An Introduction to

DISENTANGLING DIGITAL PRESERVATION RISK

with

CHARM

Maureen Pennock, July 2022

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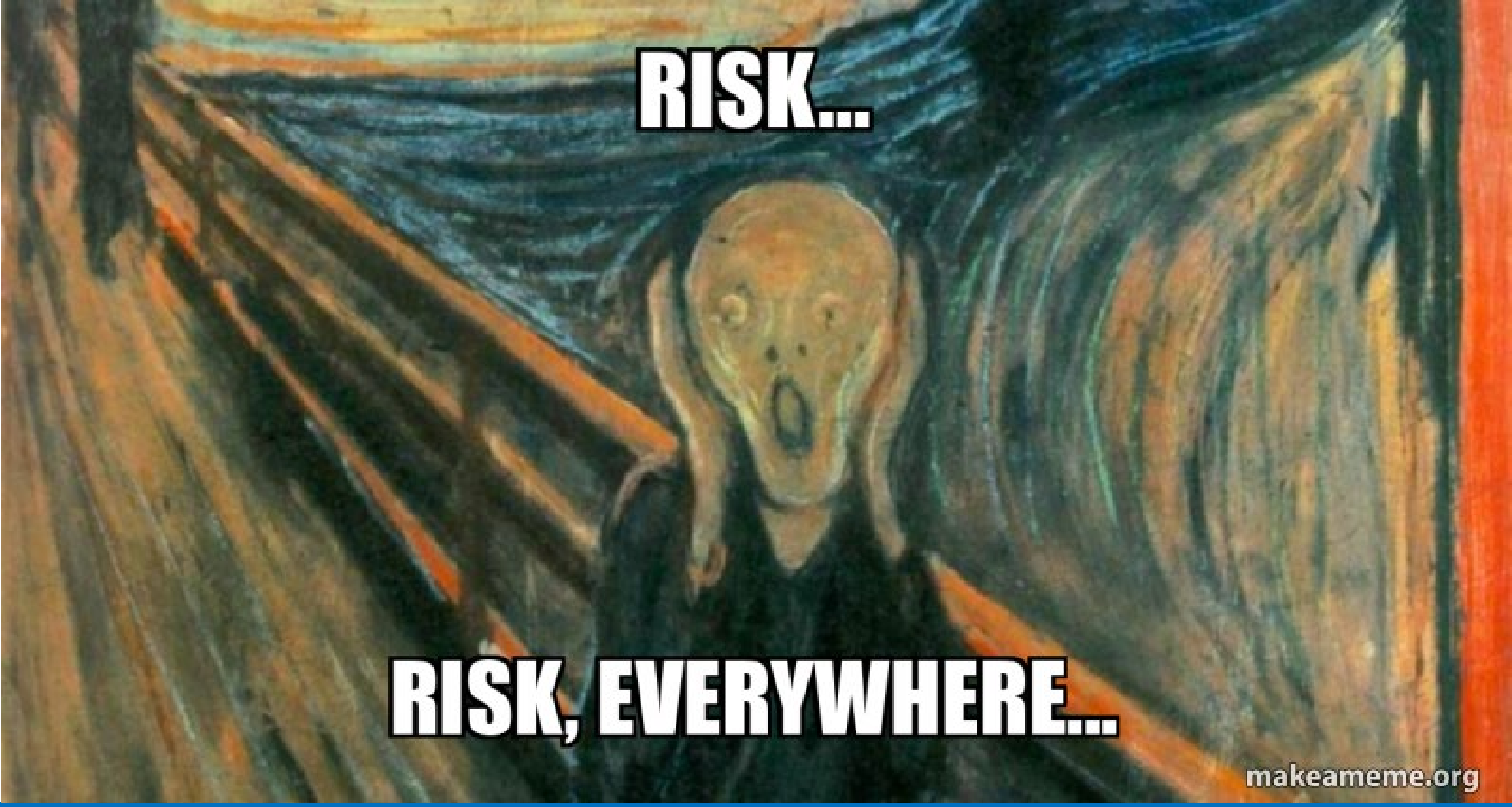

RISK...
RISK, EVERYWHERE...
makeameme.org

*What even *is* digital preservation risk, anyway?*

“How can the nature and complexity of digital preservation risk be more thoroughly and consistently represented so as to support the foundations for a more flexible yet comprehensive preservation planning risk response?”

