Working With Risk: Digital Preservation as a Risk Mitigation Exercise

Bryony Hooper, University of Sheffield

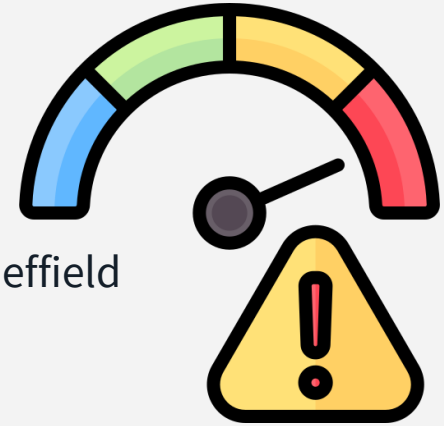
Around the World - Risk Management #3 **(19th Nov 2026)**

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A World TOP 100 University

Overview

- What is risk?
- Institutional context - University of Sheffield
- Operating in the “Era of disasters”
- Policy and Mandate
- Information Security and Digital Preservation
- Business Continuity and Digital Preservation
- Case Study: The Digital Records Centre at the University of Sheffield
- Advocacy
- Conclusion

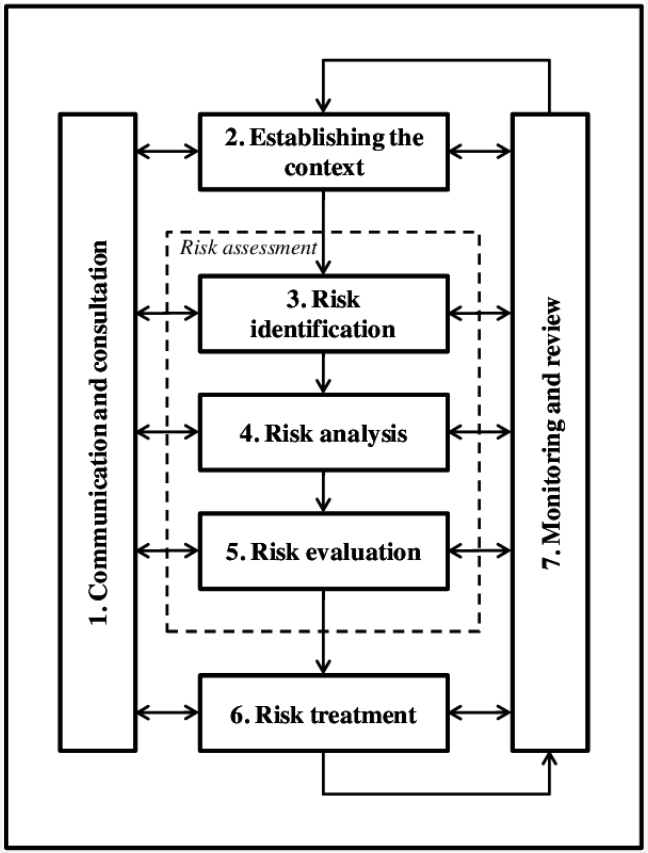


A note on “*Jargon busting*”!

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What is Risk?!

What is Risk? And how does it related to Digital Preservation



Risk is defined as the "***effect uncertainty has on objectives***"

(ISO 31000).

What does this mean for digital preservation?

- If digital preservation activities exist specifically to reduce uncertainty around long-term data survival, shouldn't digital preservation be recognized as a core risk mitigation strategy?
- And, can we embed good practise in digital preservation into existing risk management work in our institutions to further mitigate some risks?

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Institutional Context

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University Vision:

“We will deliver life-enhancing research, innovation and education that not only transforms the lives of our graduates, but shapes the world we live in. We believe the best way to achieve this is by fostering an ambitious, inclusive, collaborative community”



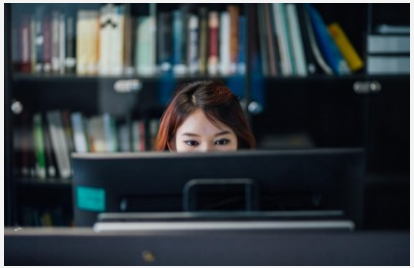
Digital Preservation at University of Sheffield

