JISC

Project Document Cover Sheet

Project Information			
Project Acronym	CHARTER		
Project Title	Creating Heritage Artefacts for Research and Teaching in an E-Repository		
Start Date	1 October 2008	**End Date**	30 September 2009
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Partner Institutions	NA		
Project Web URL	http://www.exeter.ac.uk/charter/		
Programme Name (and number)	*JISC Digitisation Programme: Enriching Digital Resources*		
Programme Manager	Alastair Dunning & Paola Marchionni		

Document Name			
Document Title	*CHARTER Project Plan*		
Reporting Period	*for progress reports only*		
Author(s) & project role	Jessica Gardner (Principal Investigator) with James Green (Project Manager)		
Date	13 October 2008	**Filename**	CHARTER Project Plan.doc
URL	http://eric.exeter.ac.uk/exeter/handle/10036/40138 The updated plan will be published online once it is approved by JISC.		
Access	☐ Project and JISC internal		√ General dissemination

Document History		
Version	**Date**	**Comments**
1.0	13.10.2008	Start draft; circulate sections for Team to complete
2.0	22.10.2008	Added content from James Green and Technical Sub-Group (SM, RB, AA-Z, BE).
3.0	24.10.2008	Circulation to Team; identify and request outstanding data.
4.0	3.11.2008	Final draft for JISC.

5.0	15.12.2008	Case for change of repository software submitted to JISC
6.0	17.12.2008	Revised draft for JISC.

- JISC Project Plan

Overview of Project

1. Background

1.1. What is CHARTER?

CHARTER is a small-scale digitisation pilot project that will deliver an open access repository populated with a critical mass of 4000 digital images drawn from the unique and rare resources in Special Collections of the University of Exeter. CHARTER will select, digitise and deposit in the repository 2000 new images created during the project and will transfer into the repository another 2000+ existing images (currently held in the online EVE database facility of the Bill Douglas Centre). The project will also create 2000 new metadata records and the creation of a tool for transferring 2000+ metadata records from EVE into the repository.

1.2. What is the CHARTER repository?

Built using DSpace software, the repository developed through CHARTER will be the tool of management and access to digital surrogates of the physical artefacts within the University's Special Collections. It will be an online, searchable open access repository and 'one-stop-shop' for researchers, students and members of the public who want to find and use digital surrogates from the collections for research and teaching.

1.3. What the CHARTER repository *is not*

The repository will not replace the collection management systems (CMS) already in use for the administration and cataloguing of the original artefacts held in Special Collections. This is because the heritage collection management life-cycle requires a complex set of tools (from donor records, to accessions, to inventory, to conservation, to catalogues and so on) which are out of scope of CHARTER, which is designed to meet the need for virtual access to surrogate collections.

DS CALM is the CMS currently used at Exeter for the archive and fine art collections. EVE is the CMS in use for the museum artefact collections. Millennium is the CMS for the book collections.

1.4. What is EVE?

EVE is an online database and e-learning system that was created for the Bill Douglas Centre with funding from the AHRC, 2003-5. EVE was a pioneer project in the heritage and HE sector and has proved the value of digital surrogates for research and teaching to academics, students and curators.

However, EVE is no longer a stable system as it relies on dated Windows 2000 technology and architecture. CHARTER provides the opportunity to make a key stage move away from this legacy database to a sustainable, open-access solution in line with current best information sector practice and longer term preservation in mind.

1.5. What will we find on the repository at the end of CHARTER?

At the end of CHARTER, the new repository will hold a critical mass of 4000+ digital image surrogates (and associate metadata) all with a popular culture subject theme.

The 2000 new items selected for digitisation through CHARTER will have a focus on the long-nineteenth-century, 1800-1914, and will be drawn from across the University's special collections (Bill Douglas Centre, plus Archives & Rare Books). One of the selection criteria will be that there are no IPR issues associated with these items.

The 2000+ existing images transferred from EVE through CHARTER all relate to popular culture but a proportion have dates post-1914. All will be transferred to the new repository to aid their long-term preservation. As summarised in the Risk Log, there are IPR issues associated with a small proportion of these images, but these were cleared and/or have not been challenged during the 5 years the EVE facility has been available online.

Evidence already exists as to the underlying quality, significance and demand for Exeter's research collections: *'The Bill Douglas Centre is recognised as one of the most important resources anywhere in the world […] As the numerous conferences on visual culture, Victorian studies and popular entertainment in the region attest, Devon has become the international locus for historical visualist research' (Professor Dennis Denisoff, Ryerson University, 2007).*

On the strength of its collections, the Bill Douglas Centre will be submitting an application to the MLA's Designation scheme in 2009. The testimonials in support of this application attest to the international significance of its holdings which, alongside other rare and unique special collections, CHARTER will make more widely available.

The artefacts selected for digitisation from the Bill Douglas Centre and supporting special collections of archives and rare books will be chosen by an interdisciplinary team of leading academics (English, Geography, History) with a view to ensuring the critical mass of popular culture digital content captured through CHARTER has the broadest possible appeal. The original artefacts will be in a range of media (lantern slide, prints, books, stereocards, playbills, optical toys etc) which in themselves tell part of the story of the dissemination and experience of popular culture. There are three inter-related narrative themes to guide the six selection panels: Empire, Imperialism and Oversees Encounter; Science, Spectacle and Magic; Work, Home and Leisure.

1.6. What is the longer term development plan?

The longer-term plan, outside the scope of CHARTER, is to complete the decommissioning of EVE through a managed project to migrate its SPECTRUM data (60,000 records) to DS CALM. DS CALM will then function as the single CMS for all original museum, art and archive artefacts in Special Collections. The CHARTER repository will function as the CMS and access point to the digital surrogates created from those collections.

In time, a move away from DS CALM towards a fully sustainable open-access CMS is anticipated, but this is out of scope of CHARTER.

1.7. Why the new repository is needed

Until the new e-repository is constructed there is no single point of access for academics, students, curators, librarians and the wider public community to digitised content drawn from across the collections. Digital surrogates are currently in separate silos which are either not

available to the public (e.g. digital artefacts drawn from the archive and book collections) or vulnerable (e.g. images on EVE).

The new repository will meet a recognised need from the user constituency to cross-search and discover relevant digital surrogates drawn from across the special collections regardless of physical location. To ensure the needs of users are met, the project will be demand-led in its selection of content for the new repository and will demonstrate through the build of an e-learning module how academic and student users can incorporate the digitised content into teaching and learning. This workstrand builds directly on the pioneering work of the EVE project which transformed curatorial attitudes to digital surrogates through the evidence value placed on virtual access by users. 'I felt I learnt more from the objects online' was one memorable student comment in response to using the e-learning tools on EVE. The virtual environment provides each user with time and space at their own PC to engage with the material objects in the collections. CHARTER will deliver the next generation of tools and the infrastructure to support virtual access to special collections for research and teaching.

1.8. *Update: Since the JISC Project Plan was originally submitted in November 2008, the Project Team has changed its choice of open source repository software from fedora to DSpace. This Project Plan has been revised to reflect that change (subject to approval from JISC). The case for the change of software is described in detail in Appendix C. (JPG, 17/12/08).*

2. Aims and Objectives

2.1. Aims

At the strategic level, the broad aim of the CHARTER is to create the infrastructure for sustainable digital assets management at Exeter in order to widen access to hidden collections for research and teaching. Creating a new digital collections repository to house digital surrogates of the special collections is at the heart of this strategy. The repository will operate as a single, open-access portal to reusable digital surrogates from any source in the University's collections regardless of their physical location or collection origin.

Our aim is to populate the repository with digital artefacts in-demand for teaching and research. The reusability of the digital artefacts is essential in how this project will enable greater access to resources that may otherwise be hidden or underexploited by academics and students. To show how the digital objects in the repository can be reused in the curriculum, we will create an e-learning module as a case-study. By integrating users in to the process of selecting material for digitisation and in the creation of the e-learning module, our aim is to embed the resource within its target user community and to facilitate peer-to-peer (student to student and academic to academic) endorsement. CHARTER will also establish the basis for future expansion and sharing of our materials in an open-access and inter-operable environment.

2.2. Objectives

The specific objectives CHARTER intends to achieve are:

OBJECTIVE	MEASURE
To establish by September 2009 the digital repository as a sustainable portal for users to access online digital artefacts drawn from the University's heritage collections regardless of their physical location or	Delivery of a user friendly, functional facility

collection-origin.	
To populate by September 2009 the repository with 4000 in-demand popular culture digital artefacts and related metadata (2000 images digitised during the project; 2000 existing images migrated over from a legacy database).	Population of repository with 4000 images (progress measured via project targets & milestones).
To create an e-learning module using the digital artefacts in the repository to demonstrate their value and reusability to academics and students.	Completion and uptake of e-learning module (deposit on Jorum).
To evaluate and disseminate the processes and outputs of the project as case-studies and resources of benefit to research, teaching, e-learning, heritage and technical communities of practice.	Delivery of conference papers, reports, focus groups, newsletters, and workshops as per evaluation and dissemination plans.

