



Towards a joint service catalogue for e-Infrastructure services

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Opening Science in Europe and in the World
Managing Service Portfolios for Research in Europe
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Goal

- A framework for creating a Catalogue of Services (CoS)
- Primarily intended for e-Infrastructure services
- Describe services at a high level
 - to make them findable
 - to identify overlapping efforts or gaps in the catalogued service landscape
- Used to specify and implement a concrete catalogue
 - not a catalogue itself
 - does not list or describe services

Methodology

- Exploratory
 - information coverage vs. maintainability

- Reusing existing conceptualisations:
 - FitSM
 - ISO 20000 : requirements for an information technology service management (ITSM) system
 - UK Government Service Design Manual

- Validated with examples from projects EGI, EUDAT, GEANT, OpenAIRE, BlueBridge, THOR

- Implementation independent

Catalogue or portfolio?

- Catalogue of services
 - live services

- Service portfolio
 - can also capture pre- and post-production services
 - EC use cases:
on-going operational and prototype services
 - Specifying service development phase
(<https://www.gov.uk/service-manual/phases>)
 - Some concepts not always applicable
 - simplicity of description & flexibility
vs.
precision & prescriptiveness

[https://
blog.samanage.com/
it-service-
management/
service-catalogs-vs-
service-portfolios-
whats-the-difference/](https://blog.samanage.com/it-service-management/service-catalogs-vs-service-portfolios-whats-the-difference/)

Service (1)

- A **service** supports
 - defined functions
 - for defined purposes
 - for defined stakeholders
 - under defined conditions
 - available from a provider

- Key entities are captured in the framework's conceptual model

Service (2)

- Service area
 - taken from the IT life-cycle: low to high-level functions
 - across IT functions
 - vocabulary customised to the CoS

Visualisation
Publication
Access
Discovery
Analysis
Applications
Authorization/ Authentication
PID Identification
Networking
Hosting
Computing
Data Management & Preservation
Storage

Data & Information
Training / Consulting / Policy
Distributing/ Sharing/ Collaborating



Service (3)

From a **customer perspective**

Not

- Specific **software**

- the product that implements and provides the service

- Projects**

- that produce a service
- One project can offer multiple services

- Service Level Agreements (SLA)**

- Several different SLAs can be associated with a service

CoS and service providers

- Not necessarily **owned and maintained** by service providers
 - a current and prospective service provider (ESFRI RIs, e-Infrastructures, VRE projects...)
 - a funding agency
 - a research community

- Services from **multiple service providers**

- High level, core** information about the service
 - specificity** vs. **maintainability** / ease of keeping descriptions up-to-date
 - information to **find** the services
 - information to determine services' **relevance**
 - detailed information at the service provider's website

How to use the framework: Tailor

- **Tailor** the framework to **requirements** of specific CoS
 - State requirements and policies explicitly
 - Framework = range of relevant concepts that describe a generic CoS
 - The most likely concepts to be desirable for a CoS instance
 - Detail determined by the creator of the CoS instance



How to use the framework: Adopt

- Adopt fields** dependent on
 - Purpose**
 - E.g. Is cost/benefit information needed by the user?
 - Stakeholder target groups**
 - E.g. owners, managers, customers, users
 - E.g. domain / research area
 - E.g. organisation types
 - Policies** : vary for service types, departments, organisations, sectors, regions
 - Systems context** : able to obtain and maintain information

How to use the framework: Add

Add

- Data types** : permissible values
- Controlled vocabularies** for each field
- Applicability** and **obligation**,
under what conditions

How to use the framework: Extend

- Extend** the general framework
 - additional information needed depending on **scope** and **types of services**
 - domain-specific information
 - technical detail
 - more specific / granular information