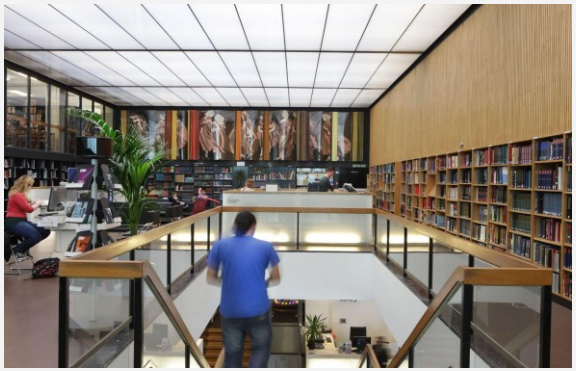
Library oversees the remit to:

- Ensure digital preservation is prioritised as a key service that the Library provides for the University of Sheffield
- Provide expert guidance and support to the University of Sheffield on digital preservation
- Develop a sustainable and resourced Digital Preservation Service
- Enable the active preservation of content transferred to the University Library's Digital Preservation Service

These aims seek to drive forward digital preservation at the University, and develop a service that meets the needs of the institution, its information assets, and its staff and students.







Scope



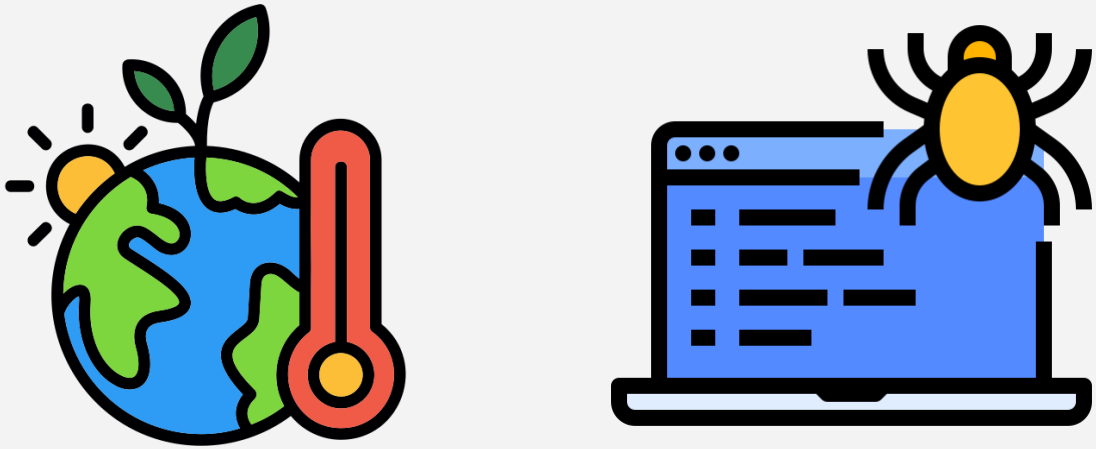
- **Born-Digital content**
- **Digitised content**
- **Research Outputs**
- **Information created in digital form by the University for business purposes** and is identified in the University's Retention Schedule as requiring long-term preservation.

The University also commits to preserving **associated metadata** which supports digital content in scope.

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Operating in the “Era of Disasters”

“Era of disasters”



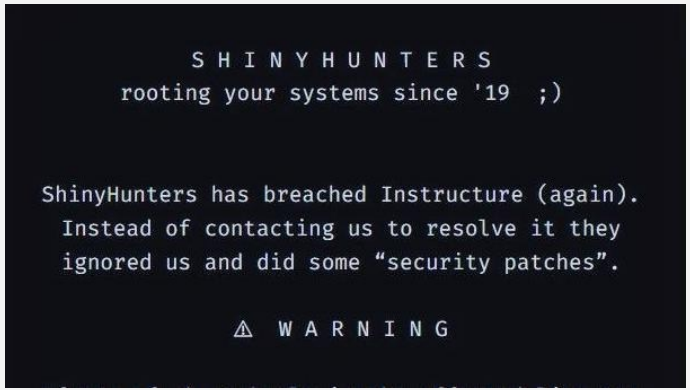
[DPC Toolkit: Digital Disaster Risk Management for Repositories and Archives]

“the likelihood and consequences of disasters are increasing in severity due to two major factors: climate change and cyberattacks. Climate change and disaster risks are escalating and becoming increasingly complex and interconnected.”