Outputs: From Research to Practice

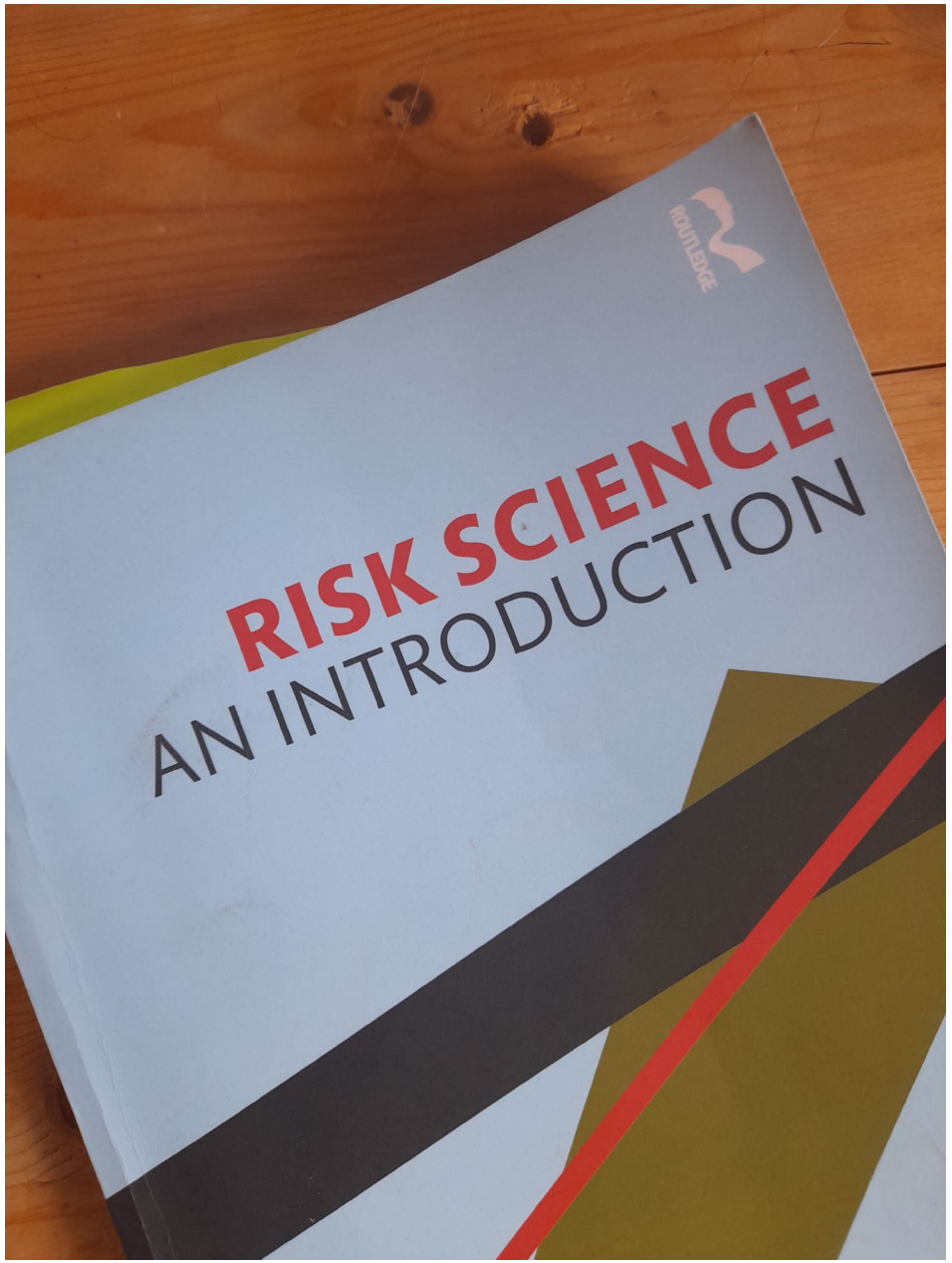
1. The CHARM Reference Model for Digital Preservation Risk

   An abstract, conceptual, modelled representation of the Digital Preservation Risk Domain.

