Initial Presentation

1. Consortium & People Involved
2. Consortium Background
3. Digging Further into Stakeholder Needs

TIFF Format & Preservation Issues
DPF Manager Design
Open Source Community
Business Plan
Final Conclusions

Prof. JOSEP LLUÍS de la ROSA
Full Professor at University of Girona
peplluis@eia.udg.edu
CEO at Easy Innova

UNIVERSITY OF GIRONA
www.udg.edu
EASY INNOVA
www.easyinnova.com
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   TIFF format & preservation issues
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Consortium Background

Relevant background related to PREFORMA:

**Easy Innova:**
- Specialised in artificial intelligence technology transfer and R&D projects
- World class provider of FIFA (UK), Beezy (USA), RES (Belgium), RS (SP)
- Extending the software intelligence in Digital Preservation since 2007
- Full member of AENOR/CTN50 SC1 (Spanish mirror of ISO/TC 171)

**University of Basel:**
- Working on TIFF format since 1990 – 25 years of experience
- Extensive knowledge on all image formats
- Specialized in image formats for Digital Preservation
- Strong working relationship with more than 30 memory institutions
- Participation in numerous image and digital preservation R&D projects
- Extensive contribution to the scientific community with indexed articles
- In process of joining the Swiss National Standards Organization

**University of Girona:**
- Working on digital preservation in +5 R&D projects since 2007
- Contribution to the scientific community with +20 international papers
- Inventors of the Self Preserving Digital Objects
- Member of INTERPARES
**Memory Institutions Partners**

**Strong working relationship with the following 34 memory institutions:**

<table>
<thead>
<tr>
<th>Memory institution</th>
<th>City</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archäologische Bodenforschung</td>
<td>Basel</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Arxiu municipal de l'Ajuntament de Girona</td>
<td>Girona</td>
<td>Spain</td>
</tr>
<tr>
<td>Biblioteca de la Universitat de Girona</td>
<td>Girona</td>
<td>Spain</td>
</tr>
<tr>
<td>Bibliothèque cantonale et universitaire</td>
<td>Fribourg</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Bundesamt für Zivilschutz, Sektion Kulturgüterschutz</td>
<td>Bern</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Dokumentationsbibliothek</td>
<td>St. Moritz</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Eidg. Archiv für Denkmalpflege</td>
<td>Bern</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Freilichtmuseum Ballenberg</td>
<td>Brienz</td>
<td>Switzerland</td>
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<tr>
<td>Gemeindearchiv</td>
<td>Riehen</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Hochschule für Kunst und Gestaltung, Grafische Sammlung</td>
<td>Zürich</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Indiana University, Digital Library</td>
<td>Bloomington</td>
<td>USA</td>
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<tr>
<td>Kanton Appenzell A. Rh.</td>
<td>Herisau</td>
<td>Switzerland</td>
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<tr>
<td>Kantonsmuseum Baselland</td>
<td>Liestal</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Kantonsspital Basel</td>
<td>Basel</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Kunsthistorisches Institut Max-Planck-Institut</td>
<td>Florenz</td>
<td>Italy</td>
</tr>
<tr>
<td>Kunstmuseum</td>
<td>Basel</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Museum der Kulture</td>
<td>Basel</td>
<td>Switzerland</td>
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<td>Museum für Glasmalerei</td>
<td>Romont</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Museum für Kommunikation</td>
<td>Bern</td>
<td>Switzerland</td>
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<tr>
<td>Paul Sacher Stiftung</td>
<td>Basel</td>
<td>Switzerland</td>
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<td>Pestalozzi-Gesellschaft Oberwil</td>
<td>Oberwil</td>
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<tr>
<td>Rahvusarhiiv</td>
<td>Tallinn</td>
<td>Estonia</td>
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<td>Rechtshistorische Bildstelle Uni ZH</td>
<td>Zürich</td>
<td>Switzerland</td>
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<td>Switzerland</td>
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<td>Schweizer Radio DRS</td>
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<td>Switzerland</td>
</tr>
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<td>Bern</td>
<td>Switzerland</td>
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<td>Schweizerisches Bundesarchiv</td>
<td>Bern</td>
<td>Switzerland</td>
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<tr>
<td>Schweizerisches Landesmuseum</td>
<td>Zürich</td>
<td>Switzerland</td>
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<tr>
<td>Stiftsbibliothek</td>
<td>St. Gallen</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Stiftung Luftbild Schweiz</td>
<td>Regensdorf</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Tate Gallery</td>
<td>London</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>Verlag Paul Haupt</td>
<td>Bern</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Yale University Press</td>
<td>London</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>Zentrum Paul Klee</td>
<td>Bern</td>
<td>Switzerland</td>
</tr>
</tbody>
</table>
Participation on Relevant R&D Projects

