repository of Ireland	Royal Irish Academy	Ireland

The group has been briefed on the project plan, initial targets and communication tools available for online discussions and interactions within the group and with the wider community.

The plan for the community is to continue the recruitment of further core experts in 2014 and involve a much larger group of academic institutions and practitioners from across Europe sharing the same concerns and interested in finding solutions to their workflow problems.

1.1.2 Current functioning and output of core expert group

The kick-off activities began in September 2013 with a general welcome and introduction of core experts to the Presto4U project. The Core expert group has been assigned an online work space in Google+ which also provides a free video/voice call functionality and the opportunity to share and update documents, news and events.

Virtual meetings have being scheduled on a bi-weekly basis using Doodle polling calendars.

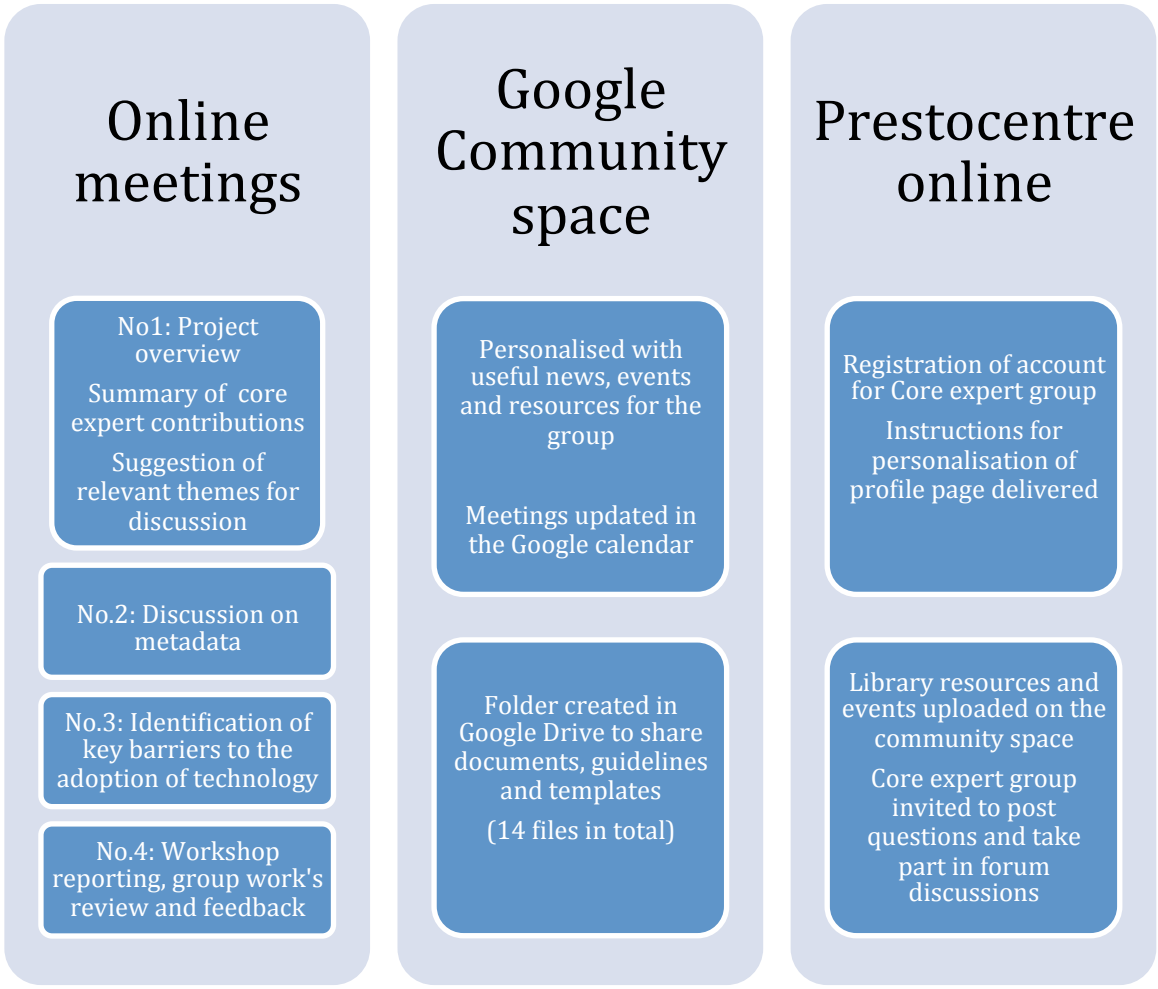
Up to December 2013 the core expert group participated in online meetings suggesting themes for discussions and sharing their experiences and workflows. The group discussions have been complemented with one-on-one calls and email correspondence to acquire feedback, and provide guidance for the completion of templates and questionnaires.

The initial findings from the group discussions have been summarized in an excel document shared with the group via both email, Google Drive and on Basecamp for internal review.

A series of templates have been delivered to the group to facilitate the collection of information to feed into the other work packages (WP3 and WP4).
The group has so far been very active offering interesting information on their digital preservation issues and contributing with a case study, a file formats register and one set of video files for testing under WP3. Every core expert has also answered an extensive questionnaire covering general demographic information about their institution and their collections, digital preservation workflows, technology used, needs, and barriers.

The results of the questionnaire have been collated in an excel report to support analysis of commonalities and best practices within the group.

The outcomes of the group work have been documented and shared with the Presto4U partners working on other work packages (WP3, WP4 and WP5).
Here below is a summary of the main core expert group's online activities.



Other off-line activities included writing tasks (e.g. on the role of suppliers) and participation of two members to the first face-to-face meeting within the Presto4U workshop in Paris (4th December 2013).

1.1.3 Gaps, risks identified for the COP management

The nature of a CoP strongly relies on the motivation of the participants and willingness to share information and provide solutions to outstanding problems.
Considering that this is the first large attempt to identify the needs of a wide spread community dealing with audiovisual resources in the academic environment, it was considered very important to select an initial group of core experts who are very passionate about digital preservation and actively engaged in the various aspects of its planning and management.

Among the potential risks for the CoP management we identified the followings:

- Timely participation of the Core expert group to join in scheduled online meetings
- Knowledge of technical terminology and shared vocabulary;
- Timely delivery of documentation and updates from CoP members;
- Limited face-to-face meetings due to geographic spread of members;
- Lack of travel budget for members to attend workshops and events;

Since the planning phase we recognize that the functioning of the community strongly relies on the members' commitment and enthusiasm, but could also be affected by the busy working life of participants and their inability to join in scheduled meetings. To mitigate this risk we tried to give as much planning time as possible and used the Doodle poll online tool to reach consensus on the schedule of meetings.

For all the dissemination activities aimed at the wider community we expect to use a controlled vocabulary, providing definitions where required and referring to library resources in the PrestoCentre website.

We trust there is a strong personal incentive for the core expert group to share information and contribute to the documentation of major challenges and concerns, as well as the needs of the community. However there might be occasions when members will have to prioritize other commitments and we might expect delays in the delivery of documentation or completion of surveys. To mitigate this risk we provide a calendar of deadlines as a baseline for the core expert group and have frequent conversations to check progress.

Another risk identified in the CoP management is the lack of travel budget available for CoP members, which means there might be a little incentive to join in face-to-face meetings or attend Presto4U workshops and events. To ensure the highest number of participants we are investigating if there is any particular event that is usually attended by audiovisual practitioners in the teaching and learning domain. We will try and organize meetings or workshops in the same city and period to save travelling costs.

1.1.4 Results from face to face meeting and other activities

Some of the core experts took part in the first face-to-face meeting within the Presto4U workshop 'Digital Audiovisual Preservation in Communities of Practice' (Paris, 4th December 2013). The event secured an attendance of around 80 participants from the various communities identified within the project and provided a friendly space to expand on some of the issues discussed within the groups.

During the morning session we provided an overview of the community profile for Learning and Teaching Repositories focusing on barriers, shared concerns as well as expected actions to address some of those issues. The presentation was very well received and became a good starting point for the afternoon discussions.
Attendees from both the research and education domain joined in the group discussion, which provided insightful observations on some of the common behaviours that characterize the university domain, and in particular the lack of resources and investment in training academics in multimedia technology.

The discussion also covered other important topics such as metadata and the question around the level of integration with the digital files. One of the participants observed that although embedding metadata into digital formats is important, it is also necessary to preserve digital objects and metadata together with their evolution and changes of use and context. Keeping the metadata separated facilitates the update of information without having to modify the digital object, but it is important to preserve everything together including the links and usage history.

Other events, such as the AMIA (Association of Moving Image Archivists) Conference and ANADP II (Aligning National Approaches to Digital Preservation), have been attended by a

representative of King's College London to engage with the wider community and distribute the Community of Practice flyers.

The first newsletter has also been distributed to other key members who have expressed interest in joining the community. The newsletter introduced the initial group of core experts, their work progress and invited new participants to join in the community and contribute to discussions in the PrestoCentre forum.

The PrestoCentre Library has been updated with nine online publications and two events related to digital preservation in the education domain. There are not many publically available resources or events specifically related to the use and digital preservation of audiovisual media in this area, but we hope that this report and future updates will stimulate discussions and promote the creation and distribution of more resources and workshops.

Other activities conducted in 2013 included the preparation and delivery of a promotional video called 'Impressions: Learning and Teaching Repositories Community of Practice' to celebrate the UNESCO World Day for Audiovisual Heritage. The video was posted on the PrestoCentre website: https://www.prestocentre.org/world-day-2013.

In 2014 King's College London will continue to work with PrestoCentre to deliver a blog focused on other developments, ideas and events of interest to the Learning and Teaching Repositories CoP.

1.1.5 Actions to promote further growth and visibility

We are currently promoting further growth of the community by extending our research in the HE/FE sector and inviting more practitioners from across Europe to join in activities. The recruitment is promoted via email correspondence and newsletters. The first newsletter has been delivered providing instructions on how to become a PrestoCentre member or join in the forum discussions. We have also invited the initial working group to suggest members who would be interested in participating more actively as core experts or simply taking part in online surveys.

We are also planning to improve the visibility of the community by using other media such blog posts, Facebook and Twitter, as well as print and online publications within the media preservation and academic environment (e.g. AV Insider, AV Preserve, Createasphere, Times Higher Education, Lifelong Learning in Europe - LLinE etc).

In 2014 we are also planning to deliver one or two webinars focused on subjects of major interest to the community. We are currently evaluating a possible session on emerging preservation issues from distance-learning initiatives such as MOOCS.

1.2 Creating an understanding of long term digital preservation technological needs and barriers

1.2.1 Process and methodology used

A preliminary macro-overview of potential issues was undertaken at the beginning of the project with a report highlighting the main concerns related to the increasing production of

audiovisual content for web access, which may generate little concern for capturing video and audio files in their original uncompressed quality. Although the report was mostly focused on e-learning resources and technology related to virtual learning environment (VLE), we have expanded our CoP analysis to include the digitisation and migration of physical carriers.

The core expert group work started with a general brainstorming onto the main issues that users have experienced within their institution or consider relevant to the education domain.

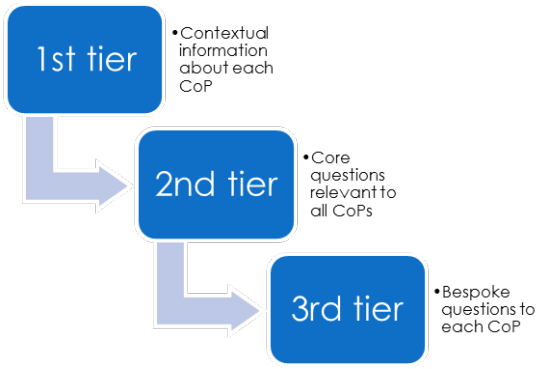
The following themes were identified within the group:

- Rights issues
- Application of standards and correct metadata
- Technologies for access of AV content
- E-learning resources (e.g. FutureLearn)

The subsequent meetings offered the opportunity to explore some of those areas and in particular rights, metadata and e-learning resources as big opportunity for taking forward the commitment to preserve educational resources, because of the need for funding raised by many institutions.

The initial investigation onto the long term digital preservation needs and barriers has taken place following the methodology identified in period 1 (deliverable D.2.2, Chapter 12.4).

This follows a both quantitative and qualitative approach to collect a first level of information on the organisations demographics and common needs shared by the CoPs, followed by specific questions to the Learning and Teaching CoP.



King's College London worked on an extensive questionnaire to gather a baseline of data on the state of digital preservation across the various CoPs including specific questions for the Learning and Teaching Repositories CoP. The questionnaire was implemented into an online survey tool using the PrestoCentre functionality (similar to SurveyMonkey).
The idea is to extend the survey to more participants as they join the Core expert group and other professionals within the peripheral level.

As we dig deeper into the technological needs of the community, we also aim to capture functional and non-functional requirements by extending the depth of questions in line with the knowledge schema.

1.2.2 Challenges and barriers encountered in the process

The Core expert group is well established but small in size, so that means that the documentation on the status of digital preservation has been restricted to a limited number of use cases, but we are planning to extend the group and include the investigation to other institutions from across Europe in 2014.

At the beginning of the process we have encountered a main challenge in getting equal involvement from all the core experts in online discussions and writing tasks. This is due to the fact that every participant has a different working schedule and they need to prioritize other commitments within their institution.
There was also an initial barrier related to the fact that participants don't know each other, but the face-to-face gathering in Paris has provided an initial place for networking and we are planning more activities in 2014.

Understanding the technological needs of FE/HE institutions holding or producing audiovisual content is not an easy task, because many are still trying to understand how to manage their workflows and assessing the diversity of content that is worth preserving. We also need to consider that there are different players involved in the process and it is difficult to gather a comprehensive overview of needs through virtual meetings as opposed to onsite business analysis.

1.2.3 Results so far

The Core experts who have joined the CoP for Learning and Teaching repositories come from universities with a variety of collections in both analogue and digital formats, ranging from Russian movies and historical recordings, to video-conferences, lectures, podcasts and theatre performances.

The group has been actively involved from the second meeting stimulating discussions and meeting deadlines.

A set of mp4 video files cleared for research purposes was made available by one of the participants and shared with the Presto4U team involved in the testing and assessments of software tools under WP3.

We also collated a case study to feed into WP4. The case study focused on the digitisation of a VHS collection on architecture and design and showed that although a large percentage of materials have been digitised, files have been temporarily stored in two external hard disks and there is a need for long-term archival storage, metadata production and streaming software for access. The collection is managed by a small team within the university library who is also responsible for lending items to students. Besides the analogue collection, the university is also dealing with an increasing number of video recordings (video lectures, video-conferences etc.) and digital formats produced by both teachers and students, so the library team is moving to prepare some standard guidelines and technical recommendations for the user community.

The survey completed by the other core experts showed that the situation is not dissimilar for other institutions and there is still a large variety of analogue collections awaiting digitisation and very limited human and financial resources. Some of the most common carriers are VHS, reel-to-reel, U-matic and Betacam.

In some other cases we also observed that born-digital content is developed by individuals or micro-teams scattered across different departments with their own management and workflows resulting in disconnected collections. There are good practices emerging and, in few cases, a central strategy has been developed to define a digital preservation workflow including long-term storage in LTO tapes, as well as capturing of technical and descriptive metadata within a central cataloguing software. However, more implementation and investment in technology is needed to develop a trusted digital repository and provide access to audiovisual resources.

Since access to content is essential within this field another major concern is related to the complicated nature of audiovisual rights and the legal implications of dealing with copyright clearances and data protection. Some institutions are in a better position than others and rely on the support of internal legal departments and/or consultation with national bodies such as the Italian AVI (Associazione Videoteche Italiane) for the definition of contracts, but there is a need for managing rights to provide different levels of access.

As we moved to identify some of the issues specific to educational settings the discussion focused on metadata and the need to ensure the presence of different vocabularies without losing the domain point of view. Although standards like Dublin Core, METS and PREMIS have been adopted by some of the participating universities, there is still a major challenge dictated by the variety of disciplines and the need for documentation around the context of use and relationships (linked-data). This is particularly important to make users research more efficient and facilitate cross-software sharing of metadata and files between institutions, especially those engaging in distance-learning. The situation becomes even more complicated for institutions producing e-learning packages because of the wide variety of assets that accompany audiovisual contents (graphics, animations, PDF files, interactive exercises etc.). Although virtual learning environments (VLEs) represent a big challenge when it comes to digital preservation, the core expert group agreed that this is also an opportunity for taking forward the commitment to preserve educational resources. Considering the need for funding raised by many institutions, the community should take this growing trend to build a stronger argument for extending preservation to backlog material.

In general the main barriers identified have been associated with limited funds, but some core experts pointed out that there is also a tendency from senior management to disregard the value of technicians and other personnel involved in the management and preservation of audiovisual resources. Some have also experienced some difficulty in sourcing the right technology, because decisions are often made by central IT departments who have little knowledge of audiovisual media and workflows.

One of the main conclusions reached by the core expert group is that there is no formal strategy for digital preservation in the educational environment and the group could work on a draft proposal to assess existing policies and define a joined up approach.

1.2.4 Additional tools used to facilitate gathering of consistent information

To facilitate the gathering of consistent information King's College London has been involved in the preparation of an extensive questionnaire using common terminology and following the OAIS model as a preferred preservation workflow approach. A set of questions common to all CoPs was defined to cover information on the organisation demographics, types of collection, needs, standards and tools.

An additional set of questions specific to educational settings was added to capture information on issues related to Learning and Teaching Repositories.

The questionnaire was mapped to the knowledge schema identified within Presto4U and implemented into an online survey within the PrestoCentre website.
We also defined a series of templates to collate general themes for discussion, case studies, most common file formats and role of suppliers.

1.3 Role of supplier to the community preservation challenges

1.3.1 Introduction

The role of technology providers within the educational environment is still very complex and ambiguous. The lack of experience, the granularity of initiatives and the lack of financial resources are the most relevant open and critical issues to face. The increasing costs implied when the commercial suppliers are involved are not compatible with the lack of resources.

ExLibris seem to be a major supplier in the libraries worlds, but we currently see no real players in the preservation of audio and video resources within the academic environment. Many universities are experimenting with their own low cost solutions, mostly based on Fedora and other open source technology as opposed to vendor based solutions.
In general the expectation is that open source software is cheaper to implement and customise, however universities rely strongly on technology providers to offer solutions to take forward the e-Learning approach.

Since Learning and Teaching Repositories is an emerging group in audiovisual preservation there is a great urgency to understand available technology and engage with suppliers in the commercial sector to explore whether there are affordable solutions.
At the same time there is still no common understanding of how preservation and access shall be organised within universities, therefore the CoP can play a key role to define use cases and express shared needs to help researchers and technology providers to address those needs.

1.3.2 Engaging with the supply side

Conferences and trade shows still represent the best platform to engage with the supply side, however users within this CoP find that they have to spend quite a bit of time researching solutions designed for other areas that can be applied to their specialised needs.

Also not much funding is invested in networking events for technical staff working in education and this is might become a real problem in the future, especially for preservation

specialists working in institutions who are moving the purchasing function to a centralised procurement department.

Users within FE/HE sector currently rely on web searches, vendor white papers, online technology forums and community newsletters, so the Learning and Teaching Repositories CoP can facilitate the discovery process by updating members on successful use cases and emerging tools.

1.3.3 Actions prepared for 2014

The work to discover the supply side will continue in 2014 with a thorough analysis of the vendor community in the audiovisual archive sector, and examples of technology that have been successfully applied to satisfy the preservation needs of the education sector. We will also ask for recommendations from the core experts and other CoPs, as well as continue to analyse use cases, shared needs and extend newsletters to the wider community.

The Presto4U marketplace will be a community driven forum where the Learning and Teaching CoP will be able to express their needs, investigate tools and services. There will be product demonstrations, Tech Watch reports and a brokerage space between user and suppliers. It will also offer vendors and service providers the opportunity to learn more about the challenges and needs within the education domain and respond by offering services and solutions. The marketplace could play an important role to gather together shared needs and achieve economies of scale by lowering costs for the community.

1.4 Successes of the community-building process

The Community of Practice has been successfully established with the steering group having regular bi-weekly discussions on major challenges and preservation needs for Learning and Teaching Repositories.

The core expert group has shown a great enthusiasm and commitment by sharing information on their institution workflows and technology used. An initial documentation into the use of tools and standards has been collated together with a general overview of major concerns and urgent needs.

The Community has also attracted interest from other academics, who are involved in audiovisual preservation at different levels and are keen to follow the Presto4U project by receiving newsletters or taking part in surveys.
The Paris workshop played an important role in gathering interest and feedback from the wider community and has also strengthened some relationships within the core expert group. The communication tools for the CoP have been implemented on the PrestoCentre website and personalised with library resources, news and events relevant to the community.

The work of the core expert group will continue in 2014 with the assistance of new members and we aim at increasing the publicity activities to encourage more participation in public discussions (e.g. PrestoCentre Answers) and workshops.

2 Video Production and Post-Production

2.1 General progress of growing the CoP membership

2.1.1 Introduction

The CoP Video- and Post-production is defined as a community of users who share a passion for creating “media for makers” and in the same sense users aim at refining and standardising preservation facilities in order to exchange and reuse assets for new video productions, video products, and deliverables.

The core issues in this community is first of all based on the needs of commercial players, B2B, and the business opportunities in media houses and broadcasters, post-production companies, advertisers and marketing bureaus. Currently, the typical pattern is that there is only a very low degree of interaction between the many different organisations and sub-network.

The presence and wider use of digital media, digital workflows, and digital media is calling for more evident and cost-efficient roadmaps and sharing of knowledge regarding best practices. There is certain need for more standardised navigation and interaction across technical and geographical borders based on different workflows, legacy issues, cultural rules, and standards.

Especially the need for efficient B2B business cases is quite clear and the community aims therefore to focus more explicitly on transparency, training, accessibility, administrative and financial facilities.

The management of the CoP Video- and Post-Production has been planned and implemented by TV 2 Denmark. TV 2 is a media house, semi-commercial with a huge digital production of video-assets for all purposes – e.g. public service, commercials, infotainment, edutainment, entertainment – aimed at television and web-based outputs.

Although TV 2 is a rather young media house (25 years’ experience), the company has obtained large results and a quite substantial turnover based on the development of new business cases and B2B-models.

