

Academic Profile, Network and Collaboration Analysis

Dr Juergen Wastl

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Research Strategy Office, University of Cambridge

What I am talking about...

- Introduction
- Profiles: What and who is it for?
 - Types and examples
 - Institutional needs
- Research Information Network at Cambridge
- VIVO & Network analysis (internal data provision)
- Research Capability maps (external data provision)


The University of Cambridge

- One of the world's leading academic centres and oldest universities
- Mission: to contribute to society through the pursuit of education, learning and research at the highest international levels of excellence
- UK and Europe's leading research university
- 12,000 undergraduate and 7,000 postgraduate students
- 10,000 staff





Personal profile

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Visualizations

[Co-author Network](#)

[Map of Science](#)

[Co-investigator Network](#)

Wastl, Juergen

Dr

Positions ▾

Head of Research Information, [Academic Division](#), [Research Strategy Office](#), [University of Cambridge](#) 2014 -

RAE/REF Officer, [Academic Division](#), [University of Cambridge](#) 2007 - 2014

[Overview](#) [Affiliation](#) [Publications](#) [Research](#) [Teaching](#) [Background](#)

Overview

I currently head the Research Information team at the Research Strategy Office with responsibilities for managing and implementing software tools for Academics and Administrators (Symplectic, Altmetric, Dimensions, Research Professional, ORCID) and provision of analysis (including network and collaboration analysis) for Collegiate Cambridge

[About](#) [Support](#) [Browse Research](#) [Symplectic](#)

Profiles: Where does the data come from?

Add picture and contact details



Use the tabs to jump to a section



Add an introductory overview



Add labels




UNIVERSITY OF CAMBRIDGE

Home > Menu > Research Admin > Module Admin > System Admin

Dr Juergen Wastl

[Edit profile](#)



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0044 1223 7 61507

About | Publications | Professional activities | Teaching activities | Grants

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Fields of Research
060702 Plant Cell and Molecular Biology | 080609 Information Systems Management

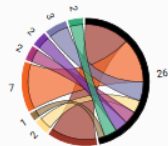
Available for
Consultancy | Media | PhD supervision

International Collaboration
Germany | Spain | Switzerland

College
Darwin College

Experience

External profiles
[Google Scholar](#)
[figshare](#)
[ResearchGate](#)
[Twitter](#)
[LinkedIn](#)
[Mendeley](#)
[Scopus](#)
[ResearcherID](#)

Co-authors

Derek Bendall (7)
Emma Bonsall (2)
Danielle Feger (1)
Christopher Howe (7)
Ben Luisi (2)
Owen Roberson (2)
Beatrix Schlarb-Ridley (3)

Direct links to external profiles and websites





Links to Cambridge co-authors



Personal profile

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Visualizations

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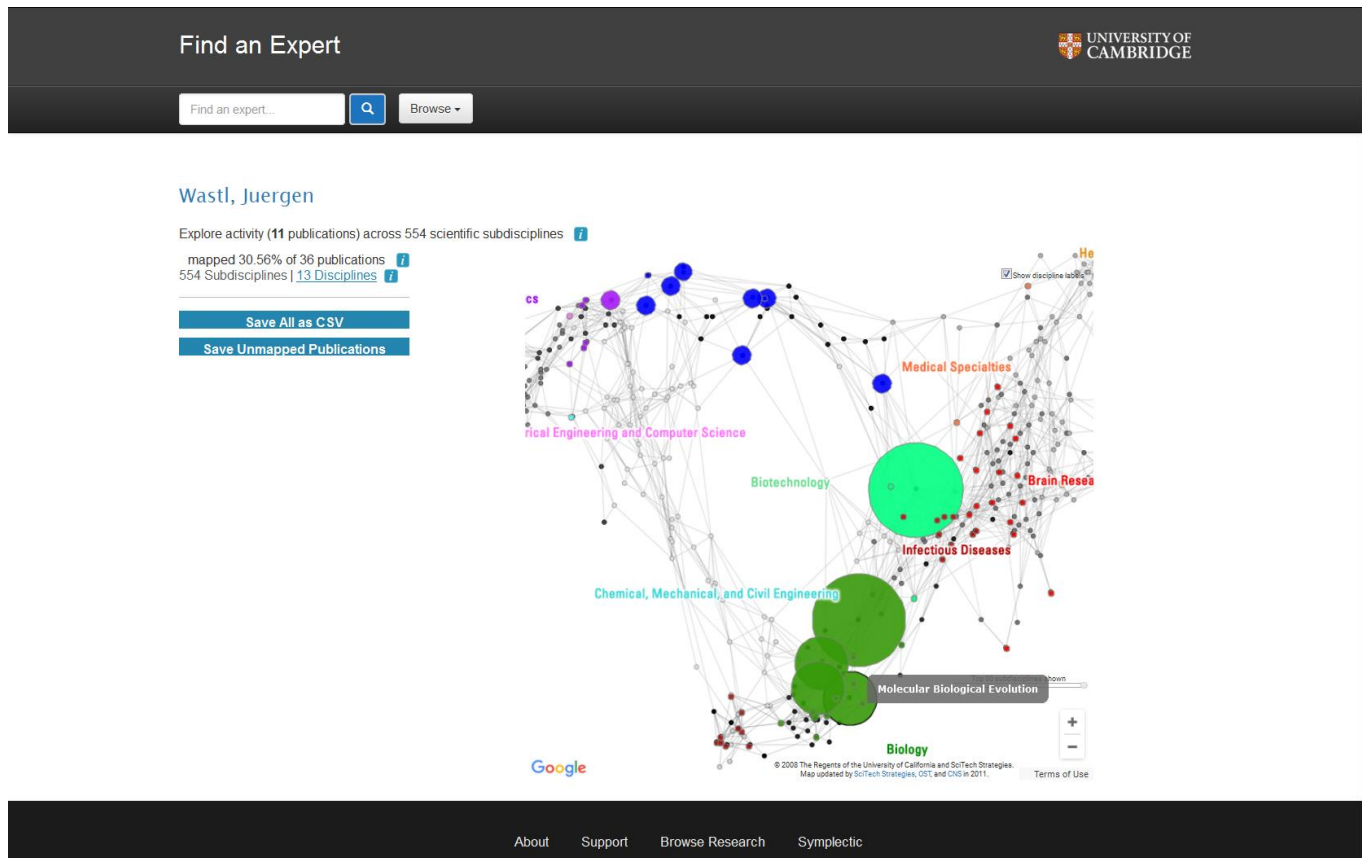
Overview Affiliation Publications Research Teaching Background

Overview

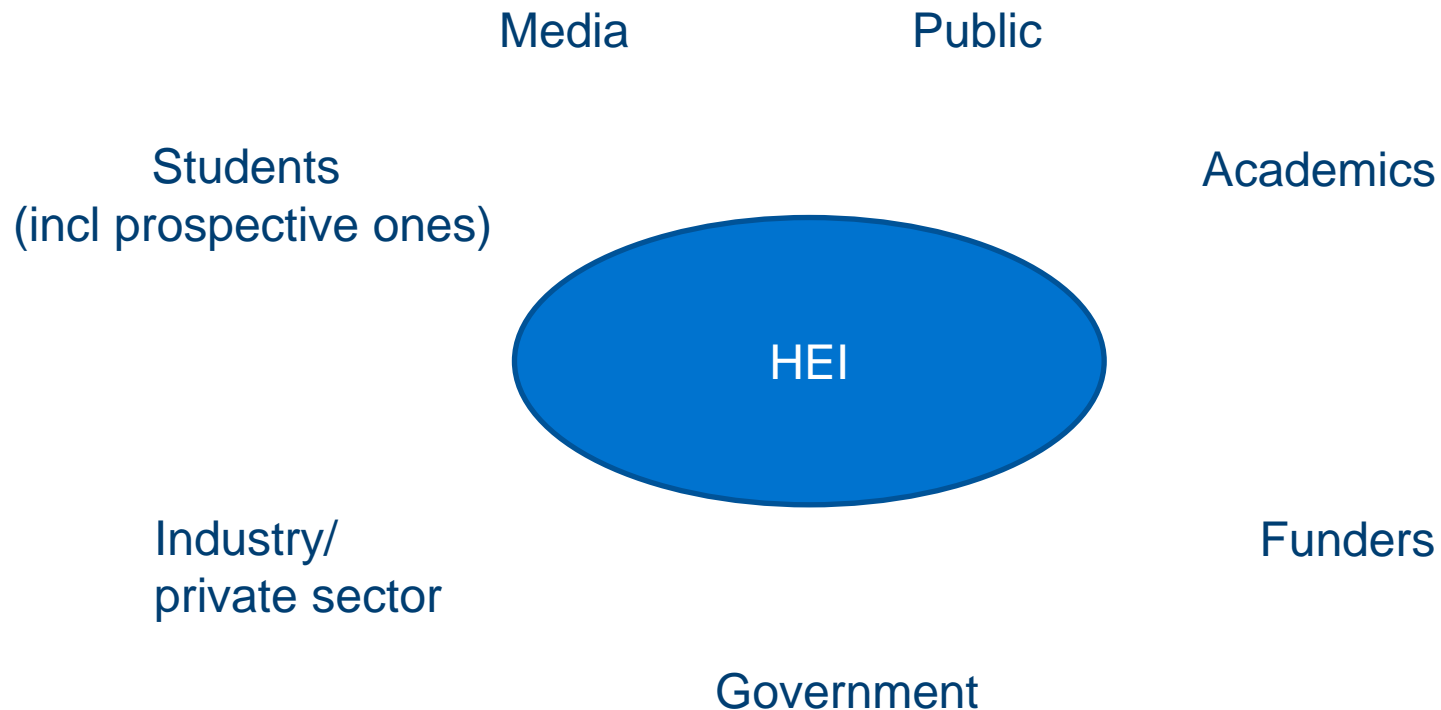
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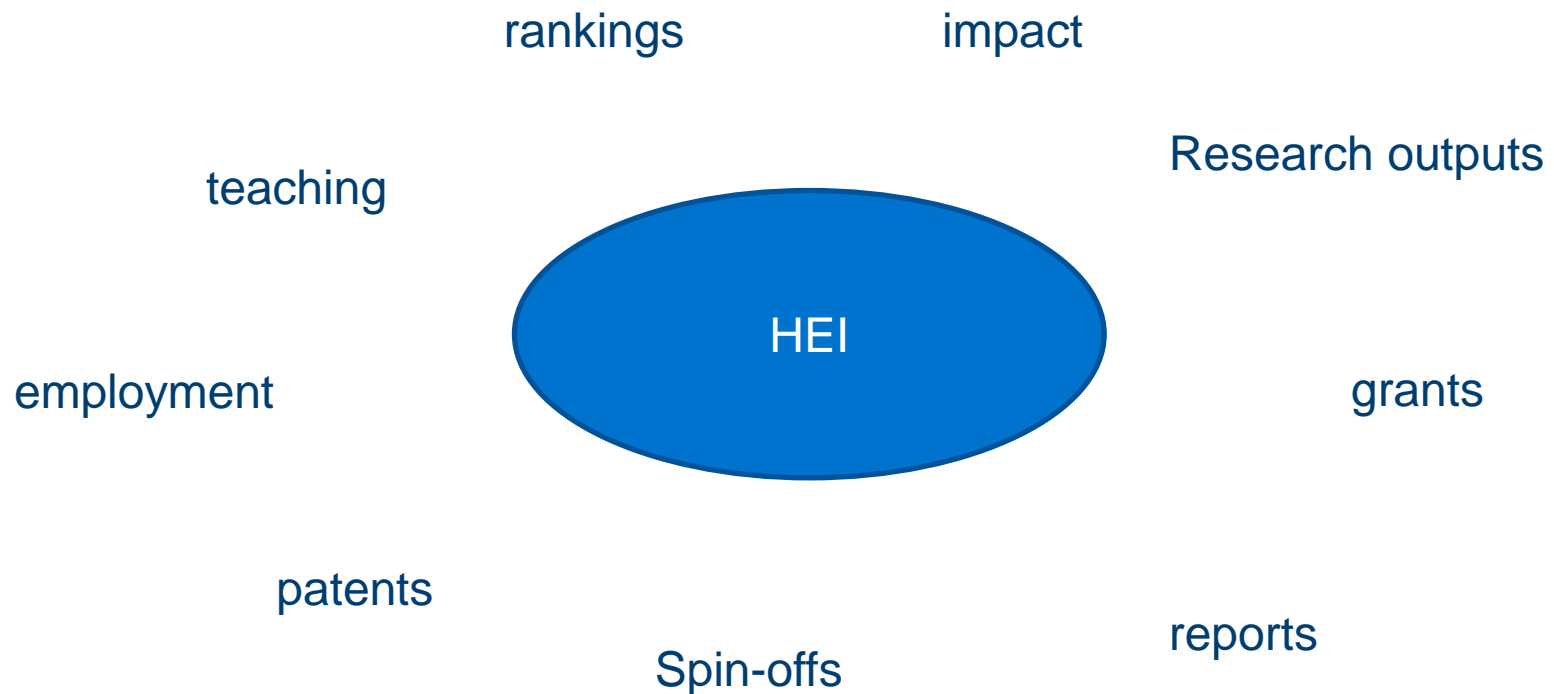
Personal Research Profile