Cyber Attacks / Data Breaches

UK Government's Cyber security breaches survey 2025/2026: education institutions findings:

"almost every [UK] higher education institution (98%) had identified breaches or attacks in the last 12 months"



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Policy And Mandate

CHARM Reference Model: Organisational Infrastructure

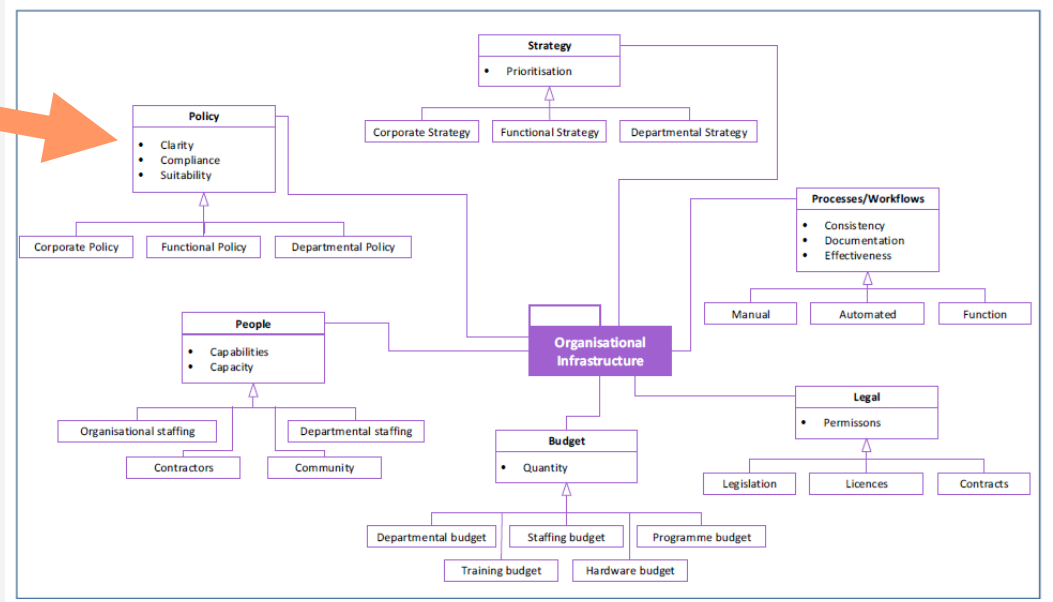


Figure 3-3: L2 Organisational Infrastructure Risk Area

"The Policy class represents the policy ecosystem required to establish and ensure that digital preservation activities draw upon a series of appropriate and consistent Principles". (Pennock, 2024)

Digital Preservation Policy & Risk Mitigation

Clarity: Does your policy clearly support preservation? Policies define operational principles, standards and goals. If a policy does not clearly support preservation then it can be difficult to ensure operational practices do the same, adversely affecting target values as relevant to the policy in question.

Compliance: Do organisational practices comply with the policy? Policies are a means to an end, not an end in and of themselves: they must be implemented. If organisational practices do not comply with policy then this can adversely affect target values as relevant to the policy or practice in question.

Suitability: Are the preservation principles outlined in your policy suitable to achieve your goals? Policies must outline good preservation principles that can help achieve target values across the lifecycle. If the preservation principles are unsuitable then this can adversely affect different target values depending on the specific principles in question.

