



# **Empowering the Usage of Persistent Identifiers (PID) in Local Research Processes by Providing a Service and Integration Infrastructure**

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- Project Group
  - IT Center
  - University Library and
  - Department Research and Career  
as central service providers
- Central services
  - Backup/Archive, Storage
  - Publication Server
  - Support
  - Training

# RWTH Aachen University



~44,000 Students



~5,000 Internationals  
from 117 Countries



~10,000 enrollments  
in winter term 2015/16



~540 Professors



~8,000 Employees  
260 Institutes



9 Faculties  
152 Courses of study

# Challenge: How to bring PIDs to researchers?

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## IT environments & researchers' workflows

- The IT environments differ significantly
  - Historically grown local infrastructures
  - Diverse methods and machinery require specific IT solutions
  - More than one solution for the same problem
- PIDs need to be easy to use
  - Providing an easy to use web interface
  - Integration in their existing environment
- Researchers need to be aware of the existence of a PID system

# Our solution: flexible web services

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## PID concept

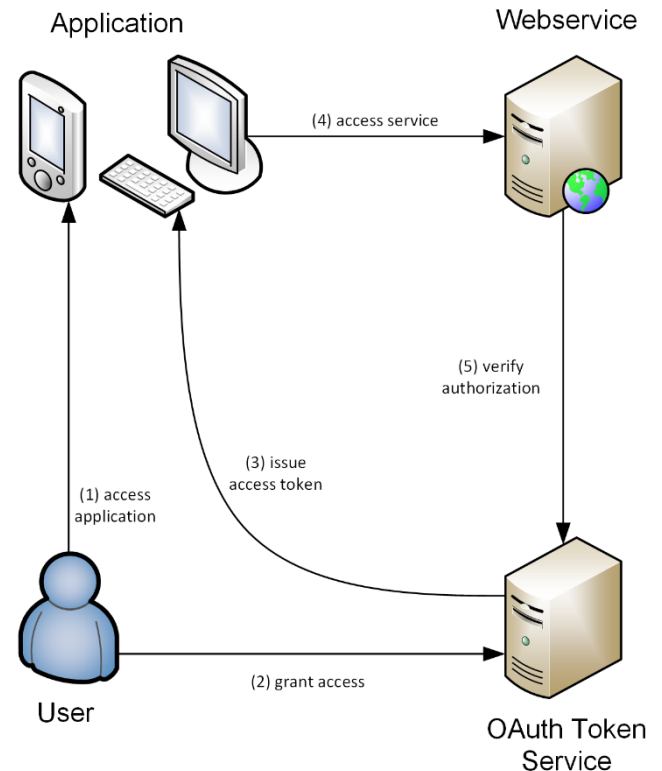
- Early adoption:
  - PIDs should be registered as soon as data is produced
  - Even if it is not clear yet whether the data has any value
- Flexible usage to make data findable internally or also externally
- Minimal information stored with PID
  - URL
  - DATAURL
  - METAURL
  - RELATED ID
- PIDs to link information from and to different systems providing more (context) information on the data
- Using the Handle system, specifically ePIC
  - Simple registration process compared to DOI
  - Single PID prefix for the whole university
- Who is authorized to register or update a PID?



# Our solution: flexible web services

## Pre-existing solutions: support for the core processes teaching, learning and research

- Connect legacy systems with a consistent API
- An SOA that resembles university processes
  - Started with E-Learning
  - Generalize and try to apply to other fields:
    - Campus Management, Identity Management
    - Research Data Management / E-Science
- Security by design
  - Confidentiality
  - Integrity
  - Availability
- Protect personal and confidential data



