



Digital**Preservation**Coalition

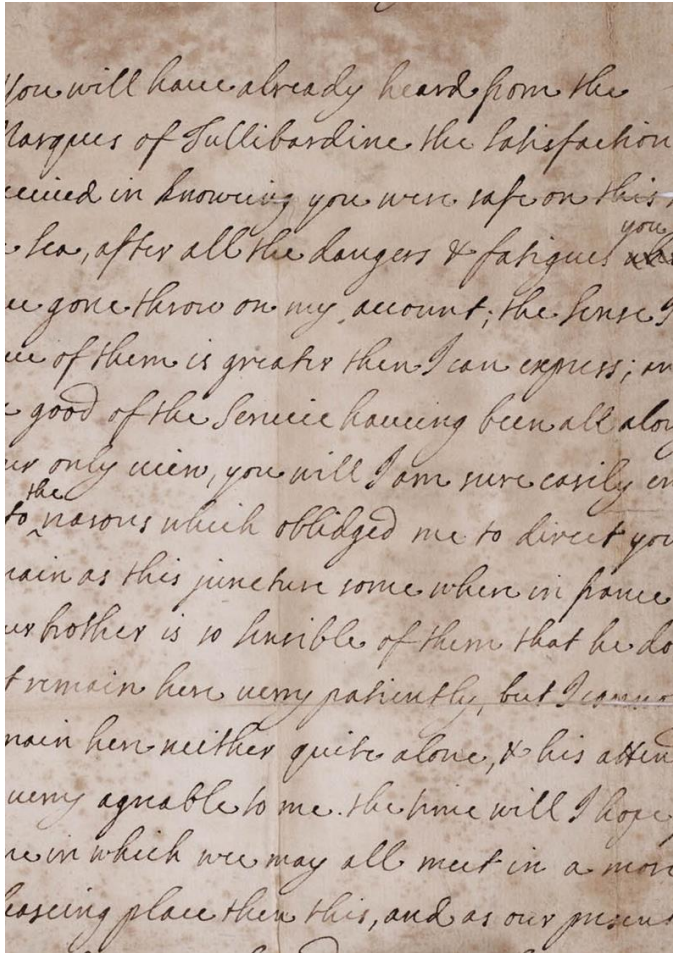
An Introduction to Digital Preservation

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Traditional Media



- Robust
- Tangible
- Independently understandable
- Experienced in assigning value

Digital Information

- Ephemeral
- Obsolescence
 - Media
 - Formats
 - Documentation
- Rights
 - Copyright
 - Moral
 - Data Protection
- New Skills
- Benefits and Sustainability





What's the Problem?

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



In a Bit More Detail....

- Seven basic challenges
- Ways to address them:
 - Tools
 - Services
 - Standards
- Fancy words and acronym bingo

Challenge One

Starting a digital preservation programme seems expensive and it's difficult to know where to start...

...but there's plenty of help on how to build a business case and tools to aid with planning

A Solid Foundation

- **Research and Training** – don't get bogged down
- Identify **Benefits** and **Risks**
- Understand **Aims** and **Goals**
- Write a solid **Business Case**
- Relevant and clear **Digital Preservation Policy**
- Make realistic **Plans for Development**

Challenge Two

Digital preservation systems can be complex and are subject to the same obsolescence as the objects they safeguard...

