AESIS SEMINAR 2019

Knowledge Exchange Structures for Impact

16 May, Oxford

AESIS

NETWORK FOR ADVANCING & EVALUATING THE SOCIETAL IMPACT OF SCIENCE

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WIFI:

_The Cloud
(registration required)

Welcome

AESIS

NETWORK FOR
ADVANCING & EVALUATING THE SOCIETAL IMPACT OF SCIENCE

Sharon Ellis

Director of Research Services
Queen Mary University of London

Knowledge Exchange Structures for Impact

A one-day seminar on collaboration between universities and industries as key players for driving economic development

16th May 2019

University of Oxford

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NETWORK FOR
ADVANCING & EVALUATING THE SOCIETAL IMPACT OF SCIENCE

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Queen Mary
University of London

Agenda

9:00 **Registration with coffee and tea**

9:30 **Welcome by AESIS and Elsevier**

9:35 **Opening by the chair:**
Dr Sharon Ellis *Director of Research Services, Queen Mary University of London*

Introduction
Current policy frameworks for Research and Knowledge Exchange

10:00 **Dr Phil Clare** *Deputy Director, Research Services (Knowledge Exchange and Engagement), University of Oxford*

Knowledge transfer, collaboration and regional stakeholders – including interactive debate / discussion

11:00 **Break**

11:30 **Dr Lesley Thompson** *Vice President, Academic & Government Strategic Alliance in the UK, Elsevier*
Dr Maria de Kleijn *Senior Vice President Analytical Services, Elsevier*

Analytical Services and assessing excellence, collaboration and impact

12:15 **Interactive debate / exercise**

Agenda *continued*

12:45	**Lunch**
13:45	**Dr Martin Sadler** *Special Advisor to the Vice Chancellor on Industrial Strategy, University of Bristol* **Dr Maddy Nichols** *COO of Spin Up Science* **Foster a scientific innovation ecosystem through entrepreneurship and strategies for collaboration with industries**
14:30	**Interactive debate / exercise with Martin Sadler, Maddy Nichols**
15:00	**Break**
15:30	**Alice Frost** *Director Knowledge Exchange, Research England* **The role of the Knowledge Exchange Framework (KEF)**
16:00	**Interactive exercise / debate**
16:30	**Panel debate chaired by Sharon Ellis, Phil Clare, Lesley Thompson, Maria de Kleijn, Martin Sadler, Maddy Nichols and Alice Frost**
17:15	**Closing by the Chair: Sharon Ellis**
17:30	**Reception**

Purpose of today

- Understanding the purpose and use of the Knowledge Exchange Framework in the UK
- Exploring different public, private and academic role taking
- Learning strategies for positioning your institution based on strengths in impact of science

Former Science Minister Jo Johnson signing a UK-US Science and Technology Agreement with US Acting Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs Judith G Garber on the 20th September 2017, marking the first umbrella agreement between the United States and United Kingdom.

Knowledge Exchange & KEF

- Much depends on individual culture in and at the top of HEIs
- Industrial Strategy
- Treasury viewpoint
- Encourage and incentivise, not demotivate commercial interests
- Explore partnerships with business through the KEF process

Phil Clare

Deputy Director, Research Services (Knowledge Exchange and Engagement), University of Oxford

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Knowledge Exchange – Strategy and Outcomes in a world of KEF and KEC

Dr Phil Clare – Deputy Director, Research Services
(Knowledge Exchange and Engagement)

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Knowledge Exchange

"A set of activities, processes and skills that enable close collaboration between universities and non-academic partners to deliver commercial, environmental, cultural and societal benefits, opportunities for students and economic growth"

KEC Consultation

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Knowledge Exchange

"How I help my University make a difference"

What to say at parties

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Introduction

- Just in case you don't know the person next to you

1 Minute

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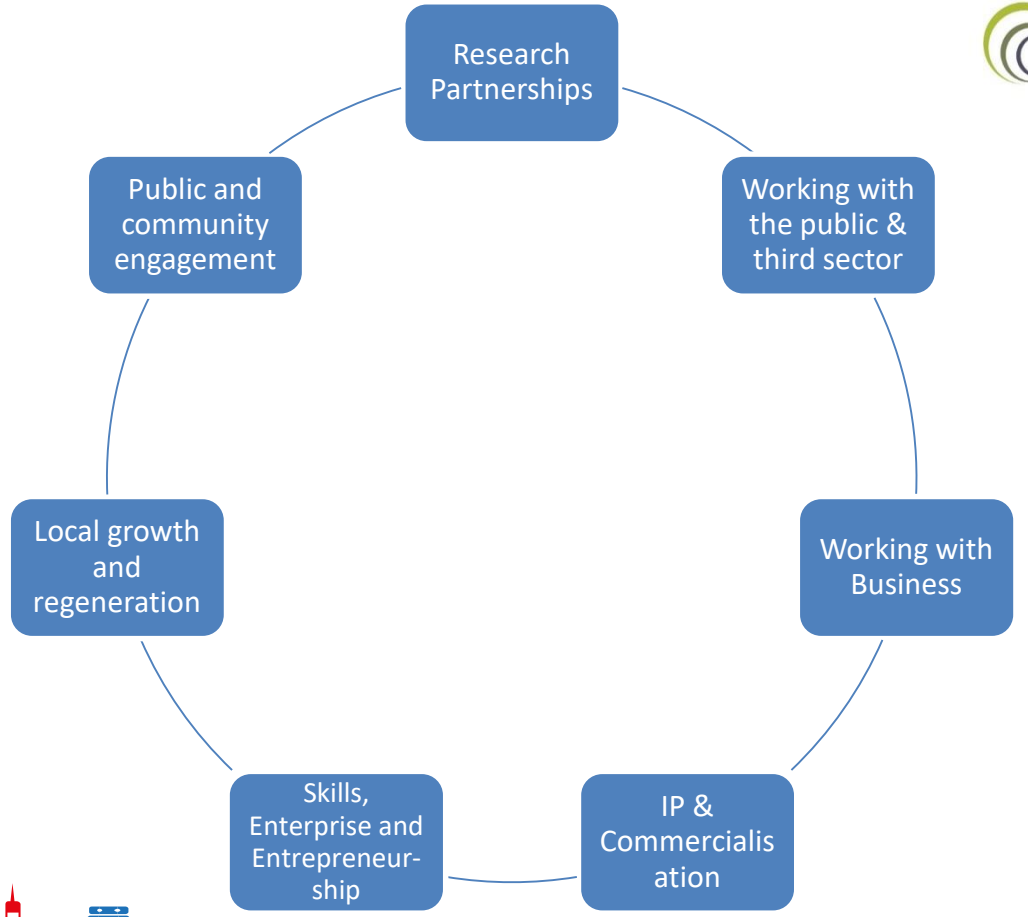
7 Perspectives

Research England



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Perspective	Measure	HEBCI	Other	Narrative
Research partnerships	• Contribution to collaborative research (cash and in-kind) as proportion of public funding • Co-authorship with non-academic partners as a proportion of total outputs	✓	✓	
Working with business	• Innovate UK income (KTP and grant) as proportion of research income • Contract research income with businesses per academic FTE • Consultancy income with businesses per academic FTE	✓ ✓	✓	
Working with the public & third sector	• HE-BCI contract research income with the public and third sector per academic FTE • HE-BCI Consultancy income with the public and third sector per academic FTE	✓ ✓		
Skills, enterprise & entrepreneurship	• HE-BCI CPD/CE income per academic FTE • HE-BCI CPD/CE learner days delivered per academic FTE • HE-BCI Graduate start-ups rate by student FTE	✓ ✓ ✓		
Local growth and regeneration	• Regeneration and development income from all sources per academic FTE • Additional narrative/contextual information	✓		✓
IP and commercialisation	• Research resource (income) per spin-out • Average external investment per formal spin-out Licensing and other IP income as proportion of research income	✓ ✓ ✓		
Public & community engagement	• Time per academic staff FTE committed to public and community engagement (paid and free) across: Events, Performances ,Museums and galleries • Additional narrative/contextual information	✓		✓

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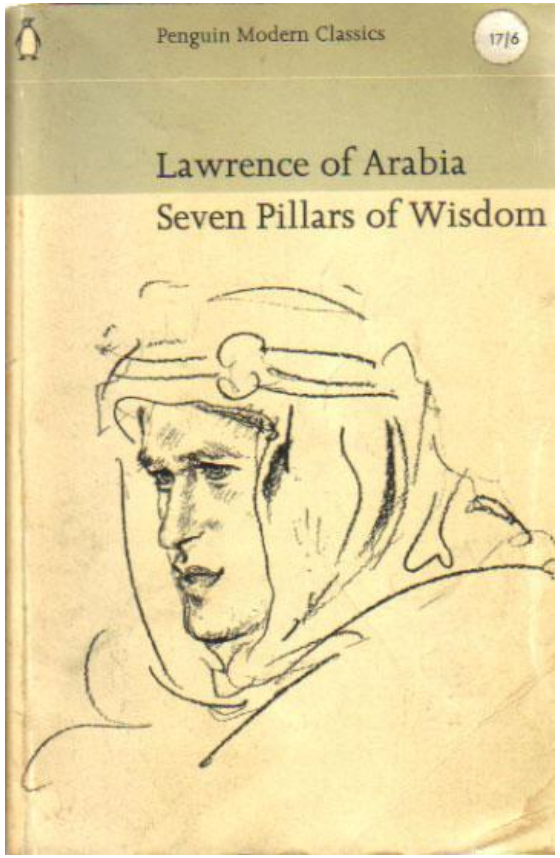

