Open Planets Foundation

Plato Preservation Planning

Bram van der Werf

Problem Statement

- Today major memory institutions, despite being the major stakeholders and thought leaders in the field of long term access and digital preservation, suffer from fundamental lack of mature tools and production services

- Commercially available standard solutions do not fit the specific requirement for a long-term strategy while bespoke custom made solutions are too costly

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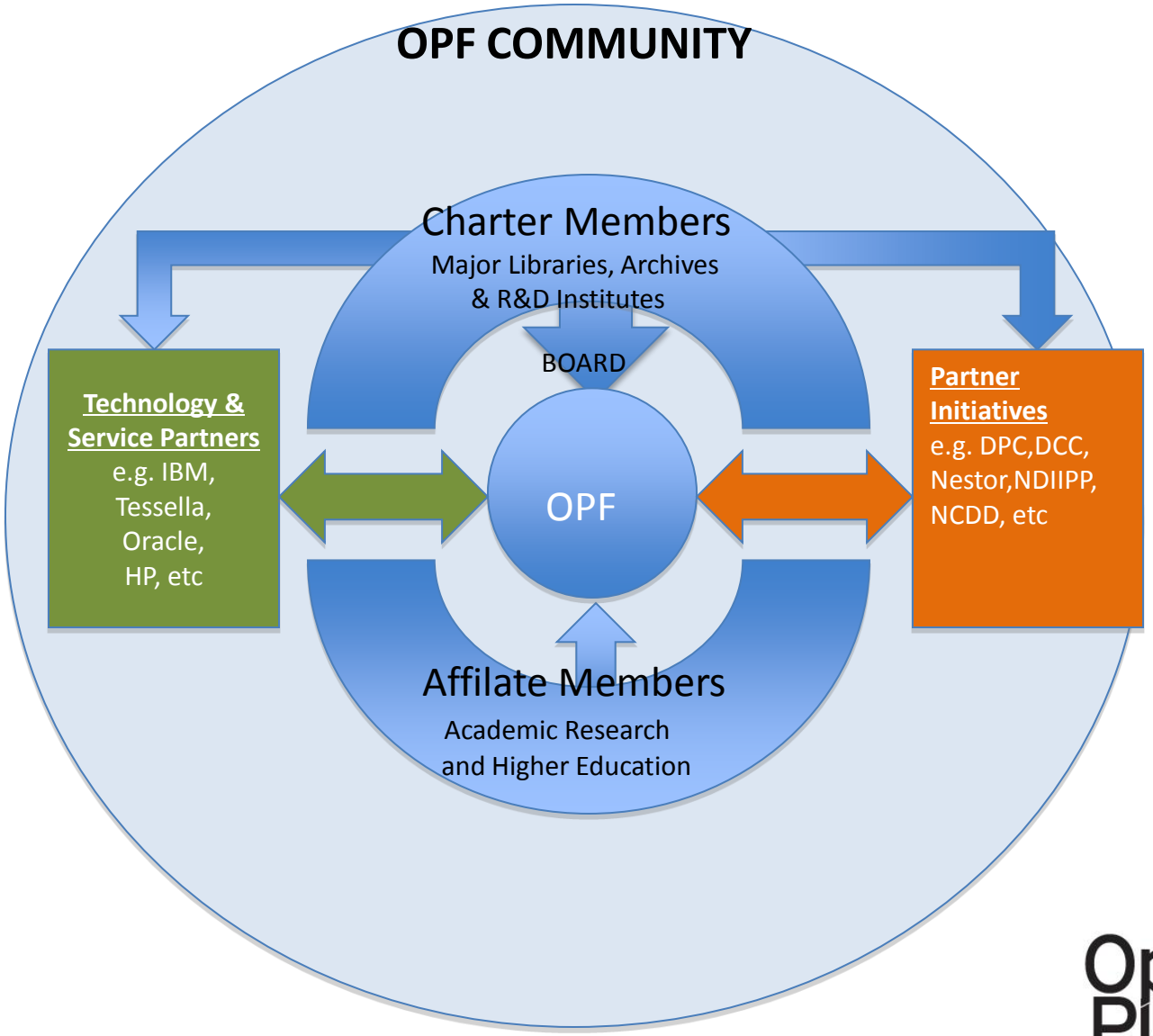

Open Planets Foundation

About OPF and its Products & Services

- Meet digital preservation needs of archives and libraries at national scale.
- Are focused on practical solutions.
- Provide functional products and services, which are open, extensible and non proprietary.

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OPF provides stewardship

- Assure development & maintenance of a comprehensive DP tools and long term access services (Requirements)
- R&D outcome, mature prototypes & demonstrators (Process e.g. RUP, SCRUM)
- Support relevant Open Source initiatives
- Academic Research & Higher Education, work on an academic HE curriculum for DP
- Promote partnerships (technology & services business), take-up and sustain

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Requirements & Collaboration

- Practitioners Community
  - www.openplanetsfoundation.org
  - Wiki
  - Expert blogs
- Developers Collaboratory
  - www.opf-labs.org
  - Version management, issue tracking, continuous integration, peer reviewing, knowledge base/wiki

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Long term access Challenges

- Bit preservation, digital longevity
- Rendering of formats
- Increased complexity of objects (dbases, web-archiving, games, etc)
- “Tsunami” of digital objects

  - Solutions?!?!?!
    - Storage, cloud solutions, etc, etc….
    - Emulation, migration
    - standardization

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Long Term Access & Preservation vs Industrial Innovation

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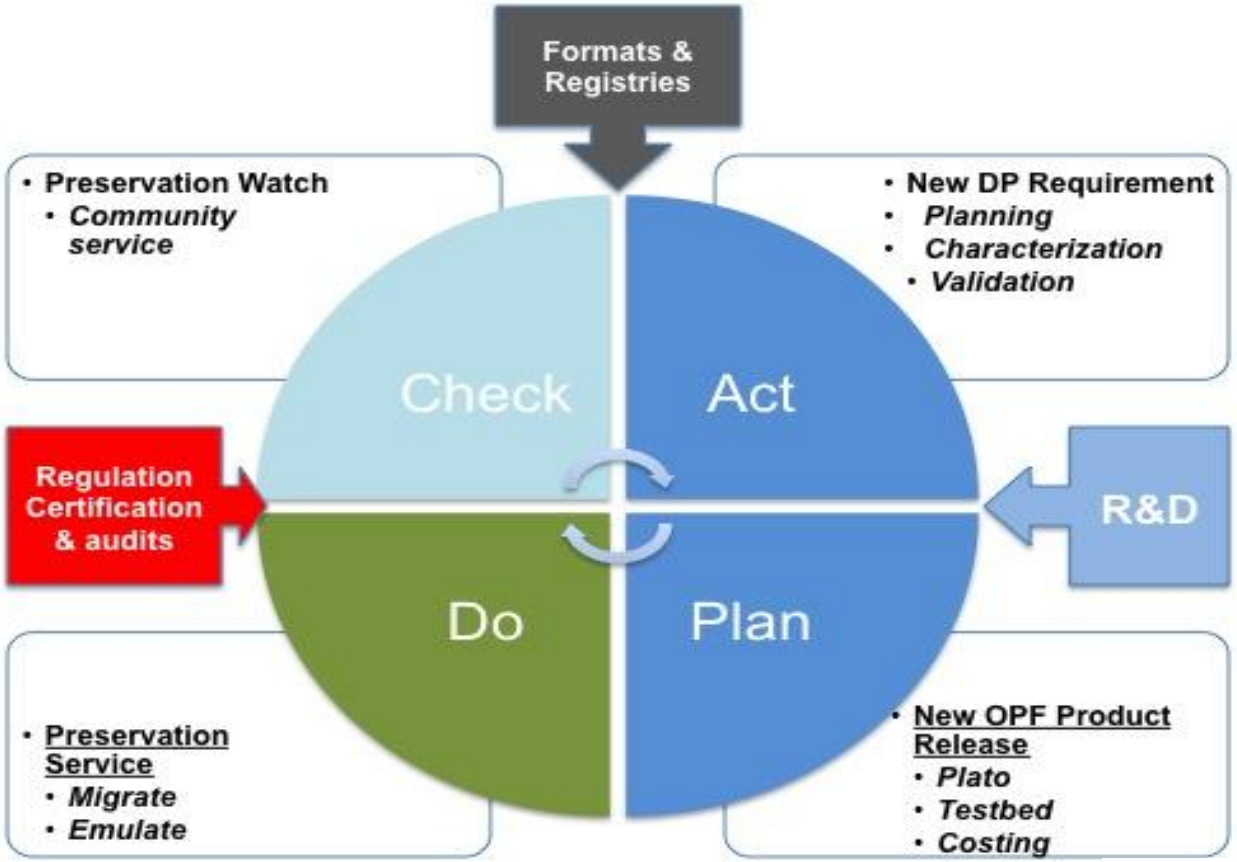
The Deming PDCA Circle



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The Planets Planning Tool Plato

- Web based planning tool implementing the Planets preservation planning workflow
- Publicly available
- Automation of the planning process
  - Integration of registries and services for
    - File format identification
    - Preservation action (migration, emulation…)
    - Characterisation and comparison
- Knowledge base to support planning

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What is a preservation plan?

- ‘A ***preservation plan*** defines a series of preservation actions to be taken by a responsible institution to address an identified risk for a given set of digital objects or records (called collection).‘

- The Preservation Plan takes into account the preservation policies, legal obligations, organisational and technical constraints, user requirements and preservation goal. It also describes the preservation context, the evaluated alternative preservation strategies and the resulting decision for one strategy, including the rationale of the decision.

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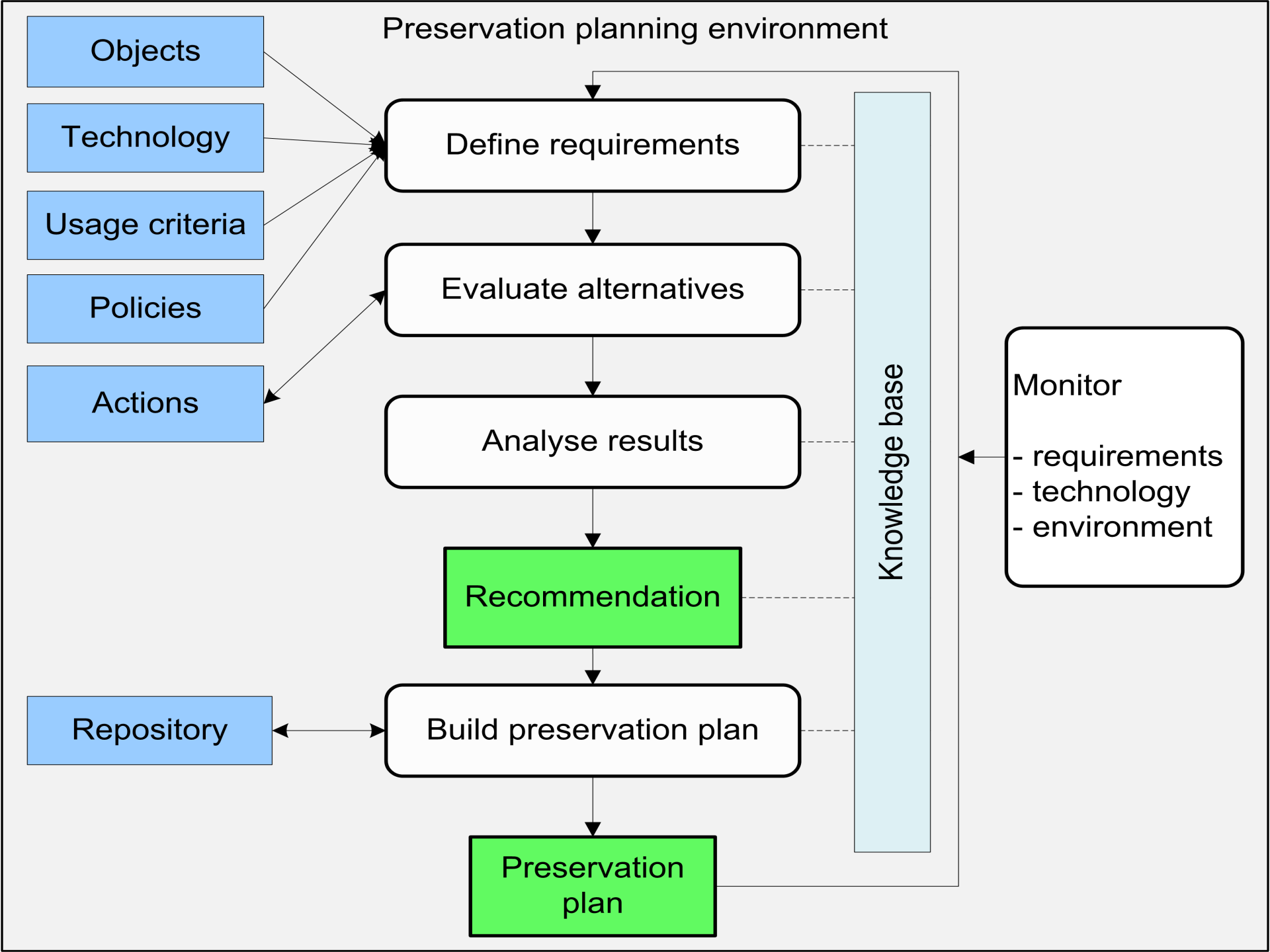
Preservation planning environment
Objects
Technology
Usage criteria
Policies
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Define requirements
Evaluate alternatives
Analyse results
Recommendation
Build preservation plan
Preservation plan
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Knowledge base
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The Developers View on the process

