

*Planning the Future with Planets*  
*April 14./15. 2008, Vienna, Austria*

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**Define Tools, Run Experiments,  
Evaluate Results**

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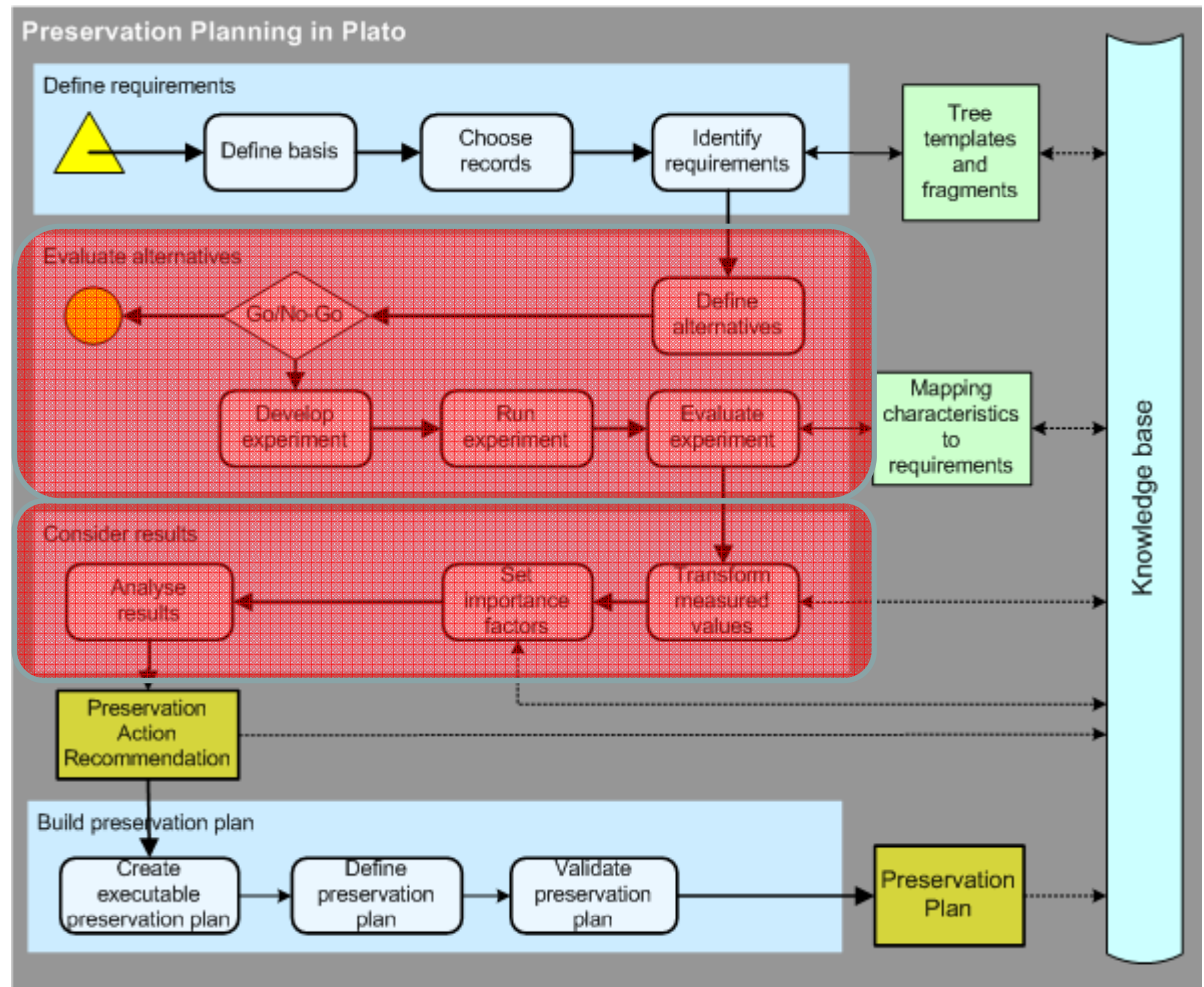
# Agenda

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- ❑ Orientation
- ❑ Define Alternatives
- ❑ Go/No-Go Decision
- ❑ Develop and Run Experiment
- ❑ Evaluate Experiment
- ❑ Transform Measured Values
- ❑ Set Importance Factors
- ❑ Analyse Results

# Orientation

- ❑ Define Alternatives
- ❑ Go/No-Go decision
- ❑ Develop experiment
- ❑ Run experiment
- ❑ Evaluate experiment
  
- ❑ Transform
- ❑ Importance Factors
- ❑ Analyse



# Define Alternatives (1)

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- ❑ Given the type of object and requirements, what strategies are possible and which is most suitable
  - Migration, emulation, other?
  