Easy Innova and UdG projects:

Universiy of Basel projects:
### Easy Innova and UdG relevant publications:

- Josep Lluís de la Rosa, Albert Trias, Raivo Ruusalepp, Kuldar AAs, Alex Moreno, Eloy Roura, Albert Bres, and Teresa Bosch. *Agents for Social Search in Long-Term Digital Preservation*. 6th Intl Conf. on Semantics, Knowledge and Grid, SKG 2010, Nov 1-3, Ningbo, China

### University of Basel relevant publications:

- Lukas Rosenthaler, Peter Fornaro and Claire Clivaz, “National Data Curation and Service Center for Digital Research Data in the Humanities”, Proceedings Digital Humanities 2014 (to be published)
- Peter Fornaro, Andreas Wasmer, Lukas Rosenthaler and Rudolf Gschwind, “Monolith: Materialised Bits, the Digital Rosetta Film”, Proceedings Digital Humanities 2014 (to be published)
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Deeper needs analysis of the PREFORMA requirements:

- Questionnaire for Intl. Memory Institutions
- Our knowledge and experience

Few Relevant Findings:

Are you aware of the importance of well formatted file structure following the standards and how it influences in his preservability?

- Yes
- No

Do you use any software, like JHOVE, in order to check a well formatted file or its standard compliance?

- Yes
- No

LARGE = 40 X medium = 1600 X small

* Regarding number of digital images

Questionnaire for Memory Institutions

The purpose of this questionnaire is to get a better understanding of the needs and current technologies used by Memory Institutions for the digital preservation of their assets.

The information obtained from this questionnaire will be used for decision making purposes by the European Union PREFORMA project (PREServation FORMAts, http://www.preforma-project.eu). The aim of the project is to address the challenges of implementing good quality standardised file formats for preserving data content in the long term.

The questionnaire has been created and is managed by EasyInnova, an R&D centre specialised in innovation, artificial intelligence and European programs, in collaboration with the University of Girona and the University of Basel.

Do they apply the OAIS model to their memory institution?

- LARGE: 75% do
- medium: 33% do
- small: 21% do

Questionnaire: https://docs.google.com/forms/d/1YiXxRN70xae9JnEPxsvGNMoF8N8iMxfKvtuHU6mX0RM/viewform
Initial Presentation

**TIFF Format & Preservation Issues**

1. TIFF Format – State of the Art
2. TIFF Preservation Issues
3. TIFF/A Standard Proposal

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---

Dr. PETER FORNARO
Managing Director at University Basel
[Email](mailto:peter.fornaro@unibas.ch)

UNIVERSITY OF BASEL
[Website](http://www.unibas.ch)
TIFF Format – State of the Art

It is there!

• Tiff was the major file (digital master) for archival purposes
  • TIFF is a final rendered image
  • TIFF is 16bit
  • TIFF is lossless
  • TIFF is professional
  • TIFF is multichannel and multilayer

• Many archives and museums store TIFF files
  • because the others do it
  • because it is of large data volume
  • because it is widely used and well documented

It is simple but complex!

