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**Training for Digital Preservation
in the context of the European project PLANETS**

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**Abstract:**

*This paper outlines a training programme jointly developed and organised by the Humanities
Advanced Technology and Information Institute ('HATII') at the University of Glasgow and
the British Library, in collaboration with a number of European partner institutions, on
behalf of the Preservation and Long Term Access Through Networked Services ('Planets')
project. It describes the background to the programme and the series of events which took
place during the final year of the project, focussing on the feedback received from the
participants, the lessons learned from the implementation of the events, and the perceived
long-term impact of the programme on future digital preservation training activities.*

## THE PLANETS CONTEXT

The Planets project [1] was a four-year project co-funded by the European Union under the
Sixth Framework Programme to address core digital preservation challenges. It ran for four
years from 1 June 2006, balancing research activities and development of practical tools and
services resulting from the collaboration of sixteen partners across Europe, including national
archives and libraries, higher education and research institutions and major IT companies.

The main aim of the project was to design, build and deliver a sustainable framework to
enable long-term preservation of digital content. The main components of the framework are:

a Preservation Planning service to enable an organization to define, evaluate, and execute a suitable preservation plan in accordance with the organization's needs; a set of Characterization services to help an organization in understanding the characteristics of its digital objects and collections, and gather useful information for deciding what information should be kept and in what format it should be stored; a set of Preservation Action services to access Planets and third-party migration and emulation tools via a single application; an Evaluation and Validation service to allow an organization to test a preservation plan using these tools and services applied to its own real data in a secure controlled environment, so that preservation decisions can be made based on scientific evidence.

## THE PLANETS TRAINING APPROACH

Within Planets, the training activities were part of a more general 'Dissemination and Take-Up' sub-project with the following objectives:
- Educate prospective users and suppliers about Planets and its role in supporting preservation of digital objects in institutions in Europe.
- Equip prospective end-users and suppliers with the information and skills they need to adopt Planets and stimulate its uptake.
- Inform stakeholders about the milestones in the project and how to take advantage of Planets output in their organisations
- Engage with end-users and suppliers to understand their needs and use the insights gained to inform the development of the project.
- Collaborate with other EU FP6 and digital preservation organisations to coordinate activities and communicate clearly the respective roles and responsibilities.

In this context, it was initially envisaged to have two sets of events, one mainly devoted to awareness raising and general education about preservation issues, and one mainly devoted to training in the usage of Planets tools. After the first few events at the beginning of the project it became clear that the awareness of preservation issues and the knowledge of technical solutions in a general audience had not yet reached the level where perspective users could make informed decisions about the tools to be used, and at the same time many of the Planets tools had not yet reached sufficient maturity to be demonstrated and recommended as a solution for preservation issues. In other words, the attendees of the first events seemed to first need a thorough understanding of the preservation issues, then a technical understanding of the tools made available by Planets to solve some of those issues, and finally an in-depth training about the usage of those tools.

As part of its remit to maximise efficient uptake of Planets tools and services, it was therefore decided to deliver a dissemination and training programme offering learning opportunities to staff in memory institutions such as national archives, libraries and large content-holding organisations, combining both aspects in each event. In addition, the perceived role of dissemination and training was not to organise and deliver events in isolation; instead it was expected to be a public face of the project, providing a conduit between the innovations of the project and its user communities, with the general objective of ensuring widespread adoption and use of Planets methods and technologies by practitioners, researchers and vendors.

Work on the programme began with the production of a detailed training plan [2]. The plan looked at developing a programme using a modular approach, which would provide self-

contained sessions which could be integrated with other projects at collaborative events, as well as combined for longer Planets-specific events as tools and services were finalised.

A provisional programme of events was outlined for the duration of the project, alongside a significant amount of detail on how the event activities would be documented and evaluated. The planned programme adopted the approach of initially delivering short Planets sessions as part of more general digital preservation training events, whilst Planets tools and services were still in development, in order to educate institutions throughout Europe in the general principles of digital preservation and to raise awareness of the project. More detailed Planets events would then be organised towards the end of the project. This would allow the research outputs and the tools developed by the project to be presented to interested members of the public at a point where these outputs had reached a relatively stable stage of development when their value could not only be described but also demonstrated.