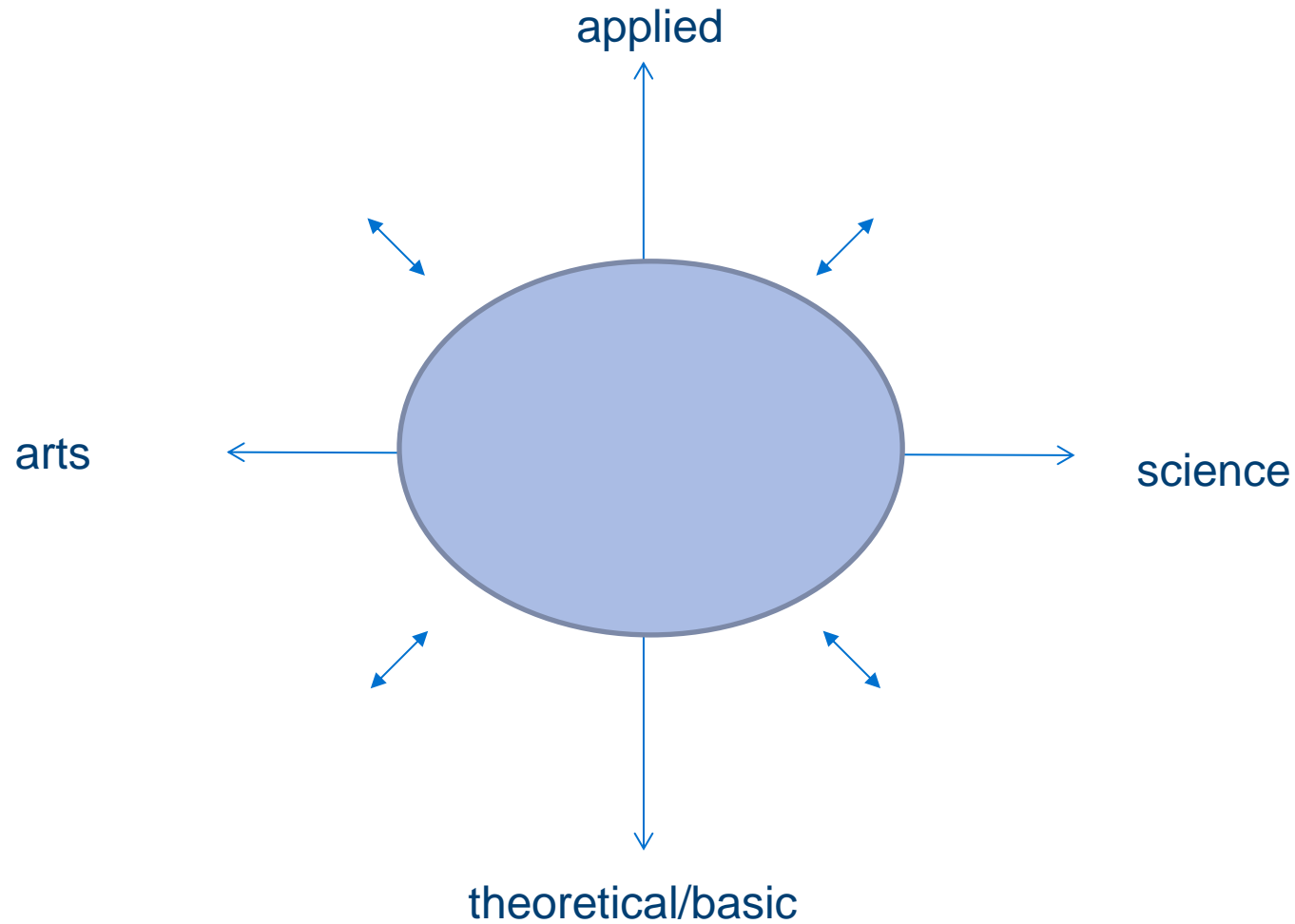
An institutional Profile: Who is interested?



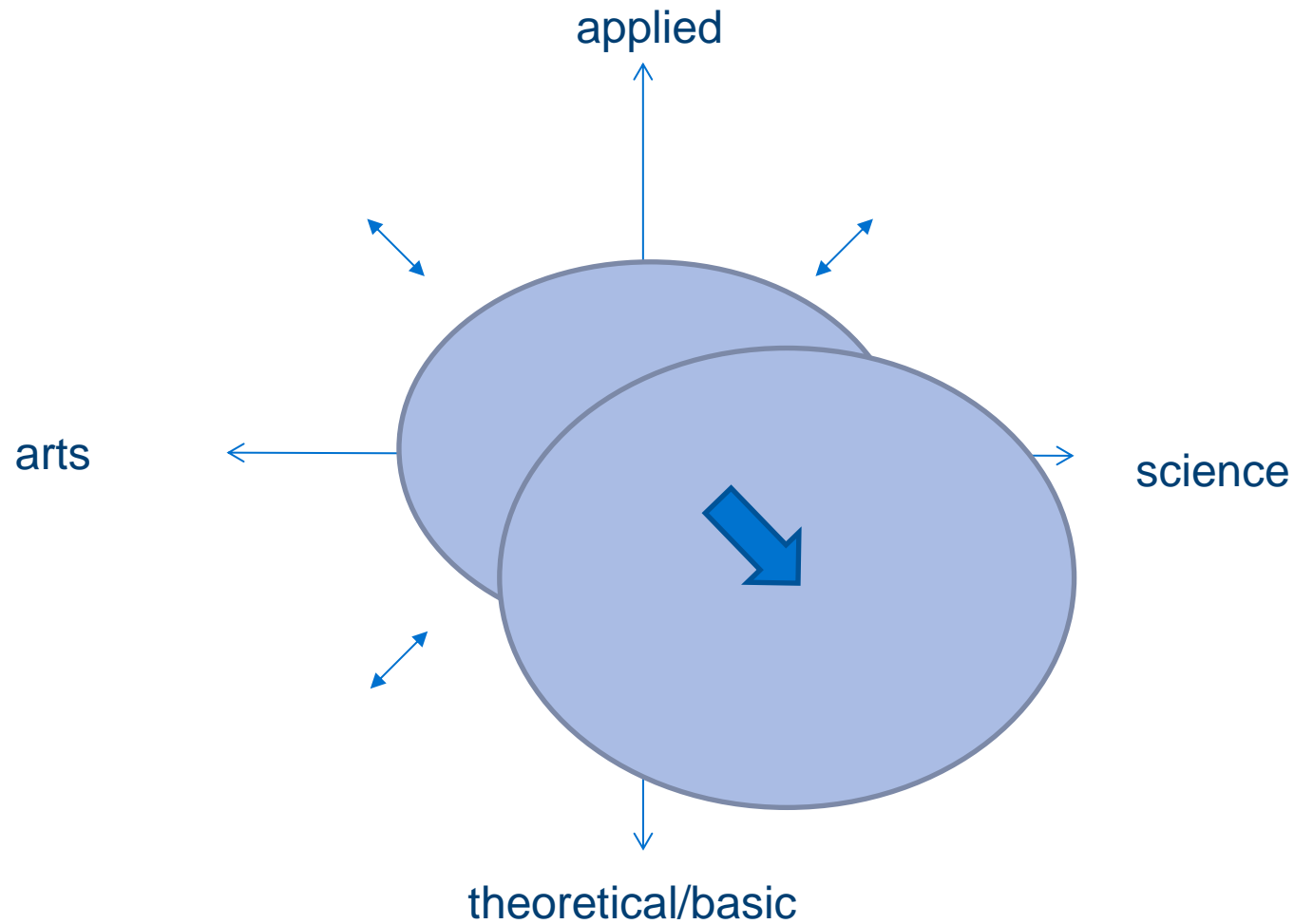
An institutional Profile: Interest in what?



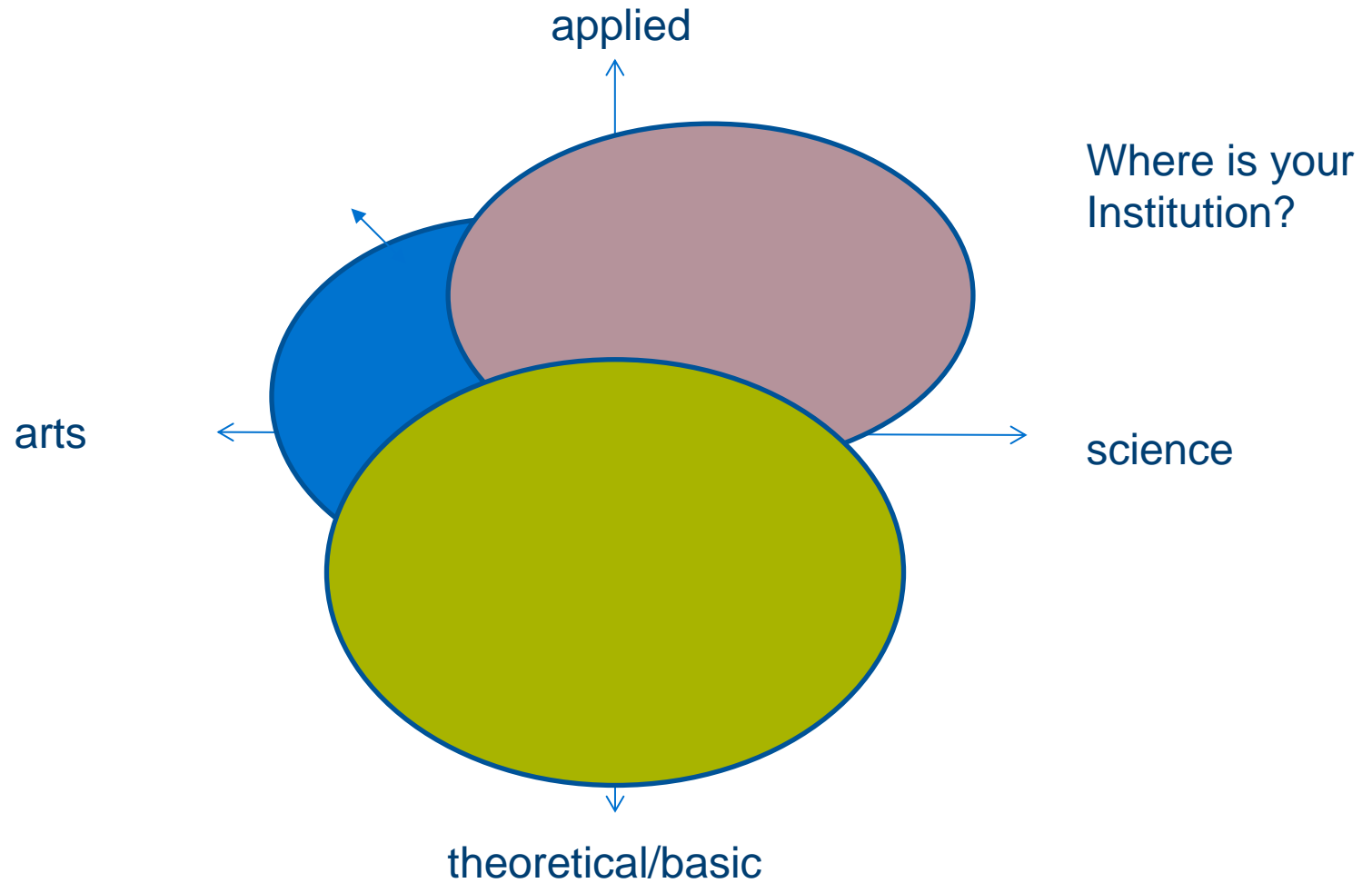
One way of looking at a profile...



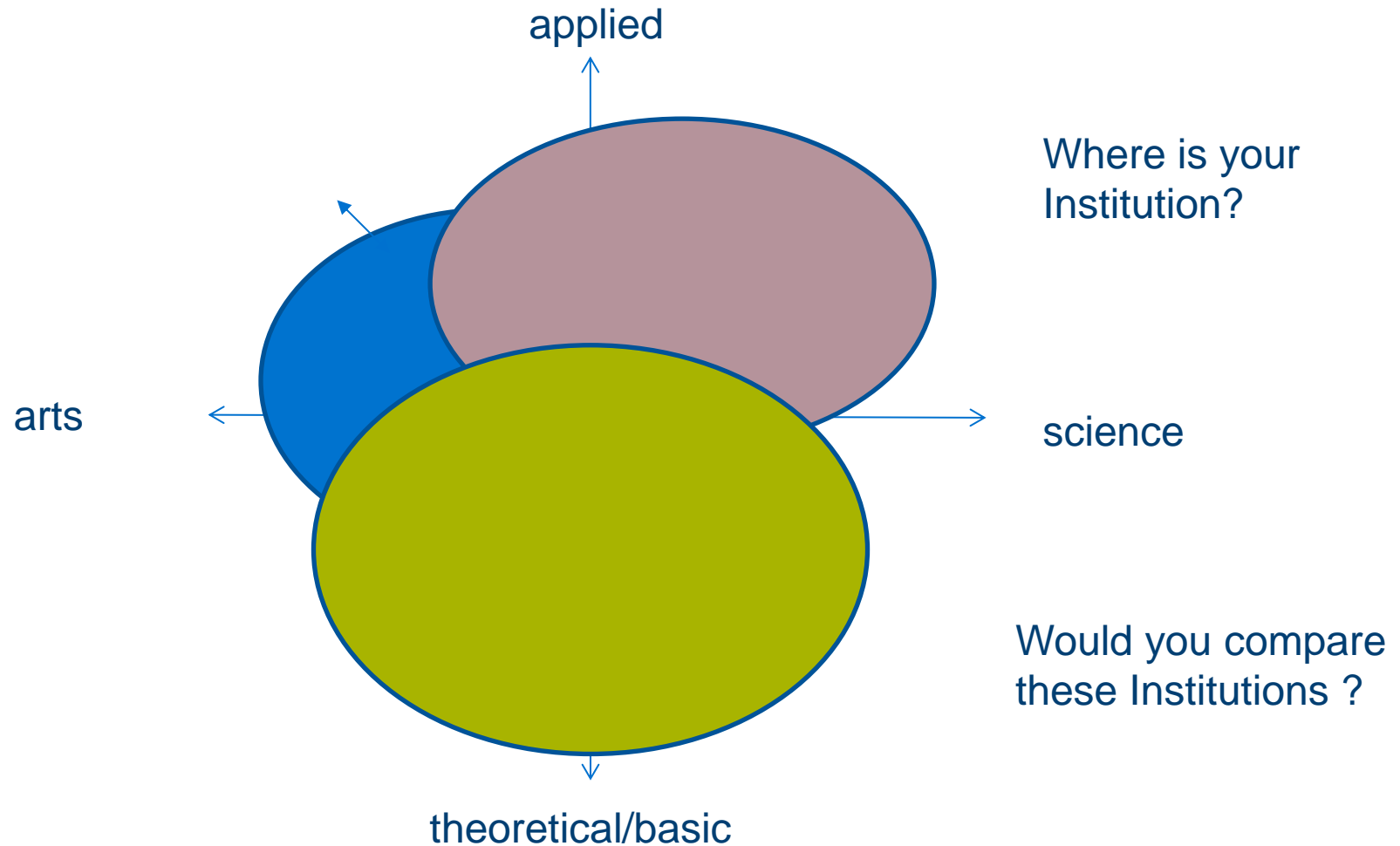
One way of looking at a profile...



One way of looking at a profile...



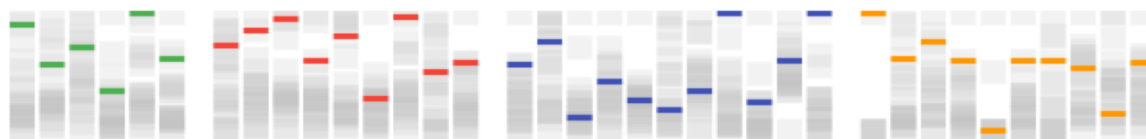
One way of looking at a profile...