- ❑ For each alternative, precise definition of
  - Which tool (OS, version)
  - Which functions of the tool
  - Which parameters
  - Resources that are needed (human, technical, time and cost)

## Define Alternatives (2)

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- ❑ Plato supports dynamic and flexible *integration* of service registries
  - CRiB: registry of web services performing migration (already operational)
  - Planets service registry (ongoing integration)
  - Planets PA Tool registry: next year (added semantics)
- ❑ Selection of services based on experience in Testbed

# Define Alternatives (3)



Define the alternatives of the Project

ID	Name	Description	Remove
557056	PDF-A	Convert to PDF/A using Adobe Acrobat 7 prof.	<input type="button" value="Remove"/>
557057	PDF-unchanged	Leave everything as is	<input type="button" value="Remove"/>
557058	TIFF	Convert to TIFF using ConvertDoc 4.1	<input type="button" value="Remove"/>
557059	EPS	Convert to EPS using ConvertDoc 4.1	<input type="button" value="Remove"/>
557060	JPEG2000	Convert to JPEG2000 using Adobe Acrobat 7 prof.	<input type="button" value="Remove"/>
557061	RTF-acrobat	Convert to RTF using Adobe Acrobat 7 prof.	<input type="button" value="Remove"/>
557062	RTF-convertdoc	Convert to RTF using ConvertDoc 4.1	<input type="button" value="Remove"/>
557063	TXT	Convert to TXT using Arobat Pof. 7	<input type="button" value="Remove"/>

# Define Alternatives (4)

**Alternative**

<b>Name of alternative:</b>	<input type="text" value="PDF-A"/>	?
<b>Description of alternative:</b>	<input type="text" value="Convert to PDF/A using Adobe Acrobat 7 prof."/>	?
<b>Reason for considering:</b>	<input type="text"/>	?
<b>Config settings:</b>	<input type="text"/>	?
<b>Indicator of necessary resources:</b>	<input type="text"/>	?

# Define Alternatives (5)



## Define the alternatives of the Project

ID	Name	Description	Remove
196616	TIFF (tool A)	Convert to TIFF using the well-tested and expensive tool 'A'	<a href="#">Remove</a>
196613	TIFF (tool B)	Convert to TIFF/4 using this new tool named 'B'	<a href="#">Remove</a>
196614	GIF (tool C)	Convert to GIF using the well-tested tool 'C'	<a href="#">Remove</a>
196615	PNG (tool D)	Convert to PNG using the well-tested tool 'D'	<a href="#">Remove</a>

[Add new Alternative](#)

[Save](#) [Discard changes](#) [Proceed](#)

## Create alternatives from applicable services

Sample record #1 has format JPEG File Interchange Format, 1.01.

You can look up services that are able to handle this object type in the following registries:

Planets Preservation Action Tool registry	Preservation Action	Target Format	Info
 <a href="#">Show Preservation Services</a>	<input type="checkbox"/> JPG > BMP	Windows Bitmap, version 3.0	JPG>BMP
	<input checked="" type="checkbox"/> JPG > TIF	Tagged Image File Format, version 3	JPG>BMP>TIF
	<input type="checkbox"/> JPG > TIF #2	Tagged Image File Format, version 3	JPG>TIF
	<input checked="" type="checkbox"/> JPG > TIF_2	Tagged Image File Format, version 3	JPG>TIF_2
	<input type="checkbox"/> JPG > PNG	Portable Network Graphics, version 1.0	JPG>PNG
	<input type="checkbox"/> JPG > JP2	JPEG 2000	JPG>JP2

[Create alternatives for selected services](#)

Planets Service Registry
 <a href="#">Show Preservation Services</a>

CRIB Service Registry
 <a href="#">Show Preservation Services</a>



# Go/No-Go Decision

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- ❑ Decide if useful and cost-effective to continue, given
  - Resources to be spent (people, money)
  - Expected Results
- ❑ Plato allows for excluding alternatives

