




Final Sustainability Plan

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Executive Summary

The SCAPE project has made a significant contribution to the digital preservation community in the form of software and supporting materials which provide the opportunity to develop practice within memory institutions and enhance commercial products to further develop the marketplace for digital preservation solutions.

The vision of the project is *to sustain the results of the project by supporting long-lasting communities of practice in adopting and maintaining the products*. The SCAPE sustainability strategy is based on five complementary approaches:

1. **Quality**
Ensuring that project outputs conform to standards-driven quality assurance.
2. **Visibility**
Providing integrated outreach to multiple audiences to maximise discoverability.
3. **Training**
Enabling skills development to further institutional adoption and capacity building.
4. **Open licensing**
Using open licences to encourage the adoption and reuse of project outputs.
5. **Community integration**
Integrating project outputs into commercial and non-commercial products and services.

Research outputs include white papers and research publications, use cases and requirements, and case studies. Beyond their contribution to the scholarly record and evidence of practice within institutions, there is no expectation for post-project sustainability of these outputs, although in many cases they provide the background to products which have progressed to the development phase.

Development outputs include software which has matured to the level of a product suitable for adoption by other institutions, either through integration into existing repository systems or through integration into commercial systems of which they are a customer. The software maturity model supports developers in maturing their products and the adopters in assessing solutions against the following criteria: community; documentation; code quality; deployment; support; and licensing.

Other development outputs include materials designed to further the adoption of software products, including educational resources, best practices, sample business cases, and a catalogue of policy elements. Together, these serve to lower the barrier to adoption and ongoing maintenance by the digital preservation community.

Post-project responsibilities address both on-going open-source development, stewarded by the Open Planets Foundation, and commercial integration into products and services provided by commercial partners in the project. Where practical, development efforts have been aligned with pre-existing and on-going community initiatives to reduce duplication of effort and maximise efficiency.

Taken together, these approaches ensure the development of mature products with the greatest likelihood of post-project adoption and sustainability beyond the life of the project.

Table of Contents

1	Introduction	1
2	Stakeholder consultation	2
2.1	Stakeholder analysis.....	2
2.2	Consultation activity	3
2.3.1	Sustainability survey.....	3
2.3.2	Sustainability workshops.....	3
2.3.3	Executive seminar	4
2.3.4	User Group	4
2.3.5	Productization Task Force	4
3	Sustainability strategy.....	5
3.1	Vision	5
3.2	Approaches.....	5
3.2.1	Quality	5
3.2.2	Visibility	5
3.2.3	Training.....	5
3.2.4	Open licensing	6
3.2.5	Community integration	6
4	Sustainability plan.....	8
4.1	Research outputs	8
4.1.1	Software (research projects).....	8
4.1.2	Other outputs.....	8
4.2	Development outputs	9
4.2.1	Software (development projects)	9
4.2.2	Other outputs.....	14
4.3	Post-project web presence	16
5	Conclusion	17
6	References	18

1 Introduction

The SCAPE project has produced a large number of outputs through its research and development activities in the form of software and supporting material that represent a significant contribution to the digital preservation community and provide the opportunity for the development of practice within memory institutions and the enhancement of commercial products to further develop the marketplace for digital preservation solutions.

The sustainability plan describes the approach taken by the project to ensure that its outputs are adopted by memory institutions and the broader preservation community and how this approach has lowered barriers to on-going collaboration and maintenance after the end of the project.

While some outputs, such as publications, contribute to the research activity of digital preservation and will form part of the scholarly record, the project has also produced practical outputs in the form of production-ready software and supporting material such as use cases and requirements, case studies, educational resources, best practices, sample business cases, and a catalogue of policy elements that will directly benefit adopting institutions. These outputs require longer-term strategies for stewardship to ensure their continued support and on-going development in line with the evolving requirements of memory institutions as they respond to opportunities in the changing digital environment.

Section 2 describes the stakeholders with an interest in the project outputs and the consultation activity undertaken to prioritise the curation of outputs in line with their requirements.

Section 3 defines the sustainability strategy - the vision for the post-project legacy and the complementary approaches to achieving the vision.

