



Digital**Preservation**Coalition

Getting Started in Digital Preservation: what do I need to know?

It won't go away
It won't do itself

You already have many of
the skills you need!

William Kilbride
@williamkilbride



Digital**Preservation**Coalition

Digital preservation typically makes bleak reading ...

When asked about how long their digital resources would be available for, JISC-funded projects said ...

‘In perpetuity’

‘Indefinitely’

‘50 years’

‘10 years then elsewhere’

‘until 2014’

‘forever or for three years’

DPC/Portico/ULCC 2010



Digital**Preservation**Coalition

Digital preservation typically makes bleak reading 2



“...of all the web links cited in answers to parliamentary questions 1997-2006, 40 percent are now broken”
(Spencer et al 2009)



Digital**Preservation**Coalition

Digital preservation typically makes bleak reading 3

<Enter your details here>

.....

.....

.....



What's the problem?

- Digital data (images, documents etc) have value
- They create opportunities
- ...but...
- Access depends on software hardware and people
- Technology and people change
- ...therefore...
- Technology can create barriers to reuse
- So, managing data in the long term protects and creates opportunities

- We don't do it 'just because'

We do preservation because we want to be:

1. Transparent

e.g. Data Protection, Freedom of Information ... childcare, human tissue

2. Safer

e.g. preparedness, detection, disaster, recovery, audit

3. Smarter

e.g. scientific value, access to heritage, value of social knowledge

4. Wealthier

e.g. efficient business, management of IP, employment, planning, creative

5. Healthier

e.g. managed life history, research and safe innovation

6. Greener

e.g. evidence-based policy development, efficient data retention

And because of

1. Legal Compliance

e.g. Sarbanes-Oxley, Data Protection

2. Regulatory Compliance

e.g. power generation, aviation, banking

3. Legal protection

e.g. patents, mis-selling, detection, audit

4. Unanticipated exploitation

e.g. petro-chemical, music,
pharmaceuticals

5. Business Continuity and improvement

e.g. product recall, disaster recovery

6. Business Value

e.g. getting the right information to the
right people at the right time in a format
they can use



Digital**Preservation**Coalition

Digital preservation is not just about 'data':

Digital preservation is not just about 'access':

Digital preservation is not just about 'risk':

it's about

people and

opportunity

A yellow starburst graphic with multiple points, containing the text 'Start here!'.

Start
here!

*Four basic responses to
long-term preservation:*

- *Some fancy words*



Digital**Preservation**Coalition

1. Migration

Changing the format of a file to ensure the information content can be read

2. Emulation

Intervening in the operating system to ensure that old software can function and information content can be read

3. Hardware preservation

Maintaining access to data and processes by maintaining the physical computing environment including hardware and peripherals.

4. etc

Research and development field, new solutions and new approaches continue to emerge, eg virtualisation for preservation



Digital**Preservation**Coalition

*Six basic challenges and
how to address them*

- *Tools*
- *Services*
- *Fancy words*



Challenge 1:

Access and long term use depends on the constant configuration of hardware. software data and the capacity of the operator.

... so we need to capture this configuration and use it to enable access.

Metadata, documentation, representation information



Challenge 1:

*Metadata, documentation,
representation information*

Different levels of answer:

- *OAIS Information Model*
- *PREMIS Data Dictionary*
- *METS for wrapping data*
- *Registry services (e.g
TOTEM, PRONOM etc)*



Digital**Preservation**Coalition

Challenge 2

Technology continues to change creating the conditions for obsolescence.

... so we need to plan accordingly, expecting that our current plans may need to change.



Digital**Preservation**Coalition

Challenge 2

Planning and learning

Be a learning institution

Different solutions:

- *OAIS Planning Functions*
- *PLATO: Tool – Library and Methodology*
- *PLANETS Testbed*
- *Audit and certification:
DANS, TRAC / 16363,
DIN 31644*



Digital**Preservation**Coalition

Challenge 3

Storage media fail, have a short life and storage devices are subject to obsolescence.

... so we need a storage strategy which includes error checking and refreshment



Challenge 3

Storage and refreshment

Different Solutions:

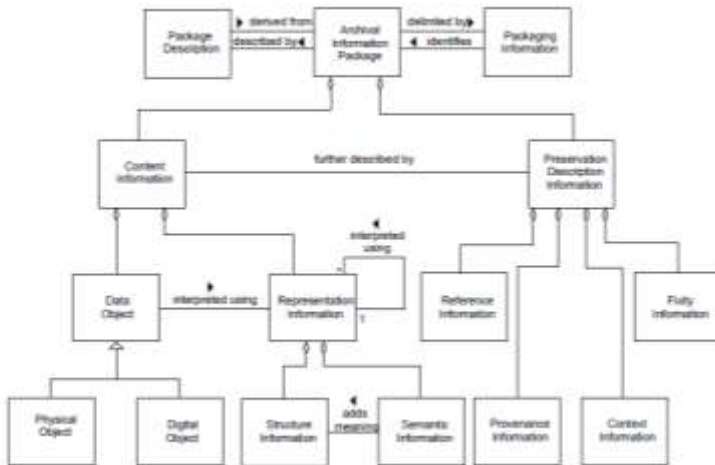
- *Multiple media*
- *Controlled storage*
- *Self reporting media*
- *Lots Of Copies Keeps Stuff Safe*
- *Cloud storage*

Beware: proliferation can become a problem



Challenge 4

Digital preservation systems are subject to the same obsolescence as the objects they safeguard.