• The basic technical structure of a TIFF file is relatively simple but it historical “evolution“ made it to a complex format (eg metadata)
• The TIFF standard is referring to numerous other standards
• The baseline TIFF is not often found in real world applications

It has some derivates!

• TIFF/EP (ISO 12234-2) Camera Raw File
• TIFF/IT (ISO 12639) Transfer between high end publishing systems
• TIFF-F (RFC 2306) Recommendation for fax application
• TIFF-FX (RFC 3949) Recommendation for internet fax application
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Managing Director at University Basel
peter.fornaro@unibas.ch

UNIVERSITY OF BASEL
www.unibas.ch
Preservation facts about TIFFs!

- Most users do not know what kind of TIFF is stored, some do not even know what software has been used to create the files.
- It is common sense that a TIFF is good for “archival use” and this “fact” has been communicated over quite some time.
- For most users a file is defined by the filename extension, eg TIFF and nothing else.

It needs a clear definition of allowed and forbidden features in a TIFF File

Technical preservation facts about TIFFs!

- The baseline TIFF itself cannot be chosen as archival master file format because some important features are lacking, eg 16bits / channel or CCITT Group 3 or Group 4 or LZW compression, that are widely used in archives.
- It is important to define recommendations or boundaries for the correct creation and validation of TIFF in archives.

But what is the correct subset of features?
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UNIVERSITY OF BASEL
www.unibas.ch
TIFF for Archives!

- The PDF/A is a subset of PDF that is conform to archival needs
- The TIFF/A is similar to that concept a result of a conformance checked TIFF.

What does it mean?

- It is a TIFF that is optimized for the archival needs regarding quality (image, metadata) and permanence.
- It has mandatory, optional and forbidden tags.
- It is enriched by recommendations for standardized meta-data
- It is taking care of the all already archived TIFFs

1st draft already prepared!
Initial Presentation

TIFF format & preservation issues

DPF Manager Design

1. How DPF Manager will work (Graphical User Interface)
2. Design principles
3. Architecture
4. Other interfaces & 3rd party integrations
5. Use scenarios

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Final Conclusions
Home Screen

New configuration
- Implementation checker
- Policy checker
- Reporter
- Metadata fixer
- Periodical checks
- Summary

Check files
- Multiple file report
- Single file report

View historical data
- List of previous reports

Check files
- Files:
  - localhost:8888/path/file.tif
  - Select

Configuration:
- Default
- B&W TIFF / IT
- Another custom configuration

IMPORT CONFIGURATION
NEW CONFIGURATION

Check files
New Configuration > Implementation Checker

- New configuration
  - Implementation checker
  - Policy checker
  - Reporter
  - Metadata fixer
  - Periodical checks
  - Summary

- Check files
  - Multiple file report
  - Single file report

- View historical data
  - List of previous reports

Standards
- TIFF/IP (ISO 12369)
- TIFF/IT-P1 (ISO 12639:1998)
- TIFF/IT-P2 (ISO 12639:2004)
- TIFF/A (To be standarized)

Continue
New Configuration > Policy Checker

- New configuration
  - Implementation checker
  - Policy checker
  - Reporter
  - Metadata fixer
  - Periodical checks
  - Summary

- Check files
  - Multiple file report
  - Single file report

- View historical data
  - List of previous reports
New Configuration > Reporter

- New configuration
- Implementation checker
- Policy checker
- Reporter
- Metadata fixer
- Periodical checks
- Summary

Check files
- Multiple file report
- Single file report

View historical data
- List of previous reports

NEW CONFIGURATION

Format

- HTML
  - Select HTML template
  - Expert mode
- PDF
  - Select PDF template
  - Expert mode
- XML
- JSON

Continue
New Configuration > Metadata Fixer

New configuration
- Implementation checker
- Policy checker
- Reporter
- Metadata fixer
- Periodical checks
- Summary