CHARM: Risk Identification Framework (Pennock 2024)



How a Digital Preservation Policy Ensures Risk Mitigation



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University of Sheffield Digital Preservation Policy

Security Classification: Public
Version: 2.0
Approved by: University Executive Board
Date Approved: 02/05/2023

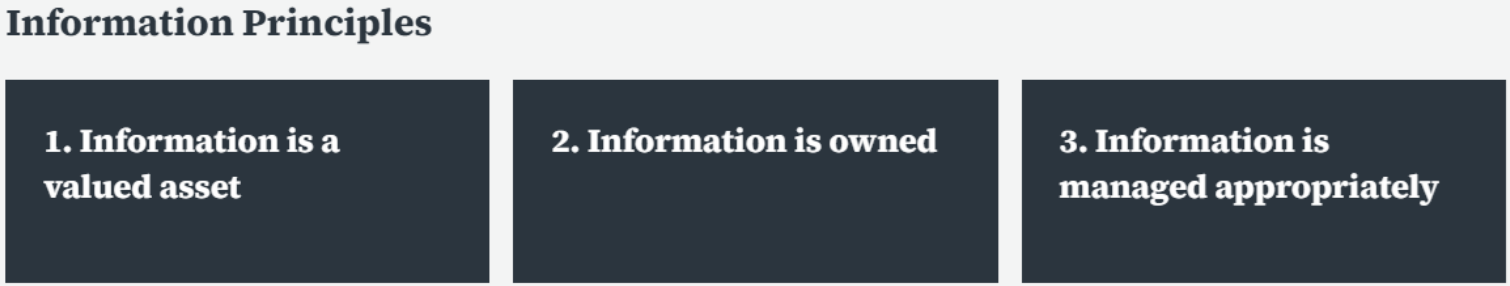
1. Introduction
2. Purpose of the Policy
3. Scope
4. Organisational Strategy Alignment
5. Digital Preservation Stakeholders
6. Related Documentation
7. Preservation Principles
8. Roles and Responsibilities
9. Standards, Specifications and Related Legislation
10. Review and Certification
11. Glossary
12. Review Schedule
13. Version Control

University Executive Board approval of a preservation policy explicitly confirms that *failing to manage long-term digital content carries an unacceptable level of financial, legal, regulatory, and reputational risk.*

A policy can:

- Mitigate the risks by having a robust policy (mandate) reduces the risk to digital preservation activities in your workplace
- But can also align those activities with wider risk mitigation work in your institution.

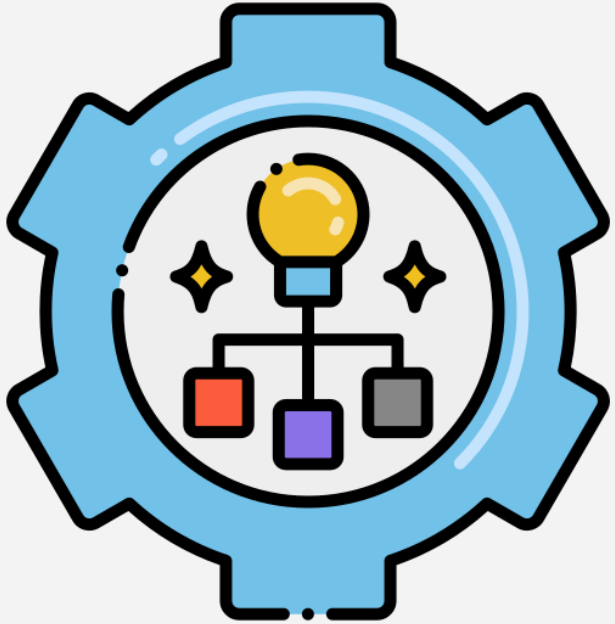
University of Sheffield: Information Principles



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Information Security and Digital Preservation

Information Security and ISMS



Information Security Management System (ISMS)

That is, *A structured framework of policies, procedures, and controls designed to manage, protect, and secure an organisation's sensitive information assets, both digital and physical, against security threats. This is based upon the ISO 27001 cyber security standard.*

ISMS Online (2026)