How to use the framework: Constrain

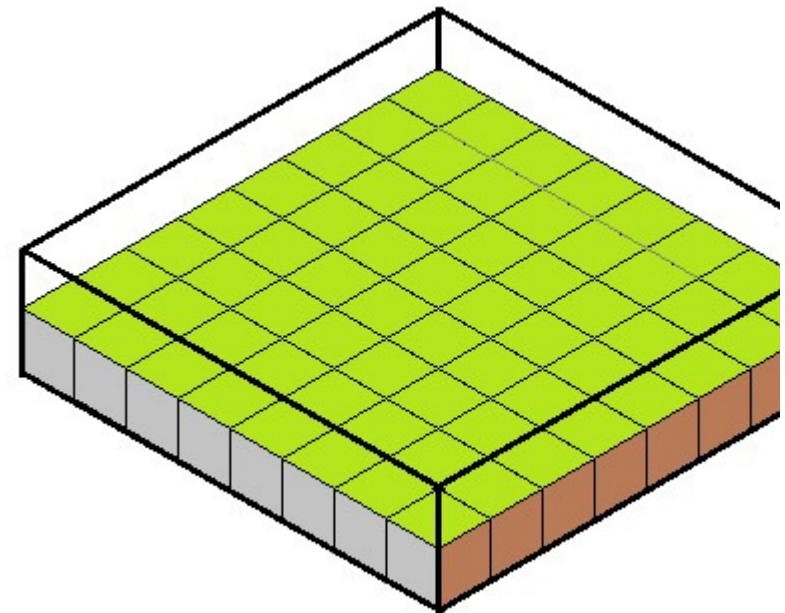
Define constraints for use of CoS

- the **geographic** scope
 - such as organisational, regional, European

- the **nature** of the included services
 - such as training, IT services, consultancy

- other **constraints**
 - such as who funded the service

- size, style** and **format** limitations for text
 - homogeneous presentation
 - useful and comparable content