2. A How-To Guide for CHARM

   Scenario-based methods for using CHARM in practice, including templates for risk identification and assessment

1: The CHARM Reference Model



"… Much of the confusion observed in practice concerning risk can be tracked back to the concept of risk being mixed with its measurement or characterisation… " (Ylönen & Aven, 2023)

Defining Risk…

… the *‘effect of uncertainty on objectives’*

(Too vague!)

Conceptually Defining Risk: A Risk Science Approach

Heckmann et al, 2015:

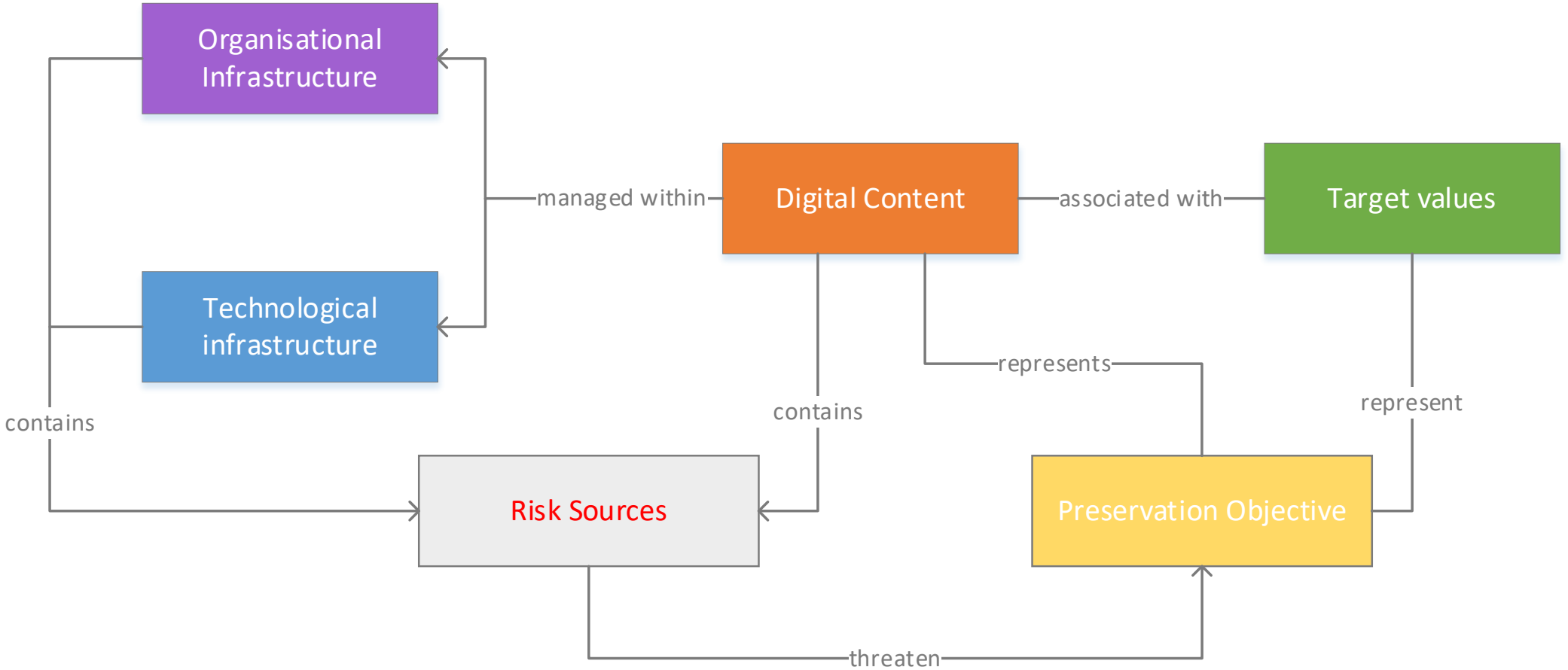
> *… 'the potential loss in a given context in terms of the contextual stated target values, evoked by uncertain developments and triggering events'*