The project proceeded to deliver a number of joint events during years two and three of the project, as part of collaboration with the Digital Preservation Europe ('DPE') project (funded under FP6) [3] and the Cultural, Artistic and Scientific Knowledge for Preservation, Access and Retrieval ('CASPAR') project (also funded under FP6) [4]. These events included some training on Planets and its initial results. As the Planets project entered its fourth and final year, the original training plan was then refined and extended [5] to offer a series of Planets-specific dissemination and training events with supporting online materials.

**EARLY ACTIVITIES – THE COLLABORATIVE APPROACH**

The aim of the early training activities was not only to deliver training events on the Planets approach, but also to embed the training into the wider digital preservation education initiatives of other FP6 and European digital preservation projects.

With the establishment of the WePreserve [6] consortium, initiated by the DPE, Planets and CASPAR projects, Planets took the opportunity to collaborate on the delivery of a series of introductory events which covered the general aspects of digital preservation. Courses were delivered in Vilnius (October 2007), Prague (October 2008) and Barcelona (March 2009). Using its modular approach Planets was able to insert sessions about developing Planets tools into the overall programme, offering a much more appropriate form of training in the early stages of the project as tools were emerging at different stages.

The aims of the joint training events promoted by WePreserve were to introduce the participants to a number of key digital preservation principles and provide them with an opportunity to apply knowledge through a number of practical hands-on exercises. Participants were expected to leave the events with:
  • understanding of key digital preservation issues and challenges
  • appreciation of the roles and responsibilities involved in a digital preservation activity
  • knowledge about the reference model for Open Archival Information System (OAIS)
  • familiarity with file formats considered beneficial for preservation
  • developed understanding of the role and use of preservation metadata
  • knowledge of the preservation planning process and its role in creating preservation strategies
  • insight into the concepts of trust and trustworthiness in the context of digital preservation
  • knowledge about the outputs of European research and development projects.

Events also provided participants with networking opportunities to connect with researchers, international experts, and practitioners across disciplines and national boundaries

Those three events attracted around one hundred participants, largely representing the sectors of interest to Planets (practitioners, researchers and vendors), as shown in Figure 1.



**Figure 1 – Planets early events**
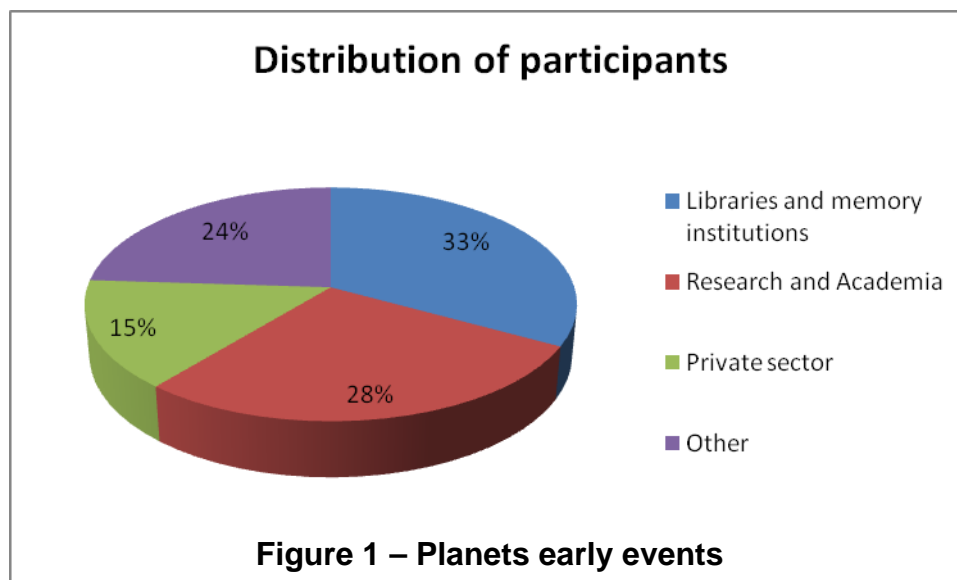
Attendees were asked to rate the main aspects of the event in a scale from 1 (poor) to 5 (excellent), and based on their feedback it appears that the events were well received and appreciated by the attendees. The numbers in Table 1 (averaged over the three events) indicate the percentage of delegates who rated a given aspect as good or excellent (a rating of 4 or 5).