# Go/No-Go Decision (2)



## PLANETS Preservation Planning Tool (*Plato*)

Project | Define Requirements | Evaluate Requirements | Consider Results

ONB: electronic theses and dissertations

### Take the Go decision

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

Discard	Name	Description
<input type="checkbox"/>	PDF-A	Convert to PDF/A using Adobe Acrobat 7 prof.
<input type="checkbox"/>	PDF-unchanged	Leave everything as is
<input type="checkbox"/>	TIFF	Convert to TIFF using ConvertDoc 4.1
<input type="checkbox"/>	EPS	Convert to EPS using ConvertDoc 4.1
<input type="checkbox"/>	JPEG2000	Convert to JPEG2000 using Adobe Acrobat 7 prof.
<input type="checkbox"/>	RTF-acrobat	Convert to RTF using Adobe Acrobat 7 prof.
<input type="checkbox"/>	RTF-convertdoc	Convert to RTF using ConvertDoc 4.1
<input type="checkbox"/>	TXT	Convert to TXT using Arobat Pof. 7

#### Decision

Go ?

Reason for Decision: proceed as planned

Action Needed: no actions needed

Save | Discard changes | Proceed

# Develop and Run Experiment

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- ❑ For each alternative formulate detailed
  - Development plan
  - Test plan
  - Evaluation/experiment plan (workflow/sequence of activities)
- ❑ Run experiment with previously defined sample records

# Develop and Run Experiment (2)



### Develop experiments

Alternative	Description
PDF-A	
PDF-unchanged	
TIFF	

