Digital Preservation in Cultural, Governmental and Business Sector

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Contents

1. Introduction
2. Digital preservation
3. PRONOM and DROID
4. Conversion software registry
5. Preservation planning
6. Long-term digital preservation as a service
7. Summing up
8. Governmental and business sector
9. Conclusion

1. Introduction

- Cultural heritage objects transferred into digital form, or those born digitally, need to be actively preserved over the long time.
  - simple statement
  - overwhelming set of problems
- Paradigm shift
  - the message does not depend on the medium to be preserved
  - trained digital preservation specialists

1. Introduction …

- Advancements of information technology:
  - do we have legacy data?
  - can we read it?
  - have we tried to read it?
  - did we have problems reading, using or interpreting legacy data?

- How to approach this problem and solve it?

2. Digital preservation

- Technical preconditions for digital preservation:
  - dividing data from software
  - standardisation of data
  - interoperability of tools and systems
- Requirements for digital records (ISO 15489-1:2001 – Information and documentation – RM)
  - authenticity, integrity, reliability and usability
- Long-term preservation of research results!
  - archaeological site ➡ digital site ➡ future advanced modeling

2. Digital preservation …

- Preservation needs of the digital cultural heritage
  - *preservation action* – activity which makes the preserved data more reliable
  - usually migration, but sometimes, emulation, virtualisation etc.
- Services that could help conducting preservation actions

3. PRONOM and DROID

- Scenario 1
  - file format threatened to become obsolete (e.g. AutoCAD Release 9 Drawing .dwg)
  - migration needed (old format➡ new format)
  - what applications support new file format?
  - what other formats it could be further converted into?
- PRONOM – the online registry of technical information
  - more than just a database of technical information

http://www.nationalarchives.gov.uk/PRONOM/Default.aspx

3. PRONOM and DROID …

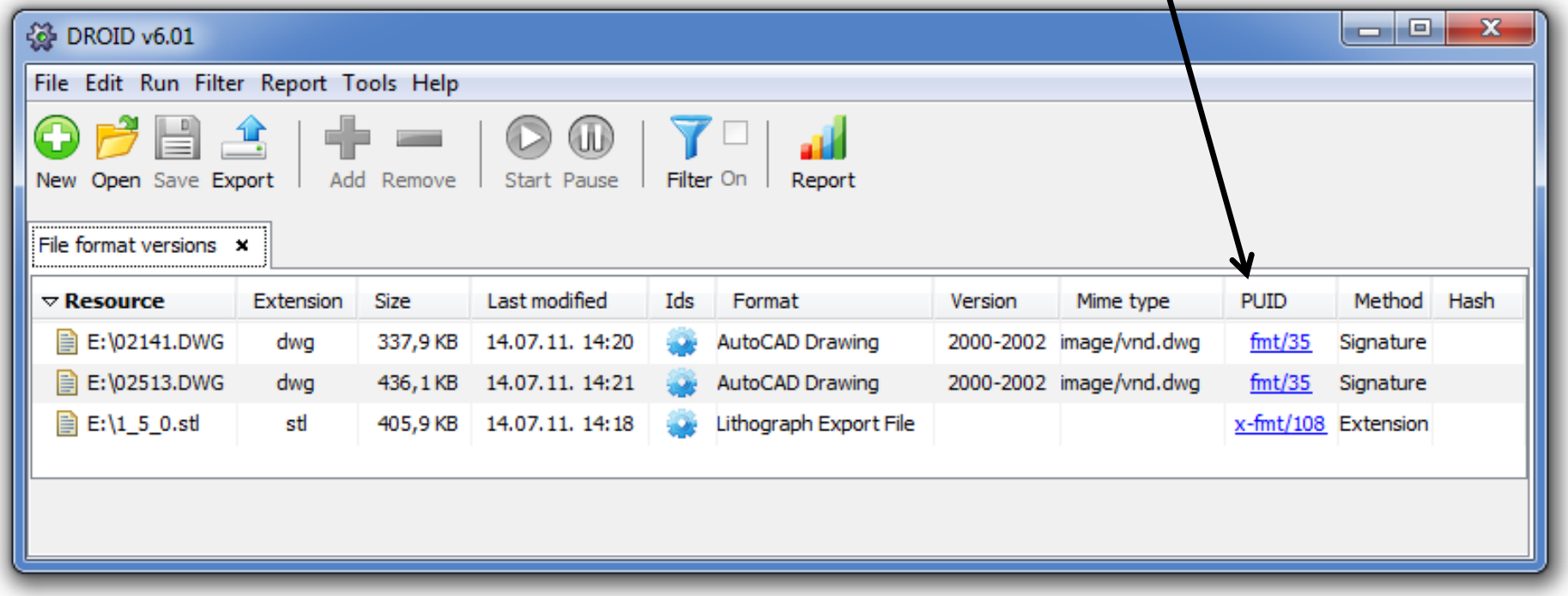
- PRONOM
  - tools, and services to support digital preservation functions such as preservation risk assessment, migration pathway planning, object identification and validation, and metadata extraction
- DROID – Digital Record Object Identification
  - one of PRONOM tools
  - automated batch identification of file formats ➡ identification of precise format of all stored digital objects ➡ link to PRONOM