Through interaction, marketing, and business-based relationships TV 2 has built a strong network and relationship with video-media actors from all over Europe. The actual network is going to be used as a platform for attracting more companies to take interest in the Presto4U progress as well as to take part in the contribution of relevant feedback to the project. It is expected that the feedback will be used to gain overall data and facts about currently used workflows, preservation standards, best practices concerning exchange, handling of legacy issues, barriers and restraints, and needs for developments and emerging standards.

It is also expected that the actors are going to take part in meetings, communication and workshops arranged by the community-management as well as the project management. Meetings with Core Experts will be held regularly and when a wider community is identified

it is expected that they will be included and take part in workshops, preservathons, and webinars.

2.1.2 Current functioning and output of core expert group

As a general framework for the work and progress in the community and to clarify the most significant interfaces to other communities involved in the project (to avoid overlapping), the CoP has produced a project plan with specifications of definition and objectives, user categories, stakeholders, business cases, business fields, involvement, plans for organisation, expected outcome, assumptions and constraints, deliverables, success criteria and a preliminary communication plan.

Through an extensive communication effort where many different categories of users from different European counties have been addressed, the CoP has succeeded in gathering a group of ten core experts which represents some of the most representative groups in the community as well as the superior expertise in familiar areas and fields.

Particular focus has been paid to certain groups of actors within the organisations addressed. These groups are: managers, commercial staff, marketing and creative staff who are experienced in organising, promoting and trading video assets. Researchers, librarians, and archivists experienced in preserving, searching and retrieving material. Legal staff used to work with the administration of copyrights and rights management. Technical staff involved in standards, solutions and progress regarding preservations systems and content- or assets management systems.

All Core Experts has been offered a membership to PrestoCentre where they should be able to obtain useful information about the project, the project management, state of the art in research and to communicate with players from other fields.

The CoP has carefully managed the membership through development of communication tools in terms of the creation of a CoP-specific Google+ workspace for shared information about activities, knowledge about other members, meetings and workshops.

Furthermore the CoP-management has produced two CoP specific newsletters which have been distributed to all members of the core expert group.

The CoP-management has arranged two meetings in 2013 in November and December. Both meetings have been substantial and they have been reported to Project management and to the Core Expert group.

Following issues have been discussed:

- The questionnaire: Especially the length of the questionnaire and the areas it is focusing on. Will people feel attracted spending time in answering and pay attention to the many answers?

- The focus of tooling: Emphasis on technologies and standards seem to be more extensive compared with focus on conceptual and training matters.

- Metadata: The fact that metadata is given lower priority among a lot of production companies and actors in the community and how it affects the abilities of searching and requesting media files.

- Webinars to be arranged in 2014: which topics have particular interest?

- Training facilities. Exchange of media files – best practices, standards, handling. Remote editing – i.e. solutions for creating more focus on the potential of creating and share metadata and information in community organized networks. Dynamically exchange of media files between different users and communities. Best practices, work cases, and handling of technical as well as administrative solutions.

A communication plan has been produced containing plans of Core Expert group meetings, webinars, and workshops to be arranged in 2014.

2.1.3 Gaps and risks identified:

The CoP represents a large group of different actors ranging from very small and almost ad hoc established organisations through more locally and thematically funded organisations to large national or international organisations.

The efforts of gathering and stimulating actors to join the Core Expert group in the CoP has been challenging and more demanding than expected. The following issues have been addressed:

- High degree of diversity affects the community cohesion. The gaps between the different sub-communities, their communication across business-related borders, and awareness to cost-efficient solutions more than on rational intelligent use of shared assets and needs, affect the cohesion and the general ability and intention to create new business cases.

- Large diversity between multiple stakeholders, their livelihood, and their raison d'etre affects their interest in sharing progress among users from other sub-communities.

- Large diversity between the professional backgrounds of employers:

    - Private companies (freelancers, professionals with different backgrounds, B2B and bottom lines are the main drivers)

    - Public institutions (academics, policy makers, public service and publishing are main drivers)

- Many different business and work models on stake, which affects the interest in creating shared solutions together with actors from sub-communities.

The CoP management has focussed on two different solutions for bringing more incitements to participate into the actual groups. One has been to address and promote

shared problems and the need for shared solutions to increase cost efficiency, revenue and improve business cases.

Another approach has been to arrange face-to-face meetings between some of the actors and the CoP management. Especially the last approach seems to have been very successful. The meetings have focussed on receiving feedback based on the CoP-specific questionnaires and especially dig another layer down in some of the most complicated issues.

The social dimension seems to be a harder challenge than expected, however the CoP-management think that the use face-to-face communication has increased the incitement to contribute.

2.1.4 Results from face to face meeting and other activities

Face-to-face meetings:
Face-to-face meetings have been arranged individually with all core experts plus a number of experts from the so-called wider community. There has been arranged one meeting per member. Totally 15 meetings has been held in 6 different cities of Europe – Stockholm, London, Amsterdam, Brussels, Luxembourg, and Barcelona.

The meetings have been held in the premises of the experts. The meetings have been felt as very useful. Especially because they have focussed on details and issues not covered in the CoP-specific questionnaire. The experts are representing different organisations and categories of users and professions and therefore it has been possible to receive feedback and qualified reflections on the same issues assessed by different professions and stakeholders.

At the same time it has been possible for the CoP-management to physically be in the environment – be on location – and discuss certain elements and issues right there where it all is done. The input from these activities has been useful for the planning for the webinars and meetings in 2014.

Newsletters:
2 newsletters have been published to the Core Expert group. Both letters have dealt with priorities, instructions about how to contribute and awareness to certain events, relevant reports or workshops. The newsletters usually picks up the most actual issues discussed at meetings and at the same time they act as a catch up on previous activities, events etc.

Dissemination activities:
The CoP-manager has made a presentation about Presto4U in general and particularly the objectives and expected results in CoP Video and Post-production for at large number of attendants at the Nordic Conference for Audio-visual Archives held in Stockholm (September).

Flyers:
The CoP management has diffused flyers containing information about the project and the CoP-specific work during meetings and presentations.

Blog:
The CoP has not been active in using the blog facilities. Available time for all activities has been a challenge and the work with the activation of the blog has not been prioritised.

2.1.5 Actions to promote further growth of and visibility

In the second part of the project further actions are going to be taken to attract a wider community of relevant users and to stimulate their incitements to participate in the communication-flow between webinars, events, blog-communication. However, the actions to be taken depend seriously on which communication tools will turn out to be the most efficient. The tools to be used will be: blogging, newsletters, webinars, preservathons and event based presentations.

To be able to diffuse the results and to create a broader knowledge about the results and the achievements to a wider audience, all kind of relevant end-users will be addressed through more strategic diffuse of the newsletter to a wider user group. The CoP-management is going to use relevant European organisations to reach a critical mass – e.g. TBI (Television Business International).

2.2 Creating an understanding of long term digital preservation technological needs and barriers

2.2.1 Process and methodology used

To be able to design the questionnaire and input to be elaborated in WP 3 and 4 the CoP-management has met with the partners (CNR) responsible for the Knowledge Schema (KS). The conclusions of the meeting have been used to design a CoP-specific questionnaire.

The KS is divided into five sections which have been core cornerstones for the organisation of the questionnaire. The sections are: Header, Organisation, Dataset, Need (Functional Requirements, Non-functional requirements). The CoP has found the KS-methodology applicable for the design of the questionnaire and the knowledge transfer.

A CoP-specific questionnaire maintaining the five sections has been developed and is attached to the actual report. The questionnaire has been promoted through the PrestoCentre website. Awareness to the questionnaire has been diffused through newsletters and communication with potential responders in the wider community.

The CoP-specific questionnaire has been used for the development of questionnaires from other communities. The results from the questionnaire are currently gathered. However, main issues to be addressed have already been encountered (see 2.3).

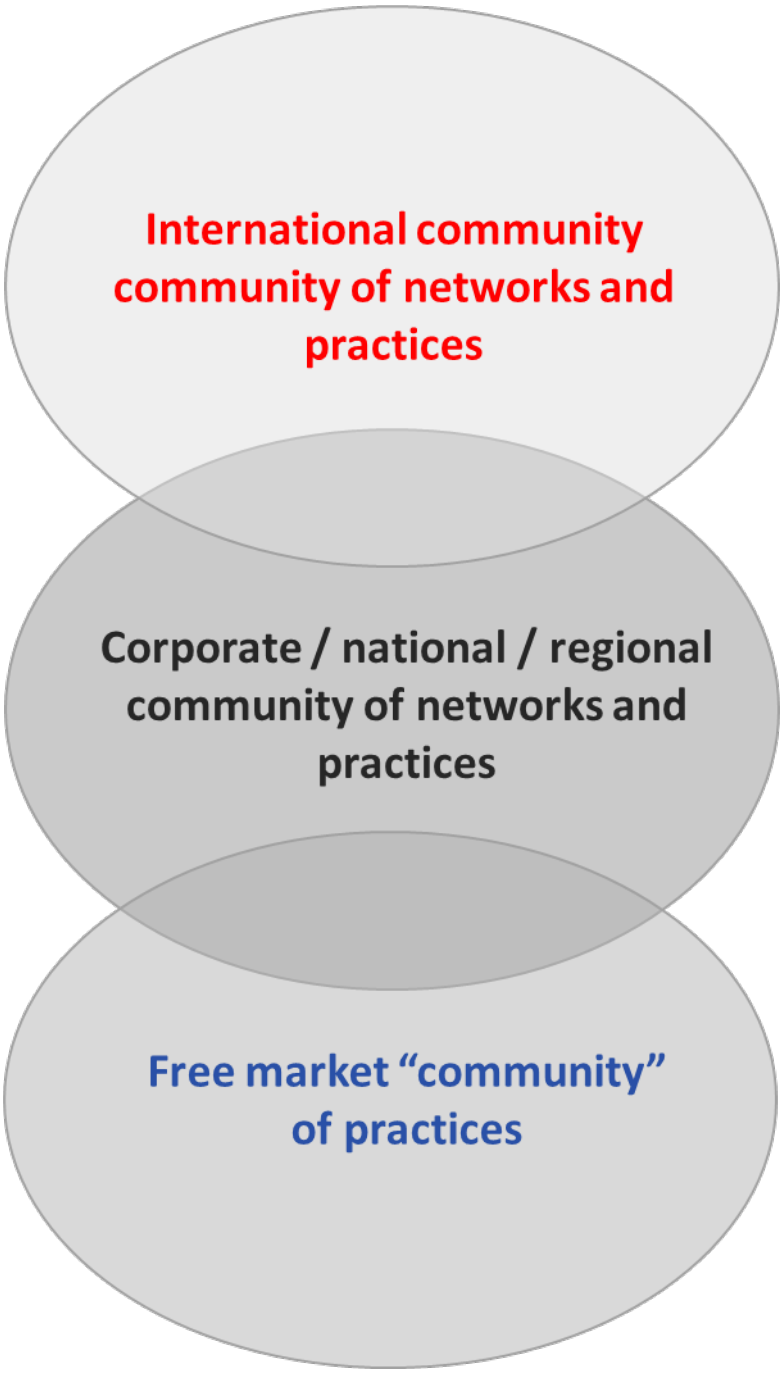
Simultaneously, the the CoP-management have visited 15 groups of experts around in 6 different cities in Europe. The meetings have included a discussion about certain issues from the questionnaire – e.g. technical problems, standards, barriers or needs. The discussions have revealed new questions about more detailed information and beyond answers regarding tools and missing technologies; responds have also been focussing on methodologies, work-chains and training facilities (missing overview with the work-chain and the quality assessment).

2.2.2 Challenges and barriers encountered in the process

The most challenging issues encountered have been the CoP-management's ability to create a credible and attractive communication-platform for the community. The incitement to join the project and the communication in taking the responsibility as core expert, in joining the shared workspaces (Google+), by contributing to newsletters, to share core expert meetings and to contribute with feedback in questionnaires, has been hard to manage and to plan. The social dimension seems to be a matter of 'what is in it for me?' more than 'what is in it for us?' which probably is due to the ubiquitous focus on ROE and bottom lines among the users. The commercial factor is extremely important and this affects the interest in joining a European project without any promises of efficient benefits and earnings. However, the CoP-management has felt that the interest in joining the questionnaire as well as the assisted interviews has been quite successful. The amount of time for responding the questionnaire is however felt to be quite challenging to most users.

To be able to create more support to the activities in the remaining part of the project, the management will focus on some of the issues which from the responds to the questionnaire and the actual assisted in-depth interviews. These are for example tools and facilities for cost-efficient exchange and deliveries. Training facilities for post-production professionals and others (see 2.3)

Other barriers encountered:
There seem to be a communication issue which is assessed to be a barrier for more seamless and dynamic communication in the overall community. The CoP-management has identified three different sub-communities. Each of them is attached to their own standards, best-practices, business models etc.



- High level of homogeneity
- Standards – preservation-tools – metadata-standards - technology tools
- Methodologies for exchange and standardized roadmaps for handling of rights and payment
- Medium degree of flexibility
- Business drivers are almost not existing

- Medium level of homogeneity
- Mix of use of standards – preservation-tools – metadata standards - technology tools
- Proprietary use of methodologies for exchange and roadmaps for handling of rights and payment
- Low degree of flexibility
- Business drivers exist within narrow communities

- Low level of homogeneity
- Multiple tools available but no consistency
- Low level of metadata tools and standards
- Methodologies for exchange and roadmaps for use of rights and payment are almost not existing
- High degree of flexibility and dynamical thinking and behavior
- Business drivers RULE!

There seem to be a rather general lack of confidence to CLOUD based technologies and solutions. However, the feedback from the interviews and questionnaire demonstrate the confidence has improved during the past years. Especially the fact that CLOUD-storage can be designed individually and address both open and more official as well as closed and more restricted solutions seem to create more reliance. The fact the prices attached to CLOUD-based storage is significantly low compared with local and company based solutions and traditional digital storage has also created more interest to CLOUD-storage. Finally, it seems as if the CLOUD-technologies and solutions more and more has been acknowledged as an efficient way to create new patterns in infrastructure and in that sense also boost the opportunity of new B2B-solutions.

The fact that the digital production-chain has evolved to be far more complex compared with the previous analogue workaround has created a new demand for training to ensure

that professions involved with preservation, deliveries and exchange demonstrate more concerns about opportunities, competencies, standards and not-standards, technical facilities and methodologies during the work-process from camera-recordings, to acquisition, to editing, to storage and distribution. There is a widespread concern about alienated staff, the loss of knowledge-sharing and rational use of competencies in order to create more LEAN-based and cost-efficient ways of organising the tasks and the deliveries in the chain.

Solutions:
In order to create an overall awareness to identified issues (see 2.3) and increase a more dynamic communication and focus on suitable and sustainable standards and preservation rules, the CoP management has decided to frame the next newsletters, the blog and the coming webinars in 2014 in a way where business cases and rationality is the primary entrance to discuss developments, missing tools, technologies, standards and preservation issues. The financial issue and the need for more cost-efficiency are shared by all sub-communities and their incitements to join a dialogue with other players. Therefore all inputs and solutions will be based on the frame of a business-case.

The three barriers above will be in focus for the agendas in all activities – Newsletters, blog-discussion, cores expert meetings, meetings face-to-face and finally the webinars.

2.2.3 Results so far

Based on the questionnaire and the face-to-face meetings and assisted interviews the identified results can be described as more detailed issues as well as solutions in more general terms.

More detailed the following tools and conditions have been identified:

- The need of making the protracted or tedious stuff more automatic, and remove the creation of necessary metadata to more automated tools. Many users express the need for automation where logging facilities and shared metadata-platforms take care of the data-input in order to identify, search and retrieve the media across different user and platforms

- The need of tools or methods that will make it easy, simple and flexible to create versions for different destinations. The issue of versioning is significant and there is a strong demand for tools and facilities which provide easy and seamless compiling, wrapping and transferring of media files independently of what is the standard in one place and what is demanded in another.

- The ability to manage workflows through centralised tooling, such as CLOUD-based ones, for storage, processing and metadata. There is an increased and more confident interest in using CLOUD-based facilities not only to store digital media in rational and cost-efficient ways but also to access more dynamic tools for interacting and interlacing with other users or customers.

- Tracking of content. The wish of tools for more visibility of content as it moves through the workflow is demanded – e.g. by using QR-codes (like a DHL-order).

Tools for identifying media in terms of categories, thesaurus-based, technical- and description-based identifiers are requested. E.g. a standardised classification system for audio-visual media, designed to track and describe technical facts, conceptual or description-based issues, and based on the challenges regarding versioning of media files into different formats, lengths and editions.

- Automation of the workflow around preservation and archiving. There is a genuine need for more automation in order to save time (and costs) on metadata and descriptions. The prospect of intelligent software tools searching on content with metadata generated by intelligent software tools.

In more general terms the users are requesting a more centralised or even a industrialised solution which contains all of the above functionalities and facilities but accessed through a 'one point of access-like' system, which will act as a kind of pan-european or international MCR, providing services where all deliverables are handled and served.

The specific processes are:

- Sharing of storage solutions in flexible frameworks (CLOUD)
- Sharing of preservation systems with defined content processing methods
- Intelligent management of versions, compiling, wrappers etc.
- Generic search, tracking and management-tools
- Outsourcing of distribution and delivery methods (external as well as internal / in-house)
- Flexible shopping and distribution facilities

2.2.4 Additional tools used to facilitate gathering of consistent information

The CoP-management has used a questionnaire and a interviews based on the need-part of the questionnaire for collecting data about state-of-the-art, barriers, and needs (functional / non-functional).

The questionnaire specifically designed for the CoP Video and Post-production has been diffused through the PrestoCentre website and the awareness has been promoted through newsletters and PrestoCentre.

2.3 Role of supplier to the community preservation challenges

2.3.1 Introduction

Plenty of commercial providers and categories are involved in the Community. The challenge is to find consensus among them in order to define common denominators.

- Media houses – i.e. private companies working with a broad range of media services – for example electronic publishing, printed media to advertising and communication, entertainment etc.

- Advertisers and marketing – i.e. commercial communication and advertising companies.

- Production companies. Private and public companies working with post-production and video material aimed at publications for education or infotainment / entertainment.

All user-categories are working with digital media and all common digital formats are represented. Plenty of users are somehow working in proprietary workflows where the use of standards is limited to the use of certain products for media-management and preservation.

The level of homogeneity among the users is medium to low, which affects the flexibility and ability to cooperate and work more dynamically.

In the CoP Core Expert group there are two representatives for a plenty of private users. Both organisations have delivered strong inputs from internal investigations made by a broad group of commercial representatives within their group of members.

ENEX: http://www.enex.lu/public/
An association of leading commercial TV broadcasters around the world which are sharing their news content and production resources. ENEX represents mainly a lot of private broadcasters from Europe but it also includes users from North- and South America, Asia and Australia. All members are part of a shared collaboration where they are obliged to share assets regarding news stories with each other.

The organisation is not open to non-members. The network also takes care of more special tasks regarding video-footage and items from archives. All items are sent in MPEG formats through ENEX, which serves as a kind of conversion/translation centre. All data are metadata – technical and data regarding description, IPR and usage are attached with the media files.

ENEX has defined a standard for dataset and workflow. However the material is confidential.

DPP: http://www.digitalproductionpartnership.co.uk/
The Digital Production Partnership (DPP) is an initiative formed by the UK's public service broadcasters to help producers and broadcasters maximise the potential of digital production.

DPP arranges plenty of training-sessions and workshops around workflows, best practices, preservation, standards regarding post-production and exchange of assets. All events are open to both national and international players and they tend to attract users from all kind of communities – especially national.

In cooperation with Mediasmiths.org – consultants – DPP has produced series of substantial reports about some of the core issues and challenges in this area. The most significant are:

- The Reluctant Revolution: Breaking down the digital Barriers in Digital Production in Television.

- The Bloodless Revolution : A guide to Smoother Digital Workflows in Television
- The Creative Revolution: Is Digital Technology Changing Creativity in TV?
- The Coming Storm? : A Report on the Impact of Cloud on Broadcast.

A new report is ready to be launched the next month. All reports are available here:
http://www.digitalproductionpartnership.co.uk/downloads/reports/

DPP has also launched a de-facto standard on metadata and acquisition registrations, loggings etc. The output is available here:
http://www.digitalproductionpartnership.co.uk/downloads/metadata-application/

2.3.2 Engaging with the supply side

During Core Expert meetings and face to face meetings commercial and suppliers have contributed with different inputs about state-of-the-art, challenges, gaps and barriers.

There is clearly a need for input from the industrial side. Actually, users are requesting centralised services / centralised tooling to relieve them from some of the tedious jobs which have arrived from the file based world. In general, users want to focus more on making content and let machines take care of the rest. The technologies requested are:

- Multi-standard universal compilers and wrappers for handling and conversion of different versions of media deliveries
- Simple ways for delivery of content to other through e.g. CLOUD-based infrastructures for storage, processing, and metadata enrichment.
- Unique identifiers or a classifications system for searching, tracking and retrieving
- Unique identifiers for tracking of digital media on the flight (while they are in transit)
- Unique identifiers for versioning and identifying versions and file types
- Need for intelligent software tools searching on content with metadata generated by intelligent software tools.

Training:
Equally there is a need for training facilities, which will be able to create more transparency and holistic understanding of the production chain. The improvement of knowledge, skills and competencies should be able to create more LEAN-based efforts in the productions chain end enable staff to be more aware of simple but relevant preservation standards.

2.3.3 Actions prepared for 2014

The CoP-management has decided to involve suppliers and organisations in the execution of webinars and training sessions. Two webinars are planned to be promoted through 2014 within the project lifetime - one about CLOUD-based technologies and training and another about exchange and transfer of media files and assets. Both webinars are going to demonstrate technologies, best practices and state-of-the-art in different scenarios and workflows spanning from big-scale solutions and workflows to very simple and common practices for using technologies and tools.

The technology-providers are going to demonstrate how they currently are providing solutions to certain challenges within post-production.

During 2014 (autumn) CoP VPP plans to arrange a workshop – physical and online – where technology providers will meet experts from the core group and wider group of experts. The workshop is going to consolidate some of the most evident tools and methodologies evolving from the project. The workshop should focus on how the tools will be promoted to the marketplace and how they should attract and be available to the many different categories and companies in the actual community of users.