Check files
- Multiple file report
- Single file report

View historical data
- List of previous reports

Automatically fix metadata errors
- Remove private data

Automatically add metadata to files
- Copyright
- PREFORMA project

Add new field

Automatically remove metadata from files
- Author
- Date

Select field

Add new field to remove

Continue
New Configuration > Periodical Checks

- New configuration
  - Implementation checker
  - Policy checker
  - Reporter
  - Metadata fixer
- Periodical checks
- Summary

Check files
- Multiple file report
- Single file report

View historical data
- List of previous reports

---

**NEW CONFIGURATION**

- Run this check once
- Run this check every:
  - Week

- Monday: 
- Tuesday: 
- Wednesday: 
- Thursday: 
- Friday: 
- Saturday: 
- Sunday: 

At:
- 12:00 h

Send the report by email after each check finishes:
- admin@archive.org

Continue
## New Configuration > Summary

**New configuration**
- Implementation checker
- Policy checker
- Reporter
- Metadata fixer

**Summary**

**Check files**
- Multiple file report
- Single file report

**View historical data**
- List of previous reports

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
</table>
| Policy checker  | Policy: 3200px x 4800px
Color profile = sRGB
Image width = 3200px |
| Report          | Format: HTML
Default template, expert mode
XML                                                                 |
| Metadata fixer  | Fix errors automatically
Remove fields
Author, Date
Add fields
Copyright = PREFORMA project |
| Periodical Checks | Every week (Tuesday, Thursday at 12:00 h)
Send report by email to: admin@archive.org |
Home Screen

New configuration
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- Policy checker
- Reporter
- Metadata fixer
- Periodical checks
- Summary

Check files
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- Single file report

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- List of previous reports
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- Policy checker
- Reporter
- Metadata fixer
- Periodical checks
- Summary

Check files
- Multiple file report
- Single file report

View historical data
- List of previous reports
Check Files > Single File Report

- New configuration
  - Implementation checker
  - Policy checker
  - Reporter
  - Metadata fixer
  - Periodical checks
  - Summary

- Check files
  - Multiple file report
  - Single file report

- View historical data
  - List of previous reports
**New configuration**
- Implementation checker
- Policy checker
- Reporter
- Metadata fixer
- Periodical checks
- Summary

**Check files**
- Multiple file report
- Single file report

**View historical data**
- List of previous reports

### Reports

<table>
<thead>
<tr>
<th>DATE</th>
<th>FILES PROCESSED</th>
<th>RESULT</th>
<th>FIXED</th>
<th>ERRORS</th>
<th>WARNINGS</th>
<th>PASSED</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>14/01/2015</td>
<td>5</td>
<td>4 files passed all checks</td>
<td>1 errors</td>
<td>15 warnings</td>
<td>20 passed</td>
<td>95%</td>
<td>(640 seconds)</td>
</tr>
<tr>
<td>12/01/2015</td>
<td>3</td>
<td>2 files passed all checks</td>
<td>1 errors</td>
<td>15 warnings</td>
<td>20 passed</td>
<td>95%</td>
<td>(640 seconds)</td>
</tr>
<tr>
<td>12/01/2015</td>
<td>1</td>
<td>1 file passed all checks</td>
<td>1 errors</td>
<td>15 warnings</td>
<td>20 passed</td>
<td>95%</td>
<td>(640 seconds)</td>
</tr>
<tr>
<td>09/01/2015</td>
<td>1</td>
<td>1 file passed all checks</td>
<td>1 errors</td>
<td>15 warnings</td>
<td>20 passed</td>
<td>95%</td>
<td>(640 seconds)</td>
</tr>
<tr>
<td>08/01/2015</td>
<td>5</td>
<td>3 files passed all checks</td>
<td>1 errors</td>
<td>15 warnings</td>
<td>20 passed</td>
<td>99%</td>
<td>(640 seconds)</td>
</tr>
<tr>
<td>07/01/2015</td>
<td>5</td>
<td>2 files passed all checks</td>
<td>1 errors</td>
<td>4 warnings</td>
<td>20 warnings</td>
<td>25%</td>
<td>(640 seconds)</td>
</tr>
</tbody>
</table>
DPF Manager Design