| 82 | How effective were the speakers? |
|----|----------------------------------|
| 72 | How would you rate the teaching methods? |
| 82 | How would you rate the structure of the event? |
| 55 | How useful was the background documentation? |
| 98 | How would you rate the organisation of the event? |
| 90 | How well did you feel that the event addressed the main topic? |

Table 1 – Average ratings of initial events

The three European projects cooperating in WePreserve also established corresponding Virtual Learning Environments (using Moodle software) which were used to provide additional pre-course training materials for attendees. After the Vilnius event, materials were displayed on one Moodle (that of the DPE project) only, in order to avoid confusion for delegates and further combine the approach to the training events.

The strategic and co-ordinated approach to early events enabled the Planets training programme to have a much wider impact on digital preservation training for the European Community. Rather than potentially restricting take-up through focusing on project-specific training for the duration of the project, Planets tools and services were instead introduced to more diverse audiences in a general context that made training more palatable and in turn

fostered interest in the Planets approach. At the same time a collaborative approach to events did provide drawbacks; the designing of programmes that fulfilled each project's requirements was a continued challenge and prolonged the planning process significantly. The degree to which each project's results could be fully disseminated in a joint event was also limited, and as each project matured this became a more obvious issue. The original anticipated need for detailed project-specific training was therefore confirmed as Planets moved towards completion.


## THE 2009-2010 TRAINING EVENTS AND ACTIVITIES

The last year of the project saw the delivery of Planets specific events, as anticipated in the original training plan and expanded in its revisions as a result of the initial events. The combined efforts of Planets dissemination and training activities were dedicated to the delivery of a final series of events to introduce the now more complete Planets approach to the core target audiences.

A series of five events was finally planned during the fourth and final year of the Planets project, entitled 'Digital Preservation – the Planets Way'. Each event consisted of an initial day of high-level explanation of the challenges of effective digital preservation, along with an overview of Planets solutions to these challenges: this initial day was targeted at managers, budget-holders, policy-makers and other senior decision-making members of staff.

Days two and three consisted of a mixture of lectures on more detailed technical information about the Planets tools and services, interspersed with practical demonstrations of the tools working live and opportunities for open discussion. These two days were aimed at librarians, archivists, and the technical and developer staff who would be involved in the implementation and maintenance of Planets tools, should they be adopted by their institution.

Locations for those events were carefully chosen in order to reach as broad a range of European countries and contexts as possible, and the events were publicised through the extensive network of digital preservation, archive and library-related mailing lists across Europe. Each event placed a target on attracting at least seventy percent of participants from the local region, and was promoted through regional contacts and organisations. The events took place at the following locations.
- Copenhagen, Denmark, June 2009
- Sofia, Bulgaria, September 2009
- Bern, Switzerland, November 2009
- London, England, February 2010
- Rome, Italy, April 2010

The training team carried out initial research into the level of digital preservation activities within each region of Europe, in order to tailor courses to their anticipated audience. A pre-event questionnaire was then distributed to delegates prior to the event and the results disseminated to speakers, to ensure individual sessions were pitched correctly. The work identified that knowledge and activities in southern and south-eastern Europe were less advanced than those in northern and western Europe, and so the Sofia and Rome events had a different regional focus than those of Copenhagen, Bern and London.