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



OAIS Functional Model

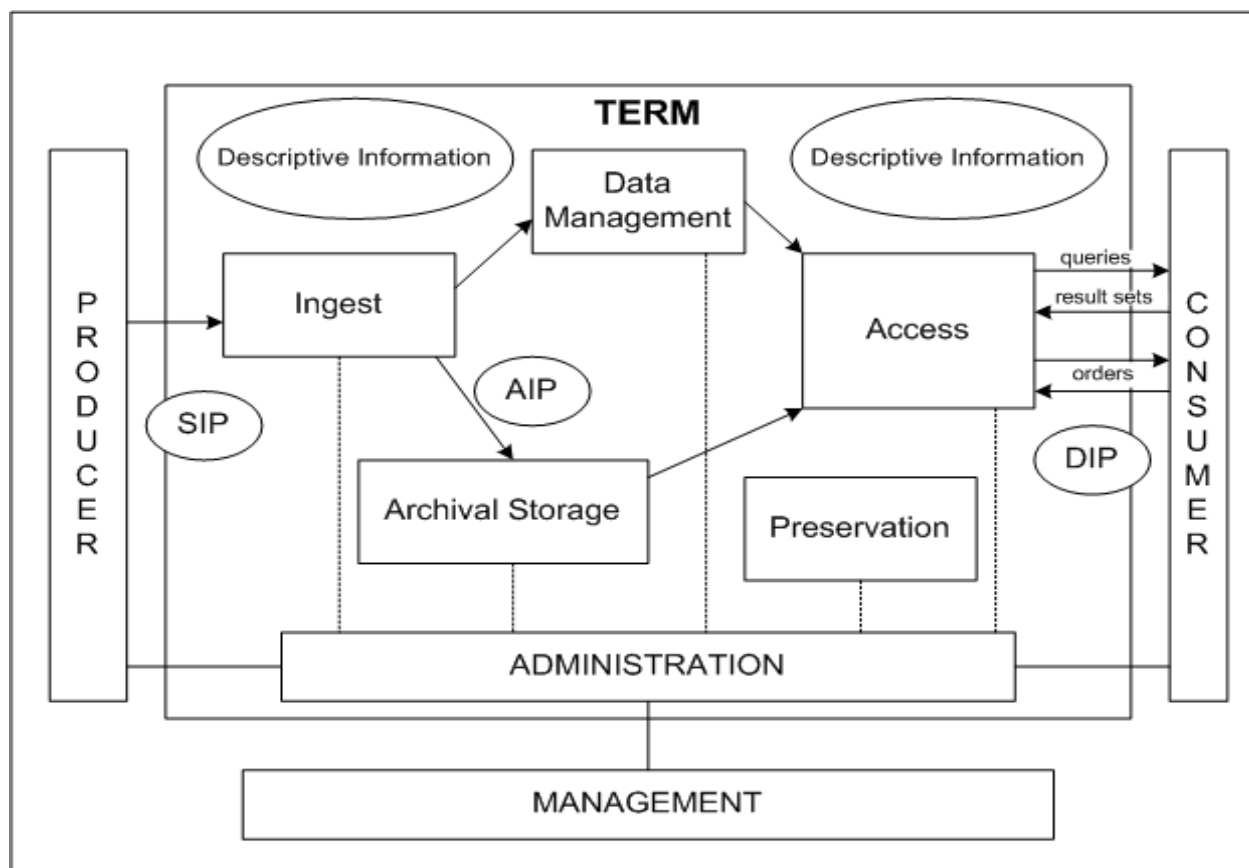
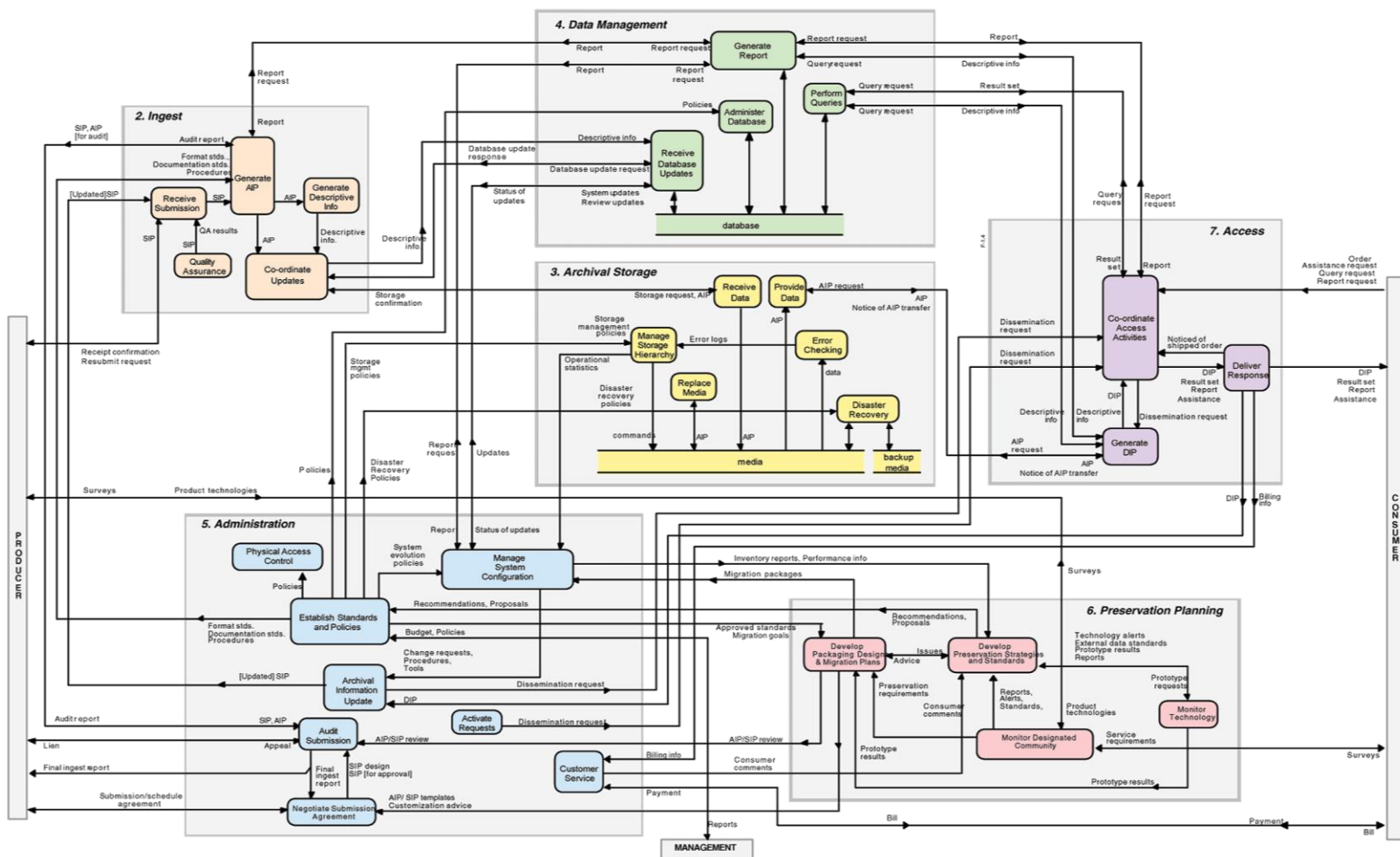