# Develop and Run Experiment (3)



## PLANETS Preservation Planning Tool (*Plato*)

Project | Define Requirements | Evaluate Requirements | Consider Results

### Run Experiments

Alternative	Description
TIFF (tool A)	
TIFF (tool B)	
GIF (tool C)	
PNG (tool D)	
JPG > BMP ▶	<ul style="list-style-type: none"><li>- Migrated object 'Polar bear 1' to format 'Windows Bitmap, version 3.0' at 2008-04-09T09:50:20,575Z.</li><li>- Migrated object 'Polar bear 2' to format 'Windows Bitmap, version 3.0' at 2008-04-09T09:50:32,986Z.</li></ul>

# Develop and Run Experiment (4)

JPG > JP2

▶

[Save](#) [Discard changes](#) [Proceed](#)

## Result Files

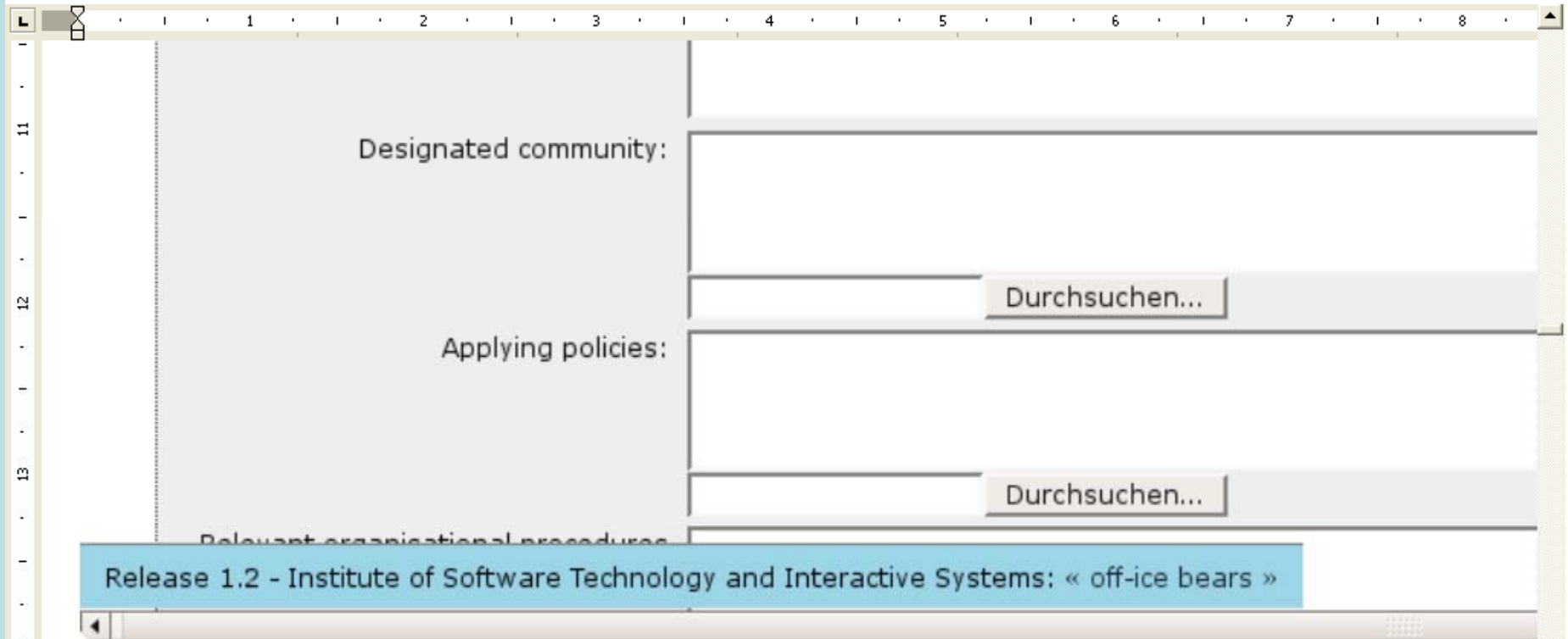
Results	Sample Records
TIFF (tool A) ?	Polar bear 1 <a href="#">Upload File</a>
	Polar bear 2 <a href="#">Upload File</a>
TIFF (tool B) ?	Polar bear 1 <a href="#">Upload File</a>
	Polar bear 2 <a href="#">Upload File</a>
GIF (tool C) ?	Polar bear 1 <a href="#">Upload File</a>
	Polar bear 2 <a href="#">Upload File</a>
PNG (tool D) ?	Polar bear 1 <a href="#">Upload File</a>
	Polar bear 2 <a href="#">Upload File</a>
JPG > BMP ?	Polar bear 1 <a href="#">Upload File</a> <a href="#">Polar bear 1.bmp</a> <a href="#">Download File</a>
	Polar bear 2 <a href="#">Upload File</a> <a href="#">Polar bear 2.bmp</a> <a href="#">Download File</a>
JPG > TIF ?	Polar bear 1 <a href="#">Upload File</a>
	Polar bear 2 <a href="#">Upload File</a>

