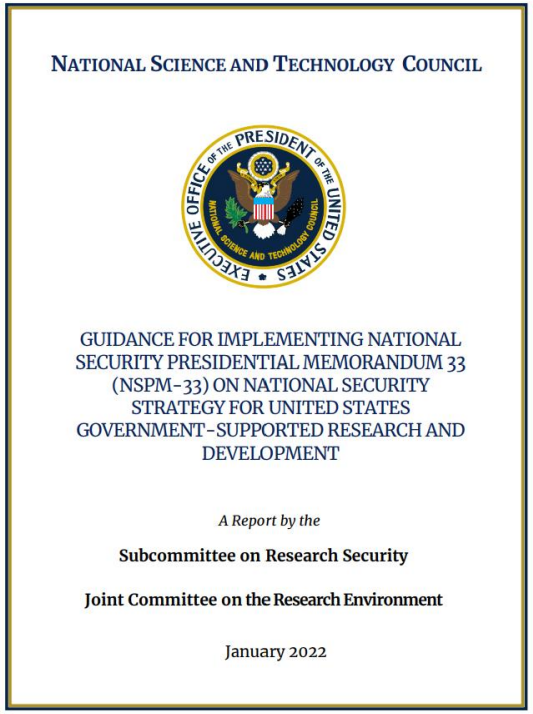
Digital Persistent Identifiers (DPIs)

Northeastern University
Research Enterprise Services

Why are we talking about DPIs?

NSPM-33

- "*Provide guidance to Federal departments and agencies regarding their implementation of National Security Presidential Memorandum 33 on National Security Strategy for US Government-Supported Research and Development*".
- Guidance requires a certification from research institutions awarded more than $50 million per year total in Federal research funding confirming they have implemented a research security program meeting the requirements.
- Guidance requires within 1 year of the date of the memorandum, "*funding agencies shall establish policies regarding requirements for individual researchers supported by or working on any Federal research grant to be registered with a service that provides a digital persistent identifier for that individual*".
- NSPM-33 gives DPIs implementation guidance stating that DPIs should be integrated wherever possible.