Finally, the CoP-management considers inviting selected or individual technology providers to join a meeting in the wider community. However, details are not decided yet.

All efforts are included in a communication plan sent to the CoP leader.

2.4 Successes of the community-building process

Regarding the actual composition of the core expert group, the different skills represented and their abilities to complement each other, the community building process has been successful. The members have been quite active in contribution with useful feedback, both during the face-to-face meetings and the online meetings with the CoP-management.

The CoP management has noticed the following issues during the process:

Discussions about overlapping between familiar communities have been going on in the beginning of the project. However, the focus non avoiding overlaps and use of identical professional bodies has improved the work on identifying the relevant experts to join each CoP.

Some discussions on the need of methodologies contra the need for tools have been discussed. It is felt that discussion on tools often tends to turn into discussion about workflows, skills and methodologies. Therefore discussion about methodologies and the challenges should also be reflected in the tools.

Use of assisted interviews and in-depth questions simultaneously with the promotion of the questionnaire has qualified the usability of the feedback from the community. At the same the CoP-management has felt a stronger involvement in the obligations of producing input to the community. Finally it is felt that the face-to-face meetings has created a stronger commitment for continuously to feed useful information into the CoP.

The process of organising and attracting strong and competent players the Core Expert Group is assessed to have been a harder challenge than originally expected. Although the CoP-management is heavily involved in different networks and communities around Europe, the management has felt that experts don’t value their participation in the project to be as important as their actual results and financial bottom-lines. The incitement of joining a group where the output and results are felt as more or less blurred compared to their investments of time and resources in concrete and actual tasks is quite low and it has negatively affected the number of experts in the group.

The CoP-management has found that the need for professional communication-skills has been quite demanding and the management has felt it has not been capable of creating strong communication solutions for attracting people to join the Core Expert group efficiently. Provisional concerns on the involvement of professional communication experts in the CoP-management should have been made. Social and professional communication skills are not reflected in the CoP-management which today is assessed to be a weakness.

Meetings with partner CNR regarding the design of questionnaire and the requirements regarding mapping to the Knowledge Scheme is seen as useful and constructive for the further process of designing the questionnaire. However, the actual CoP was the first to arrange an individual meeting with CNR and later, in the process some of our decisions from the meeting with CNR had to be changed in order to meet new and updated demands.

2.5 References

- The Reluctant Revolution: Breaking down the digital Barriers in Digital Production in Television.
  http://dpp-assets.s3.amazonaws.com/wp-content/uploads/2013/04/The-Reluctant-Revolution-FINAL.pdf

- The Bloodless Revolution : A guide to Smoother Digital Workflows in Television
  http://dpp-assets.s3.amazonaws.com/wp-content/uploads/2013/05/BloodlessRevolution_LinksUpdated_May2013.pdf

- The Creative Revolution: Is Digital Technology Changing Creativity in TV?
  http://dpp-assets.s3.amazonaws.com/wp-content/uploads/2013/04/The-Creative-Revolution-DPP-Report.pdf

- The Coming Storm? : A Report on the Impact of Cloud on Broadcast
  http://dpp-assets.s3.amazonaws.com/wp-content/uploads/2013/09/The-Coming-Storm.pdf

- DPP de-facto standard on metadata and acquisition registrations, loggings etc.
  http://www.digitalproductionpartnership.co.uk/downloads/metadata-application/

3 Sound and Music Community of Practice

3.1 General progress of growing the CoP membership

3.1.1 Introduction

The Sound and Music Community of Practice shares many of the problems of other communities when it comes to digitisation and long-term digital preservation. However two particular issues are important:

- Audio collections contain the first and oldest media recordings which implies the oldest carriers and reading devices
- Music collections, mainly contemporary ones, present a complex use-case for preservation and reuse.

Today, Sound & Music archives have the challenging task of integrating, maintaining, enhancing and making accessible audio-visual documents. Sound recordings storage is a problem of vast proportions and not only affects analog media. Even the digital domain, characterized by endless possibilities for storage and manipulation of the signal, has problems inherent to the nature of information and the short life of storage devices. We have to remedy the deterioration of media, the loss of data and the obsolescence of formats and systems.

Our purpose is to identify the various types of problems in sound & Music archives, focus on the various issues for certified audio storage procedures, find best practices to be adopted in nowadays technical environment and gather information on the size and state of sound recordings preservation in those institutions that want to, each in a different and specific field, safeguard the European audiovisual heritage.

3.1.2 Current functioning and output of core expert group

The core expert group for this Community started its discussions during the summer and mainly since September 2013. No global meeting was really done (except for the workshop in Paris on Dec 4th, where some of the members could meet, discuss and share their vision), however regular phone meetings were done in order to share the information being created by the project.

The Core expert group has been assigned an online workspace in Google+, which also provides free video/voice call functionalities and the opportunity to share documents, news and events. This environment has been used for questionnaires and discussions with the community members.

3.1.3 Gaps, risks identified for the COP management

When analyzing Sound collections it was found that except for financing, there are no major issues concerning the preservation of Sound itself. Digitisation of audio carriers has been done for a long period of time and the formats and methodologies are clearly established as will be shown in this document.

However a major unsolved issue was encountered with the preservation of Music production recordings, for which no substantial action has been undertaken and the major

production centres for classic, contemporary or popular music face the danger of loosing most of its collections due to complex preservation environments and lack of descriptive information permitting the understanding of the preserved contents. During this first year the main task has been to identify the different actors of the musical environment and to observe that different actors in sectors of activity shared exactly the same problems and issues.

3.1.4 Results from face to face meeting and other activities

The phone, Google+ and email exchanges have been very productive in order to identify the common issues of musical archives. It is relatively difficult to contact people in production activities, they tend to be very busy and have not exactly formalized their problems as musical archive keepers have. However, through discussions (and mainly during the Paris meeting) it was interesting to see how they would discover that somebody else was sharing exactly the same problems.

No newsletter was yet produced, and the first one should appear in January 2014, as well as an expert meeting and a webinar.

Other activities conducted in 2013, included the preparation and distribution of a short video called 'Sound and Music Archives and Personal Contributions Communities of Practice' to celebrate the UNESCO World Day for Audiovisual Heritage. The video was posted on the PrestoCentre website: https://www.prestocentre.org/world-day-2013

3.1.5 Actions to promote further growth of and visibility

For the Sound Archive community, as said earlier, the situation is quite clear and there is an important literature and publications concerning digitisation, quality and preservation. The objective is to gather all the outstanding information, compile it in a critical way and publish it through the PrestoCentre. A short outline of digitisation and preservation activities will also be produced.

Concerning the Musical Archives community, it is important to aggregate a large amount of content holders from musical production and share some of the already existing outcomes. Some European projects like FP6 CASPAR[1] and the French ANR project GAMELAN[2] have dealt with these issues and are starting to propose partial solutions.

Presentations of these findings are expected in international conferences, as the EMS conference in Berlin in 2014[3], dedicated to specialists of contemporary musical production facing the same problems and needs. An article to be published in October 2014 is planned in the International Journal of Music and Technology, "Organized Sound", published by Cambridge University Press[4].

[1] http://www.casparpreserves.eu/caspar-project.html
[2] http://www.gamelan-projet.fr/co/accueil.html
[3] http://www.ems-network.org/ems14/index.html
[4] http://journals.cambridge.org/action/displayJournal?jid=oso

3.2 Creating an understanding of long term digital preservation technological needs and barriers

3.2.1 Process and methodology used

The objectives of the activity carried on year one were manly dedicated to make surveys among the CoP experts, regarding the following issues:

- Check sound carriers conservation state and consistency.
- Check if the media are preserved following preservation rules.
- Check if the institutions are equipped with equipment to re-access the media.
- Check if the institutions are involved in large digitisation of sound recordings.
- Check if the institutions are aware of the major international guidelines for the conservation and management of sound files.
- Check if the audio documents are published or not, and their rights related issues.
- Check the nature of the contents of audio recordings.
- Check the way contents were restored and the restoration technologies used.
- Check how musical productions were preserved.
- Check the documentation processes and practices for musical production
- Identify the different actors in the musical production environments sharing the same issues.

3.2.2 Challenges and barriers encountered in the process

Sound Archives

Sound Archives that hold audio materials are mostly local and regional archives with mixed collections, but the range is so large that they can span from large dedicated institutions and national public libraries to smaller archives specialized in a particular type of genre, radio material, oral history documents and interviews and local folk music recordings holders.

The survey we carried out shows that the audio material present in these archives consists predominantly on *open reel tape* (almost exclusively under the form of 1⁄4 inch tape), *microgroove discs* (so called “vinyl” or 33 rpm LP), *coarse grooved discs* (78rpm records, divided between the so called shellac records, and so called "instantaneous" or “direct-cut” discs), followed by *CD-A*, *DAT*, *Compact cassette* and the very old *phonograph cylinders*.

In terms of the amount in hours, cylinders and instantaneous discs, which can only hold brief recordings, may not constitute a significant portion of the total audiovisual heritage. However, they are generally considered the most at-risk material, for the fact that they are often unique recordings, and their handling is extremely difficult due to their physical fragility.

Because many archives receive materials some time after they were first produced, obsolete carriers proportionally make up a larger segment within their collections. Archives also have less recent commercially produced material: replicated audio CDs constitutes a significant portion of the total audiovisual holdings, but for the whole audio population, open reel tape is the dominant format.

In most of the cases, the preservation of these supports would be the responsibility of the heritage institution in charge of deposit collections.

The first goal of preservation is to extend the useful life of materials for as long as possible, to cope with the physical deterioration and any external factor that may reduce their life expectancy. For many audio carriers, particularly tape and acetate instantaneous discs, worrying levels of degradation and chemical instability limit life span to decades, and this will be even shorter when deterioration is accelerated by suboptimal storage.

To ensure a longer life to the supports, we need first to respect the parameters of storage and maintenance, monitor environmental conditions and hygiene of the premises, plan and carry out periodic inspections to verify its condition. It is clear that this can be achieved relatively easily by setting up environment with specific microclimate and in fact most of the consulted institutions have dedicated controlled rooms for the preservation of the old carriers.

Aside from the deterioration of the support, what has truly become a commonly perceived threat, perhaps even worse, for the future of information retrieval is the obsolescence and the relative lack of availability of original equipment for playback. Maintain the availability of playback equipment will become an increasingly serious problem.

A further complication is the requirement of having qualified personnel able to work with obsolete and obsolescent carriers and playback equipment. Formerly such specialists were often trained in the industry and might have come to work in the heritage sector. Now that production has largely turned digital, this kind of technicians tends to disappear and leave the place to those who are digital natives and consequently have little if any training in the analog world. Yet this kind of expertise is badly needed, also in institutions engaged on digitisation of audiovisual, as digitisation to archival standards requires optimal signal extraction from the old carriers and hence specialist knowledge of these carriers and equipment.

We must remind ourselves here that the extraction of the signal from the original analogue recording in playback, determines the quality of what comes after. If the performance or settings of the equipment are imperfect, this will be at the expense of subsequent steps. The point here is, clearly, that playback equipment is needed in order to realize the digital transfer, as well as expertise to operate the equipment. Moreover, in order to have well-functioning equipment, regular maintenance is recommended, as for instance in the case of tape decks, which must be done frequently enough to not compromise the quality of digital acquisition, and not only in case of malfunctioning.

The devices utilized by the institutions are, in almost all cases, professional or semi-professional ones, especially as regards the tape decks (*Studer* is still the leading brand), while regarding the turntables the situation is reversed and, with some exceptions for large institutions, they are predominantly consumer-type.

In short, requirements in terms of equipment and technical expertise, particularly on analogue carriers and playback equipment, are such that many institutions are struggling with this. It is obvious that the transfer to the digital format is seen as a good solution, but given the inadequate technical infrastructure some archives are faced with, they would have to find ways of outsourcing this transfer to external experts.

Musical Archives

Two types of Musical Archives are identified: Musical Archives only concerned with the preservation of musical recordings, in which case they share exactly the same problems and issues of the Sound Community. Musical Archives directly related to production, which present a general preservation problem due to the complexity of the production environment and the economical implications this may have for their activity.

Different actors are concerned:

- Classical recording companies or studios working for them
- Popular recording companies or studios working for them
- Contemporary Electroacoustic production centres and universities

Production tools are complex and imply the management of hundreds and even thousands of sound-files, which are regularly produced in musical recording, editing and post-production. These production tools generate a complex array of documents containing the final result of a production or, as currently named, a “mix”. Mixes can be tape-based (2 inch audio-tapes containing up to 24 different tracks or ½ inch digital tapes containing up to 48 tracks) or totally digital, in the form of a series of folders and files.

When a production is finished, it is stored either as a tape (in old days) and often today as a hard disk containing the production or an LTO replacing the disk at the end of the production. The preservation process for these production environments is the same as with any Audio content, however files contain not only sound-files, but also many other different types of files, strictly dependent on a proprietary software that may evolve or even disappear.

This use-case is extremely important in the music industry domain, since “mixes” are “remixed”, which meant that a new version of the same work may be issued in the future with a rearrangement of the sound-files or even an inclusion or replacement of existing instruments by different ones. It is then important to keep the integrity of the original mix and to be able to access it within the fast-changing technology environments; and it is equally important to be able to understand how the mix was done and structured in order to easily access the numerous sound-files and change any component or aspect of it. These production environments are not hierarchically structured so it is the sound-engineer who freely organizes the structure and generally keeps the structure knowledge to himself, thus complicating any further access.

3.2.3 Results so far

The feedback received from our core expert group allowed us to identify, with regard to the digitisation process, some strong technical common points, which for our practice will be divided into the following subchapters.

In the Sound Archive domain:

Archival master and subsequent copies

The creation of a high-quality digital master is a commonly done practice for audio

materials, for which there is widespread agreement on the requirements and recommendations are available on how to produce an archival digital master. It's a frequent praxis of producing at least three copies: keep and store one copy without any treatment, intended as a transfer 100% faithful to the original (master storage), a second copy equal to the master (security) possibly kept in a different place, while the third will be the one submitted to public distribution (consultation) and, according to customers requirements and to the specific access needs, could be subjected to sound restoration (e.g. any form of DSP processing, like removal of clicks, pops, hum, etc.).

Digital file formats

The question on which formats respondents prefer for digital masters and access copies produces a common front of homogeneity and doesn't reveal uncertainty among respondents in what appears to be the standard used. The agreement on preferred formats for masters is WAV (AIFF, BWF). Data reduction is seen as a practice not to be followed, considering the relatively low storage space a high-resolution audio file occupies when compared to its video counterpart. If data reduction codecs based on perceptual coding (lossy codecs) are used, parts of the primary information are irretrievably lost and the further use of the audio file will be severely restricted; there is no objection, however, to the use of lossless, fully reversible compression. All respondents agree on the resolution in bits (24 bit) but on the sampling frequency there is an alternation between 48 and 96 kHz.

Digital libraries storage

Thinking about a manual maintenance for collections of a certain consistence is almost impossible and exposes to excessive risk of error. Technology provides automated tools for the creation, maintenance and access to large collections of documents. Large systems need fully automated robotic libraries and, although they are highly expensive primarily because of the cost of software and support, they are often adopted in response to their needs. However, in smaller archives a scaled-down version of a Digital Mass Storage System (DMSS) can be set up as a cost-effective solution when one considers the advantages for data management over time. Even if such a smaller system may not be fully automated, its capacity for error checking, migration of large quantities of data, the possibility of combining hard-disk storage with back-up on Linear Tape-Open (LTO), make for a safer and more efficient environment than can be achieved by storage on media kept on shelves.
The system can access any storage device within its system without human intervention, performing automated media management, completing quality and integrity checks of the recordings and correcting errors without having exposed the material to any risk.

Outsourcing the digitisation process

Among all our stakeholders involved in digitisation, a substantial part of them say they outsource part of the process to third-party specialist companies to do high-quality, professional digitisation for preservation. As we said before, the externalization of certain phases of the process is due in most cases to the incorrect functioning or even to the total lack of playback equipment of analog carriers. Anyway, the majority of respondents do their own digitisation in order to keep costs down or keep most of the activities in the internal workflow.

Metadata and public access

Metadata are strategic to every collection, and their quality determines whether information can be retrieved. Meticulous documentation and "housekeeping" is a precondition for preservation because what can't be found may be considered the same way as non-existent. Interoperability issues and exchange of metadata have become more and more relevant now that searching can be performed through several collections simultaneously and digital materials metadata should meet certain requirements (targeted and granular) in order to make management and retrieval possible. However, the impression is that, even though the extreme importance of the subject and considering cataloguing a top priority issue, stakeholders are generally intolerant to the topic and would like to make the process as automated as possible. This task is immensely time consuming and, unfortunately for heritage collections, there is no technology around the corner that will provide shortcuts.

Moving towards an Internet based public access, the necessity to fastening cataloguing and improving their quality becomes more and more and pressing. The problems that inadequate tagging causes in the analogue world are serious enough in themselves, but digital materials cannot be managed and become completely invisible without sufficient metadata; that's why audiovisual information will have to be described at such a level of detail that allows items to be retrieved easily.

Best practices for audio digitisation

The publication *Guidelines on the Production and Preservation of Digital Audio Objects* (IASA-TC04) is generally considered as the bible for digital transfer of audio recordings in an archival context. It provides extensive technical information and exhaustive details over the entire AD conversion chain and emphasizes the need to focus its efforts on extracting optimal signal at the source, providing well-maintained replay equipment and expertise to calibrate the settings of the machine to achieve a faithful reproduction of the original recording.

Some of the main recommendations in the publication are:

1 To use as modern and as professional a replay machine as possible, but one that conforms to the specific characteristics of the format (e.g. speed, track format, equalization)

2 To use a stand-alone A/D converter and a high-quality sound card

3 In order to capture as much information as possible, to choose a sampling rate of 96 kHz (at least 48 kHz, and where necessary 192 kHz) and encode at 24 bit (also if the analogue original recording is not of superior quality, as rich archival masters offer more possibilities for creating derivatives that adequately reflect the contents of the recording)

4 To use PCM.wav files (preferably BWF.wav) as digital target format, and save the masters as uncompressed files

5 To document the conversion by generating as much metadata as possible about all technical details, such as original carrier, original recording, and transfer parameters (playback machine, settings, hardware and software versions used,

etc.)

In the Musical Archives domain:

Probably the boundary between the Sound archive and the Musical archive is historically the number of files involved in a musical event. When we are dealing with independent mono or stereophonic sound-files, it is considered that these files represent finished elements representing a sound or musical event. Whenever the number of files increases and goes beyond 2 files and their 5.1 extension, we are within a production environment, with its own tools and rules and the specific problems arising from the diversity of components.

General sound preservation issues

Whenever Musical archives or centres have sound-files to preserve, they join the general preservation issues concerning sound and audiovisual material already described in the Sound Archive domain. There may be some local issues regarding Music Museums, which have increasing collections of Audio and Audiovisual contents and don't dispose of an adapted metadata scheme and environment to describe their assets.

Musical producers

Regarding musical production and the preservation of the existing environments, the problem concerns, on one hand, the preservation of the environment itself and how to guarantee an access through time in changing environments. On the other hand the difficulties of preserving the knowledge and elements associated to a certain production.

Preserving the production environment

The "traditional" issue is to preserve a set of folders and files all related to a production and associated to specific software; different software exists with three leading brands sharing most of the market. Many "sound sequencers", as they are currently called, have already disappeared and there is a real concern in how to readdress old productions. The bundle containing the "mix" has different kinds of files, some expressed in common formats (.wav or .aif) and many expressed in proprietary formats like .sde, Analysis files or Undo file formats which depend of the used software.

There are some initiatives for an exchange format called Open Media Framework (OMF) or Open Media Framework Interchange (OMFI), which is a platform-independent file format intended for transfer of digital media between different software applications, however it eliminates an important amount of associated data and permits mainly to transfer sound-tracks from one environment to another.

There may be some cases which are still more complex, in which a specific software, device or machine is needed to reproduce the production. This may imply software developed for the occasion or a series of parameters, which need to be preserved in order to produce the same results. In this situation preserving music productions may share common problems with other communities, like the Art community, and in any case represent a mayor problem for all scene-arts (dance, theatre, performances…), where hybridization of software, hardware and physical objects is a regular action.

Preserving knowledge associated to productions

Independently of the preservation of the elements composing a musical work, there is all the associated knowledge, which needs to be recovered and associated to the production environment. These can be considered primarily as metadata, however it often implies information that is kept by users or practitioners. Sound-engineers, musical assistants or the composer himself, often keep essential information permitting to bring the production's components back together in order to reproduce the same music.

Some initiatives have been launched in order to analyze and describe the necessary elements, which should be collected and kept in order to organize preservation in such a way to permit to readdress in the future of a contemporary production. Among them, the MUSTICA project (developed in 2004-2005 by Ircam, GRM, UTC) in France and UCLA in the US, permitted to describe a methodology any music creator should use if he wishes to assume a complete description of his work. The main objective is not only to preserve the constitutive elements, but all the information and knowledge needed to re-perform the work or to make a new mix of it.

More recently, the already mentioned CASPAR and GAMELAN projects have addressed at different levels the problem, in order to analyze the situation from an OAIS basis for the first one and to develop a specific production tracker environment for the second one, which will permit to collect information during the production process.

3.2.4 Additional tools used to facilitate gathering of consistent information

The gathering of information was based either on the questionnaire available on Presto website or on an internal questionnaire developed specifically for this CoP. The main purpose of both surveys was to gain information on the condition of audio recordings and the actions that are taken to preserve them. General questions on preservation issues were included as well as more specific questions on the condition of carriers and the problems organizations encounter with their preservation. Questions on digitisation were added with a focus on its relevance for preservation. As the role of digitisation is not the same for all types of material and for the fact that the Sound & Music CoP is based exclusively on sound recordings, questions that concerned specifically the video were skipped.

Concerning the Music production environments, the approach was more general, letting experts explain their difficulties and then finding many common issues among experts of different domains. The main questioning was organized around the re-use issues and how and why to they have to keep their productions.

3.3 Role of supplier to the community preservation challenges

3.3.1 Introduction

Technology is quite advanced in the audio domain. Formats are stabilized and no compression issues are present today. There is a long experience in dealing with digitised audio files and practice is well established and shared by all sound or music holders.

