DARE to be different?
Using diversity as a heuristic to study collaborative research interactions

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DARE:

How does it differ from other research evaluation methods?

What is DARE?

The Diversity Approach to Research Evaluation (DARE) focuses on characterising the collaborative interactions in 'episodes' of research, development and innovation. This addresses two issues:

- Research evaluation often aims to provide evidence of impact, usually by looking at outputs.

- Research increasingly involves team science, with researchers working in larger and more complex teams.

DARE is a tool for understanding:
- → Variety in team composition
- → How researchers work together and with others (researchers and stakeholders)
- → Research processes (that affect outcomes)

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What is DARE?

- MRC funded the development of a novel method to study collaborations

  → Looking at translational research projects

- The project aimed at developing a proof of concept
  - Trialled on 8 cases in biomedical research
  - Based mainly on interview data

    Using face-to-face and phone interviews

- Wellcome has awarded funding for further development of the DARE approach
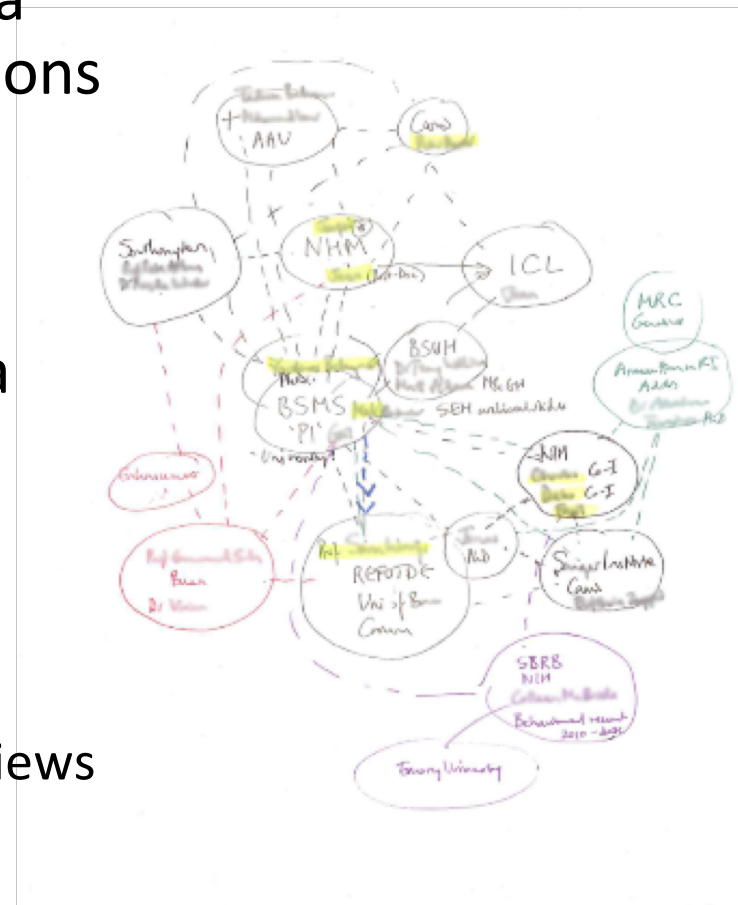
DARE

Presentation of the tool.

DARE: looking at Diversity

- In order to show the contribution of a research grant:
  - How diverse is the team behind the initiative? (i.e. the challenges to overcome)
    - → Using a Diversity measure Stirling (2007) and Ràfols (2014)

DARE: looking at Diversity

Diversity: property of apportioning elements into categories
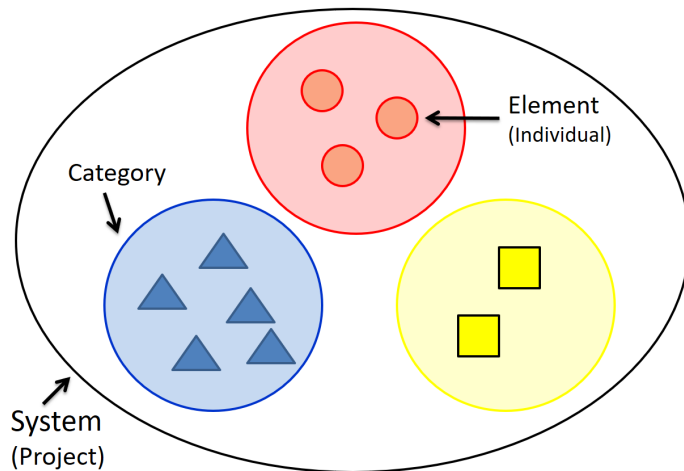
Adapted from Rafols (2014)

Diversity:

(appointing elements to categories)

**Dimensions facilitating interactive learning (Boschma, 2005):**

- Cognitive proximity
- Geographic proximity
- Social proximity
- Institutional proximity
- Organisational proximity

DARE: looking at cohesiveness

- In order to show the contribution of a research grant:
  - How diverse is the team behind the initiative? (i.e. the challenges to overcome)
    - → Using the Diversity measure Stirling (2007) and Ràfols (2014)
  - How much the initiative has helped to bridge the identified diversity – how much interaction has been achieved
    - → Using the Cohesiveness measure
    - → Dynamic component (i.e. before and after the initiative)

