



**Digital Preservation Coalition
Training Needs Analysis
Final Report**

A study funded by the Joint Information Systems Committee



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1. EXECUTIVE SUMMARY

Background

- 1.1 A number of reports and studies funded by the Joint Information Systems Committee under its *Continuing Access and Digital Preservation Strategy* have identified training in long-term management and preservation of digital assets as a major issue for the Higher and Further Education sector. It remains difficult to recruit individuals with appropriate skills and the need for such skills is growing. The potential impact of this long-term skills gap on institutions in the UK is likely to be severe and is a cross-sectoral issue.
- 1.2 Feedback from the Digital Preservation Coalition (DPC) forums, training events, and members has revealed that digital preservation training is seen to be a pressing issue across its membership. Consequently, both the JISC and the DPC wished to explore commissioning the development of a training programme for their respective constituencies. The JISC recognised that such an initiative would benefit from input from a wide range of partners within the DPC membership and might ultimately be more sustainable on a cross-sectoral basis. The JISC therefore grant-aided the DPC and Cornwell Management Consultants plc to prepare this report.
- 1.3 The purpose of this project is to determine training needs for digital preservation, determine the course content, and identify training providers, delivery methods and likely training costs.

Approach

- 1.4 We gathered information by surveying and interviewing selected Subject Matter Experts (SMEs) identified by the DPC and JISC. We developed a semi-structured interview questionnaire and a short survey, both of which were approved by Neil Beagrie (BL/JISC Partnership Manager). These aimed to elicit the challenges faced by interviewees, their perceptions of various strategies for digital preservation, and implications for training provision.
- 1.5 Out of the eleven nominated SMEs, eight agreed to help with the project. Of these eight, seven were interviewed but only four completed the survey. The interview data was analysed and the results presented in the interim report that was issued on 14 May 2004. The analysis of the questionnaire data and the results are presented in this report, as the information was not available at time when the interim report was produced.
- 1.6 Following completion of the analysis of these inputs, we developed a course outline, and we contacted potential suppliers (selected in agreement with DPC and JISC) to request training course design and estimated costs.

Conclusions

- 1.7 Based on the responses of SMEs and potential training suppliers, our main conclusions are that:
 - Training should be offered according to level of expertise (basic, intermediate, advanced);
 - The intermediate and basic courses should be planned for five days each, such that each day can additionally be offered as a separate session;
 - Development of the training should be separated from its delivery;



- A training steering committee should be set up to guide the training development;
- Estimates of development costs varied in an unusually wide range; therefore a competitive procurement is advised to obtain the best balance of quality and cost;
- A budget of £44,000 should be allowed for development of each of the intermediate and basic courses, though the cost may turn out to be less (this figure is based on a high estimate plus 10% contingency).



2. WHY THE STUDY WAS UNDERTAKEN

Introduction

- 2.1 Libraries, archives, museums, and data archives and services, play a critical role in organising, preserving, and providing access to the cultural and scientific resources of society. The introduction of digital technologies into the processes of production, distribution, and storage of information challenges the capacity of these institutions to discharge their responsibilities for preservation.
- 2.2 A consensus is emerging on appropriate short- and long-term responses to these challenges. Despite this consensus, both the Digital Preservation Coalition (DPC) and the Joint Information Systems Committee have determined that there are insufficient skills in the community to address the challenge successfully, presumably because the challenge has increased in scope so fast compared to institutions' ability to respond. Consequently, both the JISC and the DPC wished to explore commissioning the development of a training programme for their respective constituencies. The JISC recognised that such an initiative would benefit from input from a wide range of partners within the DPC membership and might ultimately be more sustainable on a cross-sectoral basis. The JISC therefore grant-aided the DPC and Cornwell Management Consultants plc to prepare this report.

Purpose

- 2.3 Organisations that are making a start on managing their digital materials for the long term are faced with a bewildering array of guidance and advice but little in the way of practical, hands-on training. The need for practical case studies is frequently cited on feedback forms from DPC Forums and Training events, and a recent DPC Members survey also revealed that training was seen to be a pressing issue by many DPC members.
- 2.4 While the DPC has developed one-day training workshops, which have been very well received, and which have attempted to raise awareness, guidance and support, a more intensive and detailed training course is needed which goes beyond the resources or the mandate of the DPC to deliver solely by itself.
- 2.5 In response to these findings, funding support has been approved by JISC for the DPC to commission a report outlining the likely demand, costs and potential suppliers and partners for an intensive summer school on digital preservation.
- 2.6 The purpose of this project is to:
 - Determine training needs for digital preservation;
 - Determine the course content;
 - Identify potential training providers, delivery methods and likely training costs.

3. TNA METHODOLOGY

The Interviews

- 3.1 Our approach was based on obtaining information from carefully selected subject matter experts (SMEs). Neil Beagrie and Maggie Jones (DPC Co-ordinator) selected the SMEs. Lynne Brindley (in her role as Chair of the Digital Preservation Coalition) sent an initial e-mail to the SMEs asking for their participation in the project. We then made interview appointments and conducted the interviews. Interviews were held with experts from:
- Joint Information Systems Committee (JISC);
 - UK Data Archive (UKDA);
 - King's College London;
 - Cornell University, USA;
 - KCL Digital Consultancy Services (KDCS);
 - University of London Computer Centre (ULCC);
 - Oxford University Library Services.
- 3.2 We developed a semi-structured interview questionnaire for these interviews, which was approved by Neil Beagrie.
- 3.3 All interviews were conducted by telephone. The interviews were designed to tease out the challenges faced by interviewees, their perceptions of various strategies for digital preservation, and implications for training provision.
- 3.4 The interviews lasted between 60 and 120 minutes. The interview script consisted of open-ended questions designed to probe into five areas:
- Interviewee information;
 - Target audiences;
 - Training Areas;
 - Existing training;
 - Logistics for proposed training.
- 3.5 A copy of the interview script is included in the interim report.

The questionnaire

- 3.6 A short written questionnaire was e-mailed to interviewees to collect quantitative data about the training needs of each audience identified in the interviews.
- 3.7 A copy of the survey questionnaire is included in the interim report.

Timetable

- 3.8 The work for this study was performed in April, May and June 2004. The report was submitted in July 2004; this slightly revised version is published in October 2004.

4. SUMMARY OF RESULTS

Interview results

- 4.1 The full SME interview results are included in the interim report. Please refer to that document for the following:
- Digital preservation training currently available;
 - Problems with current training provisions;
 - Recommended training providers and experts to be approached for any new provision;
 - Opinions regarding training format for new provision: advantages and disadvantages of each format;
 - Feature of the training: case studies, levels, modules and assessment;
 - Training support material recommendations;
 - Constraints when providing training.
- 4.2 SMEs' detailed responses and comments have been collected and are available separately.