- Got to the online Plato Tool

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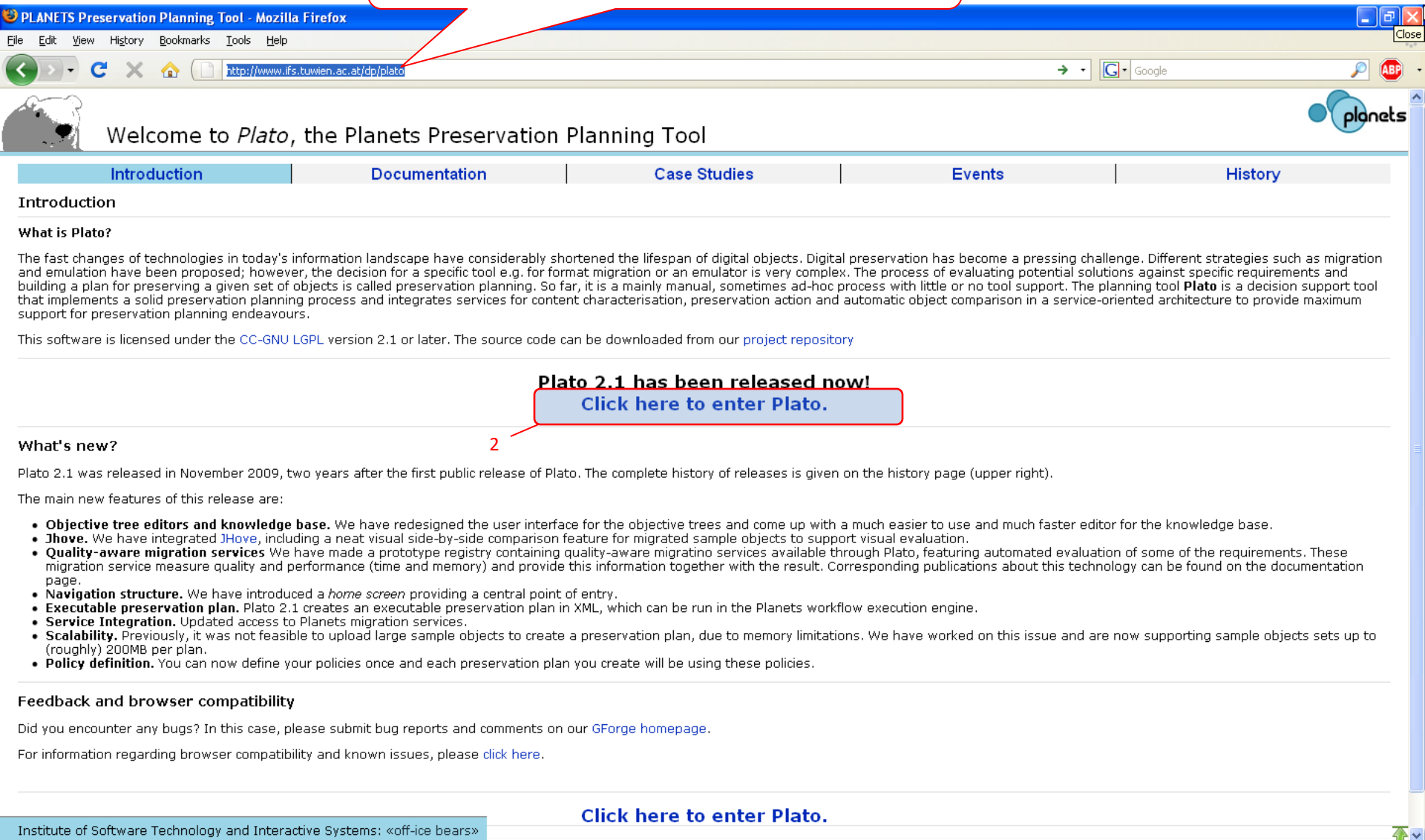
How to enter Plato Online Prototype

http://www.ifs.tuwien.ac.at/dp/plato



Plato Welcome Page

PLANETS Preservation Planning Tool *(Plato)*

[logout Hannes] [feedback] [help]

Plan

Home

Welcome to the Home screen of Plato. You can always reach this screen by clicking on the polar bear in the upper left.

Actions

1 2 3

List my preservation plans

List public preservation plans

New plan

Define policy

Documentation

4 5

Information

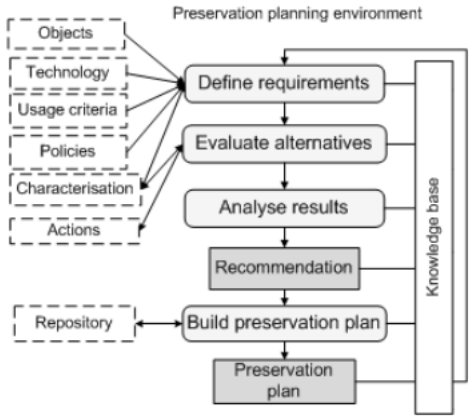
How to start?
If you are unsure to how to get started, we recommend to do the following:

1. Take a look at the definition of the preservation plan at the documentation page,
2. Read through the description of the preservation planning procedure (below), and then
3. Create a *demo plan* in the list of plans, and walk through the steps to familiarise yourself with the procedure and tool.
4. If you have any questions, comments, or ideas, please let us know!

Below you find an abstracted diagram of the principal structure of the Planets preservation planning environment.

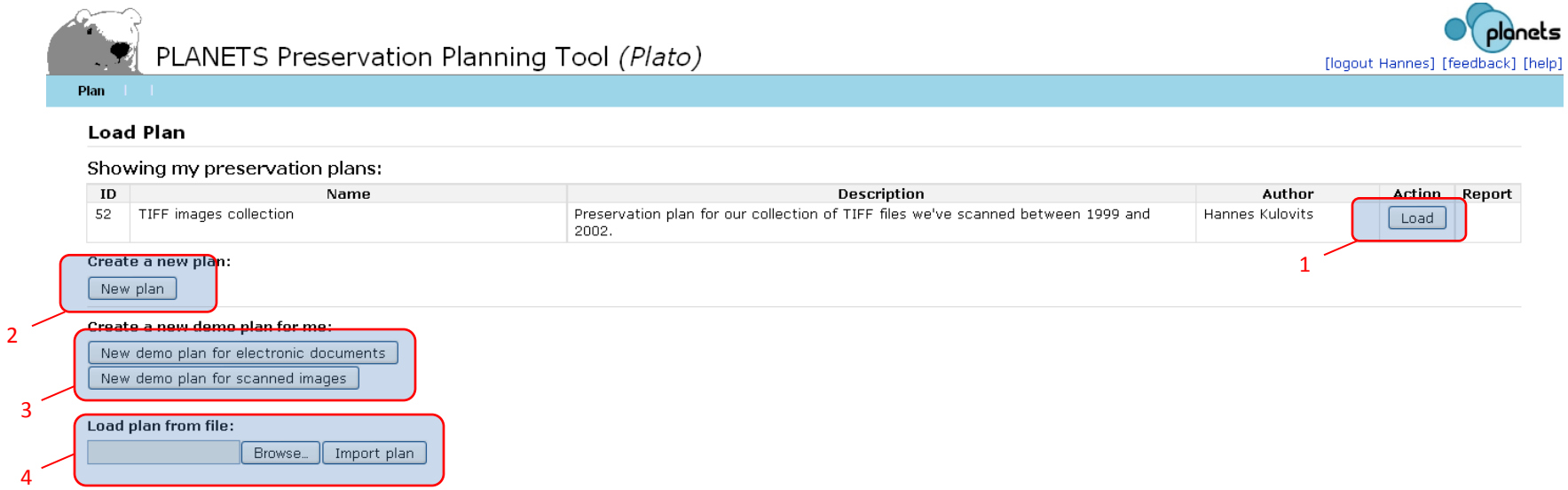
The planning procedure is completely supported by Plato, relying on a variety of information sources and services. When you load a plan, you will find four menu items on the top which correspond to the four planning phases:

1. Define requirements,
2. Evaluate alternatives,
3. Analyse results, and
4. Define preservation plan.

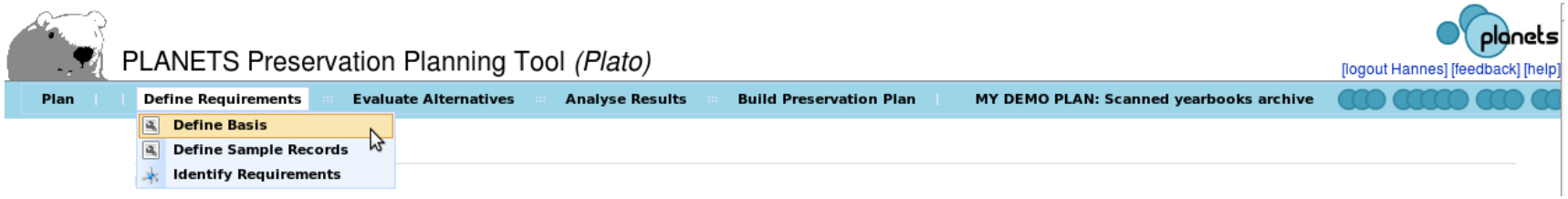


More about the planning workflow

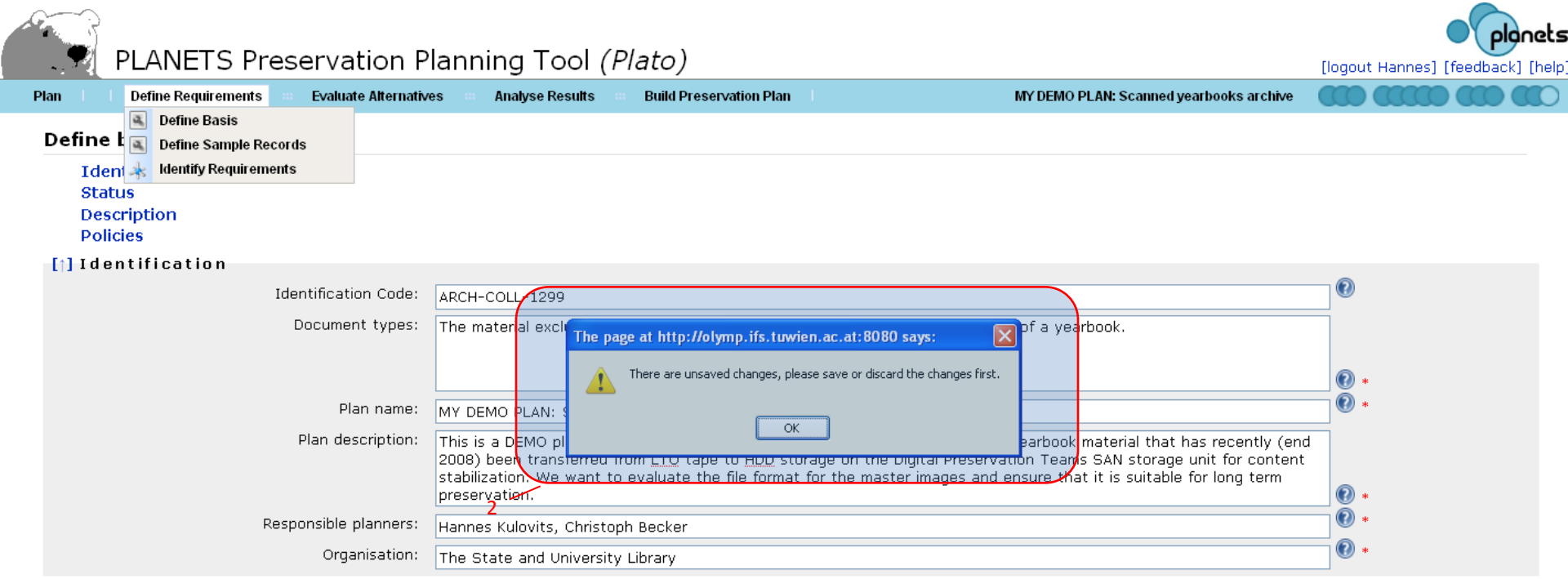
List of Preservation Plans



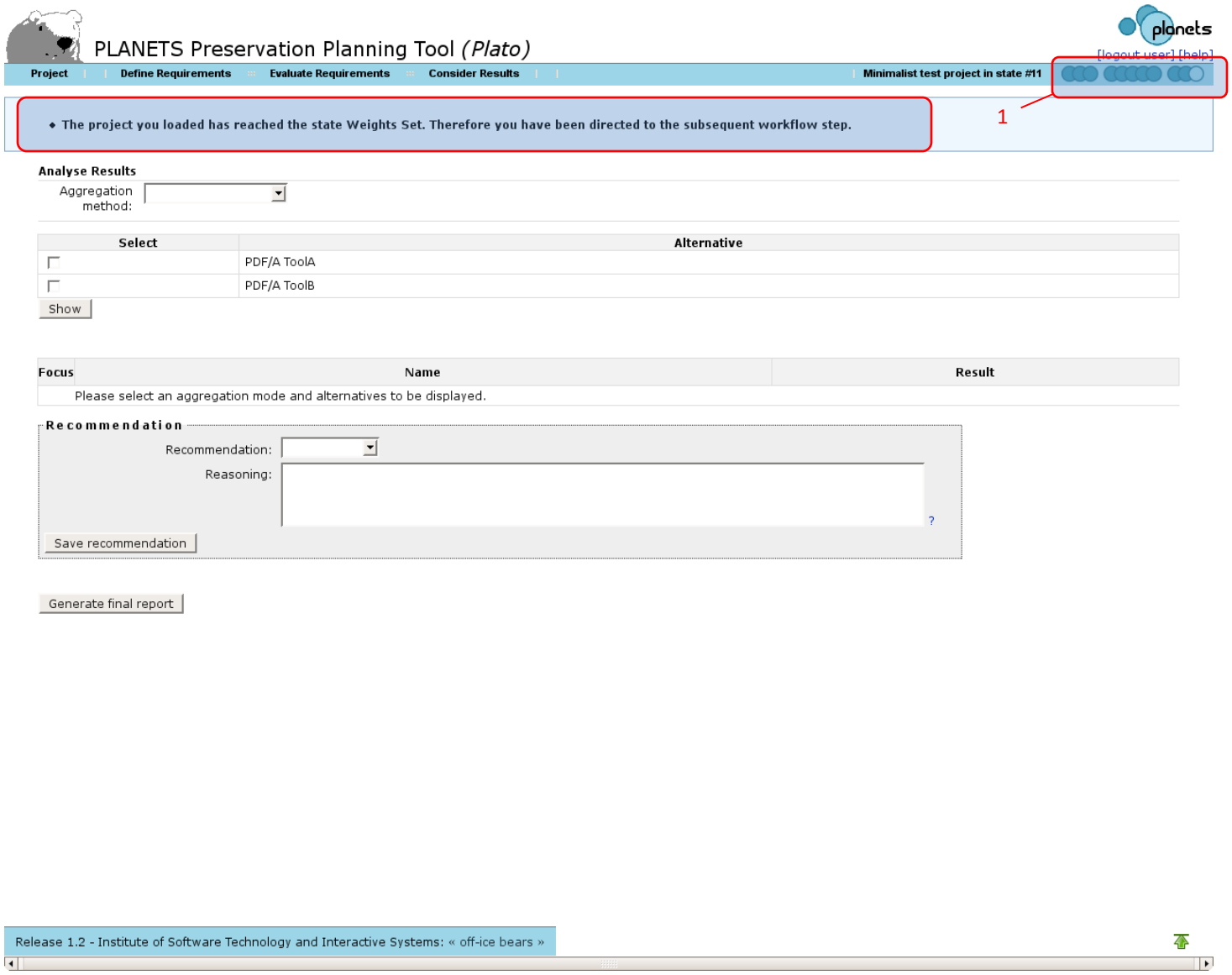
Navigation


PLANETS Preservation Planning Tool (Plato)
planets
[logout Hannes] [feedback] [help]
Plan
Define Requirements
Evaluate Alternatives
Analyse Results
Build Preservation Plan
MY DEMO PLAN: Scanned yearbooks archive
Define Basis
Define Sample Records
Identify Requirements