http://sourceforge.net/projects/droid/

3. PRONOM and DROID …

- DROID

PRONOM Persistent Unique Identifier



- PRONOM – important for preservation planning and testing the best migration paths

Summary

Name	AutoCAD Drawing
Version	2000-2002
Other names	DWG (2000-2002)
Identifiers	PUID: fmt/35 MIME: image/vnd.dwg
Family	DWG
Classification	Image (Vector)
Disclosure	Partial
Description	The AutoCAD Drawing format is a vector graphics format, and is the native file format of AutoDesk's AutoCAD family of products. The format is proprietary and AutoDesk does not make details of its structure public. The information contained here is derived primarily from the OpenDWG Alliance's reverse-engineered documentation of the format, and should not therefore be regarded as definitive. The basic structure of a DWG file comprises a header section, a drawing class definitions section, the drawing object data, a drawing object map, which contains the locations of all the objects in the drawing, and an image data section, which may contain a raster image of the drawing in either Windows Bitmap (BMP) or Windows Metafile (WMF) format. DWG version 2000-2002 is the version of the format associated with Releases 2000, 2000i and 2002 of AutoCAD.
Orientation	Binary
Byte order	Little-endian (Intel)
Related file formats	Has lower priority than Drawing Interchange File Format (ASCII) (2000-2002) Is previous version of AutoCAD Drawing (2004-2005) Is subsequent version of AutoCAD Drawing (R14)