1. How DPF Manager will work (Graphical User Interface)

2. Design principles

3. Architecture

4. Other interfaces & 3rd party integrations

5. Use scenarios

Open Source Community

Business Plan

Final Conclusions
Design Principles

- **simplicity**
  users/developers: simple design with fast learning curve

- **use of standards**
  well know design patterns = legible & maintainable code

- **modularity**
  easy to develop, test, deploy & maintain

- **shell-cc independence**
  zero configuration

- **decoupling**
  event driven, scalable and easy to extend

- **start from scratch**
  cc core: no reuse of existing code
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Final Conclusions
Shell > Interface module

ARCHITECTURE

INTERFACE MODULE

Interfaces

Transport Services: Socket, HTTP & Web Sockets, SSL
Protocol support: HTTP & Web Sockets, SSL, zlib/gzip Compression, Large File Transfer

Core
- Request manager
- Session manager
- Communication Layer

GUI Interface
- visual interfaces: GUI Views
- Command Line Interface
- command interfaces: output format

Interface Controller
Architecture

Shell > Conformance Manager module

Protocol
- Client Request
- Internal functions

Core
- File identification
- Conformance Checker API
- Conformance Controller
Conformance checker
DPF Manager Design

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ROBERT SALLO
R&D Manager at Easy Innova
robertsallo@easyinnova.com

EASY INNOVA
www.easyinnova.com
Aimed at:
- Human users
- Integration with legacy systems
- Integration with DAM, image editing and other relevant software
- External producers

Documentation:
- Created by technical writers

```
c:\>dpfmanager.exe -help

no option When the dpfmanager is called without any option, the program will start in GUI mode

-help List all the available commands, with a short explanation for each one

-info Returns a list of all the conformance checkers that are available through this shell, and a structured description of what each conformance checker can do

-list Shows a list of the files that have been checked until now, with a summary of the result. This includes showing the results of periodical checks

-limit Maximum number of results returned by the -list option (e.g. 100)

-page If there are more results than -limit, request the x set of results

-files Path to the file or group of files (using wildcards) that the user wants to check

-config Path to the configuration file

-reports_folder Path to the folder where the generated report/s will be put

-fixed_files_folder If the metadata fixer is invoked and as a result the original file is modified or a duplicate file is created, this option allows the user to define the path to the folder where these files will be put

-server When the conformance checker is acting in client mode (-mode option), it needs to know the location (IP address or name of the server and port) of the conformance checker acting in server mode.

-port

-mode If unspecified, the shell will start in standalone mode.

The mode option can have three values:
```
### Webservice API

#### Aimed at:
- Integration with legacy systems
- Integration with DAM, image editing and other relevant software
- External producers

#### Documentation:
- Generated from source code comments and annotations
- Edited by technical writers

<table>
<thead>
<tr>
<th>HTTP verb and end point</th>
<th>Description</th>
</tr>
</thead>
</table>
| GET /conformance_checkers | Get a list of all the conformance checkers accessible through this shell.  
  **Input:** no parameters required  
  **Output:** returns a list of all the conformance checkers accessible through this shell, together with a structured description of their capabilities (what the implementation checker, policy checker, reporter and metadata fixer can do) |
| POST /conformance_checks | Request a check for a single or multiple files.  
  **Input:** list of files to be checked, and the configuration for the implementation checker, policy checker, reporter and metadata fixer.  
  **Output:** returns the data needed by the users to access the final report (checking large files can take some time, so the checking process is asynchronous). |
| GET /conformance_checks | Returns a list of all the previous conformance checks and their result.  
  **Input:** no parameters required, optional parameters include pagination of the results.  
  **Output:** a list of all the files that have been checked until now, together with the result of the check. |
| GET /results/{request_id} | Returns the result for a given conformance checking request.  
  **Input:** id of the request, as returned by the POST /conformance_checks call.  
  **Output:** returns a reference to the report/s generated for that request (if the conformance checking process has finished), and to the modified files if the metadata fixer was invoked. |
| GET /status/{request_id} | As the conformance checking process is asynchronous, the users can check the status of the request at any time to see if it is still ongoing or has already finished.  
  **Input:** id of the request, as returned by the POST /conformance_checks call.  
  **Output:** the status of the request (ongoing, finished), and... |
Internal API