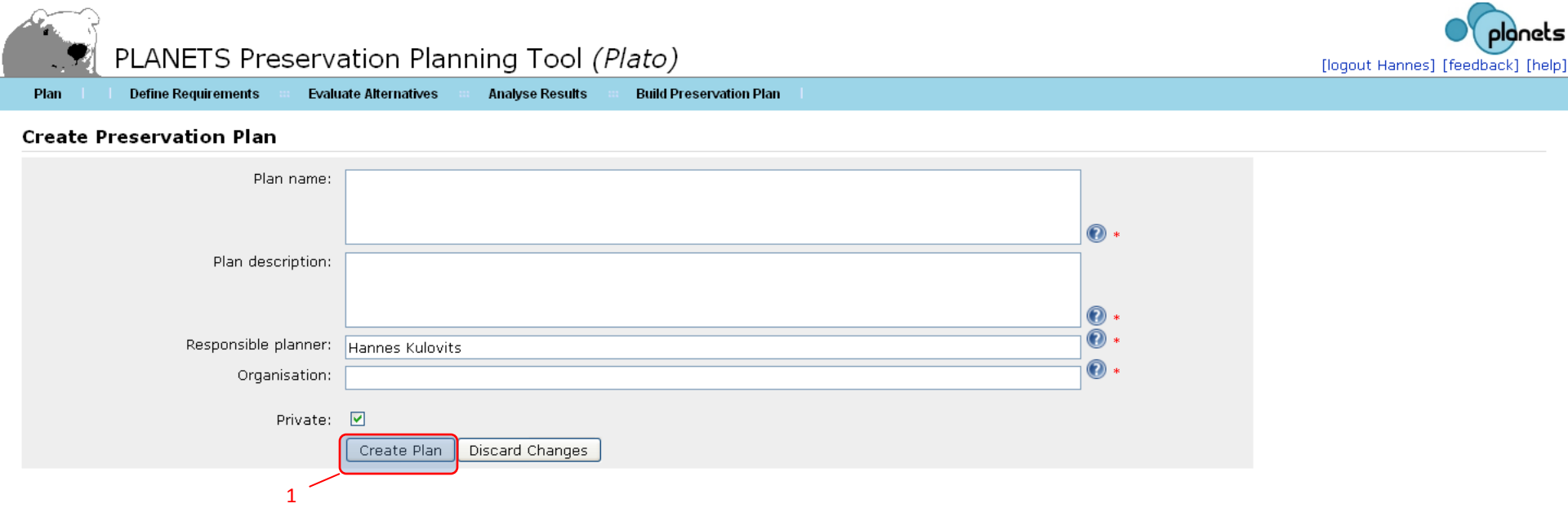
Unsaved Changes

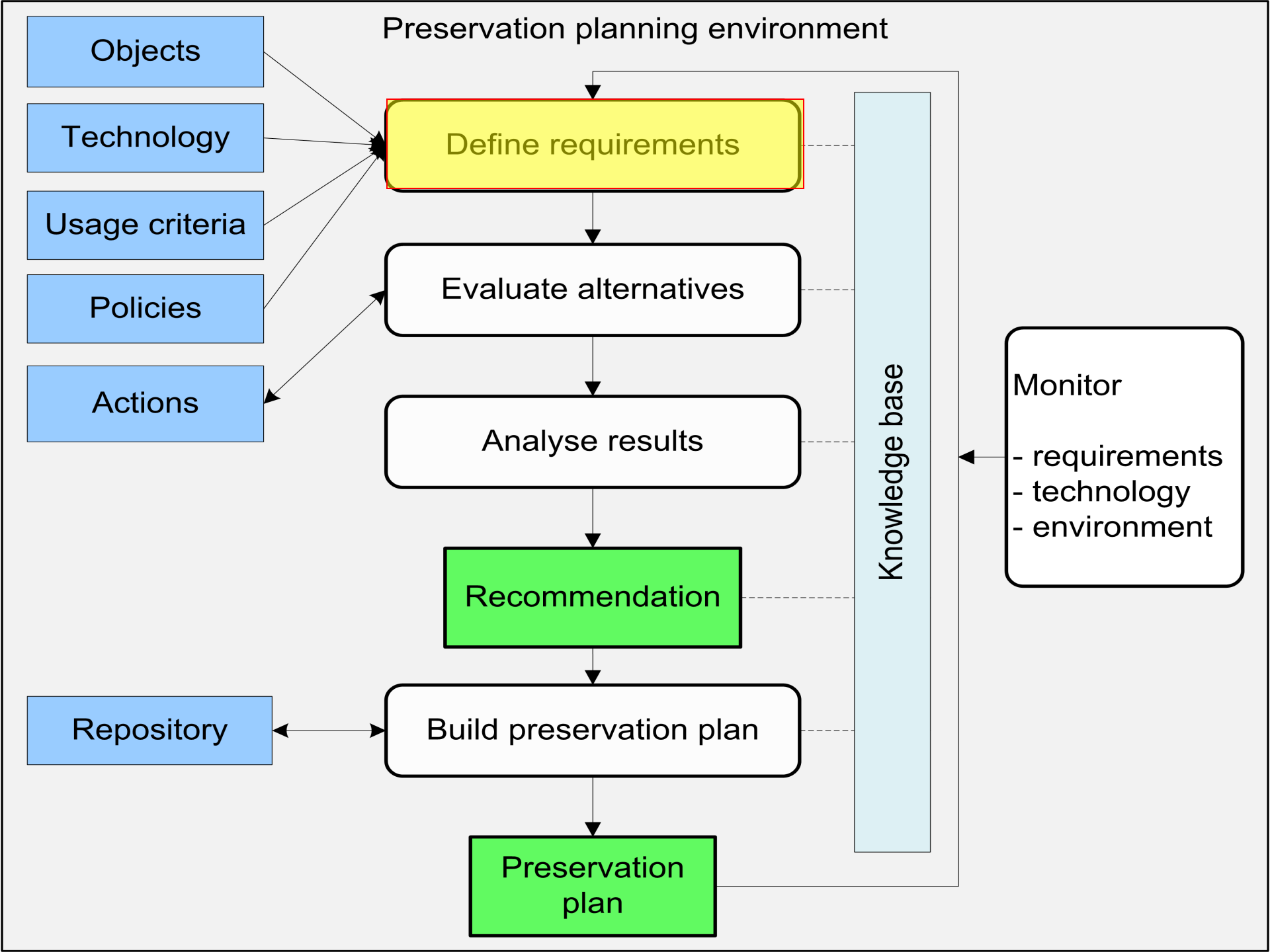


Loading a Preservation Plan



Creating a new preservation plan

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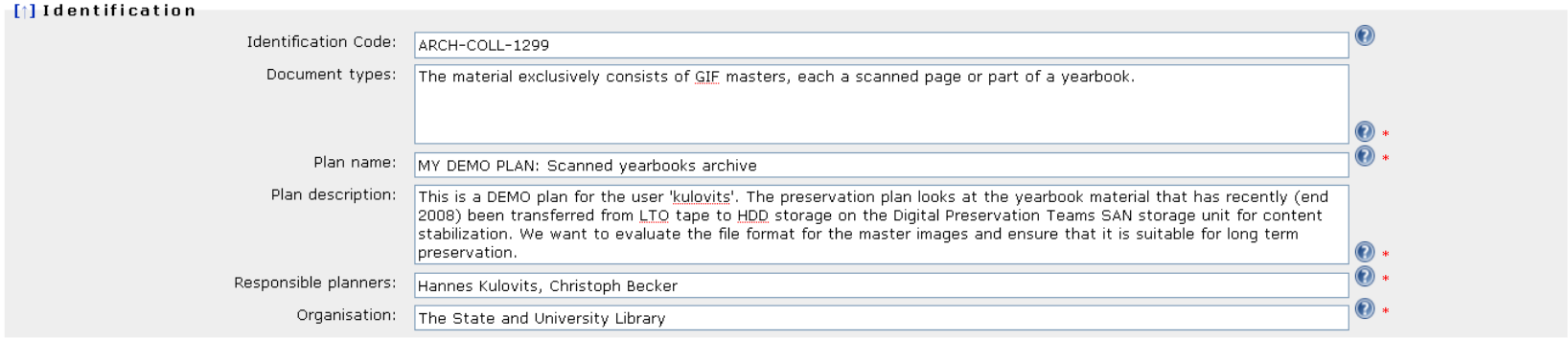
Define Basis: Identification

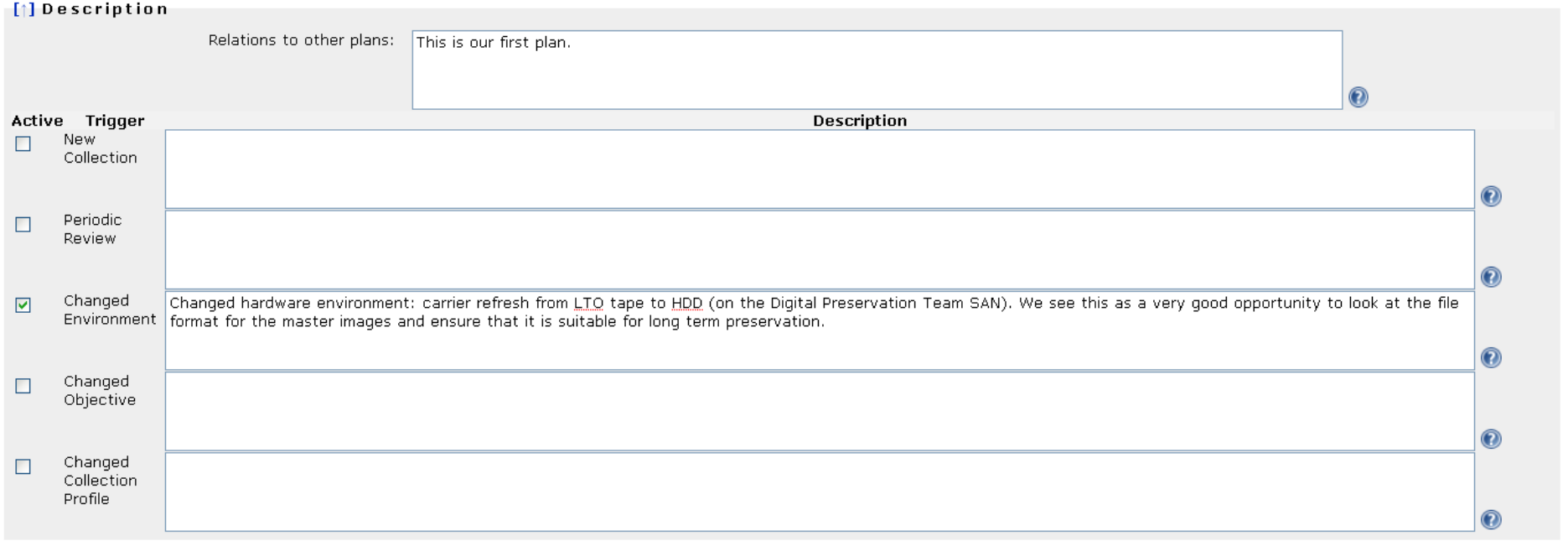


Define Basis: Status

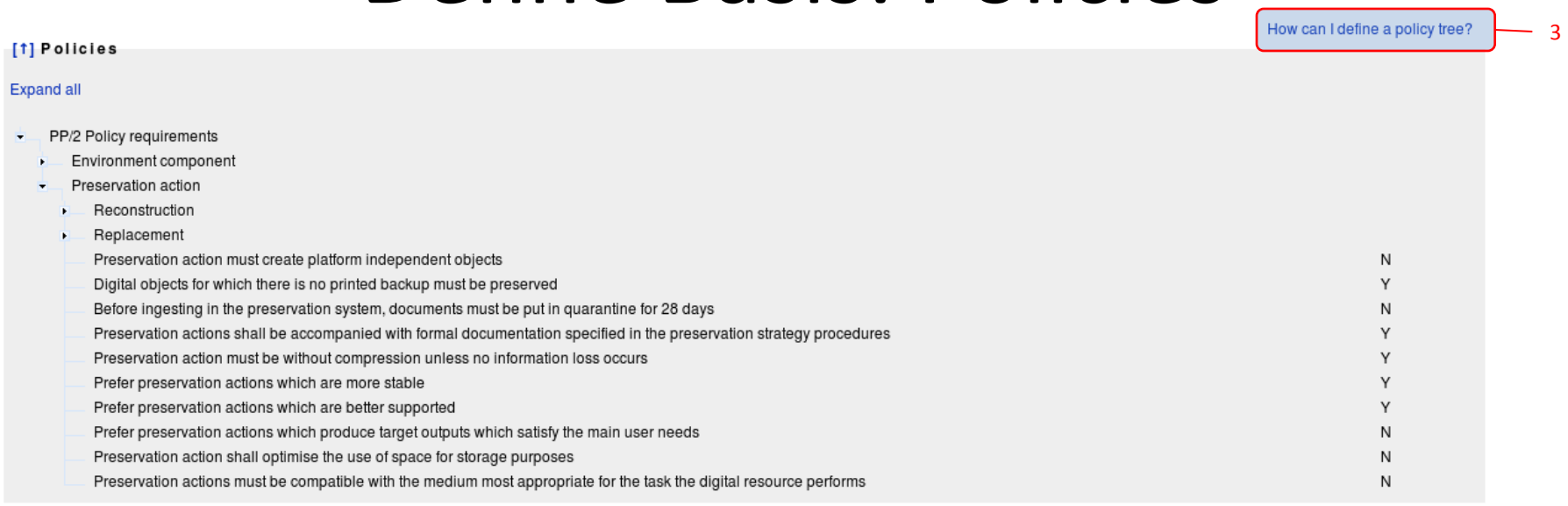
[↑] Status

Mandate (e.g. Mission statement):	The mission of The State and University Library is to preserve our states cultural heritage in the form of any publication, whether it is printed or recorded, for the future.
Planning purpose:	The purpose of this plan is to find a strategy on how to preserve this collection for the future, i.e. choose a tool to handle our collection with. The tool must be compatible with our existing hardware and software infrastructure, to install it within our server and network environment. The files haven't been touched for several years now and no detailed description exists. However, The State and University Library has to ensure its accessibility for the next years.
Designated community:	General public.
Applying policies:	See policy model.
Relevant organisational procedures and workflows:	Library account is needed for access.
Contracts and agreements specifying preservation rights:	Copyright held for the physical material. Legal mandate implies that transforming logical representation of the content is allowed.
Reference to agreements of maintenance and access:	None.