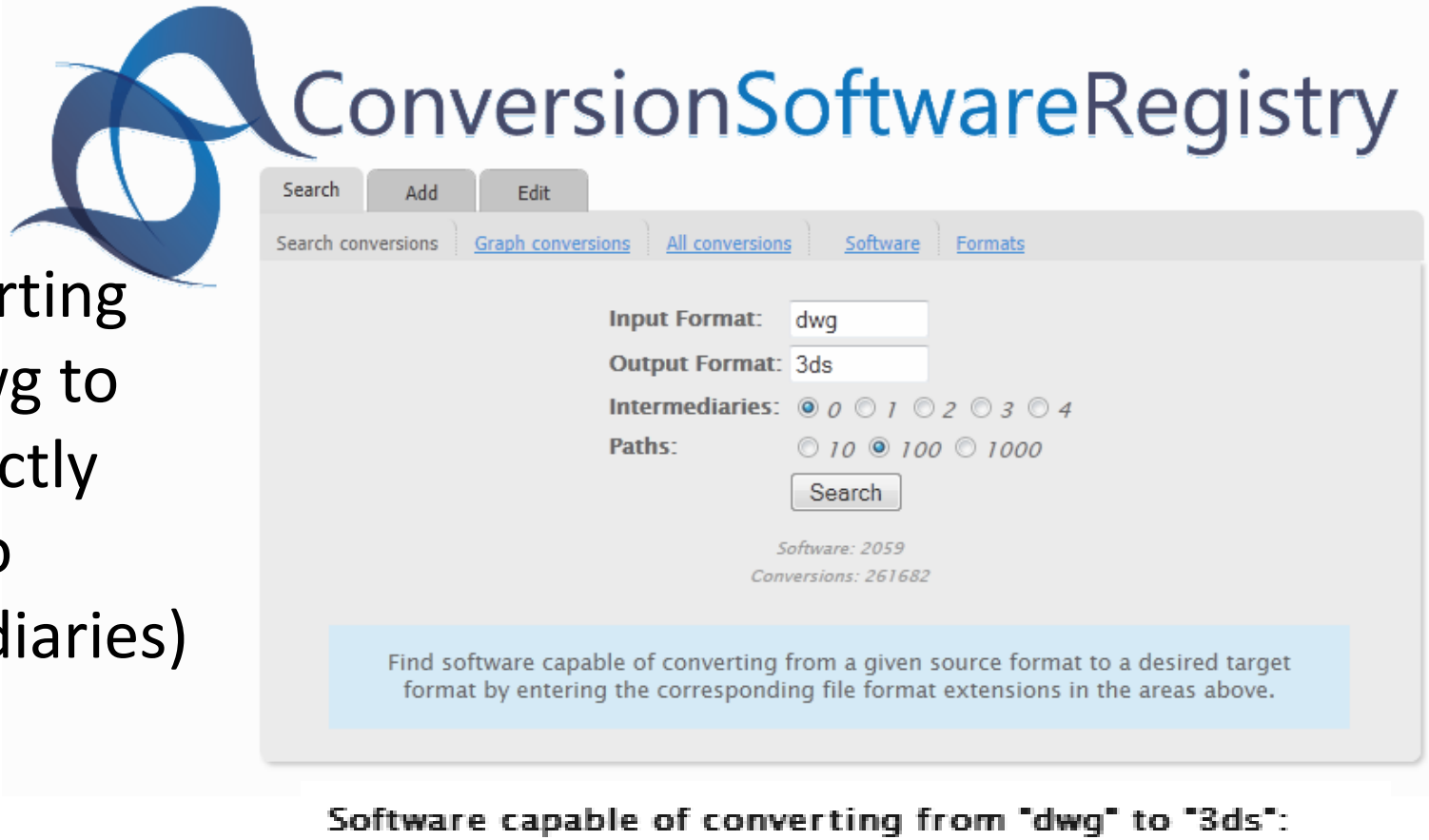
4. Conversion software registry

- CSR is a web service for finding “software capable of converting from a given source format to a desired target format by entering the corresponding file format extensions”
  - registry differentiates between 2,059 different software applications
  - total of 261,709 mutual conversions
  - choice of intermediary formats

http://isda.ncsa.uiuc.edu/NARA/CSR/php/search/conversions.php

4. Conversion software registry …

- listing of software capable of converting from .dwg to .3ds directly (using no intermediaries)