NATIONAL SCIENCE AND TECHNOLOGY COUNCIL

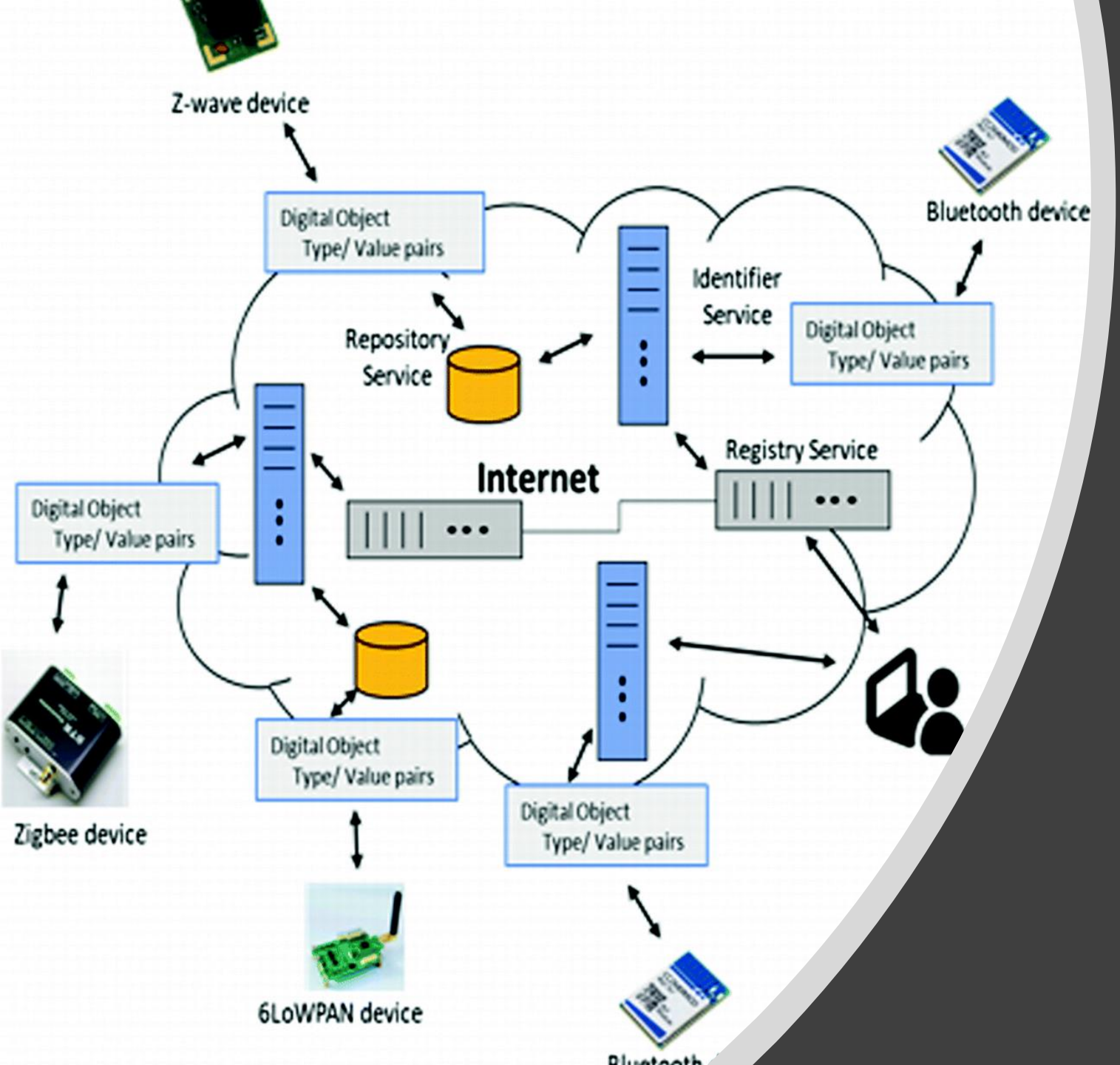
GUIDANCE FOR IMPLEMENTING NATIONAL SECURITY PRESIDENTIAL MEMORANDUM 33 (NSPM-33) ON NATIONAL SECURITY STRATEGY FOR UNITED STATES GOVERNMENT-SUPPORTED RESEARCH AND DEVELOPMENT