....another way: Fingerprinting (after Research assessment)

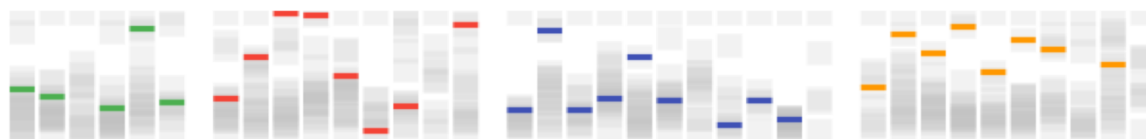
Research Fingerprint

2567 Funded Projects



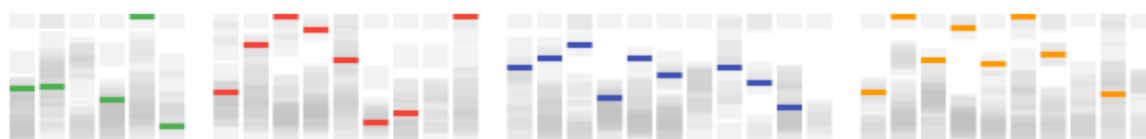
The University of Cambridge has the most funded projects in 4 UoAs and the second most funded projects in 7 UoAs among sector 1 institutions.

2196 Academic Staff



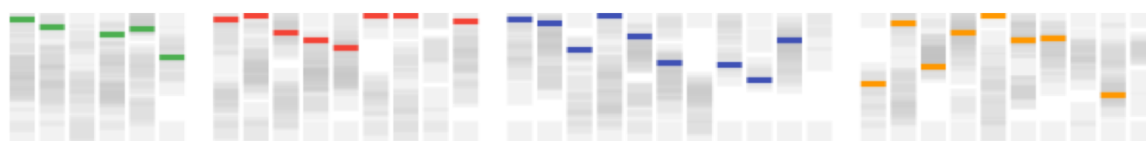
The University of Cambridge has the most staff in Physics and the second most staff in 11 UoAs among sector 1 institutions.

5184 PhD's Awarded



The University of Cambridge has the most awarded PhDs in 5 UoAs and the second most awarded PhDs in 6 UoAs among sector 1 institutions.

3.29 GPA

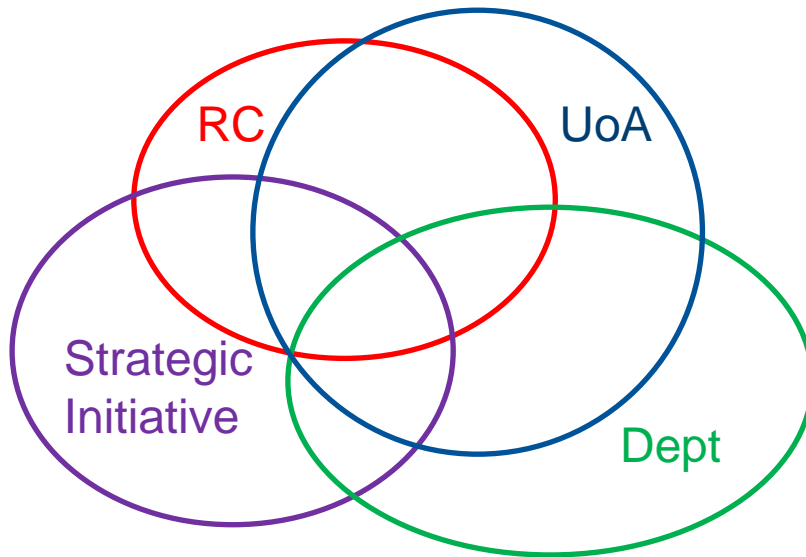


The University of Cambridge has the highest score in 5 UoAs and the second highest score in 6 UoAs among sector 1 institutions.

1 2 3 4 5 6
Panel A
7 8 9 10 11 12 13 14 15
Panel B
16 17 18 19 20 21 22 23 24 25 26
Panel C
27 28 29 30 31 32 33 34 35 36
Panel D

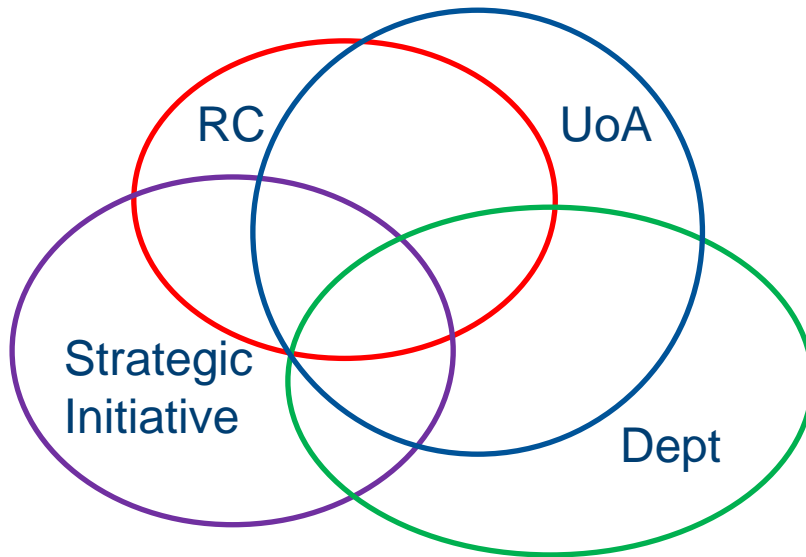
Leading to the following questions:

- Are Departmental boundaries still valid?
- Focus on Individual, Research group, Research Centre, discipline?
- Inter- or multi-disciplinary?



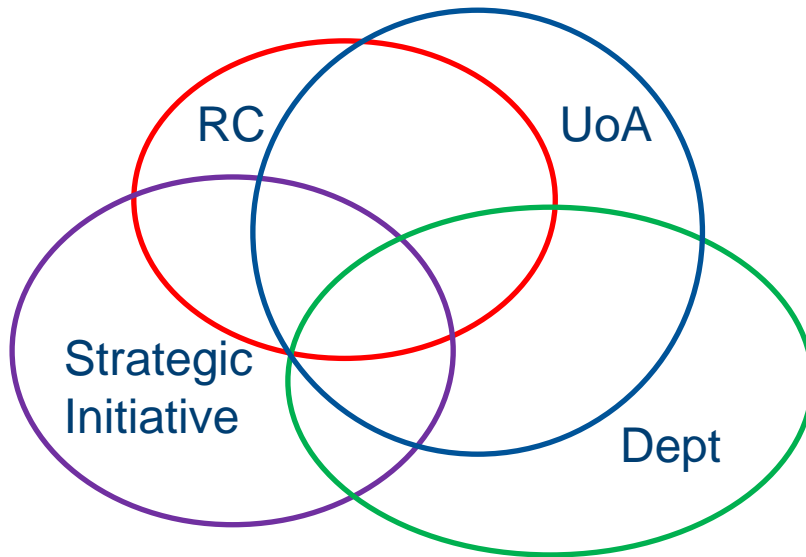
Leading to the following questions:

- What is the base unit of a Research Profile?
- Which categorisation scheme?
- Grant, publication or Research interest?



Leading to the following question:

- How to break up boundaries?



Possible solutions

- Linked Open Data
- Visualisation of knowledge graph
- VIVO
- Research Topics Map (research capability map)

An institutional Profile?

Discover Cambridge Connections

Search for people, projects or publications



Welcome to the University of Cambridge VIVO. VIVO is a research discovery tool, containing publicly available information, which can be used to find people, projects and publications across all disciplines of the University.

This demo version is protected by Raven. Please send any feedback and ideas for future development to vivo@admin.cam.ac.uk



Business Relations



Open Access



Research Communications



Welcome to VIVO

Search for an Expert...

Search

VIVO is a research-focused discovery tool that enables collaboration among scientists across all disciplines. Browse or search information on people, departments, courses, and grants



Who?



Where?



What?

Explore our key research areas

Powered by Robert Aron

Search for an Expert...



This demonstration portal showcases a new VIVO experience based on Bootstrap. It was created by Symplectic in partnership with Digital Science and Funnelback.

This portal uses data from [OpenVIVO](#). Looking for experts in OpenVIVO? Why not search here?



Search for a collaborator



Find a supervisor



Locate expert opinion

Examples of bootstrap VIVO

VIVO is...

- An open source Research Discovery tool
- Linked Open Data
- Huge effort when manually maintained
- Adjustable to what we want it to be

VIVO is not:

- replacement for Departmental websites
- 'stand alone' or another individual profile (e.g. academia.edu; Researchgate; Google Scholar or other subject specific profiles)

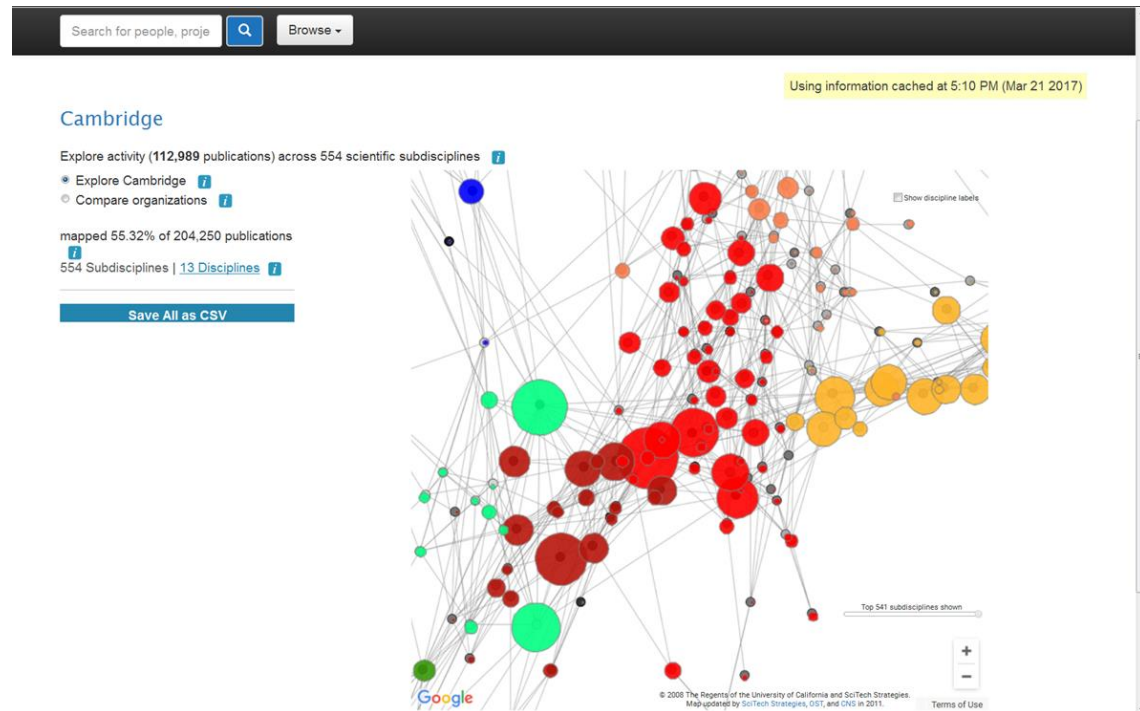
VIVO can:

- Increase the visibility of Cambridge Research
- Map and display Cambridge Research (OA, Open Data)
- Drive traffic to Departmental websites
- Assist with linking Institutions and Centres
- Facilitate network analysis within the university and with other HEI

VIVO: Map of Science

Map of Science

- Maps publications against disciplines (13) and sub-disciplines (554)
- Based on individuals, groups departments



VIVO Map of Science

Explore Cambridge



Search for people, projects



Browse ▾

Using information cached at 11:02 AM (Apr 10 2017)

T Department of Engineering

Explore activity (9,858 publications) across 554 scientific subdisciplines [i](#)

● Explore T Department of Engineering [i](#)

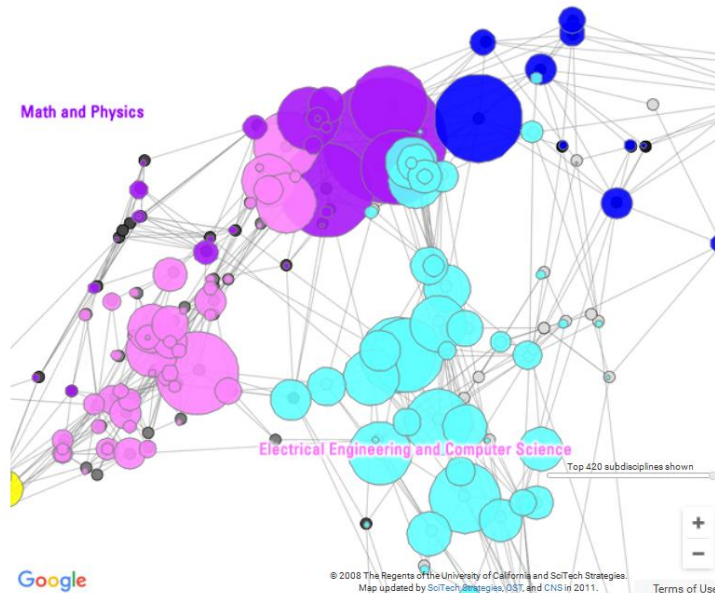
● Compare organizations [i](#)

mapped 37.49% of 26,292 publications [i](#)

554 Subdisciplines | [13 Disciplines](#) [i](#)

Save All as CSV

☒ Show discipline labels



VIVO Map of Science

Explore Cambridge



Search for people, projects



Browse ▾

Using information cached at 11:02 AM (Apr 10 2017)

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Explore activity (9,858 publications) across 554 scientific subdisciplines [i](#)

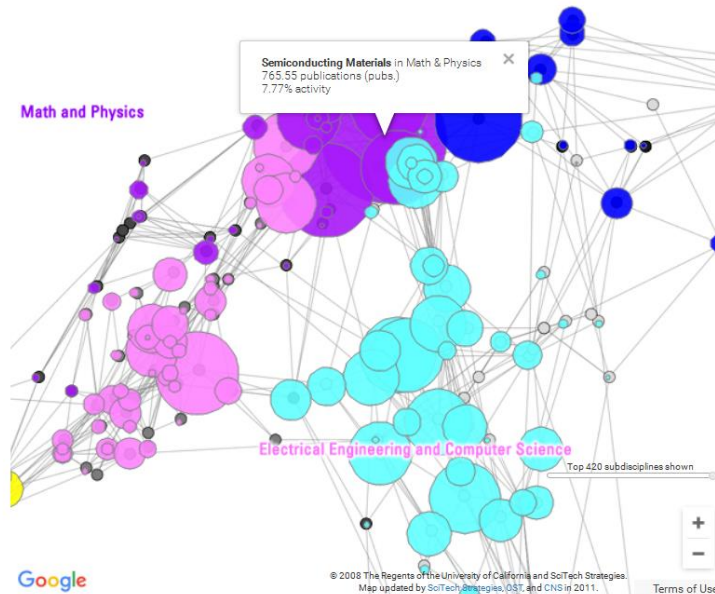
● Explore T Department of Engineering [i](#)

● Compare organizations [i](#)

mapped 37.49% of 26,292 publications [i](#)

554 Subdisciplines | [13 Disciplines](#) [i](#)

Save All as CSV



Strengths and weaknesses

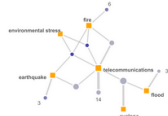
- Efficient: re-use of existing data
- Academic buy-in (opt in? or opt-out?)
- **Data quality**
 - VIVO exposes data gaps
- **Data mapping**
 - What is it that you want to display ?
 - Who is your target audience (general public, prospective PhD students, media, researcher (internal vs external) ?

