DigitalPreservationCoalition

William Kilbride
@williamkilbride

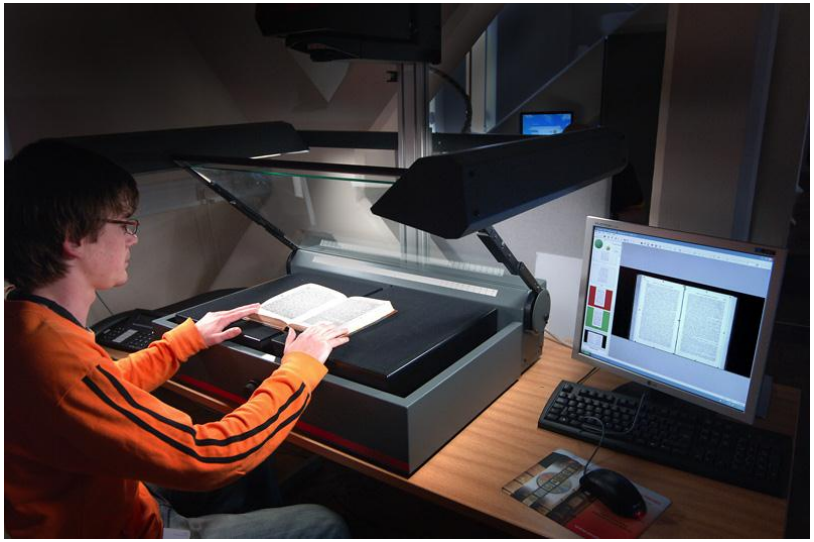
Getting Started in Digital Preservation: what do I need to know?

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

You already have many of the skills you need!

DigitalPreservationCoalition

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’

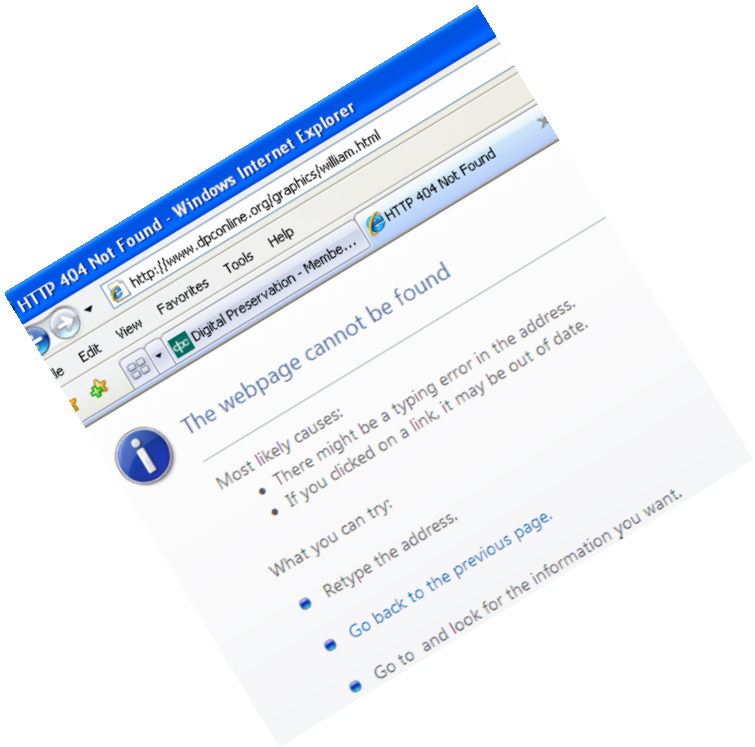
‘until 2014’

‘forever or for three years’

DPC/Portico/ULCC 2010

DigitalPreservationCoalition

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)

DigitalPreservationCoalition

Digital preservation typically makes bleak reading 3

<Enter your details here>

.....

.....

.....