Define Basis: Description



Define Basis: Policies



Define Sample Records: Collection Profile

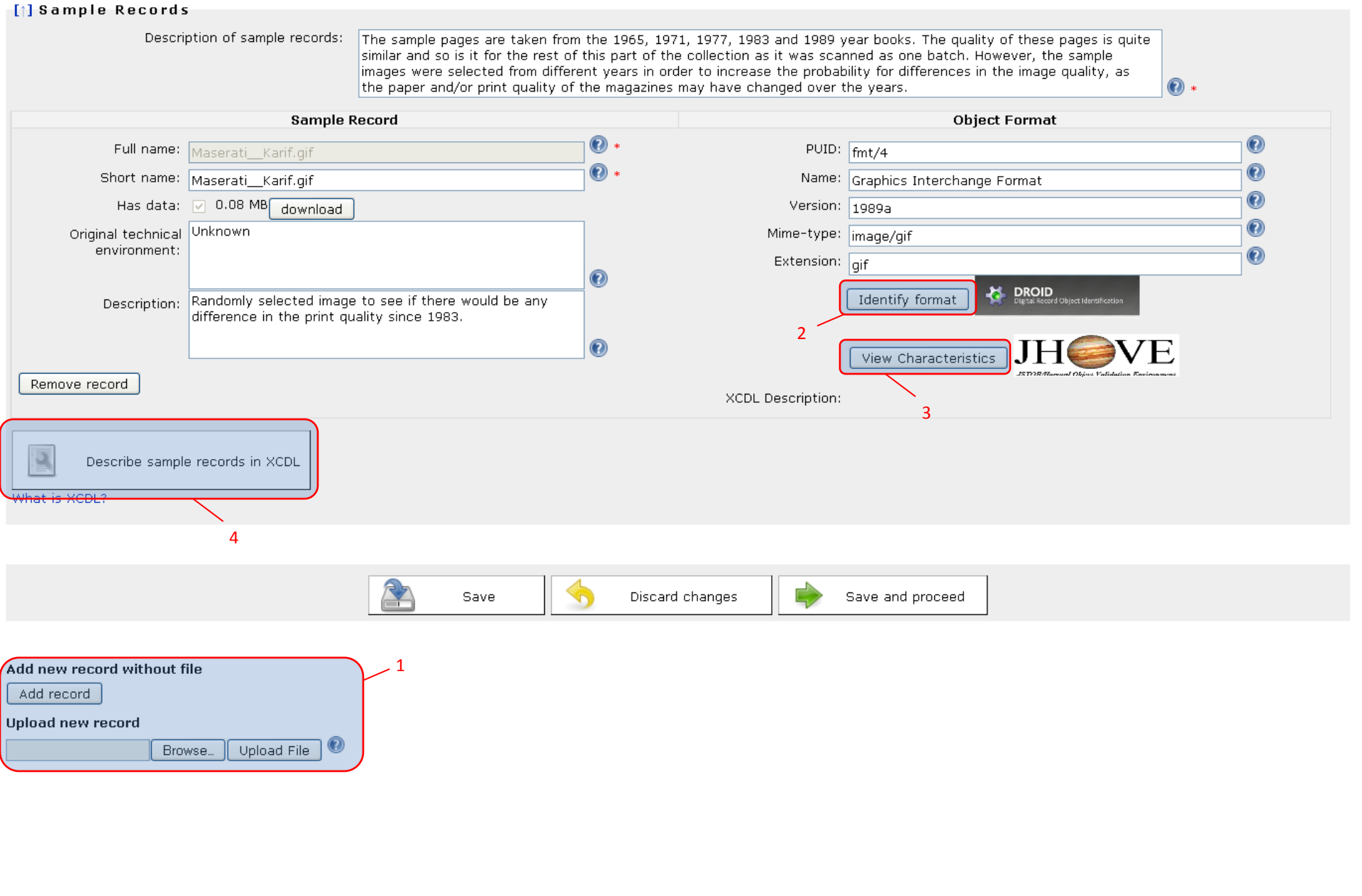
Define Sample Records

Collection Profile
Sample Records

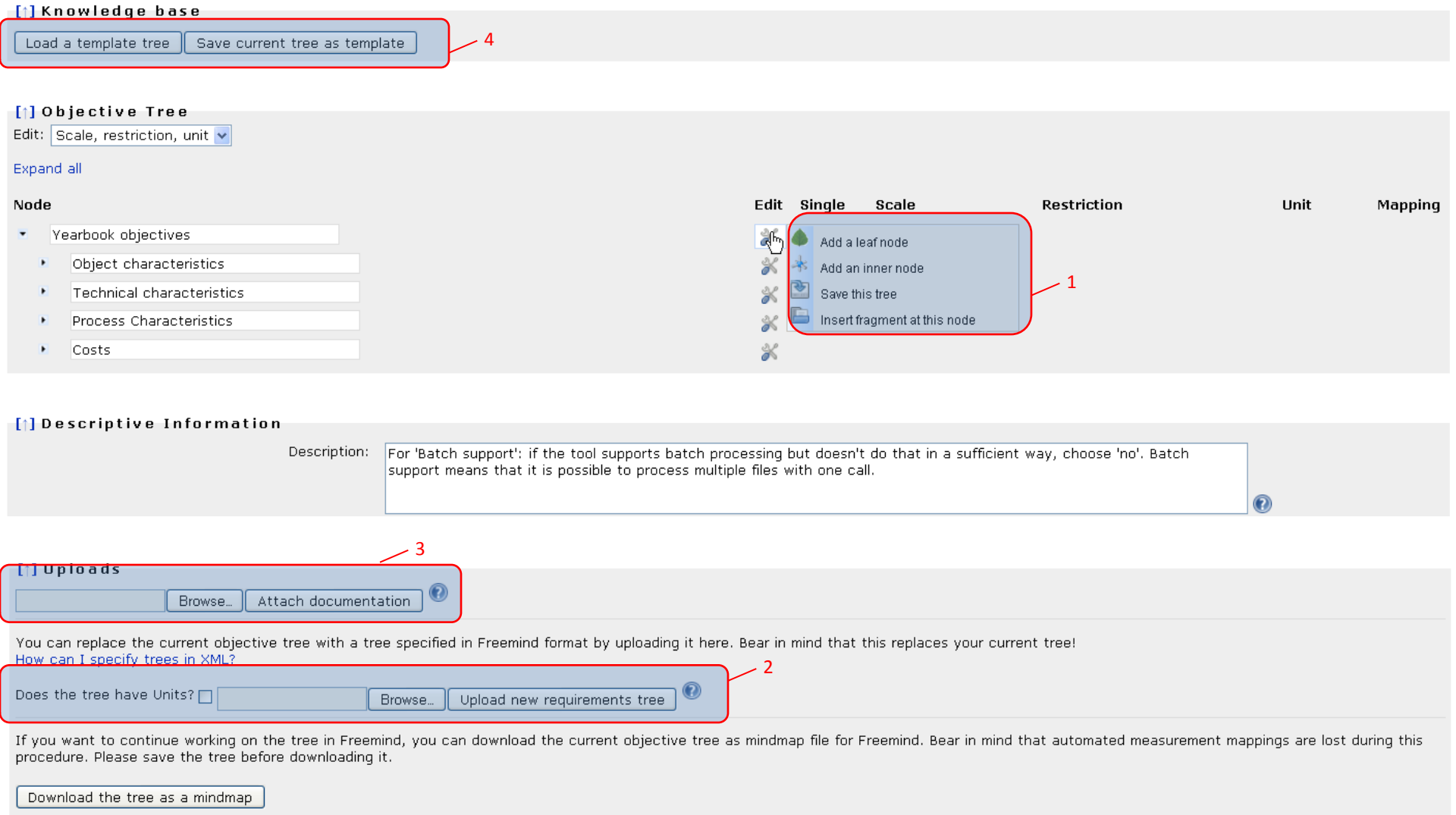
[↑] Collection Profile

Collection ID:	Yearbook-collection-TSL-1200
Description:	The first part of the yearbook collection of the Danish car periodical "Bil-Revyen". This part contains the yearbooks published in the years 1965-1989.
Type of objects:	This part of the collection consists of GIF files.
Number of objects:	9000
Expected growth rate:	No magazines have been scanned since 2006 and when the scanning is resumed then they will be scanned directly to the preservation format TIFF. Thus, the future growth of one magazine per year will not be related to this preservation plan.
Retention period (time horizon):	

