



Engaging Content
Engaging People

NAISC-L: An Authoritative Linked Data Interlinking Approach for the Library Domain

November 26th at SWIB 2019

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- What is Linked Data interlinking?
- Quick recap of SWIB 2018 presentation
 - NAISC-L framework
- Discuss progress with NAISC-L
 - Usability Testing
 - Updates to GUI
 - Implementation of NAISC-L Provenance Model
- Next steps

What is Linked Data Interlinking?

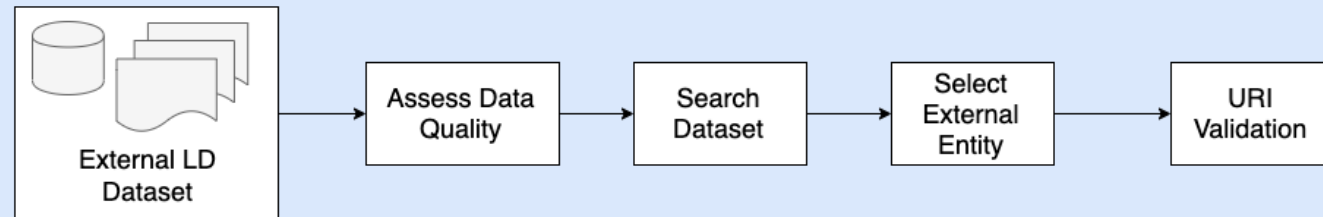
- Interlinking: Linking related entities across datasets.
- Different degrees of relatedness e.g. owl:sameAs, skos:closeMatch, schema:isSimilarTo, dcterms:relation, rdfs:seeAlso
- 5 Star Linked Data
- Data enrichment
- Knowledge discovery



- **N**ovel **A**uthoritative **I**nterlinking for **S**emantic Web **C**ataloguing in **L**ibraries.
- Approach encompasses a LD interlinking framework and a provenance model
- Developed a process and a graphical user-interface (GUI) to allow users to interact with the approach.
 - Reduce the need for expert technical/LD knowledge.
- Focused on the specific requirements of IPs e.g. access to authorities, use of library vocabularies, link to other library datasets, provision of provenance data.



