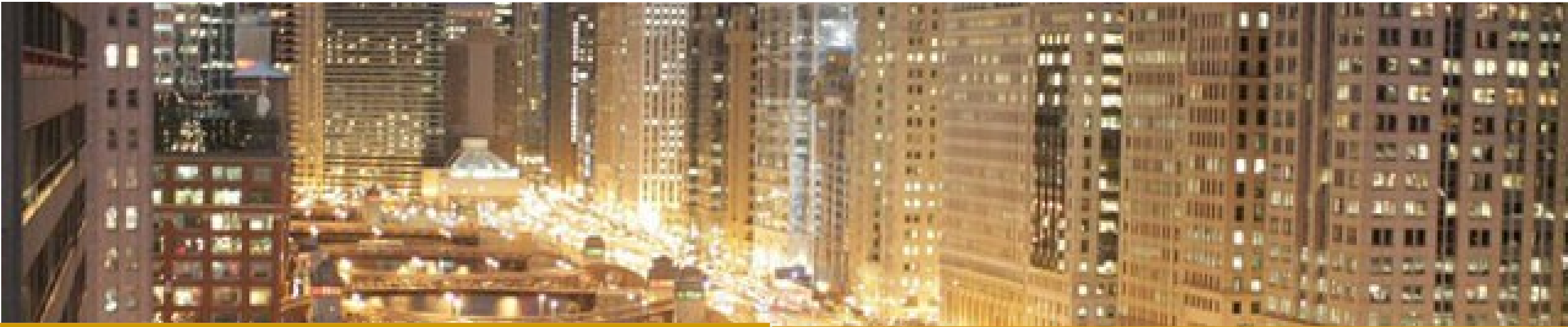Elsevier Research Intelligence

Integrating Disparate Research Data Sets: Mashups, Visualizations, and Spaghetti Graphs

National Academy of Sciences
SBIR/STTR and the Commercialization Challenge
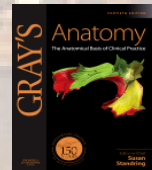12 April 2016