Section 4 describes the sustainability plan as it applies to the different types of project outputs, and defines measurable objectives and partner responsibilities.

2 Stakeholder consultation

2.1 Stakeholder analysis

Stakeholders in the digital preservation environment have different interests and motivations, and hence different needs driving the adoption of project outputs, as described below. Table 1 describes the stakeholder categories which are represented in the SCAPE consortium. Consortium partners can have more than one role. For example, libraries can provide research and development as well as manage collections, and universities can hold content as well as provide services.

Stakeholder	Description	Interest
Memory Institutions	Content-holding organisations (such as libraries, archives, data centres)	New software and approaches Improving practice Workforce development
Service Providers	Vendors of repository systems (on-site or hosted)	New software and approaches New market opportunities
Research and Development	Organisations producing new software and approaches (such as universities, may also include memory institutions)	Take-up and sustainability of new software and approaches

Table 1 Stakeholder analysis

Audiences driving the adoption of outputs have varying needs for the different types of project output and additional information to support their discovery, as described in Table 2.

Audience	Description	Need
Developers	Software developers, technical architects, and computer scientists, often specialising in digital preservation.	Source code Tests (e.g. unit tests) Technical documentation
IT/Systems specialists	IT professionals responsible for software installation, configuration and maintenance.	Technical documentation Installation manuals Installable software packages
Practitioners	Users of digital preservation tools and workflows, collection or content owners, librarians and archivists, business analysts	Deployable software Executable workflows

Audience	Description	Need
		User documentation Educational resources Case studies
Managers	Project managers, team leaders, product owners	Case studies Software portfolio
Researchers	Professors, research fellows, lecturers, students	Research publications White papers Materials for teaching

Table 2 Audience analysis

2.2 Consultation activity

Consultation activities sought input from stakeholders through surveys and face-to-face events. Findings from these consultations informed the sustainability approaches and the prioritisation of project outputs.

2.2.1 Sustainability survey

Members of the SCAPE consortium responded to an online survey and attended two face-to-face workshops. The survey ranked the importance of sustaining different types of SCAPE output which were defined as (not in order of priority): publications, deliverables, tools, services, and best practices. These definitions have been further refined as described in this final version of the sustainability plan.

The responses showed that tools are considered to be the most important output to sustain, followed by best practices, services and publications, and lastly deliverables. In other responses, the majority of respondents prioritised characterisation and quality assurance tools and workflows, followed by the planning and watch suite tools and services.

2.2.2 Sustainability workshops

The first Sustainability Workshop (held on 30 October 2012 at the Austrian National Library in Vienna) was attended by a representative from each partner organisation. Attendees confirmed that priority should be given to tools over larger technology products which should be treated as reference implementations rather than production software. To support discovery and take up, the group agreed that there should be consistency in the approach to documenting the tools.

The second Sustainability Workshop (held on 18 September 2013 at the British Library in London) focused on the productization of SCAPE tools. Attendees used a Business Modelling approach based on the Business Model Canvas [1] to describe SCAPE in general and selected tools in particular. This identified the need for staff resources within institutions to implement outputs at the end of the project, which are not always available in the context of research project funding. Maintenance was

agreed to be a shared concern amongst institutions implementing certain outputs, with a need for ongoing coordination to ensure efficiency of effort and consistency of result. The need to communicate effectively with managers in terms of business benefits, costs, and risks became an important theme of the workshop.

2.2.3 Executive seminar

Managers were addressed through an executive seminar, *Managing Digital Preservation [3]* (held on 2 April 2014 at the Koninklijke Bibliotheek in the Hague). The seminar was attended by managers and experts from 20 memory institutions in 8 countries. A detailed summary of the event was produced by one of the attendees [3]. The key conclusion was: “we need to break down the walls between day-to-day operations and digital preservation research within our organisations.” Recommendations included: addressing multiple audiences in dissemination material, describing outputs in terms of institutional benefits, costs and risks, and running community events to enable ongoing managerial collaboration.

The challenges uncovered during these consultations highlight the gap which remains between digital preservation research and the implementation of production capacity within memory institutions. However the overall message - “we need mature software, ready for implementation” - provided a clear steer for take-up and sustainability activities in the remaining months of the project.