Three components of a risk definition:

- *An undesirable outcome ('loss in a given context')*
- *Target values ('contextually stated…')*
- *Potential causes ('uncertain developments and triggering events')*

Digital Preservation Risk: A Conceptual Definition

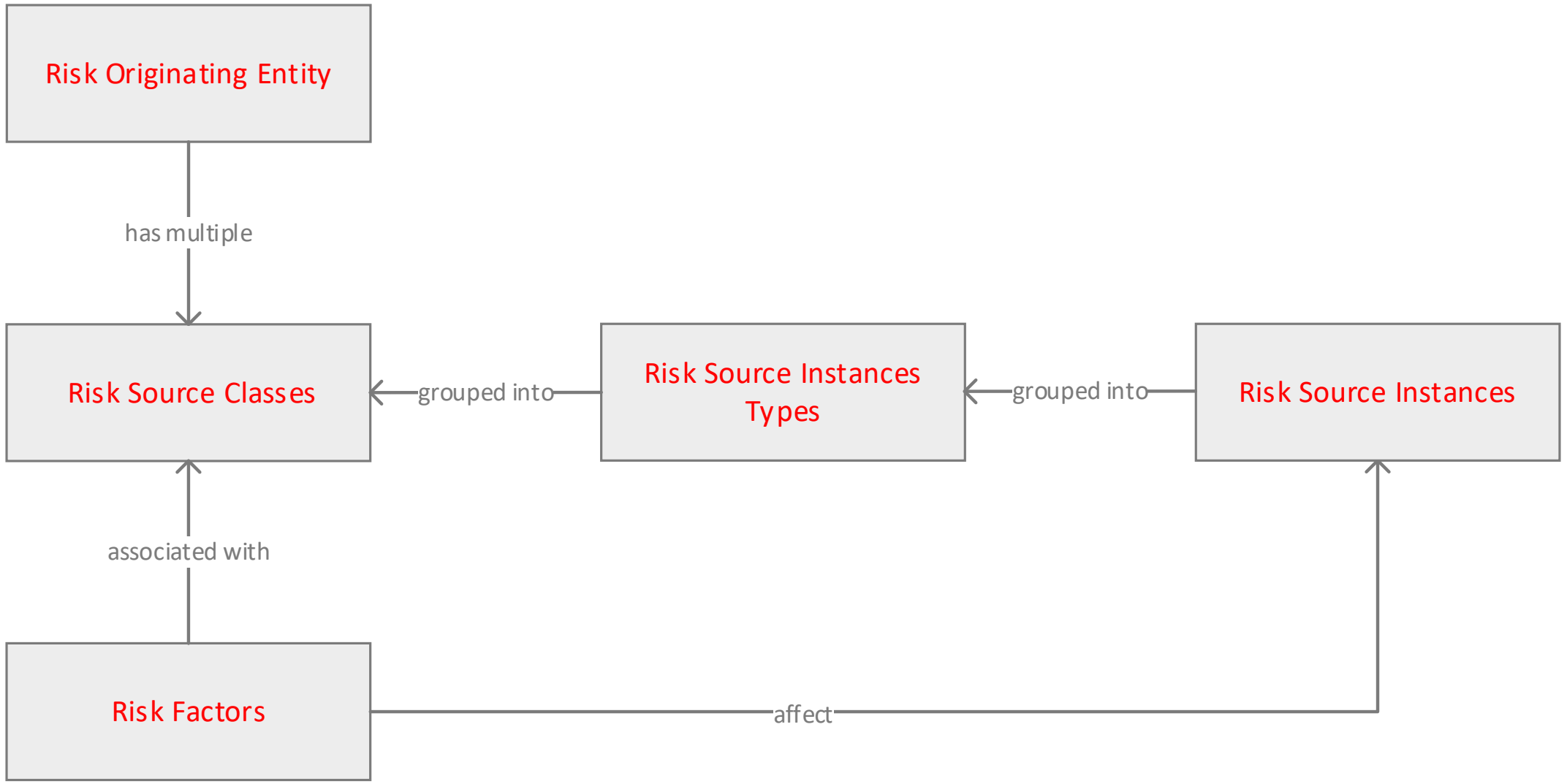
… 'the potential for complete or partial loss of digital collection content in terms of its target values of retrievability, authenticity, integrity, accessibility, and longevity, arising from sub-optimised risk sources within the managed organisational and technological environment in which the content should otherwise be preserved.'