3. Overall Approach

3.1. General

CHARTER will be demand-led by the academic community (a key end-user group for the new repository) and will seek to create and test and embed at Exeter the full digital assets life-cycle.

CHARTER brings together a multi-disciplinary team of academics, web developers, curators, digital assets managers, e-learning experts and librarians. Elements of the project are experimental. Our approach is to plan, review and share findings and to discuss problems early. The project plan will adapt as the work progresses, but this will be done in a managed environment in consultation with the Project Board and JISC.

3.2. Strategy / Methodology

Six work packages will run through the project to deliver against the project's aims, objectives, outputs and outcomes.

i. Project Management

See Section 12 of this document.

ii. Repository and Web-Front End Workpackage

The repository will be built using open-source DSpace software hosted on two virtual servers (one for back-up) and with a mirrored file store. An additional virtual server space will be used for a testing and development. Using DSpace software, the repository provides for OAI compatible harvesting for resource discovery. The web standards, identity and access standards, relationship modeling and registry interworking standards for the repository and its web-front end are set out fully in Section 8: Standards.

The repository work package will begin with a requirements gathering exercise (Oct 08 to Dec 08), during which a decision will be taken to adapt and use either Dublin Core or MODS as the metadata standard mapped to the repository (see metadata below). [*JPG, 17/12/08: Dublin Core has since been chosen as the repository schema]*. During the same period, requirements will be defined for the repository's web front end, search capacity and administration area. These will be agreed and built during and integrated into the repository over four months (Jan 08 to Mar 09).

Digital image and metadata migration from EVE will be sequenced in step with the repository build, beginning with the definition of data for transfer and mapping the chosen repository schema (Dublin Core). From Dec 08 to April 09 the metadata records for EVE will be mapped to the repository and from April 09 to Aug 09 the data from EVE will be imported, confirmed as a match and reusable tools for transfer will be created and documented.

iii. Metadata & Digitisation Workpackage

The metadata and digitisation workpackage is carefully sequenced alongside the repository workpackage through CHARTER's Technical Sub-Group.

Although the Team considered MODS (which is a richer metadata standard) when planning to use fedora software, the Project Team have taken extensive advice and decided to opt for Dublin Core with DSpace because it is better established in the UK and offers greater potential interoperability with existing projects at Exeter (e.g. Dartmoor Archive) and with external projects.

Two new posts have been created and (following recruitment in October 08) will join the CHARTER team in January 09 to undertake digitisation and metadata creation activities. Their first month will be heavily taken up with induction (to collections, handling, preservation, image manipulation, metadata standards), training (TASI) and preparation of procedural documentation and processes. Their work will be line-managed by the Digital Assets Manager (Ahmed Abu-Zayed - co-investigator on CHARTER and manager of the digitisation and metadata workflow).

Digitisation and metadata creation for the 2000 new digital artefacts for CHARTER will start in February 09 and run to September 09. High-quality digital images will be captured at default setting of 600dpi (varied for smaller or larger objects) in TIFF format for the preservation master files (stored on the virtual server with DVD back-up files) and will appear on the repository as JPEGs (download, preview and thumbnail sizes) resized appropriately for the web. The repository schema will map on to key elements of the descriptive industry standard for each original object (MARC21 for books; ISAD(G) for archives; SPECTRUM for museum collections and fine art). For a full outline of the standards to be employed in the digitisation and metadata workflow, see Section 8 Standards. The repository schema will be designed for digital assets and will not be as rich in detail as the heritage industry descriptive standards. Export from the repository schema back in to these standards is not anticipated.

The Digitisation Assistant will undertake the majority of the retrieval and return to stores of original objects and image capture tasks. The following equipment will be purchased for CHARTER: large format flat bed scanner, two workstations, printer, laptop, digital camera (raw format), camera accessories, adobe photoshop licences and two object trolleys. The Digitisation Officer will supervise the work of the Digitisation Assistant, liaise with curatorial team for selection and create the metadata for the repository. The core metadata schema will be Dublin Core, with keyword searching enabled through piloting of LCSH and an extended local keyword classification used in the Bill Douglas Centre.

The bulk of the selection of items for digitisation will be undertaken in conjunction with academic colleagues through the selection workpackage. Quality review procedures for implementation of image capture, after photography, scanning and ingesting, and to manage image manipulation, are set out in Section 17.

iv. Selection Workpackage

There is a simple and practical methodology for the selection workpackage made up of three linked elements:

1. Scoping meetings and 'hands-on' selection panels (academics, digitisation and curatorial staff) will take place through Oct 08 to May 09.
2. Artefacts used in taught classes in terms 1 & 2 will be recorded and selected for digitisation where they fit the subject focus.
3. Senior curatorial staff will identify outstanding objects from their collection knowledge to enhance the selection.

An MS Excel spreadsheet has been set up to record objects selected for digitisation. All items selected for digitisation through CHARTER will be copyright free. The selection workpackage runs through the course of CHARTER.

v. E-Learning Workpackage

The e-learning workpackage will run during June and July 09. Academic, librarian and e-learning technologists will work together to select relevant digital artefacts in the repository, create the e-learning course materials and to create the module (for deposit on Jorum. This stage will also involve user evaluation of the repository. The e-learning module will be integrated into the curriculum during 2009/10, beyond CHARTER.

vi. Evaluation and Dissemination

The process of review will be built in to each workpackage and will be a regular feature of the Project Team and Project Board meetings, backed up by consultation with and Progress Reports for JISC. User evaluation of the repository will take place during the creation of the e-learning module (June to July 09). From July to August 09 the repository will be publicised widely (see Section 18 on Dissemination).

vii. Project Closure & Exit

The outputs delivered by CHARTER (website, repository and web-front end, e-learning module, documentation) will be maintained and publicly available for a minimum of three years post-CHARTER. It has already been agreed that responsibility for operational care of the repository and web front-end will at the end of the project transfer with full training and documentation from its developers in the Integration and Web Services Team to the Academic Systems team, with strategic development assigned to the Digital Assets Manager. The e-learning module will be deposited on JORUM and the project's documentation will be maintained on the project's website.

3.3. Issues to be addressed – Technical Sub-Group to check

i. *Open Access*. The repository will be build using DSpace software which is open-source and freely available. Subject to publishers' agreements, articles based on the findings of CHARTER will be deposited in ERIC, the University of Exeter's institutional repository see http://eric.exter.ac.uk.
ii. *Interoperability*. The interoperability of the metadata in the repository will be created in Dublin Core to facilitate exchange
iii. *Evaluation*. Evaluation of the project will be built into its project management framework, consultation with JISC, quality review procedures, user-testing and analysis for publication and conference (see Section 16 for more details).
iv. *Usability.* Usability testing will take place on the repository itself and on the e-learning module. This will involve a focus group of academics, students, librarians and curators.

v. *Accessibility.* The web front-end for the repository will confirm to WAI's Web Content Accessibility Guidelines to at least level AA. It will also conform to current disability legislation including DDA/SENDA.

3.4. Scope and boundaries

The digital collection created through CHARTER will be based on the special collections (archives, rare books, Bill Douglas Centre museum) in the Old Library of the University of Exeter. The collections on the University's Cornwall Campus and in the affiliated library of The Devon and Exeter Institution are out of scope of this project. All A-V collections are also out of scope during this fixed phase of development.

Decommissioning of EVE is also out of scope of CHARTER.

3.5. Critical success factors

1. Timely agreement over metadata standards.
2. Timely build of the repository.
3. Recruitment of digitisation staff.
4. Successful migration of images and metadata from EVE
5. Successful integration of all content and metadata, including from EVE
6. Usability/accessibility and take up by the academic and student body

4. Project Outputs

CHARTER's agreed deliverables are:

- An open access repository (using DSpace software) with web interface and search tools
- 2000 new 'popular culture' digital surrogates chosen by an interdisciplinary team of academics and freely availably to all (resized appropriately for the web; using Dublin Core metadata, with locally adapted Library of Congress Subject Headings)
- 2000 existing 'popular culture' images and metadata migrated from EVE to the repository
- Sustainable preservation storage of all images in TIFF format on a dedicated server (and 2 copies backed-up on DVD and stored in separate locations)
- An e-learning module incorporating digital artefacts in the repository
- Deposit of the e-learning module case-study in Jorum
- Principles and practices for digitisation and metadata processes and standards documented and freely available to all
- Technical and user guidelines for the repository
- Reports to JISC, Project Board & project website
- Dissemination via conference papers, newsletters and workshops (full texts to be deposited in ERIC, Exeter's research repository)
- Application of the CASPAR end-user licence

5. Project Outcomes

1. Free online access to everyone to over 4000 digital surrogates of in-demand special collections for use in teaching, research and outreach
2. Infrastructure, repository and web-interface to sustain access, delivery and preservation of Exeter's digital surrogates

3. Increased knowledge base of digital assets and project management within the Project Team shared freely with the wider community of interests
4. Preservation of the original objects through use of digital surrogates.