1. Entity Selection



2. Interlinking

Determine Entity Relationship

View Suggested Properties

Select Property

3. Provenance

Add Interlink Provenance Information

4. Publication & Visualisation

Download Interlink Graph

Generate Interlink RDF

Download Provenance Graph

Generate Provenance RDF

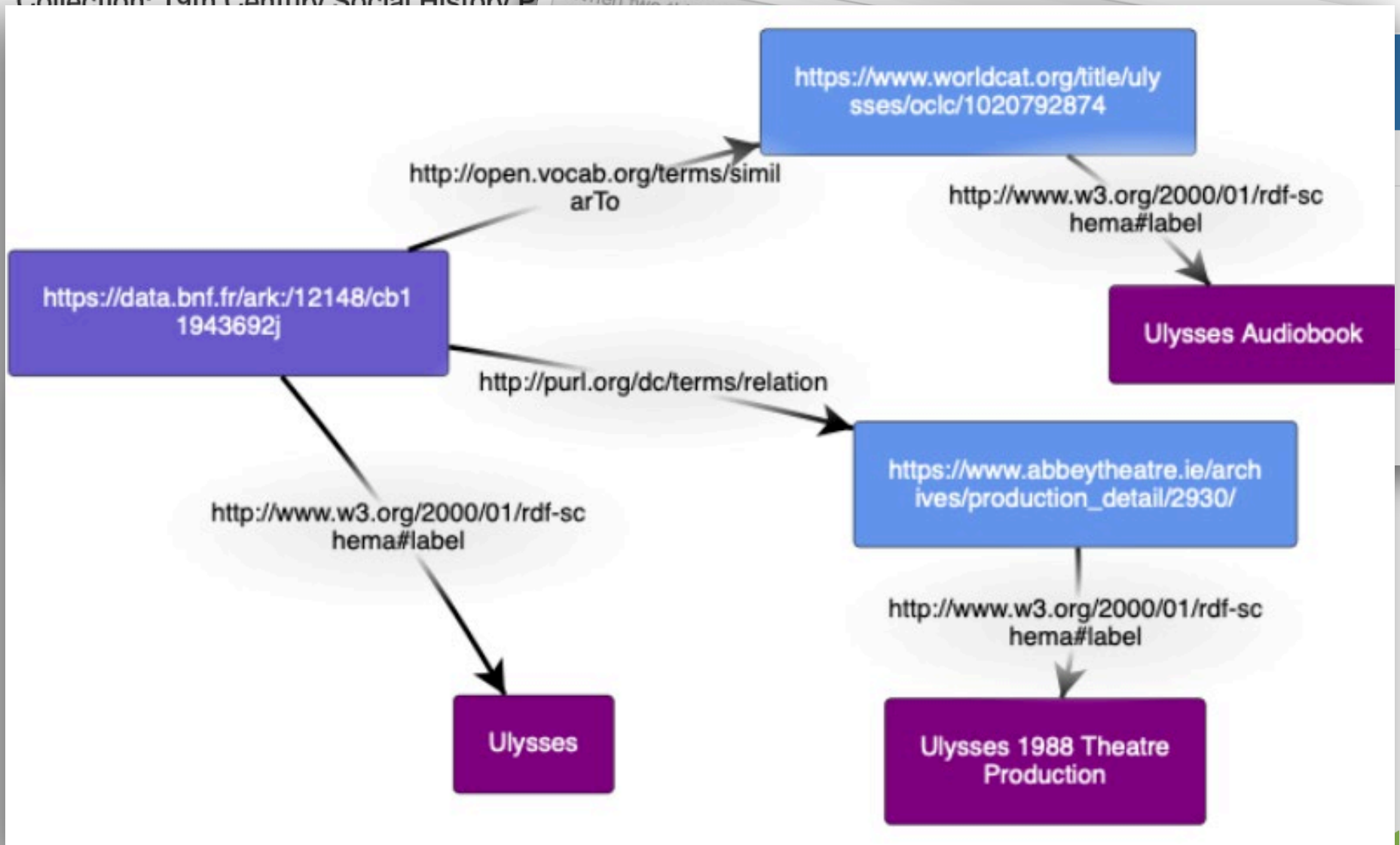
Download Relationship Graph

Generate Relationship RDF

NAISC-L GUI - Filmmaking - 2018

www.adaptcentre.ie

Collection: 19th Century Social History B



- Conducted usability testing in January 2019
 - Evaluated the framework process, RDF output, usability of the GUI and a provenance data demo
- Participants – 15 Information Professionals
 - Academic libraries, national library, archive
- Four parts:
 1. Pre-Test Questionnaire
 2. Think-Aloud Observation
 3. Post-Test Interview
 4. PSSUQ Questionnaire

Pre-Test Questionnaire

Knowledge Ratings	Semantic Web	Linked Data	RDF	URIs	Ontologies
Not at all Knowledgeable	0	0	0	0	0
Slightly Knowledgeable	2	1	5	4	5
Moderately Knowledgeable	13	14	10	9	8
Very Knowledgeable	0	0	0	2	2
Extremely Knowledgeable	0	0	0	0	0

- Five of the participants indicated that they had previous experience implementing a LD project

Think-Aloud Test

Task	Challenges
1. Create New Project/Linkset	Clearer descriptions of the information required in each field in the form
2. Add Internal Entity	Unclear on which button to click in order to add an entity
3. Add External Entity	Links to external authorities were not always noticed by participants as they were at the bottom of the page.
4. Create 6 Interlinks	Some participants initially found it difficult to identify which two entities they were interlinking – suggested colour coding.
5. Generate Interlink RDF	Participants suggested adding natural language labels to make the graphs more readable
6. Review Provenance Graph demo	Suggested having different levels for viewing the visualisation

- Participants were 100% successful in following the framework process.