There is still much to digitise! Analogue collections represent still a major bulk of contents, which need to be preserved, not only from the musical world, but also mainly from the radio domain. Many archives have started in-house digitisation processes, which are not very difficult to undertake and need a small amount of material. There are associated issues like tape cleaning or re-splicing, which may be a tedious activity; however the know-how is well distributed and it is easy to find manuals and guidelines for this activity.

What may represent a drawback is the time needed for the operation. This is why Service Providers have developed very early, proposing interesting prices for sound digitisation approached as an industrial activity. A distinction is made between contents needing a permanent quality survey (as in music) and contents like radio programs, which can be partially mass processed through parallel digitisation chains (up to 10 parallel machines in some situations). This has strongly reduced the cost of digitisation, which used to be circa 80€ in 2004 and now is getting close to 15€ for one hour of sound digitisation.

Service Providers are very active in this domain and many companies propose very attractive prices for sound digitisation. There even exists in France and Association working for the reinsertion of prisoners after they leave jail, by teaching them and having them work in sound digitisation within the prison and outside.

In the magnetic tape domain, there are sufficient tape players around in order to cover today's needs. The main drawback is cost and time, which are very long and expensive for small archives. It is very important in this domain to analyze the quality of the initial contents in analogue audiotapes in order to identify the most effective processing chain (surveyed or multiple) adapted to it. The recording of a meeting doesn't have the same importance than the recording of a concert and this has an incidence in the price and type of process.

For the digitisation process, well established companies permit to check digital files, extract technical metadata and ingest them in information systems in a semi-automatic process[5]. These two companies stared in the late nineties as audio digitisation component builders and are now expanding to the whole audiovisual domain.

Concerning the Music production domain, the preservation actions are mainly done in-house, when done. Most content producers keep originals or copies of their productions without really knowing if they will be accessible through time due to analogue reading devices obsolescence, or to software out-date and/or loss.

Some institutions have started to analyze, plan and develop preservation plans, based on the MUSTICA methodology or learning through experience how to deal with preservation; however no Service Providers have yet really engaged in this domain.

3.3.2 Engaging with the supply side

Discussions have been undertaken with service providers concerning their activity and the vision they have of Sound and Music digitisation[6]. Their view is the same concerning the fact that their main problem is finding obsolete readers or maintenance parts to replace their machines. Most Service Providers and large institutions like Ina or Rai or the BBC,

[5] http://www.noa-audio.com/ and http://www.cube-tec.com/
[6] http://www.memnon.be/ or http://www.vectracom.fr/archives/numerisation-audio-parallelisee/

regularly search on the web for selling announcements of old material, which in some cases can be quite expensive. However, as said earlier, there is no scarcity of audio players.

Concerning the musical environment issues, the general knowledge of the problem is very low among Service Providers and they tend to discover the problem when questioned.

3.3.3 Actions prepared for 2014

More interviews with Service Providers will be carried on 2014 in order to address more specific questions issued by the expert groups. Service Providers are mainly concerned today with the analogue to digital conversion issues and less with metadata extraction or preservation solutions. There are practically no preservation solutions available, only storage capacity proposed by some majors but with no real preservation guarantee.

Part of the action of the CoP is to develop an understanding of the issues concerning the preservation of production environments among content producers and Service Providers. However, since there is no clear solution yet to this major production issue, it is more a research trend for the future in order to provide with preservation environments capable of managing musical complexity.

From this point of view the contribution of the Presto4U project to all musical producers will be very important in terms of consciousness and methodology to adopt. A set of practical guidelines would be of great use to understand what needs to be kept and how to organize the process starting from the production itself. While tools are being developed, it is important to prepare and orient the community in this direction.

3.4 Successes of the community-building process

Two levels of success have been identified, one-side issues regarding digitisation and preservation of audio files, which is shared with other communities. Bringing together relevant information, publishing condensed results on the PrestoCentre is an objective in order to make preservation “simple” for any archive or content holder.

For the musical aspects, the same procedure will be adopted, however with the difference that a clear presentation of the problem has to be done and an action methodology for anybody wanting to preserve their musical production established. If tests with *Gamelan Tracker* are successful, it will be proposed to experts and users to try the tools and start productions introducing this resource.

Year one was very important mainly for the Musical archive community, where a common issued shared by different practitioners was identified and formalized through interviews and discussions. Different production centres are working on these issues and even at university level there is a concern to approach this problem as a research issue.

The communities have to be strengthened and broadened so to deepen the understanding of sound and music preservation and even establishing contacts with software companies in order to explain and address the different problems.

4 Research and Scientific Collections

4.1 General progress of growing the CoP membership

4.1.1 Introduction

The Research and Scientific Collections community of practice (CoP) involves different research groups and individuals that produce and use audiovisual contents for conducting their research activities. The CoP members carry out their research activities in different areas and in most of the cases do not know each other. Furthermore, since video production is not the main focus of their research work, these groups are usually not aware of the problems related to the long term preservation of the video material.

The community has been defined as a group of members that share experience on managing and using audiovisual contents for scientific research. It has been difficult to find candidate members. More than 50 people were identified and contacted. So far 8 members have accepted to be core members of the CoP. We plan to try including other members in the next months.

	Institution	Research topics
Pier Marco Berintetto	Scuola Normale, Pisa	Linguistics
Silvia Calamai	Univ. Siena	Linguistics
Sepideh Chakaveh	ERCIM	Smart media
Dominique Hazael-Massieux	W3C, ERCIM	Mobile Web
Isabelle Herlin	INRIA Paris	Environmental forecasting
Martha Larson	Techn. Univ. of Delft	Multimedia Evaluation
Stéphane Marchand-Maillet	Univ. Geneva	Multimedia Infor. Retrieval
Marc Thiriet	INRIA Lions, ERCIM	Math and Medicine

4.1.2 Current functioning and output of core expert group

The CoP members are taking part in Presto4U activities through Google Community, virtual meetings and email correspondence, . They are also the recipients of Newsletters, Blogposts, Presto4U Workshops and other events.

There has been a first online meeting on November 28th. Many issues related to long-term audiovisual contents digital preservation of research and scientific collections emerged from the discussion. Creation and preservation of metadata are more relevant than in other communities. There is a scarcity of resources for preserving and annotating audiovisual contents intended for scientific research. The size of scientific audiovisual contents archives can be very huge. Scientific collections evolves and their history should be also preserved for future research comparison. There are many legal issues related to

IPR management at international level. Lossy compression and transcoding can prevent research outcomes to be comparable.

4.1.3 Gaps, risks identified for the COP management

Growing the CoP was difficult especially because there was no existing connection between candidate members that typically conduct research in very different fields and do not know each other. Moreover, audiovisual contents collections used for scientific research are typically maintained by researchers with no specific skills neither on audiovisual contents nor on digital preservation. No institutions were found with a specific mission to preserve this type of audiovisual contents. Existing public collections are typically maintained with resources coming from research projects.

Nowadays the main focus on scientific data is on open data. Given that most of the scientific data, and thus also audiovisual contents, are yet not available to worldwide researchers, the European Commission and many local institutions are pushing for opening the scientific data usually in a digital form. It is clear that in the near future issues regarding digital preservation of scientific data will become very important, but at the moment they are not considered relevant.

The resources devoted to maintaining, giving access and preserving audiovisual contents used for scientific research are very limited and typically temporary and as part of more general research projects and activities.

We think we can mitigate the risks in managing the CoP maintaining the discussions on a regular basis and limiting face-to-face meetings. Members must be involved regularly but for a short time and with a high level of content and interest.

4.1.4 Results from face to face meeting and other activities

In the first blog post, Fabrizio Falchi discussed about the relevance of audiovisual contents digital preservation in the more general context of scientific data preservation and accessibility. In particular, he pointed out that there is a common agreement between researchers that the quality of the scientific research conducted worldwide is very dependant from the preservation and open access of scientific data that has been used for the experiments. The feedback from the CoP members revealed that it was important to put the role of audiovisual contents digital preservation of research and scientific collections in the more general context of preservation of scientific data.

The first newsletter mainly helped in communicating inside the community, the CoP goals and context. The newsletter reported a welcome message, a description of the CoP, the list of core experts, guidelines for contributing and references to the Paris Workshop and OAIS model. The newsletter was important to start creating a common vocabulary and context for the CoP activities.

The face-to-face meeting in Paris during the Presto4U workshop offered an important opportunity to talk with academics, but, unfortunately, none of the CoP members participated to the Workshop. Some specific issues emerged from the CoPs presentations and group discussions. There are big differences between collections maintained by institutions with a specific mission on preservations and existing scientific audiovisual

contents collections typically maintained by volunteers or within the scope of specific research projects. Before asking what needs CoP members have, we have to explain what digital preservation is, why it is important and how it relates to scientific open data initiatives. It is not clear at which level (local, European, worldwide) audiovisual scientific collections should be integrated in order to be better preserved. University and Research Institutes have very few attention and resources devoted to maintaining scientific data collections and, in particular, audiovisual ones.

The CoP was presented in Lucca (Italy) at an audiovisual contents preservation related conference. The conference title was “La conservazione dei materiali fotografici e audiovisivi” and was organized by ANAI (Associazione Nazionale Archivistica Italiana) e C.T.S. S.r.l. In the conference emerged that most of audiovisual contents managed by Italian archives are not yet preserved in a digital form and that there is no much awareness of digital preservation related issues. The Presto4U project and specifically our CoP were considered interested by the attenders that have the opportunity to talk with Fabrizio Falchi.

4.1.5 Actions to promote further growth of and visibility

The core experts currently involved in the project have been invited to help in further growing the Community of Practice. More core experts and more members from the peripheral level are expected to join the Community in 2014.

4.2 Creating an understanding of long term digital preservation technological needs and barriers

4.2.1 Process and methodology used

The core expert group work started with sharing experiences, projects and initiatives in which core experts have faced issues related to audiovisual contents digital preservation.
Detailed meetings notes are produced and shared on the Google Community through Google Docs inviting each member to further improve and detail their idea. Each member has been invited to submit any relevant document in the Google space.

4.2.2 Challenges and barriers encountered in the process

The core members of the CoP comes from very different research fields and this is very important to widely cover existing preservation needs. We have identified a lack of common vocabulary between the CoP members and their technical skills related to audiovisual contents are also very different.
Thus, the discussions have been conducted on a very high level and effort has been spent in increasing the awareness on audiovisual contents digital preservation.

4.2.3 Results so far

A dataset of 10 audiovisual contents coming from a collection maintained by the MediaEval initiative, which is part of the CoP, have been made available to the Presto4U project for testing. MediaEval is a benchmarking initiative dedicated to evaluating new algorithms for multimedia access and retrieval. It emphasizes the 'multi' in multimedia and focuses on human and social aspects of multimedia tasks. MediaEval attracts participants who are interested in multimodal approaches to multimedia involving, e.g., speech recognition, multimedia content analysis, music and audio analysis, user-contributed

information (tags, tweets), viewer affective response, social networks, temporal and geo-coordinates. MediaEval has developed and managed audiovisual contents collections since 2009 and many researchers are used their collections. Thus, MediaEval is very specific and important example of audiovisual contents digital preservation in the computer science research field. Preserving its collections would allow future research to be comparable with nowadays results. The videos made available to the project have been selected from the *Blip10000: A social Video Dataset containing SPUG Content for Tagging and Retrieval*. The dataset contains comprehensive semi-professional user-generated (SPUG) content, including audiovisual content, user-contributed metadata, automatic speech recognition transcripts, automatic shot boundary files, and social information for multiple 'social levels'. The MediaEval initiative suggested this collection because it is the largest one they manage and because it has a creative commons licence.

Projects and initiatives have been suggested by the community members and will be also included in the Presto4U related sections. In the following we briefly the describe the main projects and activities that emerged from the CoP (the MediaEval initiative has already been mentioned before).

Grammo-foni. Le soffitte della voce (Gra.fo), is a two-year project jointly conducted by Scuola Normale Superiore and the University of Siena (funfed by Regione Toscana PAR FAS 2007-13). Its purpose is to discover and preserve oral documents (e.g. oral biographies, ethno-texts, linguistic questionnaires, oral literature, etc.) collected either by scholars or amateurs within the Tuscan territory. Gra.fo aims thus at providing a first-hand documentation of Tuscan varieties from the early 1960s to the present time (Calamai 2012). Gra.fo audiovisual contents are mainly used by researchers in the linguistic fields and are preserved in a digital form. We believe that the project experience in preserving such particular kind of audiovisual contents in the context of research collections can be very important in understanding research and scientific collections preservation needs.

ACM Multimedia Systems has a *Dataset Track* to encourage and recognize dataset sharing among researchers from both industry and academia. All datasets in the track include: A URL where the dataset can be downloaded. A short paper describing the format of the data collected, the methodology used to collect the dataset, and basic characterizing statistics from the dataset. The track is active from 2011 and up to now has collected 8 datasets which are relevant for scientific research in Multimedia Systems.

4.3 Role of supplier to the community preservation challenges

4.3.1 Introduction

There are still no specific technology providers for scientific audiovisual contents. However, offers are emerging as a consequence of the European effort on open science data initiatives.

Potential commercial providers have to face the issues related to audiovisual contents maintainers that have no specific mission and are either volunteers or temporary involved in specific projects. While the context is expected to change very fast as soon as audiovisual contents collections will become more and more open, there is still a lack of resources and information related to digital preservation.

4.3.2 Engaging with the supply side

In 2013 it was not possible to engage with the supply side because of the difficulties in growing the CoP and the lack of awareness and knowledge in the community with respect to digital preservation.

4.3.3 Actions prepared for 2014

We plan to discover the supply side relevant to our CoP leveraging on the experience coming from the other Presto4U CoPs. As far it appears the members in the research and scientific collections community are the one with less knowledge and awareness with respect to audiovisual digital preservations. We believe that this CoP can leverage on the experience from the communities that have longer and deeper experience in managing and preserving audiovisual contents.
A webinar with a focus on specific CoP issues will take place at the beginning of 2014.

4.4 Successes of the community-building process

During the first year, the CoP core expert group consisting of 8 members has been established and about 50 peripheral level members have been individuated. A community has been created on a topic that was even not well defined before. Members are happy to share their experience and to receive help on managing and preserving the audiovisual contents that there are maintaining mainly as volunteers or in the context of research projects.
The newsletter and the blog post stimulated the discussion and increased awareness about audiovisual digital preservation issues.

5 Footage Sales Libraries

5.1 General progress of growing the CoP membership

5.1.1 Introduction

The Footage Sales Libraries Community of Practice gathers professionals coming from the commercial audiovisual libraries, which are composed of footage and content companies that exploit commercially their audiovisual holdings by selling and licensing clips and footage for use in all forms of media productions. Organisations operating in this domain range from the big broadcasters sales divisions (e.g. BBC Motion Gallery or ITN Source) to small stock footage companies specialised in niche topics.

Professionals involved in this Community share commons concerns and face common problems related to the digitisation, storage and preservation of their audiovisual holdings, often still kept in analogue format (both on film or tape).

One of the main recruitment channels for this target group is FOCAL International, which is the International Federation of Commercial Audiovisual Libraries, through which most of the potential members could be reached.

The Community of Practice has been organized in two main operational levels:

- a Core Group of 6 experts, coordinated by the CoP leader, chosen for their expertise and reputation in the footage libraries domain, that will be actively and constantly involved in the project activities and objectives;
- a Peripheral Group, constituting a larger audience of organisations and individuals, interested in audiovisual preservation issues, that will be involved in a less intense way through communications channel like newsletters, blogs or events like workshops and conferences.

Both levels will contribute to reach the main objective of raising awareness around digital preservation best practices and research results in the Footage libraries community at large, encouraging individuals and institutions to adopt AV preservation research outputs in their routine workflows.

In the first stage of the project, the Community leader has prepared a detailed project plan for the CoP, in which the membership characteristics and structure, the objectives and potential risks and constrains have been identified and defined. In addition to this, also a first version of the Communication plan for the launch and implementation of the Community has been prepared and the project goals have been presented to the FOCAL board to further develop synergies and gather support for the future CoP activities.

After some preliminary consultations, an initial core expert group of five members has been set-up.

Core expert group member	Position	Institution	Country
Marco Rendina	IT specialist	Cinecittà Luce	Italy
Heather Powell	Metadata and Archive Consultant	ITV	England
Rita	Manager of ITV Sport	ITV Sport archive	England

Constantinou	Archive		
Ben Jones	Head of Motion archive	SciencePhotoLibrary	England
Jean-Luc Vernhet	Deputy Director of sales and publishing department	INA	France

The plan is to enlarge this core group during 2014, including 2/3 additional members, trying to differentiate the group geographically and in terms of institutions involved.

5.1.2 Current functioning and output of core expert group

After the kick-off of the core group in October 2013, a community online space has been set-up using Google+, where documents and a calendar can be shared and also a communication tool for audio and video conferences can be used (Google Hangout). All the core group members have been invited to join this online space.

At the same time all members created also an account on the Presto Centre website, where a dedicated community area has been set-up in which a first set of relevant documentation, learning resources and a calendar of relevant events for the community has been uploaded.

At the time of writing of this report (13 December 2013), several one-to-one communications (both calls and emails) with the core expert group members have been carried on, and a very detailed online questionnaire has been circulated to gather general background information on the institutions involved, their collections, and their outstanding preservation needs.

The results of this questionnaire are still not consolidated, but they will offer very useful insights and information to the other workpackages involved (namely WP3 and WP4).

In the last virtual meeting of the core expert group, it has been decided to hold a face-to-face meeting in January 2014 in London in the ITV premises, to further plan the group activities for the project.

5.1.3 Gaps, risks identified for the COP management

Since the very first approaches made to involve persons and institutions in the CoP core group, it resulted clear that gathers commitment from professionals in this domain wasn't an easy task.
The Community leader contacted several representatives of major footage archives, like Getty Images or Associated Press without getting back a real and definitive commitment, but often just a generic interest.

The main reasons of this behaviour have been also outlined in the Community project plan, and they probably represent the general underlying risks in the management of this CoP. In particular:

- all the stakeholders in this Community operate on a commercial and revenue based model, and they often cannot afford to invest time on a voluntarily basis to produce general mid/long term outcomes for the rest of the Community;
- competitive issues between stakeholders operating on the same market could sometimes affect the effective willingness and ability to share key knowledge and best practices;

- most of the stakeholders in this Community are already represented since decades under the FOCAL International umbrella, which is carrying on similar initiatives on AV preservation; establishing first a relationship with this organisation is almost mandatory to avoid conflicts and overlaps;

Another identified gap of this CoP is related to its intrinsic composition, in fact the geographical distribution of footage libraries and commercial audiovisual archives is quite uneven; most of the institutions, if we exclude sales dept. of broadcasters, are UK/USA or France based.

In addition to these constrains, specific to the Footage Sales archives community, there are also other general risks that could potentially affect the good management of the CoP:

- Lack of travel budget for members to attend workshops, events and CoP meetings;
- Lack of time to dedicate to the core expert group activities from its members.

In order to minimise some of these risks, it has been decided to organise community events and meetings in conjunction with main FOCAL events. This will allow to create a stronger collaboration with FOCAL and also to minimise travel and organisation costs.

5.1.4 Results from face to face meeting and other activities

For budget reasons mentioned in the previous chapter, it was not possible to organise face to face meeting in 2013.

Anyway, a physical meeting has been planned in January 2014.

Together with this, also the launch of the first community newsletter has been scheduled for the beginning of 2014, in order to reach a broader audience in the commercial archives domain.

Other activities conducted in 2013 included the preparation and delivery of a promotional video of the community of practice to celebrate the UNESCO World Day for Audiovisual Heritage. The video has been posted on the PrestoCentre website: https://www.prestocentre.org/world-day-2013.

5.1.5 Actions to promote further growth of and visibility

In the last core group virtual meeting held in December, the community leader asked to the other members to look for possible new candidates for the core expert group.

The aim is to enlarge the core group of at least another 2/3 members. Possible candidates coming form ITN Source and British Pathè were mentioned and invitation has been prepared.

Contacts have been established also with FOCAL in order to organise a project event during the FOCAL training week in June 2014.

In the forthcoming weeks, new proposals for webinars will be also gathered.

5.2 Creating an understanding of long term digital preservation technological needs and barriers

5.2.1 Process and methodology used

The methodology used for the investigation of long-term digital preservation needs inside the community has been based on the work defined in the beginning of the project, and published in the Deliverable 2.1 “CoP Knowledge Schema”. This document described a methodology for the unified collection and sharing of knowledge about digital preservation needs of the different communities of practice.

Based on this schema, partner KCL in collaboration with the other CoP leaders prepared an online questionnaire, accessible on the PrestoCentre website[7].

This questionnaire has been submitted to the Core Expert group members, but considering its complexity the Community leader decided to assist each member when filing out the questionnaire, using it as a formal guidance for an interview.

After this first iteration, possible amendments or personalisation to the questionnaire will be submitted to KCL and to the coordinator and a final version of it will be circulated also to members of the CoP peripheral group, in order to gather a critical mass of feedback about the digital preservation needs and barriers to be analysed by WP3.

5.2.2 Challenges and barriers encountered in the process

As mentioned in 1.3, members of this CoP are a bit reluctant in discussing (in front of other “potential” competitors) internal problems or outstanding issues related to their digital preservation practices. The default attitude is to show a certain degree of confidence on the goodness and effectiveness of their internal preservation practices and to not disclose any detail about them.

For this reason the Community leader, especially in the first stages of the CoP building, has privileged one-to-one contacts with the core group members and only in a second phase he has involved them in group discussions. This strategy slowed down a bit the kick-off of the activities of the Community of Practice, but hopefully allowed the building of a mutual trust, which -of course- should be still consolidated.

Another potential challenge in gathering digital preservation needs could come from the complexity implied in the formalisation of these needs. In fact, despite the online questionnaire has been designed to be easy to navigate and to read and to be filled-in in stages, it is still quite long and complex, and it often requires the contribution of different figures involved in the local preservation workflow. This problem has been mitigated by the assistance of the Community leader that, for the core members, has followed the interviewee and has given assistance and support throughout the whole questionnaire.

Of course this approach is not “scalable” and cannot be repurposed when the questionnaire will be circulated to a broader number of community members. In that scenario, it would be probably useful to have some kind of online guidelines and examples on how to reply to the questions, or to split the questionnaire in autonomous units to make it more “approachable” to end users.