DARE: looking at cohesiveness

Cohesiveness: property of relating categories via elements
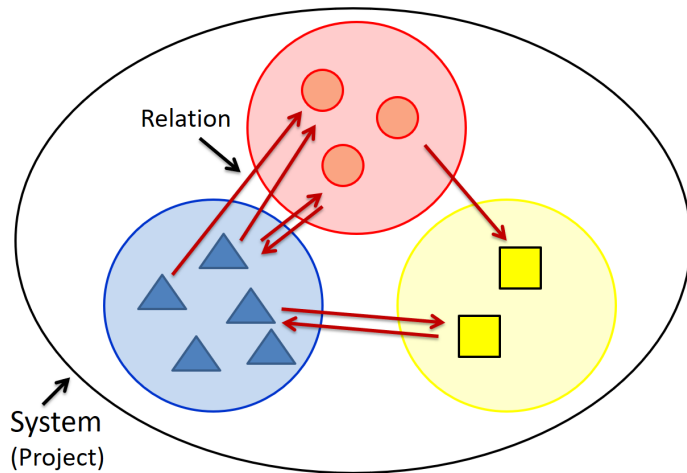
Adapted from Rafols (2014)

Cohesiveness:

(Elements/categories are linked via interactions)

Looks at interactions between individuals and categories.

DARE: looking at processes

- In order to show the contribution of a research grant:
  - How diverse is the team behind the initiative? (i.e. the challenges to overcome)
    - → Using the Diversity measure Stirling (2007) and Ràfols (2014)
  - How much the initiative has helped to bridge the identified diversity – how much interactions has been achieved
    - → Using the Cohesiveness measure
    - → Dynamic component (i.e. before and after the initiative)
- This captures a dynamic record of the collaboration, in which the diversity represents a landscaping exercise at the outset of the initiative and the cohesiveness represents changes achieved.

DARE

The maps.

Example: Geographic dimension

What is the geographical breadth of the collaboration?

Distance:

Same department (3 minutes) (0/5)

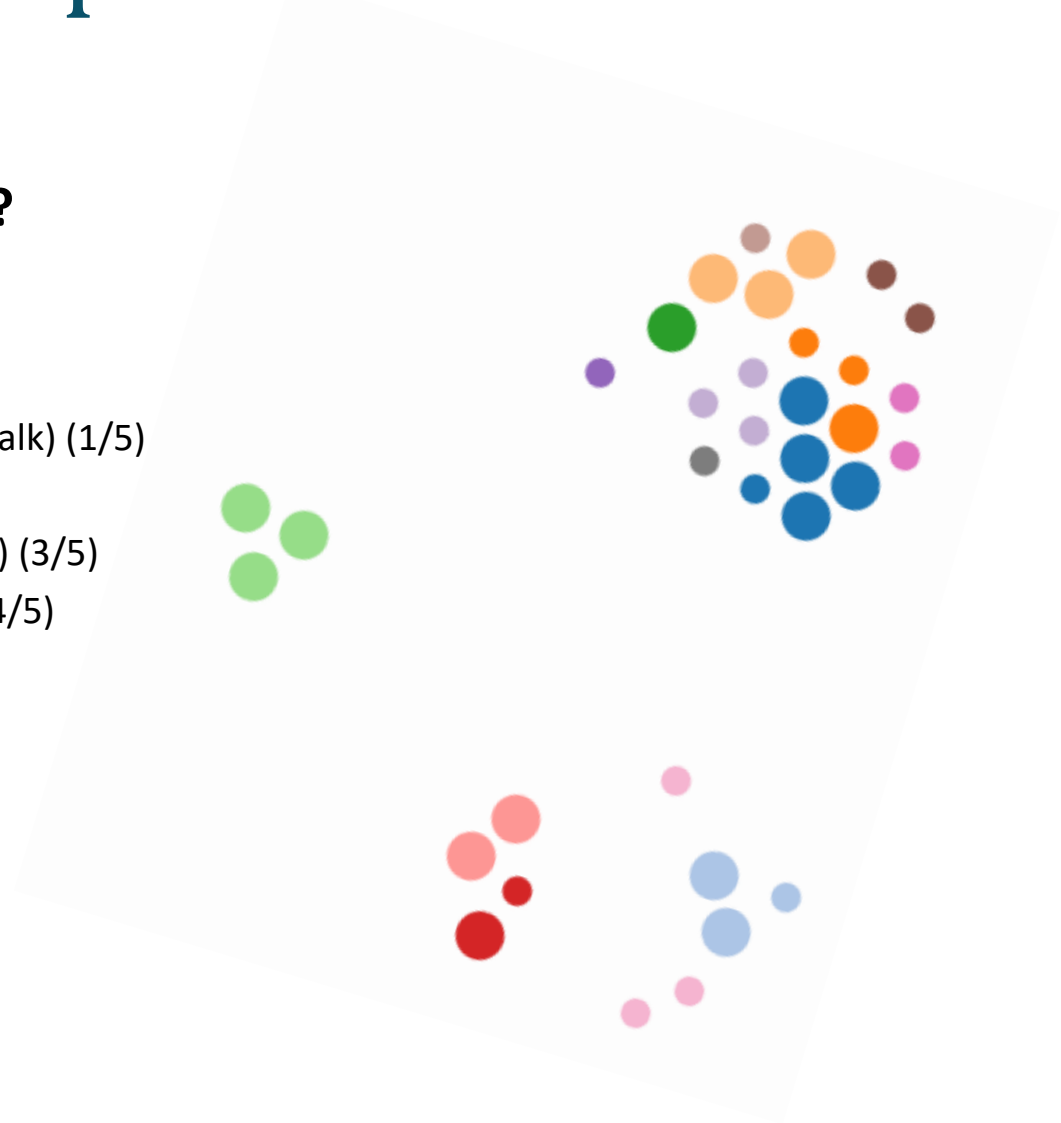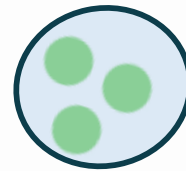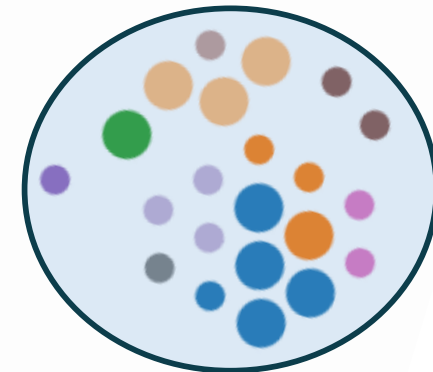Same university, same campus (15 minutes' walk) (1/5)