Survey Questionnaire Results

- 4.3 The tight timescales for this project meant that only four SMEs completed the survey questionnaire within the designated period. Analysing data from such a small sample size runs the risk of being biased or non-statistically valid. Rather than dismissing the questionnaire data due to the small sample size, the decision was taken to analysis the results, to be later validated.
- 4.4 The questionnaire was split into two sections. One section asked people to identify the training needs for different institutions. We decided to not use these results to determine the course syllabus, as there was a lack of convergence in the questionnaire responses. We put this down to the low response rate, and because those who responded work for distinctly different institutions, which suggests their results were biased or recorded from their subjective standing point.
- 4.5 The second section asked people to identify training needs by job type. These results were more in agreement, and although the sample size was small there was much agreement regarding training need. SMEs were asked to identify for each job type the training priority (essential, desirable, not necessary) and the training level (basic intermediate, advanced). When the majority of the responses identified a particular training level and priority, that score was selected for the syllabus. When all responses differed we made an informed decision and tried to strike the mid range between the scores.
- 4.6 We appreciate that this approach may not produce statistically valid results. We are also aware that this sample may not be fully representative of the digital preservation community as a whole. For this reason we recommend that a training steering committee be formed to guide development of the training. The committee should include members with expertise in digital preservation, in order to represent the consensus views of the community; it should review the syllabus and shape development of training materials. The syllabus sets out a structure for the training



course, but items within it may not be definitive. The potential training developers were advised to not be constrained by the syllabus and were invited to make alterations or comments where appropriate; their comments are shown in Appendix C. Therefore the training developer will need to work in collaboration with the steering committee.

- 4.7 The complete survey results are tabulated in Appendix A. Below is a summary of the results, and identifying what should be included in each training level. We produced a syllabus for intermediate level training as this level was identified as the highest training need. The basic and intermediate syllabuses have roughly the same number of training items, therefore it is fair to infer that the cost for designing for level one training would be similar to the intermediate training estimate cost.

	Priority and level of training required for each audience					Include in which syllabus		
	Senior Management	Practitioner/ Middle Management	Administratory/ operational Staff	Data Creator	IT Management	Basic	Intermediate	Advanced
Key Priority: E= Essential, D= Desirable, N= Not necessary.								
Level: 1= Basic, 2= Intermediate, 3= Advanced								
Short-term action								
Collection and information audits	E1	E2	N	N	N	✓	✓	
Risk assessment and triage	E1	E2	E2	D1	E2	✓	✓	
Bit stream preservation and Physical storage (back ups, environmental controls, etc.)	N	E2	D1	D1	E3	✓	✓	✓
Applying existing skills	D1	E1	E1	E1	E1	✓		
Advocacy and guidance	E2	E2	D1	D1	D2	✓	✓	
Long-term Framework								
Policy Frameworks	E1	E3	D2	E2	E1	✓	✓	✓
Technical Frameworks	D1	D2	E2	D1	E3	✓	✓	✓
Awareness								
Awareness training	E2	E2	E2	E2	E2		✓	
Financial								
Lobby for funding	E3	E3	N	N	N			✓
Cost-benefit analysis	E3	E3	N	D1	E3	✓		✓
Creating cost models	E2	E3	N	N	N		✓	
Life-cycle costing	D2	E3	N	D1	D2			✓
Legislation								
Intellectual Property Rights	E1	E1	D1	E1	D1	✓		
Contractual issues	E2	E2	N	D1	D1	✓	✓	
Other legislation e.g. legal deposit, FOI	D1	E1	D1	D1	D1	✓		



Key Priority: E= Essential, D= Desirable, N= Not necessary. Level: 1= Basic, 2= Intermediate, 3= Advanced	Priority and level of training required for each audience					Include in which syllabus		
	Senior Management	Practitioner/ Middle Management	Administrator/ operational Staff	Data Creator	IT Management	Basic	Intermediate	Advanced
Institutional strategies								
Collaboration	D1	D1	N	D1	D1	✓		
Outreach	N	N	N	N	N			
3rd party services	D2	D2	N	N	N		✓	
Rights management	D1	D2	N	D2	D1	✓	✓	
Staff training/ development	E3	E2	E2	D2	D1	✓	✓	✓
Standards and best practice	D1	E2	E1	E1	E1	✓	✓	
Organisational issues								
Cross-team and cross-profession working	D1	E2	E1	E1	E2	✓	✓	
New roles	D1	E1	D1	N	D1	✓		
Competencies	N	E2	E1	D1	D1	✓	✓	
Formats and Methods								
Detailed training on file formats	N	E2	E2	E2	E2		✓	
Preservation metadata	D1	E2	E3	D1	E3	✓	✓	✓
Web-archiving	D1	E2	D1	D1	D2	✓	✓	
Electronic records	D1	D1	E2	D1	D2	✓	✓	
Document formats	D1	E2	E2	D1	E2	✓	✓	
Image formats	N	E2	D1	D2	E2	✓	✓	
AV formats	N	E2	N	D2	E2		✓	
Data archaeology	N	E2	E3	D2	E3		✓	✓
Migration	N	E2	N	N	E2		✓	
Emulation	N	E2	N	N	E2		✓	

5. AUDIENCES IDENTIFIED

5.1 The interviewees ranked the following institutions as requiring the most digital preservation training:

- First equal:
 - Higher Education/ Further Education HE/FE Institutions,
 - Libraries (non HE/FE),
 - Archives (non HE/FE),
 - Museums (non HE/FE);
- Second equal:
 - Research Councils/funding bodies,
 - Publishers and learned societies;
- Third: Preservation service providers;
- Fourth: Other public bodies e.g. ministries and agencies, vocational institutes.

5.2 The following comments were made regarding other institutions that are deemed a high priority for digital preservation training. These comments represent the views of respondents.

Higher Educations and Further Education

5.3 It makes sense to separate HE and FE when designing a training approach as they have different needs. Each of them uses different terminology: the digital preservation concepts are well established in HE, but FE has a much smaller archival function, so they are not familiar with the terminology.

Commercial sector

5.4 The extent to which DPC should try to influence the commercial sector is debatable. Intent on remaining neutral, the DPC focuses on not-for-profit organisations, and does not want to target commercial companies or to change the way they do things. Separating the commercial sector in this way could be counter-productive, as commercial and non-commercial sectors could learn a lot from each other. Training for the commercial sector could be offered, but it would need a commercial outlook.

5.5 Small and medium organisations are in an especially difficult situation due to a lack of awareness and because they have access to only limited resources.

Local authorities (LAs)

5.6 Training for this group is particular priority. LAs' resource and budget problems mean they can lag behind other government bodies. In addition, their fragmented structure makes it more difficult to implement changes (they cannot easily be implemented from the top down). Training needs to tackle LAs' particular problems, because they differ from those of the central government. In particular, they need awareness training, as they have legal obligations to keep data (e.g. adoption records).

Charities and voluntary sector

- 5.7 At the moment charitable and voluntary sector organisations have a low awareness of digital preservation issues.

Funding bodies

- 5.8 These organisations' funding helps create digital resources for learning and teaching. They need to be made aware that unless they start paying attention to digital preservation, their investments will have a short shelf life and will not last more than a few years.

Health sector/NHS

- 5.9 Of all the public sector, the health sector needs to react to digital preservation issues the most. The NHS must preserve patient records and research findings; it is also responsible for disseminating and sharing this information. Currently there is some perception that the NHS is resisting the move from paper records in some quarters.

