A complementary view from the DIGOIDUNA study

http://www.digoiduna.eu/

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Commonalities in objectives and methodology

DIGOIDUNA

- Analysis of the **role of PIDs for digital objects and authors** as enablers of value in scientific data e-Infrastructures (SDIs)
- **Scenarios** of the beneficial impact of PIDs for digital objects and authors in e-science
- A **SWOT analysis** of the current situation to identify opportunities and challenges to implement effective and interoperable PID solutions within SDIs

ODIN

- Analysis of **the role of PIDs for people and data** to develop a global interoperable data exchange framework enabling data sharing, attribution and discovery
- **Use cases of interoperability** between data and author identifiers ➔ **conceptual model of interoperability**
- **SWOT and GAP analysis** to identify how PIDs for people and data are used within key stakeholder communities and what it is needed to develop an interoperable PID layer at the basis of the framework

Commonalities in objectives and methodology

DIGOIDUNA

- Proposing **ACTIONS** to develop an open and sustainable e-infrastructure for digital objects and author PIDs
- **Stakeholder participation** and validation
- **Multidimensional** and **cross-boundary view**
- **Exploiting the potential of the emerging LOD approach**

ODIN

- **RECOMMENDATIONS for future ACTIONS** to fill the identified gaps
- **Stakeholder participation** and validation + **disciplinary proofs of concept**
- **Cross-boundary view** (e.g. cross-disciplinary perspective in the two proofs of concept in HSS and HEP) and **internationalization**
- **Exploiting the potential of the emerging LOD approach**

Focus and Core services

DIGOIDUNA

- Access
- Provenance
- Quality Assessment

ODIN

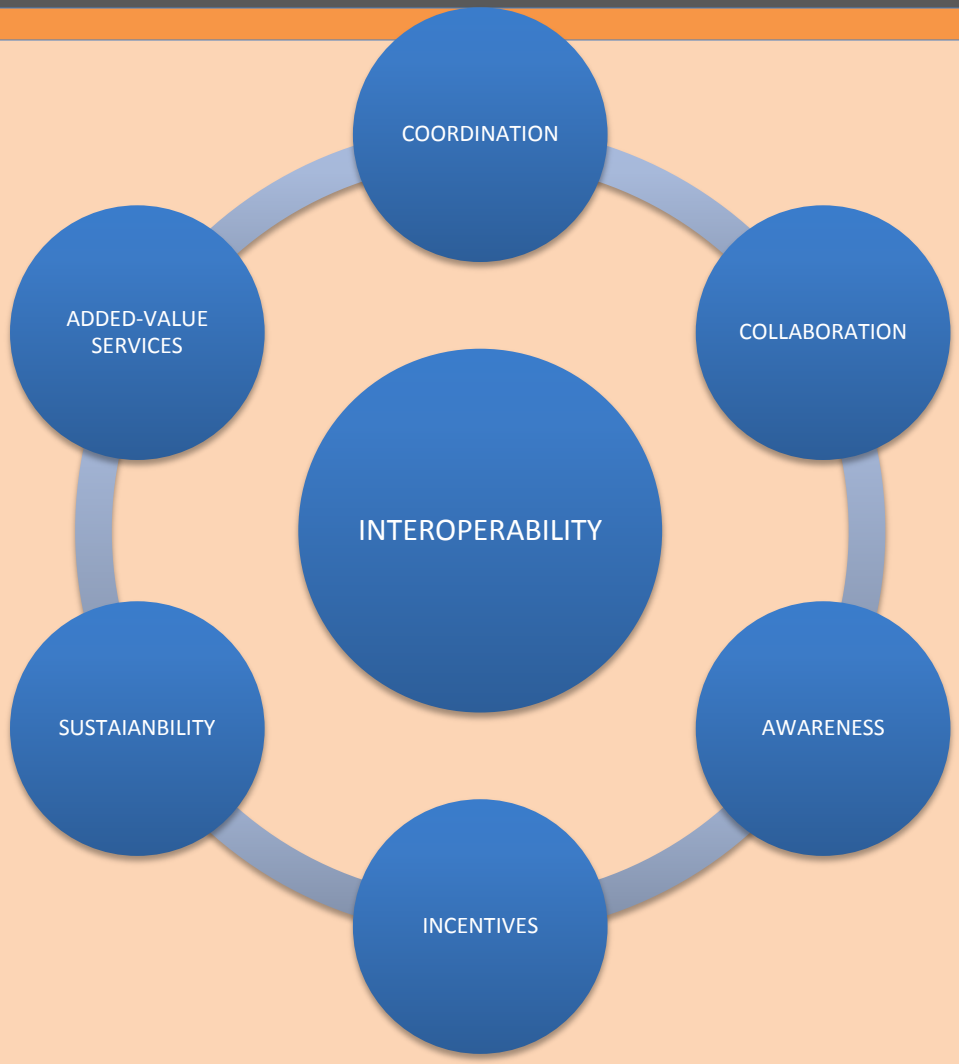
- Access
- Discovery
- Interoperability
- Sustainability

