

Digital researchers and data experts

We create digital tools  
to explore academic  
research in new ways.

**REQUIREMENTS ELICITATION**



Digital researchers and data experts

We create digital tools  
to explore academic  
research in new ways.

## Dr. Arianna Ciula

Deputy Director of King's Digital Lab

Senior Research Software Analyst

@ariciula

arianna.ciula@kcl.ac.uk



**Overview** Core idea, vision, context

**Research Questions** Why do you need a digital project? What would you like its process/output helping you/others find out?

**Analysis** Prioritised high level requirements

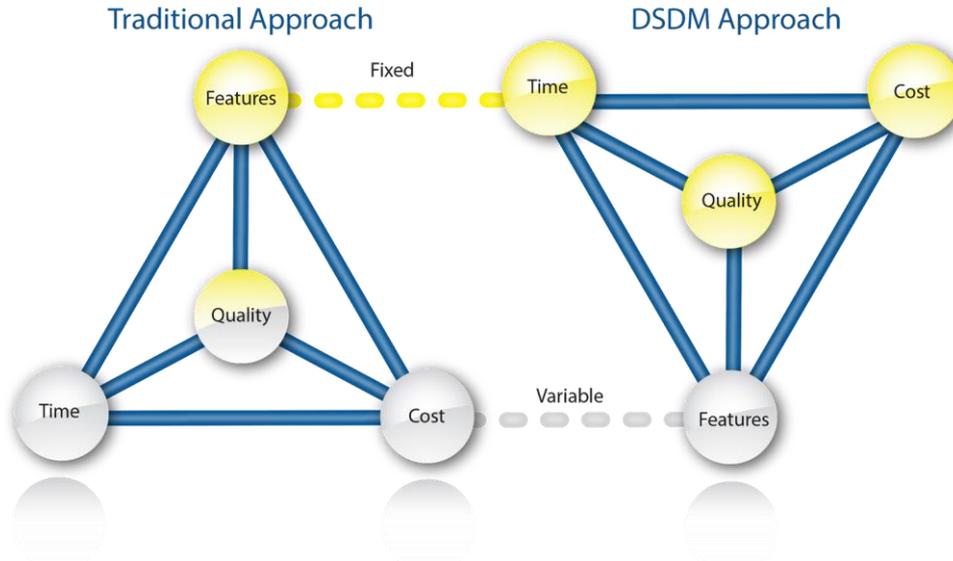
**Methods** Development approach and solution architecture (including use of relevant standards)

**Management** Management approach around the project lifecycle including delivery plan, review and testing phases

**Budget** Comprehensive of infrastructure, project management and if eligible SLA costs

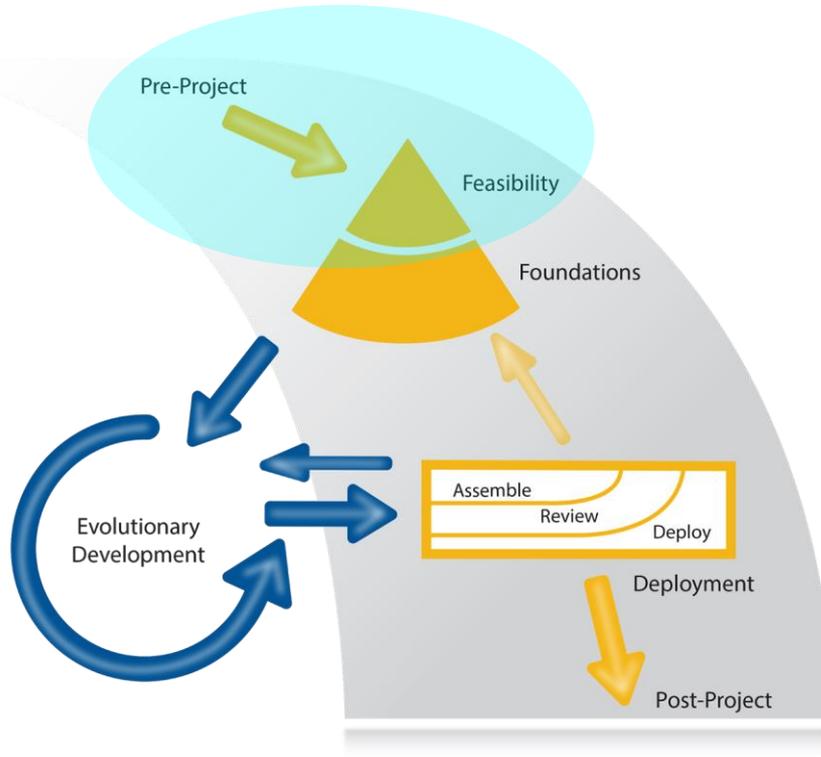
**Sustainability** Hosting, maintenance arrangements and what happens in the post-project phase?