Finding expertise and exploring networks

Explore Cambridge


Related searches for serendipity

Topics on **serendipity**
serendipity and the Sloan Digital




Click here to view a capability map of these terms


1 - 11 of 11 search results for **serendipity**




de Rond, Mark Edmondus
mej3@cam.ac.uk
Darwin College
T Judge Business School
Judge Business School
Your search term was found in:
2 Publications
0 Grants



Ansari, Shahzad Mumtaz
sma31@cam.ac.uk
St Edmund's College
T Judge Business School
Judge Business School
Your search term was found in:
1 Publications



Fara, Patricia
pf10006@cam.ac.uk
Clare College
Your search term was found in:
1 Publications




Wastl, Juergen
researchinformation@admin.cam.ac.uk
jw312@admin.cam.ac.uk
Academic Division, Research Strategy Office
Academic Division, Research Strategy Office
Your search term was found in:
1 Publications
0 Grants

Subject Area


MD Multidisciplinary 3
General Science & Technology 6
0201 Astronomical and Space Sciences 5
Astronomy & Astrophysics 4
Humans 4
02 Physical Sciences 4
0305 Organic Chemistry 4
0306 Physical Chemistry (Incl. Structural) 4
+ More...

Research Area


06 Biological Sciences 1
060705 Plant Physiology 1
080109 Pattern Recognition and Data Mining 1
020403 Astronomical and




Llewellyn-Jones, David
dl551@cam.ac.uk
T Computer Laboratory
Your search term was found in:
1 Publications
0 Grants




Montgomery, James Edward
jem33@cam.ac.uk
SRI Cambridge Language Sciences
Department of Middle Eastern Studies
Trinity Hall
Your search term was found in:
1 Publications



McMahon, Richard Gerard
rgm@ast.cam.ac.uk
P Institute of Astronomy
Institute of Astronomy
Clare Hall
Institute of Astronomy
SRI Cambridge Big Data



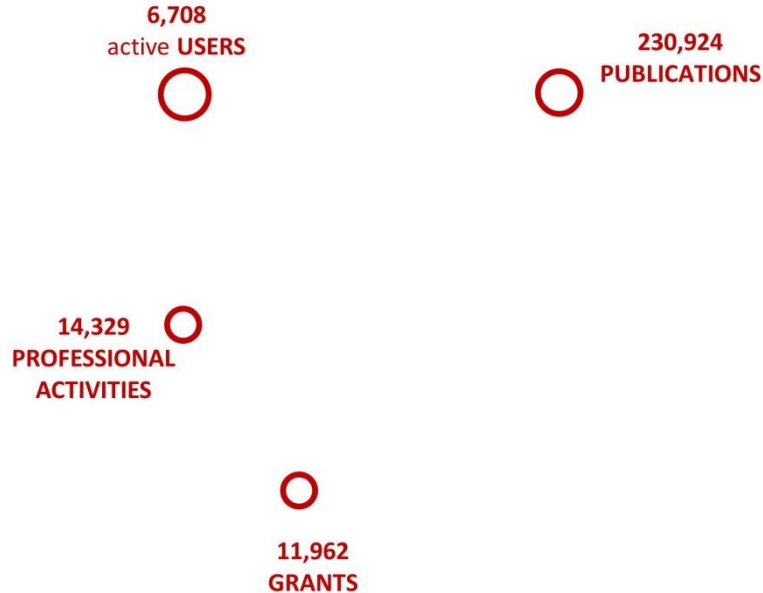
Nikolajeva, Maria
mn351@cam.ac.uk
SRN Digital Humanities Network
Homerton College
S Faculty of Education
Your search term was found in:
1 Publications

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CAMBRIDGE

Cambridge Approach

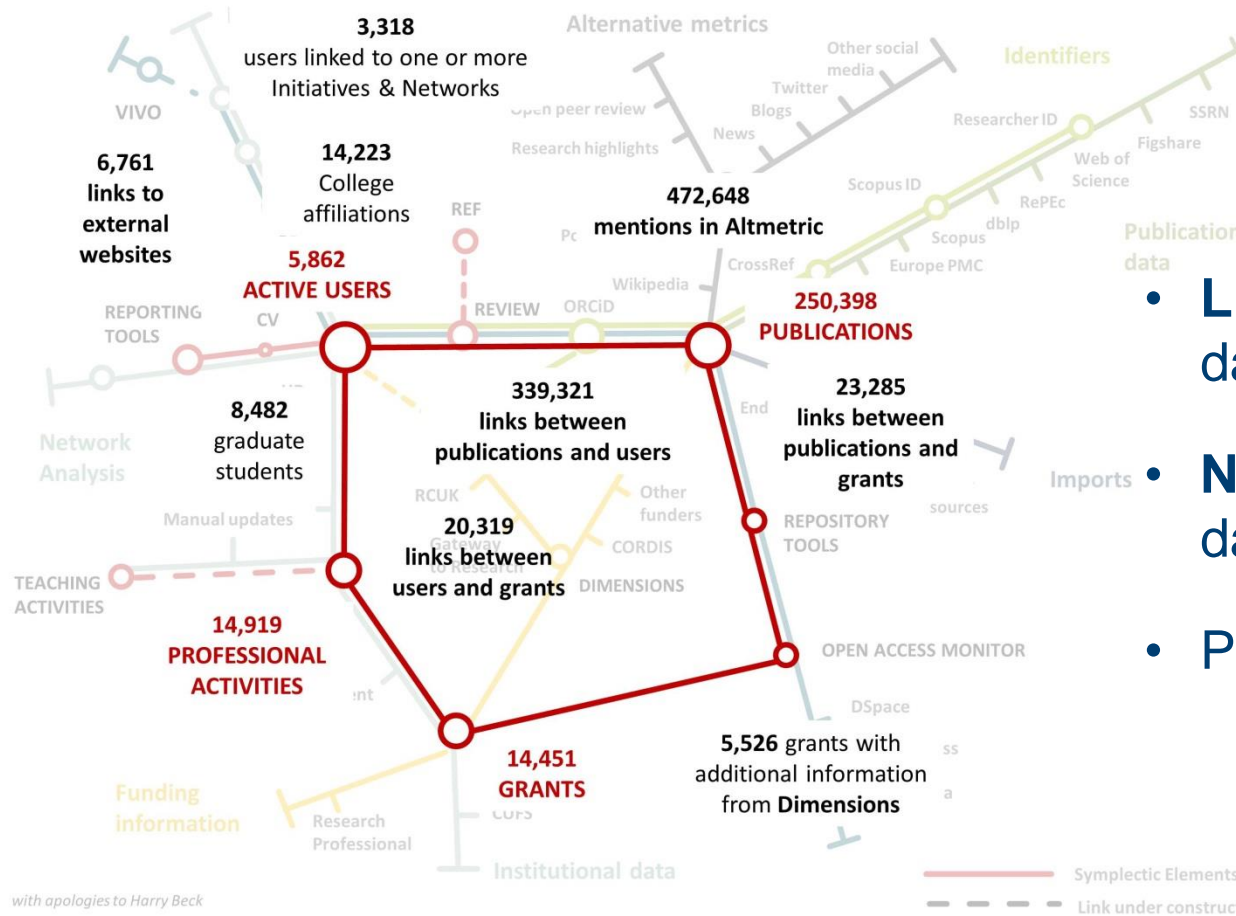
- Network of Research Information
- Historic: gather publications (2010) for Research Assessment and mandatory reporting
- Move from data and information gathering (and reporting for REF) to research management
- From information ... to intelligence?

Reactive approach



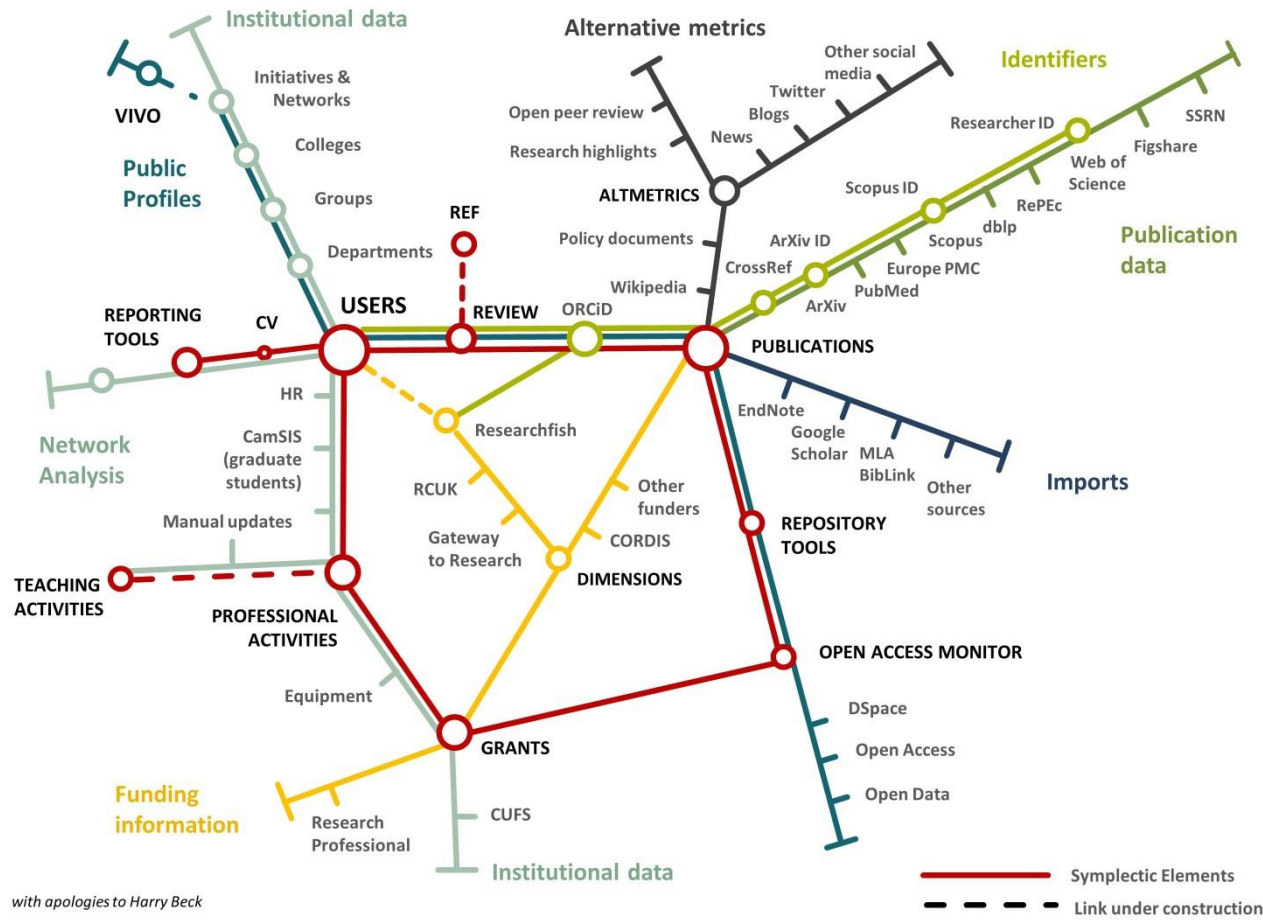
- Driven by reporting requirements
- **Collection** of meta data
- Retrospective

Linked data in Elements (January 2017)



- Linking meta data
- Networks of data
- Prospective

From integration to innovation or: from reactive to proactive



Profiles: Where does the data come from?