Interviews

- **Overall Impression:** NAISC-L was easy and pleasant to use and that, as they became used to the system, the ease and speed of use increased.
- **Positives:** RDF graphs of the interlink data added to their understanding of the interlinking process.
- **Link-Type Selection:** The participants indicated that the definitions for each of the link-types were useful for deciding on how to express the relation between two URIs.
- **Usefulness:** All participants stated that NAISC-L would be useful for creating interlinks between internal and external LD resources.

PSSUQ	System Usefulness	Information Quality	Interface Quality	Overall
Average Score	2.45 Mild	2.45 Mild	2.65 Mild	2.07 Mild

NAISC-L GUI - Second Iteration 2019

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James Joyce Resources

Internal Resources

The Dead 1987

<https://data.bnf.fr/>

Add a Related Entity

Label

Enter a label to name the entity. This could be a copy of the label already given to identify the entity in the dataset. This data will not be added to the graphs, it will only be visible to NAISC-L users to aid in interlinking the entity.

URI

Paste the entity URI/URL/Permalink here. This data will be added to the graphs.

Description

Add a brief description of the entity. This data will not be added to the graphs, it will only be visible to NAISC-L users to aid in interlinking the entity.

FRBR (optional)

Identify the entity type as per the Functional Requirements for Bibliographic Records (FRBR) Model. This information will not be added to the graph, it will only be visible to NAISC-L users to aid in interlinking the entity.

Endeavour:

Responsible Entity:

Subject:

☐ Work

☐ Person

☐ Concept

☐ Expression

☐ Family

☐ Object

☐ Manifestation

☐ Corporate Body

☐ Event

☐ Item

☐ Place

Dataset Suggestions

Quality ⓘ

⌵ All

Geonames	51%
Deutsche National Bibliothek	45%
General Multilingual Environmental Thesaurus	44%
Art and Architecture Thesaurus (Getty)	43%
Europeana	41%
The European Library	41%
Thesaurus of Graphic Materials (Library of Congress)	41%
Library of Congress Subject Headings.	41%
Union List of Artist names (Getty)	40%

1 Relationship Selection

2 Link-Type Selection

3 Justification

Preview of new Interlink:

James Joyce - BnF



skos:exactMatch



James Joyce - VIAF

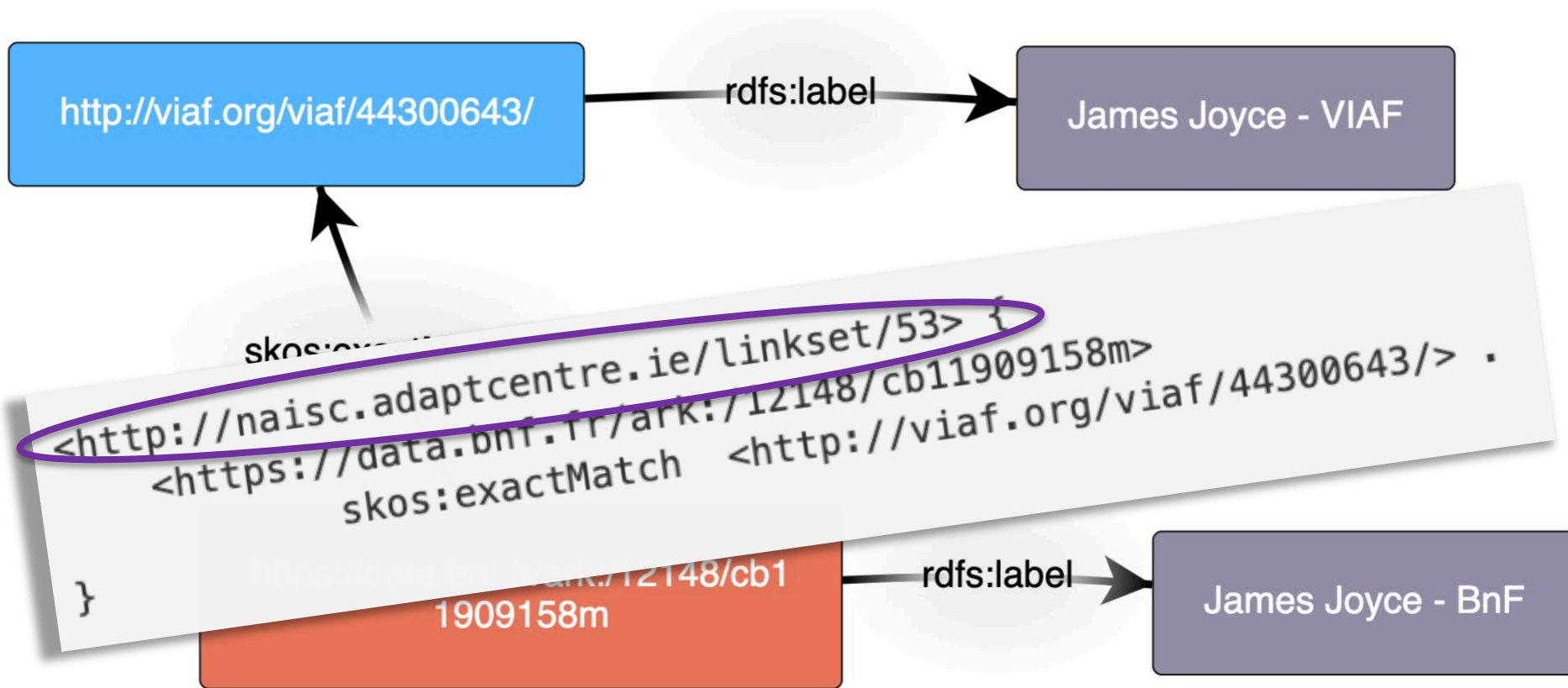
Why did you interlink these entities?