## Alignment to Agile DSDM



Agile Business Consortium (2014), *The DSDM Agile Project Framework*. Chapter 13: [Philosophy and Fundamentals](#).  
Image ©Agile Business Consortium Limited.

## Alignment to Agile DSDM Process



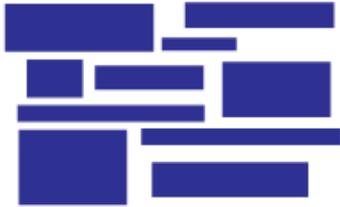
Agile Business Consortium (2014).  
Chapter 6: [Process](#). Image ©Agile  
Business Consortium Limited.

## In scope for this timeframe

## Out of scope for this timeframe

(Project / Increment / Timebox)

### Must Have



Typically  
no more  
than  
60% effort

### Should Have



### Could Have



Typically  
around  
20% effort

### Won't Have this time



MoScow technique >>  
Agile Business  
Consortium (2014).  
Chapter 10: [MoSCoW  
Prioritisation](#). Image  
©Agile Business  
Consortium Limited.

**M = must have; S = should have; C = could have; W = won't have this time**

From KDL's Product Quote for [SHARC project](#) (by Paul Caton, KDL)

Priority	Requirement
<b>M</b>	Taxonomic data model for Shakespeare-related items in the Royal Collections and Royal Archives
<b>M</b>	Metadata schema that facilitates multiple associations among records
<b>M</b>	Site that can store, search across, and display a set of digital objects representing those items (likely to be approx 2500 objects)
<b>M</b>	Site that can store, search across, and display a set of metadata records associated with the digital objects
<b>S</b>	Admin interface that allows direct metadata record creation on site
<b>S</b>	Map functionality showing location of items by royal residences
<b>S</b>	Timelines placing items in historical context
<b>C</b>	Integration of 3D visualizations of key rooms at Windsor Castle (creation of 3D images would be by 3rd party)
<b>W</b>	Public interaction with/contributions to site

## SOLUTION ARCHITECTURE

The taxonomy of digital objects will be based on the CIDOC Conceptual Reference Model, with FRBRoo or custom extensions as necessary. Metadata creation will be enabled and structured so as to facilitate (1) multi-faceted discovery of objects within the site and (2) making the metadata discoverable in formats conforming to standard schemas such as EAD, Dublin Core, and TEI. The web application is going to be implemented and published using the well established (open source) Django web framework (<https://docs.djangoproject.com/>) and Wagtail content management system package (<https://wagtail.io/>), and will make use of the web standards

HTML5, CSS3, and JavaScript (<https://www.postgresql.org/>), PostgreSQL database engine (<https://www.elastic.co/>), and content will be stored on the VM with the

## DEVELOPMENT APPROACH

KDL will develop the resource following the Agile methodology whereby work proceeds in increments and the product is iteratively developed. Wherever possible and applicable, unit tests will be created to guarantee the quality and sustainability of the code. All the source code will be hosted in an open source repository on Github.

Work increments will address priorities requirements (as detailed above). Each increment of work will be followed by a review to inform the focus of the next work increment and to re-prioritise the requirements.

Technical documentation will be maintained

## DELIVERY PLAN

The project will be delivered incrementally. The first increment would deliver a basic live website containing static informational content about the project and intended development of the site. Subsequent increments will be defined in the course of the development work, with priorities being reassessed and emergent issues moved into scope as appropriate.

See also KDL's [Feasibility](#) template.