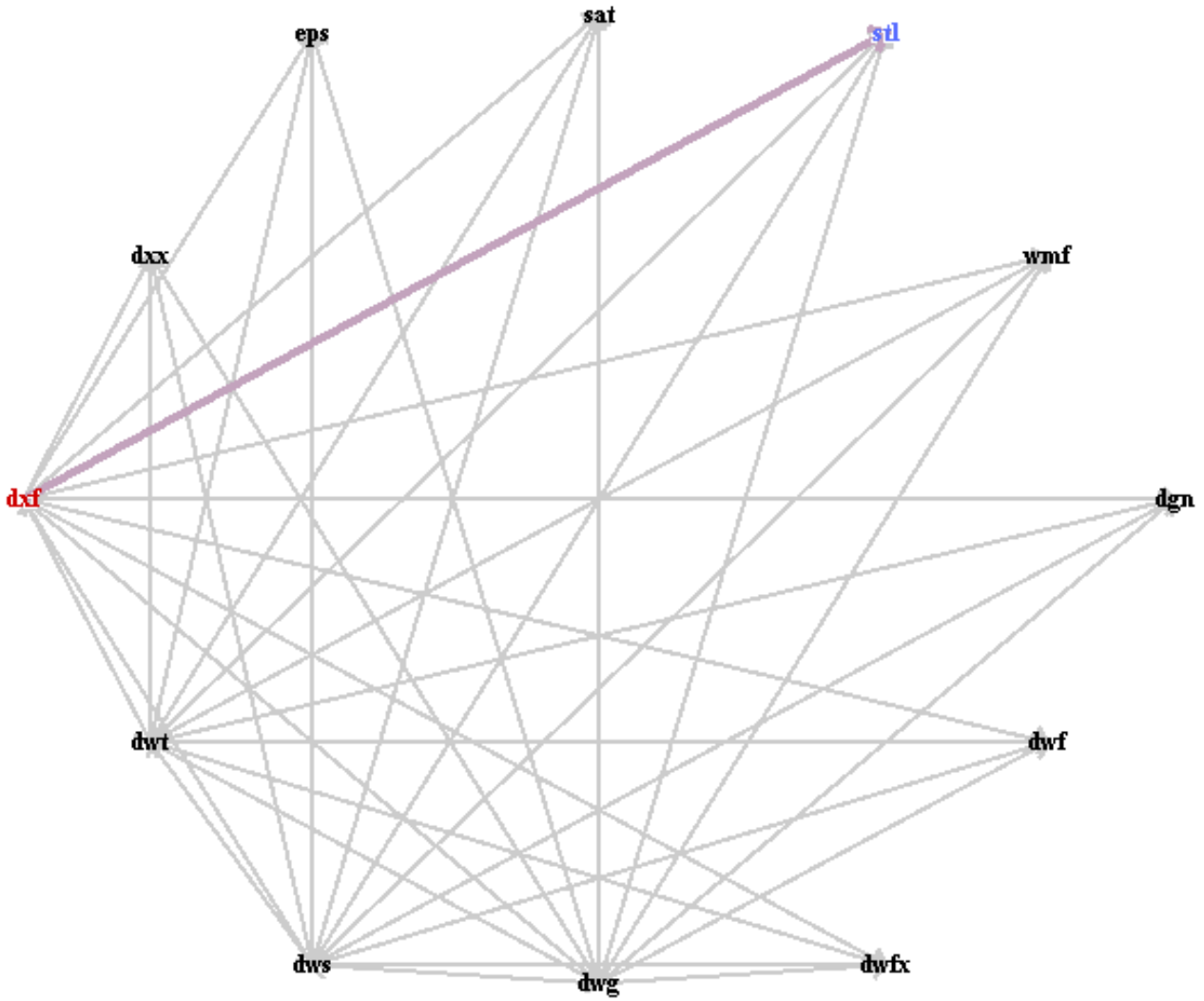


4. Conversion software registry …

- from .dwg to .3ds using 1 intermediary format (41 in total)