Fig. 1. Major functions of the OAIS Reference Model from Consultative Committee for Space Data Systems (CCSDS), CCSDS 650.0-W-1, Producer-Archive Interface Methodology Abstract Standard, (OAIS), White Book, Issue 1, Draft Recommendation for Space Data System Standards.



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Where it gets really scary....

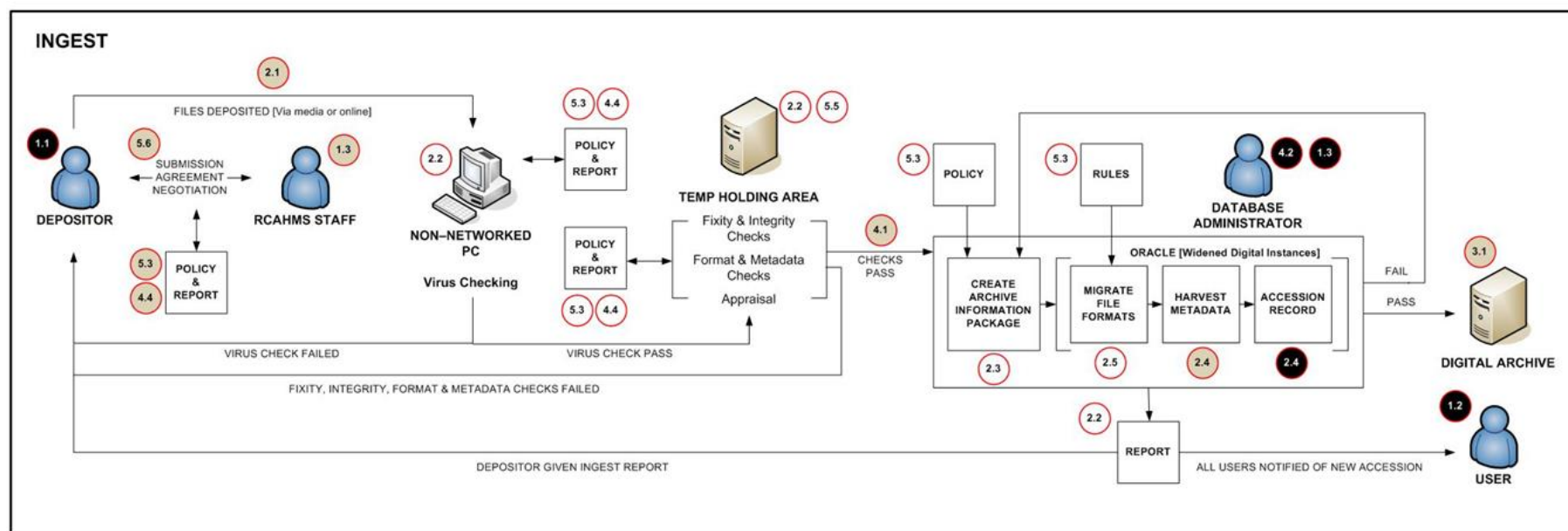


Our digital memory accessible tomorrow

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But still useful....



Challenge Three

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 information on this configuration and use it to enable access.



Use Standards and Tools

- Essential to capture sufficient documentation
 - Metadata Standards
 - OAIS Representation Information
- Tools
 - Registry Services
 - Characterisation
- Collection Audit



Challenge Four

Technology continues to change creating the conditions for obsolescence...

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

- OAIS Preservation Planning functions
- Preservation Planning tools
- Different Approaches
 - Migration
 - Emulation
 - Hardware Preservation
 - Virtualisation
 - Etc.....

Challenge Five

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



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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 Six

Digital resources are intolerant of gaps in preservation...

...We need to act early and we need to act on an on-going basis.

Different responses:

- Intervene early in lifecycle
- Build in Sustainability
 - Transferable Archive Information Packages
- Risk management approach

Challenge Seven

Resources can be corrupted or tampered without trace...