Each event also incorporated one or two guest speakers who gave a more personal account of either region-specific digital preservation concerns, or a case study of how they had tackled the digital preservation issues, very often using Planets tools and services within their institution. Speakers from institutions such as the Central European Library, Bavarian State Library, Bibliotheque Nationale de France and UK Parliamentary Archives discussed their experiences alongside Planets partners from the National Library of the Netherlands and the Swiss Federal Archives.

Alongside the training events, HATII at the University of Glasgow also led the development of a suite of online training materials, both to complement the learning of those who had attended one of the year four courses, and also to introduce the principal concepts of the Planets approach to digital preservation to anyone unable to attend the face-to-face training. The use of materials on the Moodle sites for joint events had been lower than anticipated, with feedback suggesting neither delegates or tutors had sufficient knowledge of the software or time to familiarise themselves with how to use it correctly. The Copenhagen event trialled placing supporting materials on a Planets webpage, which was well received, and as a result the decision was made to use a dedicated area of the Planets website for dissemination of final online training materials instead.

These materials were made freely available online at the close of the fifth and final 'Planets Way' event, and consist of seven short videos, based on day one presentations, plus an annotated reading list and a set of summaries of the first day outreach material prepared with IBM (one of the Planets industry partners) for technical and development staff. This material is currently hosted on the Planets website, though this may change due to future activities of the Open Planets Foundation (OPF). This not-for-profit organisation was established at the end of the Planets project in order to continue the development and support of the Planets tools including training for interested organisations.


**FEEDBACK**

The events were well attended, with three out of five exceeding attendance target for all days, namely fifty delegates for day one and thirty for days two and three. The regional focus for events was also successful, with four out of five reaching the target of seventy percent of attendees being from local countries. A good proportion of attendees were, however, from a range of countries outside Europe, including the USA, Australia, and Saudi Arabia. Despite efforts to attract delegates from all regions of Europe the countries of southern and south-eastern Europe were still underrepresented across the series, reflecting the lower level of involvement in digital preservation activities or perhaps a reluctance to attend events delivered in English.

Delegates represented a wide variety of national libraries, national archives, academic and government institutions, and within these organisations the target job functions of librarians, archivists, CEOs and IT staff were well represented, alongside digital preservation researchers (Figure 2).
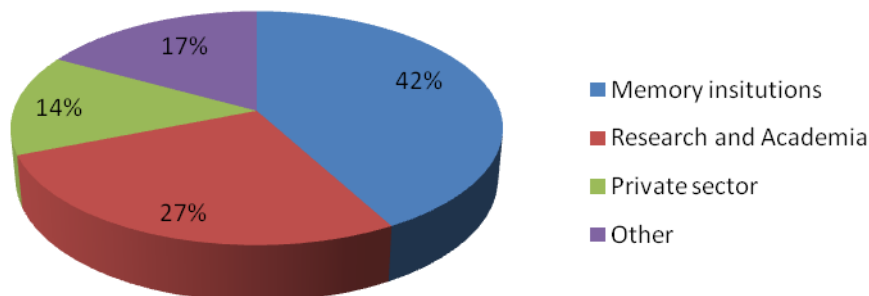
**Figure 2 – Planets year 4 events**

After each event, delegates were asked to complete a feedback form, scoring various aspects of the course and also providing comments on what they liked best about the event and what could have been done better.  The delegate feedback from each event was carefully gathered, monitored and integrated into planning for the next event in the series.