2.2.4 User Group

The User Group was formed with managerial representatives from all content-holding consortium partners to gather requirements and assess project outputs to ensure alignment with business needs within respective institutions. A survey was run in July 2013 to investigate need for specific outputs, including interest in evaluating or adopting software products. Initial results suggested a lack of alignment, which was addressed through the Technical Coordinator and SCAPE Office. Also, the Take Up subproject worked on increasing visibility and advocacy of SCAPE outputs after this survey revealed that there was not enough user documentation available. A second survey was run in December 2013 containing a comprehensive list of software products and their functionality which provided evidence to support prioritisation within the curation of software. A final survey in July 2014 will assess whether take up of SCAPE outputs has improved since the second survey.

2.2.5 Productization Task Force

The Productization Task force was formed at the 2nd year General Assembly meeting in Paris to ensure that software products were suitable for implementation by memory institutions. The Task Force provided guidelines helping developers to produce mature software for release, see section 4.2.1 Software (development projects).

3 Sustainability strategy

This section defines the vision for the post-project legacy of the SCAPE project and the five complementary approaches to achieving this vision.

3.1 Vision

To sustain the results of the project by supporting long-lasting communities of practice in adopting and maintaining the products.

3.2 Approaches

The ultimate goal is supporting communities of practice by enabling efficient collaboration during the project and beyond. The project was designed with the Open Planets Foundation as partners to be responsible for leading sustainability activities and for taking post-project ownership of the outputs, supported by other partners providing specific capabilities.

The SCAPE sustainability strategy is based on five complementary approaches. The application of these principles to specific project outputs informs the sustainability plan.

1. **Quality**
Ensuring that project outputs conform to standards-driven quality assurance.
2. **Visibility**
Providing integrated outreach to multiple audiences to maximise discoverability.
3. **Training**
Enabling skills development to further institutional adoption and capacity building.
4. **Open licensing**
Using open licences to encourage the adoption and reuse of project outputs.
5. **Community integration**
Integrating project outputs into commercial and non-commercial products and services.

3.2.1 Quality

Quality ensures the development of project outputs in line with the business needs of memory institutions, and includes the definition of maturity standards and community review processes.

3.2.2 Visibility

Visibility ensures the provision of appropriate information for different audiences to support discovery and take-up of project outputs. This approach is aligned with the dissemination effort undertaken during the lifetime of the project and includes offline and online media.

Several complementary activities implement this:

- ensuring outputs address explicit and well-defined audience needs;
- publishing outputs using open infrastructure;
- designing for good user experience (information architecture, interaction and visual design).

3.2.3 Training

Training supports the development of staff skills and addresses multiple audiences through a variety of media in building an understanding of project outputs and software products. This approach is aligned with the training effort undertaken during the lifetime of the project and includes face-to-face workshops, practical demonstrations, introductory presentations, online demonstrators and self-guided exercises.

3.2.4 Open licensing

All SCAPE outputs, including software and non-software, will be released under open licenses to encourage their adoption, reuse, and the contribution of further enhancements back to the community where possible by encouraging derivative works to be made available under similar licensing conditions (although this will not prevent commercial integration and further development remaining privileged).

3.2.5 Community integration

Internal and external stakeholders will be encouraged to collaborate on development and sustainability, through various approaches designed to deliver efficiency and consistency.

Open Planets Foundation

Open Planets Foundation is a membership organisation, funded and directed by its members, that co-ordinates community development of digital preservation solutions. Many of its members are part of the SCAPE consortium, as are several other national libraries and archives, along with commercial companies and research and development organisations. SCAPE outputs will form part of the organisation's portfolio and adoption amongst members will be supported as described in this plan.

Open Planets Foundation activities are organised under four strategic themes:

- **Software Stewardship:**
hosting open-source projects and coordinating community maintenance and development effort;
- **Knowledge Exchange:**
interest groups leading face-to-face and online events, and publication of case studies (blogs) and requirements (wiki), to enable the sharing of experience;
- **Services:**
hosting central community services, such as preservation watch or tool registries;
- **Advocacy and Alliances:**
external relationships with other community organisations to ensure efficiency of effort in digital preservation.