Commonalities in the general approach

- "Don't reinvent the wheel" principle…INTEROPERABILITY is the key issue
- Building a common understanding and agreeing on common objectives before addressing technological issues
- Cross-boundary perspective (cross-disciplinary, cross-nation, cross-organizations…)
- Added-value services to incentivize the adoption of a trusted open interoperability infrastructure
- Collaboration across stakeholders to define objectives, policies, services…

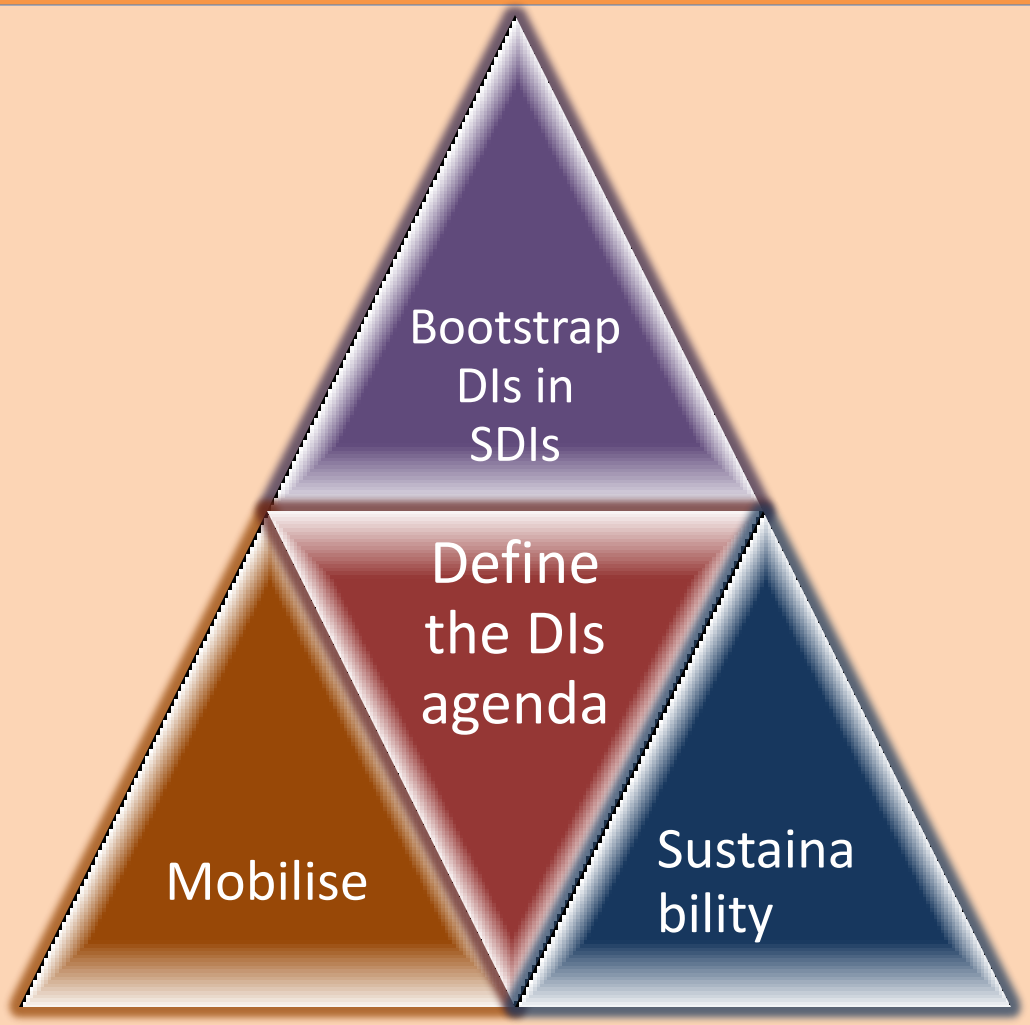
COMMON KEYWORDS

The RING of TRUST



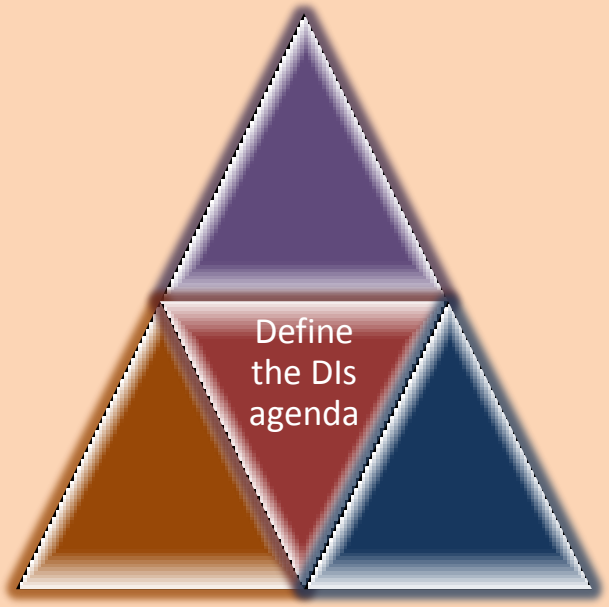
Building on the DIGOIDUNA findings…

Supporting coordination: the main actions



Define the PDIs agenda

1. Defining the **common objectives** and organize them into a list of workable temporal priorities.
2. Agreeing on a **shared governance model**, which defines devolved responsibilities amongst stakeholders and ensures long-term sustainability.
3. Sharing a **conceptual framework** in which the basic technical parameters and the fundamental services are introduced and described.
4. Planning interventions to **promote awareness, dissemination and education activities** aiming at expanding and reinforcing DI knowledge and skills.



Define the PDIs agenda

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- ✔ Creating a common conceptual framework and an agreed roadmap before addressing technical issues.

- ✔ Involving different stakeholder communities in the definition of the project objectives, in defining a common roadmap and in the design, implementation and adoption of the PID interoperability layer. Key aspects:

  - Current use of PID systems
  - Common needs and concrete requirements
  - Specific requirements of niche communities
  - Required services
  - Gaps
  - Recommendations

- ✔ Dissemination activities to promote general consensus and build shared understanding and internationalization.

Define the DIs agenda

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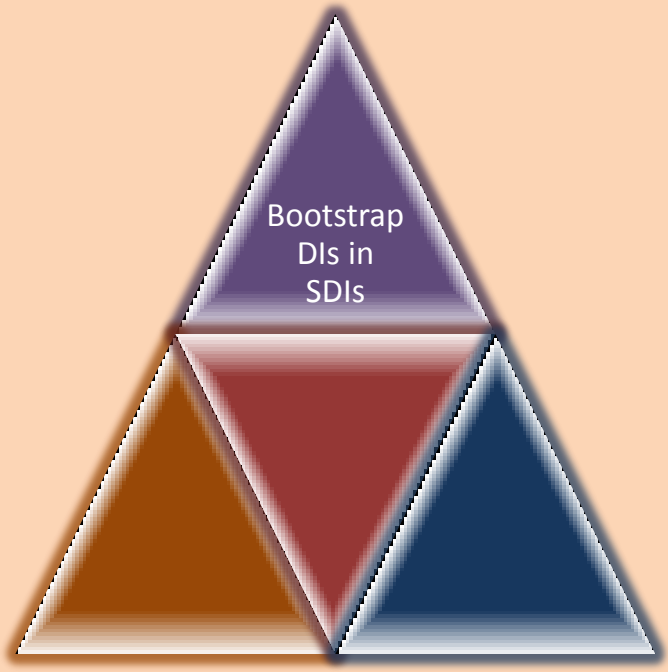
✔ Focus on specific needs of individual stakeholders as well as cross boundary focus on common aspects and requirements.

! **ADDITIONAL ASPECTS** to be considered:

- Temporal priorities in defining the agenda
- Agreeing on responsibilities with key stakeholders
- Including the proposed solution in the EC agenda and working on the implementation of an agreed governance model

Bootstrapping DIs in SDIs

1. Reinforce, promote and secure EU **wide institutional coordination** among vertical and regional clusters of e-infrastructure stakeholders (common policies on the governance of identifiers for digital objects and authors).
2. Funding bodies must provide **initial support to seed initiatives**, which aim at implementing the coordination model defined in the agenda and at creating a **critical mass** of coordinated DI systems.
3. Promote **awareness and skills development** to enable different stakeholders to participate effectively on DI initiatives and infrastructures.
4. Work towards systematic implementation of technical and organisational factors that underpin **trust in identifiers**, their reliability as a key component of SDIs - secure their operational management.