... so we need systems which are modular, based on standards and which can be tested on an on-going basis

Submit

Archive

Disseminate

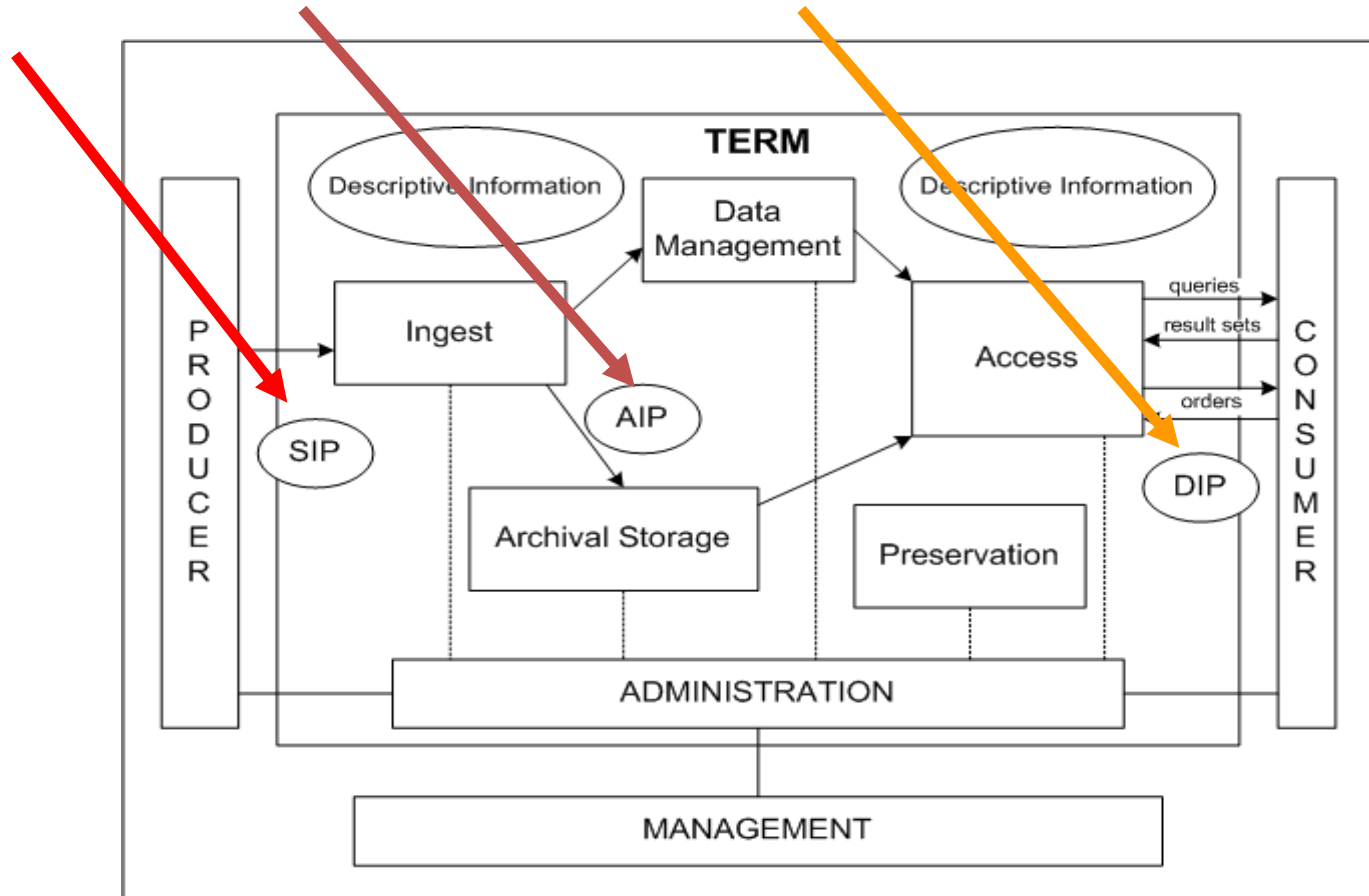
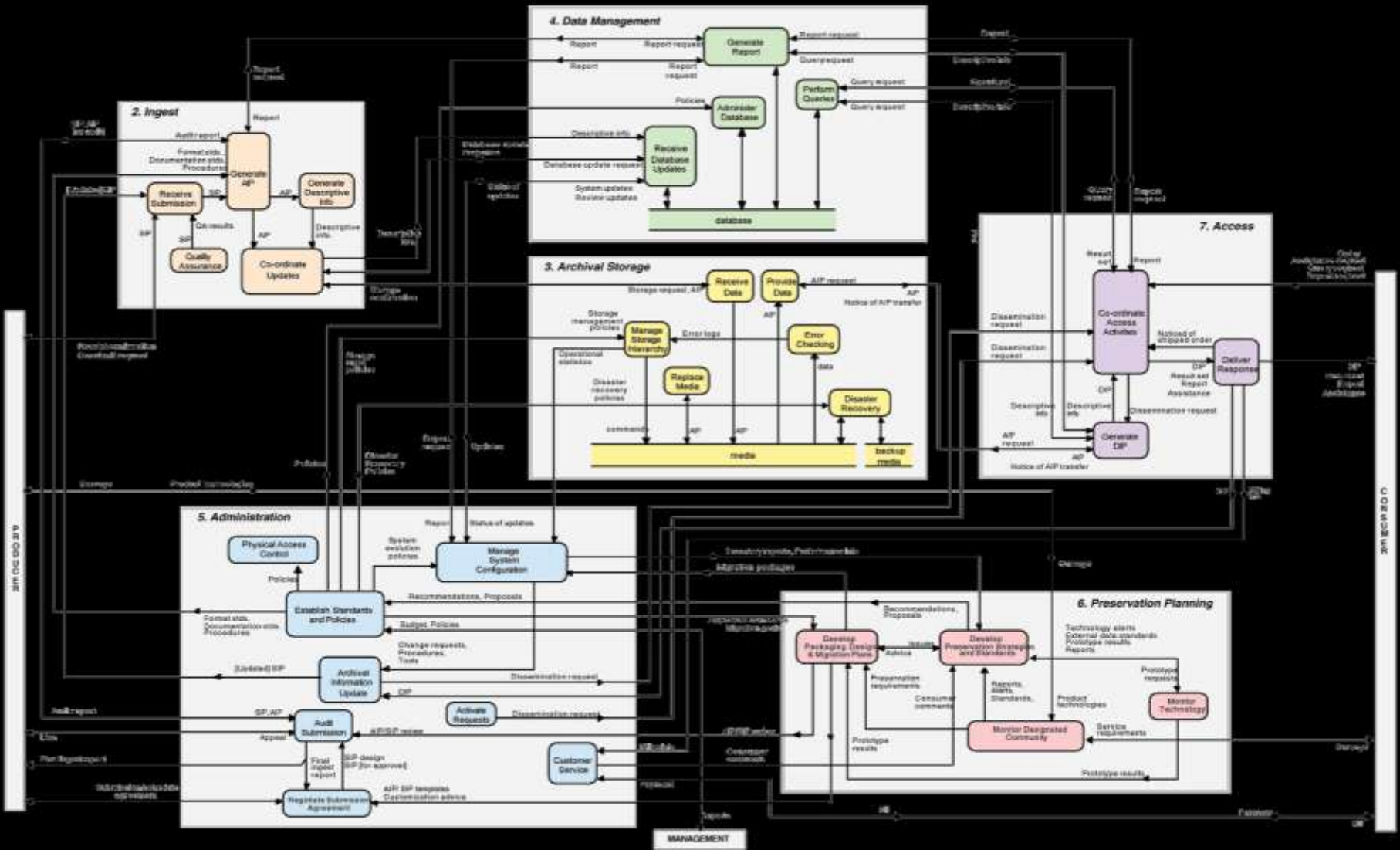