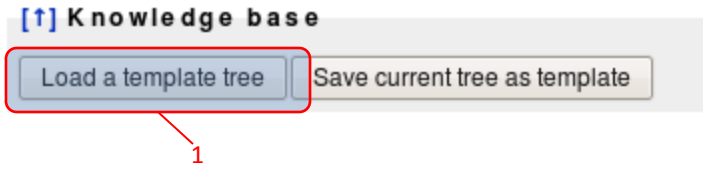
Define Sample Records: Sample Records

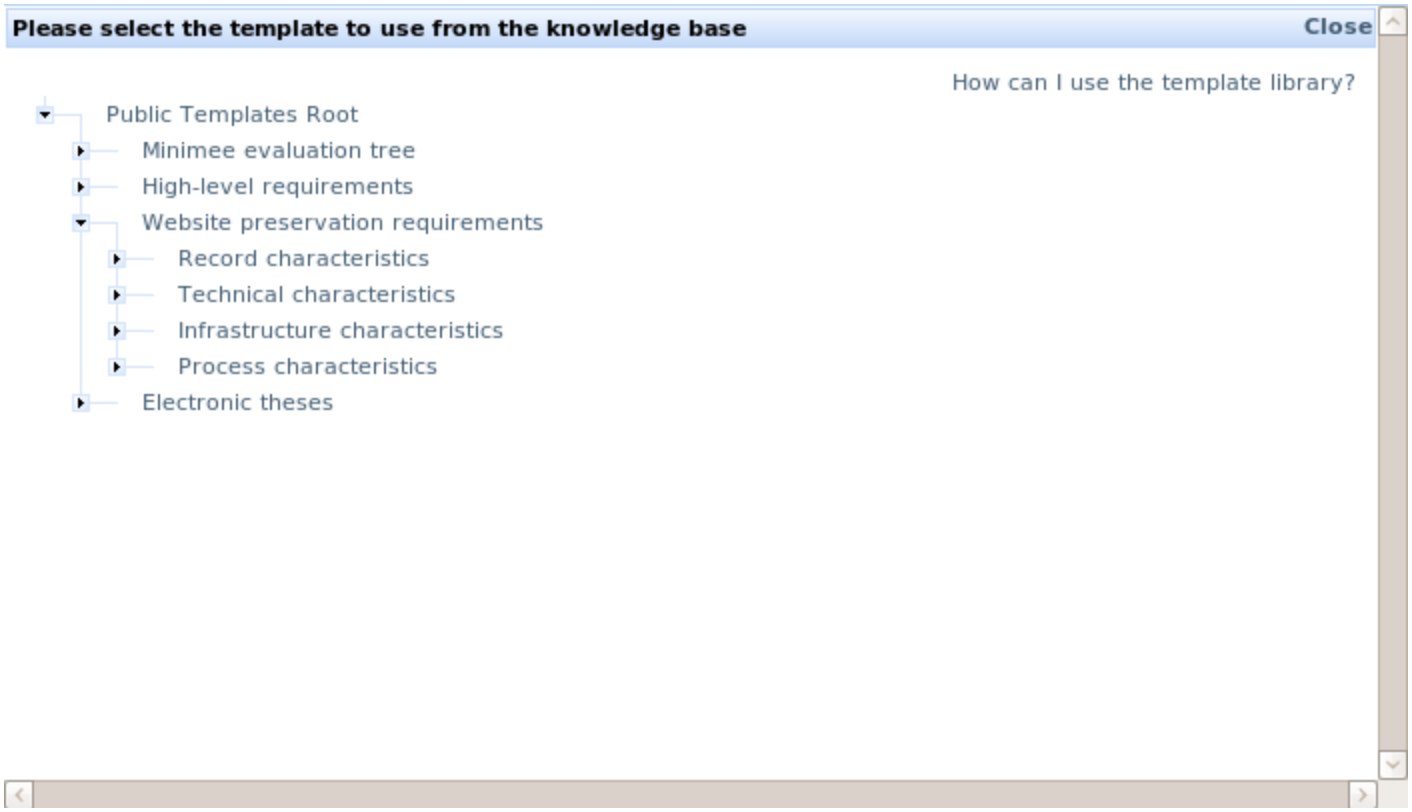


Identify Requirements: Objective Tree

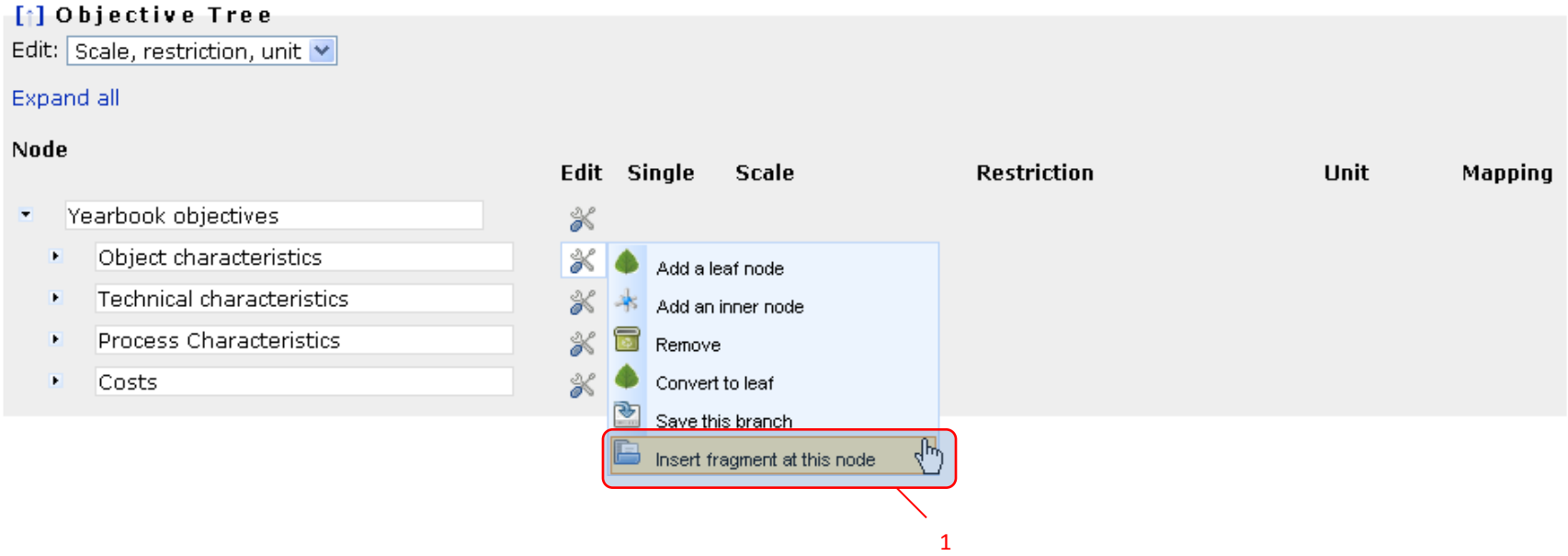


Using a template

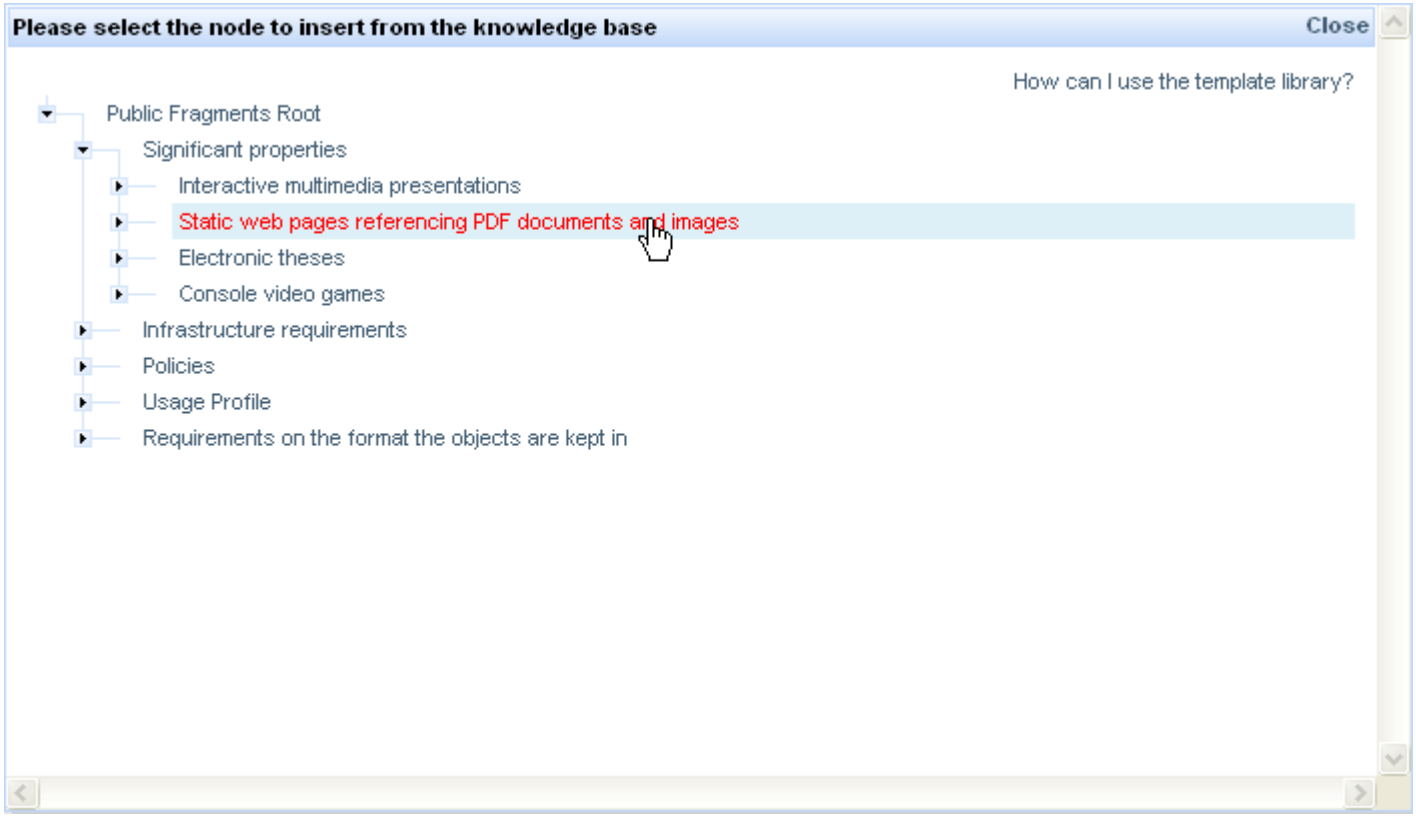




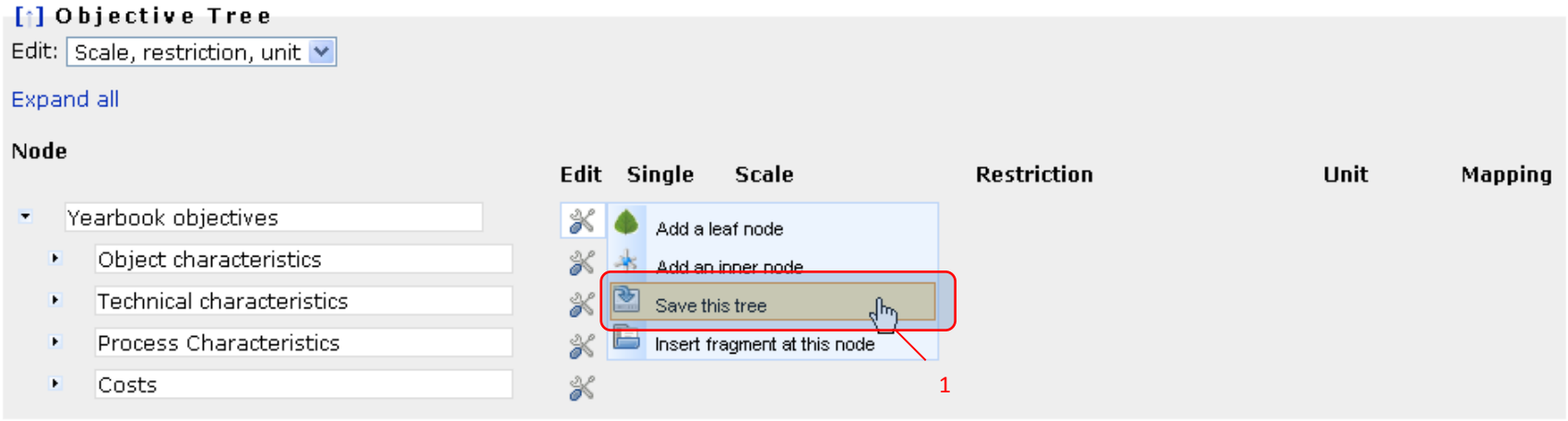
Using a fragment (1/2)



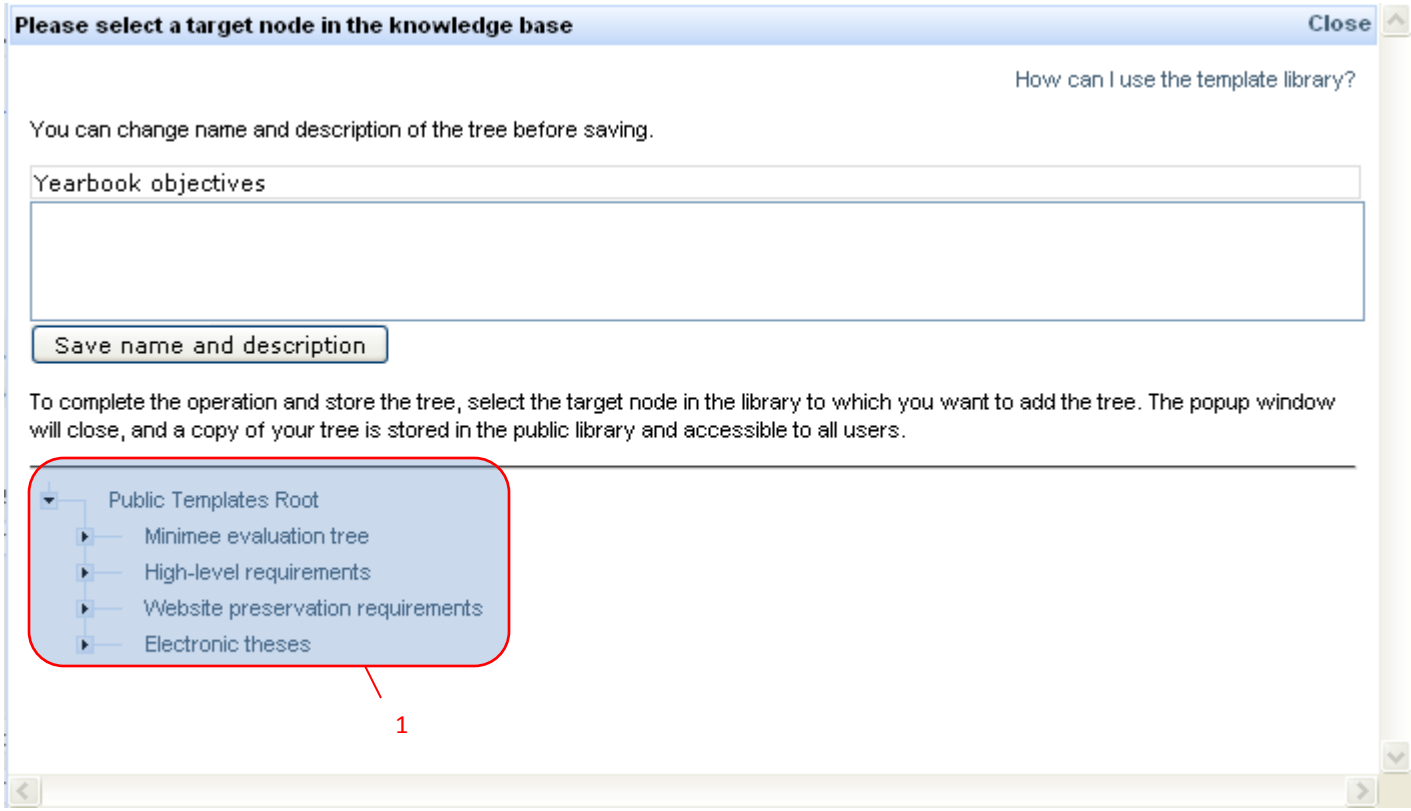
Using a fragment (2/2)