6. Stakeholder Analysis

Stakeholder	***Interest / Stake***	***Importance***
Director of AS & Assistant Director (CRS) & Senior Management Team	Strategic leaders of learning and research infrastructure; prestige for JISC funding; financial investment via existing staff allocated to the project. Meet targets for earned income.	High – with high impact on project
JISC Funders	Financial and strategic investment in the project.	High – with high impact on project
Academics / Schools	Require digital access to special collections for teaching and research for Streatham and Tremough campuses; need digital asset infrastructure to support research bids. Users / customers.	High – with high impact on project & its success
Taught students	Require digital access to the special collections for coursework / dissertations	High importance to success (but low impact on project)
Research students	Require digital access to the special collections for research outputs / conferences / teaching	High importance to success (but low impact on project)
Research Accounting	Project delivered on target and within budget. Keep to targets for earned income.	Low impact on project
Web development & ICT staff	Have a direct role in the delivery of project outputs / maintenance of the outputs post project; professional stake in ensuring success of JISC project.	High impact on project
Learning technologists / E-Learning & CMIT (SELL)	Delivery of the digital content and infrastructure supports e-learning activities & increases buy-in from key academics & students. Participants in the project.	High impact on project

	Professional stake in ensuring the success of JISC project.	
Librarians / Curatorial Team (CRS)	Participants in the project. Professional stake in ensuring the success of project. Want to get special collections more visible and widen access via digital technologies. Also potential users of the facility (for managing and marketing the collections). Also hold a stake in reducing physical impact on originals and in upskilling in the area of digital curation.	High impact on project
Other HEI / FE / schools	Potential users / customers. Demand for digital access to the special collections / shared practice in digital curation.	Low impact on project; but of high importance for dissemination of outputs.
Other heritage organisations (e.g. archives / museums)	To learn from the pilot work embedded in the project to increase sector knowledge of digital curation.	Low impact on project; but medium importance for dissemination of findings.
Donors to special collections	Stake in the use and value placed on the items they have donated and in how they are being used / made more widely available via digital medium.	Low impact on project; but medium importance for dissemination of findings.

7. Risk Analysis

Risk	Probability (1-5)	Severity (1-5)	Score (P x S)	Action to Prevent/Manage Risk
Staffing				
Recruitment and Retention of staff	2	3	6	Four months allowed for recruitment of digitisation staff. Project Manager to be recruited from the University's Project Team. All practices and processes will be recorded to facilitate knowledge transfer should staff leave during the project
Organisational				
Failure of the Project	1	5	5	CHARTER is aligned to the institution's strategy for research and teaching. The expertise of JISC (AHDS etc) and the Project Board will be utilised to address problems and prevent project failure
Failure to deliver project to JISC procedures and standards	1	4	4	Guidance from JISC to be sought to mitigate this.
Technical				
Metadata Creation	1	3	3	ISAD (G), SPECTRUM, MARC and Dublin Core already established. Team has experience of mapping between metadata standards. A well-documented area of work with high value learning outcomes.
Digitisation	2	4	8	Well-embedded image capture practices. Some items may prove unsuitable for capture (binding too tight or items too fragile). The collection is large enough for alternative selections to be made.
Transfer of images and metadata from EVE	2	3	6	This is an experimental part of the project. If necessary, the architects of EVE will be 'bought-in' to help by Academic Services. High value learning outcomes.
Implementation of	1	5	5	The Fedora software has been

FEDORA / DSpace				tried and tested in other organisations. Sector advice will be sought. Problems and solutions will be discussed with JISC. The implementation process has been investigated carefully by the Integration and Web Services Team. *UPDATE JG (17/12/08) – Following assessment of the resources required to implement and customise fedora, the Team have now opted to use DSpace software. The potential impact of further risks associated with the repository build remain high impact and are being managed accordingly.*
Digital Storage	1	1	1	Industry standard digital storage processes and procedures are already in place at Exeter. Back-ups will be made on DVD.
External Suppliers				
Supply of 100 Outsourced digital images	1	1	1	Out-source to another supplier or an alternate selection of objects can be digitised.
Purchase of Hardware and Software	1	1	1	2-3 months allowed for purchasing
Legal				
IPR and Copyright risks: existing images on EVE	1	1	1	A small quantity of the existing images on EVE are in copyright. Rights have either been cleared through the EVE project or are considered very low risk. Images can be removed. An appropriate creative commons licence will also be selected. There are no IPR or copyright risks associated with the new images.

8. Standards

Name of standard or specification	Version	Notes
Website standards		
WORD & PDF	Word2003	The documents hosted on the CHARTER

		project website will be in WORD and PDF format (the latter for dissemination, not archiving purposes).
XHTML	1.1	The CHARTER project website will be built using XHTML.
CSS	2.1	Cascading stylesheets will be employed in the design of the CHARTER website.
Repository - The project will be using the DSpace open-source digital repository using the following standards:		
Web Standards: Current DSpace release appears to use/support: XML, XML Schema, SOAP (Simple Object Access Protocol), WSDL (Web Services Definition Language), APP Atom Publishing Protocol). Upcoming DSpace 2.0, appears to extend standards, such as RDF (Resource Description Framework), REST (Representational State Transfer).		Data flows into and out-of the repository can be effected under the SOAP, with WSDL defining the service.
Identity and Access Management Standards: possibly Shibboleth, XACML (eXtensible Access Control Markup Language)		Access control and security use the XACML Standard.
Registry interworking: Implements Open Archives Initiative's Protocol for Metadata Harvesting (OAI-PMH)		Allows sharing of the repository's metadata
Image standards		
TIFF	TIFF 6.0	For uncompressed preservation master files.
JPEG	JPEG version 1.02	For web access as a download, preview and thumbnail.
PDF PDF files are most appropriately used to encode the exact look of a document in a device-independent way (not in use for archiving purposes).	Version 1.3	Proprietary to Adobe Systems.
Capture resolution		A default capture resolution of 600DPI will be used (varied as appropriate for

		smaller / larger objects).
Scan size		Manuscript material will be scanned at 100%. Negative material will be scanned at least 300%.
Tonality (pixel-depth resolution)		• Colour: 24 bits-per-pixel • Greyscale: 16 bits per pixel
Master archival backups		DVD-ROM and Linear Tape
File Naming Guidelines at: http://www.tasi.ac.uk/advice/creating/filenaming.html will be used for creation of file names and directory structures for master and surrogate files.		
Repository Schema - Metadata Standards		
Dublin Core / Qualified Dublin Core http://dublincore.org/ .	Version 1.1	Metadata schema for use in the repository to describe digital surrogates and their source objects.
LCSH (Library of Congress Subject Headings)		Will be used as the standard subject classification scheme on the repository (where established local classification scheme is unavailable).
Ingested Descriptive Metadata Standards – These standards will be mapped across to the repository schema for import/data entry. Export back into these standards is not anticipated as the repository schema is not as rich.		
ISAD (G) International Standard for Archival Description		Mapped to repository metadata standard (DC) to describe archival objects.
MARC 21 / AACR2 (Anglo-American Cataloguing Rules)		Mapped to

		repository metadata standard (DC) to describe library collections
SPECTRUM (museum standard)		Mapped to repository metadata standard (DC) to describe museum collections
Rights Standards		
CASPAR Licence http://www.casparpreserves.eu/		The CASPAR licence recommended by JISC will be used to manage access and user rights over the contents of the repository.
E-Learning Standards		
XHTML	1.1	Online e-learning content will conform to XHTML 1.1 standards
CSS	2.2	Cascading stylesheets will be employed in the design of all content.
IMS Content Packaging	1.1.3	The e-learning package will be submitted to JORUM as an IMS content package
Dublin Core		All materials will have meta data confirming to Dublin Core standards
Multimedia standards - flash		Any multimedia content within the

		e-learning package will use multimedia standards based on flash as required
Raster Image Standards - JPEG	JPEG (JIFF) 1.02	Any new images used within the materials will conform to JPEG standards