Provide a justification for why the above interlink was created. Information entered here could include a description of the relationship between the two entities, the purpose of creating the link, and/or the rationale behind the chosen link-type.

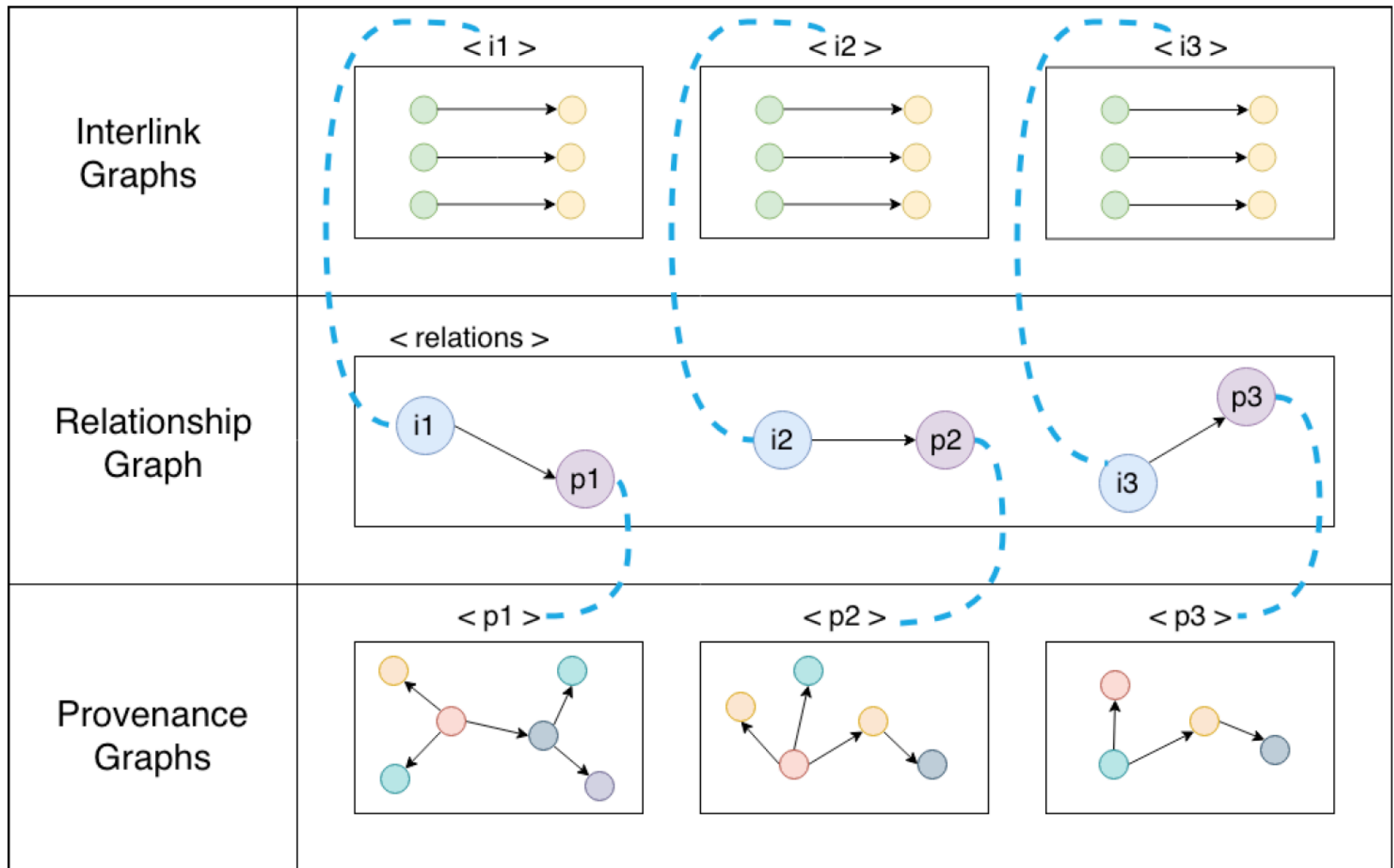
< Back

Create Link

NAISC-L GUI – Interlink Output



Provenance Model



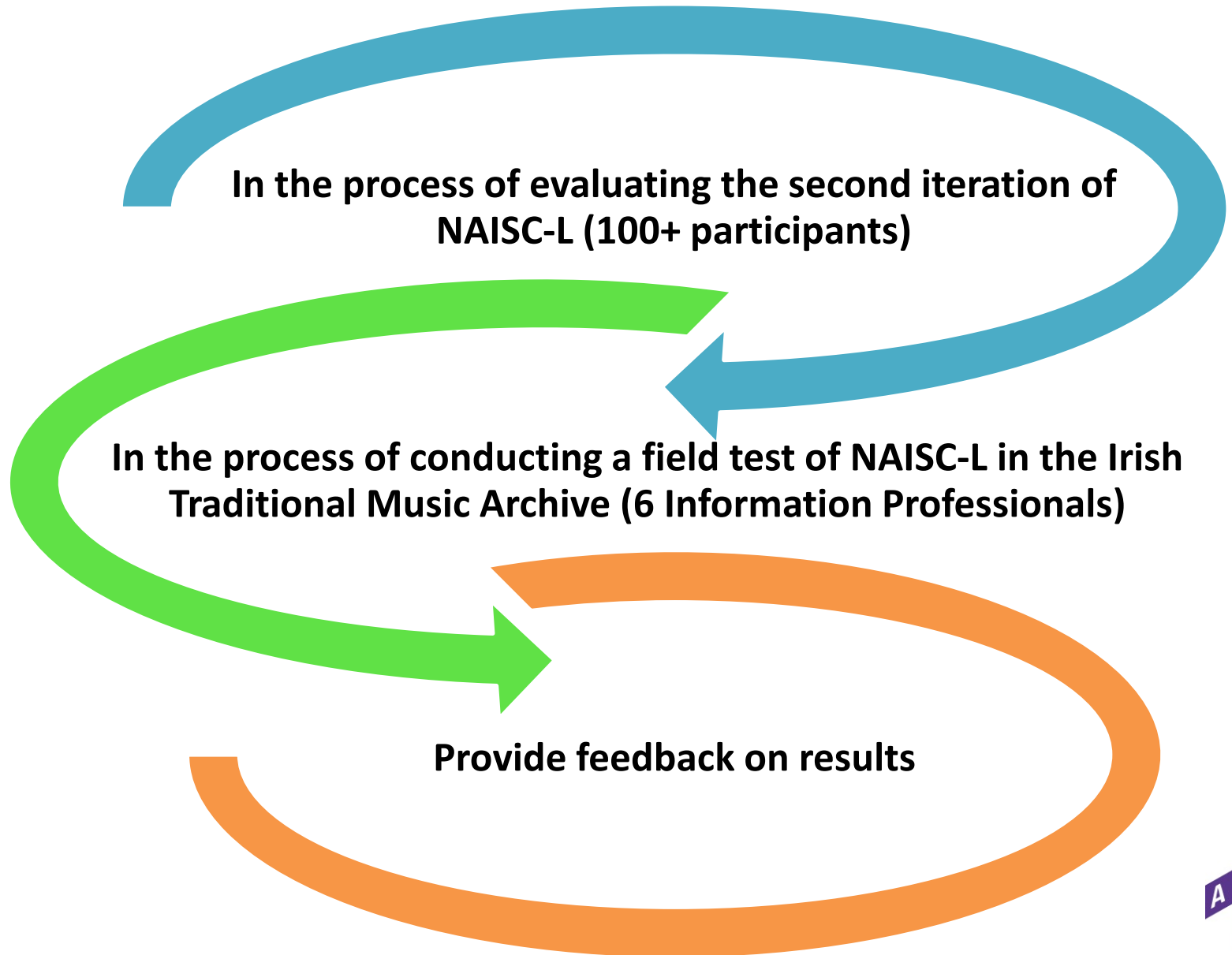
NAISC-L GUI – Provenance Output

```
<http://naisc.adaptcentre.ie/linkset/53/provenance/32> {  
  <http://naisc.adaptcentre.ie/linkset/53>  
    a prov:Collection ;  
    prov:generatedAtTime "2019-11-21 22:23:23.0"^^xsd:dateTime ;  
    prov:hadActivity _:b0 ;  
    prov:hadMember <http://naisc.adaptcentre.ie/linkset/53/interlink/90> ;  
    prov:qualifiedAttribution [ a prov:Attribution ;  