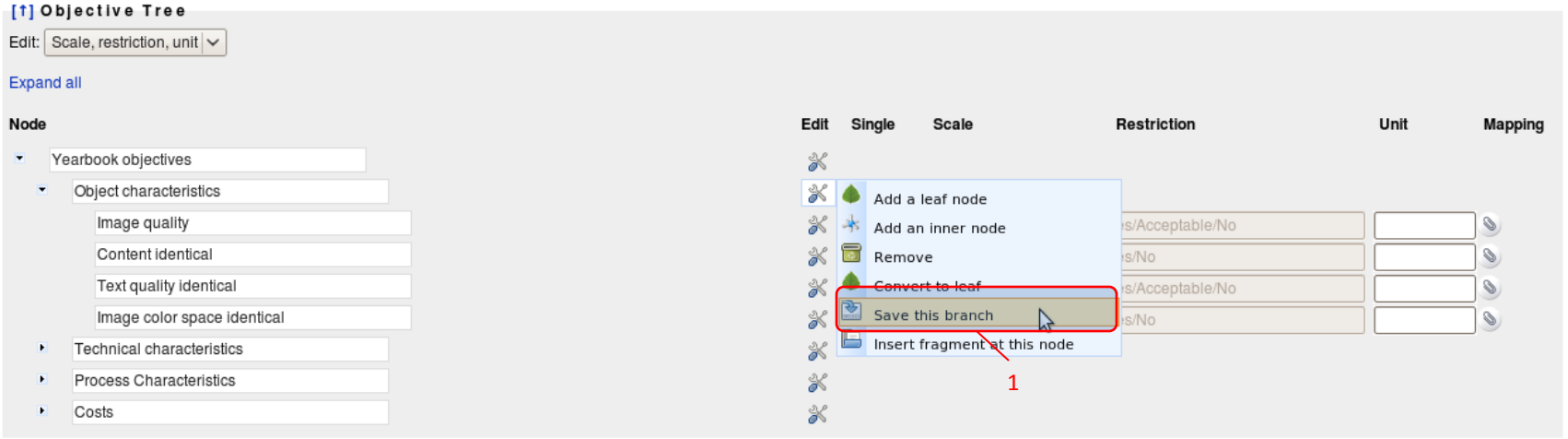
Saving a template



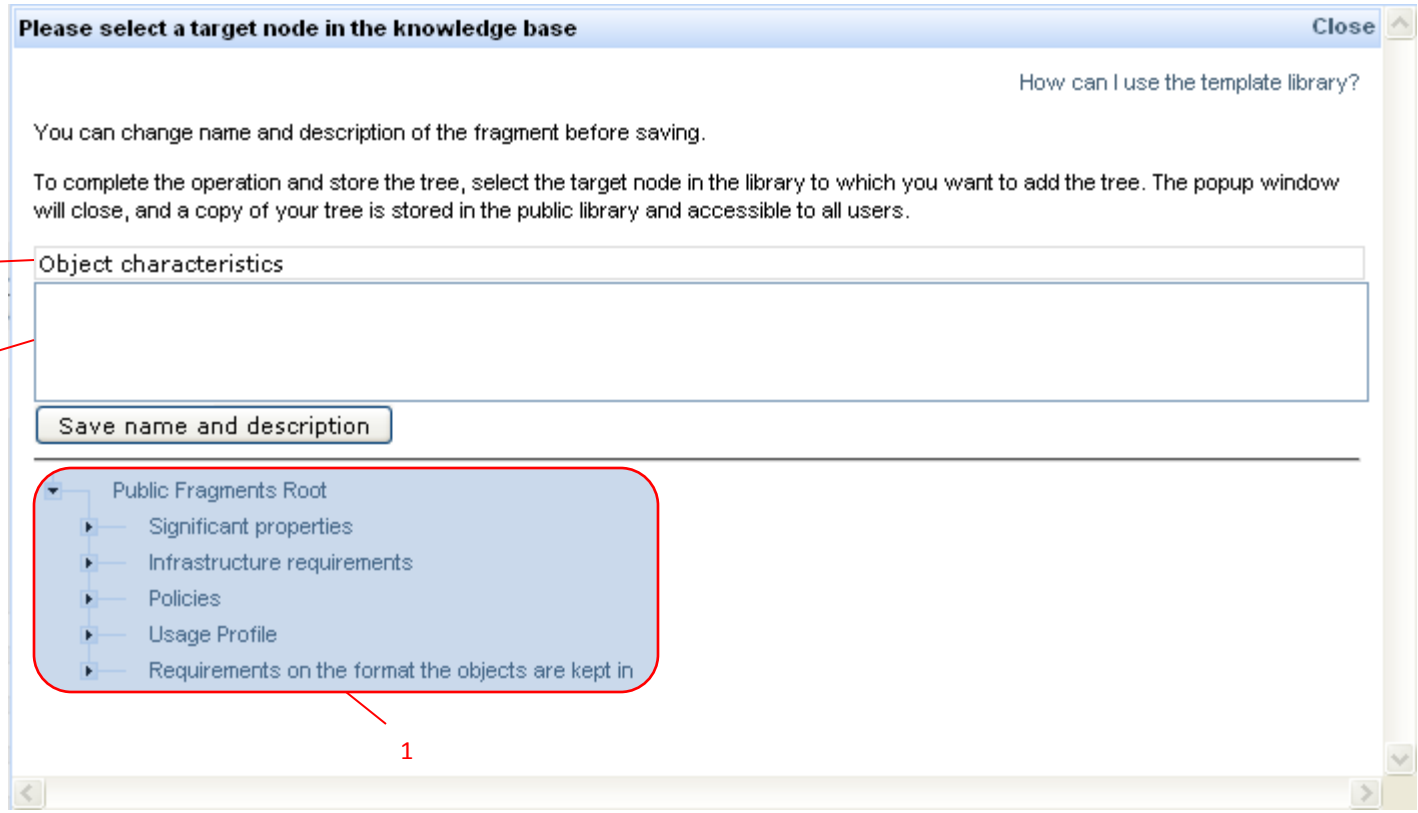
Saving a template

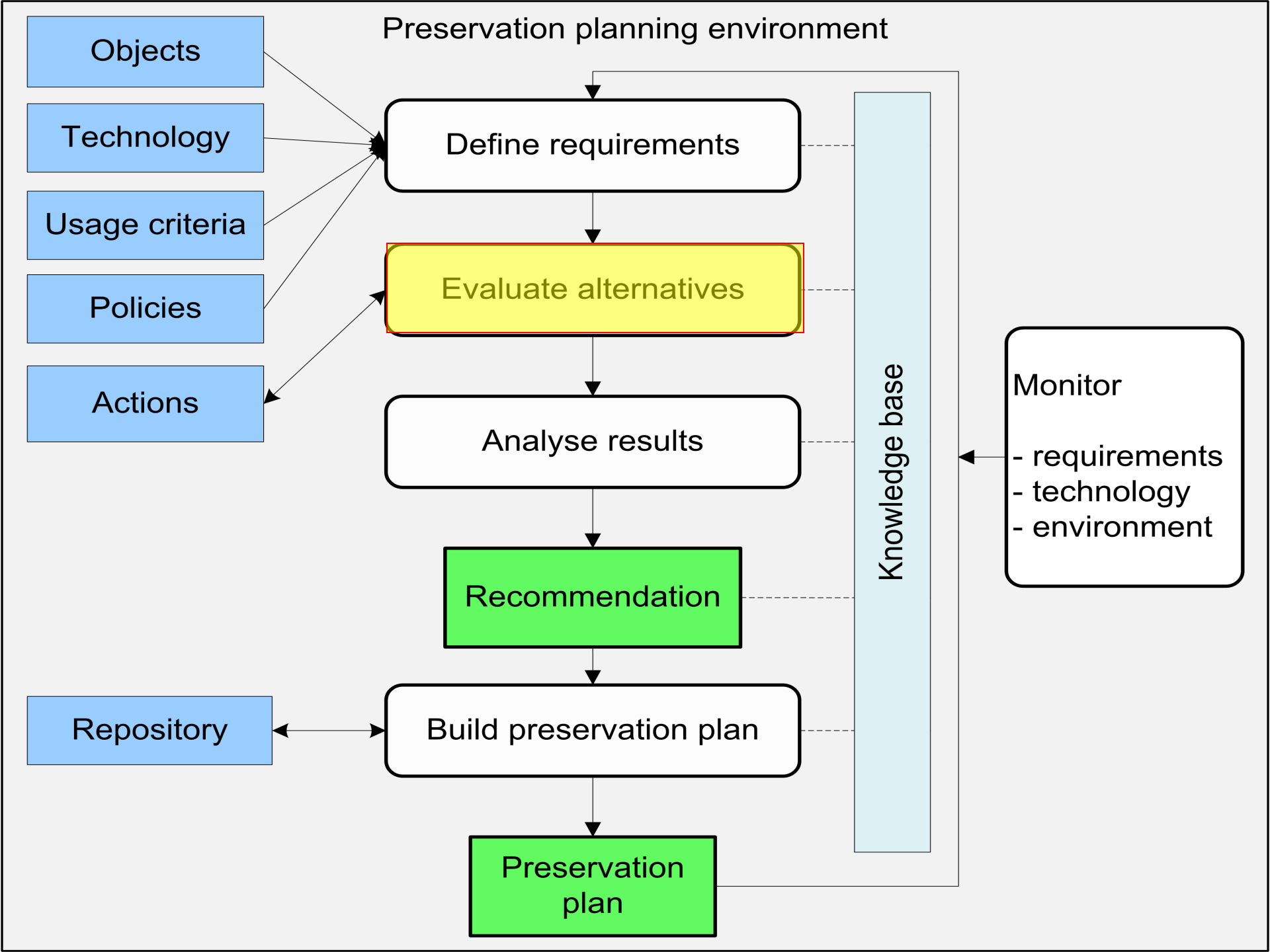


Saving a fragment



Saving a fragment

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- environment

Defining Alternatives

Define the alternatives to consider for the plan

ID	Name	Description	Remove
510	GIF > BMP	GIF>JP2>TIF>BMP using service at: http://apollon.ifs.tuwien.ac.at:7080/axis/services	Remove
511	GIF > TIF	GIF>JP2>TIF using service at: http://apollon.ifs.tuwien.ac.at:7080/axis/services	Remove
512	GIF > Text	GIF>JP2>TIF>PDF>Text using service at: http://apollon.ifs.tuwien.ac.at:7080/axis/services	Remove
513	ImageMagick GIF>PNG	Migration to PNG using ImageMagick 6.3.7 08/21/08 Q16, installed on a Ubuntu 8.10 machine.	Remove

1

Add new Alternative

Create alternatives from applicable services

Sample Maserati__Karif.gif has the following format: Graphics Interchange Format, version 1989a.
You can look up preservation services that are able to handle this object type in the following registries:

MiniMEE

Show Services

Planets Service Registry

Show Services

CRiB at TU-Wien

Show Services

2

Adding a new alternative

Define the alternatives to consider for the plan

ID	Name	Description	Remove
612	GIF > BMP	GIF>JP2>TIF>BMP using service at: http://apollon.ifs.tuwien.ac.at:7080/axis/services	Remove
613	GIF > TIF	GIF>JP2>TIF using service at: http://apollon.ifs.tuwien.ac.at:7080/axis/services	Remove
614	GIF > Text	GIF>JP2>TIF>PDF>Text using service at: http://apollon.ifs.tuwien.ac.at:7080/axis/services	Remove
615	ImageMagick GIF>PNG	Migration to PNG using ImageMagick 6.3.7 08/21/08 Q16, installed on a Ubuntu 8.10 machine.	Remove

Add new Alternative

Alternative

Name of alternative: ImageMagick GIF>PNG *

Description of alternative: Migration to PNG using ImageMagick 6.3.7 08/21/08 Q16, installed on a Ubuntu 8.10 machine. *

Reason for considering: ImageMagick is one of the most widely used and well-tested applications for migration.

Description of configuration: No specific configuration settings. We use the command 'convert'.

Indicator of necessary resources: Person with Linux and ImageMagick expertise needed.

Save Alternative

Defining Alternatives: Service Registries

Define the alternatives to consider for the plan

ID	Name	Description	Remove
510	GIF > BMP	GIF>JP2>TIF>BMP using service at: http://apollon.ifs.tuwien.ac.at:7080/axis/services	Remove
511	GIF > TIF	GIF>JP2>TIF using service at: http://apollon.ifs.tuwien.ac.at:7080/axis/services	Remove
512	GIF > Text	GIF>JP2>TIF>PDF>Text using service at: http://apollon.ifs.tuwien.ac.at:7080/axis/services	Remove
513	ImageMagick GIF>PNG	Migration to PNG using ImageMagick 6.3.7 08/21/08 Q16, installed on a Ubuntu 8.10 machine.	Remove

Add new Alternative

Create alternatives from applicable services

Sample Maserati__Karif.gif has the following format: Graphics Interchange Format, version 1989a.
You can look up preservation services that are able to handle this object type in the following registries:

MiniMEE

Show Services

Planets Service Registry

Show Services

CRiB at TU-Wien

Show Services

1

	Preservation Action	Target Format	Info
☐	GIFtoPNG (ImageMagick)	PNG	Migration of GIF to PNG with ImageMagick
☐	GIFtoTIFF (ImageMagick)	TIF	Migration of GIF to TIF with ImageMagick
☐	GIFtoJPG (ImageMagick)	JPG	Migration of GIF to JPG with ImageMagick
☐	GIFtoPNG (GraphicsMagick)	PNG	Migration of GIF to PNG with GraphicsMagick
☐	GIFtoTIFF (GraphicsMagick)	TIF	Migration of GIF to TIF with GraphicsMagick
☐	GIFtoJPG (GraphicsMagick)	JPG	Migration of GIF to JPG with GraphicsMagick

2

Create alternatives for selected services

Take the Go decision

Take the Go decision

Alternatives that shall not be subject to evaluation can be discarded below.

Discard	Name	Description
☐	GIF > BMP	GIF>JP2>TIF>BMP using service at: http://apollon.ifs.tuwien.ac.at:7080/axis/services
☐	GIF > TIF	GIF>JP2>TIF using service at: http://apollon.ifs.tuwien.ac.at:7080/axis/services
☐	GIF > Text	GIF>JP2>TIF>PDF>Text using service at: http://apollon.ifs.tuwien.ac.at:7080/axis/services
☐	ImageMagick GIF>PNG	Migration to PNG using ImageMagick 6.3.7 08/21/08 Q16, installed on a Ubuntu 8.10 machine.