These issues will be discussed in the forthcoming CoP meeting in January 2014 and also at a more general level during the regular CoP leaders meetings.

[7] https://www.prestocentre.org/questionnaire-footage-sales-libraries (password: footagesales2013)

5.2.3 Results so far

An online questionnaire based on the Knowledge Schema has been prepared and evaluated. Five questionnaires has been circulated between the core group members but not consolidated yet.

In the meantime, under request of WP3 partners, the Community leader provided several samples of commonly used digital audiovisual file formats in the footage sales community. These files will be used in the WP3 framework for the testing and assessments of software tools and more in general to build a test dataset to be used for research purposes in the project framework.

5.3 Role of supplier to the community preservation challenges

5.3.1 Introduction

The role of technology and solution providers is obviously crucial in responding to preservation challenges in the Footage Sales Libraries community and also in all the others.

In a commercial and revenue based environment, technology and solution suppliers become often “partners in business” with the footage sales archives.

In this context, the involvement of these commercial subjects it’s not easy and becomes quite sensible, also taking into account the number of these subjects and the economic interests in play.

5.3.2 Engaging with the supply side

For the reasons mentioned above, engaging with the technology and service supply side is not easy. The Community leader decided to involve the FOCAL board, together with the core group members, in making a first inventory of the main technology and solution providers in the domain, trying to gather a broader consensus around this list and then trying to target these leading players to raise their awareness about the Presto4U brokerage services.

5.3.3 Actions prepared for 2014

In the second year of the project this investigation on the technology suppliers and vendors that operates in the digital preservation arena will be finalised, in collaboration with the other related CoPs like the one of the Broadcasters, the Video Production and post-production and the Film Archives. In fact many commercial vendors are actually aiming at solutions suitable for a broader “audiovisual archiving” audience.

Once this list of leading vendors and technology providers in the digital preservation field will be ready, it will be used by WP3 and WP4 to assess the available solutions and set-up a brokerage and information service that will include an on-line catalogue of available software tools and a marketplace to meet the offer and the needs of preservation solutions.

5.4 Successes of the community-building process

A detailed Project Plan for the set-up and development of the Community of Practice has been produced and a first version of the CoP communication plan has been released.

The initial Community of Practice core group have been successfully established, even if with some delay. In the beginning of 2014 the group will try to recruit another 2/3 additional members.

All the proper communication tools have been set-up, from the Google+ community environment to the PrestoCentre community website, with a specialised library of resources and a calendar of relevant events for the community. In the beginning of 2014 also a periodic newsletter will be issued.

CoP activities have been kicked-off and the information gathering activities about the outstanding preservation needs has also started. An online questionnaire for collecting this information has been prepared and circulated between the core group members. A first face-to-face meeting of the core group to consolidate the questionnaire results has been scheduled for the beginning of 2014 in London, at the ITV premises.

A contact with the FOCAL board has been established, and the organisation of a common event around digital preservation is under discussion, also involving the WP5 leader.

6 TV, Radio and New Media Broadcating

6.1 General progress of growing the CoP membership

6.1.1 Introduction

The TV, Radio and New Media community of practice is ostensibly the community with the largest footprint in the history of the Presto family of projects. Various public broadcasters and their service providers have, for many years, been working in unison to find solutions to the challenges for audiovisual holdings that the digital age presented. At the same time, it is a community with a high level of variation. Broadcast archives are large, have massive amounts of materials. Some say: of low quality. Others say: it's the main source for 20th Century history. Different broadcasting stations have wildly different stories on how they came into existence. The different technologies they make use of have varying ways and time periods of coming into being: the 1900s for audio technology, the 1940s for television technologies and the 1990s for web technologies, respectively. The different collections find themselves in many different layers of the so-called digitisation scale.[8] While some organisations have yet to start digitizing large film audio and video collections, others are experimenting with multi-narrative crossmedia projects. Different organisations have differing ideas about the importance of archiving materials for the long haul. Some countries have deposit laws and are well organised in preserving this fleeting heritage. Others have no governmental demands or national archive that takes care of longevity, and in these cases collections are often dependent on their usability in a production life cycle.

Broadcast and radio archives handle a wide range of media formats. The latest advances in these technologies include ever-changing code bases. Collections intended for emission traditionally adhere to firm standards, issued by broadcast engineers. Format quality has always needed to be consistent: there's a strong tradition in standardization and quality control. Broadcast institutions have historically been at the vanguard of / overlapping with other media industries and with online streaming formats and the world of the web merging with television products, the digital formats ending up in the archives are multiplying rapidly.

Many thousands of broadcast organisations operate around the world. According to the Mavise database, there are 6379 broadcast companies in 40 European countries alone. These organizations find themselves in a key moment, where the move from tape to data recording
Influences production and archiving workflows. In this new production workflow, the archive has never had such an impact on production before. Archives are rebuilding workflows for metadata gathering, from the first steps of the production chain onwards. Instead of sending enormous files back and forth, producers need to be 'taught' how to work with an all-digital archive workflow. The archive has therefor a large task in teaching awareness about storage matters and the importance of metadata throughout the lifecycle of a media item.

Digitisation itself is a vast challenge, still. Many European countries have not made available the funds for a true digital switchover. Broadcast organisations have a vast

[8] Harvey, "The Ages of Digital."

amount of technical expertise in house, and the ones where archiving is at the bottom of the list of priorities, are less connected to archival organisations and community-funded research. While organisations such as AMIA have a strong drive towards open source tools and standards, many broadcast institutions go for market-trusted, off the shelf solutions. Cost-effectiveness is key and in some organisations, archive managers have to battle to show the value of the cultural assets in their holdings. In the meantime, legacy machinery is drying up fast and spare parts are increasingly harder to find.

Standardisation is another topic of high interest to the CoP. However the message of becoming a *trusted repository* will only ring true for a limited number of audiovisual archives that have a clear mandate to provide long-term access through preservation, researching the viability of the implementation of PREMIS metadata and workflows brings a necessary step forward in gaining control over the challenges that digital preservation bring.

These topics are discussed in the broadcast CoP, which operates in a field with a varying in size, scope and organisation. The CoP, wherever possible, intends to engage with related organisations and focus networks. Most important herein are FIAT/IFTA, the EUscreen foundation, EBN, IASA and CIRCOM. Secondarily, the CoP actively watches the outcomes of related projects and activities, such as FOCAL and DPP. The terrain is broad, but the demands are focalised by 1) a shared history and evolution timeline 2) shared technologies and 3) a demand to take care of large throughput of materials: broadcast archives truly constitute big audiovisual data, and storage. The coordination of this group lies with Sound and Vision, who is an active player in the domain of audiovisual cultural heritage and broadcasting history.

6.1.2 Current functioning and output of core expert group

The Core Expert group for TV, Broadcast and Radio exists of five experts. In 2013, contacts were laid and individual meetings with these core experts were held. Also, a survey on online access, held in collaboration with the EUscreenXL project, gave a preliminary overview of some management issues in TV and broadcast archives related to their digital materials. More importantly, the survey was an important tool in making connections with the wider broadcast domain. Connections that were made through these tools will be used as a basis for further needs gathering.

In individual interviews with the core experts, a wide range of topics came about. One of the experts works for a newly created archival organisation in Europe, which is setting up digitisation streams for the amassed collections of both national broadcasters and regional archives. The developments in this organisation have both a technical nature and a managerial impact. On the technical side, much needed registration tools for digitisation of a wide array of sources from different providers are needed to keep track of the manifold streams. On the managerial side, the recent history of bringing these collections together has been an important one: convincing both collection holders and subsidiary givers of the importance of digital preservation and joint organising. Awareness is an issue that returns often in discussions: with such a wide domain of broadcast activity, often the single most important step to take with both archive personnel and management is to create an awareness of the challenges that a digital production and/or storage environment holds. Awareness, and specialised knowledge: trained archivists are rarely aware of emerging digital preservation formats & standards, while older personnel who is capable of running analogue machines needed for digitisation are rapidly nearing retirement.

Another expert, who works for a national broadcaster, worked in internal education on the change that comes with switching from digital videotape to file-based (tapeless workflow). Producers need to easy into a new way to think about and organise their work from scratch: how to plan storage, how people should work, how people use the archive. This organisation has worked with digital files for more than 10 years and digital is well ingrained in the organisation's structures. The entire network will break if it needs to transport the big files. In these working cases, technical aspects aren't the real show changers, but the habits, how we work. The digital switchover changes everything from working for years - change from film to video or analogue to digital tapes wasn't half as big. In this organisation, the archive collaborates on creating tools for production in collaboration with the archive. Expert systems were in use, but needed were more user-friendly tools, supporting the way non-archivists work and think. A big worry in this digital environment is the question of acquisition: what does a production archive need to keep available, for the long term. Meanwhile, many production environments rely on external service providers for storage and long-term archiving. But what if we need to switch back? 2013 has seen a large number of organisations go in bankruptcy. What happens to a digital collection if the storage provider needs to shut down?

6.1.3 Gaps, risks identified for the COP management

Over the summer months, a discussion was organised with the FIAT/IFTA *preservation & migration committee* to discuss where the commission can take part or collaborate with the CoP to meet its own mission & targets. A decision was made to actively stimulate each other's work, but to keep on working on separate tracks. Meanwhile, there is a strong connection between the groups: Presto4U personnel is involved in the committee, whilst other members are - on an individual level - involved in the TV, Radio and New Media community. Attempts to create a connection with the EBU working group on *Future Storage Systems* did not result in a fruitful collaboration.

In September, an official presentation to the IASA broadcast archives section was given to inform them of the work on the community of practice. Related developments from other organisations, such as IFLA-AVMS and the European Association of Regional Television, will be followed up closely and, where possible, cross-links established. Over the second half of 2013, individual members for the core expert group were invited on a personal basis. These invitations resulted in personal interviews and an overview of issues these experts are involved in. The CoP leader merged these opinions and activities in a core list of issues to be discussed, which will be the basis for follow-up conversations with the entire group.

6.1.4 Results from face to face meeting and other activities

At the Presto4U workshop in Paris, the group on Professional Actors (Footage, Film, Broadcast and Post-Production) existed of service providers, archive managers and researchers. It expressed a need for education & training for all involved in this domain. Archive personnel needs better and more training in existing archive technologies and tools, and on an organisational level, awareness should be raised about the challenges digital preservation brings. As one participant remarked: "We say we're the experts, but do we really have the answers to these challenges ourselves?" Audiovisual archives also continuously wonder what kind of knowledge they should develop in-house and what kinds of services could be externalised.

At a meeting during the Amsterdam IDFA documentary film festival, a talent meeting was held in which the issue of preservation for new media was discussed. For born-digital material that makes use of innovative technology and complex code bases, we have yet to find solutions to make sure that a hundred years from now, creators can look back and see where this wave of innovation once started. Meanwhile, we as archivists have a responsibility to come up with clear solutions for guaranteeing these stories of today.

The broadcast CoP added to date 21 events of interest to the wider community to the PrestoCentre events calendar and added 15 Library resources to the PrestoCentre library. Our individual meetings took place in 2013 with core experts to discuss their needs and interests
Monthly meetings with the Core Experts group are installed for 2014 to discuss focus and interests.

6.1.5 Actions to promote further growth of and visibility

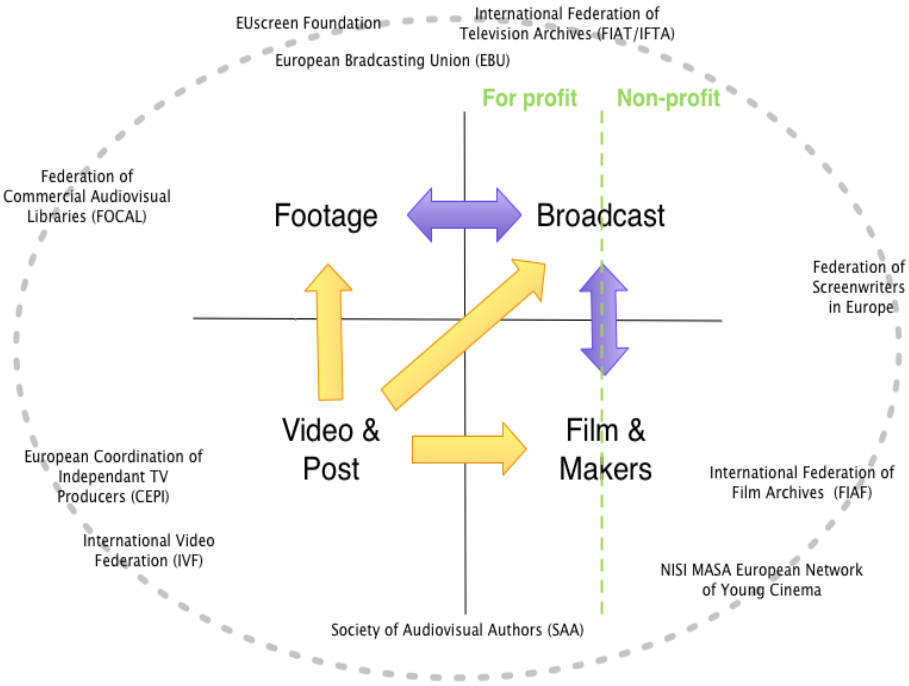
The challenge for the CoP will be to engage as many peripheral members as possible to become more active and progress into the peripheral activities group. Participation in polls and surveys, webinars or other activities can be enough to establish this. The CoP will send monthly newsletters, starting January 2014 to the list and monitor its progress and engagement.

A further assessment of the currently available member list will be undertaken to target which countries are as of yet underrepresented in various international organisations and could be approached on an individual basis, in order to connect their concerns, questions and needs to the community.

6.2 Creating an understanding of long term digital preservation technological needs and barriers

6.2.1 Process and methodology used

The description of the TV, Radio and Broadcast CoP in D2.1 follows two dimensions: its position in the media lifecycle and its position in the economic an political space. As is known, these dimensions show a strong overlap with neighbouring communities, where mutual interests and issues exist. In the image below we've tried to clarify some of the overlaps and mutual interests of these communities, and indicated where the organisations of interest are most closely affiliated.



For the CoP expert group, five experts have been invited to participate. Out of these five, four experts are located in Europe, one in the US. Two pertain to emitting broadcast organisations, two others pertain to broadcast archives. The fifth is an individual consultant. The community of practice intends to bind and inspire as wide a group of broadcasters as possible. The broadcaster description indicated that broadcast organisations and archives vary widely in size: from well-organised, national, public organisations to stations with a more local view and smaller budgets. Some broadcast archive content is also stored and made available through a national archive or library, as is for example the case in Sweden or Norway.

An important challenge towards digital preservation in this regard is the wide budget divide. Overall, time and resources are scarce commodities in the broadcast archives, as anywhere else. The PrestoTAPE and PrestoPRIME projects have made several attempts at developing factory digitisation approaches, yet still these haven't been adopted across the board. Where these approached have been adopted, is traditionally in the Western part of Europe. Looking at Eastern-European organisations, broadcast standards and quality are usually on par with their Western counterparts. Digitisation budgets, however, are much smaller and convincing management of the archive's value is a difficult task for archive personnel. In the south of Europe, some important archives are under pressure. While Spanish broadcaster RTVE has struck a public-private partnership with content management company Tedial[9], former Greek broadcaster ERT has, in 2013 and less than two years after taking over HenAA's (the national audiovisual archive) holdings, lost governmental support for a large part of its broadcast operations.

[9] Ford, "Tedial and RTVE Highlight Groundbreaking Archive Project at FIAT/IFTA."

6.2.2 Challenges and barriers encountered in the process

Much energy has been spent in communication with neighbouring CoPs to establish the boundaries and perspectives between the four different domains. As D2.1 indicates, a broadcaster with an archive can run a full “produce – exploit – archive – re-use” cycle, but smaller organisations often outsource a large part of these activities to service providers in post-production or in footage sales. The broadcast CoP is therefor a community with many different directions, as the organisations themselves are divided.

It is also a highly organised domain. Although archive staff has limited resources to travel and visit conferences and other domain activities, many different domain organisations are highly active in the field of archiving, standardisation and networking. The CoP has found it easier to work with some than with others - its current members are active in the FIAT/IFTA Preservation & Migration commission, in the US-focused AMIA, in the European-based EUscreen foundation and in in the national organisations Median Archive Austria (AT) and AVA_net (NL). Furthermore, through the technical partners in the project, the CoP also is in touch with the EBU Media Information Management groups. Because the size and spread of the domain, much contact and involvement depend on existing relationships and face-to-face meetings at domain meetings.

This variety is reflected in the talks with individual core experts and from hearing their own interests and needs. Already on this level, the variety in daily work matters, technical interests and gaps in the realisation of digital preservation methods is high. A map of all these different issues and interests will be produced and even expanded upon with help of the knowledge schema, and a selection of topics to work around will guide the activities of the CoP in 2014.

6.3 Role of supplier to the community preservation challenges

6.3.1 Introduction

Out of the nine broad categories the annual IBC conference presents in its exhibitor list, all but eight are relevant for the topics discussed in the CoP TV, Radio and New Media. Digital preservation is an activity that touches upon technologies and processes in the entire production chain and editorial workflow. The main difference between analogue production environments and the digital world, is that the activity of archiving materials can start from the moment the very first ideas about a programme, series or emission are put on paper. Archives who stand apart from the media creation process, such as Sound and Vision in the Netherlands, or the BBC’s archive department who is housed in an entirely separate building, have over the past few years started pilot projects to record descriptive metadata and guide the import process from the very start onwards. A comparable movement is taking place in the film realm, where storing DCPs and production elements with a national film archive is in many countries becoming a part of public funder’s contracts.

Some of these vendors actively engage with standardisation activities, preservation projects and archival organisations. The individual-based organisation AMIA improved the focus on this relationship by providing a specific supplier-related page on the organisation’s website. IASA includes vendors in the setting of standards - not to speak of

professional organisations such as SMPTE and IEEE, who have close links with the Presto4U project.

6.3.2 Engaging with the supply side

As part of the broadcast relations, the CoP leader presented at the broadcast archive section during the IASA conference and held a tour of the IBC in 2014. Technology reports for the IBC conference have been drawn up by the technological partners. The IASA experience will be reported upon in a blog for the broadcast cop. An important topic that was presented at the conference, was the usability and information provided within MXF files, as presented by representatives from Cube-Tec and the FADGI Audiovisual Working Group. The MXF "Media Exchange Format" was designed, to achieve total interoperability in file-based media production processes.[10] It is a container format for professional digital video and audio media defined within a large set of SMPTE standards. MXF was intended as a platform-agnostic stable standard to carry a subset of the Advanced Authoring Format (AAF) data model for exchanging finished media products. MXF is governed by a family of standards, of which SMPTE ST 377 (itself in several subparts now) is the most important.[11] The MXF family allows for some variation in file structure. MXF was developed under a policy called the Zero Divergence Directive and was released by SMPTE in 2004. Almost 10 years later MXF is the predominant media container format in video broadcasting and professional media, but practical MXF encoder implementations still face a huge variety of standard conformance and interoperability issues. The MXF-list of documents is long and very detailed with many options and implementation possibilities. Diversity of adaptations, different interpretations of standards/documents, the complexity of implementations and incompleteness of implementations cause massive problems with MXF interoperability.

A question coming out of the cop expert group is the usability of OAIS and PREMIS standards for audiovisual archives. Much work about this sort of standardisation has been done in the past in the PrestoPRIME project, yet applying them in a production archive proves challenging. Sound and Vision has taken this new challenge head on and has made it its most important goal for the coming period. Sound and Vision wants to become a "trustworthy digital repository" for Dutch audiovisual cultural heritage collections.[12] Whether it is public radio or television programs, or other audiovisual material, it must be safely stored and made permanently available for whomever wants to use it. In 2012 this new strategic goal lead to the establishment of a project wherein the requirements for a trusted AV archive repository were to be defined. What was to be delivered was a set of normative policy documents that could guide the establishment of an OAIS compliant audiovisual archive environment.

6.4 Successes of the community-building process

The broadcast community is one firmly rooted in the history and genes of the presto-projects. It is ostensibly a highly diverse community: varying in functionalities of the organisation, in scale, in attention to preservation issues. The large size of the organisations makes for a field that is highly diversified: while larger broadcast organisations are leading standards developers and technical movers, smaller

[10] Burghardt, "MXF: A Complex Wrapper Format under Control."
[11] Fleischhauer, "MXF Specification for Moving Image Archiving & Preservation: An Update on AS-07."
[12] de Jong, Delaney, and Steinmeier, *OAIS Compliant Preservation Workflows in an AV Archive: A Requirements Project*.

organisations have little time to focus attention to preservation issues and research outcomes.

The broadcast CoP is as of yet a small group of people with a broad expertise in the field and a thorough overview of topics that play out in the domain. Its focus in the second year will be mostly on what topics can be deemed unsolved by other, referring communities that are in existence, and how to bundle these strengths to solidify the body of research.

6.5 References

- Burghardt, Jürgen. “MXF: A Complex Wrapper Format under Control.” presented at the Tonmeistertagung, Köln, November 23, 2012.

- De Jong, Annemieke, Beth Delaney, and Daniel Steinmeier. *OAIS Compliant Preservation Workflows in an AV Archive: A Requirements Project*. Hilversum: Netherlands Institute for Sound and Vision, September 5, 2013. http://www.den.nl/art/uploads/files/Publicaties/OAIS_Compliant_Preservation_Workflows_in_an_AV_Archive_pdf0%27.pdf

- Fleischhauer, Carl. “MXF Specification for Moving Image Archiving & Preservation: An Update on AS-07.” presented at the IASA-BAAC Conference, Vilnius, October 9, 2013.

- Ford, Kate. “Tedial and RTVE Highlight Groundbreaking Archive Project at FIAT/IFTA.” Press release. Malaga, Spain, October 22, 2013. http://www.tedial.com/images/stories/tedial/press/KF161013_-_1_PG_FIAT_IFTA.pdf

- Harvey, Claire. “The Ages of Digital.” PrestoCentre. *Claire Harvey’s Blog*, March 4, 2012. http://www.prestocentre.org/blog/ages-digital

7 Personal Audiovisual Collections

7.1 General progress of growing the CoP membership

7.1.1 Introduction

In the world of archives, an interesting community that has come to prominence, mainly due to the mass diffusion of Internet in last years, is the contribution of private or personal collections to institutional archives or collections. The principal denominator that links considerable amounts of material under the so-called Personal collections CoP is the interest for any analogue or digital audiovisual content made by people in their everyday life and in a private use perspective, regardless if done in amateur or professional ways. It concerns contents made within the personal sphere and in principle not related to a professional environment.