Same city/metropolis (up to 2 hours) (2/5)

Same region/country (up to 4-5 hours by train) (3/5)

Same continent (flight or long train needed) (4/5)

Other continent (5/5)

Diversity: 0.74

Example: Geographic dimension

What is the geographical breadth of the collaboration?

Distance:

Same department (3 minutes) (0/5)

Same university, same campus (15 minutes' walk) (1/5)

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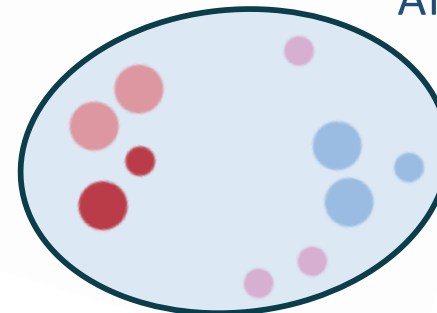
Other continent (5/5)

Diversity: 0.74

Europe / UK

United States
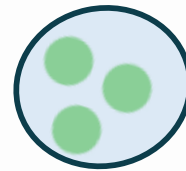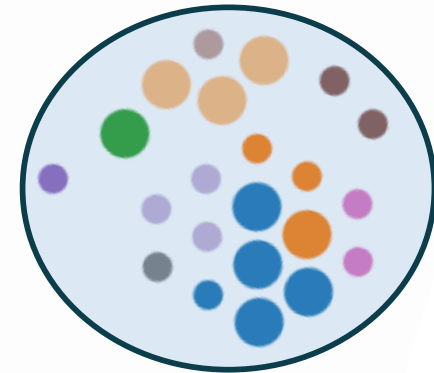
Africa

Example: Geographic dimension

What is the bridging effort existing before the collaboration?
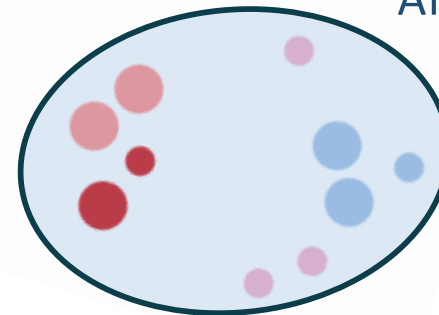
Europe / UK

United States

Africa

Diversity: 0.74

Example: Geographic dimension

What is the bridging effort existing before the collaboration?

Intensity:

no meeting (intensity = 0)