9. Technical Development

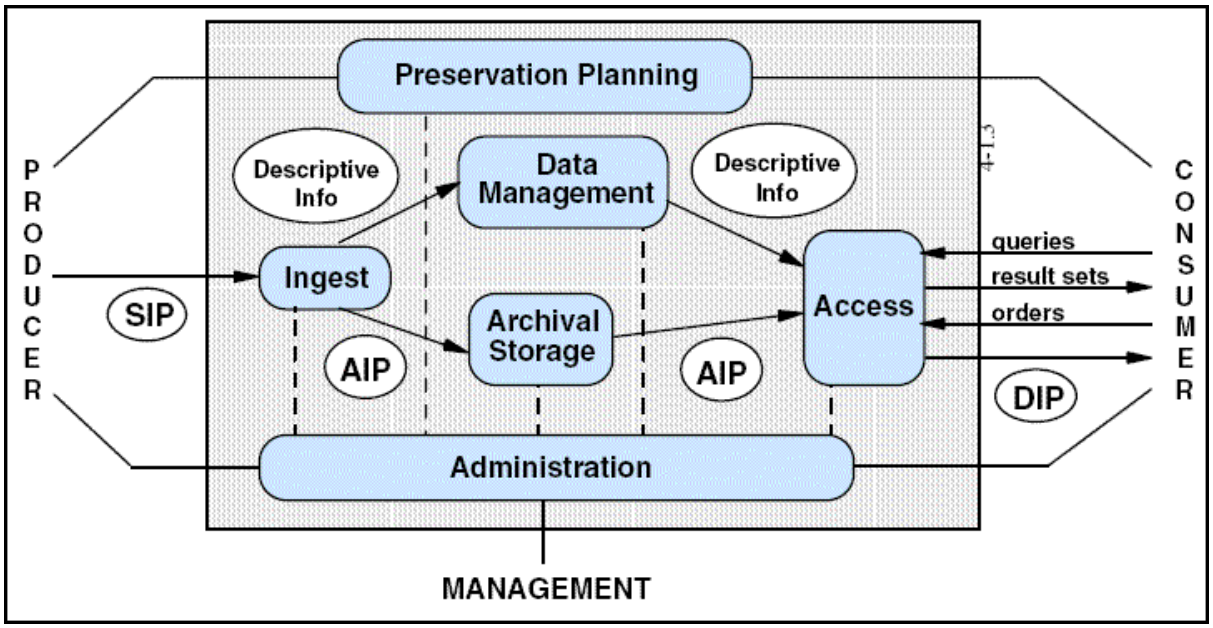
9.1. OAIS

CHARTER will adopt the reference model for Open Archival Information System (OAIS).This model is composed by four principal functions: Ingest, Data Management, Archival Storage and Access. The **Ingest** process is responsible for accommodating the created and acquired material in the repository and takes care of the necessary tasks to adequately store and preserve that information. For example, during this stage, an OAIS repository may transform the submitted objects to normalised formats adequate for long-term preservation and request the submitter to add descriptive metadata to those objects to facilitate their future retrieval by search engines. New entries come in SIPs (Submission Information Packages). When the ingestion process terminates, the SIPs are transformed into AIPs (Archival Information Packages), i.e. the actual packages that will be kept within the repository.

The **Data Management** component is responsible for providing services and functions for populating, maintaining, and accessing a wide variety of metadata that is stored by the repository. Some examples of this information are catalogues and inventories on what may be retrieved from **Archival Storage**, processing algorithms that may be run on retrieved data, access statistics, security controls, and OAIS schedules, policies, and procedures.

The **Access** component establishes an interface between the archive and the end user. This function is able to locate an AIP by querying the Data Management component and retrieve it from the Archival Storage component. The AIP is then transformed into a DIP (Dissemination Information Package) and delivered to the consumer. [1]

[1] http://public.ccsds.org/publications/archive/650x0b1.pdf



9.2 Digitisation

Newly scanned coloured items will be captured at 24 bits per pixel colour, at a default setting of 600dpi resolution (varied as appropriate for larger/smaller physical objects) and stored as uncompressed TIFFs.
Newly scanned greyscale items will be captured at 16 bits per pixel greyscale, at a default setting of 600dpi resolution (varied as appropriate for larger/smaller physical objects) and stored as uncompressed TIFFs.

Each scanned item will be produced as a set of four digital images:

1- An uncompressed preservation master image in TIFF format that will be created within the scanning workflow.
2- A compressed reference image for web access as a download in JPEG format that will be created within the image processing workflow.
3- A compressed reference image for web access as a preview in JPEG format that will be created as separate batch processes.
4- A thumbnail image in JPEG format that will be created as separate batch processes.

It is intended that during scanning time, basic metadata will be entered into an interim database.

Items will undergo quality assurance during the digitisation cycle. Due to the fact that 2,000 items will be digitised, each file will be checked on a one-to-one basis and checklists used to ensure completeness of collection, legibility, correct cropping and rotation.

9.3 Metadata

The gradual convergence in metadata standards towards XML based schemas was noted by the Project Team and seen as a means to ensure future interoperability and metadata harvesting.

CHARTER will use the widely-established Dublin Core Metadata Standard. The existing descriptive standards in use (ISAD(G), MARC 21, SPECTRUM) have been mapped to DC through the project. DC is less rich than these standards, but will enable interoperability with other projects and the Project Team will explore how to set up links between the metadata in

the repository and full catalogue records in the online interfaces for the CMS for the heritage collections.

CHARTER will also pilot use of LCSH for subject indexing (this will assist plans to introduce LCSH to archival cataloguing in future). Since LCSH will not provide a direct match for all the unique objects in the collections, the project will also extend the Bill Douglas Centre's locally defined keyword classification scheme by adopting descriptive terms agreed and required by the selection panels. Longer-term (but out of scope of CHARTER) we would like to enable users to directly add their own descriptive terms to the repository. A balance between authoritative curatorial indexing and user-driven indexing is required, but the curatorial team judges that the creation of user-drive keywords will enable greater take-up and ownership of the resource.

9.4 Repository

All applications installation and configuration sequences will be captured and recorded in a content management system (CMS). This will be particularly important in understanding how to write instructions for the project web site. Dependencies on version numbers of applications will be easier to diagnose using his methodology. The CMS will form the heart of the project web site.

A Change Management Tracking System will be used to ensure that any changes to system settings are planned, approved and scheduled. An issue tracking system will also be employed.

A CVS code repository will be used to version control and archive all locally generated script development. Installation, configuration and validation of component packages will follow repository guidelines at all times.

9.5. E-Learning

The e-learning package will draw on materials already digitised and stored within the repository. Academic content will be converted to online delivery linked to these materials. Ongoing QA during the development of these materials will ensure that they are of a high standard and evaluation with staff and students will be undertaken.

10. Intellectual Property Rights

10.1. New digital artefacts created through CHARTER

The 2000 popular culture digital artefacts created during CHARTER have no IPR issues, as all items selected will be copyright free. The IPR associated with these digital surrogates (as photographs created through the project) will be owned by the University of Exeter and governed by an appropriate creative commons licence to allow free access at the point of use.

10.2. Existing digital artefacts on EVE

A small proportion of the digital surrogates hosted on the Bill Douglas Centre's EVE website are still in copyright. The rights to publish the images online were either cleared via the EVE project or are considered of very low risk. In over 5 years, there have been no requests from copyright holders to take down the images but these same images can be suppressed from public access on the repository if required as part of CHARTER's 'take-down' policy.

10.3. Free at point of use

All digital surrogates hosted on the repository will be freely available to public via the repository in JPEG format appropriately sized for the web. The provision of high resolution TIFF files for commercial publication may be subject to a reproduction fee.

10.4. Repository

There are no IPR issues in the repository which will be built using freely-available open-source DSpace software.

10.5. Metadata & Documentation

The IPR in the metadata and project documentation will be invested in the University of Exeter's ownership. This metadata on the repository will be freely available to use by everyone, governed by the CASPAR license. The project documentation will be shared freely and widely with the communities of interest.

Project Resources

11. Project Partners

Not applicable

12. Project Management

12.1. Project Management Framework

The CHARTER project sits within the Academic Services (library, IT, student and research support services) division of the University's Professional Services. Martin Myhill (Assistant Director of Academic Services) will be institutional sponsor and will sit on the CHARTER Project Board.

CHARTER will bring together a multi-disciplinary team (academics, curators, technical experts, educational technologists) under the strategic lead of the Principal Investigator, Dr Jessica Gardner (Head of Special Collections). She will hold responsibility for reporting directly to JISC and the project's internal sponsor, Martin Myhill.