The feedback to a set of event and organisational criteria was consistently high across the events (Figure 3), with many areas improving as the series developed and trainers listened to the comments of attendees.  A target was set for seventy percent of delegates to rate events as good or better against criteria.  The courses' success in providing a good introduction to Planets and meeting expectations were particularly highly rated and a significant majority would consider using Planets and attending similar events in the future.  The areas which received the lowest average scores were enabling delegates to understand approaches and the gaining of practical skills, but even these remained close to target.  The various organisational aspects of the events also received excellent feedback, with the speakers and content of sessions highly praised, and pre-event reading and the content of exercises generally performing less well.
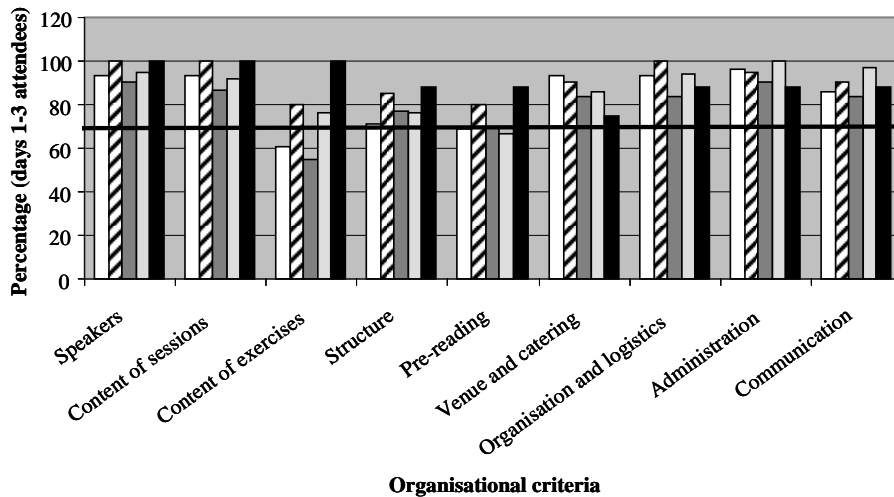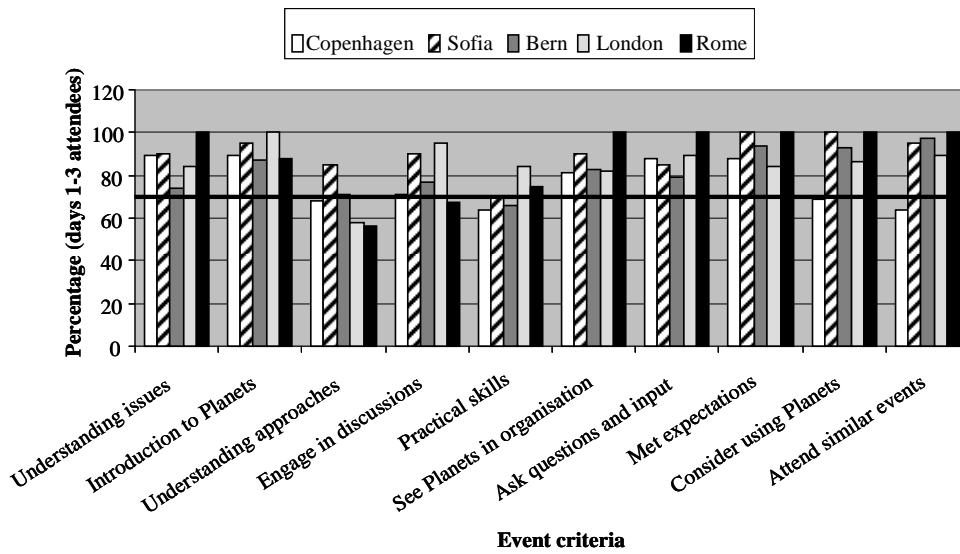
**Figure 3 - Feedback from the series of events**

In the feedback form, participants were asked to rate each presentation or practical session individually, and the ratings and comments were carefully examined by speakers in order to improve individual sessions. For the overall average rating of all the presentation in each event (Table 2), excluding Sofia, the rating constantly improved, reaching very high levels. The standard deviation, which indicates how much on average the individual presentations are above or below the overall average value, decreased from the first to the last event, indicating that not only did each presentation improve over time, but also the difference in rating between each presentation gradually reduced.