                                prov:agent <http://naisc.adaptcentre.ie/person/53> ;  
                                prov:hadRole "Created the linkset"  
                              ] ;  
    prov:wasAttributedTo <http://naisc.adaptcentre.ie/person/53> .  
  
  _:b1 a prov:Attribution , prov:Association ;  
        prov:agent <http://naisc.adaptcentre.ie/person/53> ;  
        prov:hadRole "Created the interlink" .  
  
  <http://naisc.adaptcentre.ie/linkset/53/interlink/90>  
    a naiscProv:Interlink , rdf:Statement ;  
    rdf:object <http://viaf.org/viaf/44300643/> ;  
    rdf:predicate skos:exactMatch ;  
    rdf:subject <https://data.bnf.fr/ark:/12148/cb11909158m> ;  
    naiscProv:hasJustification "Skos concepts for the same person" ;  
    prov:generatedAtTime "2019-11-21 22:23:57.0"^^xsd:dateTime ;  
    prov:qualifiedAttribution _:b1 ;  
    prov:wasAttributedTo <http://naisc.adaptcentre.ie/person/53> ;  
    prov:wasGeneratedBy _:b0 .
```



- Links the interlink named graph with the provenance named graph.

```
{ <http://naisc.adaptcentre.ie/linkset/53>  
  prov:has_provenance  
  <http://naisc.adaptcentre.ie/linkset/53/provenance/32> . }
```

Finally!

www.adaptcentre.ie

I need your feedback!

Participate in an evaluation of NAISC-L!

https://scsstcd.qualtrics.com/jfe/form/SV_cJ9VBQ2BuNbvbc



Thank you!

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- NAISC-L interface demo:
<https://www.scss.tcd.ie/~mckennl3/naisc>
- NAISC-L Questionnaire:
https://scsstcd.qualtrics.com/jfe/form/SV_cJ9VBQ2BuNbvb_cF



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