Add picture and contact details



Use the tabs to jump to a section



Add an introductory overview



Add labels




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Home > Menu > Research Admin > Module Admin > System Admin

Dr Juergen Wastl

[Edit profile](#)



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Fields of Research

060702 Plant Cell and Molecular Biology | 080609 Information Systems Management

Available for

Consultancy | Media | PhD supervision

International Collaboration

Germany | Spain | Switzerland

College

Darwin College

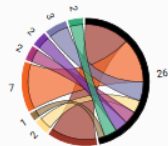
Experience

Max Planck Institute

External profiles

[Google Scholar](#)
[figshare](#)
[ResearchGate](#)
[Twitter](#)
[LinkedIn](#)
[Mendeley](#)
[Scopus](#)
[ResearcherID](#)

Co-authors



- Derek Bendall (7)
- Emma Bonsall (2)
- Danielle Feger (1)
- Christopher Howe (7)
- Ben Luisi (2)
- Owen Roberson (2)
- Beatrix Schlarb-Ridley (3)

Direct links to external profiles and websites



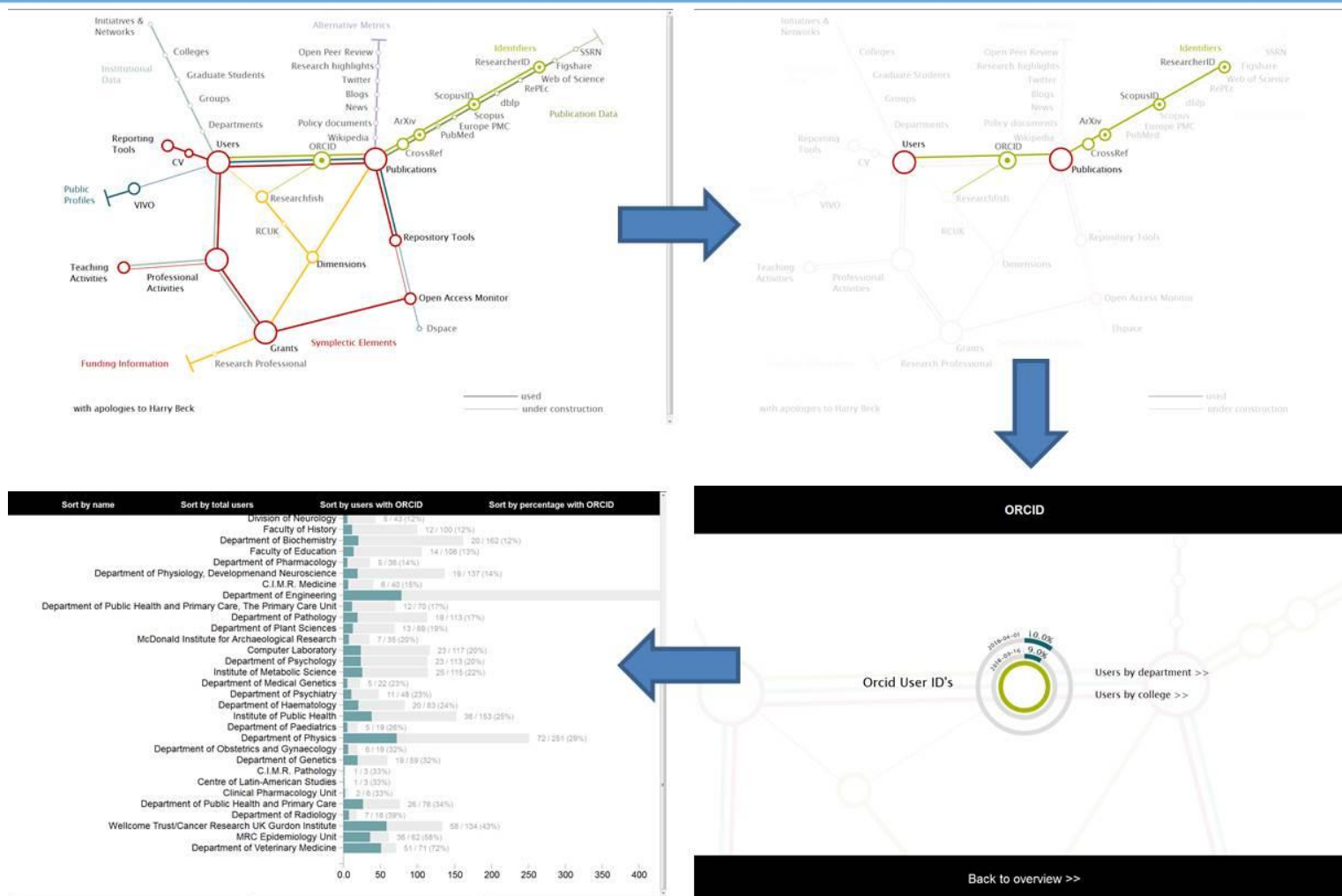
Links to Cambridge co-authors



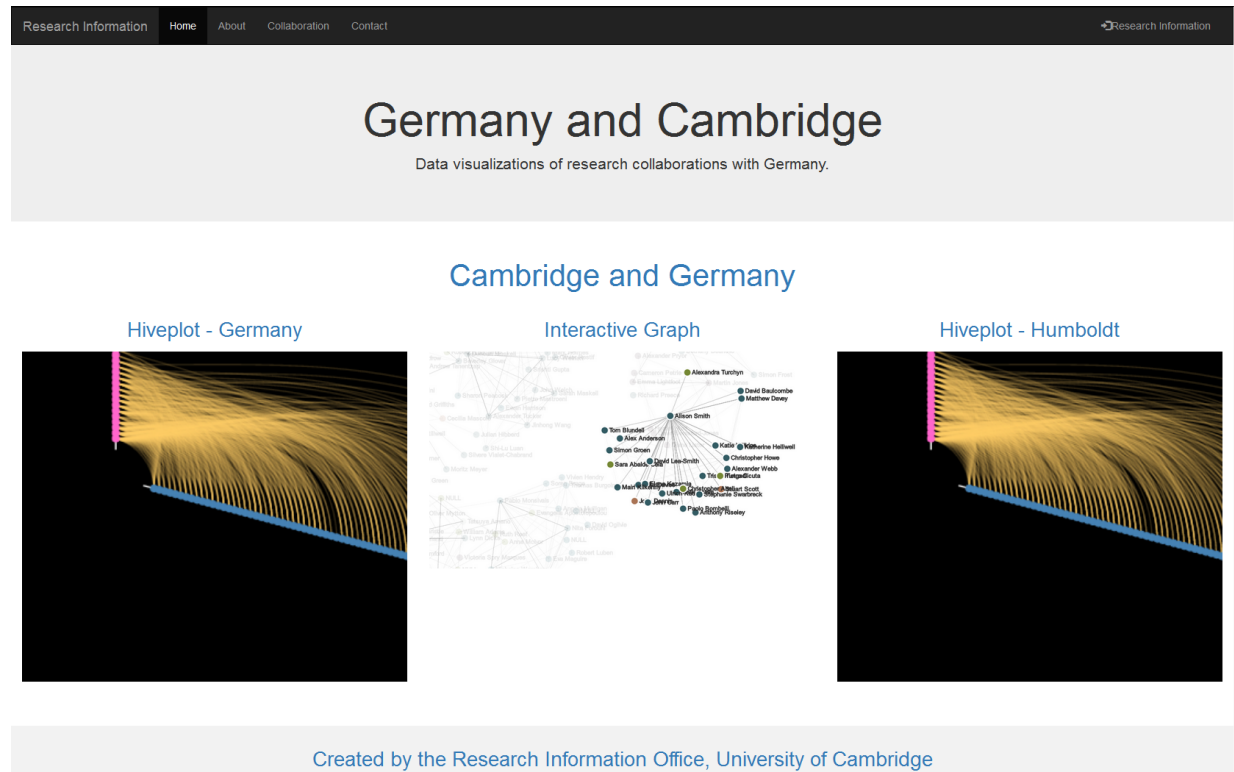
Use cases...

- Network and collaboration analysis within the Institution,
- Analyse links with external institutions
- Visualisations

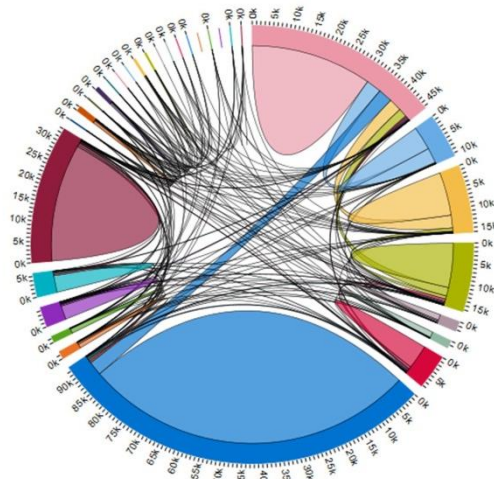
Visualisations : ORCID



More visualisations of networks and collaborations

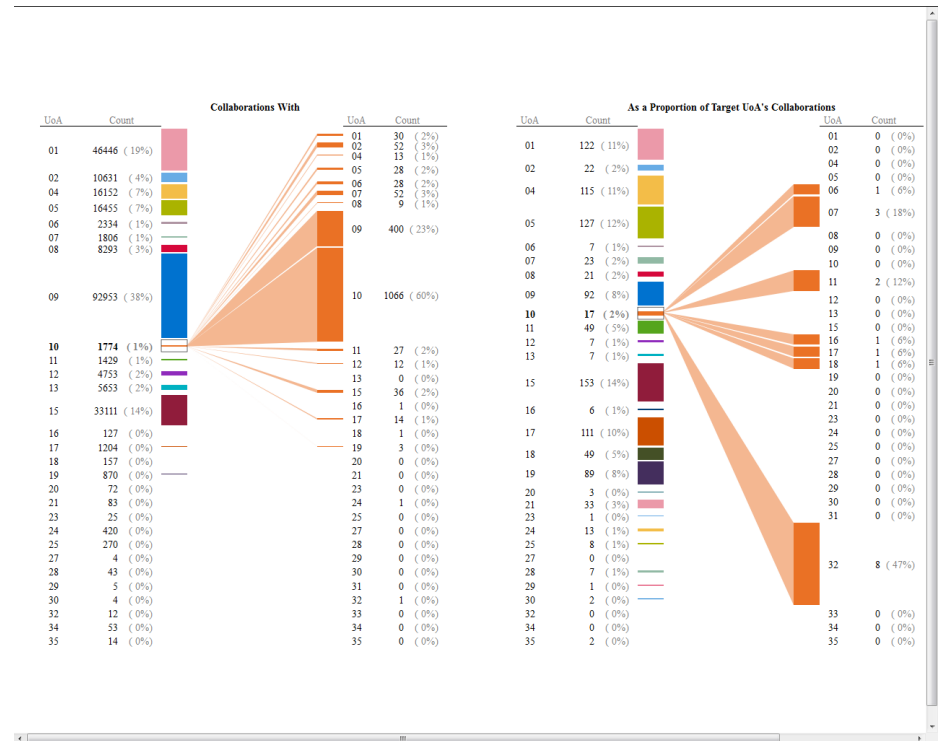


Intradisciplinary Research Networks & REF



This shows collaborations between REF2014 UoAs; indicating that interdisciplinary research is already a key element of research practice at Cambridge.

[Link](#)



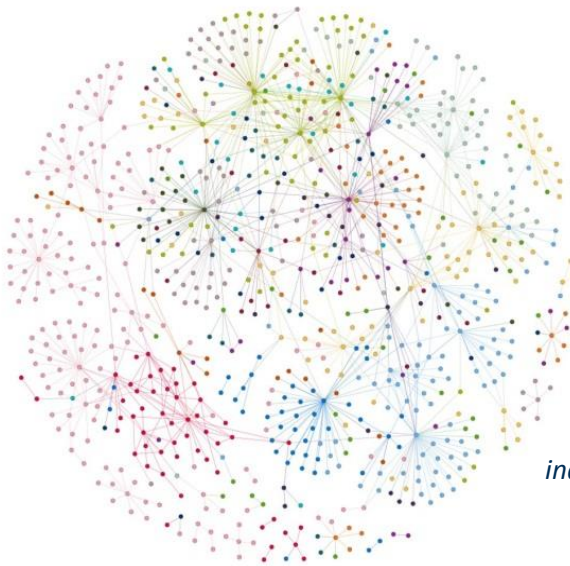
When combined with contextual knowledge from research support staff (with specialist area knowledge) we can use this type of insight to:

- Provide introductions between researchers with similar interests.

- Model which topics lend themselves to extensive or intensive groups.
- Identify individuals who may be ready to collaborate on a bid.
- Help researchers to navigate an evolving research environment.

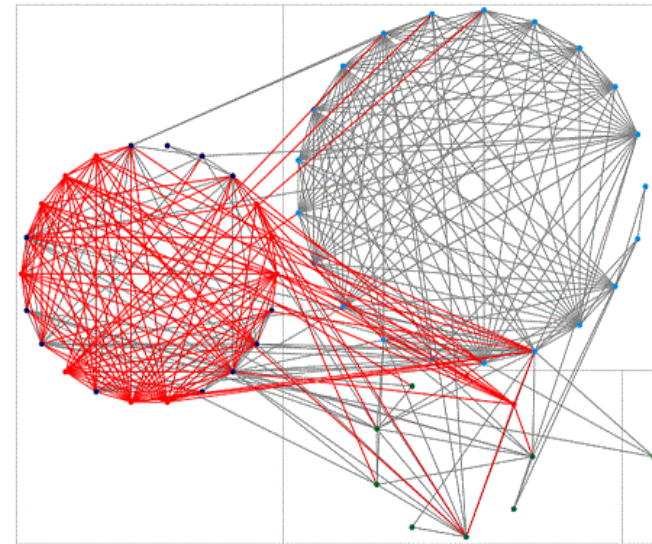
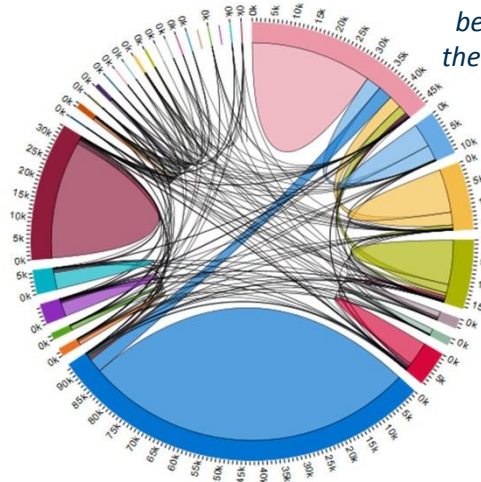
Innovation: finding connections

Colours indicate University departments. Points or nodes represent researchers. Connections or edges represent an instance of co-authorship.



This shows collaborations between REF2014 UoAs; indicating that interdisciplinary research is already a key element of research practice at Cambridge.

It is possible to explore the connections between members of a defined group and consider not only the direct connections between them (through collaboration or publication), but who their collaborators collaborate with, and what other connections they may have made.



Created with NodeXL (<http://nodexl.codeplex.com>)

When combined with contextual knowledge from research support staff (with specialist area knowledge) we can use this type of insight to:

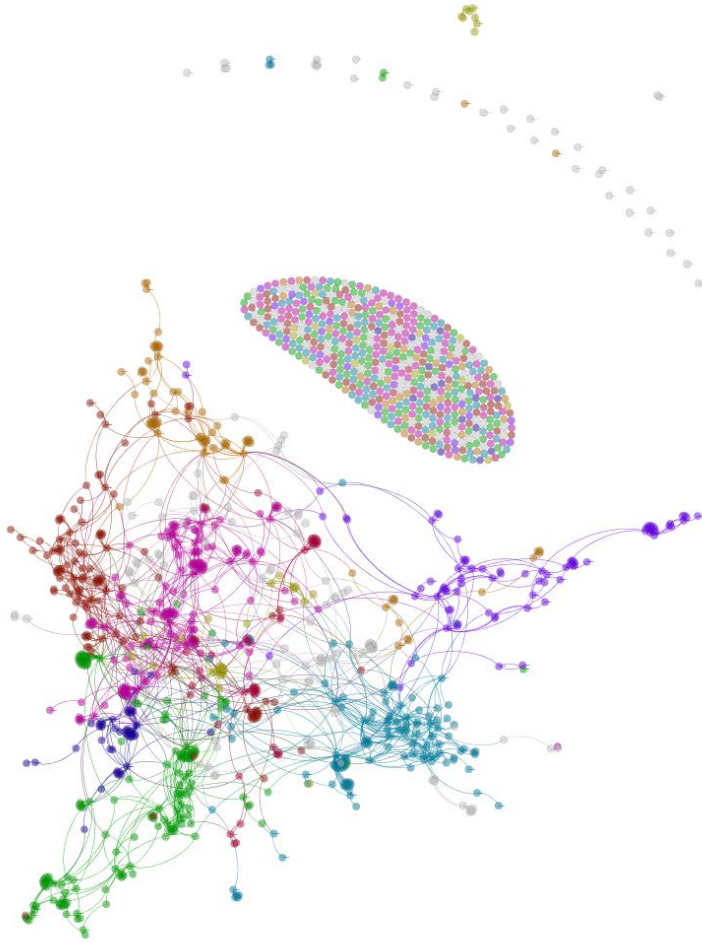
- Provide introductions between researchers with similar interests.
- Model which topics lend themselves to extensive or intensive groups.
- Identify individuals who may be ready to collaborate on a bid.
- Help researchers to navigate an evolving research environment.