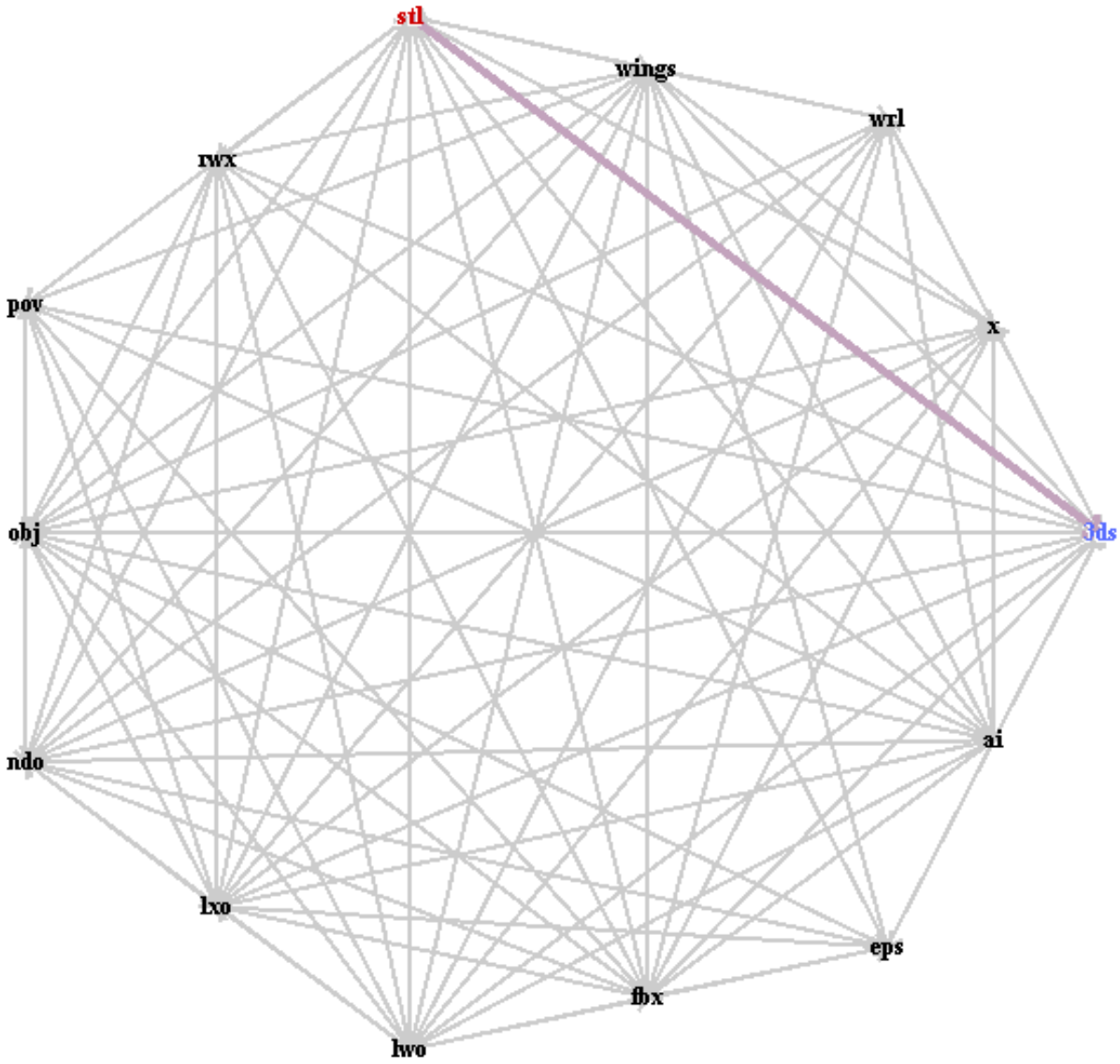
1. dwg → Acme Cad Converter → eps → Blender → 3ds
2. dwg → Acme Cad Converter → svg → Blender → 3ds
3. dwg → Acme Cad Converter → dxf → null → 3ds
4. dwg → Acme Cad Converter → dxf → Blender → 3ds
5. dwg → Acme Cad Converter → dxf → 3DWin5* → 3ds
6. dwg → Acme CAD Converter → dxf → null → 3ds
7. dwg → Acme CAD Converter → dxf → Blender → 3ds
8. dwg → Acme CAD Converter → dxf → 3DWin5* → 3ds
9. dwg → Acme CAD Converter → svg → Blender → 3ds
10. dwg → Acme CAD Converter → eps → Blender → 3ds
11. dwg → Any Audio Converter → dxf → null → 3ds
12. dwg → Any Audio Converter → dxf → Blender → 3ds
13. dwg → Any Audio Converter → dxf → 3DWin5* → 3ds
14. dwg → AutoCAD → dxf → null → 3ds
15. dwg → AutoCAD → dxf → Blender → 3ds

- Audio To Exe
- Audio/Video to EXE
- AudioMove
- AudioTools Video Converter Max
- AudioTools Video Cutter Max
- Audiobook Binder
- Audiovideo To Wav Converter
- Aura Free Video Converter
- Aura Video to Audio
- AurigaDoc
- AuthorPoint Lite
- Auto Kindle eBook Converter
- AutoApplyConvert
- AutoCAD
- AutoCAD DWG to Image Converter
- AutoDWG Conversion Server
- AutoGordianKnot
- Automatic Image Converter
- Autorun CD Studio
- Avatar Sizer
- Avi To Dvd Free Converter
- Avi to Mpeg
- Avi4Bmp
- AviDvd
- Avidemux
- Avro Converter
- BBox Audio Player & Organizer
- BITMAP GREYSCALE
- BMP TO ASCII
- BMP to JPEG Converter
- BSB Converter
- Baby Flash Player