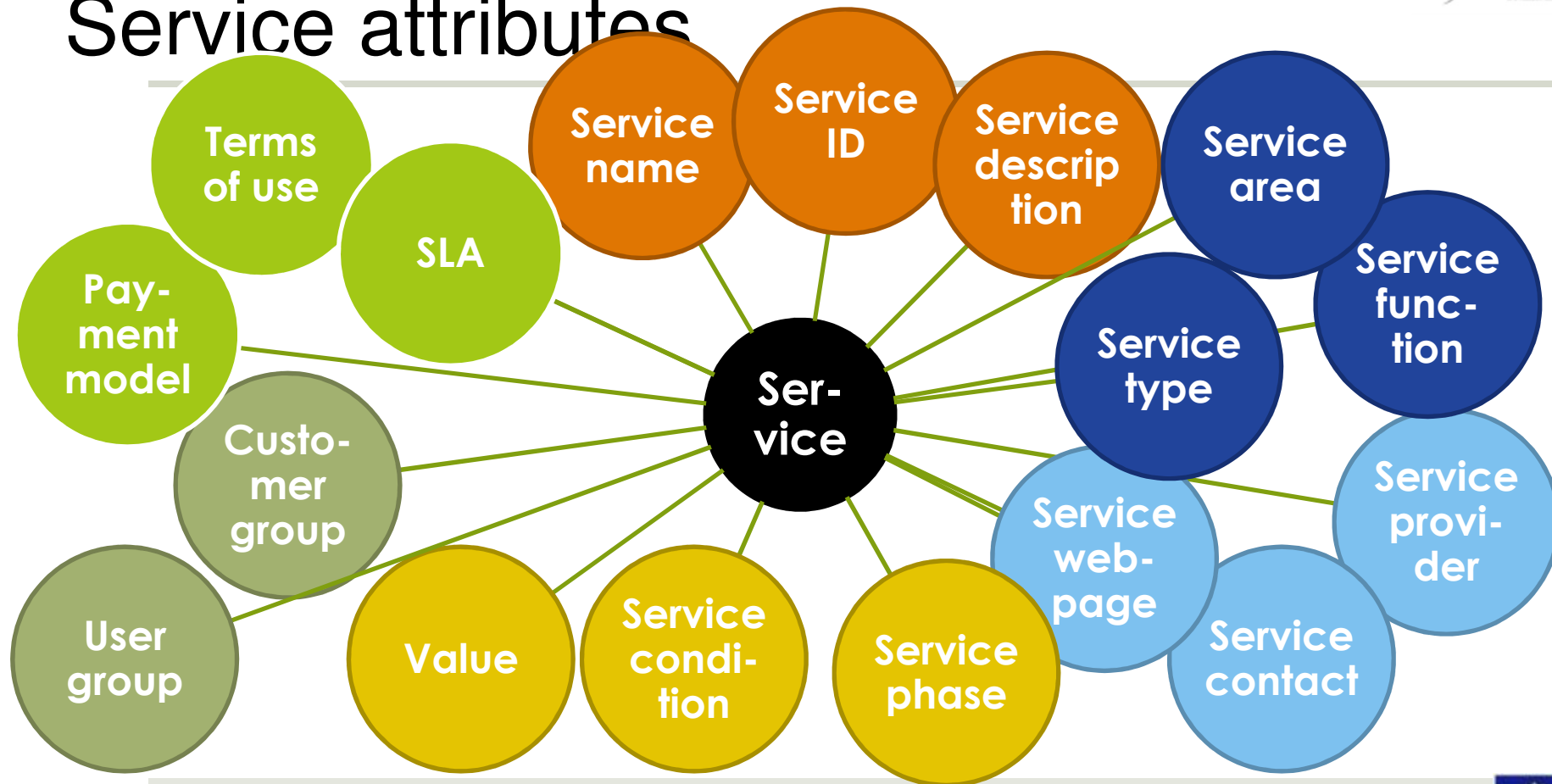


Entities

Term	Definition	Notes
Service	Means of delivering value for the customer by facilitating results the customer wants to achieve	Source: ISO 20000 Additional info: A service is generally intangible; a service usually provides value when taken on its own
Service catalogue	User / customer facing list of all services available publicly offered along with relevant information about these services	Source: adapted from FitSM vocabulary Format: List of services Additional info: The service catalogue can be regarded as a filtered version of and customers' view on the service portfolio; Different service catalogues can exist for different customer groups
Service portfolio	Internal list that details all the services offered by a service provider in all different <i>service phases</i>	Source: adapted from FitSM vocabulary Format: List of services Additional info:



Service attributes



Service attributes

Term	Definition	Notes
Service name	Name of a specific service as assigned by the service provider	Source: FitSM template for service portfolio Format: Free text
Service ID	Global unique and persistent identifier of a specific service	Format: DOI or any other relevant standard; it should contain information about the identifier type and value. Additional info: A PID can be used ideally resolvable to a landing page or a machine readable data typed metadata page. It should be assigned by the CoS owner.
Service description	High-level description of what the service does in terms of functionalities it provides and the resources it enables	Format: Free text Additional info: It may provide also information related to the offered capacity, number of installations, underlying data that is offered

Validation

Service name	Object storage	Cloud compute	Assign persistent identifier	Metadata store
Service ID				
Service webpage			https://www.datacite.org/	https://www.datacite.org/
Service provider	EGI	EGI	DataCite	DataCite
Service contact	support@egi.eu	support@egi.eu	https://www.datacite.org/contact	https://www.datacite.org/contact
Service description	Store and retrieve unstructured data as objects via a uniform/standard interface. Most object stores allow attaching metadata to objects, and	Run virtual machines of your choice on high quality IT resources accessible via a uniform interface from multiple service providers	A service to assign persistent identifiers to data sets backed-up by a governance structure	A metadata management service to for maintaining descriptive metadata associated with datasets.