As well as acting as steward for the project outputs the Open Planets Foundation will further their adoption amongst its members through established and ongoing knowledge exchange as well as a community technology survey to identify interest in specific dissemination activities:

- face-to-face and online events (themes led by member needs);
- member mailing list (private to representatives of all members);
- open community mailing list (630 members);
- other community mailing lists (as appropriate);
- blogs (providing case studies and sharing of experience);
- social media (including 753 twitter followers).



Other communities of practice

SCAPE will work with a number of external organisations and projects throughout the lifetime of the project to align activities with other community initiatives. This will focus attention and result in efficiency of effort through integrating products where appropriate:

- to adopt and enhance existing software (e.g. Apache Tika, FITS);
- to integrate SCAPE software outputs within larger frameworks such as Linux distributions (e.g. Jpylyzer in Debian) and repository systems (e.g. SCAPE APIs in Fedora 4, RODA, and Rosetta);
- to inform standards bodies about the development of tools and to suggest revisions or updates to standards (e.g. Jpylyzer as a reference tool for JPEG2000);
- to collaborate with other community organisations (e.g. the Digital Preservation Coalition on the production of business case templates);
- to promote SCAPE outputs to relevant communities (identified relevant conferences and co-ordinated presentation materials).

4 Sustainability plan

The sustainability plan describes the application of the sustainability strategy to specific outputs and the responsibilities of the project partners in delivering the plan.

Project outputs are broadly classified into two types:

1. research outputs, which includes software projects that have not progressed to development stage and textual materials such as white papers and research publications, use cases and requirements, and case studies; and
2. development outputs, which includes all software products, supporting materials such as documentation and educational resources, and other textual materials such as best practices, sample business cases, and a catalogue of policy elements.

4.1 Research outputs

All project activity starts as research, either into entirely new approaches or by picking up existing products from previous projects (as described in more detail where necessary). Some activities remain standalone research (such as white papers and research publications) while some progress to development once they reach a sufficient state of maturity (such as software projects).

4.1.1 Software (research projects)

Strategic approaches: Visibility; Open licensing

Software development undertaken during research projects can involve creating proof-of-concept prototypes which may: test ideas before committing resources; compare approaches to solving a particular problem; or provide a reference implementation of a complex integration.

Software projects may progress to become development projects but proof-of-concept prototypes which do not progress have no expectation for sustainability beyond the project and will be 'retired' in-line with the maturity model which applies to all software projects and is described in section 4.2.1 Software (development projects). The source code and change history for all research projects, as well as any technical documentation or issue tracking, will remain available.

4.1.2 Other outputs

Strategic approaches: Quality; Visibility; Open licensing

Other outputs include white papers and research publications, use cases and requirements specifying functional approaches ('scenarios'), and informal case studies published by project partners. Curation of these outputs will be coordinated within each sub-project by the SCAPE Office to determine retention (and public availability) or disposal. Retained outputs will be made available through the post-project web presence, for which a new information architecture and set of templates will be produced (see section 4.3). This is done with no expectation of update or review unless developed further by the community.

White papers and research publications

White papers are statements of practice which delineate a problem space and define an approach, and may be published by any project partner with limited review. Research publications are journal articles or conference presentations with more formal standards for external community review.

Quality: white papers and research publications are subject to the project review process as defined by the SCAPE Office before public release, and research publications will be subject to further peer-review by the expert community.

Visibility: white papers and research publications will be hosted on the post-project web presence with metadata and indexing to support discovery by target audiences. Research publications will be published through journals and conferences which will further enhance their exposure and long-term availability through publisher platforms.

Open licensing: white papers and research publications will be licensed under Creative Commons - Attribution - Share Alike 3.0 (CC-BY-SA) [4].

Use cases and requirements

Due to the variety of scale and working practices across the various software projects, requirements were gathered and recorded using a variety of media across the lifetime of the project. These include contractual obligations in the Description of Work, white papers, wikis, and issue trackers.