**Aimed at:**
- Integration with legacy systems
- Integration with DAM, image editing and other relevant software

**Documentation:**
- Auto generated from source code comments and annotations
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R&D Manager at Easy Innova
robertsallo@easyinnova.com

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www.easyinnova.com
Use Scenarios

1. Standalone
   - Graphic Interface
   - Command line
   
   ```
   C:\> dpfmanager.exe -
   files=/archive/*.tiff -
   config=config.xml
   -reports_folder=/tmp/reports -
   fixed_files_folder=/tmp/files
   ```

2. Client - Server
   - Client
   - Server
   
   ```
   client:\> dpfmanager.exe
   -server=80.45.32.45
   -port=80
   ```
   ```
   server:\> dpfmanager.exe
   -mode=server
   ```
Use Scenarios

3

Browser Client

Web application

Server

Client

4

High availability

Server
Use Scenarios

External producer
Check files before sending to archive

- Standalone
- Client – server
- Web application

Software developer
Integrate with DAM, image/metadata editors

C:\>dpfmanager.exe -files=/archive/*.tiff
-config=config.xml
-reports_folder=/tmp/reports
-fixed_files_folder=/tmp/files

Command line

Framework

```java
import EasyInnova.DPFManager.*;

DPFManager dpfm = new DPFManager(options);

Report r = dpfm.check('file1.tiff');
```
Use Scenarios

Integration with OAIS

Document lifecycle
Conformance checking at:

- Creation
- Transfer
- Migration
- Digitalization

Reference framework
QA, AIP generation

Diagram showing the integration with OAIS, including Document lifecycle stages and Reference framework for QA, AIP generation.
Open Source Community

1. Dissemination Plan
2. Open Source Tools
3. Standardization Steps
4. Licensing & 3rd Party Libraries

Business plan
Final conclusions
Dissemination Plan

DPF Manager is not only a software project!!

Our objective:
Create a strong community around the DPF Manager project with a common interest:

File Format Validation for Digital Preservation (initially TIFF)

Dissemination plan content:
- Target audiences (6 collectives identified)
- Dissemination actions (50)
- Main dissemination channels (github & website)
- Actions calendar (next 3 years)

Open Source best practices:
- Continuous integration methodology (travis-ci.org)
- Git branches and pre-compiled executables
- Wiki, bugtracker, tutorials…
- Different roles managing the community (4)

The Dissemination Plan is a living document with a temporal window of 3 years
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Business plan
Final conclusions

Dr. MIQUEL MONTANER
CTO at Easy Innova
miquel@easyinnova.com

EASY INNOVA
www.easyinnova.com
Clear licensing: GPLv3 or later and MPLv2 or later

Download precompiled binaries: Stable, beta and nightly builds for Windows, Mac OS X, Ubuntu and other popular Linux/Unix distributions

Keep an eye on the project: Stay up-to-date and get notifications when the project is updated

Fork and check the source code: Take our code and integrate it with other software solutions like DAM and image editors

Issue manager: Report bugs and request new features.

Contribute: Help improve the code and functionality

Documentation: For developers and end users: architecture and API reference, tutorials, how-tos, cookbooks, etc.
Open Source Community

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Business plan
Final conclusions
How is it done?