yearly meeting (intensity = 1/5)
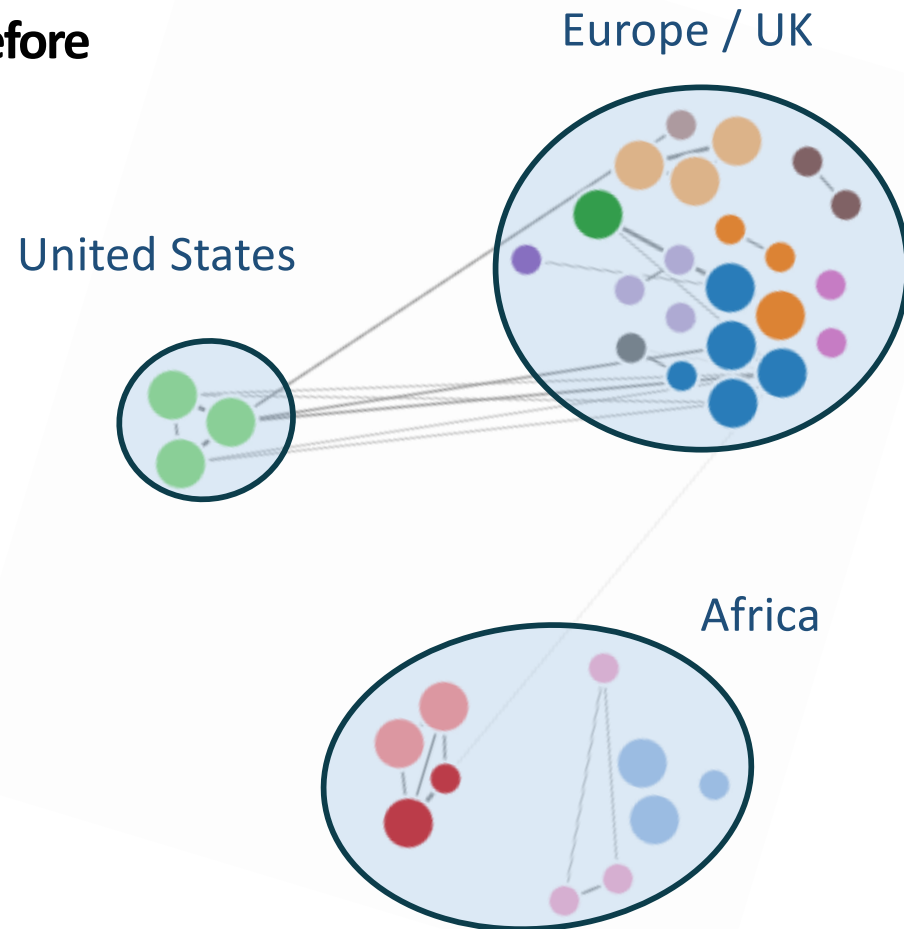
every 6 month meeting (intensity = 2/5)

monthly meeting (intensity = 3/5)

weekly meeting (intensity = 4/5)

daily meeting (intensity = 5/5 = 1)

Diversity: 0.74
Cohesiveness Before: 0.32

Europe / UK

United States
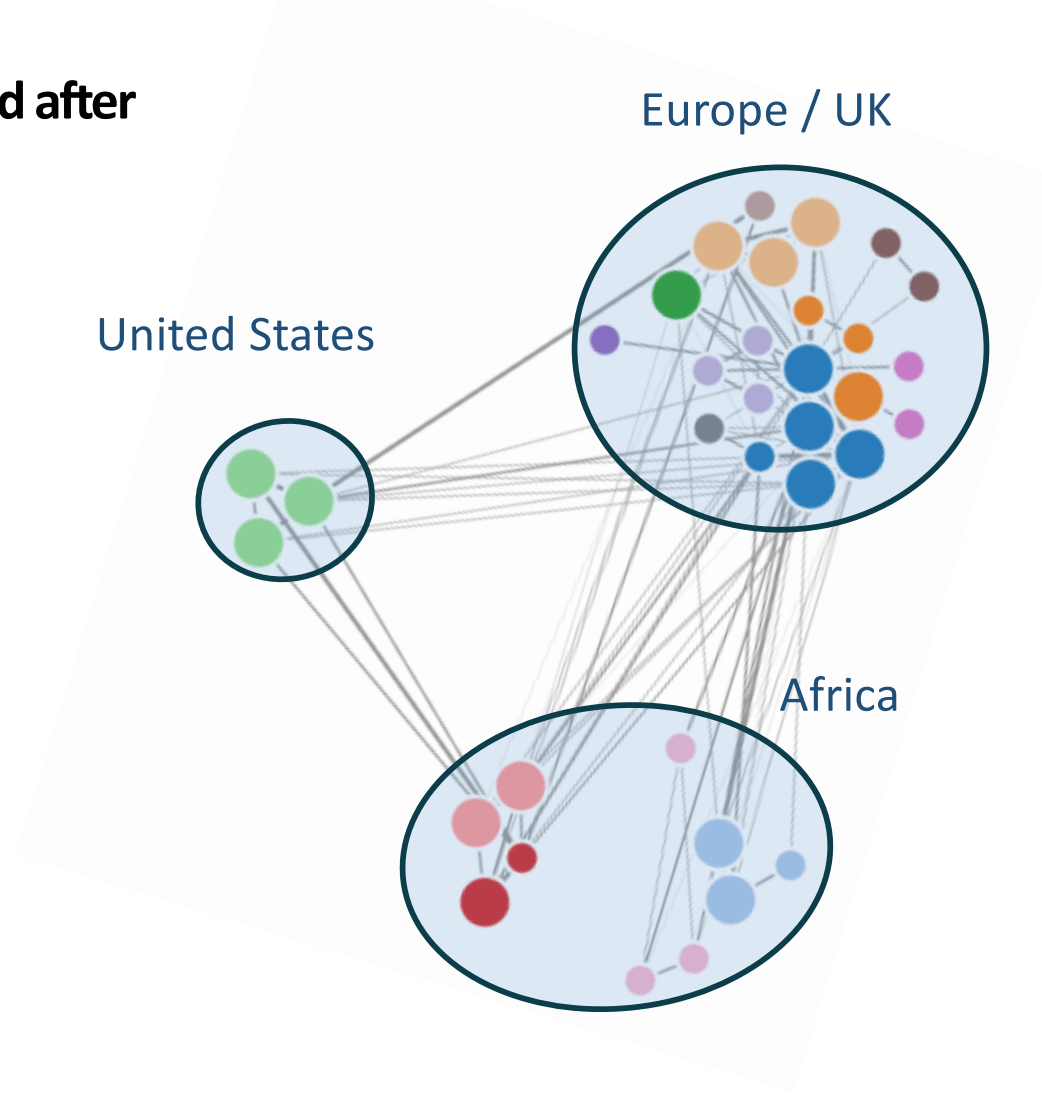
Africa

Example: Geographic dimension

What is the bridging effort realised after the collaboration?