A professional Project Manager has been appointed to CHARTER to provide the project management expertise in support of the Principal Investigator / Project Team. Assigned to the project for one day a week, the Project Manager will be responsible for creating a robust project infrastructure around people, processes and budget, following the University's own established project management framework and audit process (www.offices.ex.ac.uk/spo/). The Project Manager is qualified in PRINCE2 and (as a secondary outcome of CHARTER) will help to develop the project management skills of the project team. In addition, a Senior Project Manager (Chris Austin, Deputy Head of Projects) has been appointed as a mentor to the Project Manager. Her role is not costed in to the project but is designed to help ensure the learning outcomes about working with JISC are embedded into the institution via the Projects Office.

On award of funding by JISC, the University's established project management processes came in to effect. This included agreement of a 'Project Initiation Document' (PID), which includes a risk log and project action plan. The Project Manager will use these tools, with this JISC plan, to monitor progress and assist in the sequencing of actions.

The project website will host all project documents and will evolve as a tool for project management and dissemination. To aid that process, a project blog and group email has been set-up. The project website will be hosted in the Digital Assets area of the Academic Services website, alongside the website for the University's institutional repository, ERIC.

12.2. Technical Sub-Group

The most critical stage of the project is the conceptualisation and construction of the new repository and web interface. This work will be planned and delivered through CHARTER's Technical Sub-Group (reporting to the Project Team meetings) which has been set up to coordinate the overlapping repository, server, metadata and digitisation workflows to ensure effective sequencing of the integration to the repository of the new and existing digital artefacts and metadata.

Sue Milward (Head of Integration & Web Services and Co-Investigator on CHARTER) will lead the Technical Sub-Group. Following her lead, the repository workpackage will now extend over a longer time frame to allow closer integration and overlap between the build of the repository and the metadata/digitisation work package. This involves one change of personnel on the repository workflow which has been discussed with Alastair Dunning, Programme Manager, JISC.

12.3. Project Board

The Project Board will meet not less than six times during the course of CHARTER and will receive and comment on progress reports, help to problem solve and will act as representatives of the wider communities of interest in the project.

Board Member Role	Name and Job Title
Chair	Jessica Gardner (Head of Special Collections)
Professional Services Representative (s)	Ahmed Abu-Zayed (Digital Assets Manager) Martin Myhill (Assistant Director Academic Services)
School Representatives	Ian Cook (Geography) Gary Stringer (Creative Media & Information Technology Unit – SELL)
Project Manager(s)	James Green (Projects Office), with input from Chris Austin (Projects Office)

12.4. Project Team

The Project Team will meet not less than once a month during the course of the project and will report on progress, problem solve and make decisions as required.

Project Role	Name
Project Manager(s)	James Green (j.green@exeter.ac.uk) (Projects Office), with input from Chris Austin (c.e.austin@exeter.ac.uk) (Projects Office)
Principal Investigator	Dr Jessica Gardner (j.p.gardner@exeter.ac.uk) (Head of Special Collections)
Work Stream Managers	
Repository	Sue Milward (s.a.milward@exeter.ac.uk) (Head of Integration and Web Services)
Metadata and Digitisation	Ahmed Abu-Zayed (Ahmed.Zayed@exeter.ac.uk) (Digital Assets Manager)

Selection	Philip Wickham (p.j.wickham@exeter.ac.uk) (Curator of the Bill Douglas Centre)
E-Learning	Matt Newcombe (m.j.newcombe@exeter.ac.uk) (Head of E-Learning)
Other resources	Other project resources (see below) will be co-opted to the Project Team meetings as required

12.5. Project Resources

The project resources include all those with a role in CHARTER.

Project Role	Name	Days required or % of time	Timescale required
Project Manager	James Green (Projects Office) (with input from Chris Austin – Projects Office – as required)	20%	1 year
Principal Investigator	Dr Jessica Gardner (Head of Special Collections)	10%	1 year
Repository Workflow	Sue Milward (Head of Integration & Web Services)	10%	October 08 until completion
	Ray Burnley (Web Developer / Systems Programmer)	50%	November 08 until completion
	Bill Edmund (Digital Storage Manager)	10%	October 08 until completion
Digitisation and Metadata Workflow	Ahmed Abu-Zayed (Digital Assets Manager)	15%	1 year
	Digitisation Officer and Assistant	100%	January 09 for 9 months
Selection Workflow	Philip Wickham (Curator of the Bill Douglas Centre)	5%	1 year
	Joanne Parker, Paul Young, Joe Kember, Nicola Thomas, Jude Hill, James Ryan, Bruce Coleman, Richard Noakes, Richard Toye, Caroline Gale and Diane Workman. (Academic Schools & Academic Support Consultants)		4 – 8 hours
E-Learning Workflow	Matt Newcombe (Head of E-Learning)	10%	June 09 for 2 months
	Simon Tapper (Educational Technologist)	100%	June 09 for 2 months
	John Plunkett (School of Arts, Languages & Literature)		30 hours June-July 09
	Diane Workman (Academic Support Consultant)		June 09 for 2 months – part-time contribution as required

12.6. Training Needs

The two digitisation posts created on the project will undergo in-depth induction to the collections and the project in January 2009. The project's training budget includes funds for up to four TASI courses as required by the digitisation postholders. The dissemination budget for the project contains funds that can be vired to training if required and for workshops and conference attendance to share findings with others.

13. Programme Support

There are no specific areas where we currently need support from the programme manager, but CHARTER anticipates consulting regularly with the JISC and will benefit from its support and from interaction with parallel projects.

14. Budget – See Appendix A

The rising cost of inflation means that the cost of the two digitisation posts employed on CHARTER are marginally higher (£1364) than originally anticipated. The cost has been born by the University and has not been added to the budget agreed with JISC (Appendix A).

The other alteration is the replacement of Ray Burnley (Integration and Web Development Team) for Kevin Evans (named in the original application) as the Web Developer attached to the repository workpackage (as agreed with JISC). Ray will work over an extended period (from Nov 08 to completion of the repository) as a minimum 50% attachment to CHARTER. The costs to the project remain unchanged.

Some of the equipment has been purchased for a smaller sum than originally anticipated. This has allowed the Project Team (following consultation with JISC) to purchase additional items for use by the Digitisation Team – e.g. laptop to enable work in the stores during selection and metadata creation, photographic accessories (e.g. lights etc) and two object trolleys to allow movement of objects between stores and the digitisation studio. The revised budget is given below. There is a minor underspend of £65.00 in the digitisation equipment budget. The Project has also decided to use virtual servers (in line with its sustainability policies). The server costs remain as originally scoped and will be invoiced on a Charged Services Agreement invoice raised by the University's computing services.

Detailed Project Planning

15. Workpackages – See Appendix B

16. Evaluation Plan

Timing	Factor to Evaluate	Questions to Address	Method(s)	Measure of Success
Ongoing from Dec 08	Repository built and fit for purpose for users (curators, academics, students etc)	Does it meet user need?	Review by multi-disciplinary Project Team / Board / Resources	User satisfaction; repository delivered on schedule
Ongoing from Jan 08	Functionality and value to user of the repository web	Does it function as required? Does it meet user need	Review by Project Team;	User satisfaction; searchability of the repository.

	interface and search tools		Review within e-learning cycle	
Ongoing from Feb 09	Quality and quantity of the 2000 new digital surrogates	Image quality, esp. JPEGs resized for web use Delivery / timeliness	Quality review methodology; Project timetable	100% of images meet required quality; Images delivered on schedule.
Ongoing from Feb 09	Quality and quantity of 2000 new metadata records	Fit for purpose / meeting user need (curators, academics, students, e-learning team)	Review by multi-disciplinary Project Team / Board / Resources	User satisfaction; metadata delivered on schedule; searchability of the content.
Ongoing April to August 09	Quality and quantity of transfer of metadata and 2000+ images from EVE	Migrated data matches source	Review by Technical Sub-Group	Migrated data matches source.
June to July 09	Value of the e-learning module	Module matches requirements of academics and students	User testing with E-Learning Team	Module meets user requirements.
Ongoing	Documentation		Peer Review	

17. Quality Plan

Repository					
Timing	**Quality criteria**	**QA method(s)**	**Evidence of compliance**	**Quality responsibilities**	**Quality tools (if applicable)**
As required	Fitness for purpose	Presence of errors, user activity, service validity. Load testing. Availability & Resilience Testing Project Management. Project Review.	Adoption by customers. Activity and error log verification. Helpdesk request monitoring. Service Availability Monitoring Traffic Analysis.	Project Technical Team	Badboy Apache JMeter