Decision

Go

Reason for Decision: As far as we know most libraries use TIFF at present so we want to take a look at that and evaluate it with our data. Furthermore we consider migrating to BMP and JPEG. We also take a look at migrating to "text" as it seem to be an option as it's offered by the service registry. *

Action Needed: Set up a machine with ImageMagick installed so we can carry out the experiments. All the other can be carried out using the web services. *

Develop Experiments

Develop experiments

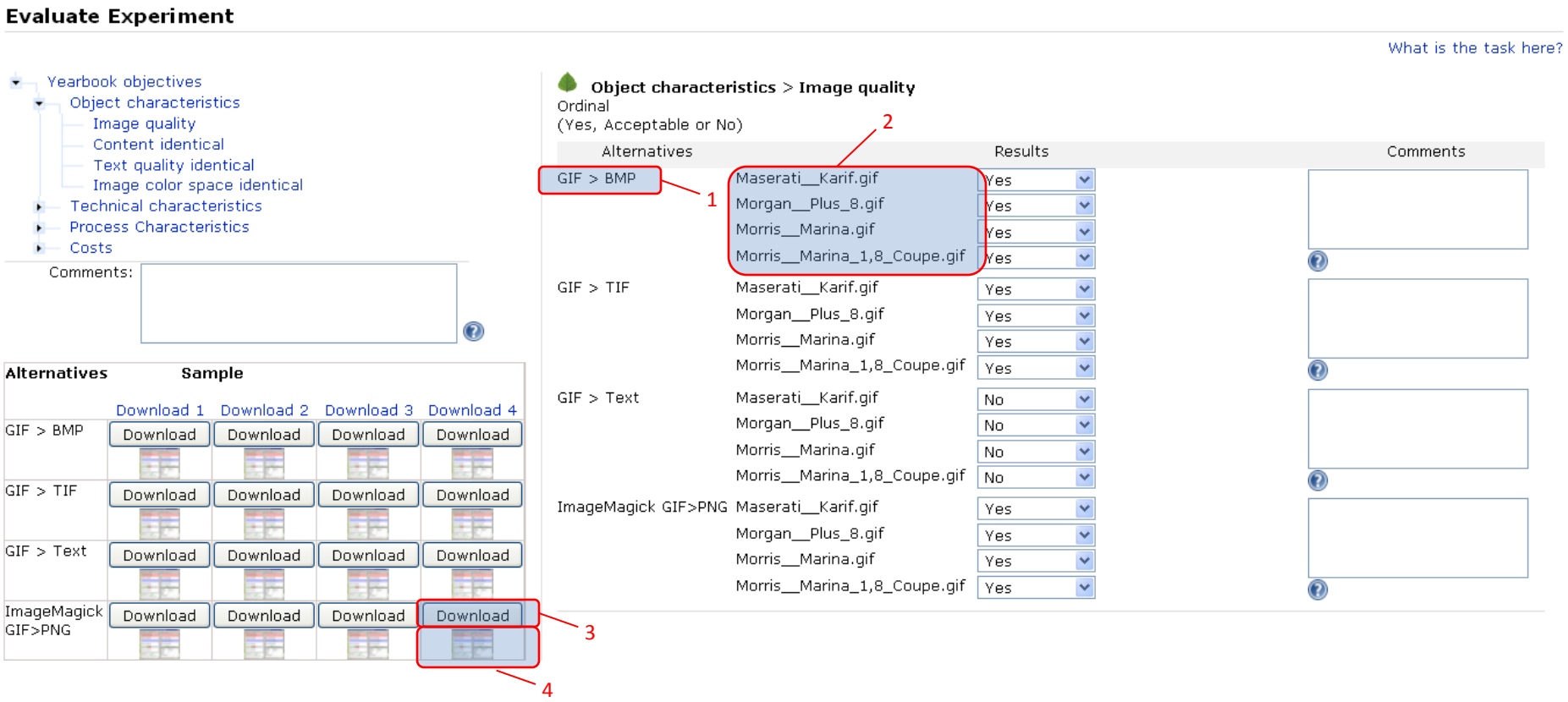
Registry	Alternative		Description
TU WIEN	GIF > BMP	Description:	We use the web services provided for this.
		Settings:	
			1
TU WIEN	GIF > TIF	Description:	We use the web services provided for this.
		Settings:	
TU WIEN	GIF > Text	Description:	We use the web services provided for this.
		Settings:	
	ImageMagick GIF>PNG	Description:	Install current version of ImageMagick on the Linux (Ubuntu 8.10) machine. Most current version of ImageMagick package available is ImageMagick 6.3.7 06/04/09 Q16. Once the package is installed we use 'convert' to convert from GIF to JPEG.
		Settings:	

Run Experiments

Alternative	Description
GIF > BMP	Summary Report Record / Status / Report Maserati__Karif.gif — Edit Report Morgan__Plus_8.gif — Edit Report Morris__Marina.gif — Edit Report Morris__Marina_1,8_Coupé.gif — Edit Report
GIF > TIF	Summary Report Record / Status / Report Maserati__Karif.gif — Edit Report Morgan__Plus_8.gif — Edit Report Morris__Marina.gif — Edit Report Morris__Marina_1,8_Coupé.gif — Edit Report
GIF > Text 1	Summary Report Record / Status / Report Maserati__Karif.gif — Edit Report Morgan__Plus_8.gif — Edit Report Morris__Marina.gif — Edit Report Morris__Marina_1,8_Coupé.gif — Edit Report
ImageMagick GIF>PNG	Summary Report Record / Status / Report Maserati__Karif.gif — Edit Report Morgan__Plus_8.gif — Edit Report Morris__Marina.gif — Edit Report Morris__Marina_1,8_Coupé.gif — Edit Report

Run all experiments

Evaluate Experiment



Evaluate Experiment

PLANETS Preservation Planning Tool *(Plato)*

[logout user] [help]

Project | Define Requirements :: Evaluate Requirements :: Consider Results | ONB: electronic theses and dissertations

- Leaf Initial HW is not properly evaluated
- Leaf Running HW is not properly evaluated

Evaluate Experiment

Expand All | Collapse All

ONB Master thesis

Focus	Node
	▼ONB Master thesis
X	►Object characteristic
X	►Technical charac.
X	►Process Characteristic
X	▼Costs
X	▼HW
X	▼Initial HW
X	▼Running HW
X	►SW
X	►Personell

Comments:

?

HW > Initial HW

Alternative	Single result		Comments
PDF-A	5	0/5 *	
PDF-unchanged	5	0/5 *	
TIFF	5	0/5 *	
EPS	5	0/5 *	
JPEG2000	5	0/5 *	
RTF-acrobat	5	0/5 *	
RTF-convertdoc	5	0/5 *	
TXT	5	0/5 *	

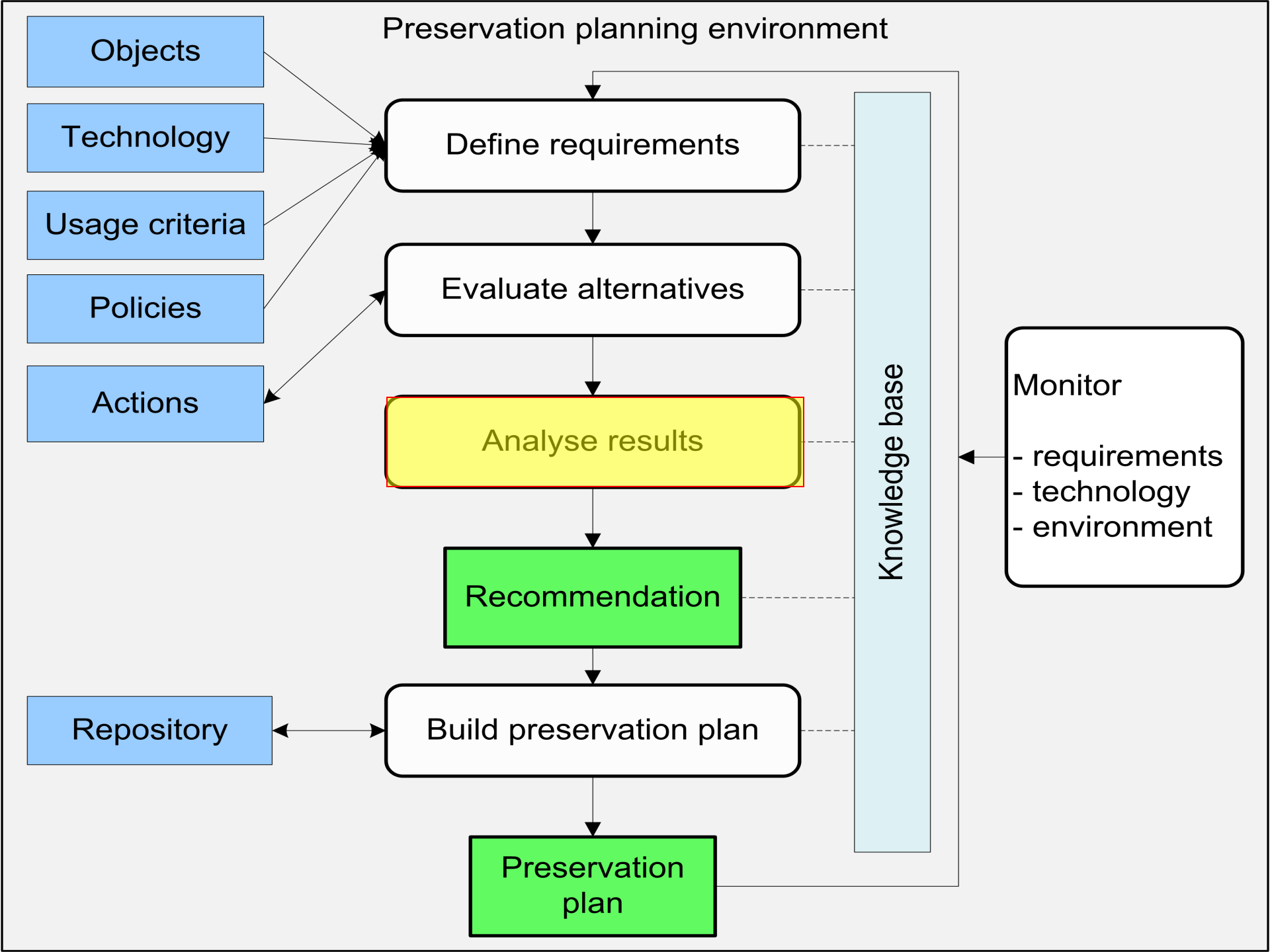
HW > Running HW

Alternative	Single result		Comments
PDF-A	5	0/5 *	
PDF-unchanged	5	0/5 *	
TIFF	5	0/5 *	
EPS	5	0/5 *	
JPEG2000	5	0/5 *	
RTF-acrobat	5	0/5 *	
RTF-convertdoc	5	0/5 *	
TXT	5	0/5 *	

Approve All

Save | Discard changes | Proceed

Release 1.2 - Institute of Software Technology and Interactive Systems: « off-ice bears »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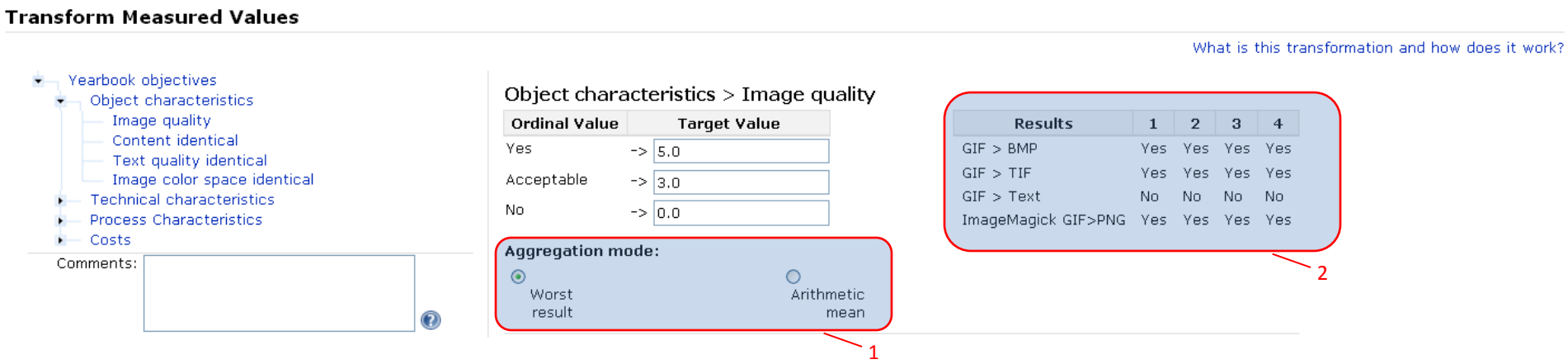
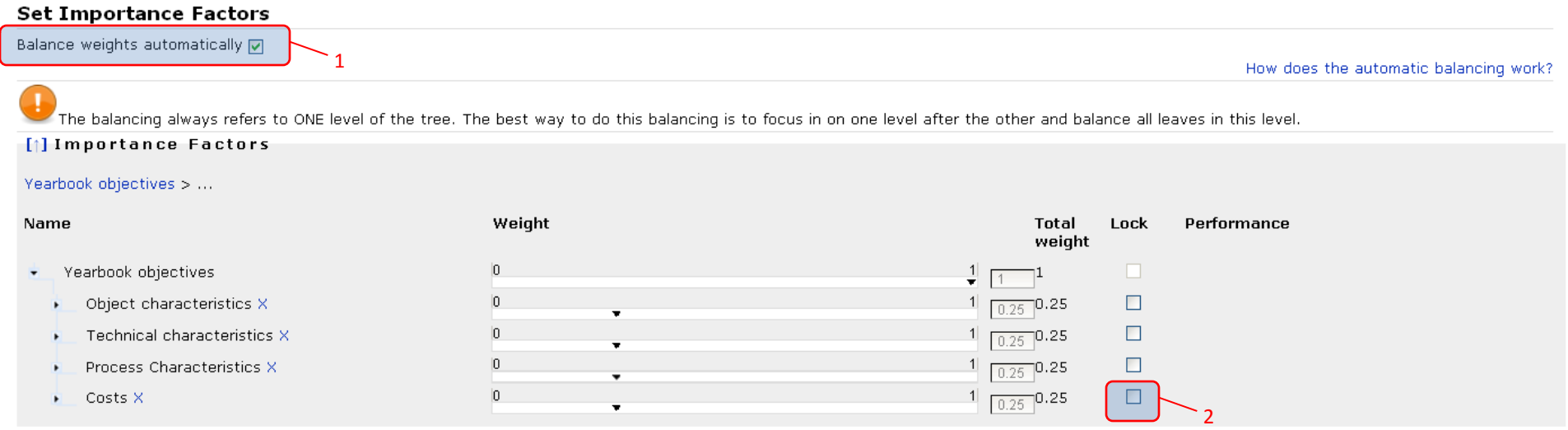
Transform Measured Values



Set Importance Factors



Analyze Results

Results: Weighted multiplication

Result-Tree with all Alternatives, Aggregation method: Weighted multiplication

Node	Results	
Yearbook objectives	GIF > BMP:	0.00
	GIF > TIF:	3.77
	GIF > Text:	0.00
	ImageMagick GIF>PNG:	4.58

Results: Weighted sum

Result-Tree with all Alternatives, Aggregation method: Weighted sum.
This tree contains only strategies that do not have knock-out evaluation criteria; see above

Node	Results	
Yearbook objectives	GIF > TIF:	4.15
	ImageMagick GIF>PNG:	4.74

What is sensitivity analysis and how does it work?