Daniel Calto
Director of Solution Services
Research Intelligence, Elsevier

ELSEVIER

Empowering Knowledge

Elsevier – A Unique Vantage Point on the Global World of Research

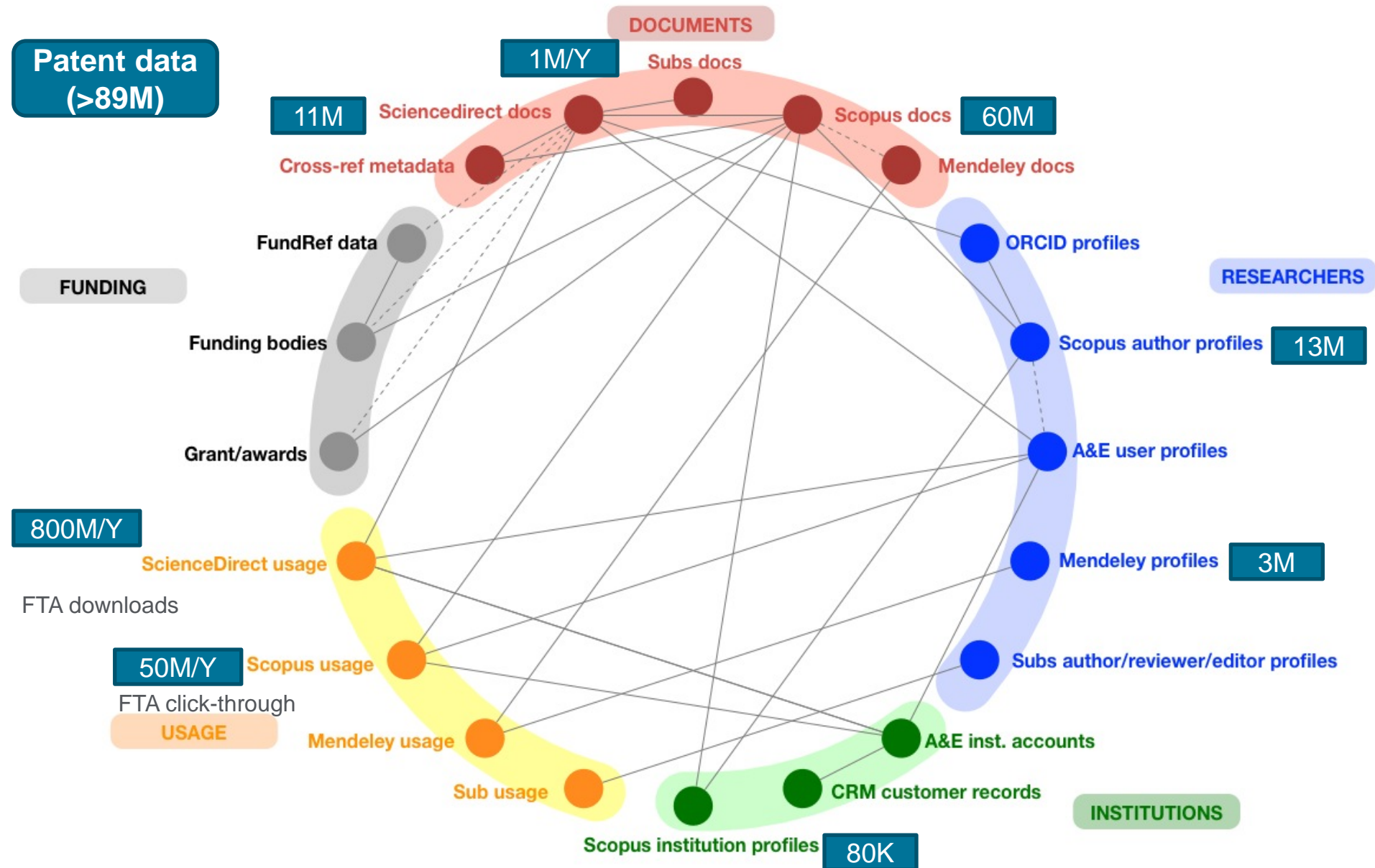## Elsevier – From publisher to solution provider

- Serving 30 million+ scientists, students, health and information professionals in 180+ countries

- 2,500 E-journals, 2,000 E-books published each year, dozens of research databases

- RELX (Reed Elsevier), the largest digital company in Europe

Each year

- 1+ million manuscripts submitted to 2,500+ Elsevier journals

- 300,000+ articles published

- 800 million digital article downloads delivered

- 22,000+ journals, >2 million articles per year tracked by Scopus (>60M articles in total)