Collaboration Analysis between HEIs

- Cancer Research collaboration analysis Cambridge and Oxford



Use cases: pretty



Helps researchers and departments by making “shiny things”.

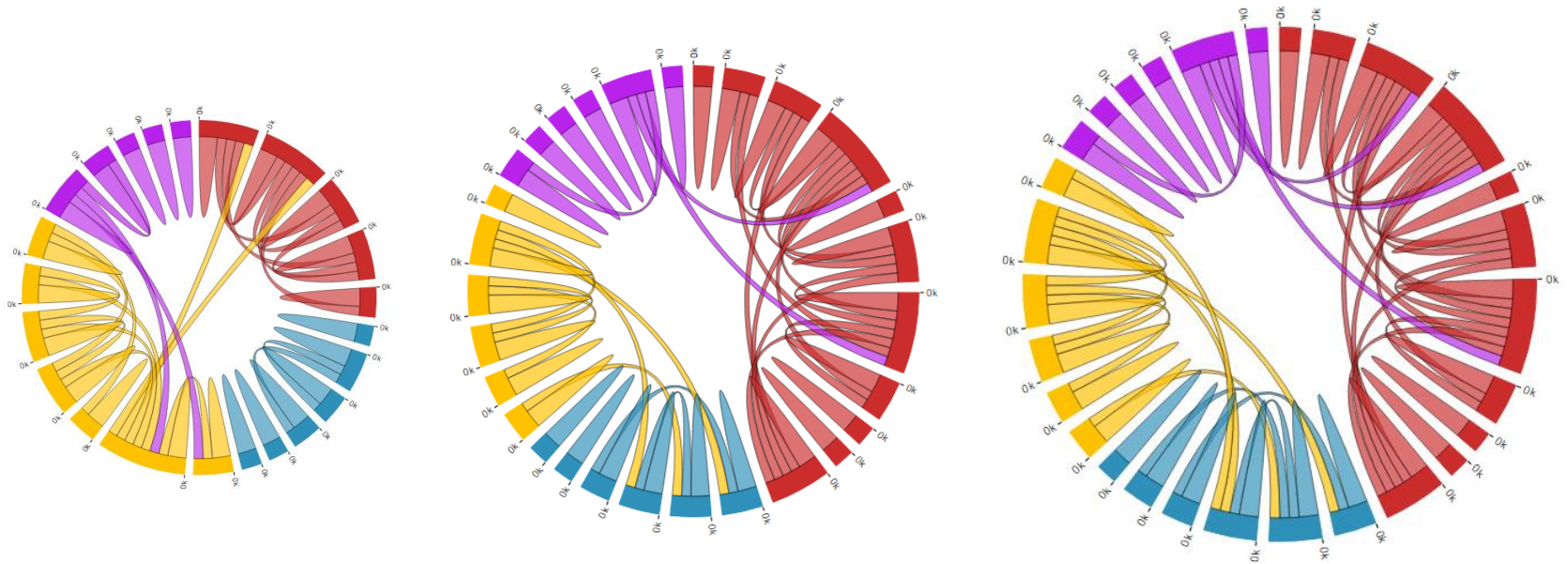
Hard Benefits:

- Promotional materials
- Agnostic of prior knowledge

Soft Benefits:

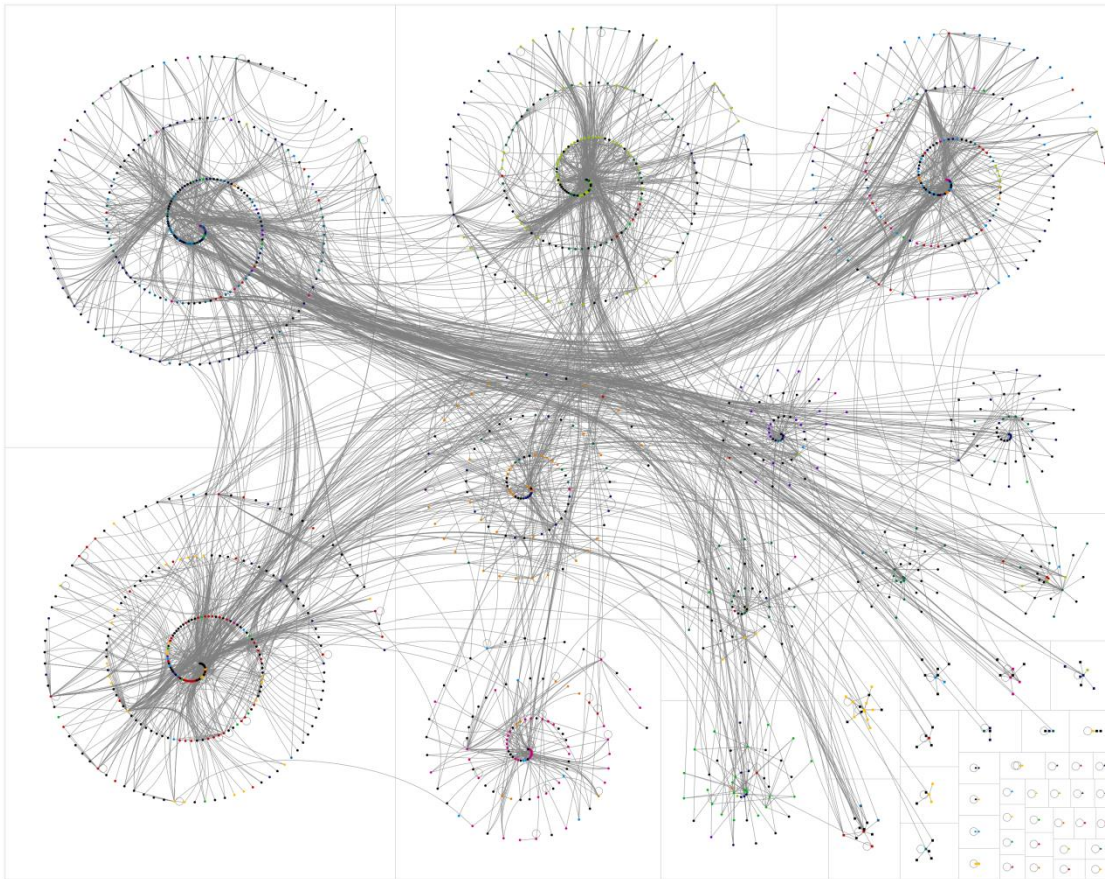
- Academic buy-in
- Allows exploratory conversations

Use cases: persuasive



Where work is interdisciplinary, considering connections can be an indicator of a successful initiative...

Use cases: Departmental boundaries



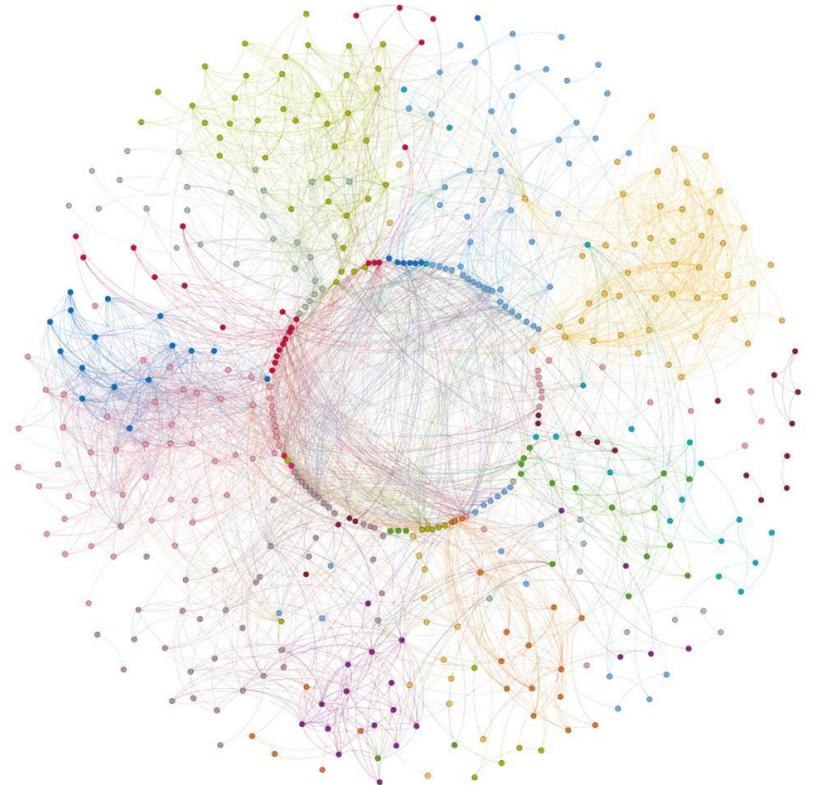
Gives a mechanism to structure a conversation:

“Are Victorian departmental structures still relevant/useful/viable?”

Modularity offers one way of talking about common characteristics

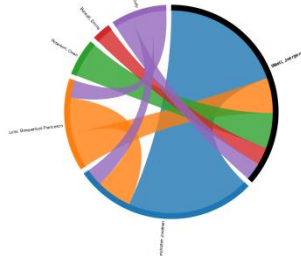
Meta-interdisciplinarity: putting it all together

- Mediated matchmaking?
- Mentoring partnerships?
- Clear the blockage?
- Spread the skillset?
- Academic families?
- Combining with unstructured data techniques?

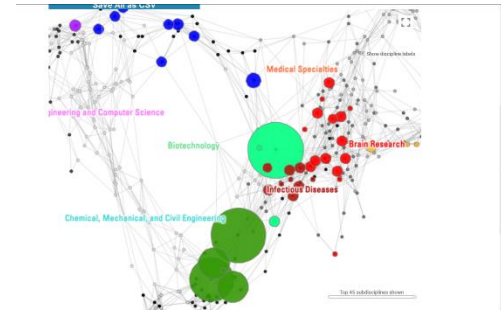
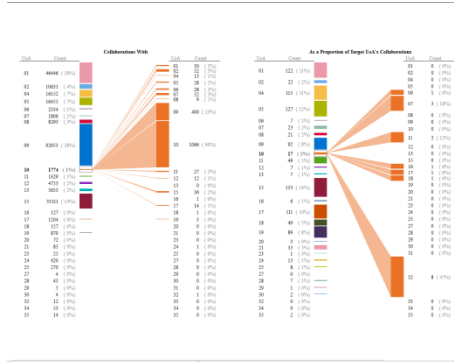


An Institutional Research Profile

Co-author Network

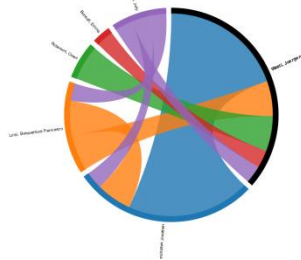


HEI

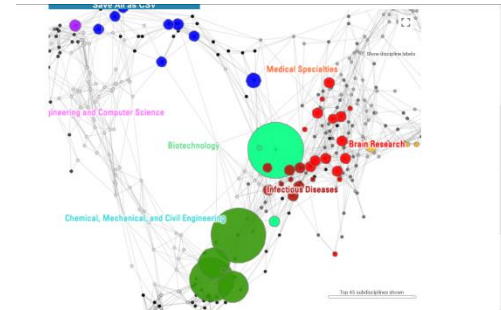


An institutional Research Profile

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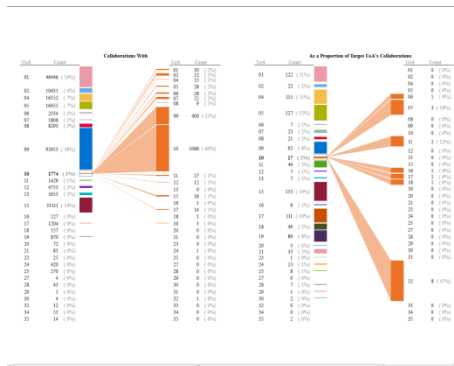
Research domain
expertise