|            | Average rating | Standard deviation |
|------------|----------------|--------------------|
| Copenhagen | 4,05           | 0,32               |
| Sofia      | 4,47           | 0,16               |
| Bern       | 4,09           | 0,27               |
| London     | 4,23           | 0,17               |
| Rome       | 4,25           | 0,17               |

**Table 2**. Average rating for lectures.

In addition to scoring various criteria for the training events, delegates were invited to provide general comments on what they liked best about the event, what they would like to see in future events and what they thought could have been done better. General consensus across the series was that the practical exercises were a favourite part of the events, as well as the opportunity to network with other attendees and the knowledgeable speakers. Delegates would have liked to have seen more examples of Planets being used in an institutional setting, a clearer explanation of how the tools fitted together, and more opportunity to use tools individually during the exercises.

The comments on what could have been done better highlighted the difficulties of satisfying audiences with a variety of job roles, institutional contexts and digital preservation knowledge. Delegates requested differing levels of introductory information on digital preservation, and whilst some commented the technical level of the event was too low, librarians and archivists in particular tended to suggest it was too high. This conflict of opinion supported other comments which indicated that some areas of the events should distinguish between information needed for librarians, archivists and managers, and that required by IT professionals or developers. Several delegates also commented that the events tried to fit too much information into a three-day course, suggesting that courses tailored to more specific audiences may go further in addressing the specific needs of target groups.

Other methods of feedback were also used and valued by the organiser team, including spontaneous suggestions on the part of the audience which the organiser team embraced and carried on to further events. For example, the use of Twitter was initiated by a delegate at the first event, in Copenhagen. This delegate created a hashtag ('#Planetsway') in order to identify Twitter messages specifically about the Planets event. In subsequent events of the series, the organiser team encouraged delegates in both the use of Twitter for feedback and that specific hashtag.

Blogs were also useful pieces of evidence after each event. At the end of each event, feedback from Twitter and the blogosphere was searched for and included in the evaluation process. Blogs that posted entries about the year four events include Archives Hub blog [7], the KeepIt project's 'Diary of a Repository Preservation Project' [8] and the Bodleian Library's FutureArch blog [9].

**IMPACT**

At the end of the series of 2009-10 dissemination and training events, a post-event survey was conducted. Feedback from each event had routinely shaped the content and format of subsequent events throughout the training, but to truly judge the success of the training programme, it was important to gather information about the real impact the programme had had on its attendees' working practices and in turn the national library and archive and digital preservation communities of Europe.

The survey attempted to find out two things; firstly, the extent to which delegates had implemented the knowledge and skills they had gained on the course, and secondly, whether the events had led to any collaborations or increased involvement for delegates in digital preservation forums or Planets activities.

A questionnaire was designed with a set of yes/no questions asking for further description where required. The questionnaire was issued to all known attendees of the training courses across the programme (excluding the Rome event, which had not taken place at the time of the survey), which totalled 339 individuals. A small prize was offered as an incentive for delegates to respond. Seventy delegates responded to the questionnaire (some partially), giving an overall response rate of twenty-one percent. The percentage of responses for each event against the number of attendees varied, with early events often as well represented as later courses.

Three questions were asked focusing on the implementation of knowledge and skills. The first asked whether since attending the course delegates had gained knowledge and/or skills which they had been able to implement in their work. Fifty replied that they had, with only four claiming they had not. Some responses commented that the event had helped them to understand the general issues surrounding digital preservation, whilst several specified migration and emulation, significant properties and preservation planning as skills which they had been able to implement. A number stated that nothing had yet been implemented as they were not at that stage within their organisation, but that the training had helped them understand how to approach the issue; as one delegate responded: "We are in the process of creating strategies for preservation and Planets has given me awareness about tools and services that I can use to achieve that".