Quality: community review during the project will refine the use cases and requirements to ensure they adequately reflect the business needs of memory institutions, and public availability at the end of the project will enable them to be refined further and form part of a public knowledge base about digital preservation requirements.

Visibility: all use cases and requirements will be made publicly available at the end of the project and references will link from software products where appropriate.

Open licensing: use cases and requirements will be licensed under Creative Commons - Attribution - Share Alike 3.0 (CC-BY-SA).

Case studies

Case studies are published informally through the Open Planets Foundation blog and describe local experience of applying approaches being developed by the project. Informal sharing of practice and the resulting community discussion influenced the development of the published best practices (described in 4.2.2 Development (other outputs)) and the coordination of software development practices across the project partners.

Quality: case studies will not be subject to review per se, however the blog format enables community discussion amongst project partners and the wider community which could lead to the production of a best practice or provide useful input to the organisation publishing the case study to steer further development.

Visibility: case studies will be published through the Open Planets Foundation blog and be included as part of the post-project web presence, tagged to enable the discovery of SCAPE content.

Open licensing: case studies will be licensed under Creative Commons - Attribution - Share Alike 3.0 (CC-BY-SA).

4.2 Development outputs

Development outputs are produced when a research activity achieves a defined stage of maturity. Examples include software projects which become a product, or a white paper or series of case studies which become a best practice.

4.2.1 Software (development projects)

Strategic approaches: Quality, Visibility, Training, Open licensing, Community integration

Software projects which survive the evolutionary process of prototyping in the research phase pass into full development and become software products, which implies heightened requirements for ease of adoption through compilation into executable applications and packaging for deployment in

production environments, along with supporting material such as documentation and demonstrators.

All software projects are subject to the maturity model described in Table 3, which defines characteristics of a mature product which has been made available for adoption by institutions other than the originating institution and the levels of support that can be expected. Further sustainability approaches apply to different types of software product, categorised by considering their function and expected use. These are described after the generic approaches. All software source code files and their full change history will remain publicly available after the end of the project:

OPF-Production: software that is in active use in production workflows in one or more memory institutions and is provided with defined levels of support.

OPF-Labs: software which is still under development by an active community but is not in production use, and is not provided with reliable forms of support.

OPF-Attic: software which has been retired, either due to an abandoned approach (where the learning but not the code will be taken forward) or due to a lack of adoption or maintenance.

	OPF-Production	OPF-Labs	OPF-Attic
Community	Active bug reports/fixes Named maintainer Contribution guidelines	Active bug reports/fixes	[no expectation]
Documentation	Source code comments Technical documentation Installation manuals User documentation Microsite	Source code comments Technical documentation	Statement describing why the software has been retired (by original developer or software curator)
Code quality	Test coverage 50% > 80+% Continuous integration Publishing test results	Test coverage c.50% Continuous integration	[no expectation]
Deployment	Build from source Defined platforms Automated packaging (e.g. DEB/RPM/EXE)	Build from source	[no expectation]

	OPF-Production	OPF-Labs	OPF-Attic
Support	Online demonstrator Virtual machine image Training materials	[no expectation]	[no expectation]
Licensing	Defined open source licence	Defined open source licence	Defined open source license

Table 3 Software maturity model

Each of the criteria described in the maturity model represents the application of sustainability approaches to the definition of measurable criteria, as described in Table 4.

	Quality	Visibility	Training	Open licensing	Community integration
Community		X			X
Documentation		X			
Code quality	X	X			
Deployment	X				
Support			X		
Licensing				X	

Table 4 Application of sustainability approaches to software maturity

Quality: all software projects will be hosted on the same public infrastructure (except for specific exceptions discussed below) to ensure consistency across projects. Source code will be hosted on Github, the current community standard for distributed source code repositories. GitHub integrates issue tracking and content management for documentation and static web-sites. Continuous integration is provided by Travis-CI, which is integrated with Github and uses the SCAPE target platform (Ubuntu 12.04 virtual machines) to build projects. Static code quality analysis is performed by Jenkins and Sonar servers, used for nightly builds. The first sustainability meeting recommended the creation of an automated monitoring solution to assess the status of SCAPE projects which led to the development of the project health check webpage [5]. This infrastructure used to host, test, and package SCAPE software will be maintained after the project by the Open Planets Foundation.