Nowadays, with such a broad involvement of people exploring Internet potential in sharing each-others material, alternative scenarios replace the institutional approach, with communities of private collectors that conjointly support access and distribute content over long periods of time. Worldwide there is a large audience highly interested in the production and preservation of amateur contents, with collections that enthusiastically gather and preserve home movies, amateur footage, film documentaries, television recordings, oral interviews or unique historical visual documents that provide a private look of their national, regional or local community life.

Although the digitisation process is already a confirmed reality and it has developed to provide digital access copies on customers request, on the other hand, particularly for music records or old movies on film, the value is still linked to the physical object as well as to its content, and thus the survival of the original carriers becomes a primary need. Collections of both professional and non-professional material, like 16mm or 8 mm, are susceptible to contain historically valuable material. These items will continue to be traded, bought and sold on the market as long as there is an interest, but it is also possible that private collections may one day find their way to a museum or archive that will then need to keep the original carriers and maintain playback equipment.

The activity of this Community is also related to the growing concern by private content owners on how to preserve their own assets at home or within some kind of environment. Examples of content loss are numerous and, with digital content production being in all sectors of activity, there is fear of loss as well as an absence of guidelines on how to act in order to preserve somebody's own audiovisual assets.

7.1.2 Current functioning and output of core expert group

The core expert group for this Community started its discussions during the summer and mainly since September 2013. No global meeting was really done (except for the workshop in Paris on Dec 4th, where some of the members could meet, discuss and share their vision), however regular phone meetings were done in order to share the information being created by the project.
The Core expert group has been assigned an online workspace in Google+, which also provides free video/voice call functionalities and the opportunity to share documents, news

and events. This environment has been used for questionnaires and discussions with the community members.

The members of the CoP represent actors from different domains related to the preservation of audiovisual contents oriented towards personal collections, they are:

- Matthew Addis – *Arkivum*
- Julia Welter – *Film Archives online*
- Manual Kleidman – *Nos Archives*
- Jonathan Purday – *Europeana*
- Jean-Fabien Dupont – *Forever*
- Flavie Lecompte - *Ina*

The CoP leader is Daniel Teruggi, assisted by Luca Bagnoli, both from Ina.
Experts are concerned with running projects for recovering personal contents and helping or proposing services to users for digitisation and storage of materials.

7.1.3 Gaps, risks identified for the COP management

The community presents heterogeneous stakeholders; this diversity in perspectives is likely to complicate objectives identification and risks to undermine possible solutions, collective to all subjects. Not all of them are concerned with preservation issues and this great diversity of interests can range from:

- Non-profit institutions, almost exclusively state-funded, like national Archives or memory institutions, conscious of preservation issues and enriching their collection by temporary or permanent calls; this has been a long-running tradition but mainly oriented towards physical objects.

- Digital libraries gathering archival footage, old audio-visual recordings and anything that may have a commercial value on the resale market.

- Online libraries and user platforms, without commercial perspectives, with the purpose to publish and keep artistic contents shared within a defined community (“by the users for the users” approach).

- Companies proposing preservation services, where anybody can deposit its contents and receive a guaranteed insurance regarding the long-term conservation.

- Individuals seeking for simple and low-cost solutions for personal preservation

The consequence is that only the first of the list, recognizing works as a collective value for the community, are a group that fit the institutional archival profile and accordingly practice long-term preservation, in terms of storage methods, digitisation and cataloguing.

7.1.4 Results from face to face meeting and other activities

The phone, Google+ and email exchanges have been very productive in order to identify the common issues of personal collections archives. It is relatively difficult to contact

people in production activities, they tend to be very busy and have not exactly formalized their problems as archive. However, through discussions (and mainly during the Paris meeting) it was interesting to see how they would discover that somebody else was sharing exactly the same problems. A short questionnaire (see page 71) was produced based on previously identified issues, which has guided the interviews in order to check the important points for the Community.

No newsletter was yet produced, and the first one should appear in January 2014 as well as an expert meeting and a webinar.

Other activities conducted in 2013, included the preparation and distribution of a short video called 'Sound and Music Archives and Personal Contributions Communities of Practice' to celebrate the UNESCO World Day for Audiovisual Heritage. The video was posted on the PrestoCentre website: https://www.prestocentre.org/world-day-2013

7.1.5 Actions to promote further growth of and visibility

During 2014, to extend the sphere of influence of the community and stimulate the participation of more stakeholders as possible, we need to work more intensively on the communicative level, especially publicizing lectures, conferences, screenings and film festivals, support for best conservation practices, preservation services, technical documentation, temporary or permanent call for lending contents and any activity that could raise awareness in any potential members and underline the potential economic impact contents may have.

It is important to pursue the interviews with actors of this domain. Experience has shown up to now, that each initiative is a different use-case. The general preservation issues are common to all of them, however the economic and legal model may differ very strongly.

7.2 Creating an understanding of long term digital preservation technological needs and barriers

7.2.1 Process and methodology used

The objectives of the activity carried on year one were manly dedicated to make surveys among the CoP experts regarding the following issues:

- Check content gatherers policies and reasons for collecting private material.
- Check what kind of contractual agreements can be established between institutions and content holders.
- Check the documentation and metadata associated to personal collections.
- Check the preservation policy applied by institutions concerning the donated material.
- Check the motivations among private content holders concerning the donation of contents to institutions.
- Check the economic interest and potential for personal contributions.
- Check the methods used by individuals to preserve and document their audiovisual assets.

- Check the legal environment behind any donation and contribution.
- Check the preservation context and responsibility of the receiver.

7.2.2 Challenges and barriers encountered in the process

7.2.2.1 Generic problems

Contributions to collections by individuals can be organised in two strong trends:

- Individuals wishing to transmit heritage content produced in the past with diverse technology
- Individuals that produce contents today for personal leisure and sharing. This new trend depends directly on the fact that today images and sounds recording it is accessible for anybody.

Donations to institutions, mainly National Archives and Libraries, have existed for the last hundred years. The main motivation for these actions is to preserve coherent collections of documents or objects related to a person or to a specific activity. All National Archives propose on their websites the possibility to donate any kind of documents to enrich the national heritage of a country. These archival initiatives were not directly focused towards digital contents but more largely to the traditional activity National Archives realize concerning personal productions.

A new trend has appeared more recently and concerns the contribution personal contents can make in terms of national heritage and enrichment to existing collections. This contribution is associated to an online presence, meaning that it is complementary to other initiatives where archives or collections show their heritage assets online and want to extend them to other contents in provenance from individual contributions.

The two sides of Personal Contributions are interesting to analyse concerning the motivations of donators and receivers regarding this kind of contents:

- Institutions, mainly when they launch online sites, find it is important for the completion of their collections (however complete they may be) to appeal to personal collections, which may propose a different point of view regarding their collections as well as bringing complementary contents to major events of the past.

- Contributors, who think their contents have a historical or social value, consider that their contents can enrich national collections and are proud of contributing to this enrichment process.

Contributing to collections is often the consequence of not knowing what to do with inherited contents who are considered to have some kind of value and thus useful for existing collections.

From the content holders side, it has become an established fact that content can be very easily produced and exchanged. Everybody films or records with cameras, phones or any digital device and the amount of new material created daily grows exponentially as well as the quality of the produced images. This has generated different models for content exchange and sharing, as the User Generated Content sites, which propose a platform for content creators to publish and share their contents. There is another use for personal

created content and it concerns information production for the media based in events or catastrophes, which are filmed by individuals, who then propose them to television channels or newspapers.

This situation has created the consciousness for preservation needs and there is a growing concern through personal content producers and holders that something has to be done in order to deal with the longevity of their produced images and sounds. Here is where the market is proposing access and storage facilities while not yet proposing structured preservation services.

7.2.2.2 Legal rights

Most of the archives that collect audiovisual documents are born when the consultation within the walls of the institution was the natural assumption. The legislation on copyright was considered a marginal issue and for most of the cases there was no reason to worry about. Now that digital has imposed and the collections are set to become available on the web, copyright greatly complicates the transition. The complex right management issues, existing at a professional level in other CoPs, have little or no awareness here and personal contributors ignore or tend to ignore everything regarding author rights and related rights. For someone the copyright complicates access to their collections, while others have not encountered legal obstacles when they open their collections. The latter case could be true for several reasons:

1) Institutions hold already the rights of their contents, in the particular case of a recording or a production they have done themselves.

2) Archives have signed a specific legal release and a donation agreement with content holders, both in the case of a commercial exploitation that in the circumstance of a non-lucrative intent. In case of commercial use, a contract is done, establishing the usage context, any revenue due to the donor and all the legal exploitation parameters of the work.

3) In cases of old documents or heritage contributions, even if it is not well specified, it is taken for granted the presumption that no rights are due.

To deal with rights is one of the best-known drawbacks in digitisation projects, and in general it is recommended to clarify any legal rights with the donor before starting digitizing. For this reason, it may happen that, to avoid complications or because asking permission from the right holders takes too much time, only the documents which archives own the copyright are subject to digital transfer.

Concerning property; i.e. who is the author of the document, it is really difficult to determine if the image is original or may be a copy (captured on television for example) of existing copyrighted content. It is even more difficult to determine the originality or audio contents. For image, the quality has been for a long time a proof of amateurism, since the difference between a professional image and an amateur image was visually identifiable and it was clear that amateur images were different in quality (and stability of image) from professional ones. With audio this difference is less perceptible and often contents are reused in different contexts.

The authenticity of personal contributions is a main issue in this domain. Contributors claim their ownership however this is extremely difficult to prove. This is why all content receivers make contributors sine disclaimers concerning the property of the contents they propose and are responsible for any usage of protected material. This situation has become more complex and challenging for content owners with the online content publishing sites (UGC sites), which propose a platform where individuals can upload their content. It is not the website responsibility to check if contents are protected, it is the person who uploads that certifies he is the author.

7.2.2.3 Lack of funding

Within this community, we must understand that value and interest of an old private audiovisual document often comes with time. A social event filmed long time ago can become a historical testimony because of the presence of persons or situations that afterwards have become well known. Some claim that the main obstacle is lack of interest or institutional support from their own institution, which is related to the apparent subordinate position of the *personal collections* CoP in comparison to the more structured, well-established and professional ones. Excluding lack of funding, confirmed by the fact that all the possible technological upgrades are almost always subordinated to budget constraints, higher economic resources are not necessarily capable of solving many of the raised issues: you can not buy skills that no longer exist, the organizational problems use budget resources but are not necessarily solved by having economic availability and to get more resources we need to increase awareness and support of stakeholders, and not the opposite. But for a good part of those interviewed the main problem remains the lack of money and time, or a sum of the two: because basically proper equipment and qualified personnel means economic investment and having greater financial resources available would correspond to more training, quality equipment and suitable facilities for the goals of the archives.

Most institutions that have launched personal contributions-collecting campaigns, develop this action as a side-action and not as a central activity. They tend to feel that it is their mission to accept in their collections non-professional contents, however as a complement to existing collections. Few initiatives exist based only on the contributions of users, proposing a digitisation and archival action as a main activity and reason of existence for them.

For individuals who have inherited material, the financial issue can have a strong impact. Digitisation of analogue material is an expensive action, even if more service providers propose today this kind of services. For contemporary contents, they are not considered generally in a long-term perspective and most users consider that once their contents are online they are secure and shouldn't worry any more about them.

7.2.3 Results so far

The Personal Contributions CoP is indeed a complex and multiform domain. Many different initiatives exist, however only few of them are really concerned with a digital preservation approach. If the institution receiving material is well established in preservation, it will apply the same policies as with all their material. For more fragile initiatives, long-term is understood however not always correctly undertaken.

7.2.3.1 Technical issues

Two issues are important here: the point of view of institutions receiving contents and the point of view of contributors:

- Institutions receiving contents: they share with all other communities the preservation issues regarding audiovisual contents. However they generally are well installed in content management and audiovisual digitisation and tend to launch collecting initiatives around an already established process and a digital environment[13].

- Personal contributors who are either interested in developing personal preservation solutions for their own contents or donating their contents (often family inherited) to an institution which will make the contents accessible to a large community of users or visitors, and assure the longevity of contents through time.

For the first, they already have an installed workflow for dealing with digitisation, online publishing and preservation; for the latter, they want to get rid of their preservation problems and obtain a digital copy of their contents independently of preservation issues.

7.2.3.2 Metadata issues for personal collections

The main lack regarding personal collections is descriptive metadata. The information regarding personal collections is mainly kept by the producers of the contents and in their minds! Little or no descriptions exist so, unless there images concern a major known event that can be easily identified, it is very difficult to determine the origin and date. Most often documents in provenance of personal contributors have little or no information associated to it.

This situation, where contents in provenance from personal collections or published in sharing platforms have very little or no metadata, is a challenge for search and retrieval. On one hand it gives certain privacy for contents, since they have a non-representative name and cannot be searched by text based search engines. On the other hand it is difficult to find much of the material, unless a special link is directed to that content. Research is advancing towards content-based search engines, or similarity searches, which may permit to have content clustered around a key element.

7.2.3.3 Public Access

One of the main purposes of collecting personal material is to make it widely accessible and visible online and organizing their exploitation within a legal frame. Collections represent in most cases digital derivatives made from the original analogue, accessible to the public consultation through the institution website. Database access can be restricted, for example by legal constraints that prevent the institution from releasing contents online, even as access low-quality copies. Alternatively, only a demonstrative portion of the entire collection is placed online, or consultation is limited to audio and video extracts to show an idea of the quality of the collection. Internet access is without any doubt growing exponentially toward an increasingly large audience, even for the fact that the technology

[13] It is the case for Ina's *Mémoires partagées* project http://www.ina.fr/memoires-partagees ; which is an initative launched to collect at a regional level and regarding cetain themes, complementary contents regarding their existing digitised and online collections.

has become more and more familiar and user friendly, but for the fact that this community does not have a uniform and coordinated digitisation program and that rights issues slow down an extensive cataloguing on the web, the online access is still far from being full, free and open.

The real challenge for this CoP will be to determine if there are any commercial perspectives regarding personal produced contents and to figure out how archival or patrimonial institutions (profit ones) could monetize their heritage by selling historical or private footages or, in case they aren't profit associations like national Archives or memory institutions, to keep their business working on a long-term perspective and grab the interest to a potentially larger number of users.

7.2.4 Additional tools used to facilitate gathering of consistent information

The gathering of information was based either on the questionnaire available on Presto website or on an internal questionnaire developed specifically for this CoP (see Annex). The main purpose of both surveys was to gain information on the condition of audiovisual recordings and the actions that are taken to preserve them. To gain insight in the preservation problems institutions face in management of their audiovisual collections, the questionnaire included general questions on preservation activities as well as questions on condition and problems of the specific media.

7.3 Role of supplier to the community preservation challenges

There is a growing activity for digitisation of personal archives; many service providers work with non-professionals and propose affordable digitisation solutions towards a medium quality digital format. It is not clear yet, how profitable is this market, since users are always highly interested in digitizing their old material, but they tend to wait before doing it (this is the experience of one of the big digitisation companies[14]).

On the users side, there is no clear understanding of preservation and often not even the need for it. And, even if the need would be identified, there are no simple and affordable tools for maintaining a digital collection in an archival perspective.

7.3.1 Introduction

Without being commercial, institutions receiving personal contributions provide indeed a Service. This service is financed through the institution's normal activities and it is generally a small extension. Some institutions are experimenting with commercial outputs for digitised material, however the results are very low up to now and don't permit the activity to develop.

Concerning the digitisation of analogue material, many companies propose affordable services on the marketplace. The cost is then on the content holder side which is a drawback for launching actions, mainly towards old material.

Interesting issues concern preservation services, where content holders can store long-term basis any kind of content. This is a security archiving, not intended for access; however the fact that it is starting to exist shows the growing concern for digital longevity.

[14] Forever, in France : http://fr.for-ever.com/fr?num_id=5&gclid=CNDd64WIuLsCFVMPtAodpxMAcw

The CoP will continue the analysis of existing services in order to establish use-cases that can be shared and known by larger communities. There is also the intention to establish a list at a European level of institutions receiving personal donations.

7.3.2 Engaging with the supply side

Almost all the profiles have been contacted in 2013: institutions receiving archives or launching important collecting campaigns; service providers for digitisation, service providers for digital preservation. Local initiatives were also analysed, where a small association of individuals work to preserve some kind of local heritage.

7.3.3 Actions prepared for 2014

More suppliers will be identified in order to engage discussions with them. The economical impact of this activity has to be studied as well as the attractivity for personal content holders.

Concerning contributors, the intention is to identify some of them to understand their motivation and hesitations. The PrestoCentre will be a strong reference tool to explain issues and methods regarding preservation and where to publish simple and understandable guidelines for content holders.

7.4 Successes of the community-building process

After the first year 6 core expert members have been identified and associated to the project. They represent the core of the requested expertise in the project and the privileged interlocutors from which to gather information and feedbacks on the needs of the CoP. The use of the survey presented on the PrestoCentre, along with the ad hoc customized questionnaire, has allowed the collection of information that is served to draft this report.

Personal Audiovisual collections community

Questions to content receivers

1) Why do you receive contents produced by citizens?
2) Do you have a legal obligation to do such?
3) What kind of contents are you mainly interested in?
4) Do you have a selection policy?
5) Who is in charge of selection?
6) Do you put the collected contents online?
7) Do you structure the contents in themes, or just publish them?
8) Do you make any commercial use of them?
9) What are the conditions for contents to be deposited in your collection:
    a. Legal conditions?
    b. Documentation? (documents have to be documented)
    c. Authenticity? (People sign a disclaimer)
10) Does your institutions add documentation to contents?
11) Do you apply any kind of automatic description tool? (speech-to-text, face recognition…)
12) Do you sign an agreement with users?
13) How many people work on this task in your institution?
14) What volume of content have you collected this way?
15) What difficulties have you encountered?
16) Have your gained any visibility through this action?
17) Have you faced any specific technical problem?
18) Can you manage the diversity of formats arriving to you?
19) Do you keep in contact with content contributors after their contribution? (mailing lists, invitations…)
20) Any other comment?

Questions to the content owners or producers:

1) Why do you wish to contribute with contents?
2) Are your contents produced by yourself or inherited?
3) Which kind of value do you think they have:
    a. Historical?
    b. Commercial?
    c. Emotional?
    d. Preservation?
    e. Other
4) Are you ready to pay for digitisation services providing you get a copy of the work?
5) Are you concerned with long-term preservation issues?
6) Are you sure you own the content's rights?
7) Is the legal framework important for you? (signing an agreement or contract)
8) Do you produce content for UGC sites?
9) Why do you publish them online:
    a. Commercial purpose?
    b. Contribution to knowledge?
    c. Sharing with friends or thematic community?
10) Do you think there is revenue associated with personal collections?
11) What would be your wish in terms of recognition for your contribution?
12) Other comments?

8 Film Collections and Filmmakers

8.1 General progress of growing the CoP membership

8.1.1 Introduction

The CoP on Film Collections and Filmmakers is defined as a community, which shares an obligation to preserve professionally produced theatrical quality film forever. The community has for more than a century relied on motion picture film as a content carrier, which was high quality and can be passively preserved for centuries given the right storage conditions.

The core issues are related to the long term preservation of audiovisual heritage. The business models of the community are driven by a cultural necessity of preservation and not a direct relation to return on investment or other direct monetary incentives. The objective is to preserve the cultural expression of cinematographic works for posterity, as an expression of human thought, artistic expression and historical document.

The film community has been one of the last to be fully affected by the transition to digital formats. Even though digital post-production has been used in film production for two decades, the full impact has not been seen until the transition to digital projection in cinemas throughout Europe in the latest years. The transition to digital cinema means that the stable element in film preservation, the final film negative, is no longer needed in the distribution chain, having been supplanted by digital master files. Even though there is a standard for film distribution, the digital cinema package (DCP), the master files used to create this are less standardized and practices differ significantly.

While most new films today are digitally shot, post-produced and distributed, the community still has more than 100 years of analogue heritage and film objects to care for. Digital preservation is an added parallel activity to the preservation of the analogue originals. However, it is without doubt that the access to the heritage will predominantly be digital. The film community has therefore been described as facing a “twin black hole,” meaning that there is real risk to the new digitally born films, if they are not collected and stored in a trusted digital repository, while the analogue films also risk being completely forgotten, if they are not digitised within a decade, while film digitisation technology is still being produced and maintained.

The CoP on Film Collections will focus efforts on the three different aspects of digital preservation for film; the master file format(s), the preservation models for a long term storage regime for very large master files, and look into best practice standards for film digitisation.

Since the community is more concerned with historical authenticity than immediate exploitation, the commercial solutions available in the audiovisual production community often need to be assessed for their specific implementation for this community. However, the very large amounts of data, several TB per film, set quite high demands for both hardware and software management.

The CoP on Film Collections and Filmmakers is managed by the Danish Film Institute / Film Archive (DFI), which was founded in 1941 and is in many ways a typical non-profit public film archive. DFI is a long-standing member of the European Association of Cinemathèques (ACE), which is the most relevant community target group. The core experts of the community have well-established networks throughout both the global film community (FIAF), as well as the research community and broader film archive community through European projects such as EDCINE and European Film Gateway.

8.1.2 Current functioning and output of core expert group

Much of the effort of the first year has been put into establishing the core expert group. The CoP for Film Collections & Filmmakers core expert group has been fully formed and consists of ten members from a broad range of countries and institutions. They all have in common that they are related predominantly to non-profit film archives or focus on the long-term preservation of theatrical films.

The Community of Practice is lead by Thomas Christensen, who is curator at the Danish Film Institute, as well as Deputy Head of the FIAF Technical Commission and ACE Secretary General.