Co-authorship analysis

HEI

Disciplinary analysis

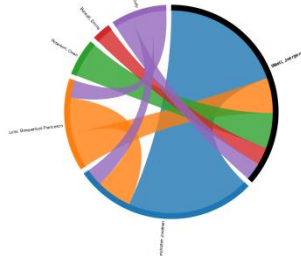


collaboration



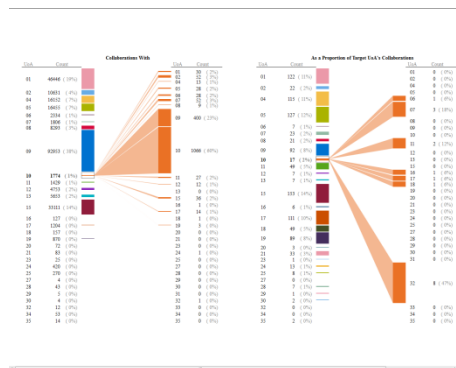
An institutional Research Profile

Co-author Network



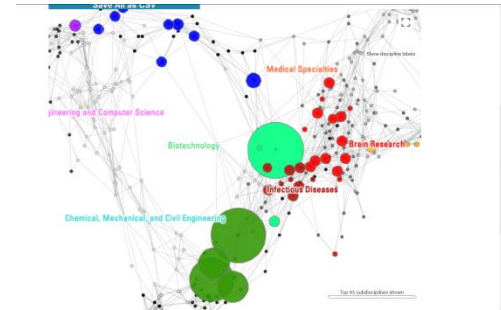
Research domain
expertise

Co-authorship analysis



INTERNAL
CURATED
DATA

Collaboration



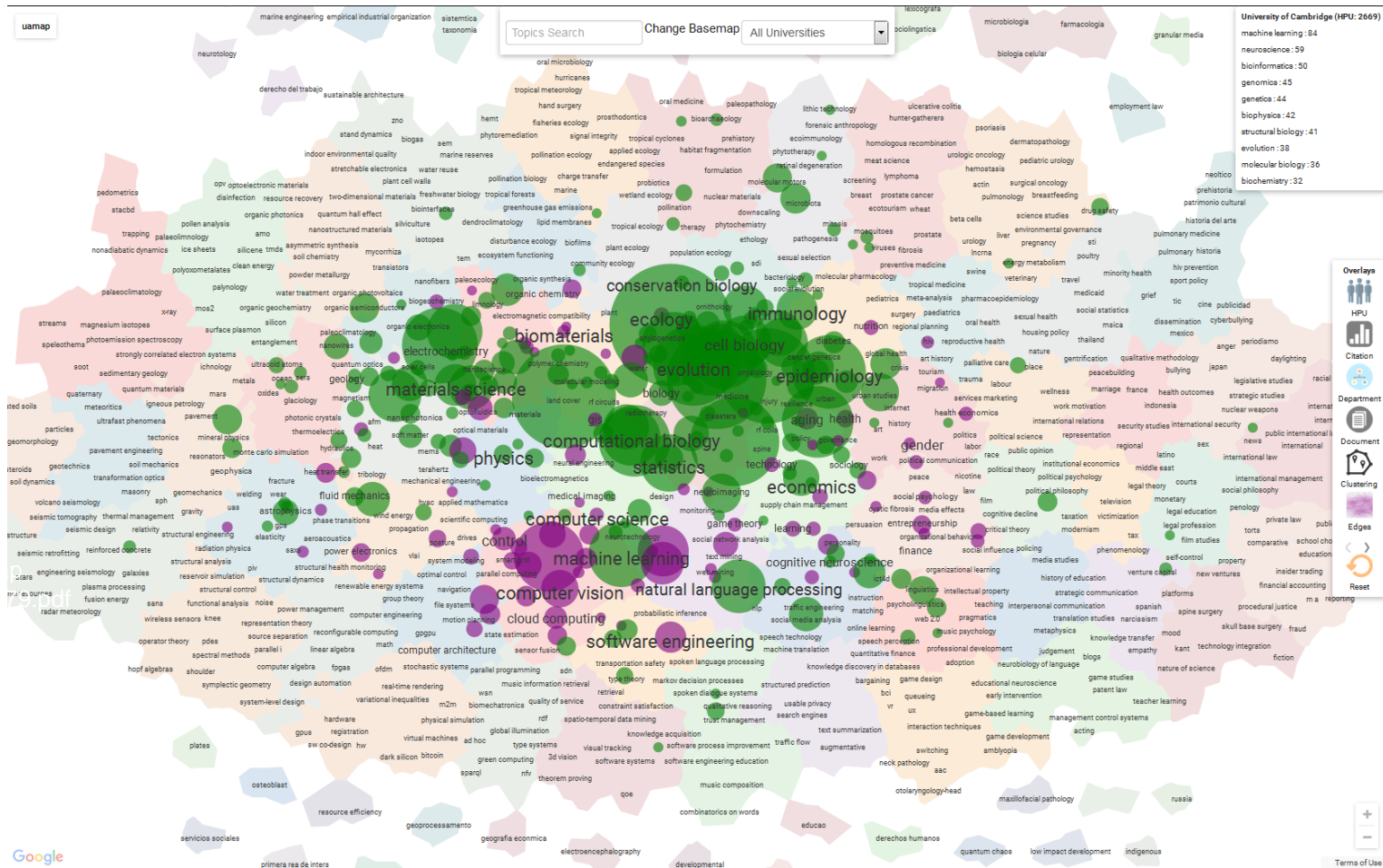
Disciplinary analysis



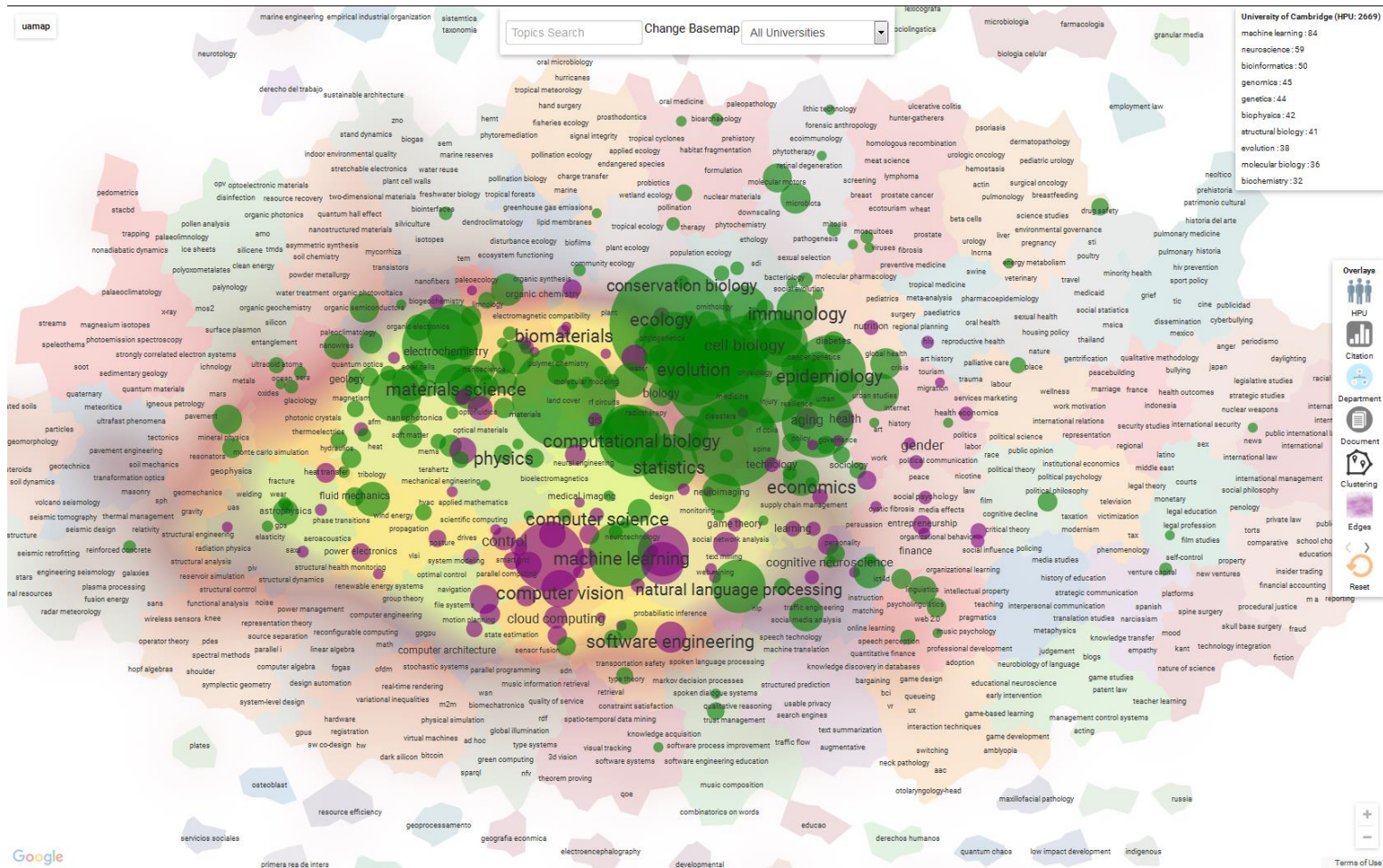
Research Capability maps

- Increased need for comparison with other HEI
- Benchmarking
- Assessment
- External data?
 - Curation? (staff, awards in particular)