Visibility: discovery and adoption of software products is driven by:

- visibility of community (e.g. visibility of bug reports);
- visibility of code quality (e.g. test coverage and public test results);
- supporting material such as documentation and microsities (as described in Table 5).

Documentation	Description	Audience	Author
Source code comments	Embedded within software projects and source code files, describes application logic and programming conventions	Developers	Original developer
Technical documentation	Describes the technical properties of the software: expected inputs and outputs, dependencies, target platforms, etc.	Developers IT Operations	Original developer
Installation manuals	Describes how to implement a product (including build and/or deployment)	IT Operations	Original developer
User documentation	Describes the functionality of a product, including expected input and output, and the user interface	Practitioners Managers	Original developer (with user consultation)
Microsite	Primary landing page for the tool, provides cross-navigation between materials hosted across multiple websites. Includes logos, taglines, functional descriptions, case studies, and other promotional material.	Practitioners Managers	Take-Up sub-project
Tool portfolio	Lists all SCAPE software projects in a single location and provides links to microsites	Practitioners Managers	Take-Up sub-project

Table 5 Software documentation

Training: training materials have been produced targeting different audiences according to the functional type of the tool and expected use. A full description of training materials can be found in the Training workpackage evaluation report. The sustainability approach for these materials can be found in section 4.2.2 Other outputs (Educational resources).

Open licensing: SCAPE partners selected the Apache 2 licence [6] as the licence of choice for project software outputs. Releasing software under an Open Source licence encourages adoption and further development by user and technical communities as well as integration with other open source products. The Apache 2 licence also enables commercial exploitation and integration with proprietary software products. SCAPE has also contributed to existing open source software, for example Taverna Workbench [7] and myExperiment [8] which were already available under alternative licenses.

Community integration: the Open Planets Foundation will work with other SCAPE partners to determine the most appropriate long-term host for outputs which are better aligned with communities other than the Open Planets Foundation member community. Commercial companies who are members of the SCAPE consortium will integrate project outputs into their commercial offerings as part of the project as described in Table 6. The SCAPE approach, loosely defined, will also feed into product roadmaps and support customer definition of requirements for further enhancements to repository products. Additional commercial exploitation will be supported through

SCAPE information days during the lifetime of the project providing overviews of the project outputs, focussing particularly on practical demonstrations of the software products.

Partner	Product	Approach
STFC	raw2nexus (tool) Investigation Research Objects	Hosting by pre-existing community, SCAPE will reference in tool portfolio Integration into ICAT [9] project as a module
Microsoft Research	Azure services for migration and quality assurance	Integration into Azure cloud commercial cloud services portfolio
Keep Solutions	SCAPE APIs Preservation watch (SCOUT) Selected tools	Integration into RODA repository product
Ex Libris	SCAPE APIs Selected tools	Integration into Rosetta repository product

Table 6 Community integration

Tools

The definition of a tool is in the spirit of the Unix philosophy [10]: a tool should do one thing well. In the context of SCAPE, tools are small functional components that are expected to be integrated into preservation workflows and repository systems. Often, they provide content-specific functionality, such as format identification or validation, or quality assurance. Tools are packaged for deployment by adopting institutions onto defined target platforms in local environments to lower the barriers to integration into production repositories.

Workflows

SCAPE workflows are developed using the open source workflow management software Taverna [11]. Workflows wrap tools and can themselves be nested within larger workflows, providing the ability to chain tools together to provide a flow of content through a series of separate processing actions. Workflows may be shared between institutions working with similar collections who wish to implement a specific approach. The myExperiment [12] service provides hosting for Taverna workflows where they can be shared for reuse by other Taverna users.

The myGrid [13] team will continue to support and develop the workflow suite of software, specifically:

- Taverna (workflow design and execution);
- myExperiment (workflow hosting and sharing).

Systems

Systems are generally more complex to install and use than tools, and provide integrating functionality to provide interoperability between tools and/or other systems, and/or graphical user interfaces. Systems often need bespoke configuration and require more advanced technical skills to implement.