DigitalPreservationCoalition

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

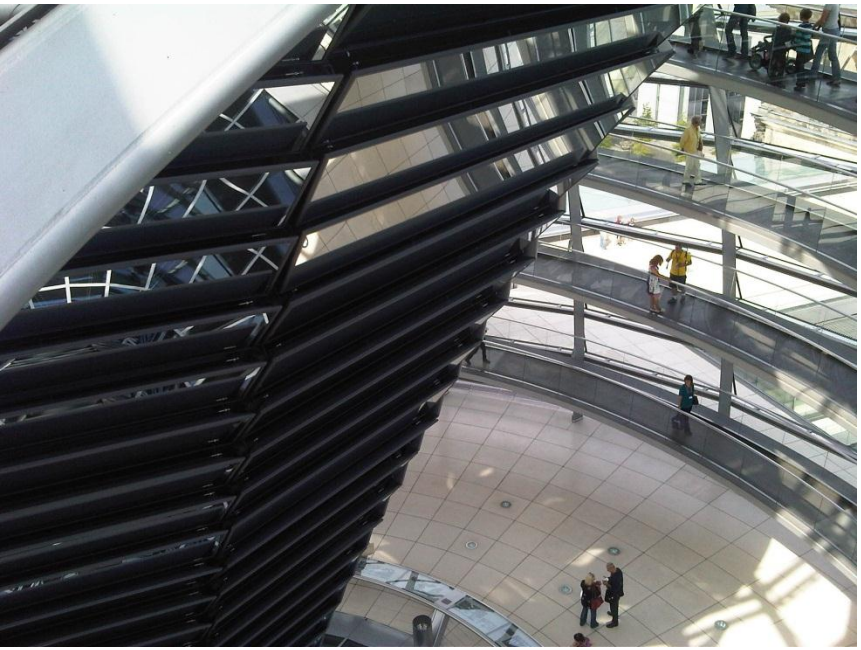
...therefore...

- Technology can create barriers to reuse
- So, managing data in the long term protects and creates opportunities

- Not something we do for its own sake

DigitalPreservationCoalition

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

DigitalPreservationCoalition

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

DigitalPreservationCoalition

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

DigitalPreservationCoalition

Four basic responses to long-term preservation:

- *Some fancy words*

DigitalPreservationCoalition

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

DigitalPreservationCoalition

Six basic challenges and how to address them

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

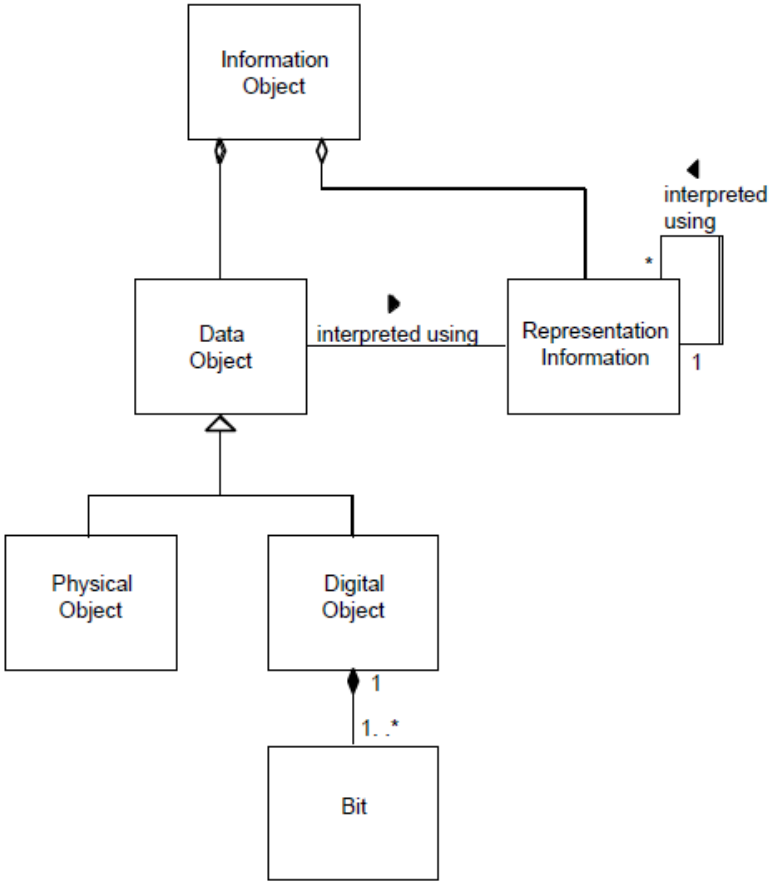
DigitalPreservationCoalition

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, archival description …

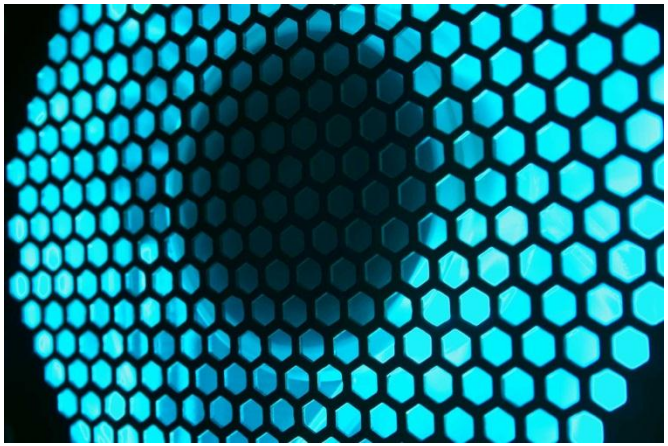
Various answers:

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

DigitalPreservationCoalition

Challenge 2

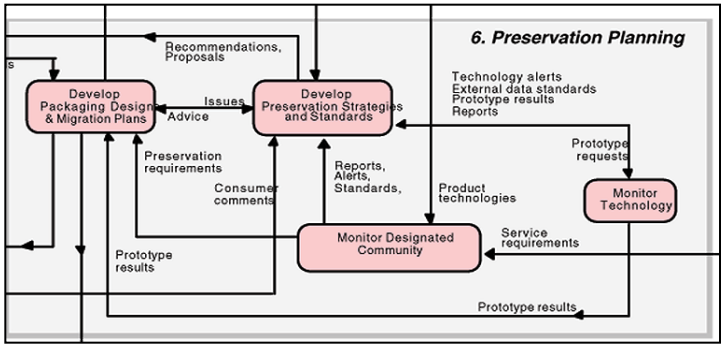
Technology continues to change creating the conditions for obsolescence.

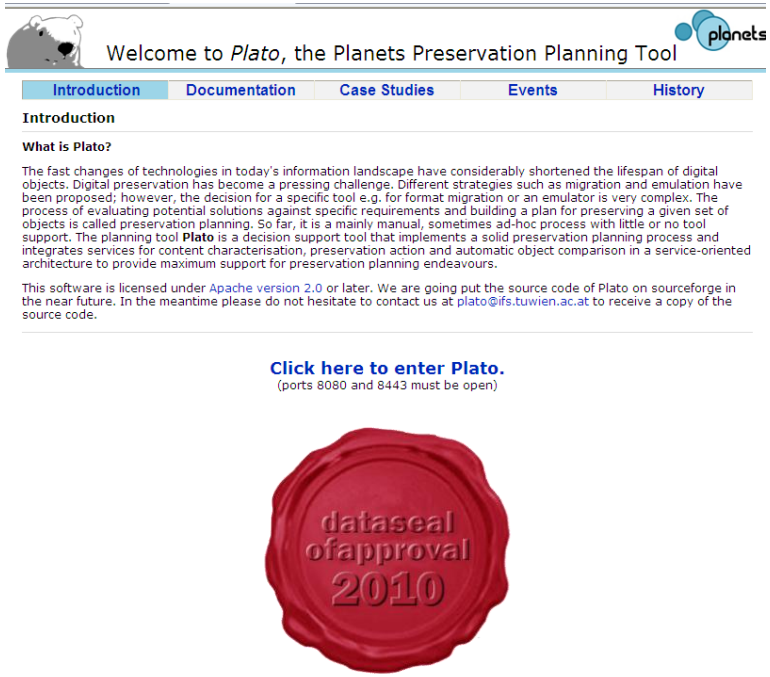


… so we need to plan accordingly, expecting that our current plans may need to change.

DigitalPreservationCoalition

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*

DigitalPreservationCoalition

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

DigitalPreservationCoalition

Challenge 3

Storage and refreshment

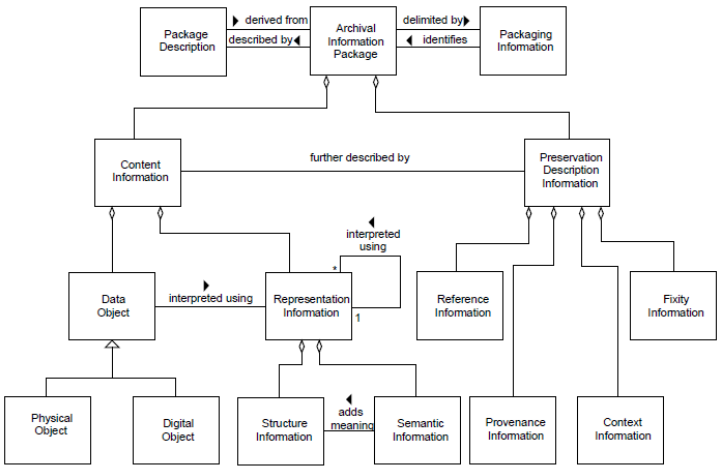
Different Solutions:

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

Beware: proliferation can become a problem

DigitalPreservationCoalition

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

Archive **Disseminate**

Submit

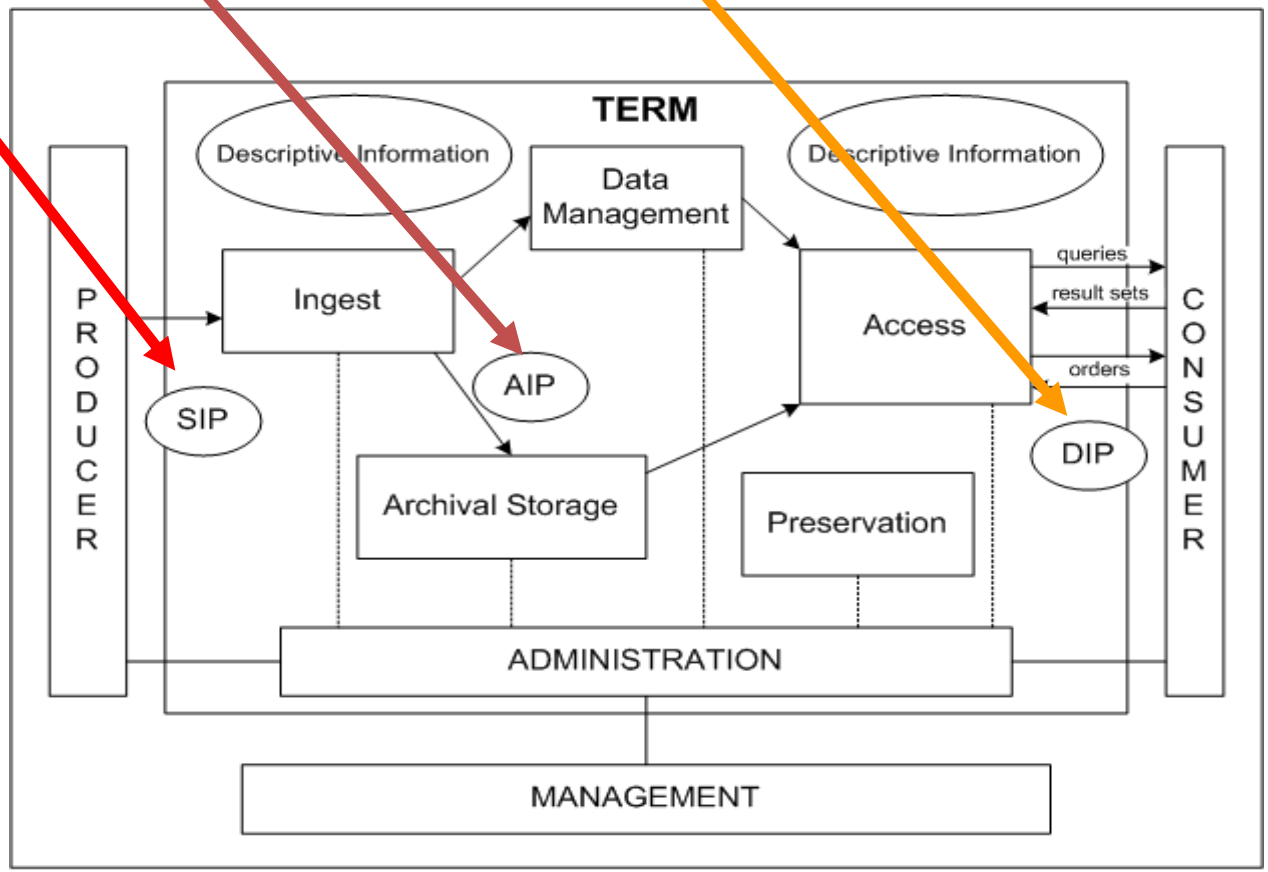
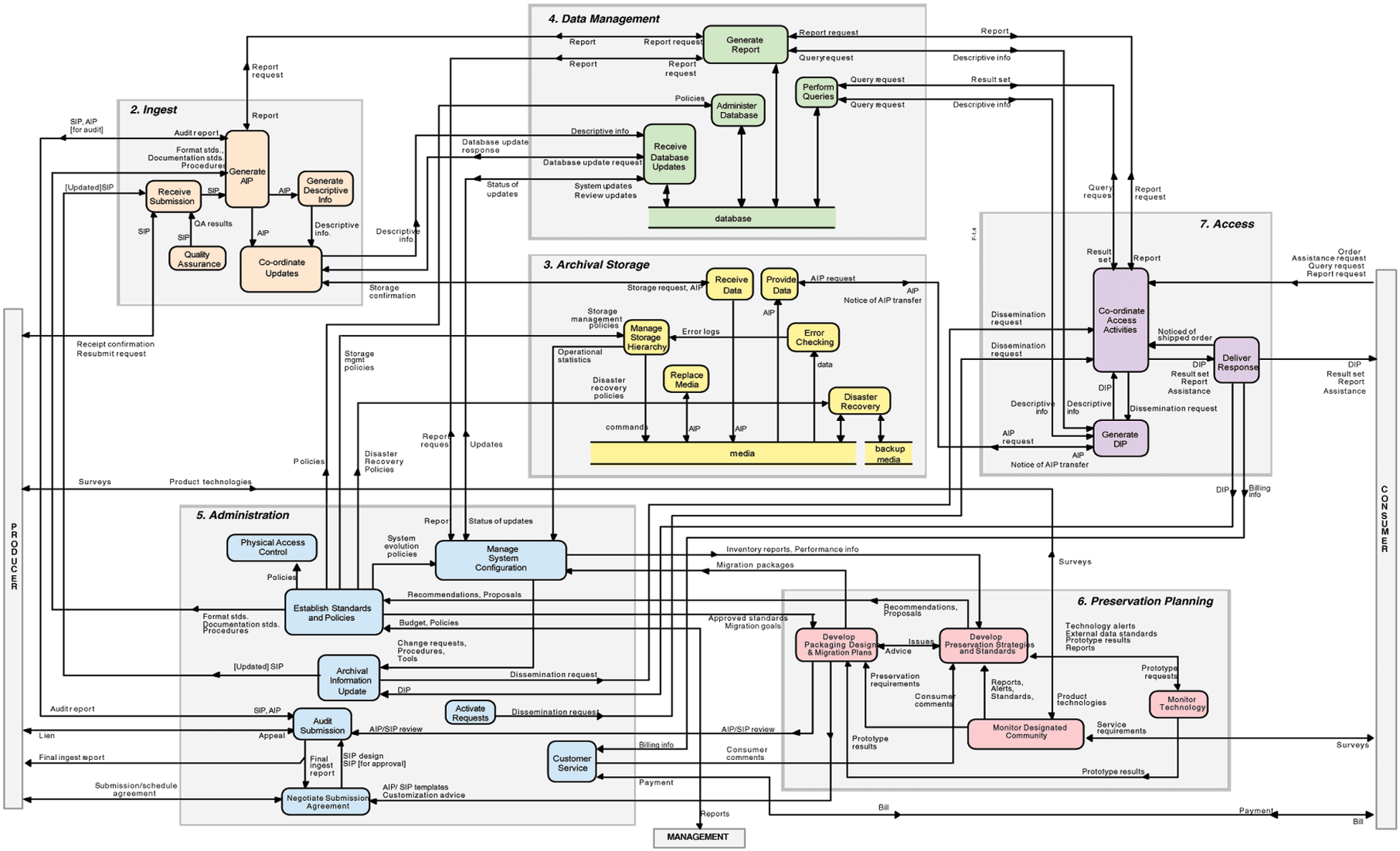