...Need to carry out fixity and authenticity checks on your data



Fixity and Authenticity

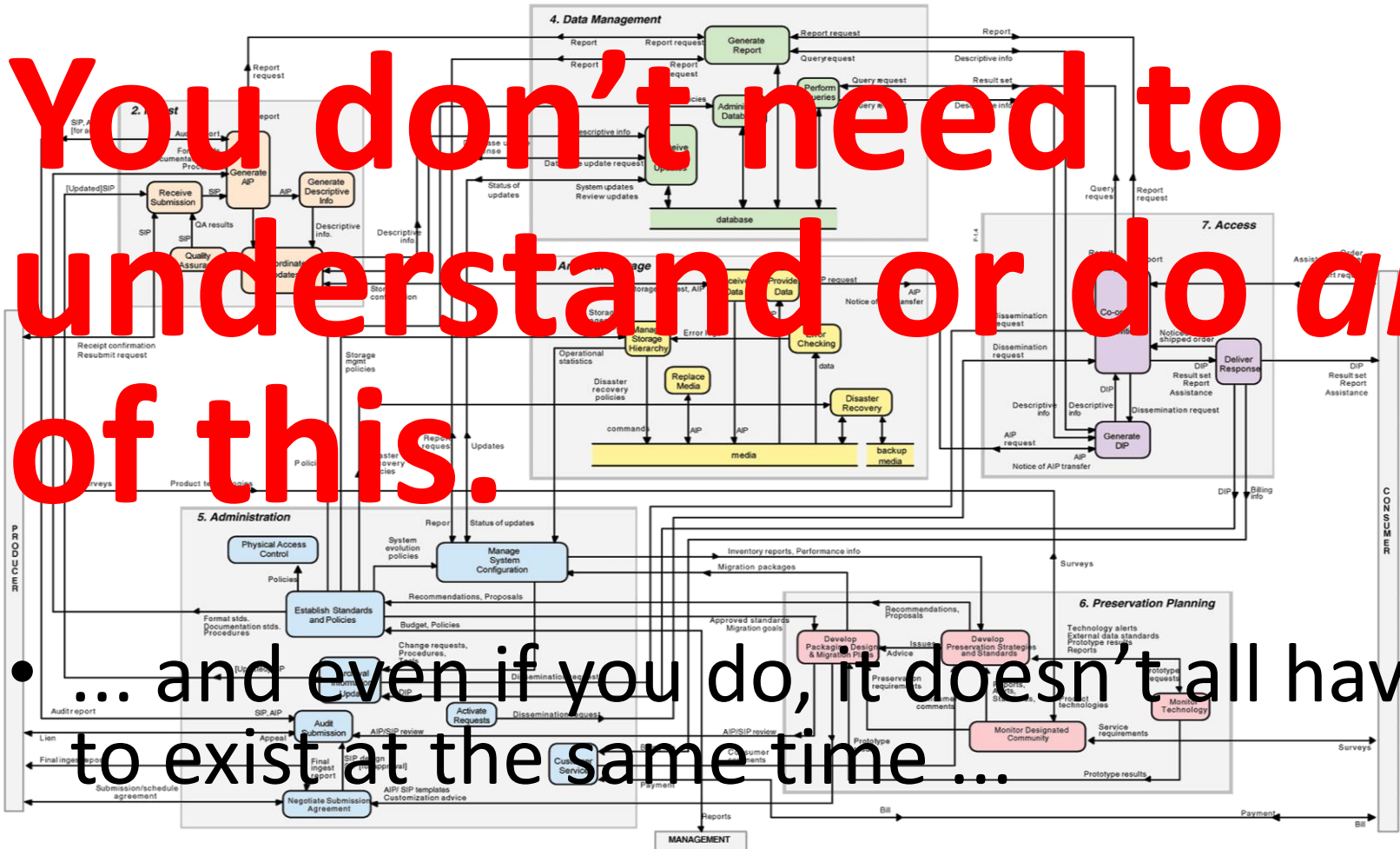
A variety of solutions:

- Checksums
- Forensic tools
- Authenticity Evidence Records
- Data security protocols
 - (ISO 27000 series)

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 ...



The Reality...

- It won't go away.....

And.....

- It won't fix itself.....

But.....

- You already have many of the skills you need!



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It's Not All About Digital Preservation

- Likely to only be one aspect of your job
- A wide range of skills are required
 - Project Management
 - Risk Management
 - Communication
 - User Analysis
- DigCurV Curriculum Framework
 - <http://www.digcurv.gla.ac.uk/>

In the End Nobody Has All the Answers!

- Collaboration is key
- Learn from others
- Digital preservation is an active process
- There are no perfect solutions, they're still evolving
- We learn as much from our failures as our successes