



nesta

An (increasingly) visible college

Mapping and strengthening research and innovation networks with open data in

Arloesiadur

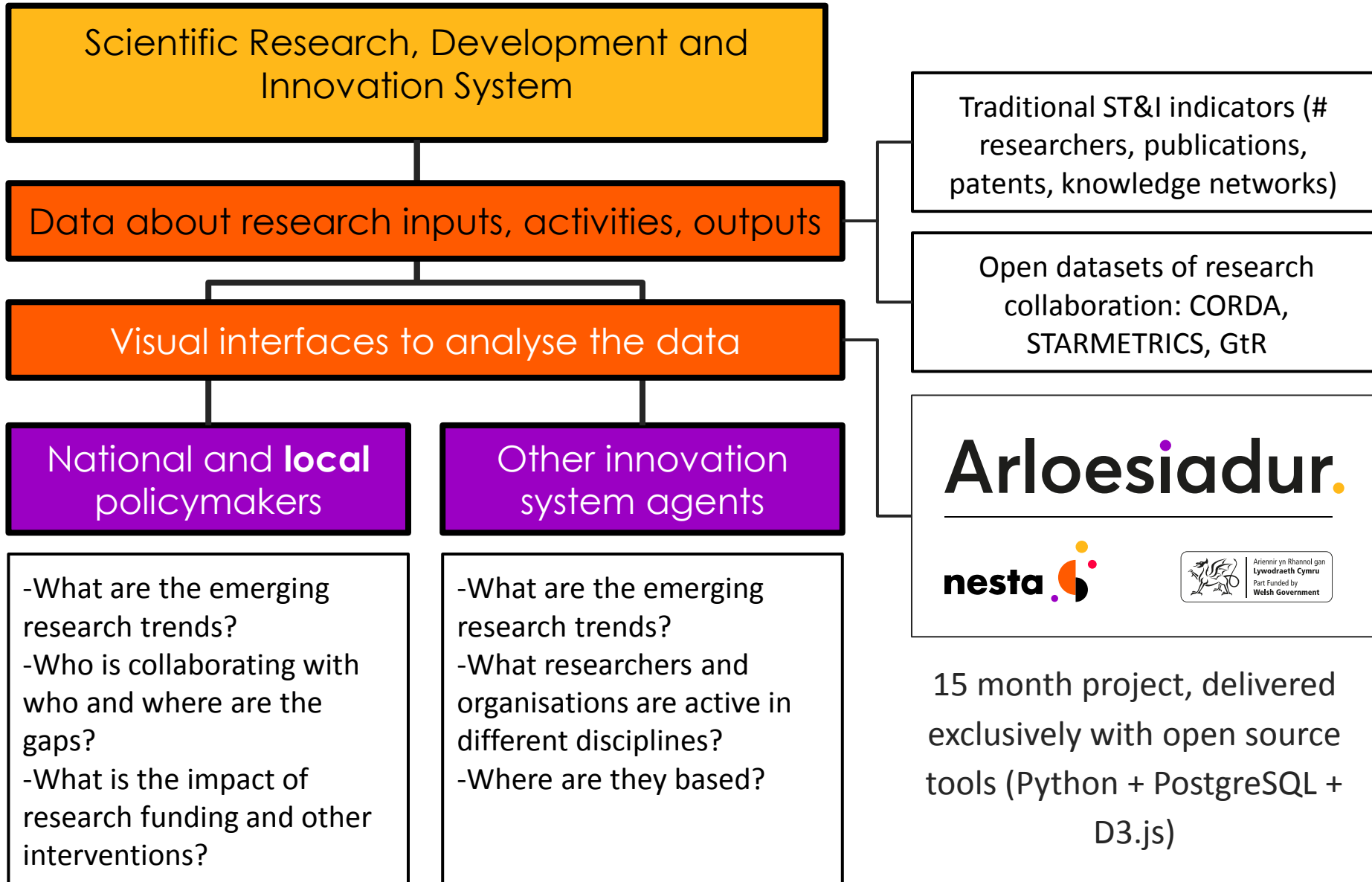
Juan Mateos-Garcia

Semantic Analysis for Innovation Policy Workshop

Paris

13 March 2018

Why this matters



The data we worked with

The screenshot shows the 'Gateway to Research' interface with the following details:

- Logos for RESEARCH COUNCILS UK and Innovate UK.
- Search bar with 'Search', 'All Data', and 'Advanced' buttons.
- Filter section: 'Please select the required search fields:' with checkboxes for ORCID ID, Project Abstract, Project Reference, and Project Title.
- Category counts: Projects (72238), Publications (609449), People (56386), Organisations (30905), Outcomes (297102).
- Refinement options: 'Refine by:' with sections for 'Project Status' (Active: 20416, Closed: 51822) and 'Funded Amount' (Up to £100K: 25995, £100K to £1M: 96394).
- Project results:
 - £80,727, Feb 08 - Jan 11: Gravity measurements of magma movements; detection of possible precursors to new eruption in Iceland. NERC award to Open University and Hazel Rymar.
 - £475,818, Jun 11 - Nov 14: Regulation of membrane fusion by a novel Sec1/Munc18-associated protein. BBSRC award to University of Glasgow and Michael Robert Blatt.

In May 2017 we collected data about ~75K GtR projects, organisations and funders, and geo-coded organisation location.

project_id	abstract_texts	research_topics	start_year	value_pounds	LAD13NM	name
http://gtr.rcuk.ac.uk:80/gtr/api/projects/FFF7...	The price of oil continues to increase and the...	{'text': 'Energy Storage', 'percentage': 50, ...}	2007	106109	Camden	University College London
http://gtr.rcuk.ac.uk:80/gtr/api/projects/FFF4...	The 12 May 2008 earthquake in Sichuan Province...	{'text': 'Tectonic Processes', 'percentage': ...}	2008	19492	County Durham	Durham University
http://gtr.rcuk.ac.uk:80/gtr/api/projects/FFF4...	The 12 May 2008 earthquake in Sichuan Province...	{'text': 'Tectonic Processes', 'percentage': ...}	2008	19492	Cheshire West and Chester	Shell UK Ltd

Analyse geographies

Analyse networks

Analyse topics

Analyse trends

Analysis 1: From text to trends

We used topic modelling (Latent Dirichlet allocation) and community detection to identify 88 topics in 45k papers with research topics / abstracts

'the use of **rfid technology** affords an opportunity for greater visibility in the **supply chain and further supply chain automation**, making the processes more streamlined, providing accurate and timely automatic **data** capture, thereby improving **shipment reliability**...

Infrastructure
Data analytics
...

Visualising what's going on

What are the research trends in Wales?

Wales has become more competitive in scientific and technological areas, with a particularly strong recent showing in Engineering and Technology, Medical Sciences and Mathematics and Computing, where projects led by Welsh organisations were awarded £71m in funding in 2015-16, compared with £55m in 2007-08.

RESEARCH TOPICS

Engineering and Technol. ▾

SHOW

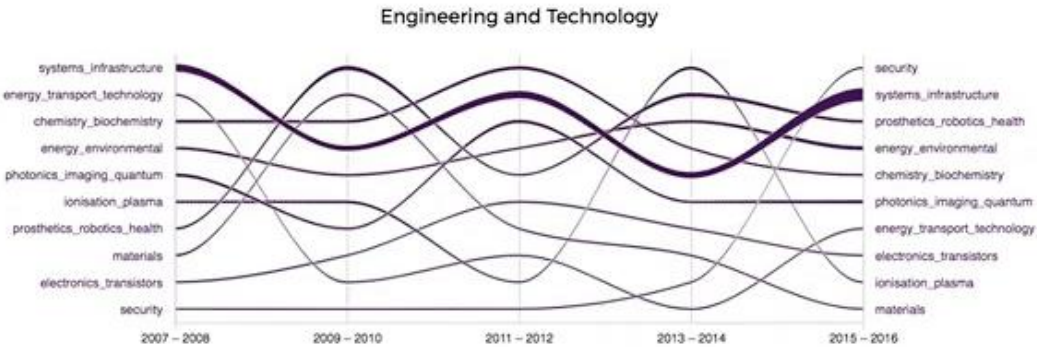
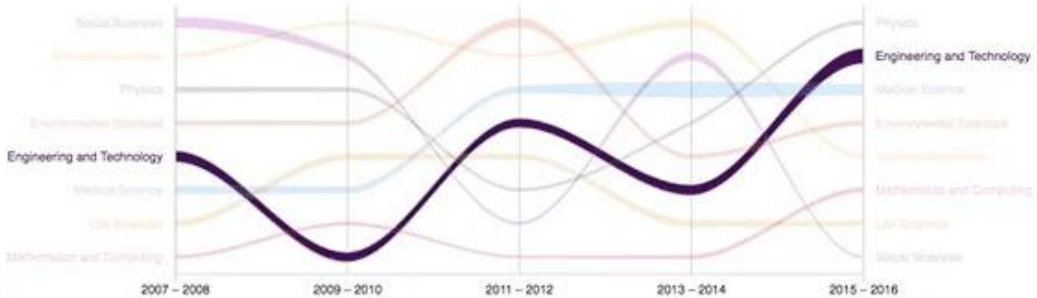
Funding