<u>Links based on interactions</u>
during project

Diversity: 0.74
Cohesiveness Before: 0.32
Cohesiveness After: 0.53

Europe / UK

United States
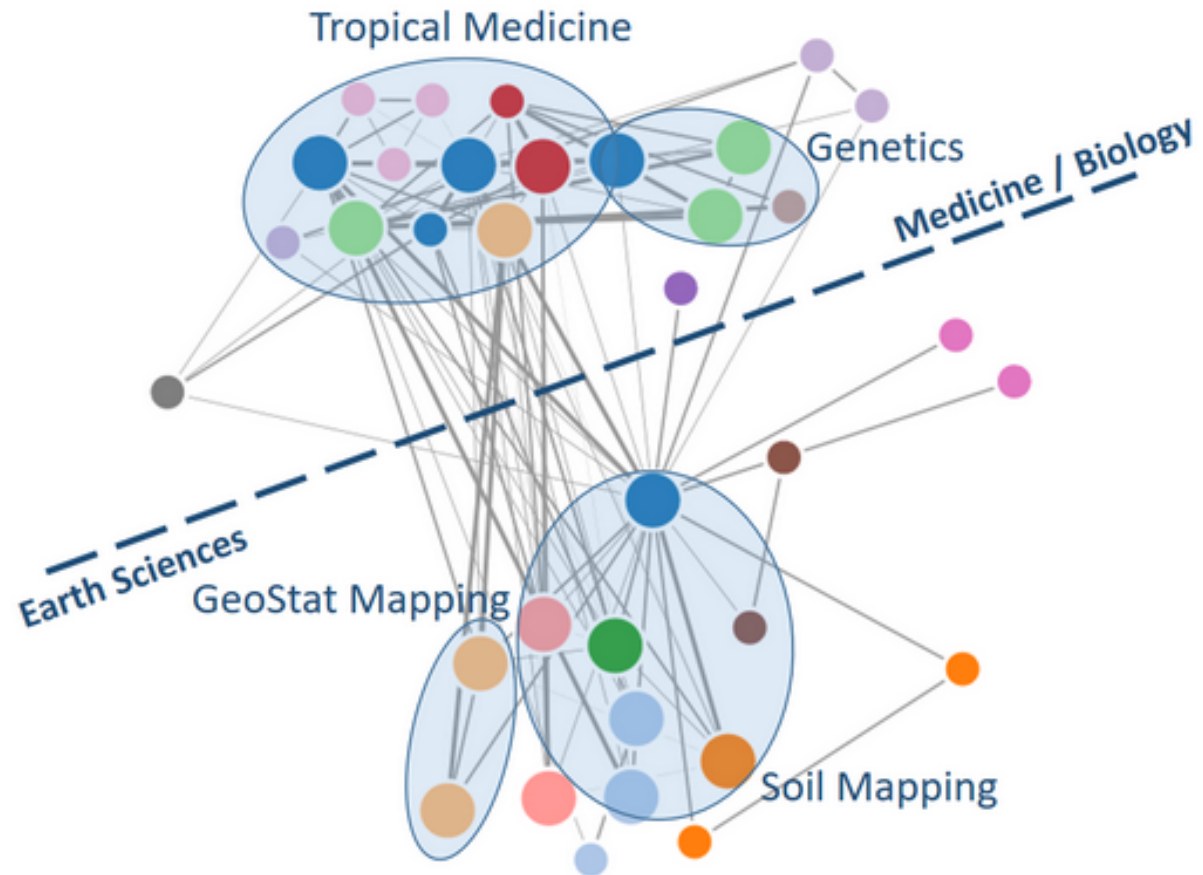
Africa

Cognitive dimension

Bibliometric approach:
- Distance between individuals is based upon the journals they cite and whether these are similar. (Zhou et al. 2012)
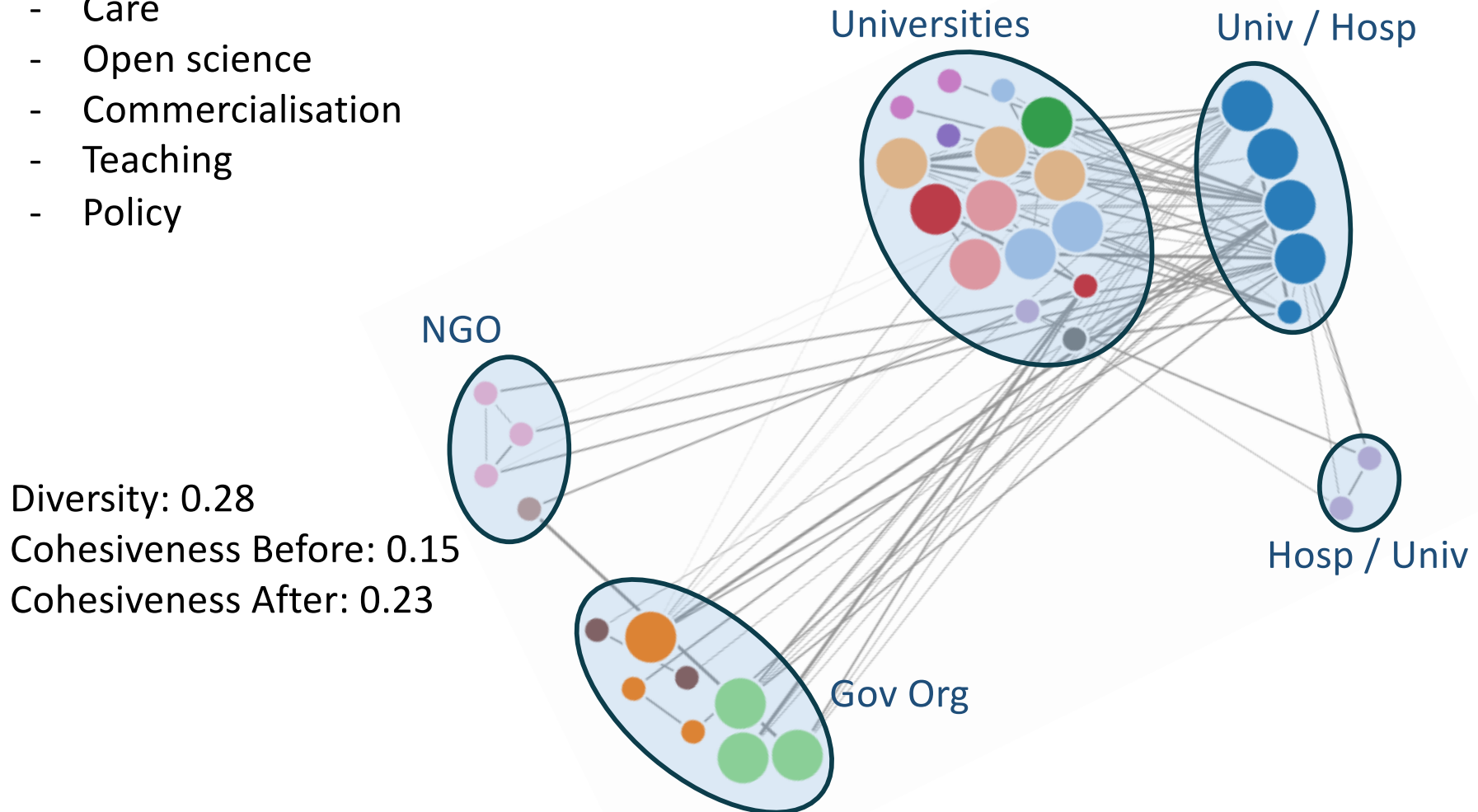
