



Risk Management in digital preservation

Some basics on risk 'Whole class' example Parallel your own example Some final thoughts

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Risk management? Eh?

- Preservation is an ongoing process involving risks
 Most organisations have existing risk management processes
-SO....
- •Formal risk management will help
- •And can fits with operational management ...in fact...
- •There are some regulatory requirements that can help you to raise the problem with managers



Simple Risk Assessment

Identify a risk ... What is it's likelihood? What is it's impact? Risk Score: L x I How frequently does the risk occur? How often do we need to check? Who owns the risk? How will we respond to the risk? How does our response change likelihood and impact?

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Typical, Generic Digital Risks (there are more!)

File format obsolesence Media degradation (aka bit rot) Media obsolesence Barriers to access (eg encryption) Insufficient resource discovery metadata Insufficient representational metadata Insufficient control (eg copyright) Authenticity and provenance is unclear Multiple copies are not synchronised Virus, trojans etc (aka malware) **Disruptive technologies**

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RISK	Likelihood	Impact	Score	Frequency	Owner	Response
Media will degrade	5	5	25	ongoing		Technology watch Good media storage Refreshment Routine checks of media Keep copies on different media
File formats obsolesence	3	5	15	ongoing		Technology watch Pick long term formats Normalise formats Develop migration plan
Media obsolesence	5	5	25	ongoing		Technology watch Refreshment Routine checks of media Multiple media

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RISK	Likelihood	Impact	Score	Frequency	Owner	Actions to maintain mitigation
Media will degrade	3	1	3	ongoing		Technology watch Good media storage Refreshment Routine checks of media Keep copies on different media
File formats obsolesence	1	5	15	ongoing		Technology watch Pick long term formats Normalise formats Develop migration plan
Media obsolesence	1	3	3	ongoing		Technology watch Refreshment Routine checks of media Multiple media

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Two Worked Examples

A whole class example live on screen

Get your notebooks and Write out ELEVEN headings as follows:

Risk, Likelihood, Impact, Score, Proximity, Owner, Responses, New likelihood, New impact, New score, Frequency of review

Do this twice, on two different pages.

The first example we will do as a group, The second one you should do on your own or with colleagues

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Example 1: The Historic Parish Archive

Archaeological Excavation: (closed)c. 1000 pages digitized text (TIFFS and PDFs)c. 500 photographs (TIFFS and JPEGS)c. 100 data tables (held as text)c. 25 Excel spreadsheets

Architectural survey of building: (closed) c. 3000 images in JPEG format 25 CAD plans

Parish newsletters and website: (ongoing) c. 500 document in variety of wp formats c. 150 web pages and images

Oral History: (ongoing) c. 25 audio recordings Music performance: (ongoing) 10 hours of digital recordings

Parish registers: (closed) Circa 1000 pages scanned (TIFFS)



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Based loosely on the Christ Church Spitalfields Archive, from ADS http://ads.ahds.ac.uk/catalogue/resources.html?spitalfields_var_2001



Example 2: The collection that worries you

Existing Digital Archives:

Digitized text (TIFFS and PDFs) Photographs (TIFFS and JPEGS) Data tables and spreadsheets

Ongoing data flows:

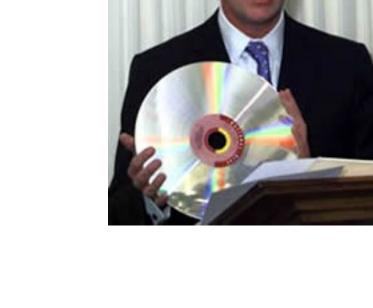
. . .

Outputs from EDRMS Document in variety of office formats Web pages and images

•••

. . .

Things you know are coming: Digital sound and vision Outputs from digitzation Corporate databases



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So who'd like to start?

RISK	That
Likelihood	
Impact	
Score	
Frequency	
Owner	
Response	
New Likelihood	
New Impact	
New Score	
Frequency of Review	

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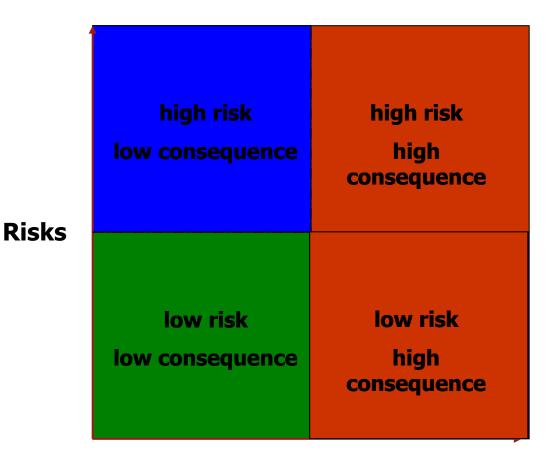


Any examples you'd like to share?