Throughout repository build (Dec 08 to Mar 09)	Best practice for processes	Use of latest supported DSpace versions. Documentation of all local scripts and amendments. Change management tracking system for service alterations. Integrated Helpdesk Support. Project Management Committee review.	Latest stable version of DSpace and supporting software running. Repository for local scripts and amendments. Change Management System with archive of updates.	Project Technical Team	
Throughout repository build	Adherence to specifications	Compliance with project plan. Regular reporting. Discussions with JISC.	Approval of plans and milestones.	Project Technical Team	
Throughout the repository build	Adherence to standards	Use of latest software versions.	Upgrades to latest versions.	Project Technical Team	
Throughout the repository build	Accessibility Legislation	AA formal design and approval procedures. Accessibility testing	Signed legal agreements.	Project Technical Team	
Regularly	Repository	Fault report system that allows faults to be checked	Achieving the required results.	Head of Web Team	
Before implementation	Technical metadata	Selecting technical metadata according to	Comply with established standards and best practice	Digital Assets Manager	

		the best practice guides	guides		
At the time of batch ingest	Presence of images and metadata files	The ingest scripts	Verify metadata files against corresponding images	Web Developer Digitisation Officer/Assistant	
	Checking XML document for errors	Validating XML against the schema or an XML parser. Check that free text entries follow the local rules and style guidelines	XML error free. Free text complies with the rules and guide lines.	Web Developer	

Digitisation & Metadata					
Timing	**Quality criteria**	**QA method(s)**	**Evidence of compliance**	**Quality responsibilities**	**Quality tools (if applicable)**
After scanning and before ingesting	Master files	Checking files properties against the digitisation guidelines. Visually checked and signed off with name and time recorded within audit history.	Comply with the digitisation guidelines	Digitisation Officer/Assistant	
Image manipulation	Surrogates	Visually checked and signed off with name and time recorded within audit history. Reliable software for the creation of	Images comply the guidelines	Digitisation Officer/Assistant	

		surrogates.			
Before implementation	Digitisation workflow	Establishing digitisation guidelines	Comply with established standards and best practice guides	Digital Assets Manager	
Ingesting	Accurate capture of metadata	Reviewed and signed off with name and time	Comply with established guidelines by the Archivist. Training staff and encouraging a pride in quality of work.	Digitisation Officer/Assistant Digital Assets Manager	

E-Learning Module					
Timing	**Quality criteria**	**QA method(s)**	**Evidence of compliance**	**Quality responsibilities**	**Quality tools (if applicable)**
Throughout package build	Academic content	Evaluation with academic staff and students	End materials will be of high quality	Educational Technologist, Academic, Head of e-Learning	
Throughout package build	Adherence to standards	Compliance with project plan. Regular reporting.	Validation of content with relevant tools	Educational Technologist, Head of e-Learning	W3C validation tools CSS - http://jigsaw.w3.org/css-validator/ XHTML - http://validator.w3.org/
IMS content package	Adherence to standards	Compliance with project plan and requirements for JORUM repository	Package submitted to JORUM repository	Educational Technologist, Head of e-Learning	RELOAD tools – http://ww.reload.ac.uk

18. Dissemination Plan

Timing	**Dissemination Activity**	**Audience**	**Purpose**	**Key Message**

Sept 08	For Your Information (newsletter report) & announcement at Divisional Meeting	Academic Services teams at local institution	Raise awareness	Funding secured
Nov 08	Institutional Research Newsletter	Local Institution	Raise Awareness	Funding Secured
5 Nov 08	Project Website launched	All interested parties	Raise awareness, tool for Project Team communication, keep all interested parties up to date on developments	Updates on project news
5 Nov 08	JISC Project Website	All interested parties; JISC	Raise awareness and contribute to creation of a community of interest in Digitisation Programme	Raise awareness
5 Nov 08	Project Blog	All interested parties; Project Team	To ask questions, share findings, update on project.	Essential information and project development
Monthly	Reports at staff meetings	Service colleagues & managers	Raise awareness	Raise awareness
Summer 09	Presentation	CILIP SW University College & Research Group Conference	Raise awareness, share practice, encourage use of resource	Strategy and practice; value to researchers
Summer 09	Workshop on heritage collections & digitisation	All interested parties (possibly with Devon Museums Group or SW Society of Archivists)	Raise awareness, share practice, encourage use of resource	Strategy and practice; value to users and curators.
Summer 09	Workshop on repository and e-learning	All interested parties (possibly hosted with partner projects on Digitisation Programme)	Raise awareness, share practice and problems	Strategy and practice
As scheduled by JISC	JISC Programme Meetings	Meetings	Share information with other similar	Strategies and practice

			projects and practioneers	
Summer 09	Sconul Newsletter	SCONUL members	Raise awareness	Raise awareness
September 09	Subject email lists via academic participants on CHARTER	Academics	Raise awareness of value for research and teaching	Raise awareness of value to users
September 09	For Your Information / Extra	Institutional newsletters	Raise awareness	Raise awareness of value to users
Ongoing post project	Promotion via library & e-learning	Academic schools and students	Raise awareness; embed use in academic community	Value to users

*The plan above concentrates on activities planned for the 12 month duration of the project. In practice, the budget allows for wide conference attendance and presentation of findings will be encouraged throughout the project team and will extend beyond the close of the project. These might include annual conferences of Digital Resources in the Humanities, CILIP Rare Books and Special Collections Group, for example. Contact and collaboration with other similar projects will be actively sought and encouraged.

19. Exit and Sustainability Plans

Project Outputs	Action for Take-up & Embedding	Action for Exit
'Digital Collections' Repository & web-front end	Promote repository through infoskills training for academics and students via library & others as per dissemination plans; demonstrate e-learning potential; deliver training for curatorial team; effect handover of technical support from Integration & Web Services Team to Academic Systems Team.	Ensure user instruction and technical documentation is written and up to date and available on website and internal team documentation. Effective training & handover from Integration & Web Services Team to Academic Systems Team.
Digitised Images	Ensure web hosted images are of a high quality and fit for purpose as a research and teaching tool.	Ensure image capture follows agreed standards and preservation files are backed-up and secure. Ensure image capture manuals are complete and accessible. Apply CASPAR licence.
Metadata	Ensure metadata conforms to standards and is relevant to target audiences (ie HE and FE) and enables effective searching	Ensure metadata support documentation is complete and accessible, via the web and within teams. Apply

	of the repository.	appropriate Creative Commons Licence.
E-Learning Module	Ensure module is built using standards required for deposit in JORUM. Ensure module is built in partnership with its users (academics and students). Promotion of the module via academics, e-learning team and library staff.	Deposit module on JORUM.

Project Outputs	Why Sustainable	Scenarios for Taking Forward	Issues to Address
Web front-end to repository	Essential tool for promoting and searching the repository. Costs of maintenance are low.	Operational responsibility for web-front end will transfer to the Academic Systems Team, with technical support from the Integration and Web Services Team. Digital Assets Manager will be responsible for strategic development.	Need to ensure all technical documentation is up to date at the end of the project and training delivered to Academic Systems Team.
Repository	Central component of digital assets management infrastructure created through CHARTER.	Operational responsibility for web-front end will transfer to the Academic Systems Team, with technical support from the Integration and Web Services Team. Digital Assets Manager will be responsible for strategic development. Source code will be made available to others, with other tools / documentation.	Need to ensure all technical documentation is up to date at the end of the project and training delivered to Academic Systems Team.
Digitised images	Captured with preservation in mind (TIFF format for preservation masters)	The preservation master files on the server will be backed up on DVD and stored in multiple locations. These files will be available as required.	None
E-Learning module	Built to meet standards required for deposit on JORUM.	Deposit on Jorum.	None

Documentation & Evaluation	Will be completed within the project and made available publicly via CHARTER's website. The findings of the project – its successes and the problems it faces – will be shared widely within the communities of interest to help develop best practice.	Ensure documentation is up to date and available via the website.	None