Diversity: 0.56
Cohesiveness Before: 0.34
Cohesiveness After: 0.41

Institutional dimension

Considering aspects:
- Care
- Open science
- Commercialisation
- Teaching
- Policy

Diversity: 0.28
Cohesiveness Before: 0.15
Cohesiveness After: 0.23

Organisational dimension

Distance:

Same department or centre (0/2)
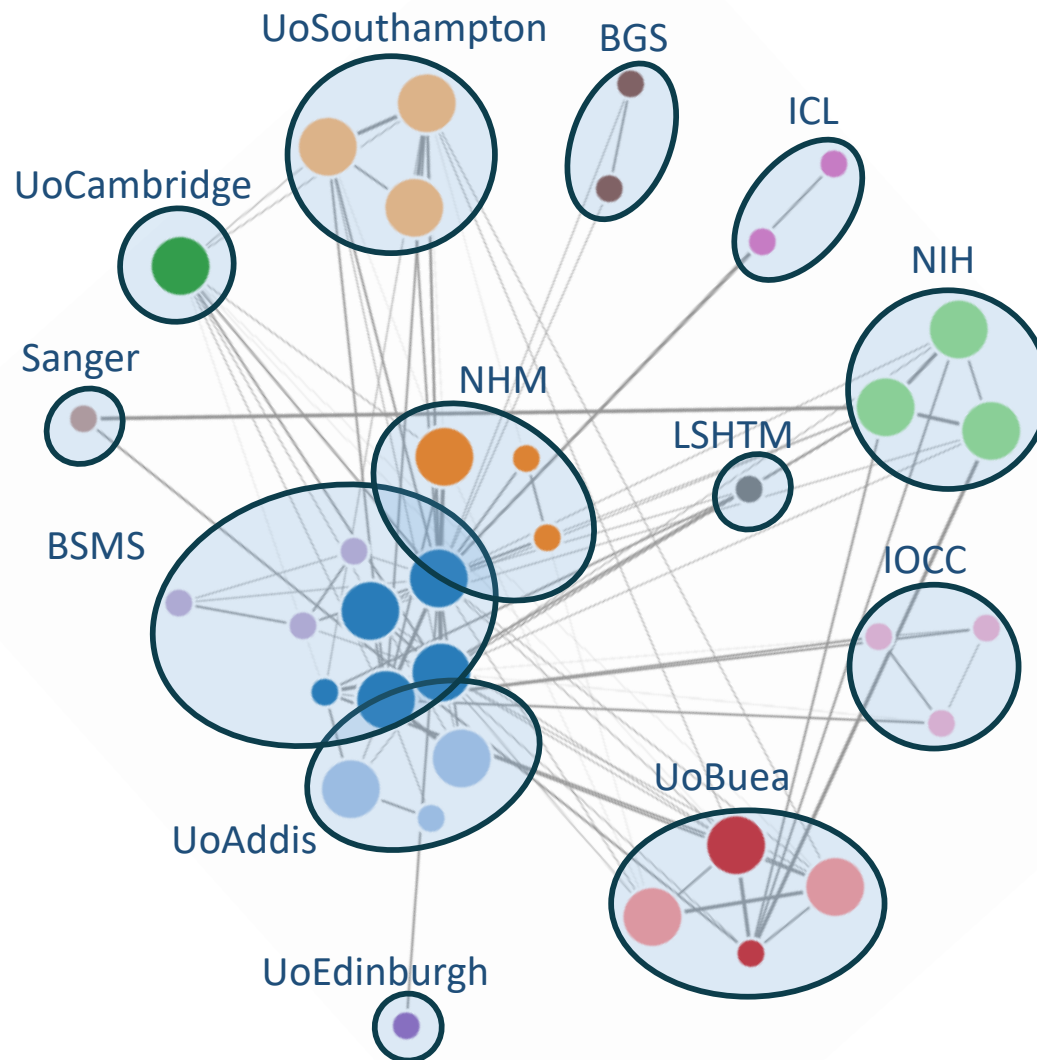
Same organisation (1/2)