Extending Information Security to Information Assurance

ISO 27001 / ISMS objectives

- Confidentiality
- Integrity
- Availability



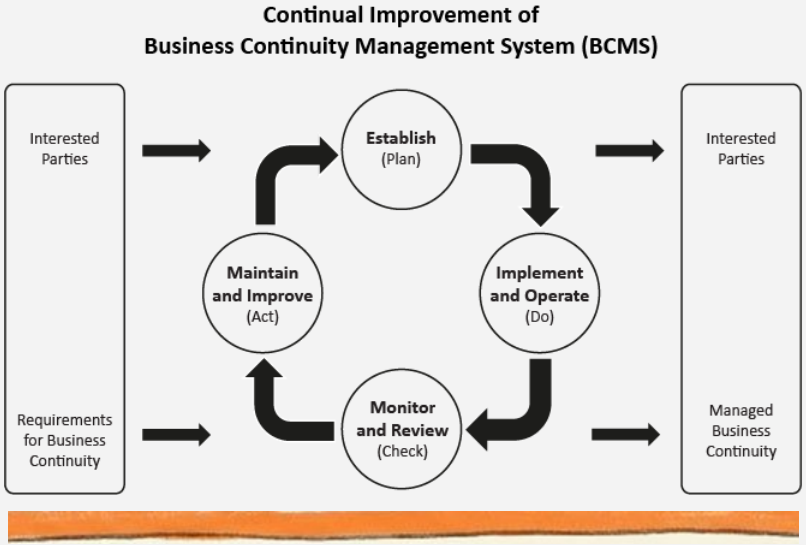
Digital Preservation objectives:

- Accessibility
- Integrity
- Authenticity
- Reliability
- Usability

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Business Continuity and Digital Preservation

Business Continuity Management & Institutional Resilience



ISO 22301:2012: *(Business continuity is) the capability of the organisation to continue delivery of products or services at acceptable pre defined levels following a disruptive incident.*

Business Continuity and Digital Preservation

Business Continuity definition

Business Continuity Management identifies an institution's most critical operational functions (e.g., research data, corporate governance, student records) and sets recovery timelines to prevent catastrophic financial, legal, or reputational damage

University of Sheffield (2021)

Digital Preservation definition

Digital Preservation Refers to the series of managed activities necessary to ensure continued access to digital materials for as long as necessary ...(digital preservation) refers to all of the actions required to maintain access to digital materials beyond the limits of media failure or technological and organisational change.

Digital Preservation Handbook

Business Continuity and Digital Preservation

Business Continuity objectives

- Protecting Priority Activities
- IT Disaster Recovery Alignment
- Planning Beyond Institutional Existence



Digital Preservation Objectives

- *Policy: "The University will endeavour to preserve content created and managed by the institution that has enduring and long-term value to the staff, students, and the wider public."*

Digital Preservation Service Activities

- Preservation system exist strategy
- Keeping multiple copies
- Validating data over time
- Digital Records Centre as part of the disaster recovery process

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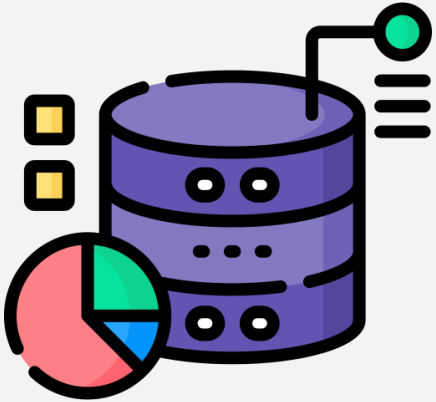
Case Study focus: Digital Records Centre

Digital Records Centre

- Built within existing digital preservation infrastructure
  - Active preservation
  - Controlled access
  - Verifiable audit trail for long-term data management
  - Exist strategy
- Aligned to policy
  - Digital Preservation Policy
  - Records Management Policy
  - Information Security Policy
  - Information Principles
- Aligned to processes
  - Records Retention schedule
  - Information Asset Registers (IAR)
  - [Future] Business Continuity plans
  - ISMS Audits