The core expert group-members are:

- David Walsh, Imperial War Museums, Head of FIAF Technical Commission
- Reto Kromer, reto.ch laboratory, AMIA Preservation Committee.
- Mikko Kuutti, National Audiovisual Archive of Finland, ACE Exec. Comm.
- Barbara Flueckiger, University of Zurich
- Lars Karlsson, Swedish Film Institute
- Oliver Hanley, Austrian Film Museum
- Ulrich Ruedel, British Film Institute
- Celine Ruivo, Cinematheque francaise
- Martin Koerber, Deutsche Kinemathek, Berlin
- Giovanna Fossati, EYE – Film Institute Netherlands

On 11 October 2013 the core expert had a kick-off meeting with participation of two thirds of the members of the group. The broadening of the CoP and wider communication will take place through participation in seminars and events within the core community, as it is organized in the International Federation of Film Archives (FIAF). Both at the annual congress and in events such as the FIAF Summer School in Bologna, there will be opportunity to both disseminate the existing Presto4U information, as well as gathering feedback, needs and requirements from a wider set of participants in the larger community.

From past experience, and based on the Presto4U workshop in Paris, there is a tendency that the wider community would like to have strong guidance and simple solutions. This is very understandable, but it must also be weighed against the fact that much of the solution lies in handling complex workflows and systems, rather than simply acquiring a turnkey solution.

The community should therefore both end up providing guidance in the fields of collection management, relevant technologies, as well as provide a more general description of the issues and workflows and their solutions through technology or workflow management.

All core experts have been offered membership to PrestoCentre, where they are able to update themselves regarding the project, the project management, state of the art in research and current technology.

The CoP is managed through a CoP-specific Google+ workspace with shared information about activities, links to other members, meetings and workshops.

Apart from setting the stage and formally bringing together the group, the CoP-kick-off meeting in October formed a basis for the possible physical meetings in 2014, as well as a general overview of the primary issues relating to the CoP.

The main topics discussed were:

- How to get the group to function and how it relates to other formations with overlapping membership. In general it was thought a benefit, rather than a drawback, that many members meet during the year in different frameworks.

- The possibility of having a workshop related to production of MAP (Master Archive Package) and DCP (Digital Cinema Package) in Copenhagen in Spring 2014. This was welcomed as an opportunity to both disseminate and share hands on experience, while at the same time being an opportunity to discuss needs and requirements in a concrete face-to-face setting.

- The group shared their individual status of digital workflow implementation at their respective institutions, which gave a good impression that the digital paradigm shift is currently taking place across the entire community. The level of expertise and funding was, as could be expected, the full range, from archives trying to do their best, with virtually nothing, to more complex full digital scanning, restoration and storage solutions.

Based on the first meeting, a communication plan has been delivered containing plans of core expert group meetings and workshops to be arranged in 2014.

8.1.3 Gaps and risks identified:

Since the core members are primarily driven by their personal wish to gain knowledge, and to a lesser extent by imperative needs of their institutions there is a danger that participation may be haphazard. However, since the community does have urgent preservation needs in the digital domain, there is also a strong personal incentive to be informed and to drive the needs and requirements from a community, which is predominantly ethically and morally driven to preserve audiovisual heritage.

Even though the mission statements of the CoP member's institutions are similar, the CoP represents a full range of different actors, ranging from very small municipal archives to large and relatively resourceful national organisations.

No doubt, face-to-face meetings are the most familiar and probably fruitful way to engage the expert group and community at large. The kick-off meeting showed a strong wish to stay informed and share information and experiences.

A more focused approach with individual or small group, interviews is expected to bring more explicit attention to the needs and requirements of the community. This approach will be adopted in a more consistent way in the second project year.

8.1.4 Results from face to face meeting and other activities

Face-to-face meetings:
Informal face-to-face meetings have been held with all core experts to solicit their interest in participating in the project, these meetings have been held in connections where expert group members where already present at other events. More concrete meetings and information gathering activities are foreseen for 2014. This will take place as a combination of workshops and individual meetings. There is a strong sense that the members of the expert group and larger community have a real awareness and quite similar set of needs, but also share the challenge of lacking standards and best practise examples.

The CoP management initiated kick-off meeting has helped to provide input for the actions and planned workshop and meetings in 2014.

Dissemination activities:
The CoP manager has informed about Presto4U in general and the Presto4U website at the EFG1914 plenary in Valencia, December 2013.

Flyers:
The CoP management has diffused flyers containing information about the project and the CoP-specific work during meetings and presentations.

8.1.5 Actions to promote further growth of and visibility

In the second project year a wider community of relevant users will be addressed and asked to participate in the CoP. The dissemination of information and best-practise examples, as well as relevant news items on the website and community page, will provide guidance and solicit discussions within the community. Also, presentations at seminars and congresses, as well as workshops, including the preservathons, will generate community visibility.

While the first project year has been very focused on establishing the individual CoPs and core expert groups, the synergy between the different CoPs should also provide an opportunity to share cross-sector liaisons and ensure that information and requirements that are shared between the greater AV-community are seamlessly diffused and shared.

8.2 Creating an understanding of long term digital preservation technological needs and barriers

8.2.1 Process and methodology used

There is a strong awareness in the film community that digital preservation is needed and urgent. However, digital is a serious paradigm shift for a community that has had 35mm motion picture film as a stable format for more than 100 years. The community is used to handling relatively few items (tens of thousands) of very high quality. The new digitally produced films contain up to several TB of data for a single feature film in uncompressed form. The film community therefore has quite different requirements for digital preservation, compared to Video Production and Libraries, which look for process speed and handling of large volumes of small files. Film collections typically contain relatively few objects, comprising very large amounts of data.

The main challenge consists in maintaining the analogue competences needed to continuously, and in parallel, maintaining the large analogue collections, while at the same time finding and allocating money and effort to preserve new digitally born films, as well as digitised items. The community is well aware of what in the DAEFH report has been termed “the twin black hole”: New films must be collected, stored and preserved in robust digital repositories, while we also must make sure to digitise the past analogue film heritage, while there exists an industrial capacity to do so. (1)

The core expert group has identified three areas of primary interest:

- Master file standardization
- Digital storage/repository
- Scanning/Film digitisation

Regarding master file formats, there have been projects in the past that have pointed to, and created, standards in the domain of digital film preservation. For instance the EDCINE project resulted in a triple JPEG2000 standard, consisting of MAP (master archive package), IAP (intermediate archive package) and DCP (digital cinema package), which is well described in Arne Nowak (2012): “Digital Cinema Technologies from the Archive’s Perspective.” (2)

The problem in this respect is that even though the DCP is the de facto standard for digital cinema distribution and screening, the uncompressed preservation standard MAP is not as widely adopted as it would be preferable for a preservation standard.

The CoP expert group will look into the relevant master formats currently employed by the community: DPX, TIF and MAP (JPEG2000), and provide guidance as to which file profiles are relevant for preservation, while also pointing to the pros and cons of the different file types. What in the film community is considered mezzanine formats, such as the proprietary MPEG4 Prores format or other broadcast master formats is expected to be covered in the CoPs on Video and Broadcast.

While the technology for data preservation exists, the community typically does not have the structural capacity to drive the transition without the creation of completely new digital film handling workflows and departments. One of the greatest challenges is therefore to

bridge the film curatorial work and the required IT capability, since existing IT departments also typically do not have any knowledge or skills in film archiving.

The CoP will collect information and experience with different DAMS (Digital Asset Management Systems) from the expert group members and wider community. While such systems have been employed by broadcasters for video-storage, they have only recently been introduced in some film archives. There are only few professional providers, and open source systems are still only being developed on a limited scale. Since the community deals with relatively small numbers of objects of very large size, there is a tendency to do things the “good old analogue way”, and store the master files in one, or several, copies on individual media (hard drives or data tape), registered in the existing film database. Needless to say, this is not a sound practice, which the CoP expert group will try to curb, before the community problems rise to unsustainable levels.

Film digitisation and scanning of the film heritage is a great challenge facing the film community. While it is predominantly a matter of public investment to digitise the heritage to provide access and retain the relevance and knowledge of the film heritage, there are still issues to be solved in regards to scanning technology. The expert group will therefore also address such aspects as colour sensitivity and the capability of current film scanners and capture devices to reproduce authentic digital files from analogue originals. The issue of restoration is related both to scanning and subsequent file handling and will also be considered by the CoP.

8.2.2 Challenges and barriers encountered in the process

While the CoP management has been met with a great wish to participate, there is no doubt that the voluntary basis of membership requires a no-barrier communication platform. In this respect, all the core experts have been convinced to join the shared workspaces (Google+), but actually making these work in a routine manner have proven a challenge.

The questionnaire has been too long, too general and too complex to be circulated among the core experts and wider community yet. In order to get full benefit of the CoP members, it will be needed to create a smaller and more precise questionnaire, which can relate directly to the knowledge schema. This will be refined through individual interviews and input session, first with the core expert group and also in connection with the FIAF Congress in May 2014.

Since a lot of effort has been put into gathering the expert group and setting the stage for the CoP itself, communication and sharing efforts with the neighbouring CoPs has been only sporadic. There seems to be an un-claimed cross benefit ready to be made, once the individual CoPs become strongly established. The nine CoP leaders are all capable resources in their own right and hopefully the preservathons planned for 2014 will provide an opportunity for the CoP leader group to establish closer communication and collaboration.

8.2.3 Results so far

The CoP Film Collections and Filmmakers core expert group has been formed and established in the Presto4U communication platform in Google+.

Upcoming activities have been planned, including meetings and workshops that will address these main areas of interest and identify, which areas already have solutions that are just not widely known or implemented by the community, and the topics that still need to be addressed by research and solution providers.

There is a strong need to plan automation of the workflow around preservation and archiving. There is a very real risk that archives in the community do not understand or implement solid and robust workflows and standards, because solutions are complex and costly.

One of the un-technical, but very real challenges will be to de-mystify data preservation technology to a community that rightly praise the analogue heritage, but need to translate the authenticity and solid analogue workflows into digital workflows that can maintain the connection with past, present and future heritage.

Having the film heritage community engage in the Presto4U community is an opportunity that can link and technically enrich a film community, which has been late to adopt digital technology, but has high quality, data heavy, collections that require cutting edge software and hardware solutions to support their handling and preservation in a digital workflow.

8.2.4 Additional tools used to facilitate gathering of consistent information

The CoP for FILM will work to create a synthesized questionnaire for film archives, which should link up with the knowledge schema and provide input for identification of areas of needs and requirements. Some needs will already have solutions and technology available, while other areas will identify requirements pointing to pick-up opportunities for research and technology providers.
The questionnarie should be ready for distribution at the FIAF Congress in May 2014, which is the primary meeting place for the international film archive community.

8.3 Role of supplier to the community preservation challenges

8.3.1 Introduction

It has been decided to maintain a certain distance to commercial providers in the CoP core expert group. There are a number of suppliers of equipment, software and services that relate to the CoP for Film Collections and Filmmakers.

In regards to files specifically intended for preservation, Fraunhofer IIS has provided a very interesting solution through the profiling of JPEG2000 in the EDCINE project (3). This file profile and management solution is one of the viable file generation workflows that will be explored in the project. Through the EasyDCP series of software Fraunhofer provides a software suite that addresses many of the requirements of the community in regards to creation of high quality (uncompressed) masters and distribution formats.

In the digital asset management domain, FrontPorch (4) has supplied solutions to at least two Presto4U partners (DFI and TV2). While there is not a lot of competition in this area, there are relevant cautions to be taken in regards to system configuration, which not only take into account future file migrations, but also the risk of supplier default.

There is a real urgency for creation of new digital preservation standards, since the analogue film laboratories, on which the film archives have relied for creation of duplicate masters, are disappearing, as analogue film duplication is failing as an industrial system.

In the area of scanning equipment and facilities offering digitisation services there is a multitude of companies. However, many of these are relatively local (national) in orientation and comparing prices and quality of service is not always easy. Also, since many objects are unique and irreplaceable heritage items the physical infrastructure around digitisation of analogue film is significant.

One of the concerns is that many workflows are in proprietary soft and hardware, which provides a specific liability in the medium to long-term preservation schemes. There is a strong need and request for open source workflows media management and preservation. However, while competition and open source solutions should be encouraged, it may not always be feasible.

The community does as a collective have a certain critical mass, so solutions that are adopted widely within this specialized community could have a chance to be viable within just this community. Solutions may also turn out to be relevant to communities in the other domains, especially for unique individual objects that call for uncompressed or long term (100+ years) preservation.

8.3.2 Engaging with the supply side

The CoP expert group members have engaged in workshop meetings and face-to-face meetings with commercial suppliers. However, the relationship is frequently that of a bilateral customer and supplier communication, and while there are theoretical discussions in regard to state-of-the-art, challenges, gaps and barriers, the community is not typically acting as a unified entity.

There is clearly a market and a place for input from the industrial side. However, some users are requested to internalize services and others request centralised services and tooling.

One of the central obstacles to tackle is how to take advantage of the massive data volumes and business case provided by the archives in a uniform way, that will enable suppliers to provide solutions and services that are competitive and will allow for the standardization and cost efficiency needed to drive the needed investment in the community member institutions

There is a need for training facilities, and in relation to that an acknowledgement of the field of digital film archiving and curation. The community currently has ad hoc and very scattered training opportunities, which do not reflect the needs in the EU at large. The improvement of knowledge, skills and competencies would enable more efficient and cost saving efforts by implementing the relevant preservation standards.

8.3.3 Actions prepared for 2014

In March 2014 CoP Film plans to arrange a workshop, with industry, CoP core expert group and possibly technology providers, testing and getting hands on experience with the MAP/DCP workflow as provided by Fraunhofer IIS. The workshop will also be an

opportunity for the core expert group to meet in person, plan and target any further CoP workshops and the preservathons to be held in 2014.

CoP management will engage the wider community by having meetings with the expert group, extended with a wider presence, when possible and relevant, at a number of events in 2014, including the FIAF Congress in May and the Bologna Restoration Film Festival in June/July. Individual meetings with community members and technology providers will also take place, but are not yet planned in detail. A list of efforts is included in the CoP communication plan sent to the PL.

8.4 Successes of the community-building process

The composition of the core expert group has been a success. The group brings together different skills and a broad range of institutions, which overall provide a good representation, from user level to experts in preservation. The members have provided relevant and positive feedback, but the group still needs to take full advantage of the community and online platform.

Initial discussions about overlapping between familiar communities have unfortunately been discontinued. While overlaps and use of identical professional bodies has been avoided, it would be useful to rekindle a formalized relationship and communication between bordering CoPs.

The community strongly needs to find role models for their digital workflow modelling. The need to describe best practices is probably even more important than the need for new tools. Or rather, many of the tools and solutions exist, but knowledge of specific implementation is not transparent and dissemination/training is missing.

The community institutions and their preservation efforts are often based on very few individuals in each institution. It is therefore possible to pin-point the efforts related to preservation and provide very direct dissemination and gain insight through relatively few personal contacts. The challenge is to identify the relevant individuals, who are not always the ones who attend events.

The CoP has waited with using the questionnaire provided by the project, since response expectations were expected to be very low, because of the complexity and volume of questions. However, the CoP will engage with partner CNR to create a questionnaire to provide the relevant input to the knowledge schema. Though this might only highlight that CoP needs and solutions are workflow and description based, rather than in need of new research, this will naturally provide this important insight.

8.5 References

(1) Digital Agenda for European Film Heritage (DAEFH)
http://www.dae-filmheritage.eu/final-study.html

(2) Arne Nowak (2012): “Digital Cinema Technologies from the Archive’s Perspective.” (http://www.fiafnet.org/commissions/TC%20docs/Nowak%20-%20Digital%20Cinema%20Technologies%20v2%200%20FIAF-TC_final%20V1%201.pdf).

(3) EDCINE (Fraunhofer IIS)
http://www.iis.fraunhofer.de/en/bf/bsy/fue/da/edcine.html

(4) Front Porch Digital
http://www.fpdigital.com/Solutions/Default.aspx

9 Video Art, Art Museums and Galleries

9.1 General progress of growing the CoP membership

9.1.1 Introduction

The core expert group for the CoP for Video Art, Museums and Galleries has been convened and comprises the following individuals representing those engaged in the preservation of video art across Europe and within the United States and of different scales and types of organisation including those who support artists and those who teach, as well as collecting institutions.

Core expert group member	Position	Body	Country
Pip Laurenson	Head of Collection Care Research	Tate	England
Gaby Wijers	Director	LIMA (Living Media Art Foundation)	the Netherlands
Joan Leese	Managing Director	VET	England
Rony Vissers	Director	Packed (Centre of Expertise in Digital Heritage)	Belgium
Alice Moscoso	Chargée de numérisation des collections	Centre Pompidou	France
Isabel Meyer	DAMS Project Manager	Smithsonian	USA
Martina Haidvogl	Advanced Fellow in the Conservation of Contemporary Art	SFMOMA	USA
Agathe Jarczyk	Conservator and Lecturer	Atelier fur Videokonservierung GmbH and Bern University	Switzerland
Joanna Phillips	Associate Conservator of Contemporary Art	Guggenheim	USA
Kate Jennings	Media Conservator	MoMA	USA

This community of practice focuses on the preservation needs of the following four constituencies:

1. artists and their representatives such as assistants or their galleries
2. those who support artists by providing technical services
3. those who collect video artworks for example museums, galleries and private collections
4. distributors of artists' video who often have the largest collections.

In addition the core group has agreed to focus their activities within the project specifically on the challenges presented to this community in the move from digital video tape to data.

9.1.2 Current functioning and output of core expert group

The Video Art core expert group is geographically scattered and thus Google hangout and email has proved to be the best way of communicating. There have been three online meetings on 24/10/2013; 29/11/2013; 20/12/2013 and a mix of Google Hangout and

Google docs. has been used for the communication of documents and ideas. There have also been two opportunities for face to face meetings; one as part of the public Presto4U workshop in Paris on the 4 December 2013 and the other at Tate on the 11 December 2013.

Four key areas of interest have emerged:

1. Metadata schemas
2. Tools for the creation of AIP's such as Archivematica
3. Formats for preservation such as FFV1
4. Quality control
5. Scalable solutions

In the meeting on the 11 December 2013, Courtney Mumma of Artefactual Systems came to talk about the development of Archivematica which is one of the tools which it has been identified as of particular interest to this community. At this meeting five organisations that are part of the wider community of practice were represented in addition to Tate, including a core expert group member. One additional Presto4U project participant, EURIX, joined the meeting remotely via Google hangout.

9.1.3 Gaps, risks identified for the COP management

Given the voluntary nature of the participation of the core expert group and the need of the project to establish a centralised approach to the tools used for communication it took longer than anticipated to establish the core expert group and get everyone signed up to Google Hangout. Whilst there is enthusiasm about being involved in this group, people are very busy.

One challenge that has emerged is the difficulty in providing information in a structured way to the other work packages (WP3, WP4, WP5). Discussions are currently underway regarding the mitigation of this risk by developing a methodology to provide information at the right level by the lead member of the core expert group producing a 'State of the Art' report which will be circulated within the core expert group for comment and then to selected members of the wider community. This will then be supplemented with more in depth intelligence gathering around specific topics to provide the information needed by the technology partners in the project to match requirements to research outcomes.

This community we are seeking to address is very mixed regarding their capacity and infrastructure as it spans the individual artist who is interested in finding out how best to preserve their own work, those who support them and also large national institutions. Therefore any solution needs to be scalable and accessible to individuals as well as larger organisations. This requirement has not been the focus of much past research into the long term preservation of video.

9.1.4 Results from face to face meeting and other activities

Some of the core experts took part in the first face-to-face meeting within the Presto4U workshop 'Digital Audiovisual Preservation in Communities of Practice' in Paris on the 4 December 2013.

During the morning session of this meeting we provided an introduction to the community of practice 'Video Art, Art Museums and Galleries' explaining the context, focus,

challenges of this community as well as providing an overview of current activities and hot topics identified by the core expert group.

In the afternoon this community of practice teamed up with the community associated with music and sound and there was an interesting discussion related to ethical questions related to preservation practice. Within the community associated with the conservation of contemporary art in general, and time-based media works of art in particular, there is a strong history of scholarship related to addressing the need for a rigorous conceptual framework in which to frame conservation practices. However where there has been less research is in addressing the technical challenges of delivering appropriate systems and tools to support the work of this community. It also was clear that the technical challenges associated with the preservation of video remain greater than those associated with music and sound collections.

The Presto Centre Library has been updated with eight online publications related to digital preservation within the domain of video art, art museums and galleries. Important links have been made with the FP7 project *Pericles* and the project *Matters in Media Art*.

The profile of the Presto4U project and this community of practice has been raised by presentations at the American Institute for Conservation Electronic Media Group meeting in 2013 and also the Archiving the Arts meeting at the Arts Council England office in London in October 2013. In addition a short video was produced about this community of practice to mark world heritage day and posted on the presto centre website https://www.prestocentre.org/world-day-2013.

In 2013 Tate will continue to work with the PrestoCentre to deliver a blog and newsletters and develop events and information of value and relevance to this community.

9.1.5 Actions to promote further growth of and visibility

The most important next step for the community of practice expert group is to begin to provide things which are of value for this community. This will be largely focussed around the five key areas of interest identified above and will be communicated online and via newsletters.

We would like to organise a webinar on FFV1 as a format for preservation and also a workshop for artists and their representatives at Tate Modern. We will also be working with the technology partners to explore and evaluate tools of value to this particular community.

The Electronic Media Group meeting within the American Institute for Conservation Annual Meeting in San Francisco in 2014 will provide an opportunity for a face-to-face meeting with the core expert group and also a wider community engaged in this community of practice.

However what all of this community has in common is that in general they lean towards supporting open source solutions rather than proprietary ones. This is in part to do with budgets and the structure of budgets and also due to a desire to work together to find common solutions that might be widely accessible. This community of practice will therefore lobby for the inclusion of open source tools as part of the technology watch and research outcome evaluation.

9.2 Creating an understanding of long term digital preservation technological needs and barriers

9.2.1 Process and methodology used

At the start of the project a macro-overview of potential issues was produced, highlighting the challenges and needs of this community. In general there is an awareness of the need for long-term digital preservation within this community of practice however in many cases this community has been somewhat separate from the broader digital preservation community found within broadcast, libraries and archives. Given the focus of this community is on video artworks, many of those working in this area operate within the context of fine art conservation practice and it is only recently that they have needed to understand the concepts and practices associated with standards such as OAIS, Premis and Mets.