Target groups within the institutions

- 5.10 The interview results identified these distinct groups:
- Senior managers;
 - Practitioners/Middle managers (custodians – includes records managers, curators, librarians, Records Managers);
 - Administrators/Operational staff (workers);
 - Data creators (e.g. academic research staff, publishers, civil servants);
 - IT management.
- 5.11 A peripheral target group is the user community, i.e. recipients of the data. Training for this group is in principle significant because if its members do not understand digital preservation issues they will not make digital preservation demands of the creators. Digital preservation awareness may influence the way the users ask for data to be presented and kept.
- 5.12 One suggestion for splitting up the target groups was the following three categories of training user:
- **Decision-makers:** those who make the decisions on how data is captured and stored. These are not necessarily senior managers; often decision makers are at lower levels, such as a project manager of a research group. This group requires awareness training;
 - **Implementers:** those who implement decisions, and who perform digital preservation activities. This group needs detailed, technical training;
 - **Trainers:** those who train the implementers. This group requires train-the-trainer training.

Priority audiences

- 5.13 This section presents our summary of the interviewees' varying views on priorities.

**1st priority: Senior managers**

- 5.14 Training in the past has aimed at lower levels. But unless senior management supports it, lower levels will not receive the budget to implement digital preservation strategies, and will often encounter internal barriers such as lack of resources and time.
- 5.15 Senior managers may be difficult to approach. One suggestion is to find out where their interests lie and what events they go to in order to cross their paths and spread the digital preservation message.

2nd priority: Data creators

- 5.16 Training for data creators is a priority. But data creators are unlikely to be motivated to attend training titled 'digital preservation'. Instead, the need is to find ways to integrate digital preservation awareness with standard IT training. For example, digital preservation could be integrated seamlessly into Microsoft Word training.
- 5.17 Data creators need practical training because they do not realise that the way they create digital resources affects the cost of retaining them. They need to be made aware that if done right the first time, preservation will cost less, and the data will last longer. The focus should be on making it easier to comply with digital preservation requirements rather than on providing training.
- 5.18 Universities are aware of the need for digital preservation, but need to act nonetheless. Information managers recognise the hurdle they face, but central administrators do not. Concerted action needs to be taken at the level of University registrars.

3rd priority: Middle manager

- 5.19 Middle managers will influence most other areas within an institution given the proper instruction.
- 5.20 Records Managers (RMs) must receive a moderate degree of tutelage. Digital preservation training exists for new RMs, but no continuing professional development is offered for RMs to advance their skills and further their careers. Currently students take an MSc in Records Management to master theory, but practical experience depends on the job they are given. Too many RMs lack the necessary training - or indeed the fundamentals. There is a need to improve the MSc.
- 5.21 IT Managers need to be familiar with digital preservation process otherwise they may slow up and inhibit the digital preservation practitioners who have already received training.

4th priority: Paraprofessionals

- 5.22 (Paraprofessionals are defined here as those with digital preservation and/or records management responsibility but no training). Since not every institution has a Records Manager, some digital preservation training should be aimed at paraprofessionals, i.e. any staff regardless of their prior training.



6. SHAPE OF THE PROPOSED COURSE

Timing

- 6.1 The training course design should allow for the programme to be delivered starting in Summer 2005.

Structure and time allocation

- 6.2 A draft syllabus is presented in Appendix B. It sets out the course structure, subject areas, suggested training materials and estimated time to deliver each element of the course. The numbers of hours allocated to each training element are highly speculative, not definitive, and are open to change; we anticipate that the training steering group described earlier will fine tune the syllabus as development proceeds. Potential suppliers will not be constrained by these early estimates, and can propose alternatives.
- 6.3 Likewise, the training materials are purely indicative and represent only first thoughts, which is as far as it is reasonable to take this exercise based on the information available. The list of training materials do not include presenter materials, course notes etc., inclusion of which is assumed.
- 6.4 The use of case studies and exercises are not specified. The training developer should specify where these will be built in, as appropriate, noting that there is a strong demand for 'hands-on' work.
- 6.5 It is envisaged that the course duration will be one week, an estimate of 34 training hours. This is approximately seven hours training per day, with one to two hours training on each subject.
- 6.6 This does not include much time for exercises and group work. Therefore, training providers were asked to offer ways in which the course structure and syllabus might be adjusted in order for the material to be covered in a week.
- 6.7 We recommended a one-week training course that has the potential to be split into one-day workshops. We did not recommend an on-line tutorial as experience has shown that unless an on-line course is certified or highly valued within a trainee's institution, people will not make the time to complete on-line courses. The SMEs agreed that when there is no incentive to completing the course, the likelihood of people making time to complete an on-line course is considerably reduced. Therefore we recommend an on-line course be used only as a pre and post training resource that would contain course reading and course related material.

Training levels

- 6.8 The training needs analysis revealed that most felt that the training should be offered at three levels. The SMEs suggested that intermediate level is the highest training priority, as currently most training provisions target awareness or basic level, and the uptake for advanced training would be lower.
- 6.9 The training levels can be described as in the following table:



Basic	Understands what the issues are; Aware of the range of possible approaches; Able to do the task in a simple environment, or with supervision.
Intermediate	Able to do the task in a medium complexity environment; Able to make a decision and choose an approach where several approaches are available.
Advanced	Able to train others; Able to manage others doing the task; Able to apply the learning/do the task in a complex environment; Advanced level may count towards professional or academic qualifications (to be arranged with higher/further education institutions).

- 6.10 Intermediate level training was identified as the highest training need, so training providers were asked to provide costing for the intermediate syllabus. The basic and intermediate syllabuses have roughly the same number of training items, therefore it is fair to infer that the cost for designing for basic training would be similar to the intermediate training estimate cost.
- 6.11 Relatively few items (nine topics) were identified as an advanced level training need. We recommend that these items be covered individually in advanced one-day workshops. The demand for these workshops will be lower than the intermediate level course, so decisions will be needed as to the benefit of designing advanced training that will cater for a minority.
- 6.12 The SMEs specified the need for advanced level training before they have knowledge about what would be covered in intermediate level training. At that point in time the levels were arbitrary with no explanation as to what each level represents. We recommend that intermediate level training should be developed first, and that the demand for advanced level training be assessed subsequently.

7. TRAINING PROVIDERS' RECOMMENDATIONS

- 7.1 A document was prepared for potential developers of the digital preservation training that explained the training needs analysis, highlighted the proposed syllabus and requested that potential developers provide budgetary cost estimates for the development of the training outlined. It also invited potential developers to make comments on the draft syllabus.
- 7.2 Training development and delivery have been separated in this project. We asked training providers only to respond with respect to training development. We recommend that development and delivery be procured separately as some smaller intuitions may have good experience in designing training courses without necessarily having the resources in house to deliver the whole programme nationally.
- 7.3 Six training providers were selected, in discussions with DPC. These training providers were selected as they had varying combinations of:
- Knowledge and experience of digital preservation;
 - Knowledge and experience of training;
 - Good contacts with others working in this area.
- 7.4 All the potential providers consulted were higher/further education institutions, except for one institution which is a private sector company which has training as a core service.
- 7.5 Potential training developers were asked to complete and return a response sheet. Of the six developers contacted five developers responded.