Sensitivity analysis

Yearbook objectives	GIF > TIF:	4.15
	ImageMagick GIF>PNG:	4.74

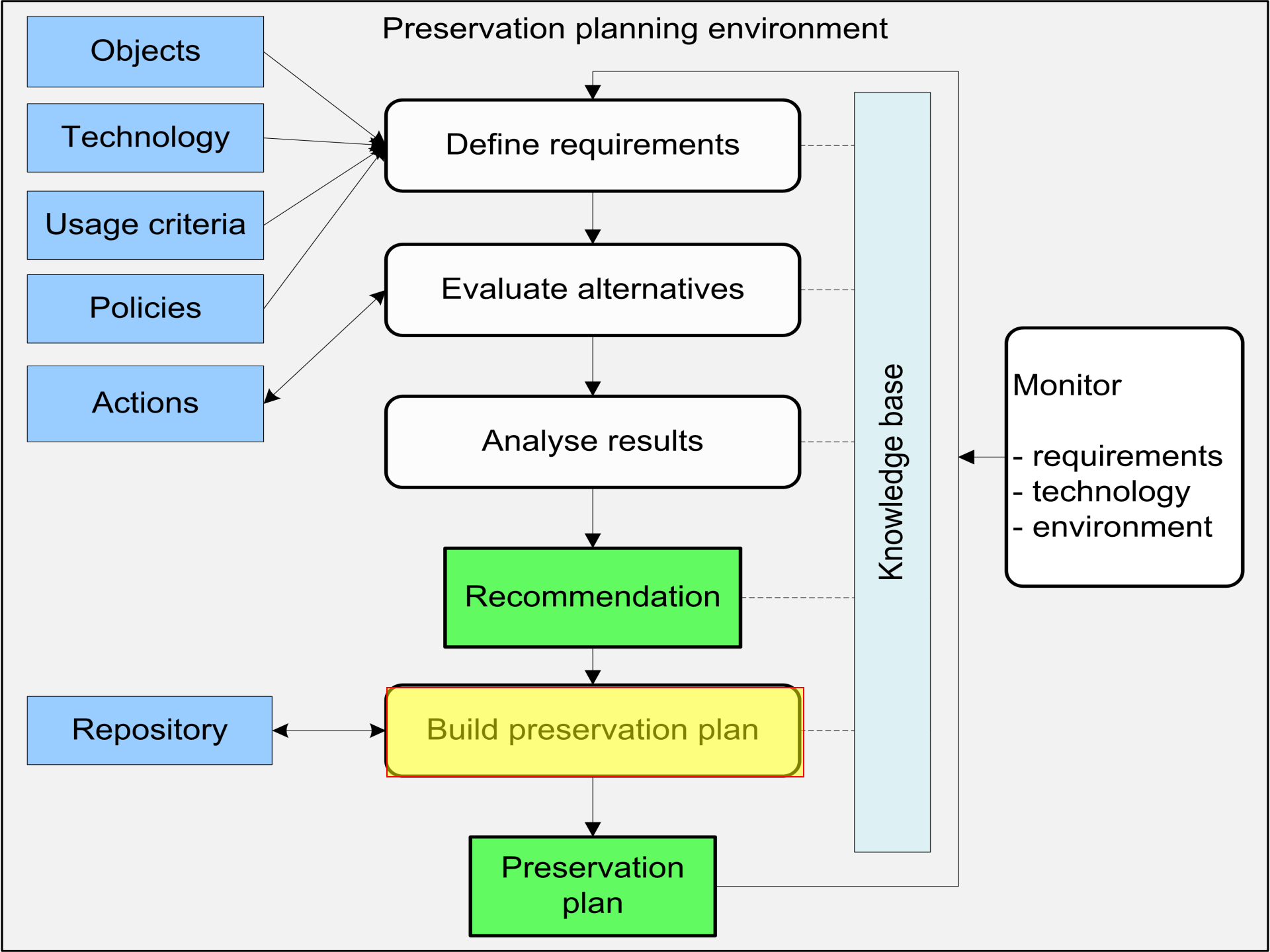
Conclusion

Recommendation

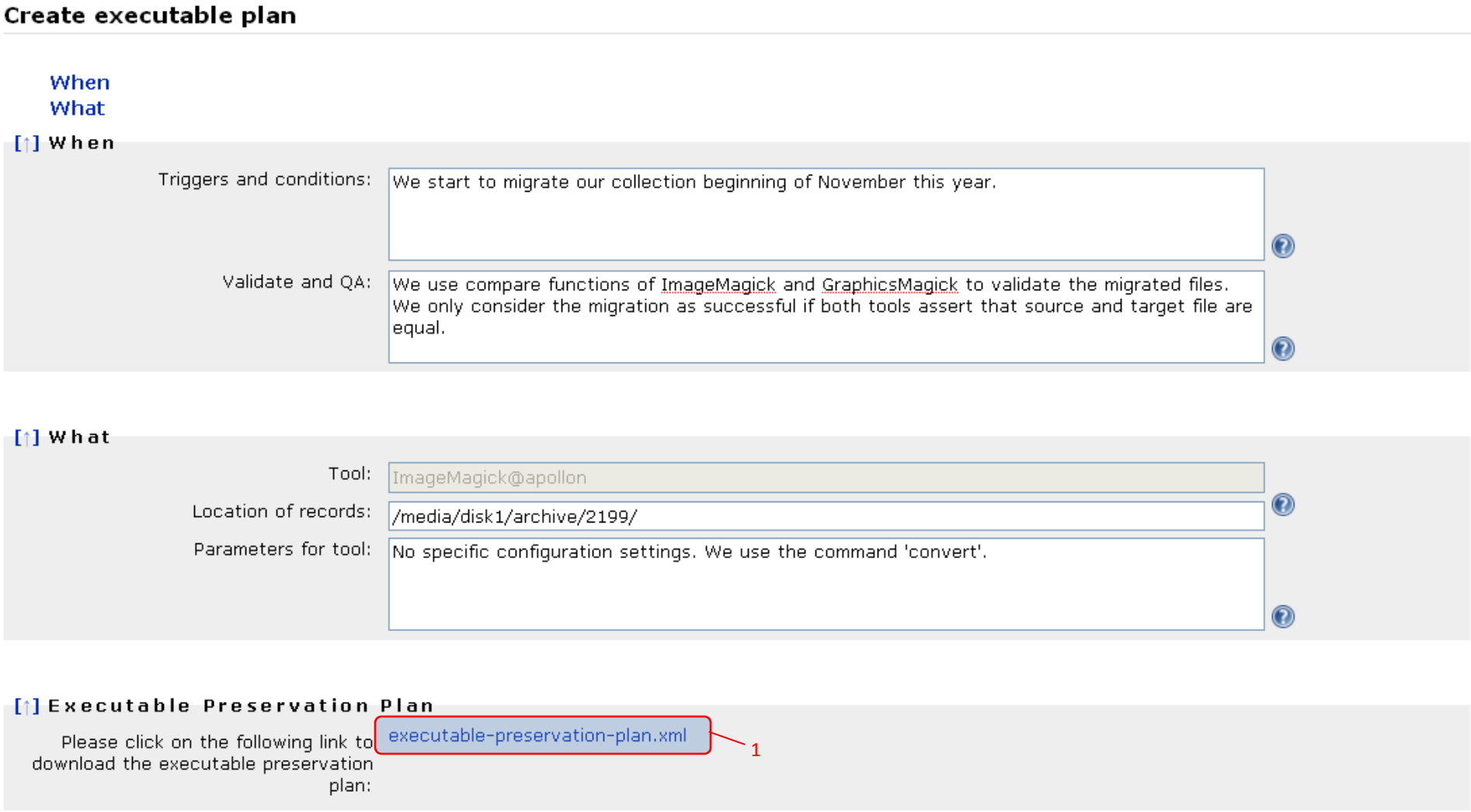
Recommendation: ImageMagick GIF>PNG

Reasoning: PNG obviously suits more our needs especially in terms of resulting files size which is an important requirement for us. However, we have to take into consideration, that, in this preservation plan, we evaluated converting to TIFF with this comfy web service.

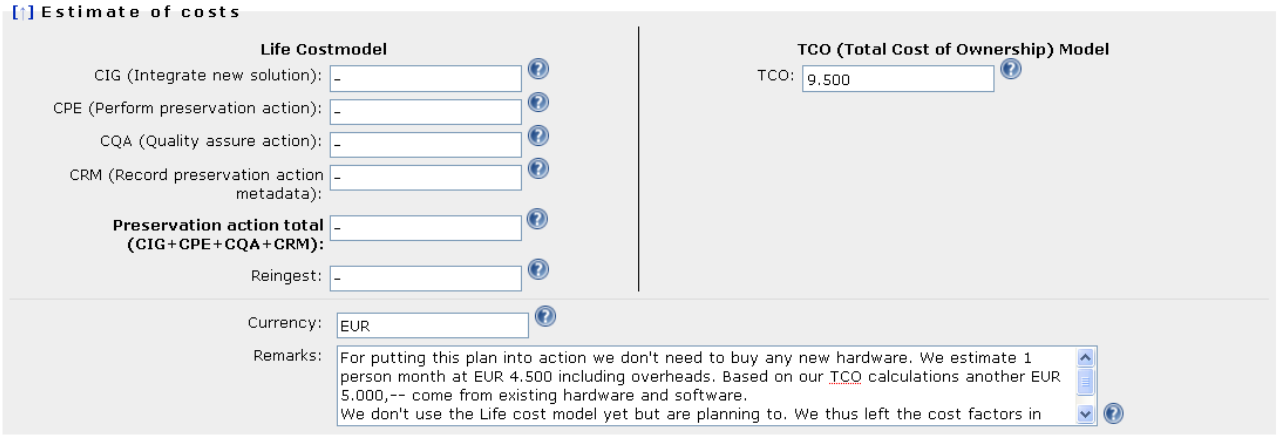
Effects of applying this strategy: We have to convert all our GIF files to PNG. However, we will keep the GIF files for at least 6 months to be on the safe side in case anything goes wrong with the migration.

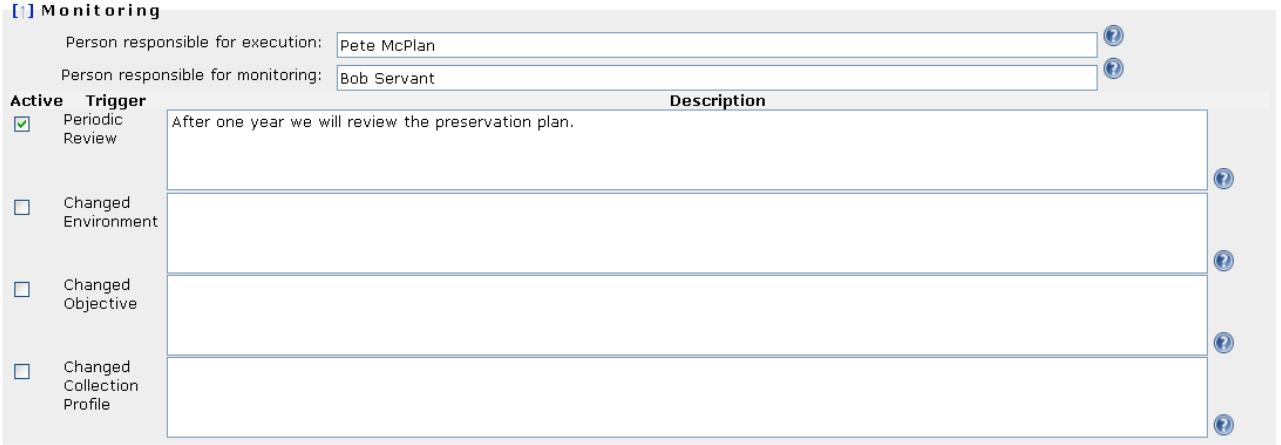

Preservation planning environment
Objects
Technology
Usage criteria
Policies
Actions
Define requirements
Evaluate alternatives
Analyse results
Recommendation
Build preservation plan
Preservation plan
Repository
Knowledge base
Monitor
- requirements
- technology
- environment

Create executable plan



Define preservation plan





Validate preservation plan

Validate plan for MY DEMO PLAN: Scanned yearbooks archive

Report creation date: Nov 26, 2009 6:23:12 PM

Display Changelogs

Plan name MY DEMO PLAN: Scanned yearbooks archive

Current state Plan Defined

Plan description This is a DEMO plan for the user 'kulovits'. The preservation plan looks at the yearbook material that has recently (end 2008) been transferred from LTO tape to HDD storage on the Digital Preservation Teams SAN storage unit for content stabilization. We want to evaluate the file format for the master images and ensure that it is suitable for long term preservation.

Responsible planners Hannes Kulovits, Christoph Becker

Organization The State and University Library

Identification and Status

Identification code ARCH-COLL-1299

Planning purpose The purpose of this plan is to find a strategy on how to preserve this collection for the future, i.e. choose a tool to handle our collection with. The tool must be compatible with our existing hardware and software infrastructure, to install it within our server and network environment. The files haven't been touched for several years now and no detailed description exists. However, The State and University Library has to ensure its accessibility for the next years.

Plan relations This is our first plan.

Triggers

Trigger	Description
[illegible]	Changed hardware environment: carrier refresh from LTO tape to HDD (on the Digital Preservation Team SAN). We see this as a very [illegible] for the master images and ensure that it is suitable for long term preservation

Plan Approval

Approve this plan

How about practitioners?

- The Danish Royal Library
  - http://www.scribd.com/doc/35456618/Royal-Library-of-Denmark-Use-of-Planets

- On the web…
  - http://e-records.chrisprom.com/?p=1082

A Tool is but a Tool

- Prevents re-inventing the wheel
- Improves sharing of best practices
- Supports the training & learning process

  – BUT WE NEED CONTENT TO FEED TOOLS

OPF focus for 2011