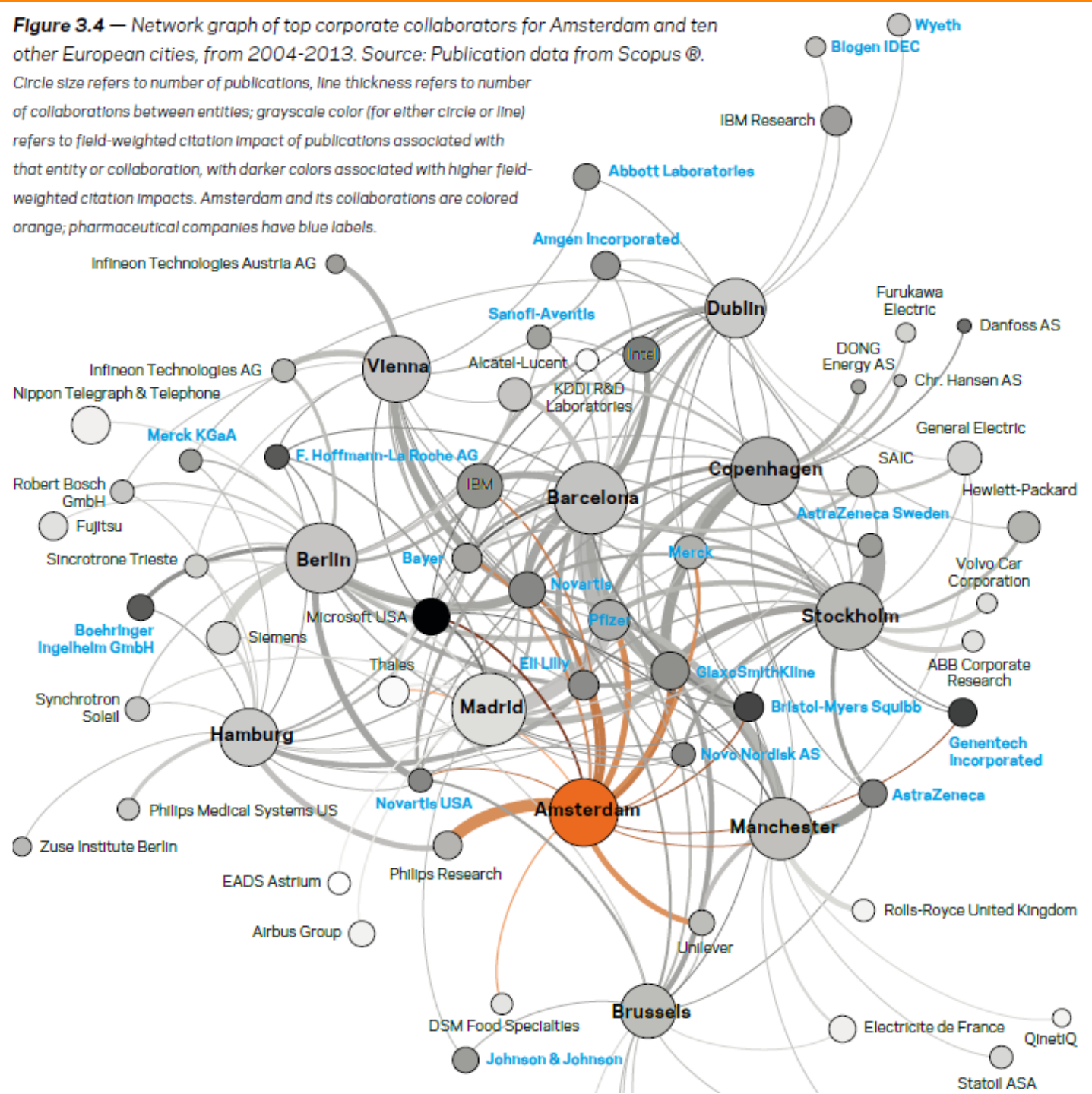- Terabytes of data in the Elsevier Research Intelligence suite

What Data Do We Bring to the Table?

Patent data (>89M)

DOCUMENTS

- Subs docs
- Sciencedirect docs — 11M
- Scopus docs — 60M
- 1M/Y
- Cross-ref metadata
- Mendeley docs

FUNDING
- FundRef data
- Funding bodies
- Grant/awards

USAGE
- ScienceDirect usage — 800M/Y
- FTA downloads
- Scopus usage — 50M/Y
- FTA click-through
- Mendeley usage
- Sub usage

RESEARCHERS
- ORCID profiles
- Scopus author profiles — 13M
- A&E user profiles
- Mendeley profiles — 3M
- Subs author/reviewer/editor profiles