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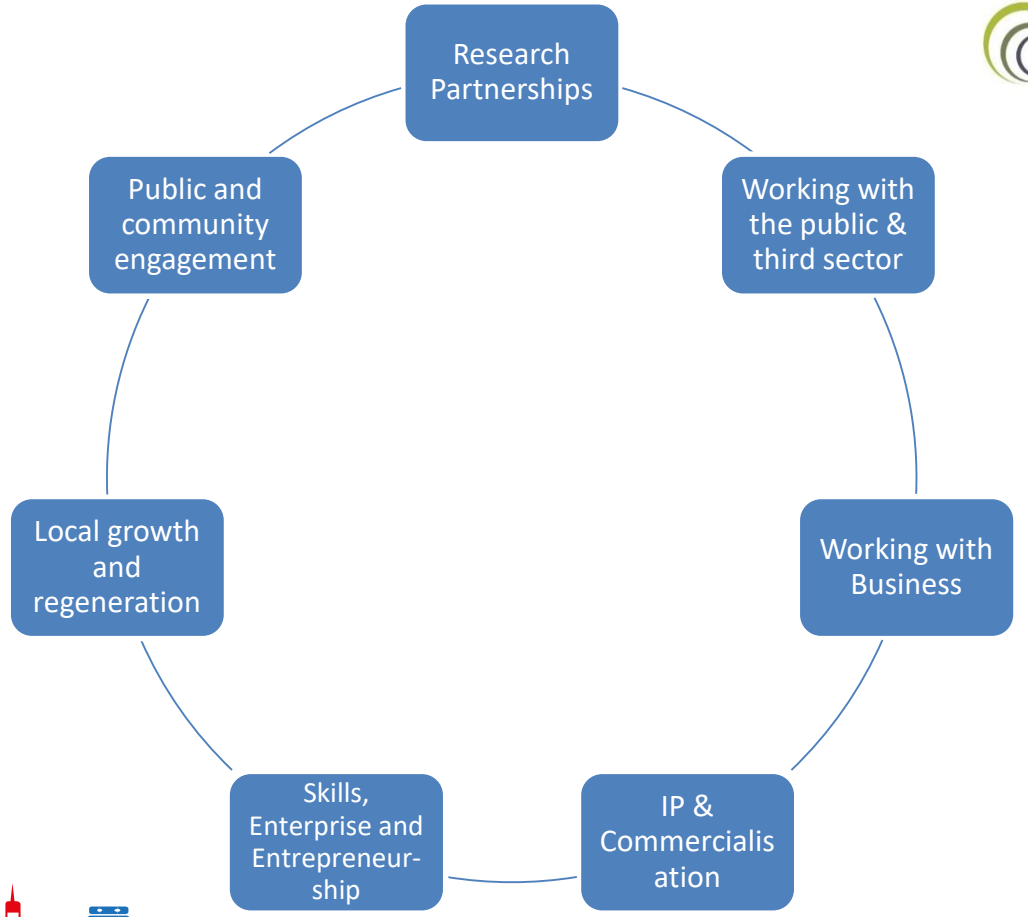
7 Perspectives

Research England



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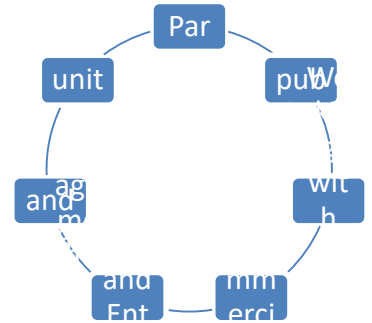
Strategic Priorities

- Which is your organization's top priority?
- Are there any with zero priority?
- Which are the lowest priority?
- Instant reaction please

2 Minutes



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Project Management Triangle

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Strategic Priorities

- Critical Priorities
  - Time and Objectives set
- Important Priorities
  - Resources fixed, Time or Objectives variable
- Desirable Priorities
  - Resources and Time both variable

D Lidow, Harvard Business Review, Feb 13 2017

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KE Priorities

- Do you have Critical Priorities?
- Which are your Important Priorities?
- Which are your Desirable Priorities?

10 Minutes

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Resources

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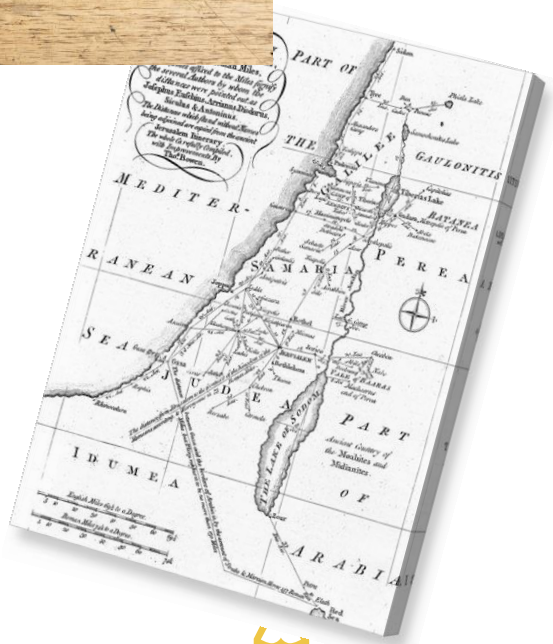
Resources



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Skills & Knowledge – Planning and Execution

- Project Management
- Communications
- Negotiation
- Legal and Contracts
- Finance
- etc

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Skills & Knowledge – Needs

For your Important and Critical Priorities

- What skills are required?
- Do you have them?
- What are the gaps?

5 Minutes

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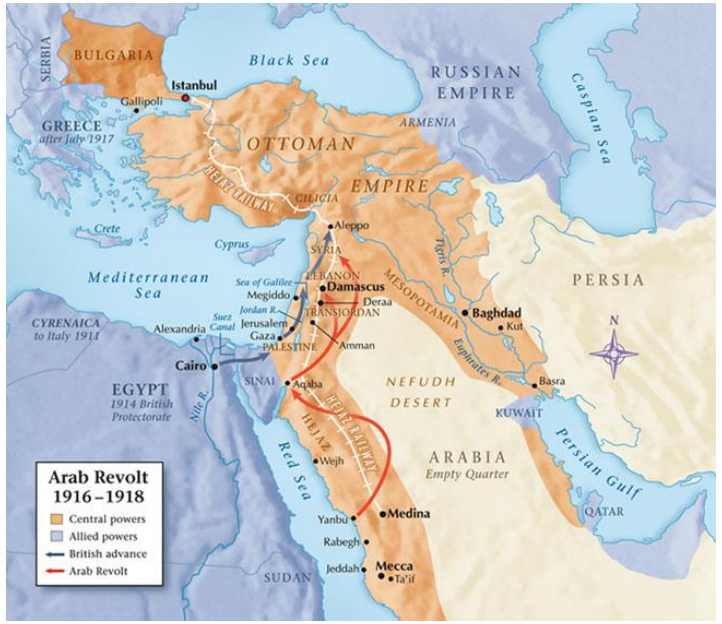
Alignment of Goals



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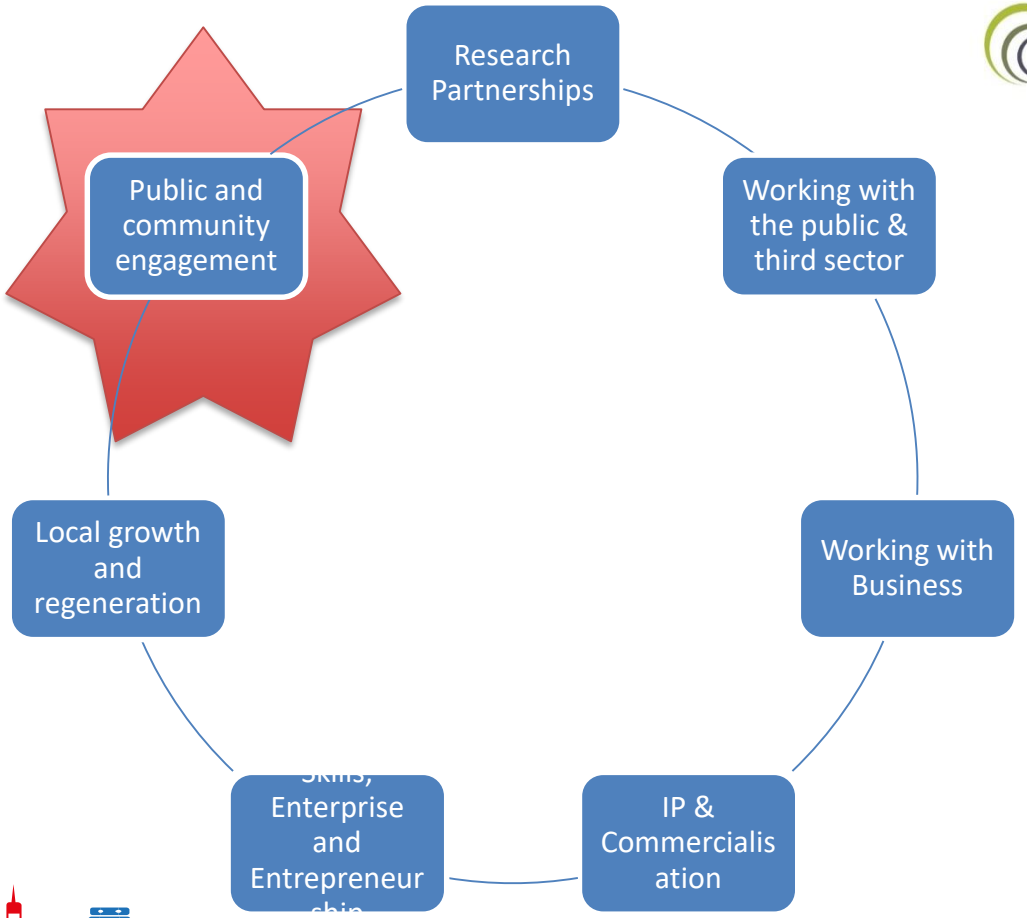
7 Perspectives