# Our solution: flexible web services

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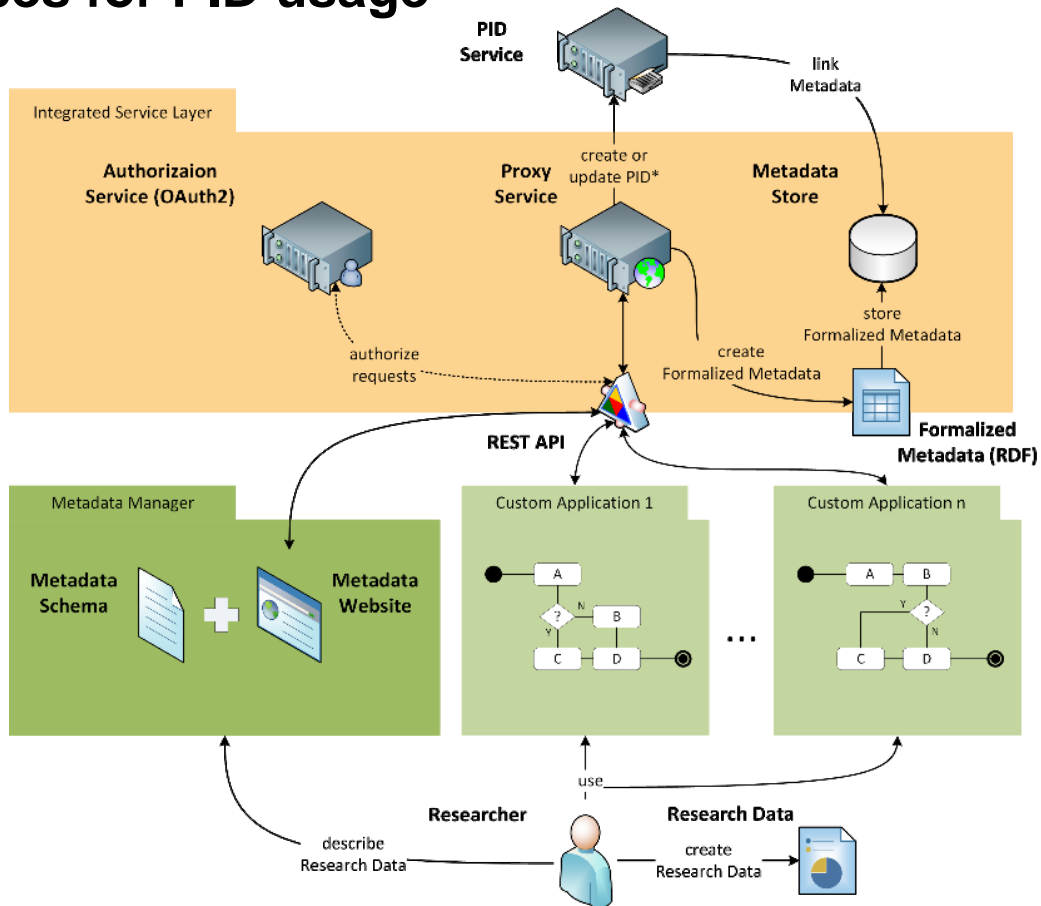
## The web services for PID usage

- Create PIDs
  - Using OAuth2 for authorization
  - Assigned to the person and institute
- Create Formalized Metadata (RDF)
  - Based on Metadata schemas
  - Can be stored locally or in a centralized DB
- Display PID information and Metadata
  - Landing page for data
  - Contact information to acquire access
- Limit possible operations
  - Only a single PID generator
  - No delete operation



# Our solution: flexible web services

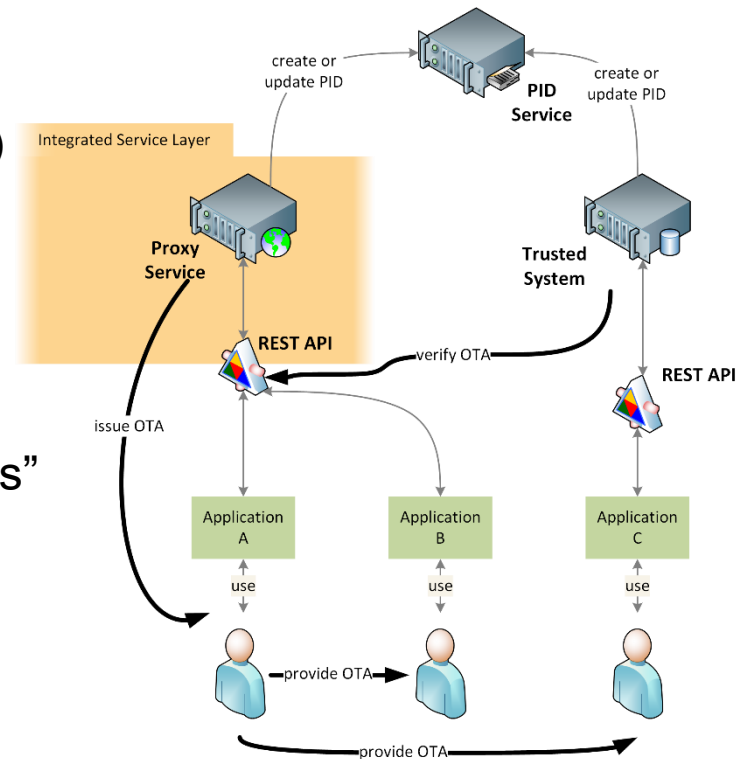
## The web services for PID usage



# Our solution: flexible web services

## Managing rights to update PID information

- Responsibilities are often shared
  - Multiple employees (e.g. admin and researcher)
  - Several organizations (e.g. Institute and Library)
- Lightweight way of passing permissions
  - One Time Access Tokens (OTA)
  - Passed between systems using the REST API
- Direct access to PID server for “trusted systems”
  - OTAs are self-contained
  - signed JSON Web Tokens with a shared secret
- Currently used to connect
  - Metadata Management
  - Archive
  - Publication Server



# Summary and Outlook

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- Diverse IT environments
- Simple PID concept
- Goal: integration of PID service in local IT solutions
- Usage of web service
- Decentralized rights management
  
- Connect additional (decentralized) systems
- Enable metadata harvesting by a central registry
- Enable metadata based search and retrieval while respecting the access rights