## Example from MaDiH Project: Objectives and Constraints

1. Identify relevant national and international policies, frameworks, and standards and make recommendations for their future development and/or implementation in a policy white paper.
2. Identify necessary improvements to existing infrastructure, systems, and tools and make recommendations for their future development in a policy white paper.
3. Identify relevant offline datasets, and create a **digital heritage policy catalogue**.
4. Develop a **digital heritage policy catalogue**.
5. Develop a **digital heritage policy catalogue**.  
 ca. 40 days  
 4 timeboxes
6. Enable a digital cultural heritage community and a series of events involving government, university, and technology sector stakeholders.
7. Disseminate knowledge gained from the project via a **basic website**.

**Time**

Deadline Aug 2020

ca. 40 days

4 timeboxes

**Cost**

Budget for development

ca. £22,000

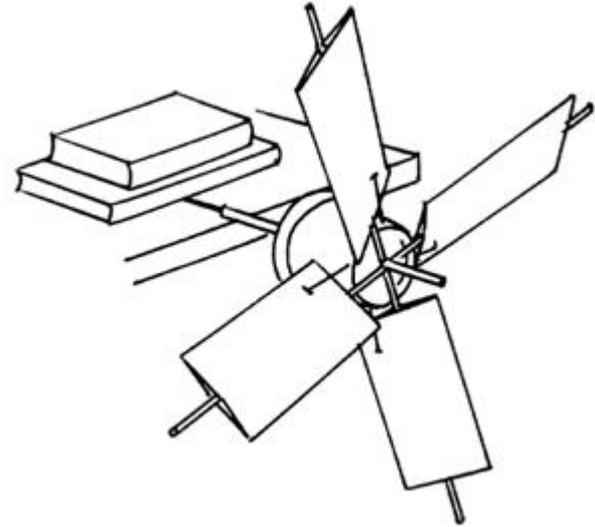
## Example from MaDiH Project: Proof of Concept

Proof of Concept (PoC) is

- a simple working model **to test** a proposed solution;
- a prototype, proving a concept in a practical way, to be solidly engineered upwards.

PoC implies a future (not an endpoint, exploration of solution, scaling up).

PoC to test MaDiH proposal assumptions and demonstrate the value of the research to key stakeholder communities.



## Example from MaDiH Project

Minimalist solution architecture for all digital products >> static site, CKAN data catalogue, PoC Heritage Portal

- Static site >> GitHub pages with multilingual editing support through Jekyll (<https://jekyllrb.com>)
- PoC data catalogue (50 datasets) >> King's Digital Lab CKAN instance <https://data.kdl.kcl.ac.uk>
- PoC Heritage Portal >> technology to be assessed but could be a distinct CKAN instance

All source code under [open source licence](#).

## Example from MaDiH Project

**Policy white paper** identifying relevant national and international policies, frameworks, and standards and making recommendations for their future adoption and/or implementation

**Technical white paper** listing requirements for improvements to existing infrastructure, systems, and tools and make recommendations for their future implementation

## Planning for MaDiH Phase 2: Phase 1 designed to scope Phase 2

Defined set of M of requirements → development of **PoC** → gap analysis, review/reflection

Workshops → elicitation of requirements → set of MoSCoWed requirements

High level, focus on the *what* (functionalities) and not the *how*

## Planning for MaDiH Phase 2: Some guiding questions

1. **Input** >> what material goes in? under what circumstances?
2. **Processing** >> what things can be done to the input? by whom?
3. **Output and discovery** >> who can access processed material? how can they find it? what can they do with it?

e.g. Store/access/process

- Vocabularies? Metadata standards?
- Who can do what? Versioning?
- Manual or automated?

e.g. Input/export

- Input what/from? Export what/to?
- Relation to other resources?

e.g. Discover (search/browse/associate)

- Types of browse functionalities? Ways of presenting data?
- User journeys?