Training providers estimated costs and timescales

Timescales

- 7.6 Based on the training providers responses the table below shows an estimate of how long it will take to prepare this course.

Activity	Approximate timescale
Prepare the course programme and presentation	7 weeks
Supporting course material	3 weeks
Externally validate course programme	2 weeks
Finalise course programme	2 weeks
Setting up course website and preparing pre-course/ post course material	3-4 weeks
Book a venue, arrange and commission external speakers, advertised and take bookings, send out course details	2-3 months
Run course	1 week

- 7.7 Work should begin on the course development at least six months prior to the course delivery date. We recommend that more time be allowed, in order to absorb slippages and to allow for estimating error. The timescale detailed above are approximates and the real time will depend on the following variables:

- Proportion of the training developed by 'in-house' or by external experts;
- Whether the training is provided in a block (e.g. a summer school) or on a periodic basis (e.g., one day a week for six weeks);
- Preparing good quality training materials is extremely time consuming, as is the identification and management of relevant external expertise (assuming that it exists).

Costs

7.8 The costs proposed by the training providers to develop a course to meet the proposed syllabus vary substantially. The table below identifies the costs (in this table and elsewhere, the potential training providers' names have been replaced by a "respondent number" to protect commercial confidentiality):

Respondent	Preparation/development	Materials: Professionally produced packs	Delivery	Travel	Cost for course development only
Resp. 1	34 days @ £500 per day = £17,000	Included in development costs	5 day course (2-3 people) = £10,000		£17,000
Resp. 2	"Bargain" option Taught internally, little bespoke course materials - just standard reading lists, websites, copies of existing materials.				£1,500
	"Choice" option External guest speakers and experts, commission bespoke course materials from such experts				£4,500
Resp. 3	20 days @ 500 per day = £10,000 (require a variety of people with a range of skills and expertise)	£5,000	Trainer or Course leader/ coordinator = £2,500		£15,000
Resp. 4	£30,000 - £40,000 (including external evaluation and liaison)	Included in development costs	Not included	£4,500 for 2-3 people to visit Cornell (assuming use of their material)	£30,000-40,000
Resp. 5					No estimate



Variables influencing the cost

- Preparation time required;
- Cost of external experts;
- Preparation of readings and other training materials, and this might require additional administration (e.g. for tax);

- 7.9 It is difficult to estimate the cost accurately without preparing a detailed programme.
- 7.10 The costs proposed by the potential training providers differ significantly. Based on these estimates it is clear that a course could be developed for £20,000, however, it would be prudent to seek funding for £40,000 considering the need for quality, and to allow for pre- and post-course support material. Funding for delivery costs should be in the region of £10,000, to allow for external expert guest speakers.
- 7.11 10% contingency funding should be sought to cover indicative training costs.
- 7.12 In addition there will be the need to update the course every year or so. We suggest that an estimated 10% of the total development cost be allowed for updates.

Preferred training provider

- 7.13 Prior to asking training providers for estimated costs and approach the decision was taken by Maggie Jones to not assess (at this stage) the training providers suitability for developing this course. Potential training providers were not given an invitation to tender, responses were requested for use only by the Digital Preservation Coalition (DPC) to seek funding for the development. Assuming that funding is made available, the DPC will formally select a developer and commission development. In any future formal selection exercise, bidders will not be bound by their estimates; however, overall the budget will be determined by an analysis of their responses.

8. RECOMMENDATIONS FOR ACTION

Issues requiring further investigation

- 8.1 It is clear from the survey responses that there is a desire for 'hands-on' training. People want to know how to 'do' digital preservation. Unfortunately there is no single way to 'do' digital preservation, but it is nonetheless possible to develop a structured and meaningful training process.
- 8.2 One potential training provider proposed an alternative layout to the syllabus and recommended that modules be designed along different lines to be more 'hands-on' such as:
- Establishing a digital curation facility – strategic and policy issues;
 - A module aimed at senior management, decision makers, purse holders, etc. that would provide an overview of the issues and requirements, plus more in depth training for developing a strategy, creating a policy framework, legal implications, sustainability, resourcing – finance and staff, expertise and skills required etc;
 - Implementing a digital curation facility – practical training for implementation. This would be aimed at those that will carry out digital preservation work – usually not the senior staff - and might include a range of modules addressing the following:
 - Content: review, control, selection and ingest procedures – necessary decisions to make, how to, case studies etc., metadata, documentation, validation, etc., how to influence creation of digital materials – guides and advice; hands-on training with examples – would include discussion and training materials addressing data types and formats,
 - Long-term preservation strategies – migration, emulation, back-up and mirrors tech watch, benefits and disadvantages of different strategies, how-to guide and training - would include discussion and training materials addressing data types and formats,
 - Models – OAIS – structuring the process, work flows, responsibilities,
 - Outsourcing options, procurement, developing a tender, negotiating,
 - Technical infrastructure – hardware and software requirements and options – how to decide, planning for the future.
- 8.3 Set up in this way, organisations could choose to take one or two modules, or to buy into the whole, could choose to send different staff to undertake training in different areas – for example, the people likely to be making the technical decision are not those likely to be doing content selection or even ingest. Something long these lines would provide flexible and meaningful, practical training.
- 8.4 This approach was not suggested during the Training Needs Analysis so it was not considered when designing the course syllabus. However, we recommend this option be taken into account by the training steering committee.
- 8.5 Another potential training provider deemed the syllabus extremely detailed covering most of the relevant issues, but also suggested further time could be spent on 'current research issues'. This respondent suggested it is unlikely that any one person would need to know all the syllabus, suggesting that time might better be used elsewhere (e.g. advocacy, risk assessments).



- 8.6 In large organizations these functions would be undertaken at different levels, maybe even by different parts of the organisation. One suggestion by a potential training provider was to tailor training to target certain audiences (e.g. for digitisation projects, institutional repositories, etc). This approach was considered but not taken up due to the high expense to produce a course for each job type, and complications due to differences in roles and responsibilities despite similarity in same job titles. Modularisation was seen as the best option to combat this problem, but robust market testing of the syllabus would appear to be essential. For this study the SME identified the training audiences, however no investigation has been conducted in conjunction with the potential audiences. We recommend that further market research is needed on the demand for digital preservation training within these audiences.
- 8.7 Another option that needs consideration is the possibility that different people from the same organisation might attend different parts of the course. Indeed, it is unlikely if the sort of person who will benefit from the legal aspects of the training will be the same as the one who requires in-depth training on different file formats. An alternative may be to have sessions on the course run in parallel so people could select what was most relevant to them. The current syllabus could be tuned to be designed in such a way as to allow it to be taught in a number of modes, such as a one week course or five single day workshops.