dxf -> (AutoCAD) -> stl

- WinX Free PSP Video Converter
- WinX Free QT to MPEG Converter
- WinX Free VOB to AVI Converter
- WinX Free VOB to MP4 Converter
- WinX Free VOB to iPod Converter
- WinX Free WMV to 3GP Converter
- WinX Free WMV to AVI Converter
- WinX Free WMV to Iphone Covnerter
- WinX Free WMV to MP4 Converter
- WinX Free WMV to MPEG Converter
- WinX Video Converter
- WinXMedia AVI WMV MP4 Converter
- Windows Media Bonus Pack for Window
- Windows Media Encoder
- Wings 3D
- Winish Youtube Downloader
- Winsh Youtube Downloader
- Winx Free Avi to PSP Video Converter
- Winx Free MOV to MPEG Video Converte
- Winx Free MOV to WMV Video Converter
- Winx Free Mp4 to 3GP Video Converter
- WonderWebWare Text to HTML Converte
- Wonderwebware RTF to HTML Converte
- Word
- Word 2003 Sample Transforming Word I
- Word DOC TXT RTF to PNG Converter 3(
- Word Excel PowerPoint to Pdf Converter
- Word Excel PowerPoint to Text Converter
- Word Excel to HTM HTML Converter 300(
- Word PowerPoint to FLV Convert 3000
- Word PowerPoint to Flash Converter 30(
- Word To HTML Converter Tool



stl -> (Wings 3D) -> 3ds

4. Conversion software registry …

- CSR could
  - help mapping of applications creating digital objects to file formats they are either capable to open or save into
  - make the needed conversions as seamless as possible by detecting the shortest migration/conversion route(s) from one file format to another