A Report by the

Subcommittee on Research Security

Joint Committee on the Research Environment

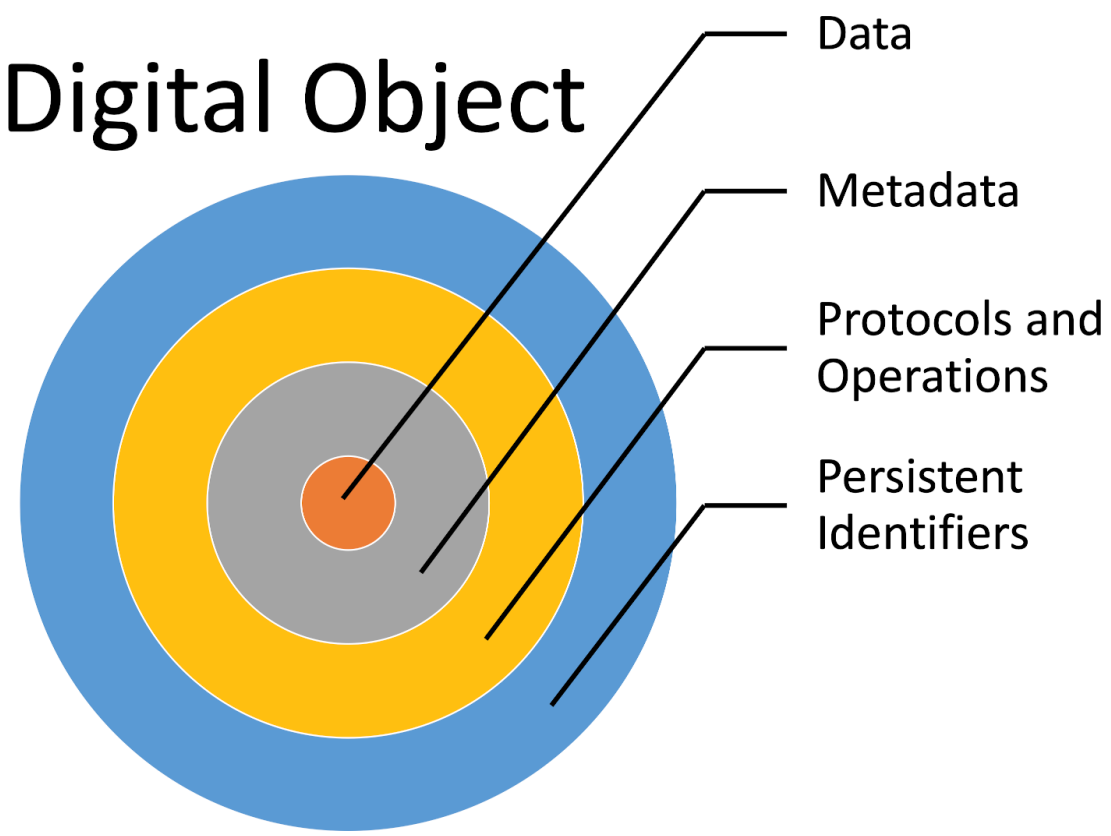
January 2022



Understanding the Digital Object Architecture

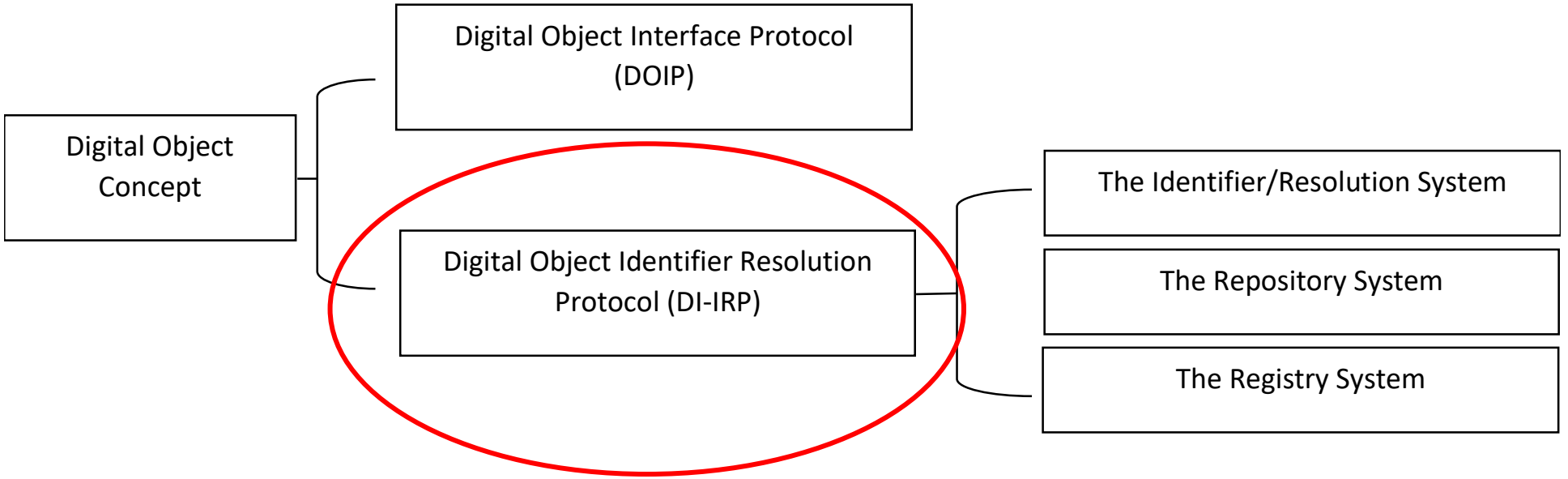
Digital Object Architecture

- General architecture for distributed information storage, location and a retrieval system running over the internet
  - Data: collection of images, string of words, set of facts
  - Metadata: provides meaningful information about the data
  - Protocols: instructions on how to retrieve the data
  - ← Identifiers: how the data is identified
- DOA supports FAIR Data Principles
  - Identifier must be globally unique: unable to be reused/reassigned to a different individual
  - Identifier must be persistent: registry services prevent links from becoming invalid