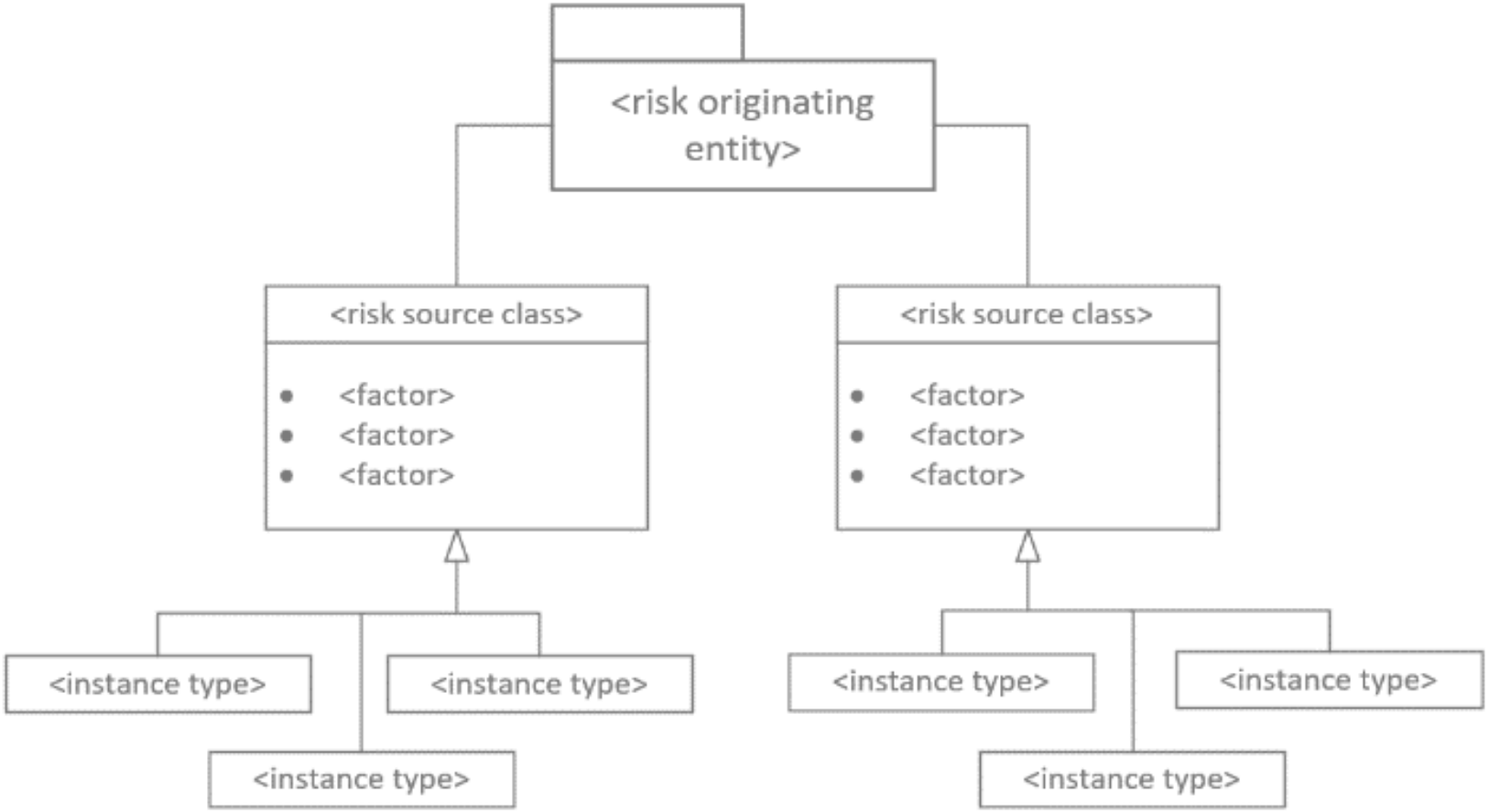
Digital Preservation Risk Context Model

But what about those Risk Sources….

… 'the potential for complete or partial loss of digital collection content in terms of its target values of retrievability, authenticity, integrity, accessibility, and longevity, arising from sub-optimised risk sources within the managed organisational and technological environment in which the content should otherwise be preserved.'