  … but …

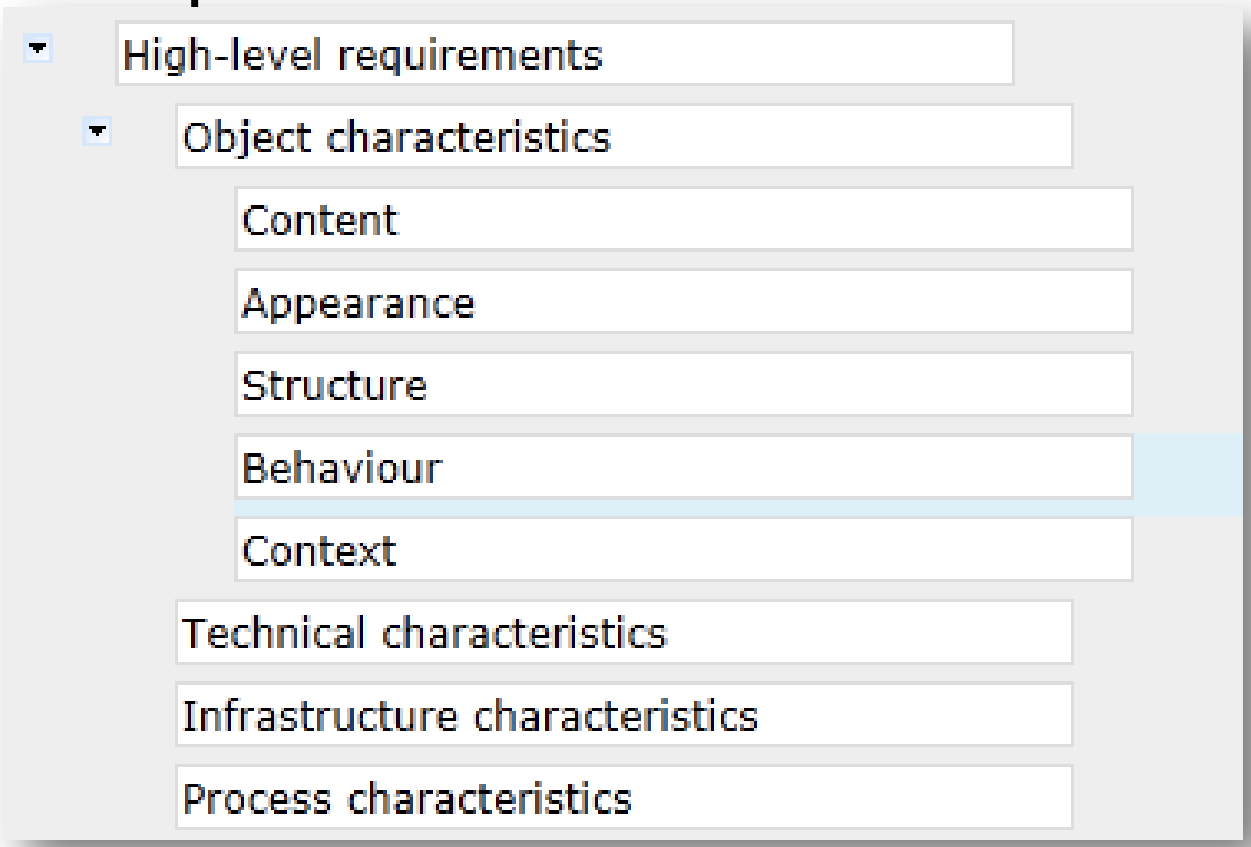
5. Preservation Planning

- CSR provides the most optimal migration route
  - is it the best one?
  - are the migration results excellent or satisfactory (or worse than that)?
- PLATO Preservation planning tool
  - publicly available Web-based decision support tool
  - tool for defining and testing the best migration paths
  - tool for creation of a documented preservation decision

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

5. Preservation Planning …

- PLATO Preservation planning tool – part of the defined requirements



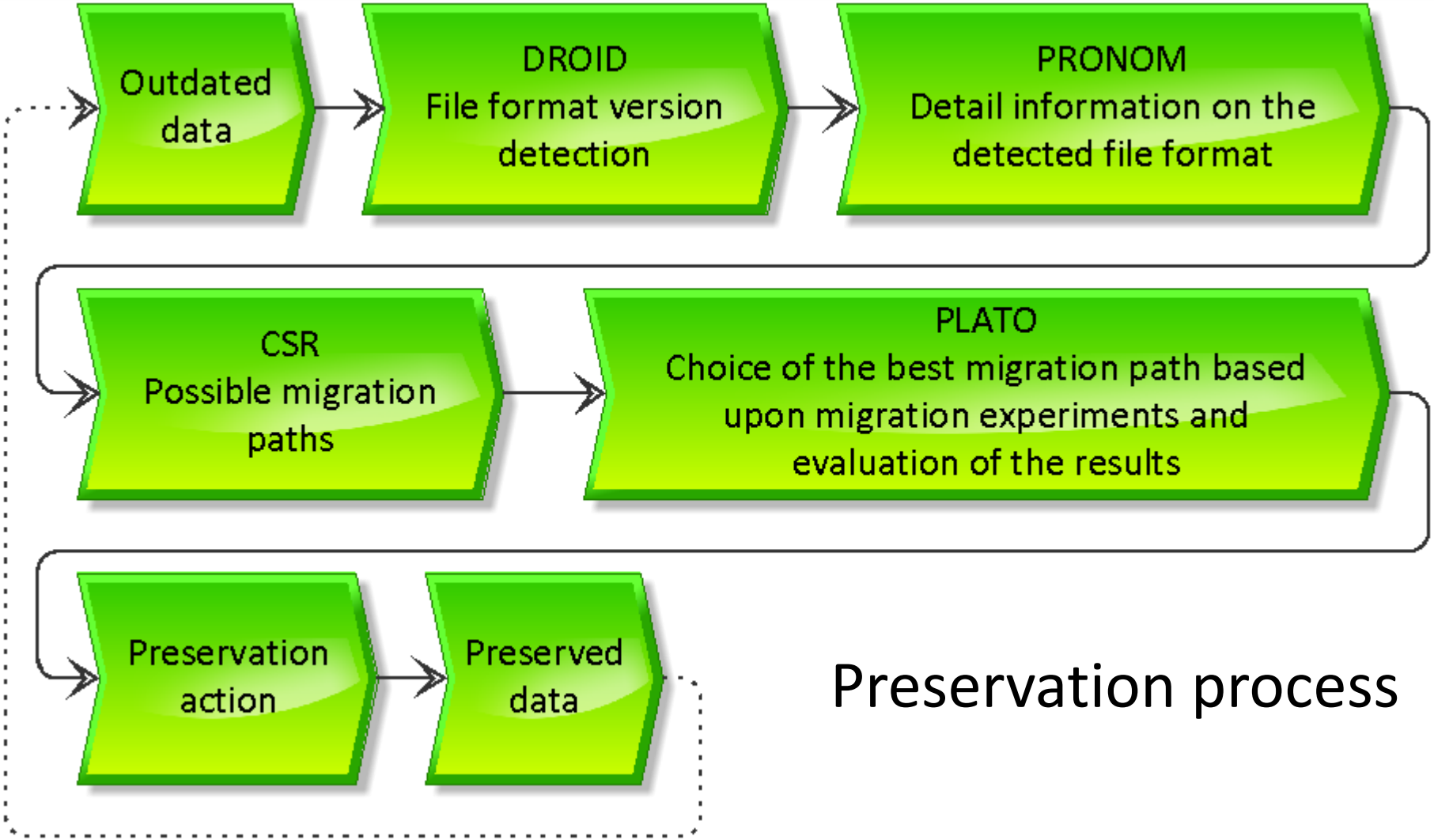
6. Long-term digital preservation as a service