Moving forward

- 8.8 This study has lead to the following recommendations:
- The course format:
 - Modular,
 - Hand-on practical approach (using relevant and up-to-date case studies),
 - Training should be developed by experts in the field,
 - Training to include sessions run by external guest speakers,
 - The chosen training course developer should report to a steering committee made up of representatives in the field to validate work,
 - The steering committee should review the syllabus,
 - Robust market testing of the syllabus would appear to be essential,
 - The course do not necessarily need to be delivered by the course developers;
 - The course duration:
 - One week Summer school course with the potential to split into five one day workshops;
 - The course audiences:
 - Those requiring intermediate level training in digital preservation,
 - Institutions should decide which individuals within their organisation should attend either the whole course or individual modules,
 - Criteria determining who should attend the course can be developed;
 - Timeframe for course development:
 - Development work should start at least six months prior to the delivery date,



- Advertising and raising awareness about the course should start earlier;
- Funding required:
 - £20,000 might be enough to produce this (intermediate) course, however to produce it at the desired level and quality it would be more appropriate to apply for £40,000, preferably plus 10% to allow for contingencies,
 - Should the DPC wish to develop an basic level course in addition to the proposed intermediate course the budget should be doubled,
 - 10% should be sought to cover indicative training costs;
- Tendering competition:
 - A formal competition should be run to select a supplier for developing this course,
 - Procurement criteria should be established to chose between the potential suppliers;
- Managing the development process:
 - Project management capability is required to ensure that the course development process meets the desired cost, quality and timescales,
 - The training developers may have these skills, or an external project manager should be appointed to manage the process.



APPENDICES



A. Raw questionnaire results

Training needs identified for each job type

This table shows the views of survey respondents on the needs for training by broad job category.

The number in each cell represents the number of responses for that cell. Each column of cells represents a combination of responses as follows:

Priority: E= Essential, D= Desirable, N= Not necessary.

Level: 1= Basic, 2= Intermediate, 3= Advanced

Short-term actions	Senior management							Practitioner- Middle manager							Administrators / Ops staff							Data creators							IT management						
	E1	E2	E3	D1	D2	D3	N	E1	E2	E3	D1	D2	D3	N	E1	E2	E3	D1	D2	D3	N	E1	E2	E3	D1	D2	D3	N	E1	E2	E3	D1	D2	D3	N
Collection and information audits	3			1					2	2					1			1			2				1			3		1		2			1
Risk assessment and triage	2	1		1					2	2					2	2					1			1			2		2			1	1		
Bit stream preservation and Physical storage							4	1	2			1			1		1	2			1			1			2		1	3					
Applying existing skills	1			1	1		1	1		1	1	1			1	1			2		1						2	1				1	1		
Advocacy and guidance	1	2	1						2	1		1						2		2				1	1		2				1	1	1	1	
Long-term Frameworks																																			
Policy Frameworks	3		1					1		2								1	1	1	1			1		1	1	1		1					
Technical Frameworks	2			1	1			1	1	1		1		1	1	1	2			1	1	1	1			3			2	1		2			
Awareness																																			
Awareness training	1	1	1		1				3			1				3		1				3		1				2	1	1					
Financial																																			
Lobby for funding			3		1					3			1							4				1		3		1					3		
Cost-benefit analysis			2		2					4					1			1		2	1			1		2			1		2		1		
Creating cost models		2		2						4					1					3	1					3			1	1			2		



Short-term actions	Senior management							Practitioner- Middle manager							Administrators / Ops staff							Data creators							IT management						
	E1	E2	E3	D1	D2	D3	N	E1	E2	E3	D1	D2	D3	N	E1	E2	E3	D1	D2	D3	N	E1	E2	E3	D1	D2	D3	N	E1	E2	E3	D1	D2	D3	N
Life-cycle costing	1	1			1	1			1	2		1				1					3	1			1	1		1			2		2		
Legislation																																			
Intellectual Property Rights	2			1	1			2			1	1			1			2			1	2				2						4			
Contractual issues		2	1	1					1	1	1	1					1	1			2				2			2	1				1	1	1
Other government legislation e.g. legal deposit, FOI	2			2				1	1		1							2			1				3							3			
Institutional strategies																																			
Collaboration	1				1		1			1	1			1		1					2					1	2					2		1	
Outreach	1						2	1						2	1						2						3				1			2	
3rd party services	1				2					1		2				1		1			1				1		2					2		1	
Rights management	1			1						1		1				1					1					1	1				2				
Staff training/development		1	1		1			1	1	1						2					1					1	2					2		1	
Standards and best practice	1			1			1				3				1	2						1		1				1		1	1		1		
Organisational issues																																			
Cross-team and cross-profession working				2	1						2		1		1	1		1					1					2		1	1	1			
New roles		1		2				1		1		1			1			1				1						3				1	1		1
Competencies				1			2		3						1	1			1							1	2				1	1		1	



Short-term actions	Senior management							Practitioner- Middle manager							Administrators / Ops staff							Data creators							IT management						
	E1	E2	E3	D1	D2	D3	N	E1	E2	E3	D1	D2	D3	N	E1	E2	E3	D1	D2	D3	N	E1	E2	E3	D1	D2	D3	N	E1	E2	E3	D1	D2	D3	N
Formats and Methods																																			
Detailed training on file formats				1			3		1	1	1	1				2	1		1			1		1		1		1			1		1	1	1
Preservation metadata				2			2		3		1						4								4						2			2	
Web-archiving				2			2		2		1	1					1		2		1				2	1		1					2	1	1
Electronic records				3			1		1		2	1			1		1		1	1					2	1		1					2	1	1
Document formats				2			2		3		1				1		1		1	1					2	1		1		1	1		1		1
Image formats				1			3		3		1						1		1		1				1	2				1	1				1
AV formats				1			2		2	1							1				2					2		1		1	1				1
Data archaeology				1			3		2	1	1						1		2		1					2		2			2			1	1
Migration				1			3		3		1						1		1		2					1		3		1	1			1	1
Emulation				1			3		2		1	1					1		1		2					1		3		1	1			1	1



Training needs identified for each institution type

	HE Institutions			FE Institutions			Libraries (non HE/FE)			Archives (non HE/FE)			Museums (non HE/FE)			Research Councils/funders			Publishers and learned societies			Preservation service providers			Other public bodies (e.g. ministries)			
	E	D	N	E	D	N	E	D	N	E	D	N	E	D	N	E	D	N	E	D	N	E	D	N	E	D	N	
Short-term actions																												
Collection and information audits	2			2			2			2			1	1		2	1			2			2			1		1
Risk assessment and triage	2	1		2			2			2			2			1	2		1	2		2			1		1	
Bit stream preservation and Physical storage	2	1		2	1		1	1		1	1		1	1			1	1		1	1		2				1	1
Applying existing skills	2			2			2			2			2			1	1		1	1		2			1	1		
Advocacy and guidance	1	1		1	1		1	1		1	1		1	1			2			2		1	1			2		
Long-term Frameworks																												
Policy Frameworks	3			2			2			2			2			2	1		2			2			2			
Technical Frameworks	2	1		1	1		1	1		1	1		1	1		1	1	1	2			1	1		1	1		
Awareness																												
Awareness training	3			2			2			2			2			2			2			2			2			
Financial																												
Lobby for funding	1	1	1	1	1		1	1		1	1		1	1	1		1	1		2		1	1			1	1	
Cost-benefit analysis	3			2			2			2			2			3			1	1		2			1		1	
Creating cost models	3			2			2			2			2			1	2		1	1		2			1		1	
Life-cycle costing	2	1		1	1		1	1		1	1		1	1		1	2			2		1	1			1	1	
Legislation																												