Digital Object Concept

- A digital object is a sequence of bits (or a set) incorporating a work or portion of a work or other information in which a party has rights or interests (i.e. text file)
- Digital objects are vulnerable to damage - become physically damaged through degradation over time (i.e. USBs), unavailable through loss of access (i.e. Cloud service closes), or software/hardware obsolescence (i.e. Floppy drives).



Three Core Components

1. The Identifier System

- Allotment of unique identifiers to information in digital form structured as digital objects

2. The Repository System

- The repository system manages digital objects including the provision of access to such objects based on the use of identifiers, and with integrated security.

3. The Registry System

- The registry system stores metadata about digital objects rather than the digital information itself.
- Typically stores metadata of digital objects that are managed by one or more repository systems.

ORCID

Connecting Research
and Researchers

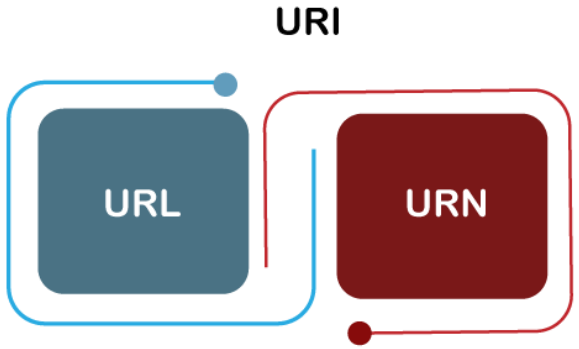
The Identifier System

What is a Digital Object Identifier (DOI)?

- DOI is a unique, persistent identifying number for information published online that appears on a document or in a bibliographic citation
- Becoming the international standard for making research data citable
- DOI consists of two components: prefix and suffix. Components are separated by a slash
- If you encounter a DOI on a website, it is preceded by three letters: "doi"
- The DOI itself begins with a 10; the registration agency (i.e. DataCite) is responsible for the following four or more digits of the prefix. They belong to the organization (i.e. DataCite) which registered the dataset.
- The suffix is assigned by the institution (i.e. Northeastern) that is responsible for the content and registered the dataset.

What is a Digital Persistent Identifier (DPI)?

- A DPI is a long-lasting digital reference to an object, contributor, or organization
- A code which remains constant to the digital object it is assigned to for identification purposes, regardless of changes to its location on the internet



ARK Alliance

PURL

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Benefits of Digital Persistent Identifiers (DPIs)

- Help to establish the authenticity of a resource

←Provides access to a resource even if its location changes (link stops working)

←Bypasses problems caused by the impermanent nature of URLs

←Allows interoperability between collections

←DPIs are widely established/widely deployed

←Will help mitigate issues researchers currently face when distinguishing their research activities from those of other with similar names

←DPIs will allow researchers to uniquely connect their identity to research objects such as datasets, equipment, articles, media stories, citations, experiments, and patents.