This community often works with small high value collections and may need to cover the conservation or preservation of a broad range of materials. On the whole they do not have access to large budgets for software and may have only recently begun to work with departments in their institutions who are responsible for Information Systems. In some cases they may be working alone outside an institutional context.

The language of requirements and requirements gathering, ontologies etc. is extremely alien to this community and finding mechanisms to gather their needs is challenging.

In order to express information about this community to others within the project and beyond, a state of the art report will be drafted by the community lead to cover the key areas of the knowledge schema which will be sent for peer review to the core expert group initially and then representatives of the broader community. This will be supplemented with more in-depth explorations around key issues identified in the ontology of needs expressed by this community. These more in-depth explorations will be covered by the use of specific interviews and where useful, survey questions.

This is a dynamic community with a number of key organisations moving forward to establish new workflows for the preservation of artist's video. This project is therefore timely and could have a considerable impact.

9.2.2 Challenges and barriers encountered in the process

The members of this community are responsible for more than the preservation of video artworks. Within institutions it is common for collections of video artworks to be small although often of very high value. These collections are often a small proportion of the overall collection. Skills associated with the conservation and preservation of collections are more commonly focussed on more traditional media. Individuals may not have specialised knowledge associated with video preservation and they may also be dealing with collections which incorporate a wide range of media, including modern materials such as plastics or foodstuffs as well as traditional works of art on paper, paintings and sculpture.

It is therefore important that expertise related to the preservation of video is broadly disseminated in an accessible form. We are looking forward to providing both a fairly high level technical webinar on FFV1 as a preservation format for artist's video and a far more

accessible event for artists and those who support them. The aim of these two events is to advance the current knowledge base of those already active within the community charged with the responsibility for the preservation of artists video within collections and also to address the needs of those who are interested in the preservation of artists video but who lie outside institutional structures, such as artists, commercial galleries and those who provide them with technical support.

Whilst this community know each other fairly well, many are not familiar with the working methods, language and practices of software developers. Providing a meaningful requirements and needs analysis for this community is an extremely complex task and often reflects a rapidly changing situation on the ground. Once an area of practice begins to be examined by those engaged in the project, it begins to change and evolve.

9.2.3 Results so far

The core expert group contributed information to support the development of the knowledge schema.

The core expert group has produced and reviewed a list of common video file formats used by the community (see next page). Some sample files have also been produced related to this list and has been cleared for research use. This has been shared with the Presto4U team involved in the testing and assessment of software tools under WP3.

A case study has been produced to feed into WP4. The case study focused on workflows developing around the open source tool Archivematica and its integration with the collection management systems used within a museum to manage a fine art collection. An initial meeting was held in London with Eurix to explore the evaluation of Irods and P4 for the needs of this community.

An initial stakeholder analysis has resulted in the following findings related to the stakeholders associated with video artworks and their place within the media lifecycle:

1. Artists
2. Artist's assistants and technicians
3. Commercial galleries
4. Those who provide services for artists and their representatives, for example facilities houses
5. Museums and public art galleries of different sizes
6. Distributers

In all cases the primary role of those engaged in this community is not the preservation of video art. For all those engaged in the preservation of video art this will be only part of their role.

Artists and their assistants or technicians will be focussed largely on producing new work and the exhibition of existing works. **Artists** are responsible for the creation and production of video artworks, their display and often the preservation of their own works.

File Name	Compression Type	Codec	Color Sampling	Color Depth	Standard	Resolution	Scanning Method	FPS	Bitrate	Container/ Format
1	Compressed	AppleProRes AppleProRes(Proxy) AppleProResLT AppleProResHQ	4:1:1 4:2:2 4:4:4	8-bit 10-bit 12-bit	HD	720 1080 2K 2K	P	23.98, 25, 29.97	34-147 Mbps	.mov
2	Uncompressed	-----	4:1:1 4:2:0 4:2:2	8-bit 10-bit	NTSC PAL	720	i	25, 29.97	169-223 Mbps	.mov
					HD	1080	i,P	24,25, 29.97, 50, 59.94		.mov
3	Compressed	H264	4:1:1 4:2:0 4:2:2 4:4:4	10-bit	NTSC PAL HD HD	720 1080 1080	i i,P i,P	 24,25, 29.97, 50, 59.94 24,25, 29.97, 50, 59.94	31.4 Mbps (Variable)	.mov
4	Compressed	MPEG-4	4:1:1 4:2:0 4:2:2 4:4:4	10-bit	NTSC PAL HD	720 1080	i i,P	25, 29.97 25, 29.97, 50, 59.94	Variable	.mov
5	Compressed	HDV (MPEG-2)	4:2:0	8-bit	HD	1080	i	50	25 Mbps	Apple HD
6	Compressed	FFV1	4:1:1 4:2:2 4:4:4	9-bit 10-bit 16-bit	SD HD	576 1080	i,P	25, 50	Variable	.mkv
7	Uncompressed	SMPTE 259M-C (Ingex)	4:2:2	8-bit	SD	576, 480	i	50, 59.94	270 Mbps	.mxf POSIX .tar
8	Compressed	DV	4:2:0 4:1:1	8-bit	SD	576, 480	i	25, 29.97	25 Mpbs	.dv .mov .avi

Artist's assistants and technicians are often involved in the creation and production of video artworks, their display and sometimes the preservation of an artist's work. A successful artist may employ technicians or assistants for different activities; for example they may have one person who works with them for production and another who they employ to support display. Often these assistants and technicians are freelance and they may work for a number of different artists. In most cases they will have a longstanding relationship with particular artists.

Commercial galleries will be focussed on the sale and display of works. Often they provide support to collectors but are often not part of the preservation community and it is not clear whether it is feasible to be able to offer this support in the long term. **Commercial galleries** often support artists who they represent in the production of work, however in most cases their primary involvement is in the selling of work once it has been made. They will often display works in their galleries or support the display of works which have not been sold. They are often involved in rights management in terms of requests to use clips of an artist's work or images of work.

In the past **Facilities houses** often supported the preservation of video art collections, not so much for their preservation expertise but because of the equipment and technical knowledge available at an hourly rate. For most collections of video artworks, when dealing with tape based formats it does not make sense for those who had works to be preserved to invest in the playback decks and equipment needed. In the past Quality Control Suites could be hired with an operator to ensure the veracity of any transfer. However, because of the lack of consensus around the preservation of video as data it is difficult currently to clearly specify to facilities houses what elements are needed in the new workflows emerging in relation to the preservation of video as data. **Those who provide services for artists and their representatives**, for example facilities houses are involved in production and in some cases technical management, preservation and display.

Museums and public art galleries vary a great deal in scale. On the whole even the large institutions will have collections of video artworks which number less than 500 titles. In the larger contemporary art museums who have established conservation departments many are developing specialist posts or sections of time-based media or media art conservators. Those who have these specialised posts are Tate, Staatsgalerie in Stuttgart, Guggenheim in New York, Museum of Modern Art in New York, San Francisco Museum of Modern Art, and the Smithsonian. Many other leading modern and contemporary art museums have staff for whom this role is included within their remit. Tate has the largest conservation section within a museum dedicated to the preservation of time-based media works of art with 6 full time staff. In some cases museums and art galleries may be involved in production however on the whole they will collect works once created. They will then be responsible for the technical management, preservation, display and loan of those works. They may also take on aspects of rights management.

For **smaller collections** it is rare to have conservation departments. In this case curators, registrars, art handlers, audiovisual technicians and staff who support the information systems are often involved in preservation.

In some countries, such as the Netherlands, central agencies provide support to museums.

Distributers have the largest collections of video artworks with more than 500 titles. Historically these developed early in the history of the use of artist's video as an alternative economic model. In some cases they have been leaders in the field of preservation (for example EAI in New York and NiMK in the Netherlands) but in many cases they are very under resourced in this area. In some cases **distributers** may be involved in production however on the whole they will distribute works once created. They will then be responsible for the preservation, rights management and distribution of those works.

9.2.4 Additional tools used to facilitate gathering of consistent information

To facilitate the gathering of consistent information Tate has been involved in discussions regarding the relationship of the questionnaire and the knowledge schema and the best method of providing information on needs and requirements. Within Tate we have been trailing scenario based design as a means of capturing the requirements and workflows from the practitioner perspective.

In 2014 we will continue to work with this community to capture an overview of context, needs and requirements via the production of a state of the art report as well as more in depth studies in key areas such as preservation systems, metadata schemas and tools for quality control.

9.3 Role of supplier to the community preservation challenges

9.3.1 Introduction

This community seem to be increasingly engaged in open source software solutions, modular systems and contracts for services such as integration rather than the purchase of software. The exception is the collection management system produced by Gallery Systems.

- Artefactual Systems - Archivematica and Atom and consultancy
- AV Preserve – DV Analyser and consultancy
- BAY Area Video Coalition – QC tools
- Arkivum
- Gallery Systems - collection management systems

9.3.2 Engaging with the supply side

In 2013 we have talked to Tessela, Archivuum, Artefactual systems and Gallery Systems about the needs of this community of practice. We have had individual meetings and also met some of these vendors through an event organised by the Digital Preservation Coalition 'Procuring Preservation' Event at RIBA, London 17 Dec 2013. There have emerged two key issues for this community. The first is an importance in understanding of the pros and cons of supporting open source solutions and commercial software solutions and the different types of open source models. The second is the importance of the entry level of solutions being able to cater for the single individual taking care of their own collection or production. This suggests the need for services that aggregate individual users so that they can take advantage of robust solutions.

9.3.3 Actions prepared for 2014

In 2014 we will continue to work with the core expert group and those beyond to focus on the supply side of the critical areas of interest within the scope of this project for this community. We will ask for information about cost and also entry level requirements from vendors so we can make the results relevant to a broad sector of the community.

9.4 Successes of the community-building process

After the first year the core expert group of the CoP has been established. It has identified the key areas of focus and it has created a plan for dissemination. The project has the potential to not only communicate the needs of this community to suppliers and service providers but also help to support consensus and shared tool development, testing and adoption.

To publicise the creation of this community talks have been given within the UK and the United states (American Institute for Conservation Annual Meeting in 2013, Archiving the Arts Meeting organised by the Arts Council London 2013) and a short film was created for World AV Heritage day.

Connections have also be made with the Pericles project, a FP7 IP also looking at long term digital preservation of digital artworks, including artist's video.

In the 2014 newsletters and activities including a webinar and a meeting for artists will help to communicate details about the project and our work within the project more widely.

10 Tools tested

During the first year, the assessment process for research outputs (ROs) was established around the SQuaRE standard. ROs were organised in 6 categories and for each of those categories measurements plans. Seven tools have been assessed, as part of the research output tool and software testing task. Some the tools were chosen based on requirements gathered from CoP meetings, the rest were chosen from D3.1 section 3.

The tools have been divided into six broad categories:

Category	Tools examined
Metadata mapping and validation	1. PrestoPRIME Metadata Mapping Tool 2. MINT Mapping Tool
Storage	1. MServe 2. LTFS Archiver
Quality Assessment	1. VidiCert
Preservation Platforms and Systems	1. Archivematica 2. PrestoPRIME Preservation Platform (P4)

The assessment guidelines have been taken from D3.1 Specification of Assessment Criteria, Metrics, Processes, Datasets and Facilities. The broad characteristics include assessing for functional stability, performance efficiency, compatibility, usability, reliability, security, maintainability and portability. Each of these broad characteristics has been further subdivided into sub-characteristics, which enable us to design tests for each specific tool and to check and determine if each of the sub-characteristic have been implemented. The table below, taken from D3.1 shows the generic list of characteristics chosen for tool assessment. Each category will use a subset of these to test their research outputs against.

CHARACTERISTICS	SUB-CHARACTERISTICS
Functional suitability	Functional completeness
	Functional correctness
	Functional appropriateness
Performance efficiency	Time behaviour
	Resource utilization
	Capacity
Compatibility	Co-existence
	Interoperability
Usability	Appropriateness recognisability
	Learnability
	Operability
	User error protection
	User interface aesthetics
	Accessibility
Reliability	Maturity

	Availability
	Fault tolerance
	Recoverability
Security	Confidentiality
	Integrity
	Non-repudiation
	Accountability
	Authenticity
Maintainability	Modularity
	Reusability
	Analysability
	Modifiability
	Testability
Portability	Adaptability
	Installability
	Replaceability

A brief description of the tools being tested is given below. For detailed information on full assessment procedures and results we kindly refer to D3.2. D3.2 also provides a description of the datasets which were sourced from the CoPs. These datasets have been used as input during the research output assessment process.

PrestoPRIME Metadata Mapping Tool developed by JRS provides mapping between metadata formats for audiovisual content as a web service. It comes with a web-based user interface for configuring and previewing mappings.
[http://prestoprime.joanneum.at/]

MINT is a framework to facilitate aggregation of cultural heritage information from heterogeneous sources and perform metadata mapping.
[http://mint.image.ece.ntua.gr/redmine/projects/mint/wiki]

MServe is a RESTFul Web Framework for Service Providers for storing and processing data. MServe has been developed by IT Innovation in the PrestoPRIME FP7 ICT project and the POSTMARK project. It has also been used successfully as a viable storage system [http://mserve.it-innovation.soton.ac.uk/docs/]

LTFSArchiver is an open source software service for handling archiving and restoring of audiovisual files on Liner Tape Open (LTO) tapes, but using the Linear Tape File System (LTFS). The LTO/LTFS technology allows accessing the data tape as a removable storage device with file system, with a few limitations due to its linear nature.
[http://www.crit.rai.it/EN/attivita/opensource/LTFSArchiver_en.pdf]

VidiCert software enables significant automation of visual quality assessment in a two-step approach. In the first step video or movie content is fully automatically analysed in regard to certain visual impairments, e.g. image noise, strong video distortions, black frame sections or blurriness. The gathered information is presented to the user for efficient verification in the second step. The result is a human verified quality. VidiCert has been developed by Joanneum Research.

Archivematica is a free and open-source digital preservation system that is designed to maintain standards-based, long-term access to collections of digital objects. It follows the OAIS functional model and provides micro-services based tools within an integrated piece of software which allows users to process digital objects from ingest to access.
[https://www.archivematica.org/wiki/Main_Page]

P4 is the preservation platform developed by the PrestoPRIME project, integrating tools and services developed by all partners. P4 implements the main functional entities of the OAIS model (ingest, access, administration, data management, storage and preservation planning) for an archive managing AV content.
[https://github.com/prestoprime/p4]

11 Knowledge Schema and Questionnaire

As we continued our assessment and implementation of the Knowledge Schema (D2.1), we decided to define a set of questions that would allow CoP leaders to conduct interviews with the core expert group in each community.

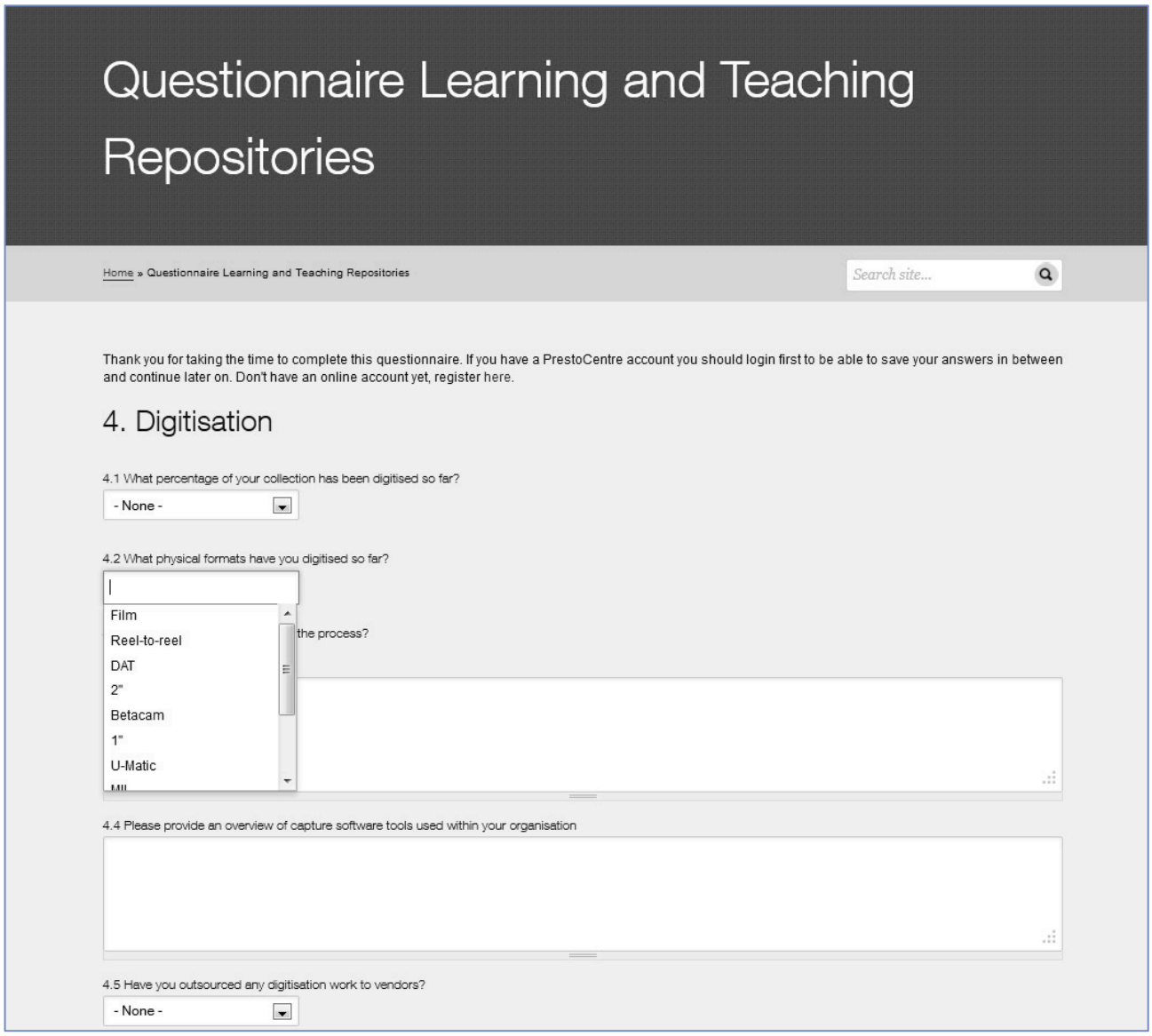
Most Community leaders have tested and adopted this set of questions and will make it available on the PrestoCentre website for online use. The use of a formal and unified questionnaire will allow WP3 partners to easily elaborate the results in a consistent and comparable way. The questionnaire has been also represented in Excel format for off-line browsing and use.

The questions cover a baseline of information on the organisation demographics, size of collections (including analogue formats) and digital preservation workflows using the OAIS functional model and vocabulary as a reference to define the chapters and key areas of investigation. Although not exhaustive in scope, the questionnaire does offer the opportunity to collect a considerably deep level of information including data on technological needs and barriers to the adoption of technology.
The questionnaire follows the methodology identified under D2.2 and has been mapped to the Knowledge Schema to facilitate the consistent gathering of information.
King's College London and B&G worked together to implement the questionnaire into an online survey taking advantage of the Drupal based tool already available on prestocentre.org.

A set of desired functionalities was defined to facilitate completion by both the CoP leaders and the CoP members when answering questions autonomously. Among the implemented functionalities we have given priority to the ability to complete the survey in different stages allowing users to save a draft version. Considering the extensive length of the questionnaire we have also divided questions into chapters (e.g. Ingestion, Metadata, Rights Management) and added skip logic rules at the back end. As well as this we have prioritized some urgent questions by making them required and we created nine different version of the master questionnaire to allow CoP leaders to personalize the survey by adding CoP bespoke questions.

An example of the questionnaire is shown in the figure on the following page. An example of the complete questionnaire can be found at https://www.prestocentre.org/questionnaire-video-production-and-post-production (this is the version for the CoP for Video Production and Post-Production).

Once questionnaires have been submitted, an excel report can be downloaded for each CoP for further data analysis. The questionnaire has been successfully used by some of the CoP leaders giving them the opportunity to build a picture of technologies and standards used, barriers and emerging needs in their community.



Example page of the online questionnaire

Glossary

Term	Definition
Assisted interviews	Face-to-face interview of the responder to a questionnaire. Questions are based on the questionnaire. However, time and opportunity for in-depth questions and comments are available.
B2B	Abbreviation for business-to-business: describing or involving business arrangements or trade between different businesses, rather than between businesses and the general public:
DCP	Digital Cinema Package. The current standard for theatrical projection in cinemas, consisting of a JPEG2000 file.
Fedora	A Linux-based operating system distributed under a free and open source licence
FE	Further Education
HE	Higher Education
IEEE	Institute of Electrical and Electronics Engineers
Interoperability	The ability of making systems and organizations to work togethe
JPEG2000	An intra-frame compression codec and file format.
MAP	Master Archive Package. A JPEG2000 profile allowing for uncompressed lossless master files.
MOOCS	Massive Open Online Courses
Music Sequencer	Software for music editing and mixing. Music Sequencer (or simply Sequencer) is a device or application software that can record, edit, or play back music, by handling note and performance information in several forms, typically MIDI or CV/Gate, and possibly audio and automation data for DAWs and plug-ins.
MXF	Material eXchange Format (MXF) is a container format for professional digital video and audio media defined by a set of SMPTE standards.
OMF	Sound exchange format. Open Media Framework (OMF) or Open Media Framework Interchange (OMFI) is a platform-independent file format intended for transfer of digital media between different software applications. The OMFI is

	a common interchange framework developed in response to an industry-led standardization effort. Like QuickTime, the primary concern of the OMFI format is concerned with temporal representation of media (such as video and audio) and a track model is used.
OAIS	Open Archival Information System
Post-production	A term for all stages of production occurring after the actual end of shooting and/or recording the completed work.
PREMIS	PREservation Metadata: Implementation Strategies
Preservation	The process of ensuring that contents are not lost forever: includes conservation (keeping the contents as they are), digitisation, migration, maintaining accessibility. Preservation is a continuous process.
Questionnaire	A questionnaire is a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents.
SMPTE	Society of Motion Picture and Television Engineers
Sub-community	Community of practice which cover a narrower field – e.g. national, cooperate, sectional.
VLE	Virtual Learning Environment
VPP	Abbreviation for Video and Post-production
Wrapper	A digital container format for metafiles

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