Experience in managing service portfolios: THOR Project & long-term access to services

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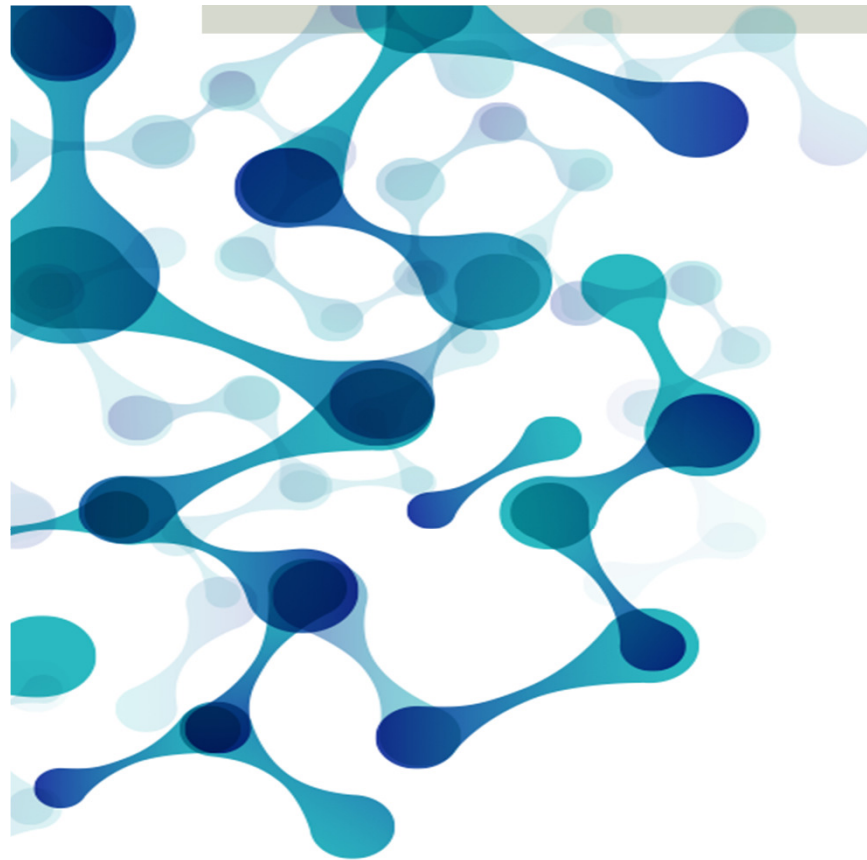


THOR develops e-infrastructure services that enable the seamless linking of researchers, articles, and data using Persistent Identifiers (PIDs).