←Save researchers time from re-entering the same personal data repeatedly

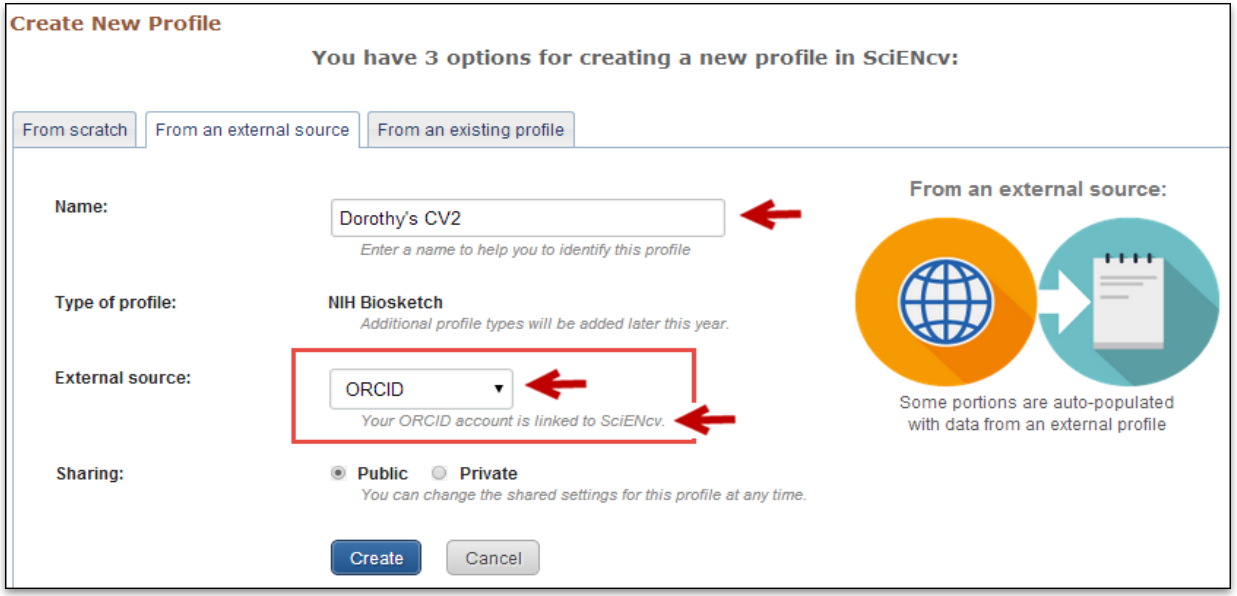
DOI vs. DPI

DOI – *link to academic products* (Digital Object Identifier)	**DPI – *link to PI's academic profile* (Digital Persistent Identifier)**
▪ "Digital identifier of an object" - can be assigned to any digital object	▪ Connects researcher to their product. A profile to link PI to their products.
▪ DataCite: Provides digital object identifiers (DOIs) for research data, and scholarly and technical publications.	▪ ORCID iD: Provides *researchers* with a DPI (ORCID iD), that they own and control, which distinguishes individuals. ▪ Professional information can be connected and shared with other systems, ensuring recognition for all research contributions.

Why use ORCID?

- Meets the criteria as a DPI as listed in the NSPM-33 Guidance
- Provides unique IDs that distinguish researchers from one another regardless of their name
- Allows researchers to create a single record that represents their CV
- Provides a workflow to discourage multiple records for a single person and the ability to consolidate duplicate IDs
- Reduces administrative burden on researchers by enabling the transfer of authorized data between systems
- Assigns IDs to researchers at no charge
- Allows the researcher to control access to the information in their ORCID profile; they can determine what information is displayed publicly, what is shared with trusted partners, and who those trusted partners are
- Is easily integrated with NIH & NSF's digital CV system "SciENcv"

SciENcv System



	iD	NIH Biosketch
1.	Bibliography	Personal Statement
2.	Employment	Positions and Honors
3.	Education	Education/Training
4.	Works	Citations & Contribution to Science
5.	Funding	Additional Information: Research Support and Scholastic Performance

1. Researchers can import data from their ORCID profiles into SciENcv

2. SciENcv maps the ORCID profile fields into the relevant biosketch format

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The Repository System

ORCID Repository System

- ORICD can be used in repository systems to clearly link authors (and their name variants) with their research work, improving search and retrieval to support networking and collaboration
- ORCID API allows repository systems to exchange data with the ORCID Registry to populate local author profiles
- ORCID records can also be updated with publication information each time a repository deposit is made

ORCID API – Public vs. Member

- Public API – allows organizations that are not ORCID members to connect their systems
- Member API – facilitates registration and information exchange with ORCID records