Research England

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Priorities - Oxfordshire

- Growth (or not)
- Clean air
- Housing
- Jobs
- Transport
- Social Inclusion
- Universities as Employer, Innovator, Leader, Partner, Purchaser

Outcomes - Oxfordshire

- Shared understanding of University contribution to the Economy – Innovation as shared goal
- Innovation Engine Report
- Green Paper, Communications
- Science and Innovation Audit
- Oxfordshire Innovation Strategy

- **Joint Projects**

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Alignment of Goals

For one of your Critical or Important Priorities:

Who are your external stakeholders?

What are their goals?

How sure are you and why?

10 Minutes

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Summary

- Identify and classify priorities, assign resources
- Ensure team have the required skills and knowledge (or investment to acquire them)
- Identify external shareholders
- Understand their goals
- Construct Joint Projects
- Blow up the railway

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Thankyou

Phil.clare@admin.ox.ac.uk

BREAK

11:00 – 11:30

Lesley Thompson

Vice President, Academic & Government Strategic Alliance in the UK, Elsevier

&

Maria de Klein

Senior Vice President Analytical Services, Elsevier

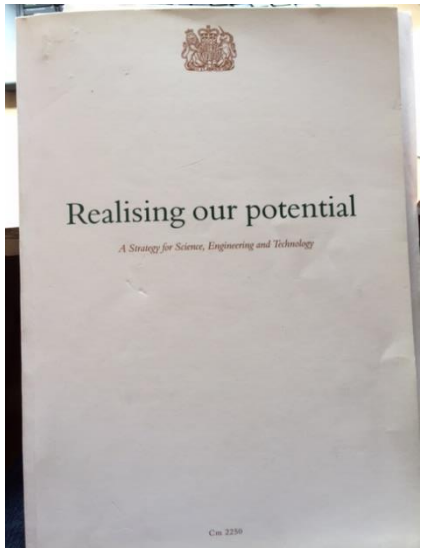
Analytical Services and assessing excellence, collaboration and impact

AESIS-16 June 2019

Maria de Kleijn & Lesley Thompson

1993

Realising our potential.



- Explicit focus on wealth creation and quality of life
- Revised Research Council structure
- Research Councils missions reformulated

2017

Industrial strategy.

- Focus on Productivity
- Research core
- UKRI- Innovation and Research formed
- Grand Challenges and Places

Steadily Increasing focus on Excellence and Impact

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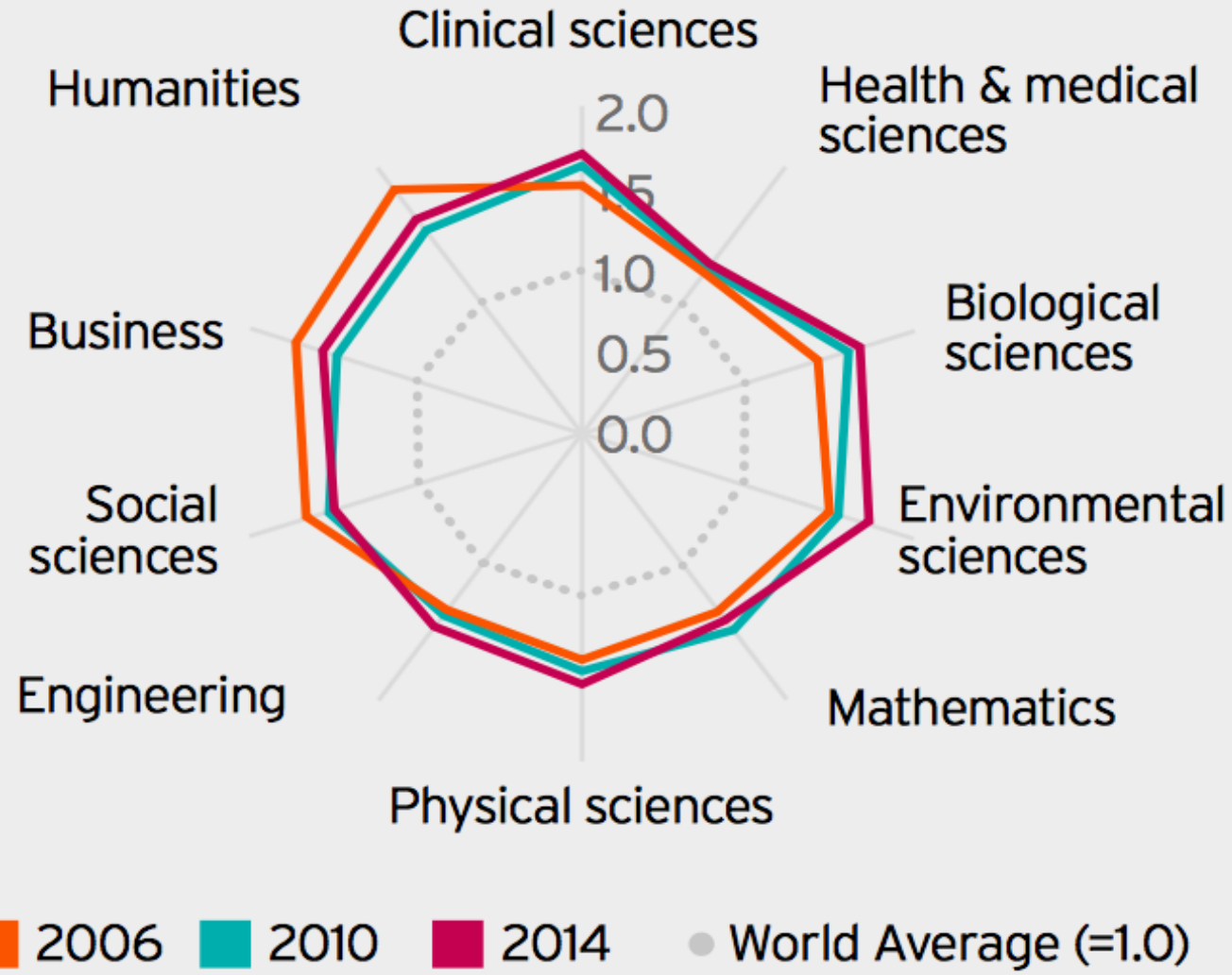
Impact of UK's focus on Impact?

THES- University Rankings

Rank	University	Rank	University
1	University of Oxford	13	University of Pennsylvania
2	University of Cambridge	14	UCL
3	Stanford University	15	University of California, Berkeley
4	MIT	16	Columbia University
5	California Institute of Technology	17	University of California, LA
6	Harvard University	18	Duke University
7	Princeton University	19	Cornell University
8	Yale University	20	University of Michigan-Ann Arbor
9	Imperial College London	21	University of Toronto
10	University of Chicago	22	Tsinghua University
11	ETH Zurich	23	National University Singapore
12	John Hopkins University	24	Carnegie Mellon

The UK research base across research fields

UK field-weighted citation impact across research fields



UK is a successful broad spectrum research nation

Source: Elsevier (2017) *"International comparative performance of the UK Research Base 2016"*. A field-weighted citation impact of 1.0 represents

Looking forward

University of Oxford

Collaboration

+ Add to Reporting Shortcuts

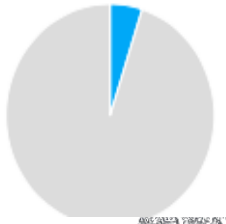
Publications at the University of Oxford, by amount of international, national and institutional collaboration

Metric		Publications	Citations	Citations per Publication	Field-Weighted Citation Impact
International collaboration	57.8%	49,565	1,003,053	20.2	2.74
Only national collaboration	16.7%	14,309	174,661	12.2	1.88
Only institutional collaboration	11.1%	9,519	131,284	13.8	1.93
Single authorship (no collaboration)	14.4%	12,385	54,370	4.4	1.33

Academic-Corporate Collaboration

+ Add to Reporting Shortcuts

Publications at the University of Oxford with both academic and corporate author affiliations



Metric		Publications	Citations	Citations per Publication	Field-Weighted Citation Impact
Academic-corporate collaboration	5.0%	4,305	152,766	35.5	5.11
No academic-corporate collaboration	95.0%	81,473	1,210,602	14.9	2.15

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GSK Top Collaborating Institutions