Appendixes

Appendix A. Project Budget – unchanged from application

Directly Incurred Staff (Post, Grade, No. Hours & % FTE)	**April 08 – March 09**	**April 09 – Sept 09**	**TOTAL £**
Project Manager, Grade G, pt 39, 7.3 per day hours or 20% FTE for 12 months	£ 4726.08	£ 4726.08	£ 9,452.16
Digitisation Officer, Grade D, pt 14, 100% FTE 9 months	£ 5585.36	£ 11170.72	£ 16,756.08
Digitisation Assistant, Grade C, pt 6, 100% FTE over 9 months	4446.00	8892.00	13,338.00
Total Directly Incurred Staff (A)	**£14,757.44**	**£24,788.80**	**£39,546.24**
Non-Staff	**April 08 – March 09**	**April 09 – Sept 09**	**TOTAL £**
Travel and expenses *(final figures show inflation added via TRAC costing)*	£	£	£
Travel & expenses from Cornwall to Exeter to attend Selection Panels (academics) (4 trips of 210 round trip miles, plus lunch)	£298.49	-----	£298.49
Travel & expenses from Exeter to London to attend JISC days (up to five per project) (Standard Open Ticket is £179.00; £5.00 per trip expenses)	£473.47	£473.47	£946.94
Travel & Expenses from Exeter to Bristol (TASI Training – 4 x £25 for train & 4 x £5.00 expenses)	£123.51	--	£123.51
Hardware/software (inc VAT) New workstation x 2 for new members of	£ £1165.60	£ ---	£ £1165.00

directly incurred project staff (2 x desktop PC)			
1 x networked colour laser jet printer	£494.50	--	£494.50
Large format flatbed scanner (enabled for slide formats)	£890.31	---	£890.31
Digital camera (raw format) & memory card	£401.30	--	£401.30
Camera accessories (lights, stand, backdrop etc)	£766.00	--	£766.00
2 x object trolleys (to move objects between stores & digitisation studio)	£586.50	--	£586.50
Laptop (for digitisation team for selection and metadata work in the stores)	£836.05	--	£836.05
Adobe Photoshop CS3 Extended licence £150 x 2	£235.00		£235.00
3 x virtual servers (2 x production, 1 x test development)	£2,500.00		£2500.00
1TB (mirrored) SAN Storage	£4000.00		£4000.00
Licensed back-up Provision for 12 months – 1 TB	£400.00		£400.00
Dissemination *(final figures show inflation added via TRAC costing)* Workshops & Symposiums & Conferences	£ ----	£ 10,292.83	£ 10,292.83
Evaluation Book voucher rewards for student focus group evaluation (£15 x 20) (i. repository usability testing; ii. E-learning testing)	£ £90.00	£ £210.00	£ 300.00
Other *(final figures show inflation added via TRAC costing)* Training (up to 4xTASI courses)	£ 617.57	£ ---	£ 617.57
Digital image capture – outsourcing of 100 large items (no VAT) (£4.00 per unit)	£411.71	----	£411.71
Total Directly Incurred Non-Staff (B)	**£14,289.75**	**£10,976.30**	**£25266.05**
Directly Incurred Total (C) (A+B=C)	**£29,047.79**	**£35,765.10**	**£64,812.29**
Directly Allocated	**April 08 – March 09**	**April 09 – Sept 09**	**TOTAL £**
Staff	£	£	£
Principal Investigator: Researcher 1 (PI) (10%FTE across 12	2588.64	2588.64	5177.28

months / average 3.5 hours a week) (Dr Jessica Gardner, Head of Special Collections)			
Selection workflow: Researcher 2 (Co Investigator) (5% FTE across 12 months – average 2 hours per week / 96 hours in total) (Phil Wickham, Curator)	987.23	987.23	1974.46
Selection panels (via timesheets) – Oct 08 to March 09 (10 Academic Researchers participating – totally 50 hours input) Joanne Parker (English) – 8 hours Paul Young (English) – 4 hours Joe Kember (English) – 4 hours John Plunkett (English) – 8 hours Nicola Thomas (Geography) – 6 hours Jude Hill (Geography) – 4 hours James Ryan (Geography) – 4 hours Bruce Coleman (History) – 4 hours Richard Noakes (History) – 4 hours Richard Toye (History) – 4 hours	50 hours in total on timesheets Total: 1556.37	--	1556.37
Digitisation & Metadata workflow: Researcher 3 (CI, Digital Assets Manager) (15% FTE for 12 months – average 3.5 hours per week) – Ahmed Abu-Zayed	3652.61	3652.61	7305.22
Digital Repository Workflow: October 08 to Jan 09 Researcher 4 (CI, Head of Integration and Web Services) (10% FTE for 4 months – average 3.5 hours per week) – Sue Milward	2012.88	----	2012.88
Researcher 5 (Systems Programmer / Web Developer) (50% FTE from November to completion – Ray Burnley	13,975.43	----	13,975.43
Researcher 6 (Digital Storage Manager) – 36.5 hours / 1 week in total – Bill Edmunds	1213.49	---	1213.49
E-Learning Worksflow: April 09-May 09 Researcher 7 (CI - Head of E-Learning) (10% FTE for 2 months / average 3.5 hours per week) – Matt Newcombe	--	811.85	811.85
Researcher 8 (Educational Technologist) 100% FTE for 2 months – Simon Tapper	--	5665.48	5665.48
Researcher 9 (Academic) John Plunkett (Senior Lecturer, English) – 30 hours (timesheets)	--	933.82	933.82

Estates	£2046.5	£1380.5	£3427.00
Other	£ --	£--	£--
Directly Allocated Total (D)	**£28,033.15**	**£16,020.13**	**£44,052.28**
Indirect Costs (E)	**£26,979.00**	**£18,189.00**	**£45,168.00**
Total Project Cost (C+D+E)	**£84,059.34**	**£69,974.23**	**£154,033.60**
Amount Requested from JISC	**£41,997.17**	**£34,987.07**	**£76,984.24**
Institutional Contributions	**£42,062.17**	**£34,987.19**	**£77,049.36**
Institutional Contributions (must equal at least 50%)	**JISC** **50 %**	**Partners** **50 %**	**Total** **100%**
No of FTE used to calculate indirect and estate charges and staff included	**No FTES?** **1.12**	**Which Staff?** Researchers 1-9, plus Project Manager & academics named in 'selection' panels	

Appendix B. Workpackages

JISC WORK PACKAGE

WORKPACKAGES	Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1: Project Management		X	X	X	X	X	X	X	X	X	X	X	X												
2: Selection			X	X	X	X	X	X	X	X	X	X	X												
3: Repository		X	X	X	X	X	X	X	X	X	X	X													
4: Digitisation & Metadata		X	X	X	X	X	X	X	X	X	X	X	X												
5: E-Learning										X	X														
6: Evaluation & Dissemination		X			X					X	X	X	X												

Project start date: *1 October 2008*

Project completion date: *30 September 2009*

Duration: 12 months

				Milestone	Responsibility
YEAR 1					
WORKPACKAGE 1: Project Management *<u>Objective</u>: To ensure effective internal communications and project success*					
1. Project management activities	Oct 08	Sept 09	Manage progress of CHARTER		JG / JPG
2. Create & approve JISC Project Plan	1 Oct 08	5 Nov 08	Complete **JISC Project Plan**	**M1**	JPG, with JG
3. Create CHARTER website at Exeter	1 Oct 08	5 Nov 08	Publish **CHARTER website** on UoE site.		AA-Z
4. Provide content for JISC website	1 Oct 08	5 Nov 08	Publication of **CHARTER website** on JISC site.		JPG
5. Set up Project Team meetings	Oct 08	Oct 08	Series of monthly Project Team meetings		JG
6. Set up Project Board meetings	Oct 08	Oct 08	Series of 6 Project Board meetings		JG
7. Set up CHARTER internal-email lists & Blog	Oct 08	Oct 08	Group email lists & blog for internal comms		JG / BE
8. Monitor Finance	Oct 08	Sept 09	Keep financial expenditure with budget		JG
9. Project closure		Sept 09	Closure of Project CHARTER		JPG / JG
WORKPACKAGE 2: Selection					

Objective: To ensure selection for digitisation is demand-led by the academic community					
10. Set up procedures to record & process to digitisation team artefacts selected for digitisation through selection panels, teaching and outreach events, with additional recommendations from curatorial team	Oct 08	Sept 09	Record of unique identifiers and key descriptive information for CHARTER's digitisation team.		PW
11. Schedule scoping meetings and selection panels with academic colleagues	Oct 08	May 09	Series of academic panels to inform selection of artefacts for digitisation		PW
WORKPACKAGE 3: Repository & web front end **Objective: To build an e-repository for digital image assets**					
12. Set up virtual server(s) and mirrored file store	Oct 08	Nov 08	Server and mirrored file store installed.		BE
13. Requirements gathering for repository, including adaptation of Dublin Core or MODS metadata fields	Oct 08	Nov 08	Repository requirements agreed		AA-Z, JPG. RB et al
14. Set-up repository and create content model	Dec 08	Mar 09	Repository infrastructure in place.		RB, SM
15. Define requirements for web front end	Dec 08 to Feb 09	Dec 08 to Feb 09	Web front end conceptualised		RB
16. Build web front end	Jan to Feb 08	Feb 09	Web front end delivered		RB
17. Build search capacity	Jan to Feb	Feb 09	Search capacity built		RB