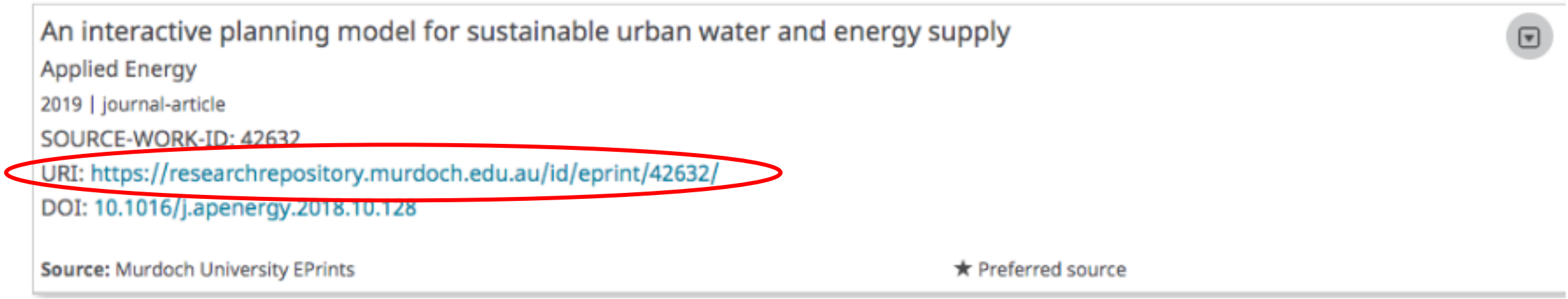
ORCID Public API	ORCID Member API
Sign into system with ORICD	Sign into system with ORICD
Get a user's verified ORICD iD	Get a user's verified ORICD iD
Retrieve public data from a user's ORCID record	Retrieve public data from a user's ORCID record
Search public ORCID registry data	Search public ORCID registry data
	Access trusted data
	Write data to ORICD records
	Synchronize ORCID with institution's system

How does the Repository work?

- The repository collects the researchers authenticated ORCID iD and requests permission to interact with their record, storing that permission
  - This allows the administrators to request authenticated ORCID iDs and ORCID record update permissions from authors and co-authors, in cases where iDs are missing/have not been authenticated in the metadata received
- Once the researcher has connected their ORCID iD to the institutions system, their iD will be displayed on their profile (formatted as a hyperlinked URI) within the institutions system so that they know they have successfully connected and asserted their identity.
- With the researcher's permission:
  - Publications on the researcher's ORCID record can be added to the institution's repository
  - Researcher's ORCID record can be updated with the publications that are available within the repository

Example

- This is an example of a work added by Murdock University via their EPrints integration repository system