Top collaborating Institutions

by number of publications co-authored with GlaxoSmithKline

+ Add to Reporting | Export | Shortcuts

	Institution	Co-authored publications	Citations received for co-authored publications	Co-authors	Field-Weighted Citat...
1.	University College London	342 ▲	11,327	818 ▼	4.26
2.	Imperial College London	297 ▲	10,456	559 ▲	4.48
3.	Harvard University	297 ▼	16,820	626 ▼	6.93
4.	Pfizer	294 ▲	5,022	339 ▲	2.84
5.	University of Cambridge	285 ▼	9,868	534 ▼	3.87
6.	AstraZeneca	223 ▲	3,874	237 ▲	2.76
7.	University of Oxford	218 ▼	12,658	488 ▼	6.81
8.	University of Manchester	208 ▼	6,659	279 ▲	4.68
9.	Merck	188 ▲	2,909	321 ▲	3.30
10.	Research Triangle Institute International	182 ▲	2,932	380 ▲	2.19

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Queen Mary University of London

Queen Mary University of London

119th (QS) · 130th (THE) · 151-200 (ARWU) | United Kingdom | More details on this Institution

2013 to >2018 | no subject area filter selected | ASJC | Data sources

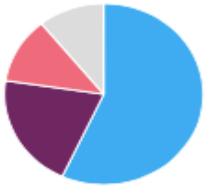
Summary | Topics & Topic Clusters | Collaboration | Published | Viewed | Cited | Authors | Economic Impact | Societal Impact | Awarded Grants

Overall | Top collaborating Institutions

Collaboration

+ Add to Reporting | Shortcuts

Publications at the Queen Mary University of London, by amount of international, national and institutional collaboration



Metric		Publications	Citations	Citations per Publication	Field-Weighted Citation Impact
International collaboration	56.9%	13,311	247,072	18.6	2.79
Only national collaboration	20.5%	4,792	52,002	10.9	1.85
Only institutional collaboration	11.8%	2,758	23,322	8.5	1.39
Single authorship (no collaboration)	10.8%	2,517	7,658	3.0	1.00

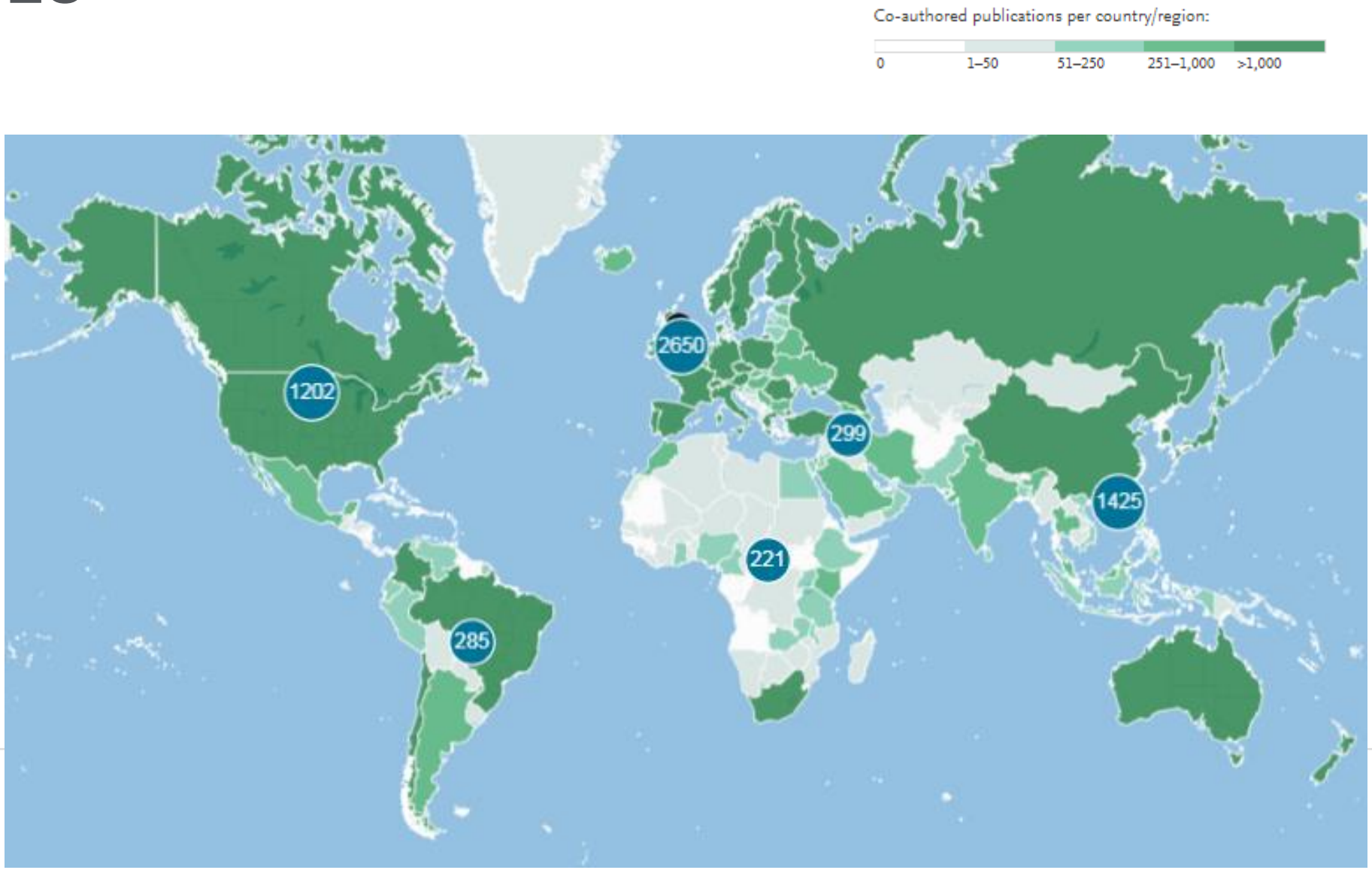
Academic-Corporate Collaboration

+ Add to Reporting | Shortcuts

Publications at the Queen Mary University of London with both academic and corporate author affiliations

Metric		Publications	Citations	Citations per Publication	Field-Weighted Citation Impact
Academic-corporate collaboration	5.2%	1,218	58,466	48.0	7.45

University of Oxford Global collaborations map 2013-2018



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University of Oxford corporate collaborations map 2013-2018

Institution	Co-authored publication
GlaxoSmithKline	225
Rolls-Royce	133
AstraZeneca	122
Atomic Weapons Establishment	45
Unilever	43
Johnson Matthey Plc	28
Jaguar Land Rover	17
National Nuclear Laboratory	17
Centre for Economic Policy Research, London	15
Immunocore	15

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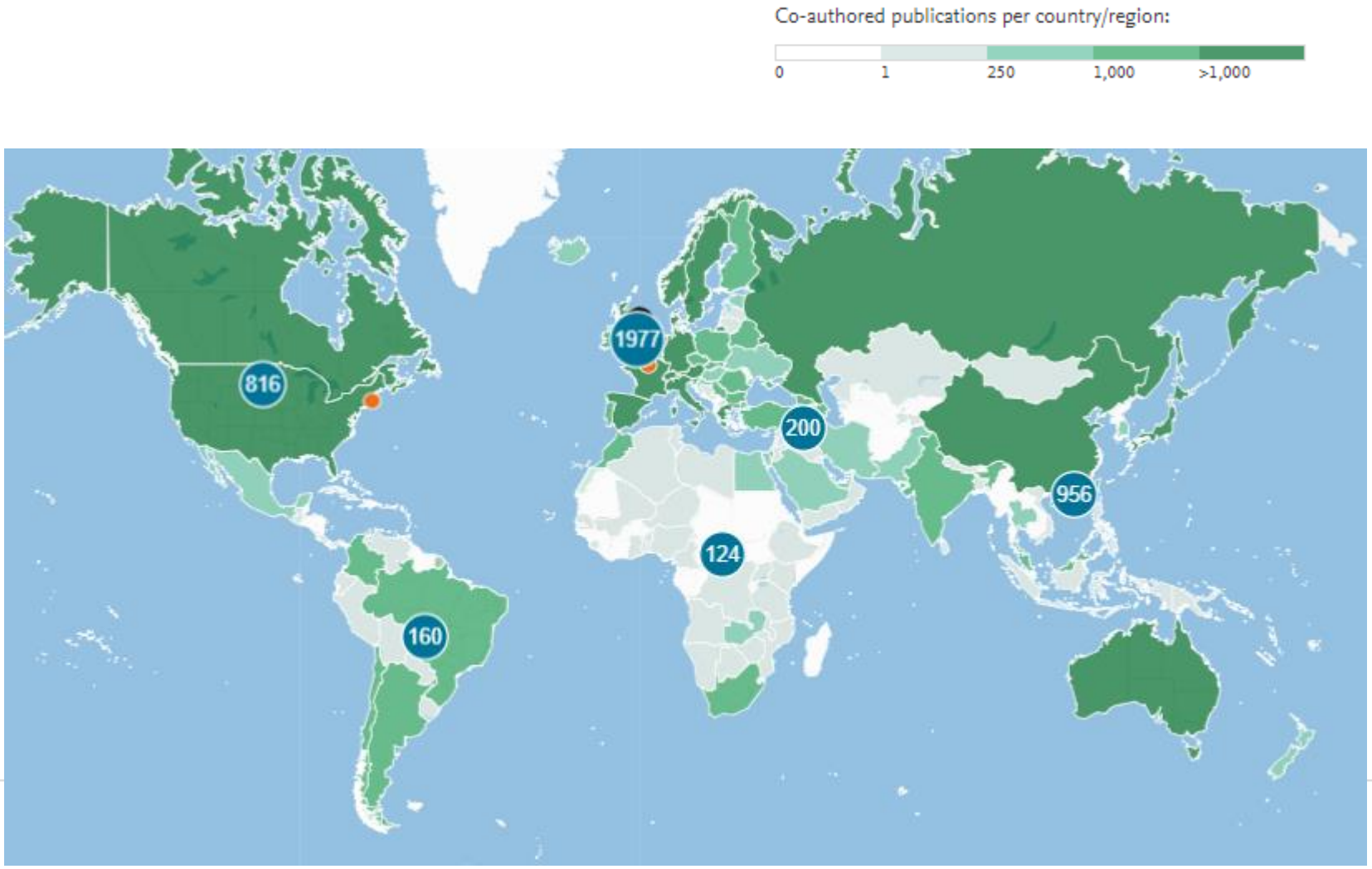
University of Oxford collaboration % of UK region output