- Preservation could be outsourced – cloud storage
- Archaeology data service (ADS)
  - University of York, UK
  - offers long-term digital preservation services for other institutions not capable or having not enough in-house expertise for such procedures
  - “The aim of the ADS is to collect, describe, catalogue, preserve, and provide user support for digital resources that are created as a product of archaeological research.”

6. Long-term digital preservation as a service …

- How much does it cost?
  - *"30p per megabyte to cover storage and refreshment"* (equivalent to 0,37€ or 2,7kn) and
  - *"this charge will be applied to the whole preservation footprint of an archive"* = deposited files AND archival (migrated) versions
- shows trends in offering services for outsourced long-term preservation of digital (archaeological, GIS, visualisation) data

7. Summing up



Preservation process

8. Governmental and business sector

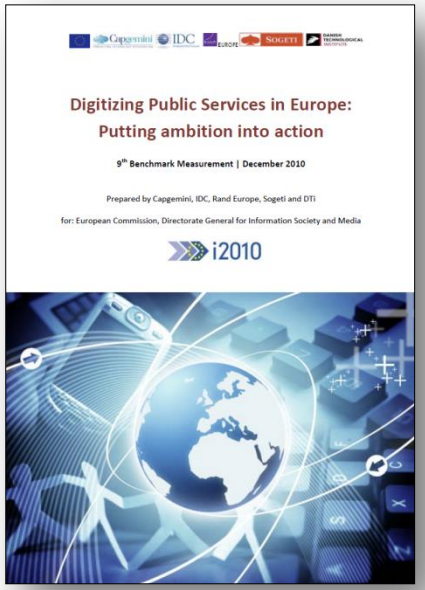
- So far – focus on cultural heritage
- Long-term preservation is not only specific to cultural heritage institutions

- e-Services
  - modern governments: G2C, G2B
  - modern businesses: B2C, B2B
  - citizens: C2C

8. Governmental and business sector

- e-Government services analysis adopting the "representative basket of 20 services" from:

  Digitizing Public Services in Europe: Putting ambition into action,
  European Commission,
  9th Benchmark Measurement,
  December 2010



- Two main groups
  - e-Services for Citizens (12 services) – G2C
  - e-Services for Businesses (8 services) – G2B

8. Governmental and business sector

- e-Services for Citizens
  1. Income taxes
  2. Job search
  3. Social security benefits
  4. Personal documents
  5. Car registration
  6. Application for building permission
  7. Declaration to the police
  8. Public libraries
  9. Birth and marriage certificates
  10. Enrolment in higher education
  11. Announcement of moving
  12. Health-related services

8. Governmental and business sector

- e-Services for Businesses
  1. Social contribution for employees
  2. Corporate tax
  3. VAT (Value Added Tax)
  4. Registration of a new company
  5. Submission of data to the statistical offic
  6. Custom declaration
  7. Environment-related permits
  8. Public procurement

8. Governmental and business sector

- Trust in e-Government services
- **Break-out session**
- Discuss issues relevant for making an *e-service* a *trusted e-service*. Think in 4 categories:

1. Business organisation
2. Technological solutions
3. Storage and long-term content availability
4. System operation transparency

8. Governmental and business sector

- Discussion questions
  - Do we take it for granted? Or, do we just want a service to be fast and simple, and we do not care much?
  - What can we (as archival professionals) do in order to improve the situation?
  - Life-long learning?!

Conclusion

- Long-term preservation – complex set of issues
- Analysis of the available tools, applications and services that could help in the process of preservation
- By a relatively straightforward procedures one could significantly improve the preservation process
- One should “only” be aware of the problem, address it properly and proactively

THANK YOU!

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