# Evaluate Experiment

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- ❑ Evaluate how successfully the requirements are met
- ❑ Measure performance with respect to leaf criteria in the objective tree
- ❑ Document the results

# Evaluate Experiment (2)

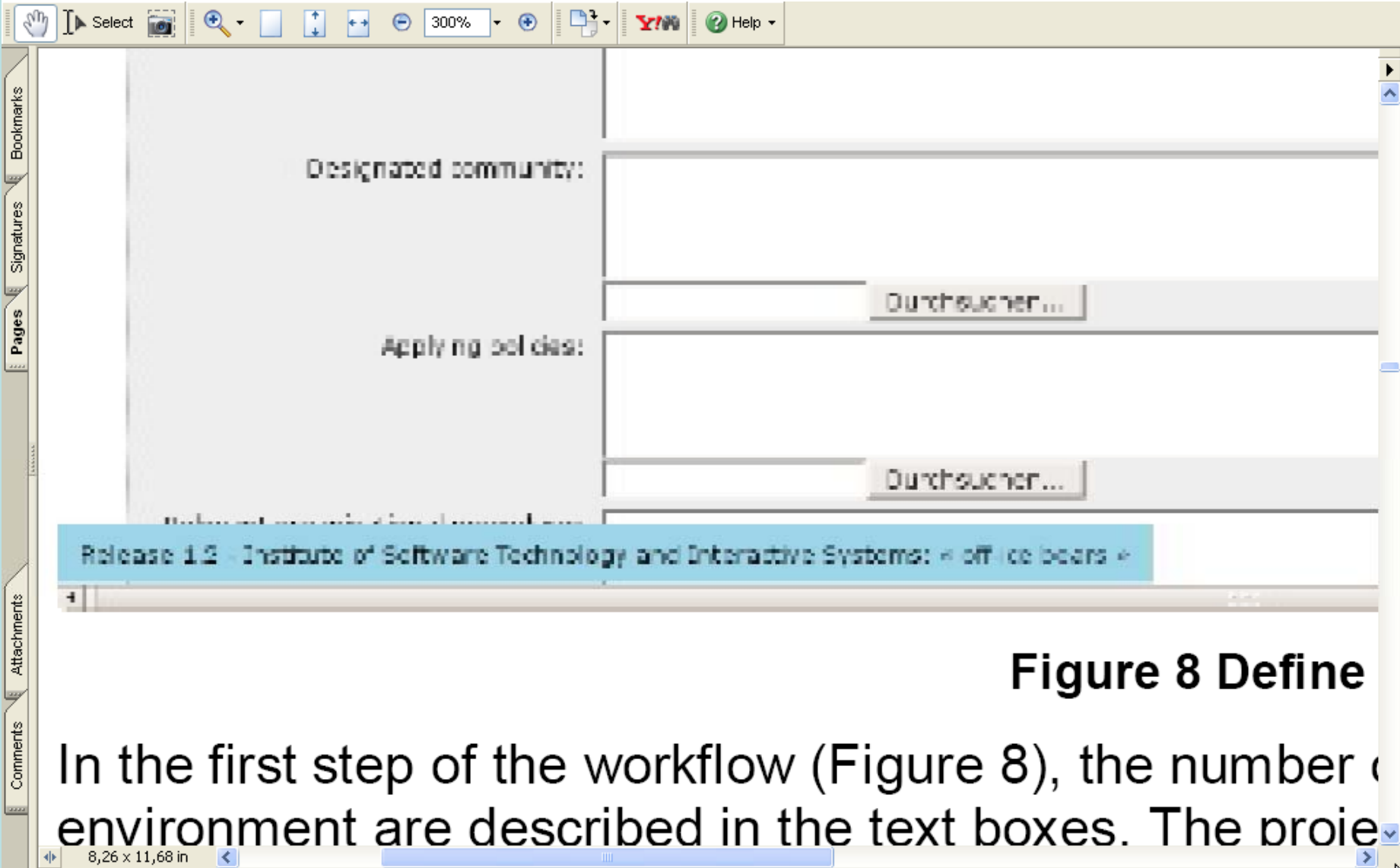


**Figure 8 Define**

In the first step of the workflow (Figure 8), the number environment are described in the text boxes. The project and organization) can be altered on this page. Through



# Evaluate Experiment (3)



**Figure 8 Define**

In the first step of the workflow (Figure 8), the number of environment are described in the text boxes. The proje

# Evaluate Experiment (4)



## PLANETS Preservation Planning Tool (*Plato*)

Project | Define Requirements | Evaluate Requirements | Consider Results | ONB:

### Evaluate Experiment

[Expand All](#) | [Collapse All](#)

ONB Master thesis

Focus	Node
	▼ONB Master thesis
X	▼Object characteristic
X	▶Appearance
X	▶Structure
X	▶Content
X	▶Behaviour
X	▶Technical charac.
X	▶Process Characteristic
X	▼Costs
X	▶HW
X	▶SW
X	▶Personell
Comments:	

?

SW > Customization SW

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 *

SW > Initial SW

Alternative	Single result	Comments
PDF-A	4	0/5 *
PDF-unchanged	5	0/5 *
TIFF	4	0/5 *
EPS	4	0/5 *
JPEG2000	3	0/5 *
RTF-acrobat	3	0/5 *
RTF-convertdoc	2	0/5 *
TXT	4	0/5 *

# Transform Measured Values

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- ❑ Measures come in different scales (e.g. seconds, bits)
- ❑ Make them comparable
- ❑ Transformation tables for each leaf criterion
- ❑ Scale 0 – 5 (0 is *unacceptable*)

# Transform Measured Values (2)



## PLANETS Preservation Planning Tool (*Plato*)

Project | Define Requirements | Evaluate Requirements | Consider Results | ONB: electronic the

### Transform Measured Values

Expand All | Collapse All

#### ONB Master thesis

Focus	Node
	▼ ONB Master thesis
X	▼ Object characteristic
X	▶ Appearance
X	▶ Structure
X	▶ Content
X	▶ Behaviour
X	▶ Technical charac.
X	▶ Process Characteristic
X	▼ Costs
X	▶ HW
X	▶ SW
X	▶ Personell

Comments:

?