Systems may be treated purely as a reference implementation or they may be hosted as a central service by a named project partner. The benefit of such services lies in developing a community resource that collects and distils shared knowledge. A good example is the relationship between Wikipedia (the service) and MediaWiki (the system). While users might set up their own Wiki for specific purposes, Wikipedia itself would be a less useful service if everyone set up their own small instance. The following systems will be candidates for services hosted after the end of the project:

- PLATO (preservation planning): hosted by TU Wien [14];
- SCOUT (preservation watch): hosting to be investigated by Open Planets Foundation.

APIs

SCAPE APIs define interactions between software components, which can be used to implement integrations between tools, workflows, or systems for example within repository products. SCAPE APIs are implemented by systems including PLATO and SCOUT as well as by repository products provided by commercial partners.

4.2.2 Other outputs

Strategic approaches: Quality; Visibility; Open licensing

Other development outputs include educational resources to support skills development, best practices describing the application of a certain approach or software product, sample business cases describing benefits, risks, and costs, and a catalogue of common preservation policy elements.

The maturity of other outputs is ensured through community review:

- project review process for all deliverables by reviewers external to the workpackage;
- community review of requirements and case studies via wiki/blog (comments/discussions);
- training delivery reviewed by event participants;
- publications are subjected to peer review by conference panels and journal editors;
- user group reviews deliverables to ensure fit to purpose for memory institutions.

Educational resources

The online educational resources comprise:

- presentations (broadcasting expert knowledge);
- webinars (interactive presentation and discussion sessions);
- exercises (guided learning outcomes using specific tools);
- reading lists (for self-guided study);
- online and virtual machine demonstrators.

Quality: training materials are designed to target specific learning outcomes for multiple audiences; where possible, face-to-face events have been recorded to complement online materials designed for that medium to give a comprehensive post-project resource covering all aspects of the SCAPE themes.

Visibility: all educational resources will be hosted on the post-project web presence, categorised using project themes to support discovery by target audiences.

Open licensing: educational resources will be licensed under Creative Commons - Attribution - Share Alike 3.0 (CC-BY-SA).

Best practices

Best practices were developed by identifying shared problem spaces and alignment of practice as demonstrated through white papers and local case studies. They represent community consensus on an agreed approach, which should deliver efficiency and consistency to memory institutions thereby supporting their sustainability through adoption and implementation.

Quality: best practices represent the emergence of consensus from individual case studies (or 'good practice') and are therefore subject to greater community review. Public hosting will encourage further development through sharing of additional case studies which could support an update to an existing best practice.

Visibility: best practices will be hosted on the post-project web presence with metadata and indexing to support discovery by target audiences.

Open licensing: best practices will be licensed under Creative Commons - Attribution - Share Alike 3.0 (CC-BY-SA).

Sample business cases

Sample business cases describe the benefits, risks, and costs associated with implementing specific products, in order to support managers within memory institutions in making the case for adoption. To ensure alignment with business practices the topics were chosen in consultation with the User Group to be representative of the breadth of SCAPE outputs.

The sample business cases will be included within the Digital Preservation Business Case Toolkit (DPBCT) [15] which was produced by the JISC-funded SPRUCE project [16] (a community co-ordination activity providing support for digital preservation in the UK). The DPBCT is currently hosted by the Digital Preservation Coalition (UK) [17] to ensure its long-term sustainability.

Quality: the User Group will define the topics of the sample business cases to ensure alignment with the needs of memory institutions; and the sample business cases will benefit from the broader context of support provided by the DPBCT:

- a step-by-step guide to building a business case;
- template(s) for building a business case, derived from examples provided by partners in the SPRUCE project and attendees at project events;
- an FAQ (when, why, what, who, and how?);
- case studies from institutions of different scales of operation and business contexts;
- additional resources (example usage of benefits frameworks and cost models).

Visibility: embedding the SCAPE business cases within the DPBCT will make them available as case studies to users of the toolkit who are making the case for digital preservation within their institutions.