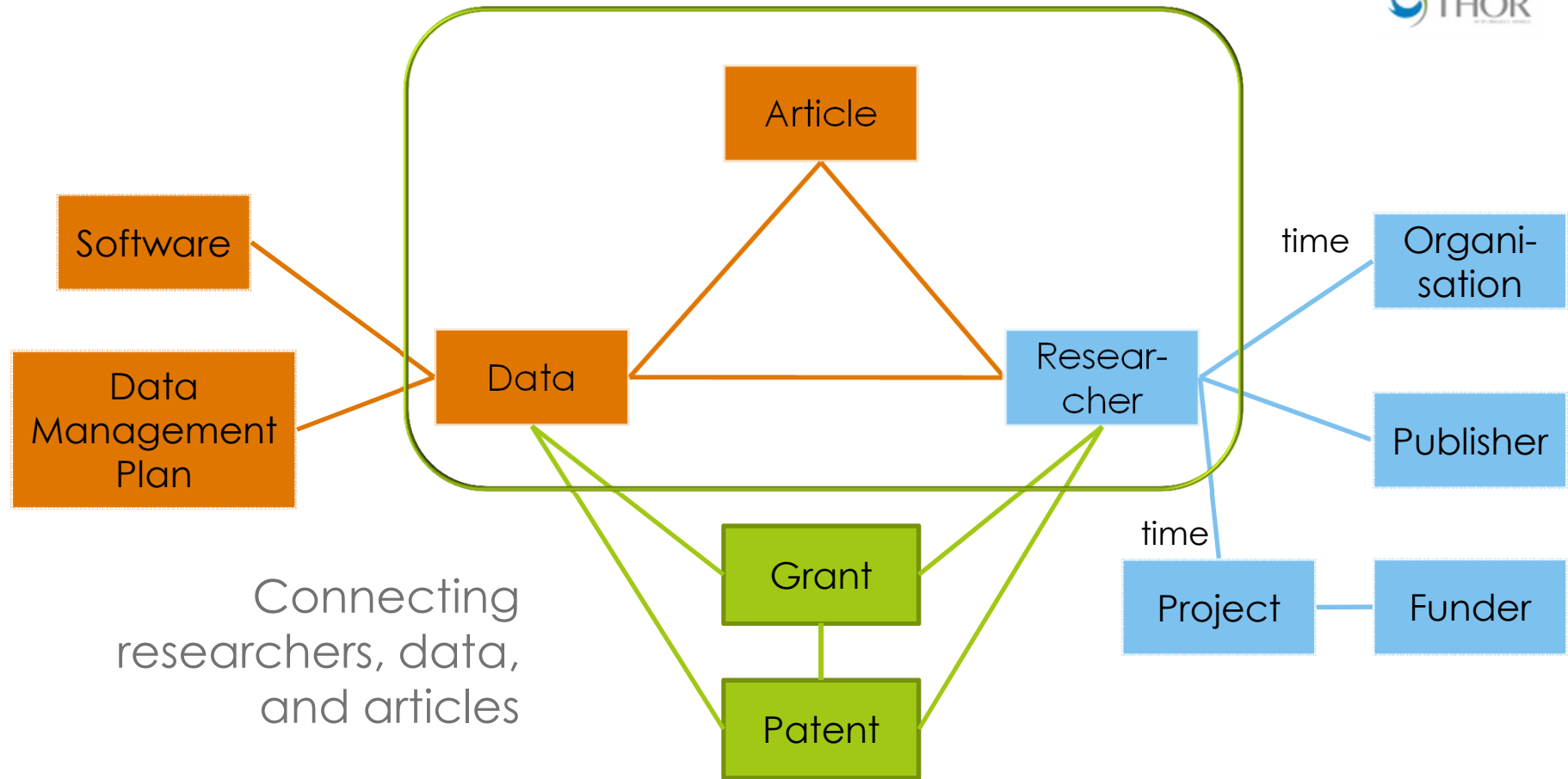
This benefits both end-users and service providers.

It makes research easier to discover, re-use, and trust.

By enabling researchers to receive credit for more of their work, it encourages early sharing of results and supports Open Science.



Technical and Human
infrastructure for Open Research



High-level services (1)

Interoperable services and APIs based on PIDs

Technical partner services

- For researchers**
 - Register, update, and maintain their own personal profile under an ORCID record
 - Links identifier to researcher and research output information
- For data management**
(data centres, e-infrastructure providers, libraries, and other organisations)
 - Register, update, maintain research data information
 - Make datasets citable, discoverable resolvable using a DataCite DOI

High-level services (2)

Interoperable services and APIs based on PIDs

Interlinking services:

- Link researchers to research outputs, organisations, grants
- Citation tracking services and metrics for traditional publications and data together
- Alerts about new connections, updates, and corrections