INSTITUTIONS
- A&E inst. accounts
- CRM customer records
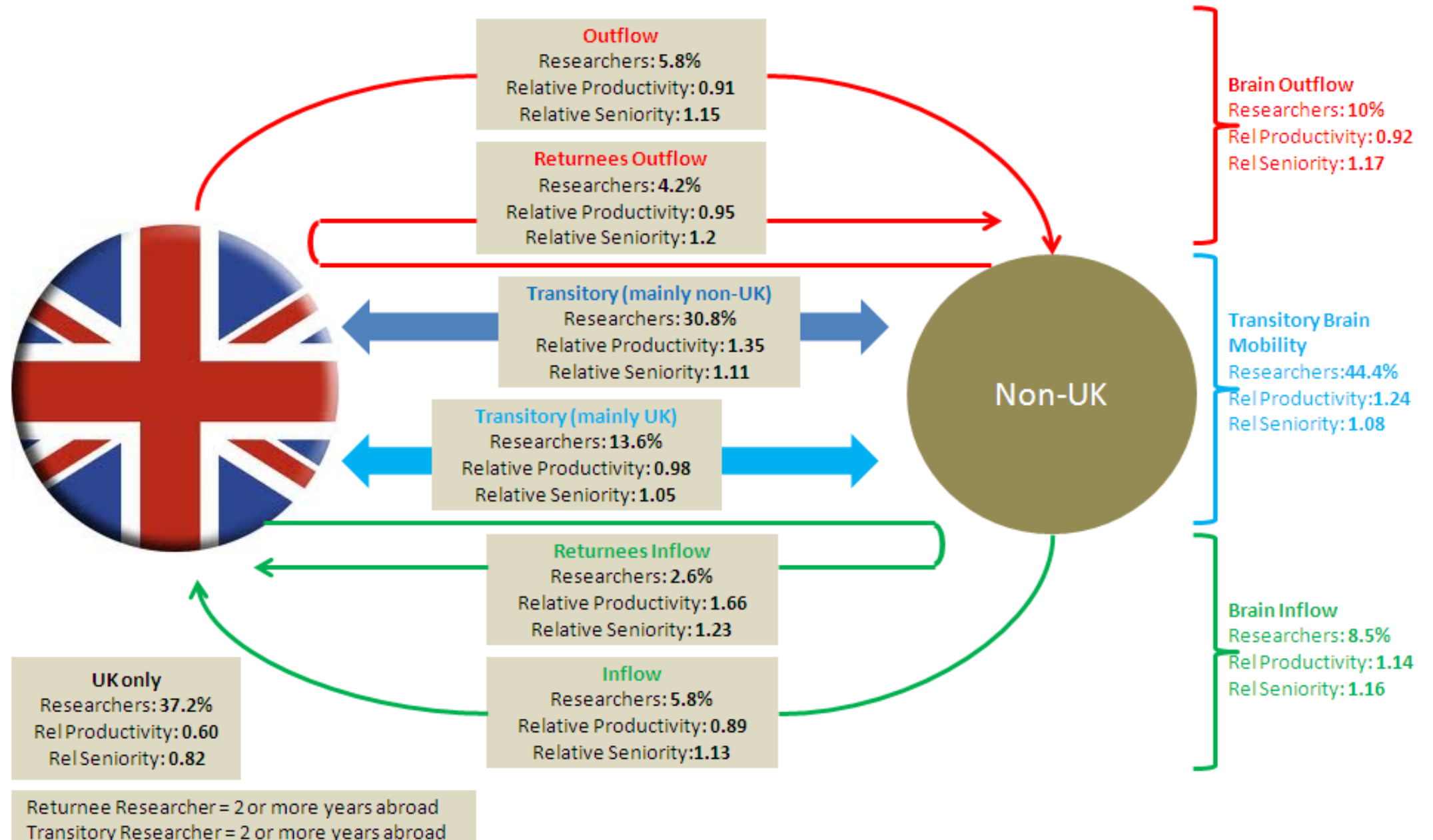- Scopus institution profiles — 80K

Amsterdam as Knowledge Hub vs. 10 Comparator Cities

- All pubs from Amsterdam and 10 other metro-area universities co-authored with industry

- Initial analysis showed Amsterdam has comparative advantage vs. peers in biomedical research in terms of overall field-weighted citation impact

- Research Q: How are Amsterdam and peer cities connected to major life sciences and other firms?

Figure 3.4 — Network graph of top corporate collaborators for Amsterdam and ten other European cities, from 2004-2013. Source: Publication data from Scopus ®. Circle size refers to number of publications, line thickness refers to number of collaborations between entities; grayscale color (for either circle or line) refers to field-weighted citation impact of publications associated with that entity or collaboration, with darker colors associated with higher field-weighted citation impacts. Amsterdam and its collaborations are colored orange; pharmaceutical companies have blue labels.