Bootstrapping DIs in SDIs

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- ✔ Rising awareness by proofs of concepts and involving scientific communities with no experience in PIDs for data and contributors.
- ✔ Promote coordination and Interoperability between local and community specific solutions.
- ✔ Seeding funding to sustain emerging PID infrastructures.
- ✔ Enabling third-party services and other tangible outputs (e.g. proofs of concept) to provide evidence of the reliability and the added-value of the solution.
- ✔ Promoting the convergence toward common policies and interoperable technical solutions.

Bootstrapping DIs in SDIs

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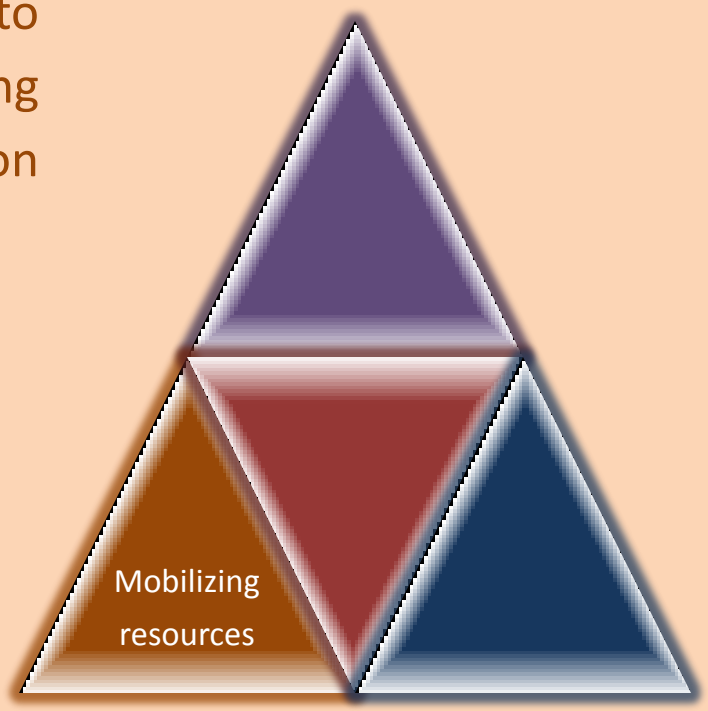
! **ADDITIONAL ASPECTS** to be considered:

- Exploiting institutional coordination and EC policy instruments to bootstrap the PID infrastructure.
- Identifying flexible funding schemes to start to bootstrap the interoperability infrastructure.

Mobilizing resources

Stakeholders at any levels should promote actions to **mobilize technical, human, financial resources** aiming at triggering a wider demand of usage and exploitation of e-Science results based on DIs.



1. Funding agencies should design funding schemes, which may attract new **public and private investments and efforts** in developing and adopting DI-based added value services and solutions.
2. Stakeholders, and especially funding agencies, should foster interoperability based on **consolidation of established DI systems** (where possible) more than on proliferation of ad hoc systems.
3. Actions should be taken to mobilize **consolidated technical skills** to implement effective digital identifiers infrastructures within SDIs and adopt measures to assess the quality and impact of them for the exploitation of e-Science results.

Mobilizing resources

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✔ Working on consolidated initiatives (e.g. DOI, ORCID) and promoting their interoperability instead of introducing new solutions.

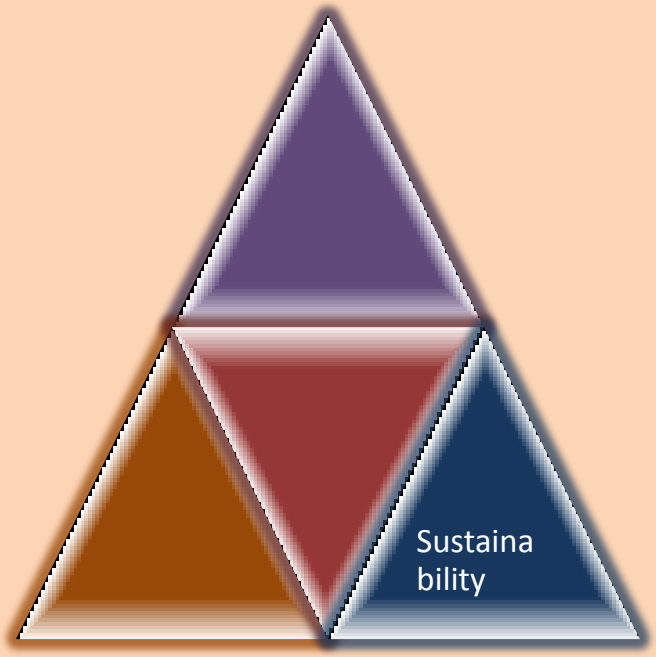
✔ Enlarging the demand of PID solutions and services by involving very different domains (e.g. HSS and HEP) and evangelizing domains which usually don't use PIDs.