## Planning for MaDiH Phase 2: Example template for requirements elicitation

Description	
Pros	
Cons	
Importance ranking 1 = high 10 = low	

From the Requirements Elicitation Workshop for the [Georgian Papers Programme](#), King's College London, September 2017  
(by Paul Caton, KDL)



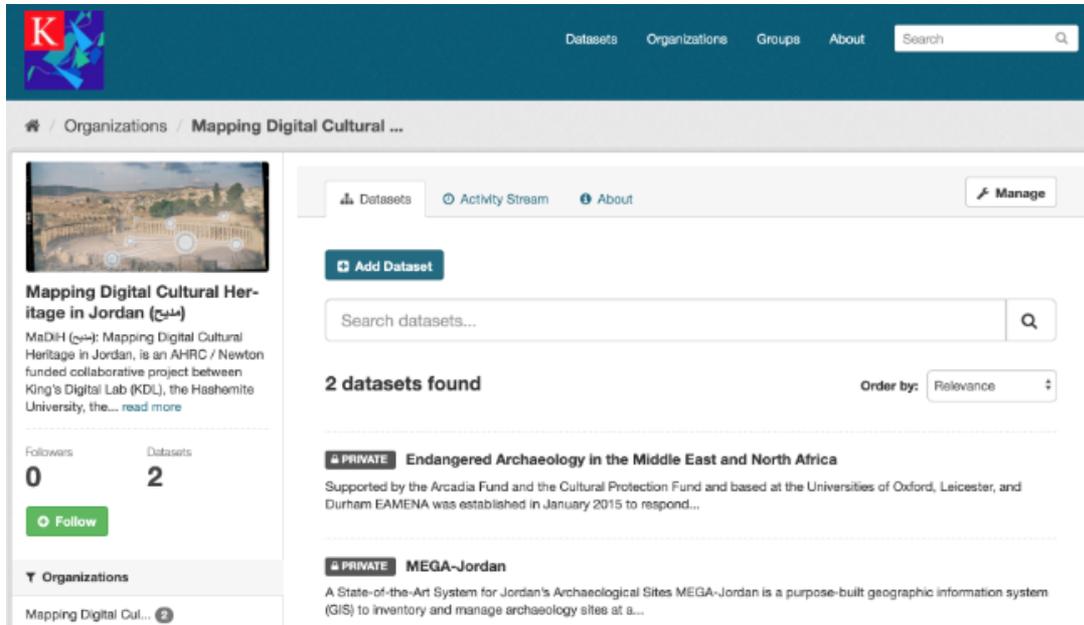
## Rationale in MaDiH proposal

“The Comprehensive Knowledge Archive Network (CKAN) system will be used as the primary data catalogue system, resulting in the CSW (Catalogue Services for the Web) format.

CKAN is in wide use across the public sector. It uses the PostgreSQL database system, respects the schema at <https://www.w3.org/TR/vocab-dcat>, and can export in the **Data Catalog Vocabulary** (DCAT) along with many others through plugin services. Its contents can be described via the Resource Description Framework (RDF) and accessed via an Application Programming Interface (API). A wide range of plugins can be used to extend its capability, allowing import and export of different data formats. Data stored in CKAN will be exposed to the proof of concept Heritage Portal, reducing duplication and increasing sustainability.

Information about the Jordanian data landscape will be captured directly in the CKAN system when internet access allows it, or in .csv format for import to the CKAN system when internet access is unavailable.”

## MaDiH in KDL temporary CKAN instance (testing phase)



The screenshot shows the CKAN platform interface for the organization 'Mapping Digital Cultural Heritage in Jordan'. The header includes navigation links for 'Datasets', 'Organizations', 'Groups', and 'About', along with a search bar. The organization's profile features a banner image of a historical site, a description in English and Arabic, and statistics showing 0 followers and 2 datasets. A 'Follow' button is present. Below the profile, two datasets are listed, both marked as 'PRIVATE': 'Endangered Archaeology in the Middle East and North Africa' and 'MEGA-Jordan'. The interface includes tabs for 'Datasets', 'Activity Stream', and 'About', and a 'Manage' button.

Temporary CKAN instance created for the workshop.

## Example of Project Workflow

1. Dataset and resources selection
2. Preliminary data entries by analyst
3. Internal peer review
4. Email to partners
  - Project overview
  - Outline of benefits
  - Technical details (separate attachment containing information on CKAN, list of resources to be exposed, license for the data, preview details)
  - 3 week to respond
5. Data publication
6. Comms and dissemination

DDH Data Legacy Catalogue Stage 1 >> <https://data.kdl.kcl.ac.uk/>

Digital researchers and data experts

We create digital tools  
to explore academic  
research in new ways.

## Dr. Arianna Ciula

Deputy Director of King's Digital Lab

Senior Research Software Analyst

@ariciula

arianna.ciula@kcl.ac.uk