	HE Institutions			FE Institutions			Libraries (non HE/FE)			Archives (non HE/FE)			Museums (non HE/FE)			Research Councils/funders			Publishers and learned societies			Preservation service providers			Other public bodies (e.g. ministries)			
	E	D	N	E	D	N	E	D	N	E	D	N	E	D	N	E	D	N	E	D	N	E	D	N	E	D	N	
Intellectual Property Rights	3			2			2			2			2			2			1	1		2				1	1	
Contractual issues	3			2			2			2			2			2			2			2				1	1	
Other government legislation e.g. legal deposit, FOI	1	1		1	1		1	1		1	1		1	1		1		1	1		1	1				2		
Institutional strategies																												
Collaboration		2			2			2			2			2			2			2			2				2	
Outreach		2			2			2			2			2			2			2			1	1			2	
3rd party services		3			2			2			2			2			2			2			2				2	
Rights management	1	2		1	1		1	1		1	1		1	1			1	1		1		1	1				2	
Staff training/development	1	1		1	1		1	1		1	1		1	1		1	1		1	1		1	1			1	1	
Standards and best practice	2	1		1	1		1	1		1	1		1	1		1	1			2		1	1			1	1	
Organisational issues																												
Cross-team and cross-profession working	1	1		1	1		1	1		1	1		1	1			1	1		1	1		1	1			2	
New roles	1	1		1	1		1	1		1	1		1	1			1	1		1	1		1	1			2	
Competencies	1	1		1	1		1	1		1	1		1	1		1	1			2		1	1				2	
Formats and Methods																												
Detailed training on file formats	1	2		1	1		1	1		1	1		1			1		1	1		2					1		1
Preservation metadata	2	1		2			2			2			2			1	1		1	1		2				1		1
Web-archiving	2	1		1	1		2			2			1	1		1	1			2		1	1			1		1
Electronic records	2	1		1	1		1	1		1	1		1	1		1	1			1	1	2				1		1



	HE Institutions			FE Institutions			Libraries (non HE/FE)			Archives (non HE/FE)			Museums (non HE/FE)			Research Councils/funders			Publishers and learned societies			Preservation service providers			Other public bodies (e.g. ministries)				
	E	D	N	E	D	N	E	D	N	E	D	N	E	D	N	E	D	N	E	D	N	E	D	N	E	D	N		
Document formats	2			1	1		1	1		1	1		1	1		1		1	1	1	1	1		2			1		1
Image formats	1	2		1	1		1	1		1	1		1	1		1		1	1	1	1		2			1		1	
AV formats	1	2		1	1		1	1		1	1		1	1		1		1	1	1	1		2			1		1	
Data archaeology		2			1	1		1	1		1	1		1	1		1	1	1	1	1		1	1			1	1	
Migration	2			2			2			2			2			2			1	1	1	2				1		1	
Emulation		2			1	1		1	1		1	1		1	1		2		1	1	1	1	1			1	1		



B. Intermediate level syllabus

Area	Brief Description	Possible Materials	Hrs.
Short-term actions			
Introduction	<p>Organisation and objectives of the course.</p> <p>To some extent we have to focus on short-term approaches in response to long-term problems.</p> <p>“A journey of a thousand miles starts in front of your feet” (Lao-Tzu).</p>		0.5
Collection and information audits	<p>Survey and document all digital holdings, to identify those which require long-term retention and hence (potentially) preservation activities; and to classify them according to attributes such as format and retention period.</p> <p>Needs to take into account the complexity of doing this in a large organisation.</p> <p>Needs to take into account the requirements and constraints of legislation, e.g. Data Protection and Freedom of Information Acts.</p> <p>Includes survey techniques (e.g. survey by interview, by e-mail, using own staff, using institution staff, using external staff)..</p>	Survey instruments (e.g. data collection forms)	1
Risk assessment and triage	<p>Identification of the holdings that are at the greatest risk (e.g. files in obscure or obsolescent formats, extremely large collections which are rarely accessed).</p> <p>In academic settings, it will often be difficult to identify which digital resources are worthy of preservation (in the absence of pervasive records management).</p> <p>Can be difficult to do in the absence of an institutional policy; may need different approaches, depending on presence or absence of a policy.</p> <p>Needs to take into account the complexity of doing this in a large organisation.</p>	Sample report Encoding scheme(s)	1
Bit stream preservation and physical storage	<p>Includes back ups, environmental controls, disaster recovery etc.</p> <p>How to decide the number of backups, and how far away they are.</p> <p>What factors make bit stream preservation essential or desirable.</p>	Outline specification Model procedures	2



Area	Brief Description	Possible Materials	Hrs.
Advocacy and awareness	Learning the facts and arguments needed to persuade management that action is needed and (financially) justifiable. Includes both content and (a brief introduction to) techniques. Need to convey that there are now solutions as well as problems – digital preservation has advanced beyond the theoretical.	Pamphlet template Web page template 'Horror story' case studies 'Elevator talk' handout	1.5
Long-term Framework			
Policy frameworks Policies are also important in short-term too, given the short timeframe in which action needs to be taken – need to specify priorities, responsibilities, and timeframes – articulate what they'll do and what they'll ignore/leave	The scope and extent of policies needed to act as a sound basis for governance of a digital preservation programme. Must include need for maintenance of policies. Must include how to write policies, how to identify and engage stakeholders, and ways to disseminate them. Policies will vary greatly across organisations.	Model policies Policy drafting guidelines	1.5
Technical frameworks	Technological and organisational components which may be needed. For example: <ul style="list-style-type: none"> ■ Procedures; ■ Standards (e.g. OAIS). Techniques (e.g. emulation, migration, metadata collection).	Model procedures References to standards References to other resources	3
Resource planning	Staff – what skills are needed, how to estimate numbers. Other resources – how to estimate. In-house/outsourced options. Note that there is no clear, accepted, way to estimate all resources; this session will have to teach general principles.	Example institutional resource plan (a real one if one can be found, else one will have to be developed)	0.5



Area	Brief Description	Possible Materials	Hrs.
Creating cost models and life-cycle costing	<p>General principles and techniques. As with resource planning, there is no clear, accepted, way to model costs, so there is relatively little to teach.</p> <p>Take into account the entire lifecycle of the information resource, from before it comes into custody of the preservation function until (potentially) after it leaves this custody.</p> <p>A key complication is that responsibilities for resources themselves, and for the costs of preserving them, changes in the lifecycle of a resource; so a decision (or lack of decision) taken by one party may have a significant effect on the costs incurred by others at later stages.</p>	<p>List of cost components</p> <p>Sample model</p>	1
Legislation			
IPR and public sector legislation refresher	<p>Cover principally Data Protection, Freedom of Information and Public Records Acts, intellectual property legislation.</p> <p>Other legislation can be taken into account, e.g. SENDA (Special Educational Needs and Disability Act).</p> <p>Possible brief coverage of BSI BIP 0008 for Records Managers.</p> <p>Include the concept that some disciplines have legal unique legislative and/or regulatory requirements (medical research records possibly a good example), and so may need a 'legislation watch' function.</p> <p>Should also include Legal Deposit legislation here.</p>	References to specific Acts and clauses	0.5
Contractual issues	<p>Relevant to organisations which hold digital resources under a contract (e.g. some digital archives) and which are subject to copyright (most others).</p> <p>Taking multiple copies and migrating to new formats in some cases will need to be considered in the light of copyright and of contracts.</p> <p>In some cases, foreign intellectual property laws may need to be taken into account.</p>	Model deposit agreement (if one can be found; it is likely that a suitable model, or at least an example, can be located on the internet)	1
Institutional strategies			
Service providers <i>vs.</i> in-house provision	<p>Little information is available on service providers. Present something about their capabilities, arguments for and against their use, how to decide whether to proceed in-house.</p>		3