Monitoring brain circulation—UK map

Outflow
Researchers: **5.8%**
Relative Productivity: **0.91**
Relative Seniority: **1.15**

Returnees Outflow
Researchers: **4.2%**
Relative Productivity: **0.95**
Relative Seniority: **1.2**

Brain Outflow
Researchers: **10%**
Rel Productivity: **0.92**
Rel Seniority: **1.17**

Transitory (mainly non-UK)
Researchers: **30.8%**
Relative Productivity: **1.35**
Relative Seniority: **1.11**

Non-UK

Transitory Brain Mobility
Researchers: **44.4%**
Rel Productivity: **1.24**
Rel Seniority: **1.08**

Transitory (mainly UK)
Researchers: **13.6%**
Relative Productivity: **0.98**
Relative Seniority: **1.05**

Returnees Inflow
Researchers: **2.6%**
Relative Productivity: **1.66**
Relative Seniority: **1.23**

Brain Inflow
Researchers: **8.5%**
Rel Productivity: **1.14**
Rel Seniority: **1.16**

UK only
Researchers: **37.2%**
Rel Productivity: **0.60**
Rel Seniority: **0.82**

Inflow
Researchers: **5.8%**
Relative Productivity: **0.89**
Relative Seniority: **1.13**

Returnee Researcher = 2 or more years abroad
Transitory Researcher = 2 or more years abroad

City Portal – Comparative Analysis of Top 50 Global Research Cities

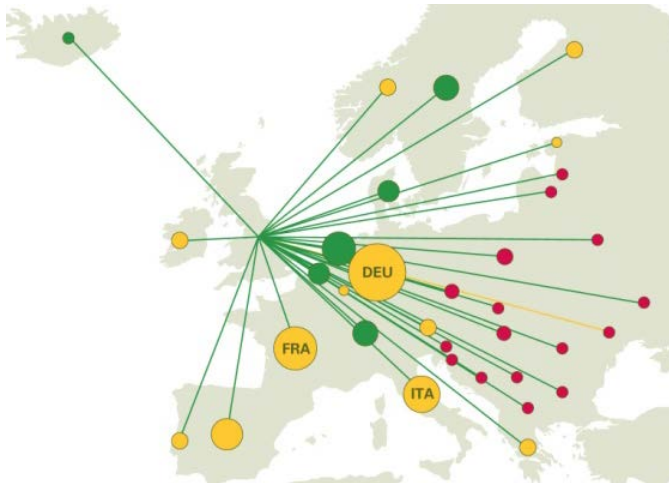http://cityportal.scivalanalytics.com/report/view/theme/2/indicator/4/output/chart/

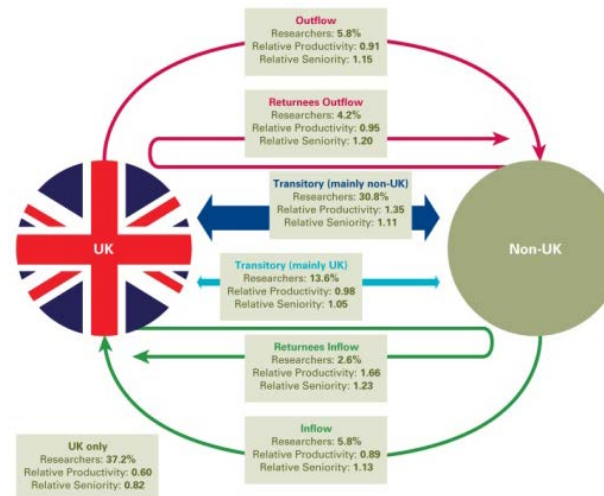# BIS Report: Quantitative Inputs

International **Comparative Performance** of the UK Research Base – **2013**

A report prepared by Elsevier for the UK's Department of Business, Innovation and Skills (BIS)

Data

- Scopus
- ScienceDirect usage
- OECD
- HESA
- WIPO
- AUTM
- HEFCE

- 112 database tables, 2.3 Gigabytes
- 20MM+ articles, 200MM+ citations, 3B downloads
- 45MM indicator values
- Largest indicator: 6MM+ values

Analyses

Collaboration networks

Brain Circulation

Highly-Cited Articles (ex. US)

7

Pure Experts State Portals—Texas and Michigan Systems

http://influuent.utsystem.edu

https://mcrn.pure.elsevier.com/