Fig. 1. Major functions of the OAIS Reference Model from Consultative Committee for Space Data Systems (CCSDS), CCSDS 650.0-W-1, Producer-Archive Interface Methodology Abstract Standard, (OAIS), White Book, Issue 1, Draft Recommendation for Space Data System Standards.

Picture from DLib



Consultative Committee on
Space Data Systems
Inadvertent comparison with
NASA
Scales up really well



Digital**Preservation**Coalition

Challenge 5

Digital resources are intolerant of gaps in preservation.

We need to act early and we need to act on an on-going basis. Lends itself to risk management approaches



Challenge 5

On-going preservation

Different responses:

- *Intervene early in lifecycle*
- *Transferable AIPs*
- *Risk management approach
e.g. DRAMBORA*
- *Monitor community*



Digital**Preservation**Coalition

Challenge 6

*Resources can be corrupted
or tampered without trace*

*Need to fixity and
authenticity checks*



Digital**Preservation**Coalition

Challenge 6

Fixity and authenticity

A variety of solutions:

- *Checksum*
- *Forensic tools*
- *Authenticity Evidence Records*
- *Data security protocols*



In reality?

**You don't need to
understand or do
all of this.**

... and even if you do, it doesn't all have to exist at the same time ...



Digital**Preservation**Coalition

Getting Started in Digital Preservation: what do I need to know?

It won't go away

It won't do itself

Don't wait for perfection

William Kilbride

william @dpconline.org

@williamkilbride