Different organisation (2/2)

Diversity: 0.90
Cohesiveness Before: 0.41
Cohesiveness After: 0.64

UoSouthampton
BGS
ICL
UoCambridge
NIH
Sanger
NHM
LSHTM
BSMS
IOCC
UoBuea
UoAddis
UoEdinburgh

Social dimension

Distance:
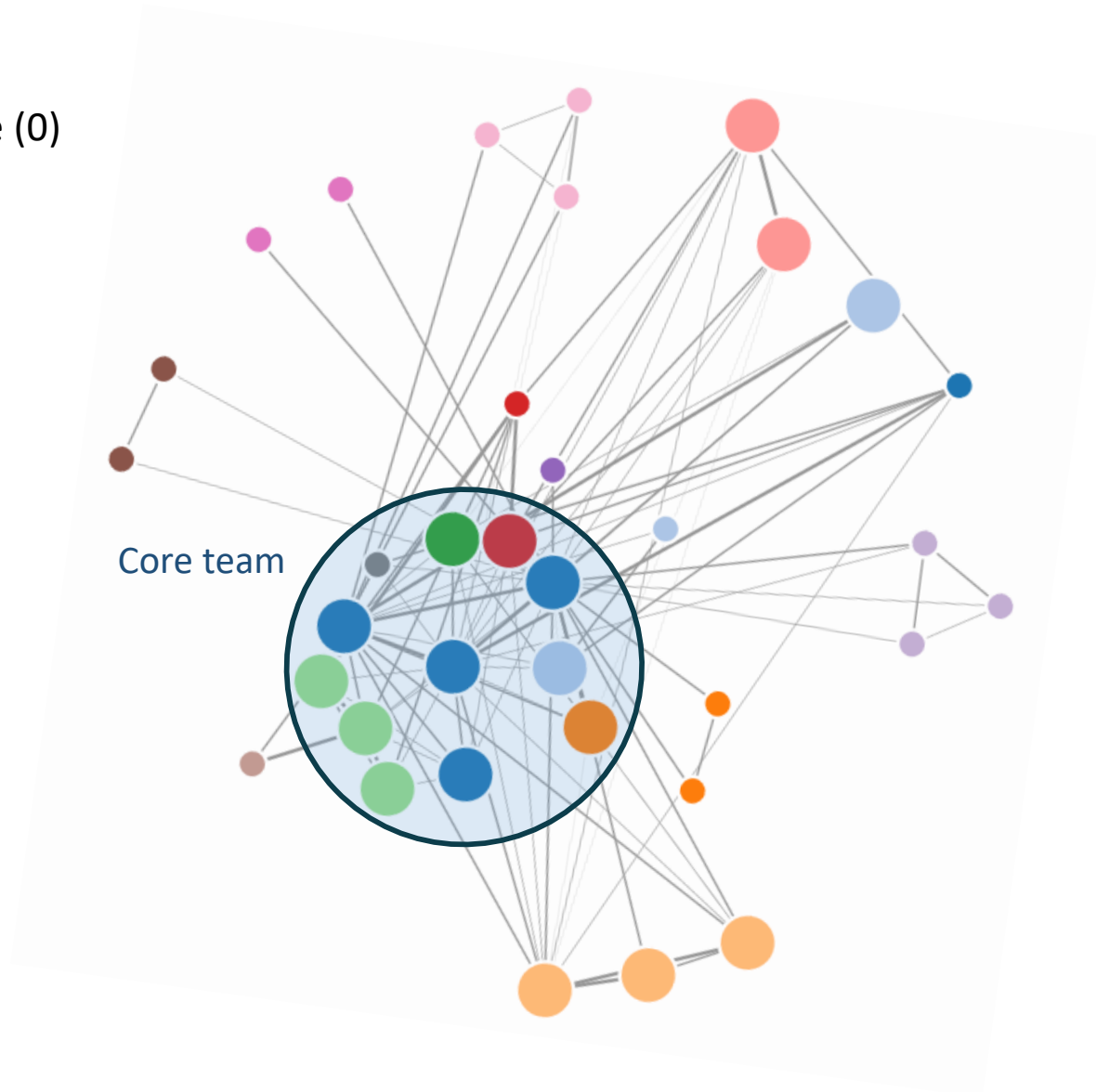
Having worked together before (0)