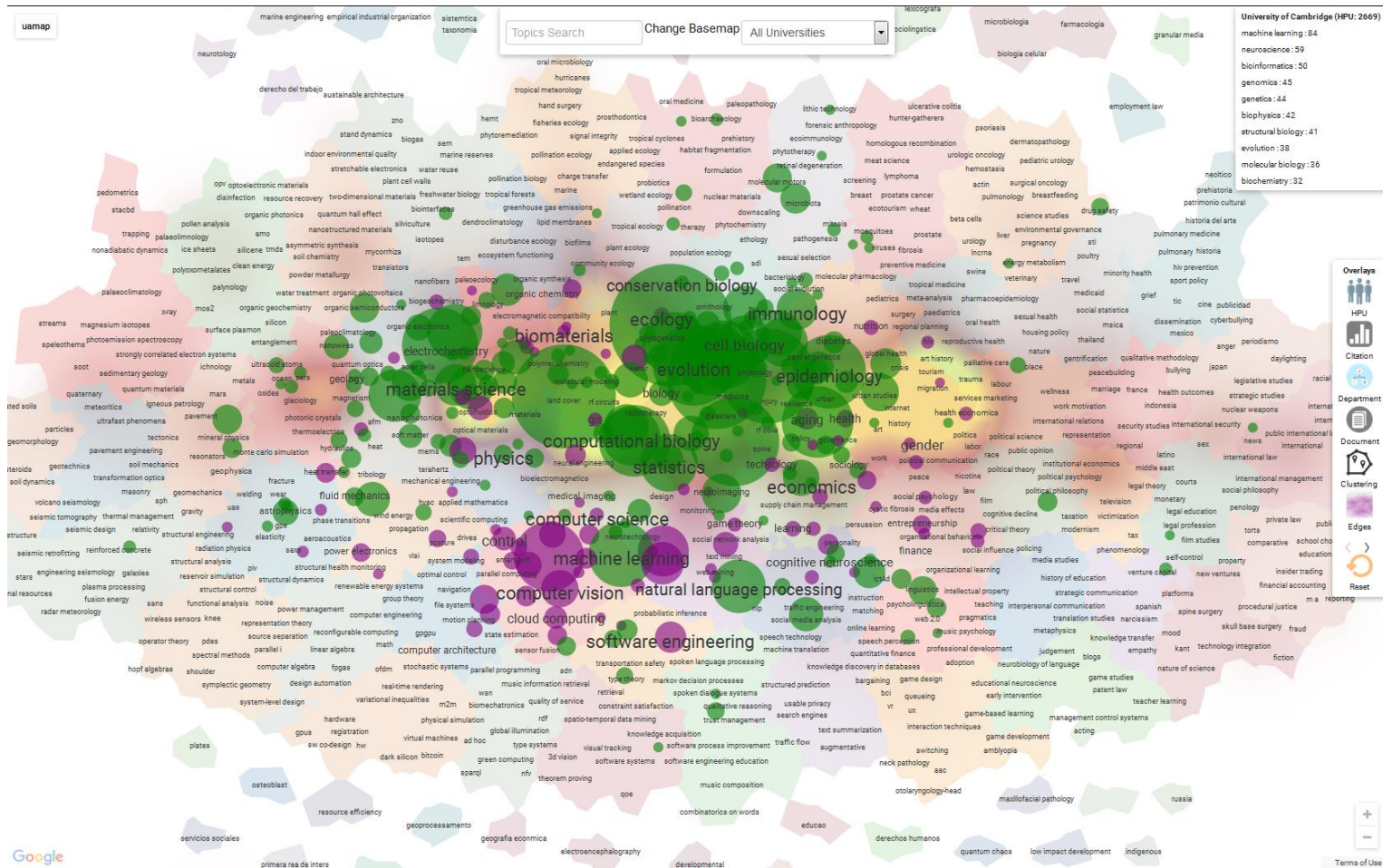
Cambridge Research Capability map



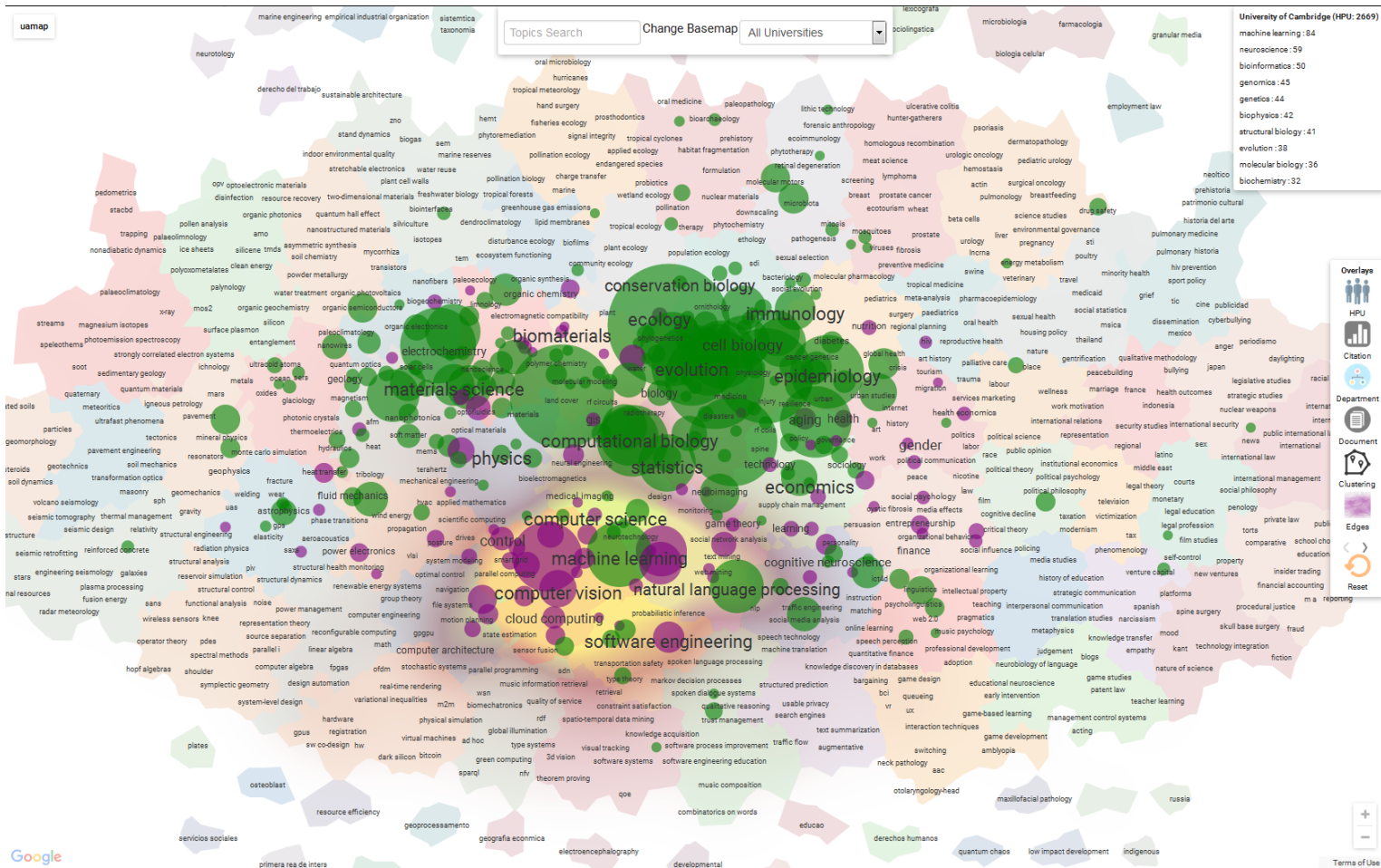
Overlay with Dept of Engineering



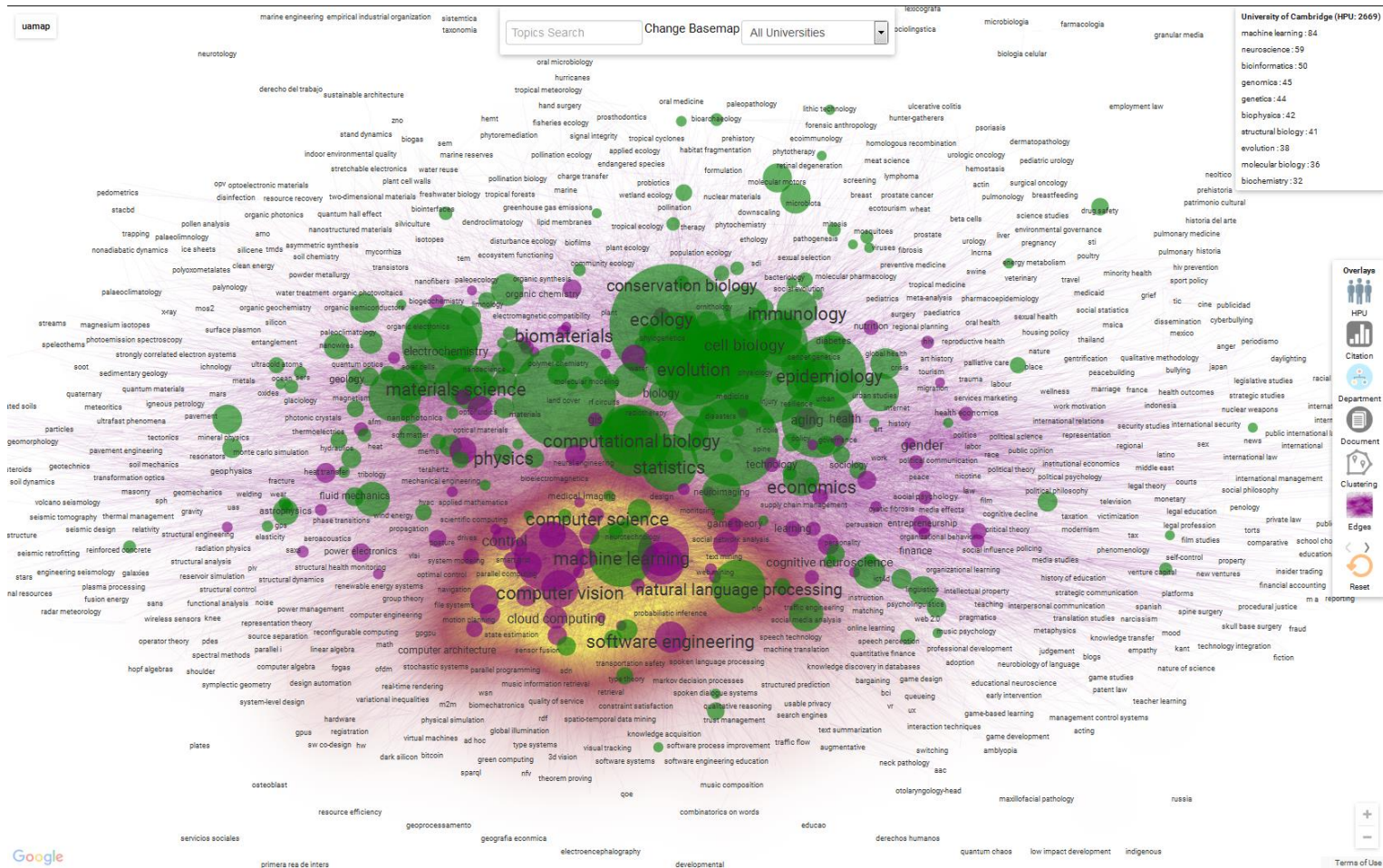
Overlay Dept Geography



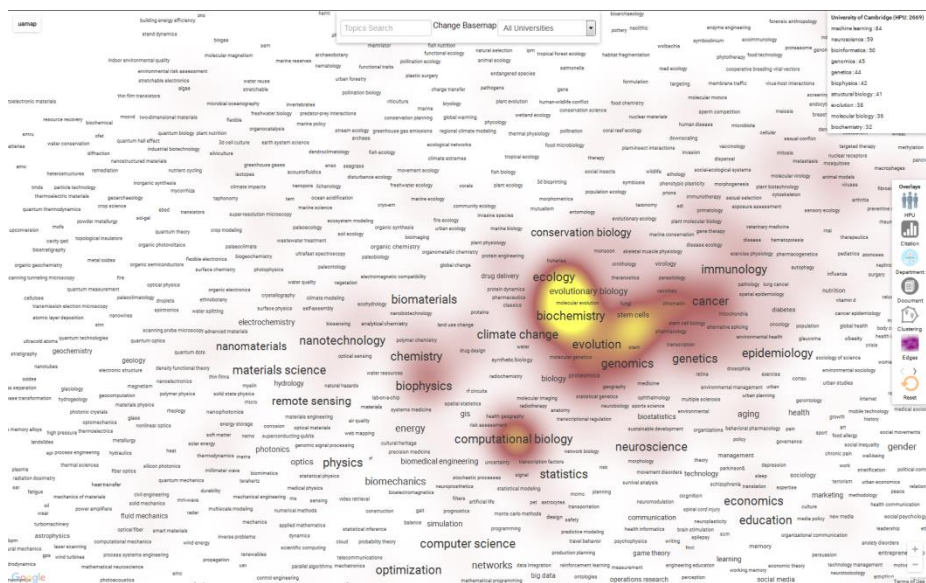
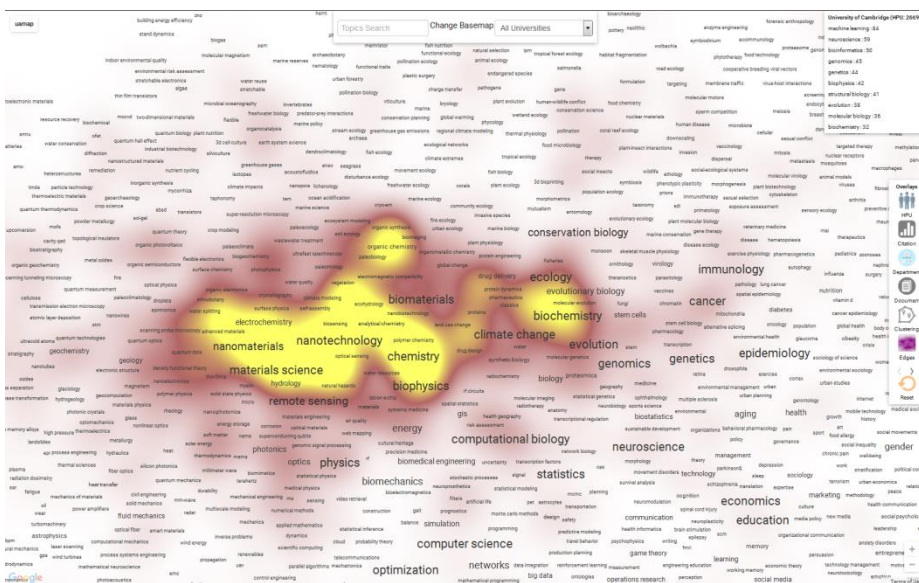
Computer Lab



Computer Lab - connections

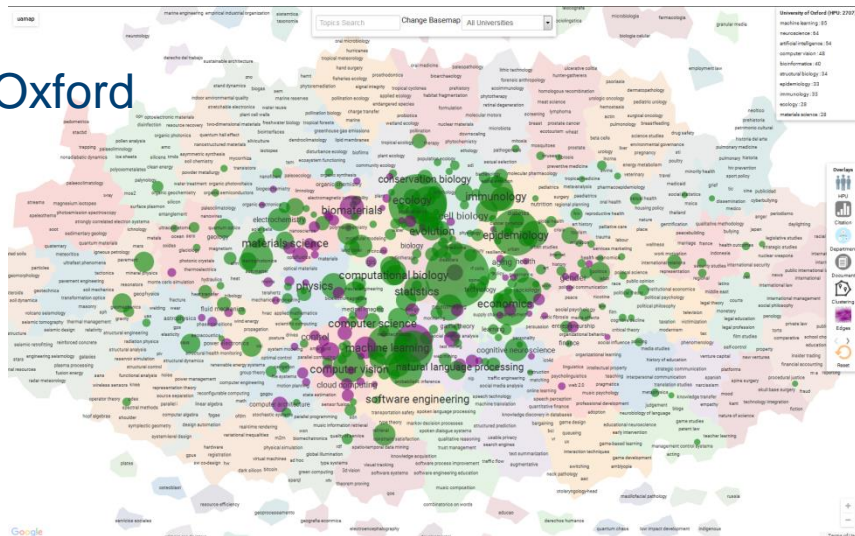


Dept Chemistry vs Dept of Biochemistry

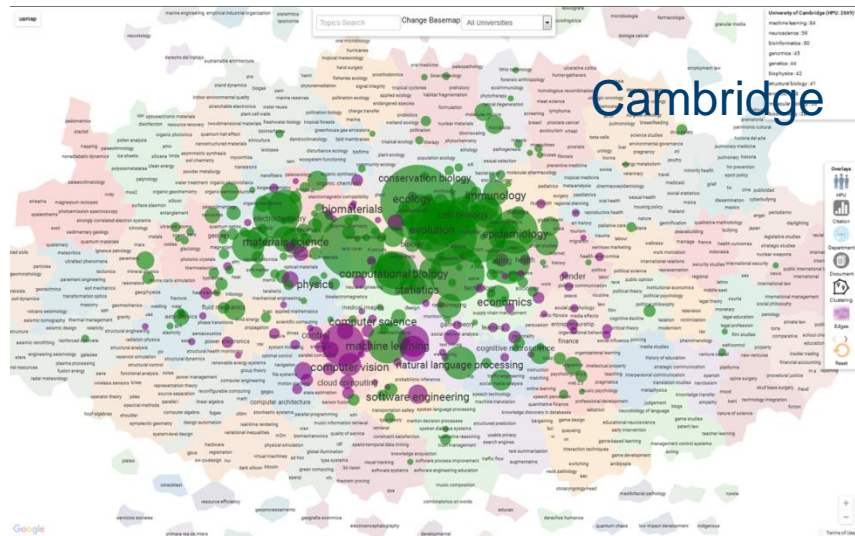


Institutional Comparisons?

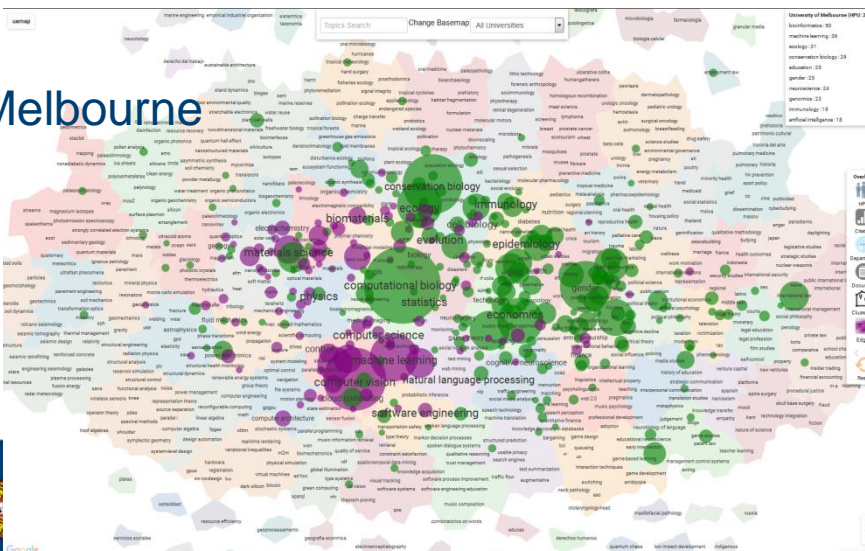
Oxford



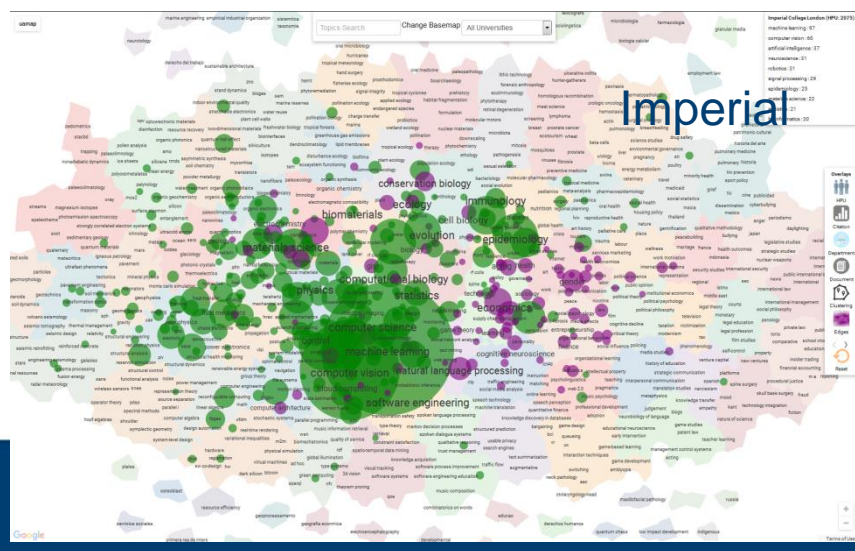
Cambridge



Melbourne



Imperial



Summary

- No single way of a Research profile for an Institution
- Driven by internal and external factors
- ‘Profiling’ is a hot topic with clear alternatives based on strategy and development effort
- VIVO: linked open data research discovery tool
- Capability maps
- Pressing need for visualisations of institutional knowledge graphs

Thank you very much for your attention.

Questions?