Region	Output	Oxford outputs	%
Greater London	336,890	16,502	4.90%
South East England	206,703	80,779	39.08%
Scotland	137,279	5,206	3.79%
North West England	118,826	4,839	4.07%
East of England	118,285	6,697	5.66%
Yorkshire & the Humber	100,293	3,514	3.50%
South West England	88,394	4,119	4.66%
West Midlands	82,937	4,337	5.23%
East Midlands	75,944	2,228	2.93%
North East England	50,909	1,667	3.27%
Wales	44,985	1,516	3.37%
Northern Ireland	23,248	591	2.54%

QMUL Global collaborations map 2013-2018



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QMUL corporate collaborations map 2013-2018

Institution	Co-authored publications
GlaxoSmithKline	113
Nanoforce Technology	62
AstraZeneca	53
BBC	20
BP plc	13
European Thermodynamics	12
Centre for Economic Policy Research, London	11
Rolls-Royce	10
Unilever	6
BAE Systems	5

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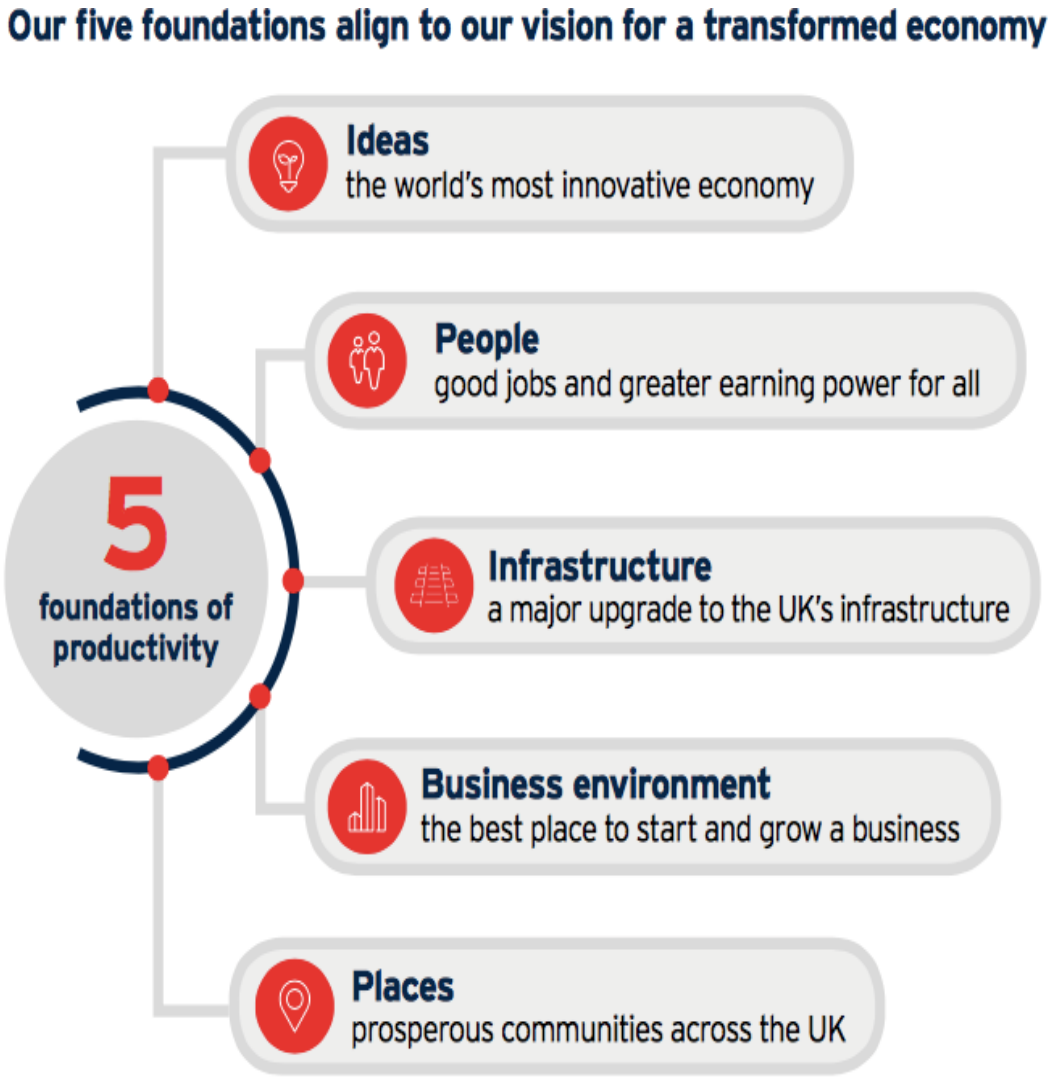
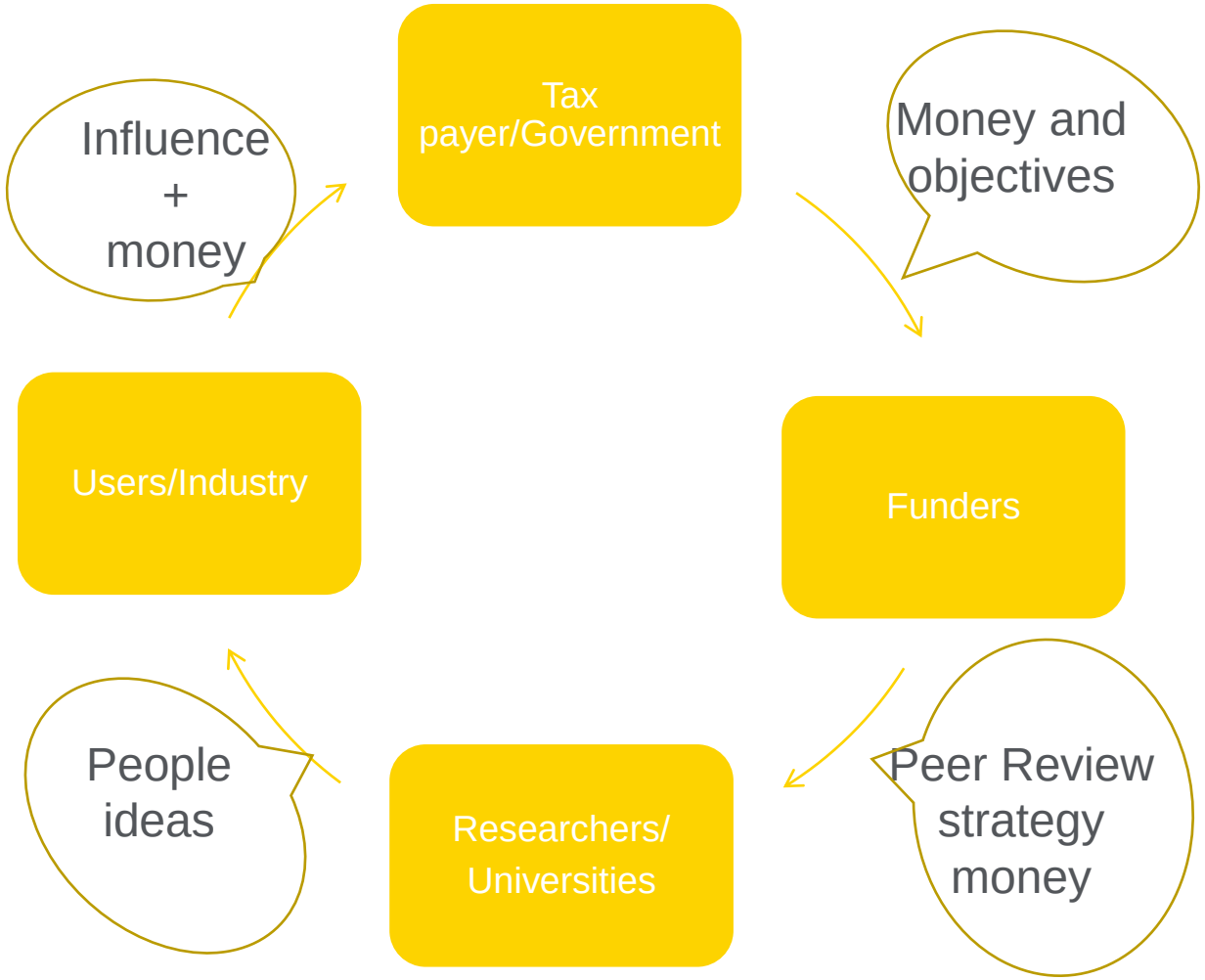
QMUL collaboration % of UK region output