Knowing a bit (0.75)

Do not know (1)

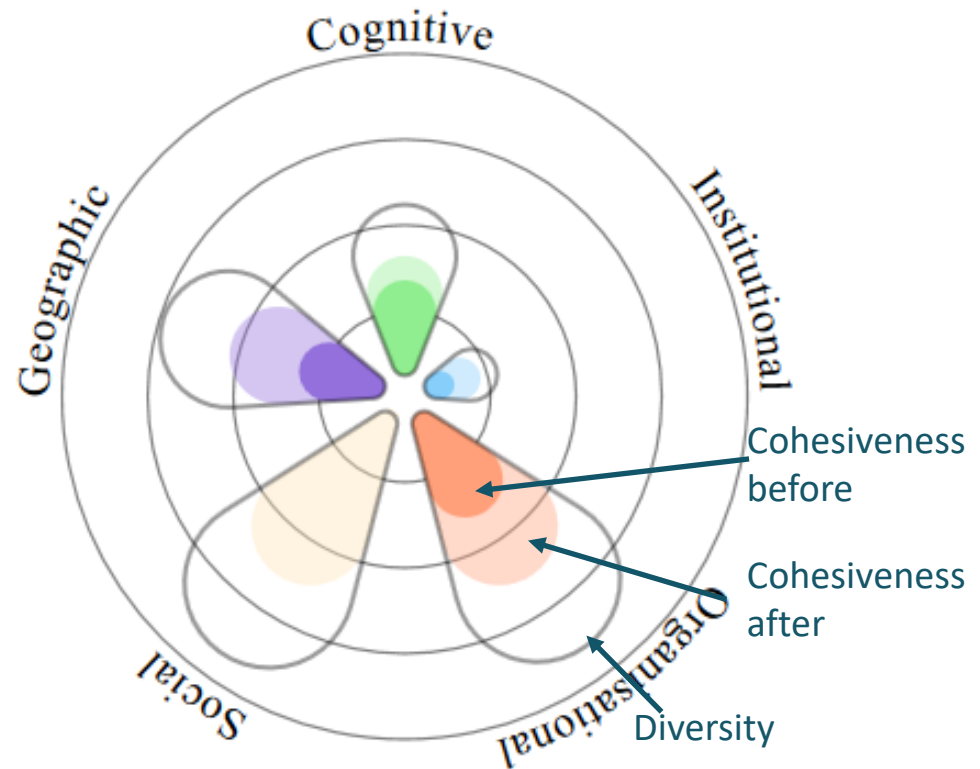Diversity: 0.92
Cohesiveness Before: 0.01
Cohesiveness After: 0.64

Core team

Summary chart: the diversity profile

Including in a single chart:

- All five diversity dimensions

- The measure of diversity

- The measure of cohesiveness before the start of the project

- The measure of cohesiveness after the start of the project

What does DARE capture?

- DARE describes **collaborative interactions** that are crucial for the process of **knowledge integration** during research.
  - DARE shows the creation of links that bridge **individuals**, **organisations**, **institutional types**, **geographies**, and **cognitive fields**.

- DARE brings **early** insights on the benefit of research initiatives.
  - Which may be useful to understand research processes
  - Which may be useful to understand underlying characteristics of research teams (funders, research managers, etc.)
  - Formative evaluation: where teams learn from the outcome of evaluation while the research is happening.

DARE

Where to go now?

Where to go now?

- **Further development of DARE**

1. Can the tool be adapted for use with secondary data?
   - How can we move away from interview intensive data collection?
   - Can the tool be applied using data collected by funders through Researchfish?
   - Does any additional data need to be collected?

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Where to go now?

- **Further development of DARE**

2. Generate further evidence, for a deeper understanding of team science.

    Can DARE identify specific features of successful research collaborations? Or trade-offs between types of diversity?

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Where to go now?

- **Further development of DARE**

3. Which diversities are important to whom?
   - Looking for insights from funders, researchers

   Do you have any suggestions on useful dimensions to measure?
   (i.e. which characteristics of teams are important to you?)

3. We are looking for funders, research managers and researchers in ongoing development of DARE.

   Would you like to be involved in further discussions?

DARE

THE DIVERSITY APPROACH FOR RESEARCH EVALUATION

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http://www.sussex.ac.uk/spru/research/dare/Cases.html