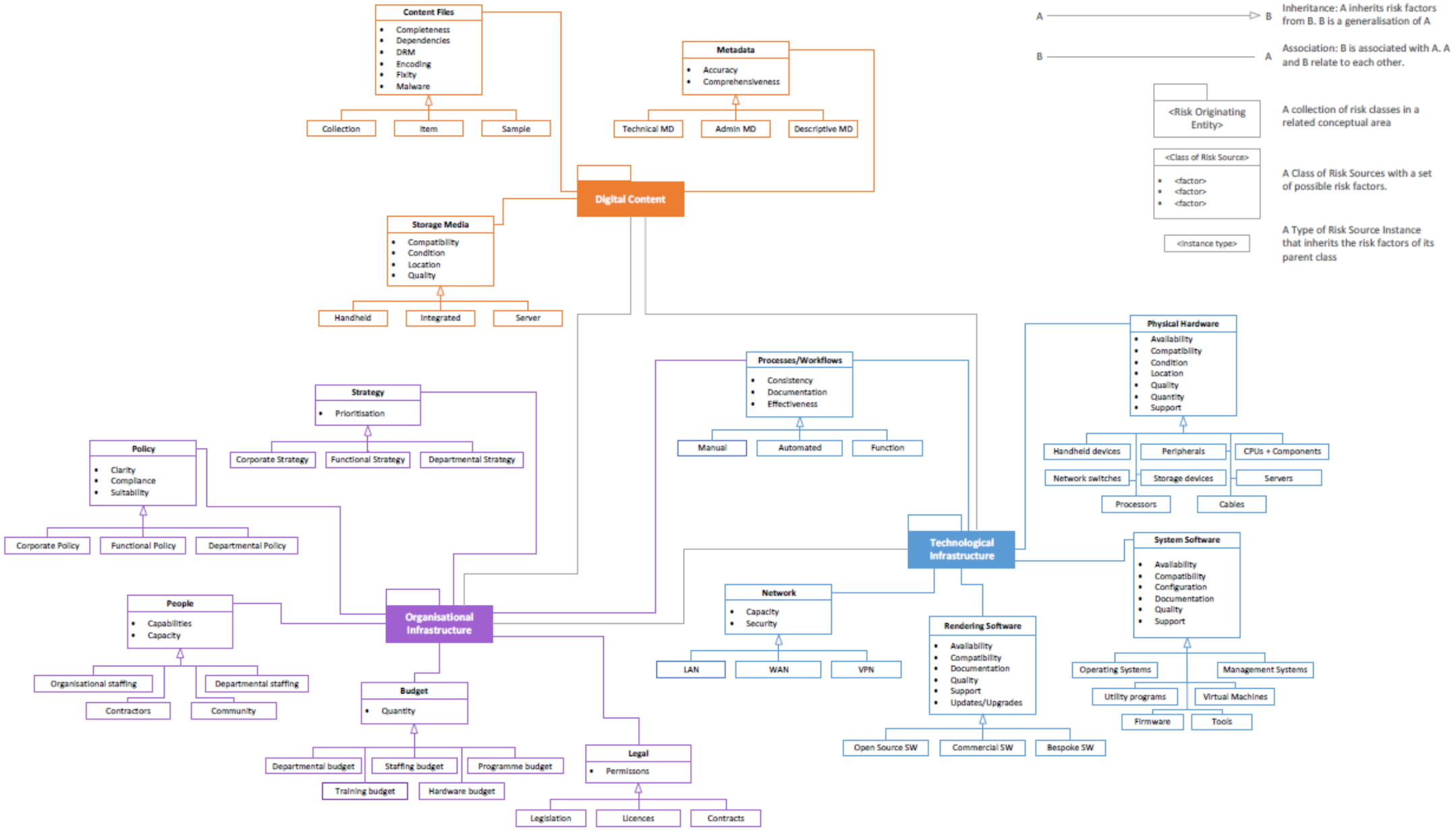


The Risk Source Concept Model



Abstraction of a Risk Originating Entity Family

The CHARM Digital Preservation Risk Source Model (October 2023)



1: The CHARM How-To Guide

The CHARM How To Guide

ISO 31000 Risk Management Process

The Methods support the *Risk Assessment Stage* of the ISO Risk Management Process

- **Method One:** A Lightweight communication process supporting the Risk Identification stage
- **Method Two:** A more comprehensive exploration the Risk Identification stage (Template provided)
- **Method Three:** A full, scoped Risk Assessment process that builds on outputs of M1 or M2 to also characterise and evaluate identified risks (Template provided)

Method One: A conversational, simple process

Step #	Description	Function	Suggested output
1	Define scope and context	Initiate process	Document
2	Identify and contact knowledgeable stakeholders	Establish input sources	Scheduled meetings
3	Discuss model and context with stakeholders	Identify areas of concern	Notes
4	Collate outputs from stage 3	Overview	Collated notes

Method Two: The Risk Identification Framework

Each class and factor is translated into a question, accompanied by an explanation to help clarify the purpose of the question and its relevance to target values

Class	Factor	Question
Digital Content	Completeness	Do the files contain all of the intellectual content to which you expect to provide access?
Justification: Rendered objects can sometimes display or use information held externally, linked from the content files. If this additional information is important but not available then the authenticity of the rendered objects can be affected.		