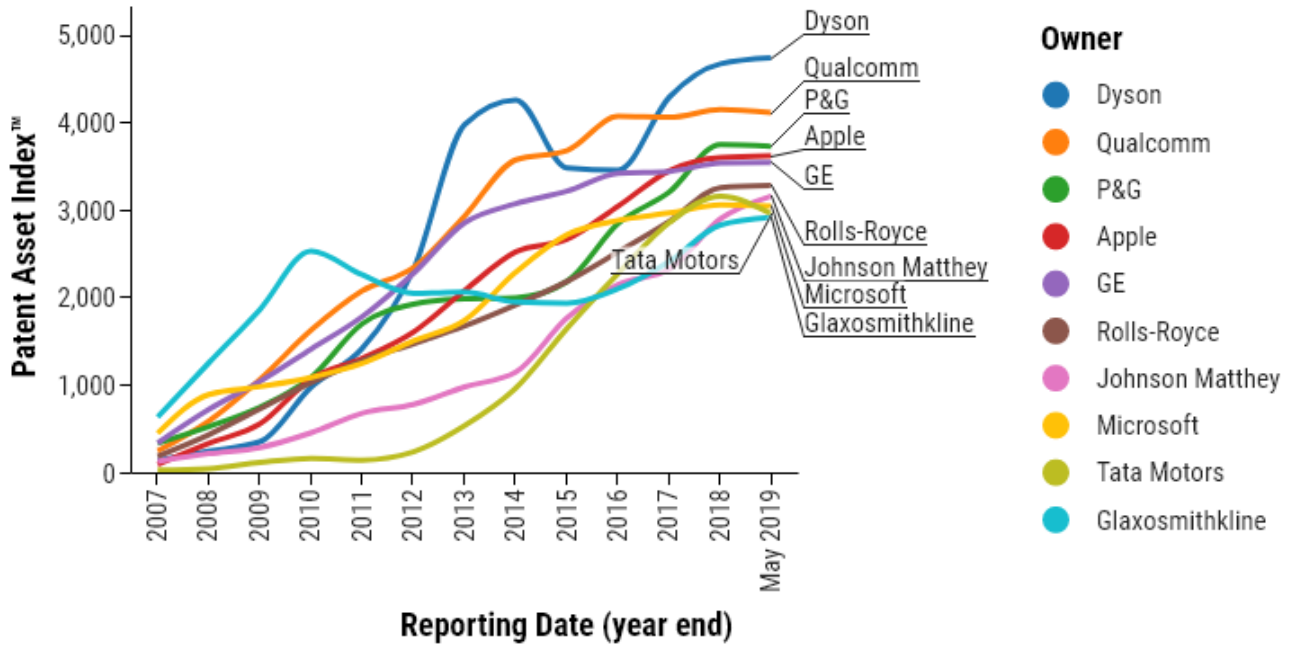
Region	Output	QMUL outputs	%
Greater London	336,890	22,048	6.54%
South East England	206,703	3,049	1.48%
Scotland	137,279	1,829	1.33%
North West England	118,826	1,875	1.58%
East of England	118,285	2,115	1.79%
Yorkshire & the Humber	100,293	1,454	1.45%
South West England	88,394	768	0.87%
West Midlands	82,937	1,747	2.11%
East Midlands	75,944	632	0.83%
North East England	50,909	444	0.87%
Wales	44,985	398	0.88%
Northern Ireland	23,248	230	0.99%

The Research Cycle- can we speed up the cycle?





Owner of patents invented in the UK



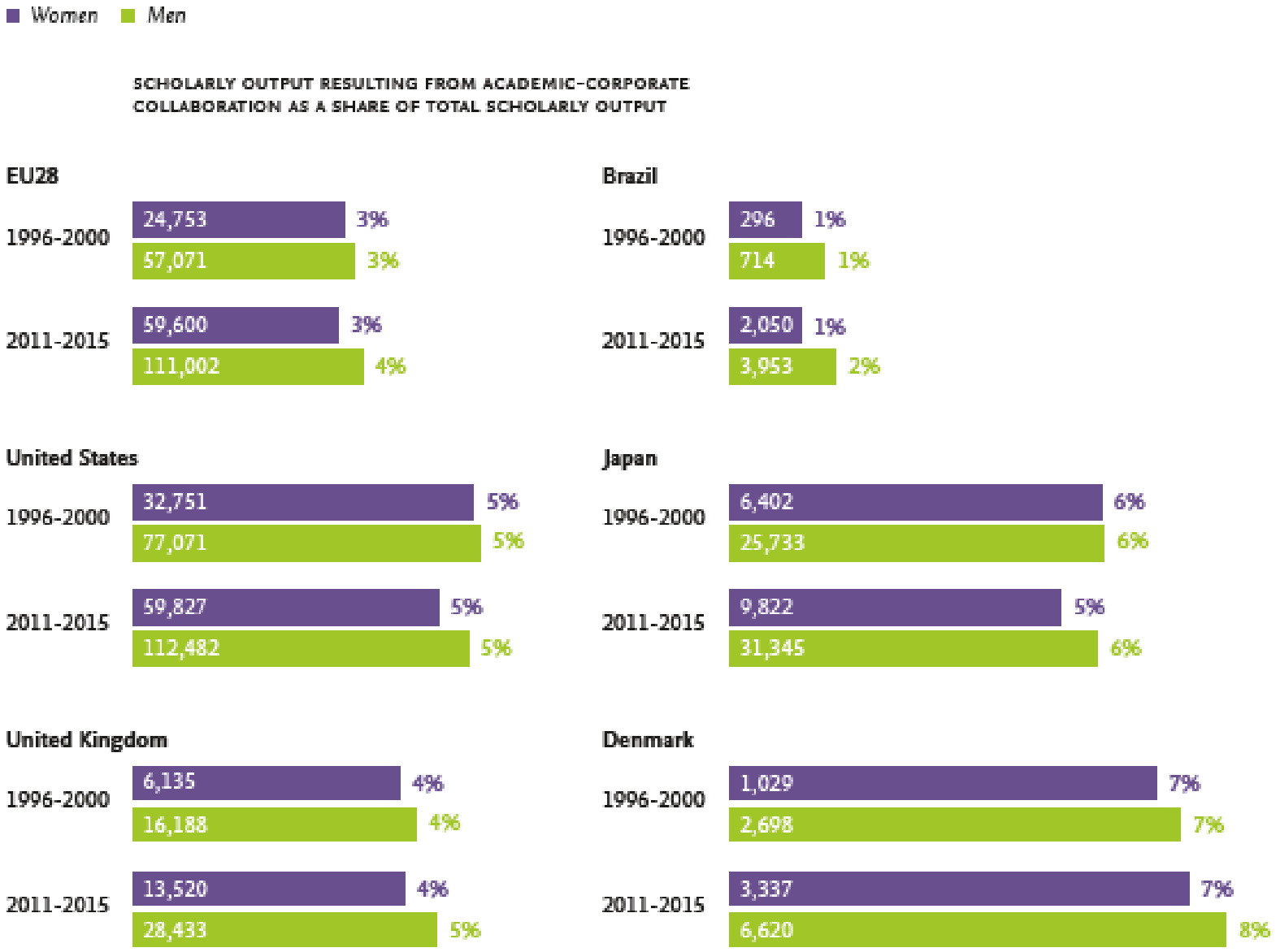
Owner (lines) shows items 1-10 of 28085, sorted by Patent Asset Index™ desc as at 05/02/2019.

Analysis based on 115,193 patent families active at 05/02/2019.
Some "Owner" items are hidden

Filter legend: Invented in = GB - United Kingdom AND Publication Date = 01/01/2007 - 12/31/2018

We can dig into this if there is interest.