! **ADDITIONAL ASPECTS** to be considered:

- Rising institutional consensus around the issue of interoperability between data and contributors, and make funding initiatives in this context a priority in the political agenda at national and international level.
- Mobilize investments from private and public sectors
- Promote innovation in scholarship models

Sustainable solutions

1. Stakeholders need to develop **business models** where the costs of developing and sustaining identifier infrastructures and the responsibility in granting the long term sustainability of these infrastructures are distributed among the beneficiaries.
2. The **flexibility of funding sources** should be enhanced, allowing the reallocation of funds in the portfolio to enable the rapid scaling of promising solutions that embed or promote the value (usage) of identifiers.
3. Funding bodies must support the development of **collaborative models and actions** to create synergies and exchange opportunities between the private/commercial sector and the scientific sector



Sustainable solutions

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✔ Sustainability is crucial for the success of the interoperability layer and depends on the value of services.

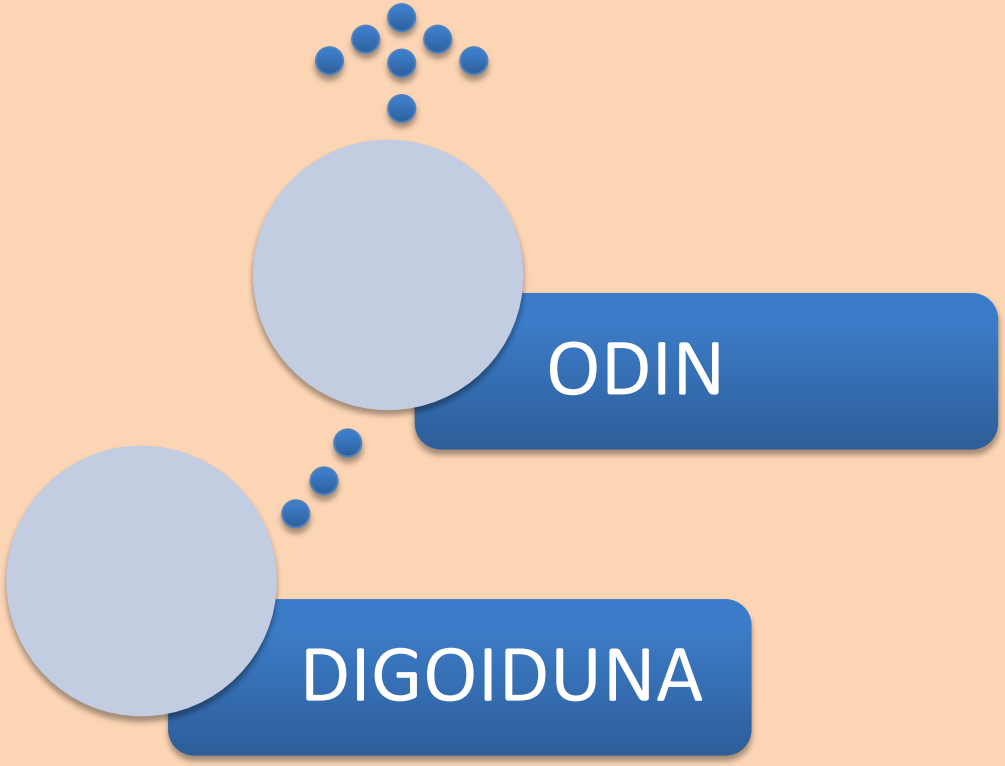
✔ Funding models should support the local participation and access to emerging PID infrastructures.

! **ADDITIONAL ASPECTS** to be considered:

- Flexible business and sustainability models should be included within the overall framework
- Stakeholder participation in the definition of sustainability plans
- The cross-fertilization and knowledge-sharing between academia and industry as a big opportunity to increase the potential of innovation in terms of ROI

Conclusions

INTEROPERABILITY INFRASTRUCTURE FOR PIDs IN E-SCIENCE



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