Area	Brief Description	Possible Materials	Hrs.
Procurement	How to specify, run a competition for, and select service providers or systems. Some of this training is generic and must already exist elsewhere. A brief overview is needed here, including the importance of involving the Procurement function at an early stage.	Procurement approaches handout (i.e. an <i>aide-mémoire</i> of public sector and EC procurement rules).	1.5
Organisational issues			
New ways of working	Recognition that several skills and professions must work together to ensure success. Exploration of the need for, and impact of: <ul style="list-style-type: none"> ■ Cross-team and cross-profession working (e.g. co-operation of librarians with records managers and/or archivists in Universities); ■ New roles (e.g. Digital Preservation Officer, Technology Watch, Metadata Analyst, Documentation Manager); ■ Competencies. Importance of close liaison with HR professionals while developing in this area.	Competencies and performance indicators Job description template Sample job descriptions References to other resources	2
Formats and Methods			
Preservation metadata	Common preservation metadata models – their heritage, strengths, weaknesses and applicability. How these models may need to be adjusted in specific circumstances. The role of xml (brief over view only). The role and importance of documentation.	References to sources Model documentation standard (or reference thereto)	2
Web-archiving	Issues relating to preservation of HTML (e.g. dynamic pages, off-site hyperlinks) and possible approaches to overcome these.		1
Electronic records	Issues unique to formally managed records, such as context, fixity, electronic signatures and navigation.		1



Area	Brief Description	Possible Materials	Hrs.
Document formats	<p>Strengths and weaknesses of formats such as:</p> <ul style="list-style-type: none"> ■ Microsoft Office; ■ PDF (and PDF(A) when appropriate); ■ RTF. <p>Include consideration of embedded objects (OLE).</p> <p>Include details of tools developed to assist in technology watch, such as PRONOM.</p>		2
Image formats	<p>Strengths and weaknesses of formats such as:</p> <ul style="list-style-type: none"> ■ TIFF (include G4 compression); ■ JPEG; ■ GIF; ■ PNG. 		1.5
AV formats	<p>Strengths and weaknesses of formats such as:</p> <ul style="list-style-type: none"> ■ WAV; ■ MP3; ■ MPEG; ■ MP4. 		1.5
Data archaeology	Brief examination of this, which represents one possible eventual outcome of the 'do nothing' option today. Consideration of its impact especially in high-volume situations.	Domesday Disc costed case study Costed high-volume example (real if possible, else fictitious).	0.5
Emulation	<p>Description of the theory of emulations; theoretical and practical studies; cases.</p> <p>Major on real-life implications (e.g. practicalities of providing access through emulation).</p>		2
Migration	<p>Description of the migration process; practical considerations (especially including massive migrations); case studies.</p> <p>Major on real-life implications.</p> <p>The NIST model.</p>		2



Area	Brief Description	Possible Materials	Hrs.
State-of-the Art Round-up	Covers briefly a wide range of proposed or possible approaches which have yet to be 'accepted' into the 'mainstream', such as: <ul style="list-style-type: none"> ■ Hardware preservation; ■ VVM; ■ Encapsulation. 		0.5
Assessment			
	See Appendix C for views on the inclusion of a formal assessment.		



C. Potential training providers comments

This appendix contains responses from potential training providers to specific questions. The responses are reproduced verbatim, save for minor emendations intended to protect commercial sensitivities. Respondents are identified using the same “respondent numbers” as in Chapter 7 above.

What do you think about the syllabus? Suggestions or recommendations to improve the course syllabus?	
Resp. 5	Syllabus: this is extremely detailed and seems to cover most of the relevant issues - although I could probably think of a couple more, e.g. ‘current research issues.’ I do wonder, however, whether any one person would need to know all of this, and worry about a potential tension between the technical, ‘hands-on’ stuff essential to providing the required practical focus (formats, metadata) and things that would seem to fit elsewhere (e.g. advocacy, risk assessments). In large organizations these functions would be undertaken at different levels, maybe even by different parts of the organisation. I feel (but have no evidence to support this) that such training <i>might</i> work if each course could be tailored to certain audiences (e.g. for digitisation projects, institutional repositories, etc), although this would increase the expense. Modularisation might help but robust market testing of the syllabus would appear to be essential, especially in light of the recent e-University debacle. I’m also wondering if the term ‘digital holdings’ might bias the course to those organisations that think primarily in those terms, e.g. it might be thought to exclude records, active research data, etc.
Resp. 2	The draft syllabus looks very good. It is certainly very full. Hardly a stone is left unturned. The overall balance looks good. My may concern is that some of the indicative time slots are very tight and it may be asking a lot to cover all this in the time scale. I can see that the main aim has been to fit this into a week, but it may be better to run this as a series of ‘day courses’. This means that you could run it over six or seven days rather than trying to cram it into five days. It also means that different people from the same organisation might attend different parts of the course. Indeed, it is unlikely if the sort of person who will benefit from the legal aspects of the training will be the same as the one who requires in-depth training on different file formats. An alternative may be to have sessions on the course run in parallel so people could select what was most relevant to them.
Resp. 1	The syllabus is comprehensive. It would be good to design the course in such a way as to allow it to be taught in a number of modes, such as: one week course or 5 single day courses.
Resp. 4	The syllabus seems fine overall, although one could be picky about some details (and no doubt the details may change depending on what providers offer.) Bitstream preservation should include something about media types and media assessment. 3 hours on service providers vs in-house seems excessive compared to the amount of time devoted to other issues, although one could definitely fill 3 hours here. (But the same could be said of many other topics.) The syllabus could usefully include case studies explicitly, and the course would benefit from some work package which could be undertaken by students as a group or individually (c.f the Cornell course, in which students evaluate the digital preservation strategy of The Internet Archive.) (Actually, I see you have addressed this in the introduction – so maybe the comment is moot.)