RISK	That
Likelihood	
Impact	
Score	
Frequency	
Owner	
Response	
New Likelihood	
New Impact	
New Score	
Frequency of Review	

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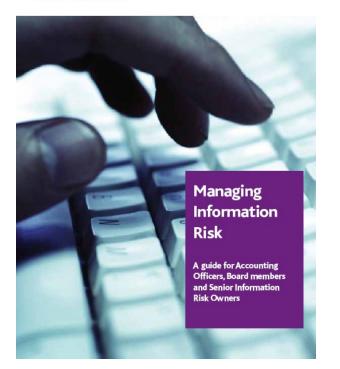


Consequences

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HM Government



Risk category	Example of risk
Governance and culture	Lack of comprehensive oversight and control (so anything can go wrong) When something goes wrong, handling it badly and not learning (so it can happen again) Third parties let you down (letting down your customers and your reputation suffers) New business processes don't take information risk into account (with serious consequences)
Information management and information integrity	Critical information is wrongly destroyed, not kept or can't be found when needed (leading to reputational damage or large costs) Lack of basic records management disciplines (can have wide-ranging consequences) Inaccurate information (which causes the wrong decision to be made, or the wrong action to be taken) Vital electronic information becomes unreadable due to technical obsolescence (with legal, reputational or financial consequences) Critical information is lost (with legal, reputational or financial consequences)
The human dimension	Despite having procedures and rules, staff, acting in error, do the wrong thing (and things go badly wrong) Despite having procedures and rules, 'insiders', acting deliberately, do the wrong thing (and things go badly wrong) External parties get your information illegally (and expose it/act maliciously/defraud you or your customers)
Information availability and use	Inappropriate disclosure of sensitive personal information (causing reputational damage or worse) Failure to disclose critical information for case management/protection (at worst leading to loss of life) Failure to utilise the value of the information asset (leading to a waste of public money) Failure to allow information to get to the right people at the right times (leading your service to fail your customers)

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A risk management approach

ORGANISATIONAL RISK

R1. UNDERSTANDING & R2. RISK GOVERNANCE ACTION R3. INFORMATION VALUE Continuity risk is not reflected Continuity risk is neither The Organisation does not in the risk management and understood nor addressed understand the nature and information ocvernance cohesively at either the right alue of its Information Assets processes at either the right enough to be able to apply levels or across the levels or across the Richard Blake, organisation (esp. IM, IT and Continuity risk management organisation (A responsibilities) Archives Sector Development, PROCESS RISK The National Archives R6. BUSINESS SYSTEMS, STRUCTURES & PROCESSES R4. IM SYSTEMS & R5. IT SYSTEMS & PROCESSES PROCESSES Existing, legacy or future Existing, legacy or future IM systems and proclasses do not maintain Ensuing, logacy of subre organisational business systems, structures and processes do not maintain Continuity to Information Assets over time or though organisational change Existing, legacy or future IT systems and processes do not maintain tilly to Information Assets over time or through change Continuity to Information Assets over time or through technological change **OPERATIONAL RISK OPERATIONAL RISK** OPERATIONAL RISK R17. COMPATIBLE ECHNOLOGY R16. PREVENTING R12. PROVENANCE R19. INSUPPICIENT OESOLESCENT TECHNOLOSY RIL CONTEN & CONTEXT R18. NSUTTICIEN P15 ACCESS NOT NOT R14. TECHNOLOGY RT. CONTEXT ADSENT NOT DISCOVERY PROVENANCE BEPARATED R10. CONTEXT RESTRICTION CONTEXT LOST The Information MAINTAINED LOST LOCK-IN Information Asset formation cannot be The Asset format There is: There is Information Manacemer connot be sed with the Required Provenance / insufficient audit / of eneryption and file-level passwords for the nformation Insufficient Information Context / Metodala to Information Context/ Information Information The Audit data about the Information Asset is not Information Context / Metadata is Asset is hidden in a structurally Costext./ Metadata is not maintaine Metadata and Information Content (Data is lost over time or Information Asset is locked in to a Context i Metadata is coecaed by required data to trust availab ie unctionality loat over time absent at technology infostructure platforms Information complex. by a valiable the through change specific technology/ vendor are seconder or through through change understand suttenticity of creation / maintained over time or through cligital format technology nfrastructure over time or through change Asset are not maintained the normation aran information applications etc] inaccessible platforms, applications change Asset Asset chinge location CONTINUITY FAILURE CONTINUITY FAILURE CONTINUITY FAILURE R22. FAILURE IN THE USABILITY OF THE R20. FAILURE IN THE INTEGRITY OF THE R21. FAILURE IN THE AVAILABILITY OF INFORMATION ASSET INFORMATION ASSET THE INFORMATION ASSET Information cannot be used as needed with Information is partial: missing crucial Information cannot be located or cannot be the available technology, cannot be opened with available technology understood without its context or cannot be metadata, content or contex trusted as authentic

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More Risk Management ...

Risk Appetite Explosive Risks Toxic risks Risk and **opportunity** Project management (Prince2) Organisational risk register





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