- Development of 1st draft in close collaboration with memory institutions
- Start of a standardisation process
- Evaluation after 3 weeks by international expert group
- Set-up of workgroup by ISO to discuss the standard proposal
- Definition of final standard within < 3 years
EASY INNOVA recently became a full member of AENOR/CTN50 SC1 (Spanish mirror of ISO/TC 171). That gives us rights to propose and vote on new ISO standards.

ANSI, secretariat of ISO ISO/TC 171 Document management applications committee, has invited us to a Technical Advisory Group meeting in San Jose, CA in April 21st-24th 2015 to discuss the TIFF/A proposal.

The University of Basel is in process to join the ISO/TC 171 mirror committee in SNV, the Swiss National Standards Organization.

We already have the support of 60 memory institutions of 14 different countries!
Open Source Community

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CTO at Easy Innova
miquel@easyinnova.com
Licensing & 3rd Party Libraries

Easy Innova is under legal advice of Malcom Bain from ID Law Partners

I am writing this to confirm that we have been acting for you as legal advisers to Easy Innova and its collaborators with respect to the PREFORMA Tender and Project.

Malcolm Bain
ID LAW partners

Malcolm Bain specialises in Information Technology law and Intellectual Property law. He has a wide experience representing clients on both sides of IT transactions, with a special focus on the legal issues of open source software and content.
The legal advice includes:

- Authorship and rights in the proposed solution.
- Listing of proposed third party components and identification of the relevant licenses.
- Analysis of the architecture of the proposed solution and interrelations between software components.
- Analysis of the license obligations and their compatibility with the required license for the solution.
- Compliance with the licensing obligations of the different components of the solution with the required dual free software licenses GPL3+/MPL2+.
- Advice on the implications and process for delivering the proposed solution to PREFORMA under the dual free software license GPL3+/MPL2+.
- Advice on free documentation license Creative Commons.
- Training to project engineers on FOSS licensing and best legal practice in code management and development.
- Legal due diligence on delivered code, with report on authorship and rights, licensing and license compliance.
- Update memorandum on the compliance of the delivered solution and documentation with the Tender specifications and contract.
- Legal documentation and recommendations for publishing the resulting solution under the required license.
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Business Plan

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Business Plan (2017-2020)

Strategic objectives:
- A portfolio of over 300 memory institutions in 3 years
- Be present in 35 different countries in 2020
- A community of 2,000 members by the end of 2020
- A network of 50 service providers in 2020
- Over 1.5 million Euros in revenue by the end of 2020

Services (business model):
- Cloud-based SaaS service
- On premise deployment
- Tech support & maintenance contracts
- Marketplace (3rd parties modules)
- Certification for service providers
- Consultancy services & trainings

Result of the financial analysis:
With an additional investment of 200,000€ after the project, we expect by the end of the 3rd year:
- **NPV** of **874,079.86€**
- **IRR** of **218.60%**
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Prof. JOSEP LLUÍS de la ROSA
Full Professor at University of Girona
pepluis@eia.udg.edu
CEO at Easy Innova
Final Conclusions

- **Strong team** with wide experience on TIFF, Image formats, and digital preservation

- **Open design decisions** taken accordingly an extended survey on memory institutions needs

- TIFF format is **not fully suitable** for image preservation – a TIFF/A standard is proposed

- We already have the support of **61 memory institutions** to create the TIFF/A standard

- DPF Manager has been designed to fit the needs of all memory institutions, of any size

- **A simple user interface** lowers the barriers to the adoption of our solution

- Due to the **well designed architecture**, it must be ready for any future applications

- Fast deployment expected thanks to **integration flexibility** and customization capabilities
Final Conclusions

- We have a **dissemination plan** with more than 50 actions to ensure **community engagement**

- We already initiated the process with **standardization bodies** to create a new standard: **TIFF/A**

- DPF M. **fully compliant with GPL3+ and MPL2+** – Certified by Malcom Bain from ID Law Partners

- We strongly believe that DPF Manager open source platform can be a **profitable business in 2020**
Thanks for your attention!
FEEL FREE TO ASK US

www.easyinnova.com