	09				
18. Define and build administration area	Dec to Jan 09	Jan 09	Administration area built		RB
19. Integrate with repository	Jan to Feb 09	Feb 09	**Web front end and repository integrated**	**M2**	RB
WORKPACKAGE 4: Metadata Migration from EVE **<u>Objective</u>: To migrate 2000 images and metadata from EVE to the repository**					
20. Define data held on EVE & mapping to Dublin Core	Oct 08	Dec 08	Data for migration identified.		AA-Z, JPG, PW
21. Adapt metadata records for EVE to repository	Jan 09	April 09	Mapping completed between EVE and repository.		A.A-Z, JPG, PW
22. Import images & metadata records from EVE & create processes and reusable tools for transfer and quality review (2000+images)	April 09	Aug 09	Data extracted and reviewed.		RB, AA-Z et al
23. Confirm data in new repository matches extracted data in EVE	Aug 09	Aug 09	Quality review check on match between EVE and repository.	**M3**	AA-Z, RB
WORKPACKAGE 5: Digitisation & Metadata **<u>Objective</u>: To supply the metadata and new digital image content to the repository**					
24. Purchase scanners, cameras and	Oct 08	Dec 08	Set up equipment for CHARTER		AA-Z

workstations			digitisation team		
25. Recruit digitisation assistant and officer	Oct 08	Dec 08	Digitisation staff in place by Jan 08.		AA-Z
26. Train digitisation staff in handling artefacts, image capture, cataloguing and metadata creation	Jan 09	Jan 09	Competency in artefact handling, image capture, cataloguing and metadata creation		AA-Z, PW
27. Digitisation of 2000 objects and creation of metadata and quality review processes	Feb 09	Sept 09	Creation of 2000 new digital images, with associate metadata	**M4**	AA-Z, DT
WORKPACKAGE 6: E-Learning **<u>Objective</u>: To create an e-learning module incorporating digital image content from the e-repository**					
28. Creation of the e-learning course materials	June 09	July 09	E-learning course materials created		MN, ST et al
29. Digitise any outstanding course materials	June 09	July 09	Complete digitisation of course materials		DT
30. Create e-learning modules using digital artefacts from the repository	June 09	July 09	Complete **e-learning module and deposit in Jorum.**	**M5**	MN, ST et al
WORKPACKAGE 7: Evaluation and Dissemination **<u>Objective</u>: To review the success of the project and to widely disseminate outputs and findings**					

31. User evaluation for the repository and e-learning module	June 09	July 09	Evaluation and feedback on the repository and e-learning module		Users, with Project Team
32. Publicise the repository and e-learning module	July 09	Sept 09	Repository and e-learning module publicised widely.		Project Team, Academic Schools etc
33. Progress report 1 to JISC	Jan 08	Jan 08	Submit **Progress Report 1** to JISC		JPG / JG
34. Progress Report 2 to JISC	July 08	July 08	Submit **Progress Report 2** to JISC		JPG / JG
35. Draft & complete Final Report to JISC	Aug 08	Sept 08	Submit **Final Report to JISC**	**M6**	JPG / JG

Members of Project Team:
JPG - Jessica Gardner – Principal Investigator
JG – James Green – Project Manager
SM – Sue Milward – Repository Workflow Manager
RB – Ray Burnley – Web Developer on repository workflow
BE – Bill Edmunds – Server manager on repository workflow
AA-Z – Ahmed Abu-Zayed – Digitisation and Metadata workflow manager
DT – Digitisation Team (Project Digitisation Officer & Project Digitisation Assistant)
PW – Phil Wickham – Selection Workflow Manager
MN – Matt Newcombe – E-Learning Workflow Manager
ST – Simon Tapper – Educational Technologist on the e-learning workflow

Appendix C: Case submitted to JISC to explain the change of repository software for CHARTER (from fedora to DSpace) (submitted 15/12/2008)

CHARTER Project – Repository Choice

Background

1. This document sets out the reasons why the CHARTER project seeks JISC's approval to change it software choice from fedora to DSpace.

2. The original project plan for the JISC CHARTER project stated that Fedora would be used to deliver the digital repository solution, as it is has the potential to develop as the most flexible open source software available for the construction of repositories.

3. However, having installed the basic Fedora software, CHARTER's Technical Sub-Group became concerned that the implementation specifically needed for this project would require very considerable technical resource. This was further evidenced by research and consultation with other projects using fedora (e.g. Durham University's Special Collections) and the knowledge of our Project Board (Gary Stringer, expert in learning technologies and heritage, and Martin Myhill, the Project's sponsor).

CHARTER's Strategic Aims

4. We fully recognise that the sector needs projects like CHARTER to further the development potential of fedora. It is set to become the open access repository 'gold standard' within the next 5 to 10 years. But CHARTER also needs to deliver against its wider aims to create a sustainable infrastructure for access, storage and management of digital assets at Exeter.

5. With advice from our Technical Sub-Group, it is now apparent to us that to deliver that overarching strategic aim within the timescale of the CHARTER project, we need to opt for a software solution which is more mature, more manageable and predictable and in which there is substantial sector knowledge already in the UK and USA (Cambridge University is, for instance, pushing DSpace hard for object and institutional repository purposes).

6. For this reason, we feel we have to make an informed and practical choice to select an alternative open-source software– DSpace - that can still deliver CHARTER's aims but which is also a more pragmatic fit to the resources and expertise available. Whilst the project timetable has not yet slipped, of particular concern is the sequencing of the repository build and the digitisation workstrands, which need to join up towards the end of January / early February. Achieving this timescale with fedora seems, after further scoping and advice, beyond the resources available for the project.

Opting for DSpace

7. Exeter has therefore decided to seek JISC's approval to use DSpace instead of fedora. This choice is not without its disappointments, but we hope that JISC will support our change of software choice for the reasons set out below.

8. While DSpace is still an open source application, it offers far more 'out of the box' functionality than fedora. This will allow the technical developer to devote more time to local customisations and to migration of data from the legacy system, EVE.

9. Exeter uses a hosted DSpace application to manage its institutional repository for research outputs (ERIC). Whilst the maintenance of ERIC is outsourced to BIOMED, there is nonetheless greater in-house knowledge of DSpace than fedora. We have come to the conclusion, with some reluctance, that this existing knowledge will allow the project to concentrate its efforts on the

critical aspects of delivery rather than learning and developing against an unfamiliar application. There is also a possibility that ERIC's maintenance and development will be brought back 'in-house' in future. Opting for DSpace for the CHARTER's object repository will help develop a sustainable set of skills that would support that move. The reverse is also true – BIOMED can offer advice and support and could even maintain the new object repository alongside ERIC if required (this is not a preferred option).

10. DSpace is widely used in the HE sector with an ever-growing community of developers, committed to continuously expanding and improving the software, where each DSpace installation benefits from the next.

11. Discussions about DSpace vs fedora have also necessitated discussion about the most appropriate metadata standard to apply in the repository. The overwhelming advice from colleagues and the Project Board has been that we should seek to use Dublin Core, not MODS. This is because DC is a more widely used metadata standard in the heritage sector and will make our data more widely interoperable with others. DSpace supports the Qualified Dublin Core metadata standard; this employs additional qualifiers to further refine the meaning of a resource. Qualifiers will also allow us to increase the specificity or precision of the metadata.

12. In terms of OAI-PMH, DSpace (like fedora) supports the Open Archives Initiative's Protocol for Metadata Harvesting v2.0 as a data provider. OAI support was implemented using OCLC's OAICat open-source software to make DSpace item records available for harvesting. Research also suggests it is likely to be simpler to migrate from DSpace to fedora (as that software develops) than the other way round.

13. We recognise that DSpace has less Web 2.0 functionality at the moment (which is something we would seek to develop beyond CHARTER), but this is likely to change as the software continues to mature. From a pragmatic perspective, DSpace has less options for customisation but it also does not have the same resource overhead for customisation.

14. Having considered the options, we believe that the functionality of DSpace can deliver what we need now from the object repository within the timescale and resources available.

Managing the Project Now / Looking Ahead

15. The decision to opt for DSpace has not been an easy one, but at this stage we believe that this choice will allow us to deliver more broadly against the project's aims and objectives than if we were to divert all resources towards customisation of fedora. In purely project management terms, we risk damaging the other project deliverables if we do not make this choice.

16. The Team also have an eye on the longer term as we are aware that there is a collaboration project between DSpace and fedora which is aiming to merge the two applications. Whichever solution is implemented now, this will more than likely be subsumed by the new merged application and some migration effort will be required. Given the finite resources available for CHARTER, we feel that opting for DSpace now still leaves open the possibility of migrating to fedora as this collaborative project evolves, when there is a clearer roadmap for the future of both applications is published.

17. On a more reflective note, the project participants have learnt through this process that we should have built more scoping time into the project plan. Perhaps we opted for fedora (and then MODS) too quickly. It would have been better to have kept our options more flexible in the original application, allowing us at the planning stage to identify the right product that delivered the right match between functionality and resource. This is an experience we will share with others through the evaluation and dissemination of the project, but at this juncture we believe that for Exeter that product is DSpace.

CHARTER Project Team

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