Talent and diversity: a look at women collaborating in science



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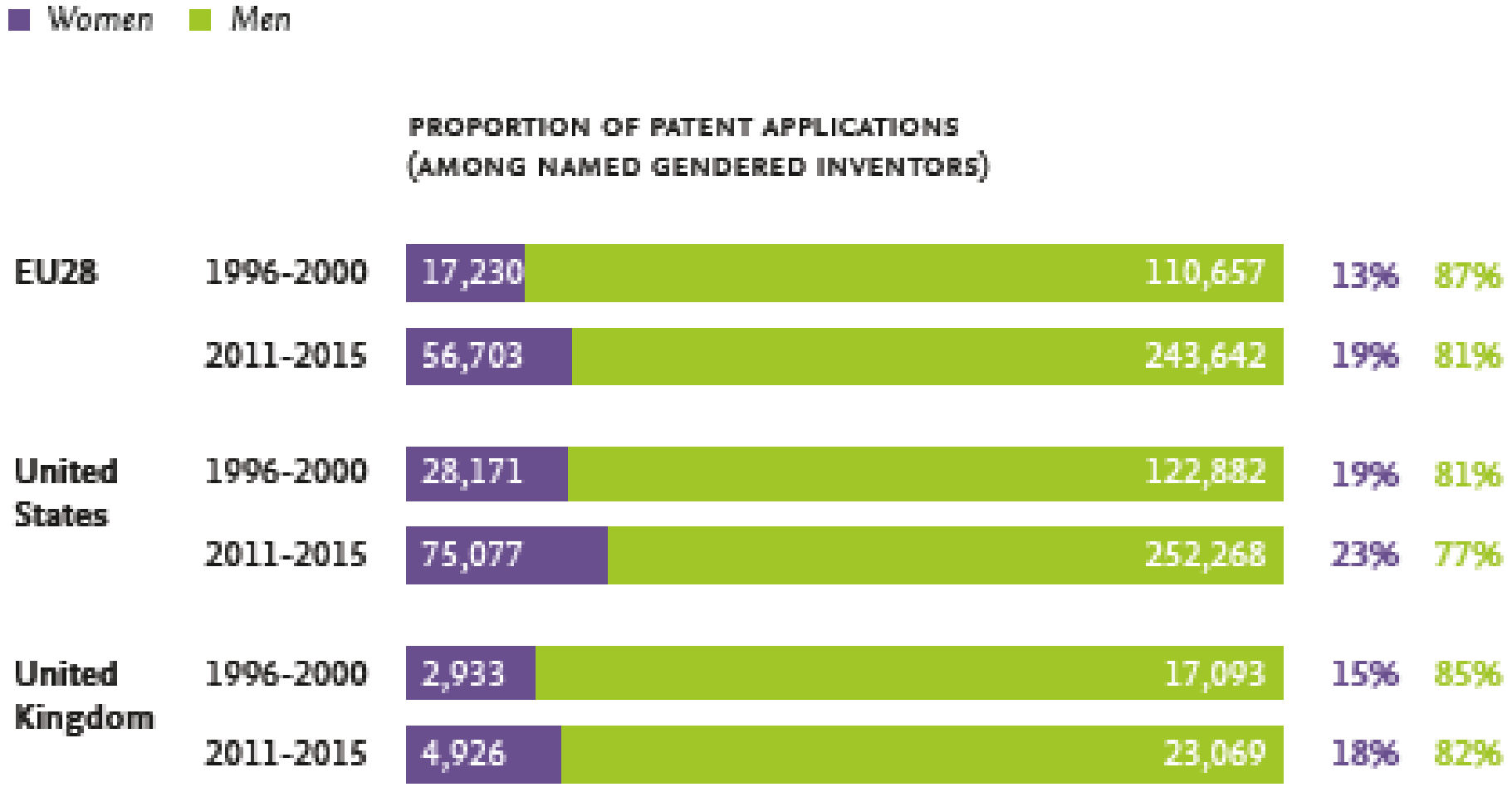
Talent and diversity: a look at women patent applications



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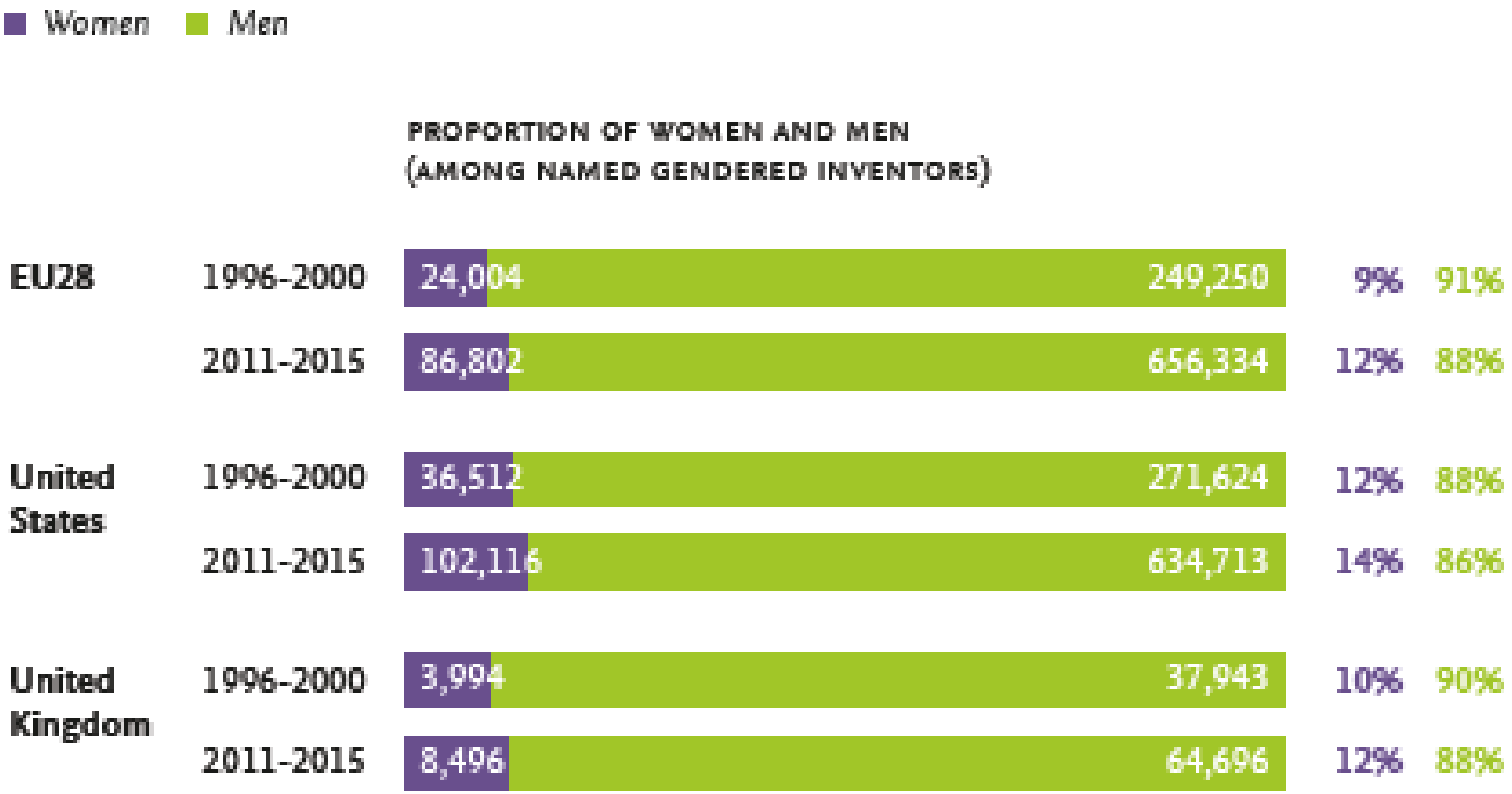
Talent and diversity: a look at women inventors



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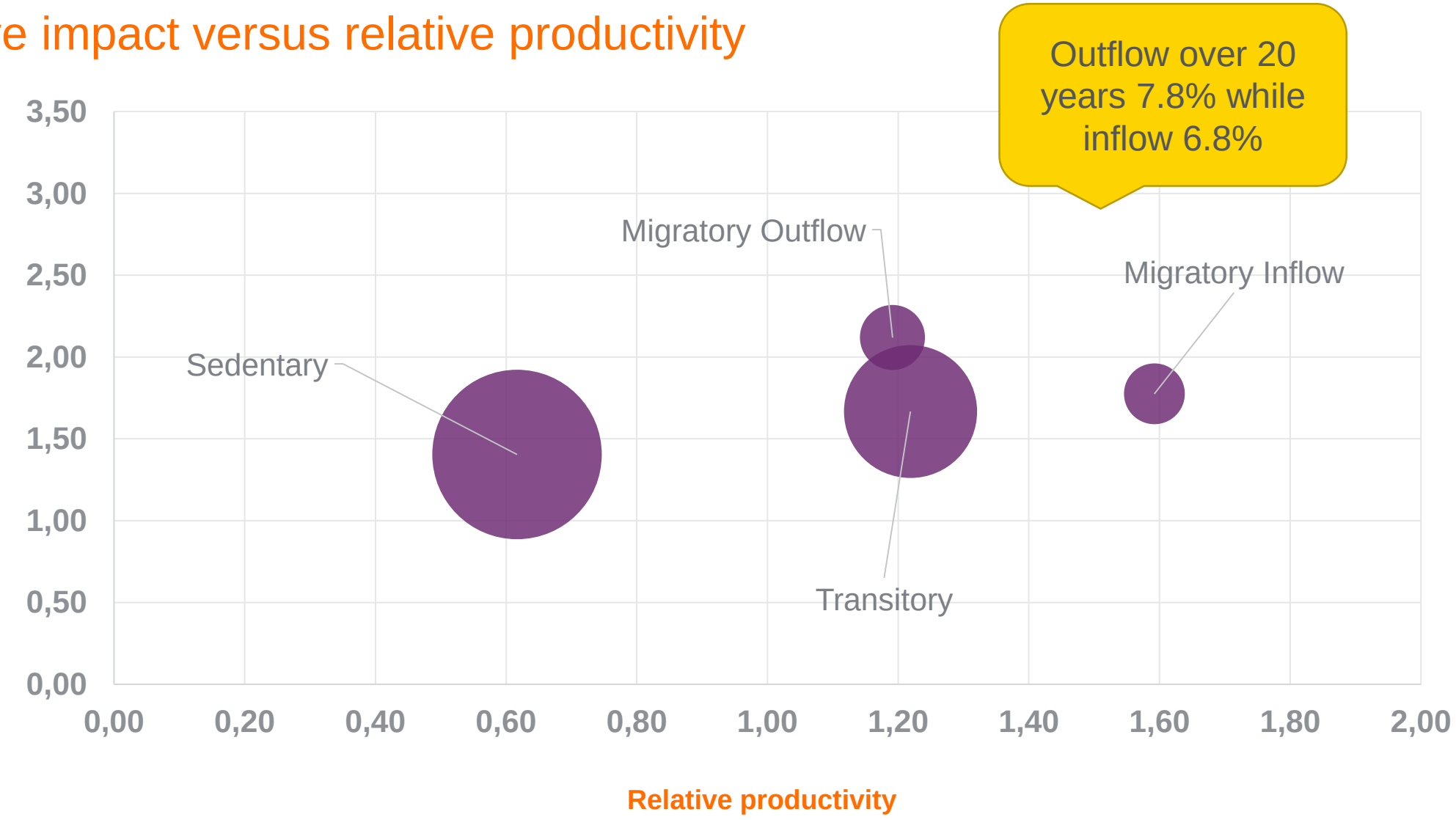
Example AI in Europe: slow but steady brain drain of top researchers