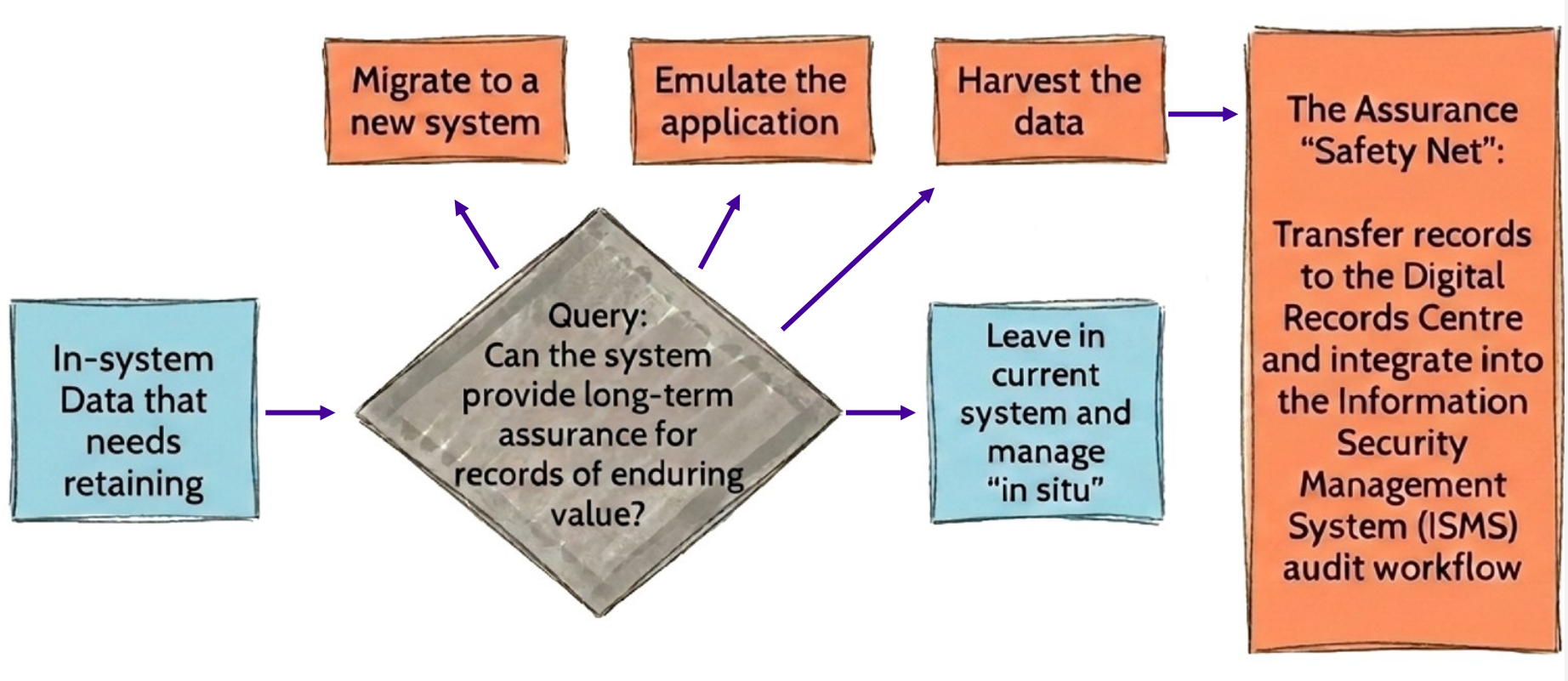
Risk for Info Assurance: Line-of Business systems





- The databases managing our day-to-day operations, like student records
- While these databases are highly efficient for daily operations, they are rarely designed with long-term preservation or 'record-keeping functionality' in mind
- Active databases and cloud suites (e.g., Google Workspace) are susceptible to overwriting, accidental deletion, and vendor lock-in.

Decision workflow



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Advocacy

Advocacy - at all levels

Senior Leadership

- Senior leaders may not care about bit rot, but they care deeply about the financial, regulatory, and reputational consequences of not being able to retrieve critical evidence during an audit or legal challenge

Stakeholders

- Use your mandate
- Speak to anyone who will listen!
- Bring a solution (not another risk!)

Record Creators

- Ongoing dialogue
- Embed good practise in guidance and training



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Conclusion

Conclusion

Framing digital preservation as a risk mitigation can accomplish three major goals:

- It aligns digital stewardship directly with ISO 31000 enterprise risk management
- It extends ISO 27001 information security into multi-decade Information Assurance
- It embeds long-term data survival into Business Continuity Management



And we have a mandate to do so (with the Digital Preservation Policy)

But it also enables:

- Collaboration opportunities
- Consistency in messaging
- New opportunities



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Get in touch: b.hooper@sheffield.ac.uk

https://sheffield.ac.uk/library/digital-preservation

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Further Reading

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