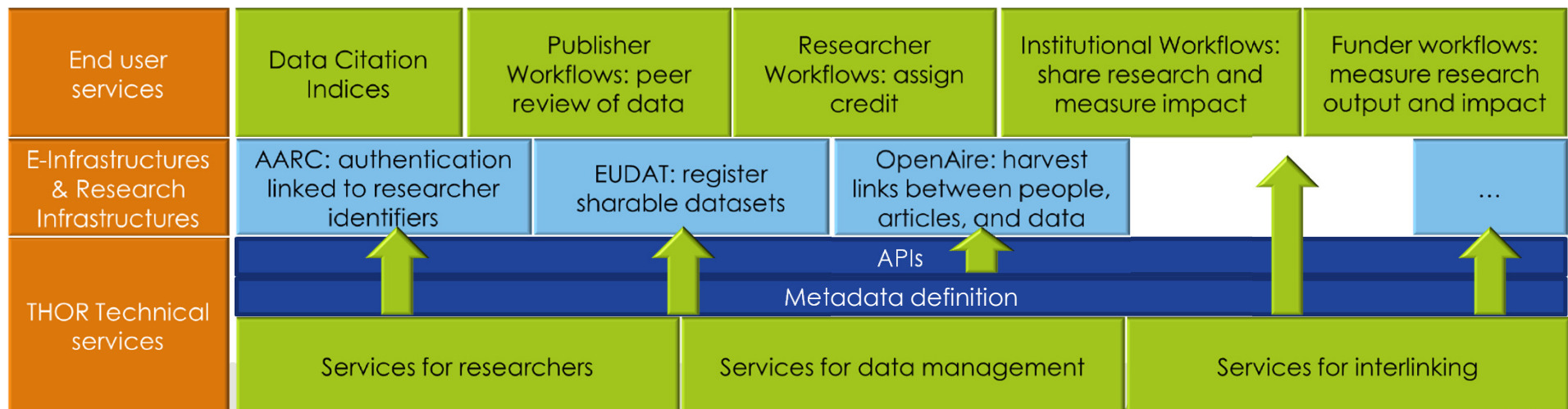
- From ORCID:
Discover, cite data and be cited using a DataCite DOI
- From DataCite:
Retrieve and update information about researchers using ORCID ID

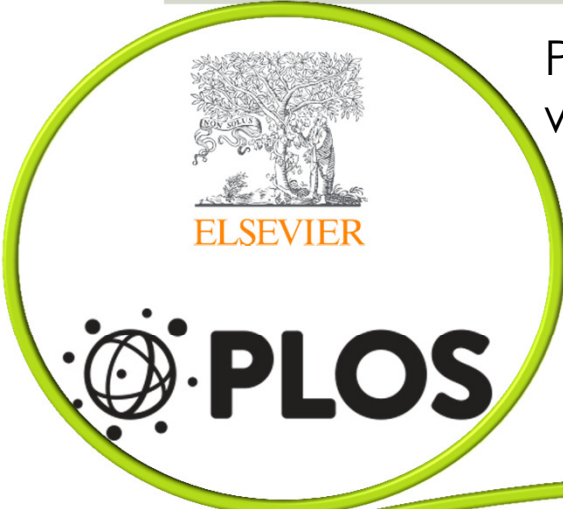
High-level services (3)

Interoperable services and APIs based on PIDs

Integrated services:

- Support third-parties as well as end-users





Publisher workflows



Datacentre workflows



Trans-disciplinary adopters

Technical services
Information services



Nature of THOR services

- Improve partner services
 - Provided past the duration of the project through project partners
 - Core goal of sustainability
- Embed services in existing stakeholder production systems and workflows
 - Improved interoperability: metadata and linking
- Deliver information on researchers and data (and others)
- Support service adoption through resources
 - Knowledge Hub: help others adopt PID services
 - Best practice / learn from experience gained
 - Dashboard: metrics of PID uptake over time



Sustainability of services

- Establish metrics to assess development of PID infrastructure
 - impact on availability of open research data access
- Measure adoption of PID-based services, tools, software and best-practices
- Identify, study, compare and monitor sustainable business models of existing pieces of the federated PID e-infrastructure and support their evolution



Long-term access to services through PIDs

- Persistent identifiers and the governance structures associated with them can be applied to software and virtual machines
 - Unique and long-lasting references to services and software
 - Basis of persistence of services
 - Ease finding, citing, tracking, reusing services
 - Support versioning, identification, service management
 - Resolve to services
 - Metadata support improving long-term usability