The second question inquired whether as a result of attending the course delegates had introduced, or anticipated introducing, new activities or initiatives in their organisation to preserve digital content. Thirty-nine delegates concluded they had, specifying a variety of activities including attributing metadata and significant properties and general digitisation. One delegate commented that whilst existing initiatives in their organisation had stayed the same, "Planets does provide useful tips and methodologies to improve the effectiveness of those". The third and final question in this category considered whether delegates' organisations had implemented, or intended to implement, any of the Planets tools and services. There were an almost equal number of positive and negative responses to this question. General consensus seemed to be that many were planning to but had not yet done so, and in some cases were just beginning initial testing with some of the tools. Out of twenty-seven positive responses, thirteen specifically named Plato and/or the Testbed as services they planned to implement.

The second part of the questionnaire asked five questions about delegates' involvement in the digital preservation community and with Planets in particular. The first asked if any collaborations or working relations had been established as a result of attending a Planets course. Twenty-six delegates specified they had, in particular citing continued contact and sometimes even collaboration with speakers, and partnerships or collaboration with other institutions who had attended the course. The second question asked if delegates had become involved in discussions about issues raised in the course through discussion lists or forums. Only thirteen responses stated that they had, listing discussions with colleagues on a local level as well as following discussions through mailing lists and forums. The responses to both these questions demonstrated the importance of the face-to-face aspect of the programme and its role in encouraging networking and in fostering the development of the digital preservation community.

The next two questions asked whether delegates had participated in any further digital preservation training or Planets dissemination activities since attending the course. A relatively low number of positive responses were received to both of these questions, suggesting it might be useful to place more emphasis on attracting previous delegates to any future events. Further training and dissemination activities listed included other Planets and digital preservation project events, various local workshops and the Planets community and newsletter.

The final question asked whether attendees or their organisation would consider subscribing to Planets technology or becoming a member of the Planets project follow-on organisation, the Open Planets Foundation (OPF). Forty-three respondents answered that they would consider this, with only ten specifying no. Comments indicated that in order to decide the advantages of joining would need to be weighed against the costs of subscription.

The post-event survey confirmed that the Planets training events had had a long-term impact on delegates' preservation activities within their organisations, in particular providing them with the skills necessary to tackle the issue of digital preservation and to implement new activities as a result. There was a continued interest in the Planets tools and services, with organisations already testing components and interested in the work of the OPF. The events were also significant in encouraging networking and long-term working relationships. Perhaps where the events had less impact was in encouraging delegates to become involved in other digital preservation and Planets activities. This suggests further effort should be dedicated to promoting future activities with previous attendees who will already have an interest in and understanding of the tools and services on offer.

## CONCLUSIONS AND RECOMMENDATIONS

The Planets project delivered a successful training programme which reached a significant number of delegates throughout Europe and the rest of the world. The experiences and feedback from the programme offer a number of recommendations for future digital preservation training programmes which the project has identified.

*Personalise courses for different occupations and geographical regions* – the feedback from the events demonstrated that different audiences require different levels of training. Future training programmes should consider offering separate events for different occupation types and regional areas to ensure that the level of training is precisely suited to its audience.

*Use alternative approaches to generate interest in countries less involved in digital preservation* – despite efforts events were predominantly attended by countries already active in digital preservation. Further investigation into the most useful types of digital preservation training for regions underrepresented at events should be considered. This may include consideration of events held in languages other than English.

*Encourage opportunities for collaborative training events* – the joint training activities were an excellent way of raising awareness of what the project can offer to a broader digital preservation community. Many attendees have gone on to test and implement various tools within their own institution as a result of learning about early project developments.

*Place an emphasis on practical sessions and real-life examples* – delegates consistently praised the practical element of events and requested more hands-on activities and case studies to place theory into context.

*Use face-to-face training events* – attendees emphasised the opportunity to share ideas with other delegates and speakers in person as one of the highlights of their experience. Events support broader outreach activities and help to build a community receptive to subsequent project developments.

*Develop effective online training facilities* – the potential of online training is substantial as it is able to both support physical events and educate individuals unable to attend courses. The design of effective training tools however requires significant consideration and investment in order to ensure they are useful.

*Use effective planning and evaluative procedures* – the constant reassessment of the training programme ensured its success.

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