ORCID

Connecting Research and Researchers

The Registry System

ORCID Registry System

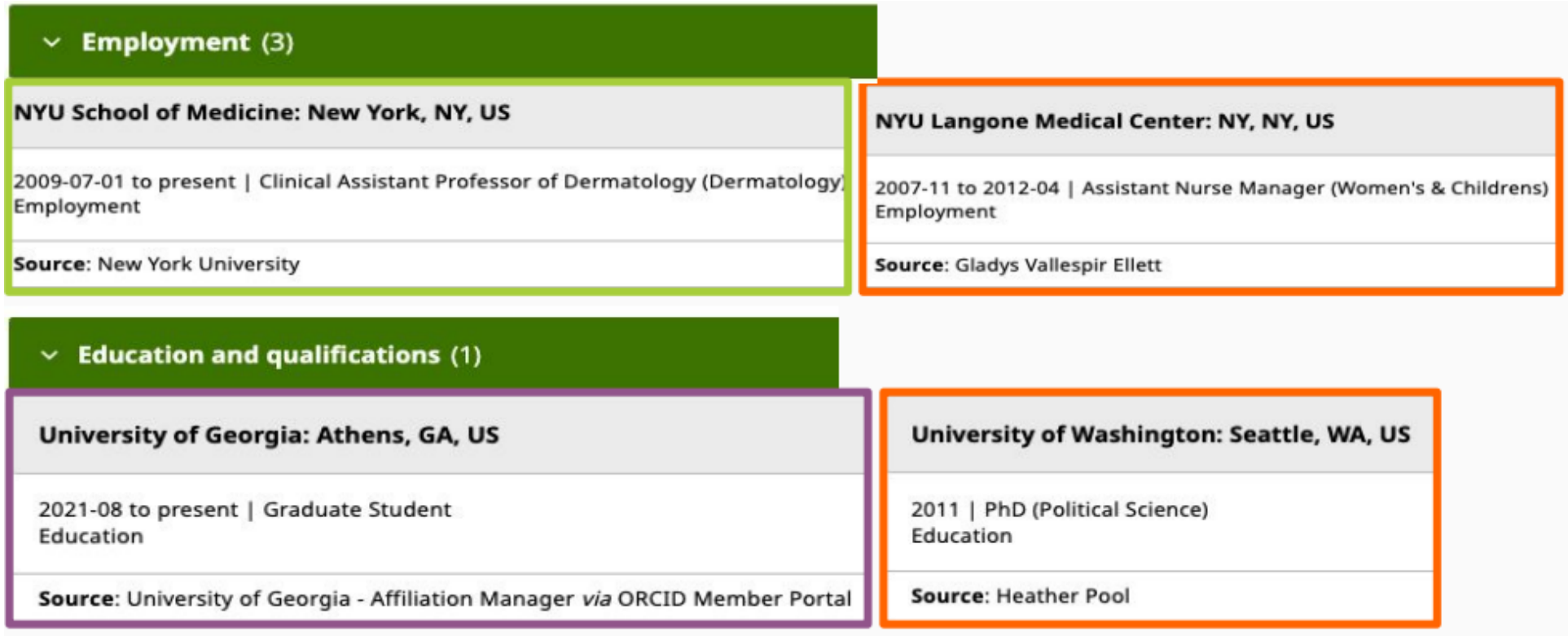
- ORICD provides a registry of unique identifiers for researchers and scholars that is open, non-proprietary, transparent, and mobile.
- ORCID invites all researchers to participate without entry fees or maintenance costs.
- Researchers can sign in and maintain their record, including adding, updating, and deleting items and setting their privacy levels
- Researchers can grant ORCID member integrations permissions to read trusted data and/or update their record as part of a member workflow. Previously granted permissions can be removed at any time.

Add a trusted individual to ORCID account

- ORCID makes it easy to give a Research Administrator access and permissions to update and manage an ORCID profile
- Researchers should **NOT** give their Research Administrator their ORCID account credentials (username and/or password)
- Instead, researchers should visit the following link to learn how to add a trusted individual to your account: Trusted Parties
- Trusted individuals, also known as Account Delegates, are other ORCID iD holders to whom the researcher has granted permission to update their ORCID record.
- Access can be granted or revoked at any time.

Increase trustworthiness of ORCID records

- Member universities can increase the trustworthiness of ORCID records by writing validating data to researcher's records (with their permission)
- University is a "Trusted Organization"



Recap: DPIs

Digital Persistent Identifier Recap

WHAT

- A DPI is a long-lasting digital reference to an object, contributor, or organization
- A code which remains constant to the digital object it is assigned to for identification purposes, regardless of changes to its location on the internet

WHERE

- **ORCID**: 1. The Identifier, 2. The Repository and 3. The Registry

WHY

- Researchers can connect their identity to research objects such as datasets, equipment, articles, citations, experiments, and patents.
- Give the researcher control access to the information in their ORCID profile; publicly displayed information; what information is shared with trusted partners, and who those trusted partners are; ability to give/revoke trusted access

Three Core Components

1. The Identifier System → • ORICID iD – unique identifier per researcher

2. The Repository System → • ORCID API – allows repository systems link authors (and all their name variants) to improve search and retrieval to support networking and collaboration.

3. The Registry System → • ORCID Registry – populates local author profiles; registry of unique identifiers for researchers and scholars that is open, non-proprietary, transparent and mobile; free of cost

Questions

Contact Us

NU-RES Research Compliance

ResearchCompliance@northeastern.edu