Open licensing: the sample business cases (and the DPBCT as a whole) will be licensed under Creative Commons - Attribution - Share Alike 3.0 (CC-BY-SA) to encourage reuse and community contributions beyond the life of the project. The SCAPE contributions to the existing toolkit demonstrate the benefit of this approach.

Catalogue of policy elements

The Catalogue of Policy Elements supports automated workflows for preservation watch and planning, enabling organisations to create and update local preservation policies. Originally produced as a report it was migrated to a wiki to improve accessibility and enable community feedback.

Quality: the catalogue of policy elements will be hosted on a public wiki to encourage community contributions beyond the life of the project; the original creators will act as moderators to review contributions.

Visibility: the catalogue of policy elements will be hosted on the post-project web presence with metadata and indexing to support discovery by target audiences.

Open licensing: the catalogue of policy elements will be licensed under Creative Commons - Attribution - Share Alike 3.0 (CC-BY-SA).

4.3 Post-project web presence

The public presentation of SCAPE outputs is fragmented across multiple web presences and third-party services, making it important to provide integrated and consistent forms of discovery and navigation. Due to partner interest and focus, certain audiences tend to be served well (generally the expert and technical communities are already familiar with the project and its outputs) while additional audiences need to be provided with the right information to support discovery and adoption.

A new information architecture and set of templates will be produced for the post-project web presence, providing a structured integration of content presented through the Open Planets Foundation and SCAPE web presence and third-party services. The value produced by the project will become a prominent pillar in the presentation of the Open Planets Foundation Centre of Competence, alongside the PLANETS project, maximising the visibility and uptake of outputs within the sustainable membership community. Discovery and navigation will be optimised through the expertise of user experience designers practiced in the online presentation of complex information for web-scale discovery and navigation resulting in the integration of outputs in meaningful, structured ways.

The outputs of the project will form a significant part of the long-term Open Planets Foundation web presence. As well as being largely responsible for populating two of the current sections (Software and Projects, alongside PLANETS) and the majority of hosted, Open Planets Foundation branded third-party services (Github, Jenkins/Travis, etc.) there is a significant presence in other sections including Community and Events. Presenting an integrated and well-designed web presence will stimulate confidence in the sustainability of SCAPE outputs and facilitate discovery and adoption.

5 Conclusion

The sustainability plan describes the complementary roles of the various project consortium members and the approaches taken by the project to ensure adoption and continued support for its outputs.

The sustainability approaches ensure the quality and maturity of outputs, their visibility to appropriate communities, support for staff implementing the software products or approaches, open licensing to encourage ongoing open-source development as well as commercial exploitation, and community integration to align ongoing efforts with well-articulated and evidence-led requirements.

Responsibilities of project partners beyond the life of the project are described in Table 7.

Partner	Responsibility	Applies to	Timescale*
OPF	Design and launch post-project web presence	All products	During
OPF	Lead curation of software outputs according to the software maturity model	Software	During
OPF	Host project outputs and support ongoing open-source development by the community	All products	After
AIT	Lead curation of non-software outputs and transfer from project hosting to post-project web presence	Textual outputs	During
STFC	Integrate raw2nexus and Investigation Research Objects into existing open-source projects and communities	raw2nexus Investigation Research Objects	During
EXL KEEPS MSR	Provide service offerings integrating SCAPE outputs	SCAPE APIs Selected tools and systems	After
UNIMAN	Continue to support Taverna and myExperiment (through the myGrid community)	Taverna myExperiment	After

Table 7 Partner responsibilities

* Timescale can be During (pre-project-end) or After (post-project).

6 References

1. The Business Model Canvas: <http://www.businessmodelgeneration.com/canvas>
2. Managing Digital Preservation Seminar: <http://wiki.opf-labs.org/pages/viewpage.action?pageId=37159017>
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4. Creative Commons License: <https://creativecommons.org/licenses/by-sa/3.0/>
5. Open Planets Foundation project health check: <http://projects.opf-labs.org>
6. Apache 2 License: <http://www.apache.org/licenses/LICENSE-2.0.html>
7. Taverna license: <http://www.taverna.org.uk/about/legal-stuff/taverna-licence/>
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