Fig. 1. Major functions of the OAIS Reference Model from Consultative Committee for Space Data Systems (CCSDS), CCSDS 650.0-W-1, Producer-Archive Interface Methodology Abstract Standard. (OAIS). White Book. Issue 1. Draft Recommendation for Space Data System Standards.

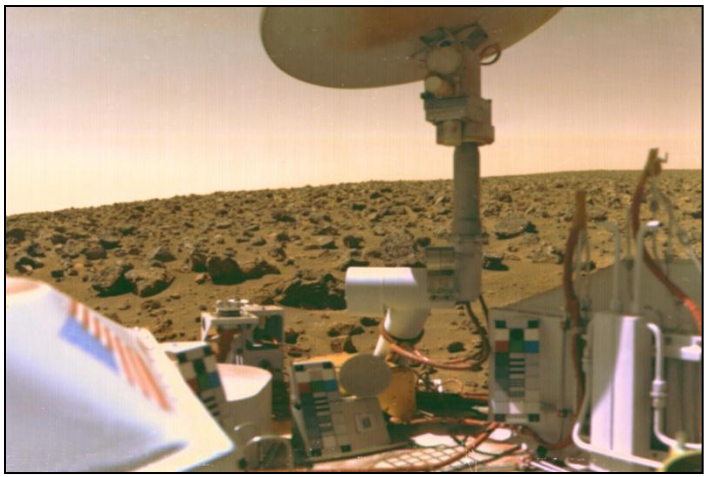
Picture from DLib

DigitalPreservationCoalition



Our digital memory accessible tomorrow

www.dpconline.org



Courtesy NASA/JPL-Caltech

Consultative Committee on Space Data Systems

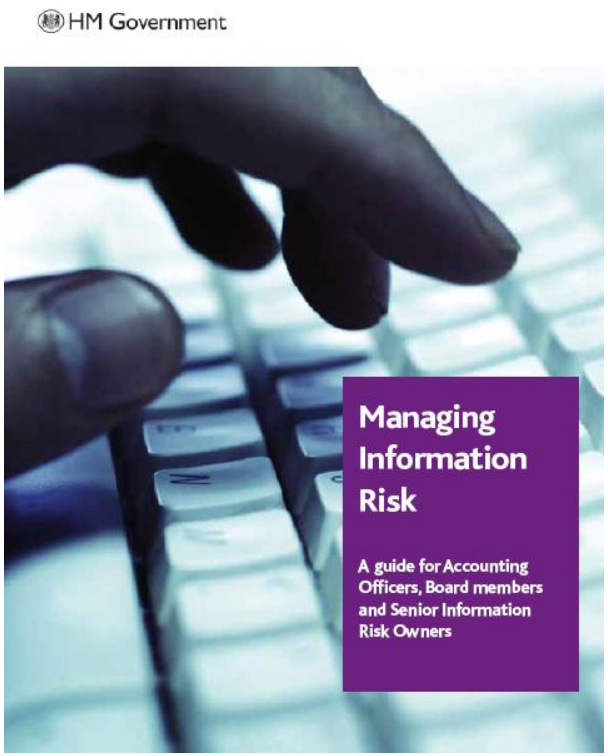
Inadvertent comparison with NASA

Scales up really well

DigitalPreservationCoalition

Challenge 5

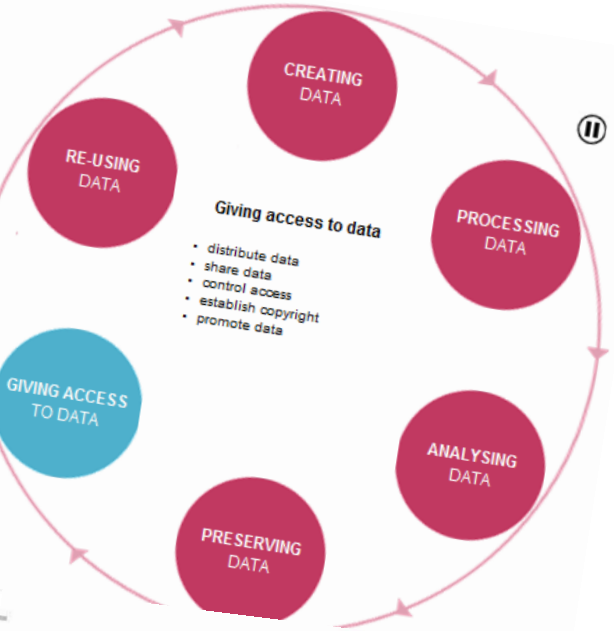
Digital resources are intolerant of gaps in preservation.



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

DigitalPreservationCoalition

Challenge 5



On-going preservation

Different responses:

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

DigitalPreservationCoalition

Challenge 6

Resources can be corrupted or tampered without trace

Need to fixity and authenticity checks

DigitalPreservationCoalition

Challenge 6

Fixity and authenticity

A variety of solutions:

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

DigitalPreservationCoalition

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