#### SW > Customization SW

Threshold	Target value
1.0	* -> 1
2.0	* -> 2
3.0	* -> 3
4.0	* -> 4
5.0	* -> 5

#### Threshold stepping:

Steps Linear

Results	Single
PDF-A	5
PDF-unchanged	5
TIFF	5
EPS	5
JPEG2000	5
RTF-acrobat	5
RTF-convert doc	5
TXT	5

#### SW > Initial SW

Threshold	Target value
1.0	* -> 1
2.0	* -> 2
3.0	* -> 3
4.0	* -> 4
5.0	* -> 5

#### Threshold stepping:

Steps Linear

Results	Single
PDF-A	4
PDF-unchanged	5
TIFF	4
EPS	4
JPEG2000	3
RTF-acrobat	3
RTF-convert doc	2
TXT	4

# Set Importance Factors

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- ❑ Not all leaf criteria are equally important
- ❑ By default, weights are distributed equally
- ❑ Adjust relative importance of all siblings in a branch
- ❑ Weights are propagated down the tree to the leaves

# Set Importance Factors

X	▼ Process Characteristic	0	1	<input type="text" value="0.25"/>	<input type="checkbox"/> 0.25																				
<b>Process Characteristics</b>						<b>0.25</b>	<table border="1"> <thead> <tr> <th>Alternative</th> <th>Result</th> </tr> </thead> <tbody> <tr><td>PDF-A</td><td>2</td></tr> <tr><td>PDF-unchanged</td><td>2</td></tr> <tr><td>TIFF</td><td>1</td></tr> <tr><td>EPS</td><td>2</td></tr> <tr><td>JPEG2000</td><td>1</td></tr> <tr><td>RTF-acrobat</td><td>3</td></tr> <tr><td>RTF-convertdoc</td><td>1</td></tr> <tr><td>TXT</td><td>1</td></tr> </tbody> </table>	Alternative	Result	PDF-A	2	PDF-unchanged	2	TIFF	1	EPS	2	JPEG2000	1	RTF-acrobat	3	RTF-convertdoc	1	TXT	1
Alternative	Result																								
PDF-A	2																								
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X	▶ Documentation about activity	0	1	<input type="text" value="0.16"/>	<input type="checkbox"/> 0.04																				
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PDF-A	5																								
PDF-unchanged	5																								
TIFF	5																								
EPS	4																								
JPEG2000	4																								
RTF-acrobat	4																								
RTF-convertdoc	4																								
TXT	4																								

...

# Analyse Results

## Analyse Results

1

Aggregation method:

2

Select	Alternative
<input type="checkbox"/>	PDF/A ToolA
<input type="checkbox"/>	PDF/A ToolB

Show

3

Focus	Name	Res
Please select an aggregation mode and alternatives to be displayed.		

4

### Recommendation

Recommendation:

Reasoning:

Save recommendation

?

# Analyse Results (2)



## PLANETS Preservation Planning Tool (*Plato*)

Project | Define Requirements | Evaluate Requirements | Consider Results

### Analyse Results

Aggregation method: Sum of Advantages

Select	
<input checked="" type="checkbox"/>	PDF-A
<input checked="" type="checkbox"/>	PDF-unchanged
<input checked="" type="checkbox"/>	TIFF
<input checked="" type="checkbox"/>	EPS
<input checked="" type="checkbox"/>	JPEG2000
<input checked="" type="checkbox"/>	RTF-acrobat
<input checked="" type="checkbox"/>	RTF-convertdoc
<input checked="" type="checkbox"/>	TXT

Show

[Expand All](#) | [Collapse All](#)

**ONB Master thesis**



# Analyse Results (3)



### Analyse Results












Aggregation method: Sum

Select	Alternative
<input checked="" type="checkbox"/>	PDF/A ToolA
<input checked="" type="checkbox"/>	PDF/A ToolB

Show

[Expand All](#) | [Collapse All](#)

### Minimalist root node

Focus	Name	Result
	▼ Minimalist root node	PDF/A ToolA: 2,88  PDF/A ToolB: 3,19 
X	▶ Image properties	PDF/A ToolA: 0,60  PDF/A ToolB: 0,80 
X	▶ Karma	PDF/A ToolA: 0,40  PDF/A ToolB: 0,00
X	▶ Filesize (in Relation to Original)	PDF/A ToolA: 0,78  PDF/A ToolB: 0,99 
X	▶ A Single-Leaf	PDF/A ToolA: 0,40  PDF/A ToolB: 0,80 
X	▶ IntRange 0-10	PDF/A ToolA: 0,70  PDF/A ToolB: 0,60 

Thank you very much for your attention

Questions?

[www.planets-project.eu](http://www.planets-project.eu)

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[www.ifs.tuwien.ac.at/~kulovits](http://www.ifs.tuwien.ac.at/~kulovits)