Method Three: A Risk Assessment

- Builds on the outputs of methods one or two, and integrates them into a full assessment process to demonstrate how risks can be consistently described, analysed, and evaluated
- Introduces some additional new concepts…
    - Contextualised Risk Source (Specific Instance + Specific Factor)
    - Uncertainty (in relation to a risk factor)
    - Consequences (linking back to target values)
- Introduces some additional standard techniques
    - Risk Appetites
    - Risk Matrices
    - Risk Evaluation

But, last but not least, don't worry…

"… the model will be a help to preservation practitioners not just in terms of risk management but simply because it defines the relationships of other key concepts with precision and consistency …"

"… its clarity is unique amongst everything I've ever read in this area…"

"… a boon to students new to the field as well as to existing practitioners. I wish it had existed when I was studying!"

Additional Resources

CHARM: Thesis, Model, How-To Guide and more (Uni Dundee Institutional Repository)

https://doi.org/10.15132/20000457

Short Blogpost: Introducing CHARM (DPC Blog)

https://www.dpconline.org/blog/a-reference-model-for-dp-risk

Short Description: About CHARM (DPA 2024)

https://tinyurl.com/2eb9e9wn

Short Video: About CHARM (DPA 2024)

https://youtu.be/_Lcnm_ijKco

Conference Paper: Scaling up our Knowledge of Digital Preservation Risk with CHARM (iPres 2024)

https://doi.org/10.5281/zenodo.12515870

Thank you

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