Resp. 3	<p>Overall the course is still far too broad and seems quite focused at a somewhat high-level telling people what to look for, rather than how they might implement preservation, spends far too much time talking at people, rather than offering hand-on training, and is too diverse in terms of what is covered for it to be useful for any one person. See attached sheet for some alternative suggestions.</p> <p>The syllabus as it stands is too broad and does not provide a meaningful hands-on learning experience. It provides a reasonable overview of the issues and problems and would no doubt offer useful advice and information about where to look for further information. However, it is clear from the survey responses that what is required is more than that – people want to know how to ‘do’ digital preservation. Unfortunately there is no single way to ‘do’ digital preservation but it is possible to work through the process in a rather more structured and meaningful way than is set out in the draft syllabus.</p> <p>A further significant problem with the outline syllabus is the conflation of issues, guidance, and topics covered, and the skills and expertise that would be required of participants. Establishing a digital preservation facility requires a range of skills and expertise, most of which are covered in the course, but in a somewhat jumbled fashion. Instead I would recommend thinking along slightly different lines and designing instead a modular course along something like the following lines. I haven’t been able to think this through that thoroughly but would happy to talk further if necessary.</p> <p>Establishing a Digital Curation Facility - Strategic and Policy Issues A module aimed at senior management, decision makers, purse holders, etc. that would provide an overview of the issues and requirements (including that outlined below although not in-depth), plus more in depth training for developing a strategy, creating a policy framework, legal implications, sustainability, resourcing – finance and staff, expertise and skills required etc.</p> <p>Implementing a Digital Curation Facility – practical training for implementation This would be aimed at those that will do the work – usually not the senior staff - and might include a range of modules addressing the following: Content stuff: Review, control, selection and ingest procedures – necessary decisions to make, how to, case studies etc., metadata, documentation, validation, etc., how to influence creation of digital materials – guides and advice; hands-on training with examples – would include discussion and training materials addressing data types and formats Long-term preservation strategies – migration, emulation, back-up and mirrors tech watch, benefits and disadvantages of different strategies, how-to guide and training - would include discussion and training materials addressing data types and formats Models – OAIS – structuring the process, work flows, responsibilities, Outsourcing options, procurement, developing a tender, negotiating Technical infrastructure – hardware and software requirements and options – how to decide, planning for the future</p> <p>Set up in this way, organisations could choose to take one or two modules, or to buy into the whole, could choose to send different staff to undertake training in different areas – for example, the people likely to be making the technical decision are not those likely to be doing content selection or even ingest. Something long these lines would provide flexible and meaningful, practical training.</p>
<p>How long do you think it would take to produce a programme of this magnitude?</p>	



Resp. 5	Length of preparation. It's difficult to say, but would take <i>a lot</i> of effort the first time, less afterwards. It would, naturally, depend on the proportion of the training done 'in-house' or by external experts. It might also depend on whether the training is provided in a block (e.g. a summer school) or on a periodic basis (e.g., one day a week for six weeks). If the former, then an 'in-house' team of at least three would be required (e.g., to provide cover in case of illness). Preparing good quality training materials is extremely time consuming, ditto the identification and management of relevant external expertise (assuming that it exists)
Resp. 3	For this programme, perhaps 4 weeks preparation time plus one-week teaching time. For a more meaningful hands-on approach with a hands-on element, more time would be needed to develop modules and a meaningful learning experience – possibly another 2 – 3 weeks?
Resp. 2	Not that long. We have the necessary infrastructure in place [...] I would guess that it would take around 3 months to get the programme finalised, book a venue, arrange and commission external speakers and so on. Then the course would need to be advertised and bookings taken, details sent out. This could add another 2 months or so. The main problem is all the course materials, especially if they are to be mounted on-line prior to the running of the course. Setting up a course website is not a problem, the problem is one of content. It's not clear if all the course materials would need to be generated 'in-house' beforehand, or if various external speakers would develop their own and so forth. At the end of the day it will depend on funding and set up times. The more money going into the course, and the longer the lead-in time, the more material can be produced and specially commissioned
Resp. 1	Our estimates are that to produce a 34 hour course with no teaching materials extant would take one day per hour of teaching. Obviously, this is a heavy cost for a one off 5 day course, but assuming multiple repeats then the cost is reasonable. Each year there would be the need to update the course at an estimated 10% of the total cost to create it.
Resp. 4	I would estimate 90 days work to prepare presentations and course content and a further 15-20 days to prepare supporting materials for students, plus perhaps 10 days on external evaluation and liaison – roughly six months of someone's time overall if working full-time, perhaps slightly less elapsed if multiple hands can be brought to bear on it. Perhaps another 20 days on preparing online pre-workshop and post-workshop material, although there may be more here that can be re-used.
What do you think the cost to produce this programme would be?	
Resp. 5	Costs. Again it will depend on the preparation time required, the cost of external experts, and many other issues. For external speakers, a fixed financial rate could be offered, to include travel (e.g. from the States), the preparation of readings and other training materials, and this might require additional administration [...] There might also be residential costs to take into account with a 'summer school' type event. With all these variables, it is difficult to provide estimates of time or cost without preparing a draft programme.
Resp. 3	For this programme approximately £20,000. Preparation time: 20 days @ 500 per day = £10,000 (would require a variety of people with a range of skills and expertise to put together). Materials: Professionally produced packs = £5,000. Teaching: Course leader/coordinator = £2,500. Trainers = £2,500.



Resp. 2	<p>This really is like asking how long is a piece of string. Having a syllabus is one thing but how that that is put into place is another thing entirely. It really depends if you want a Ford Fiesta or a Ferrari. At the bargain basement it would probably be possible to put on a one week course here for say £1,500. But this would be mainly taught internally, with relatively little bespoke course materials – just standard reading lists, websites, copies of existing materials. And very little in the way of catering (tea and biscuits only – get your own lunch). If one wanted to bring in external guest speakers and experts, commission bespoke course materials from such experts, and lay on better catering arrangements then the costs would easily double and could even treble. A halfway house would be to grow the course gradually. So if you planned to run the course several times over 5 years then you could ‘share out’ the expert speakers and grow the repository of course materials overtime, thus overcoming potentially large set up costs.</p> <p>Location is another factor involving cost [...] Depending on venue there may be room hire costs to consider as well, and these can be quite high in some places.</p>
Resp. 1	<p>Cost = £15,000 (ex VAT) 34 days work @ £500 per day = £17,000 Running costs for a 5 day course (2-3 people) = £10,000 Offset costs against revenue from course fees leaves a net imbalance in the first year of £15,000.</p>
Resp. 4	<p>Staff time: £30,000 - £40,000 Travel: £4,500 for 2-3 people to visit Cornell (assuming use of their material) I have not included delivery costs here, which will depend partly on number of attendees (costs of printing course materials, etc.) and location and duration of course (travel and accommodation costs for presenters.) I assume that we would look to recoup delivery costs from fees to attendees. I also have not taken account of the post-workshop support that is called for in Appendix D [of the document sent to potential providers]. This sounds an excellent idea, but DPC is going to have to resource this across all its membership, perhaps.</p>
Please enter any additional comments relating to this project	
Resp. 2	Sounds good! Well done.
Resp. 4	<p>I don't think it makes sense to make this course last longer than a week; even a week may be difficult for some people. It should be possible to readjust timings to make room for group work and case studies. If the course is residential, students inevitably some of the evening hours to explore some of the issues, and this helps them get a grip on anything they have difficulties with, as well as often guiding questions and feedback on the following day in a more formal setting.</p>