Project count

We measure performance in terms of the amounts of funding awarded to projects led by organisations in the location, and the number of projects funded. The thickness of the line represents the total amounts of funding obtained by those projects, and the numbers of projects funded.

LOCATION

Wales ▾



Analysis shows growth in priority areas for Welsh Government, highlights research specialisms in different parts of Wales



Analysis 2: Who's working with whom

What are the opportunities for collaboration in Welsh research networks?

Tech networking in Wales has been growing rapidly from 2014 onwards. Software and business development have attracted 75.33% of participants while the interest in applied data science has grown steadily. Cardiff's Meetup community is growing across all topics, while the rest of the local authorities specialise in specific fields.

COLLABORATION NETWORK

Select an organisation to explore connections.

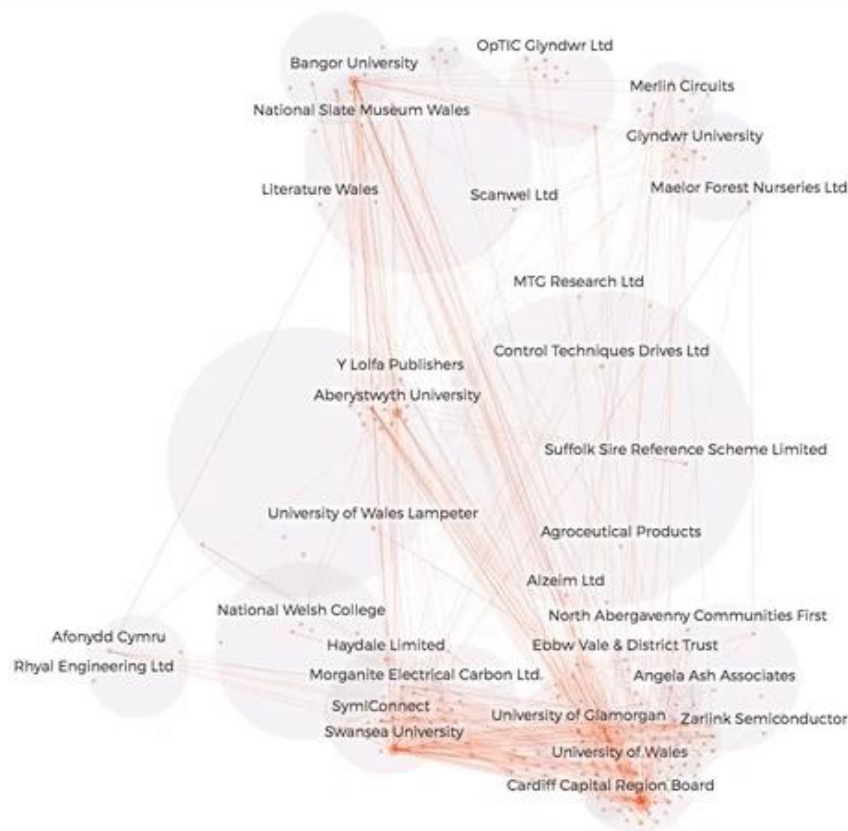
- Number of projects the organisation participates in
- Number of collaborative projects
- - - A potential collaborator
- - - based on past project records
- Local authority district

RESEARCH TOPIC

All

ORGANISATIONS

Search for organisation



We mapped existing research collaborations between organisations in Wales and used their specialisms to recommend other potential collaborators

To conclude:

Arloesiadur launched mid-October

We have shown:

- Significant opportunities to use open datasets like GtR to inform R&I policy at many different levels...
- ...but opening data up is only the beginning.
- We have to work with policymakers to understand their needs, use data science and visualisation to address them and consider what innovations in R&I policy (new processes and instruments) are enabled by new data

Watch this space!

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