Relative impact versus relative productivity



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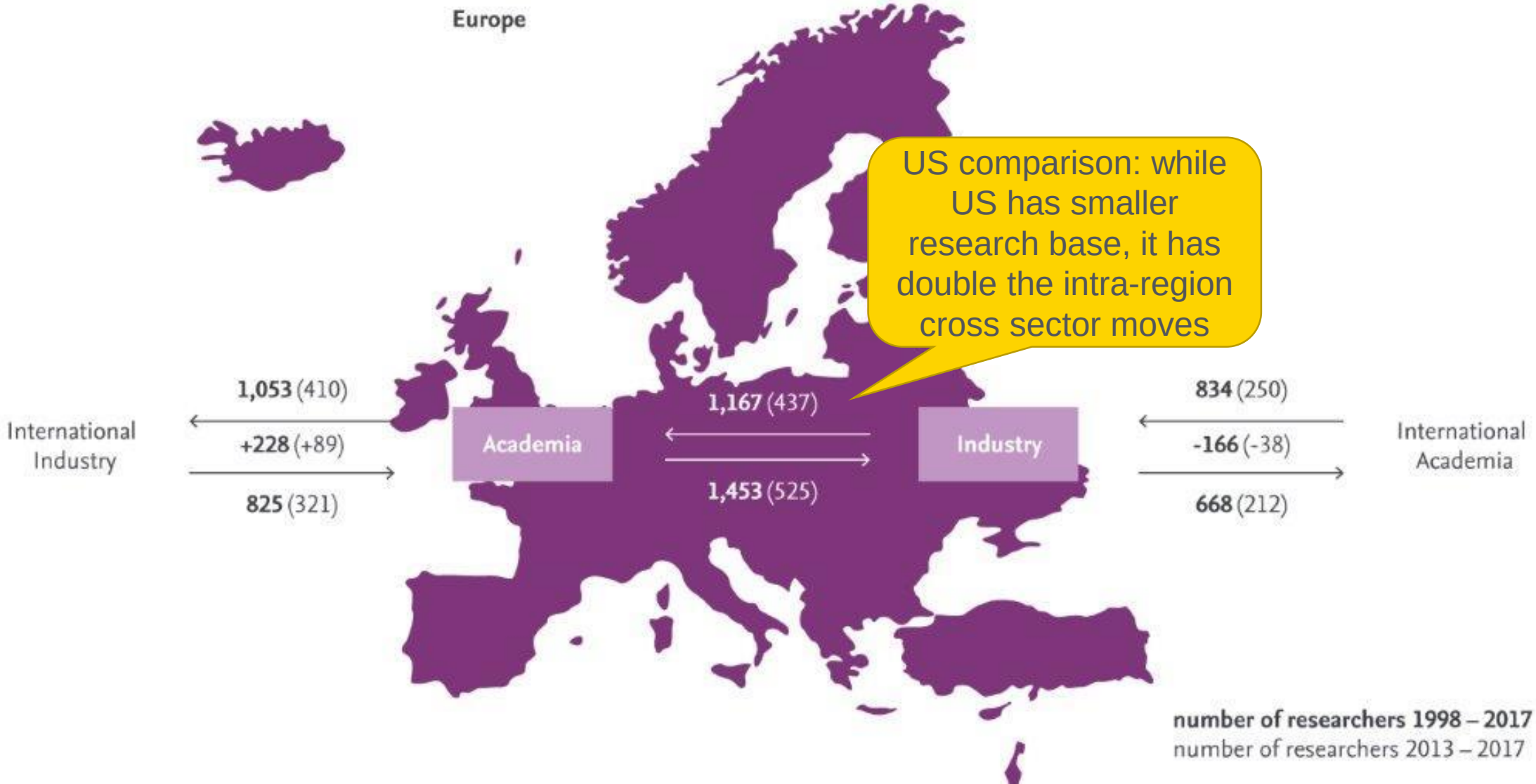
Example AI: significant outflow to overseas industry



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Insights based on data

Often asked questions

- What is my institution best at?
- How successful are we compared to peers?
- How can we increase performance in the rankings?
- How can we improve our relevance to society?
- Where should we focus our research effort?
- Where in the world is state of the art found?
- Should we collaborate more, and with whom?

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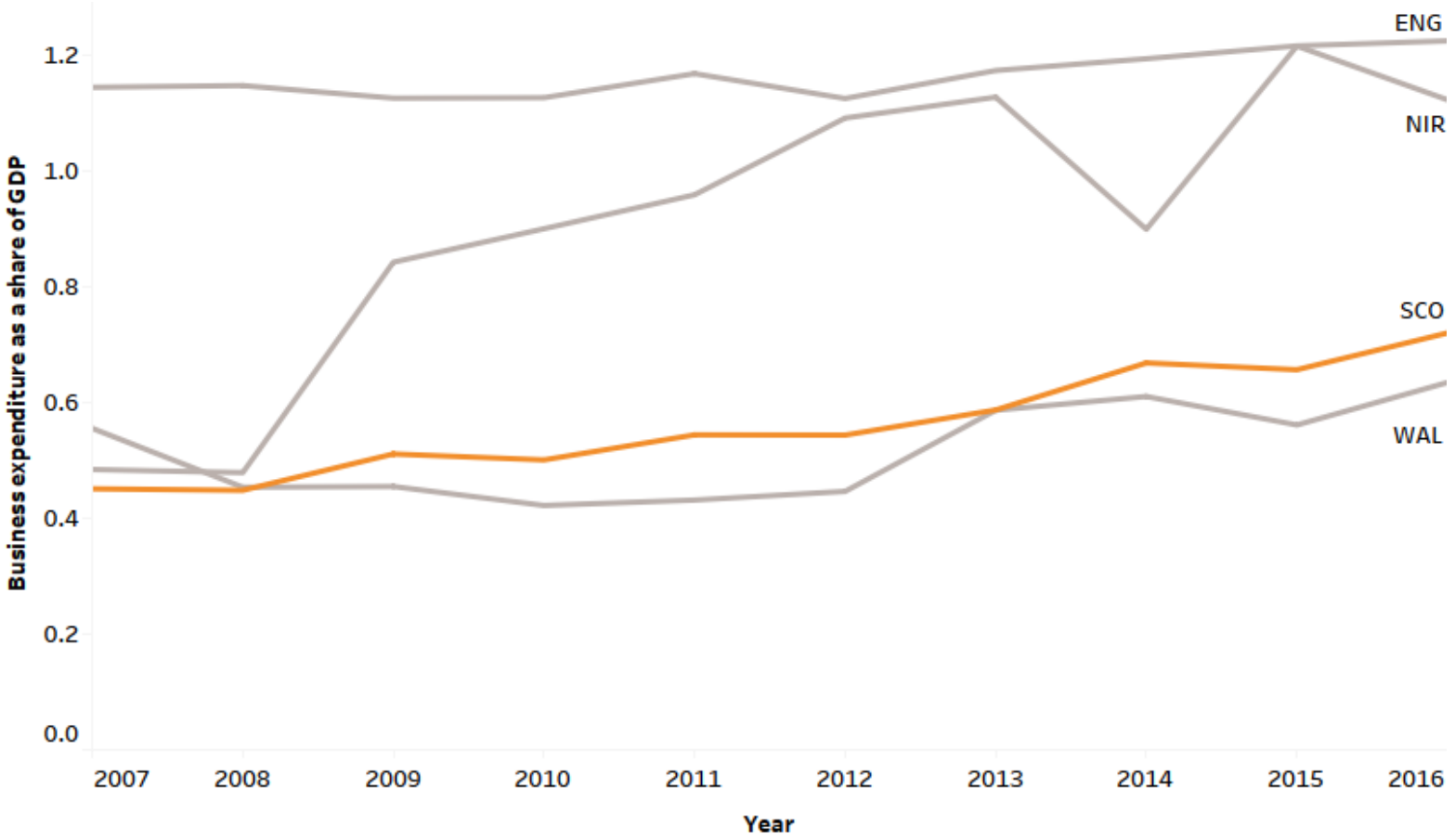
Take home messages

- Impact is rising as a requirement from governments and funders globally and is not harming research excellence
- Indeed you can enhance excellence through engaging with impact
- Interesting insights with respect to UK Industrial Strategy- context matters
- Having analysis to support actions and execution is critical
- We are here to help

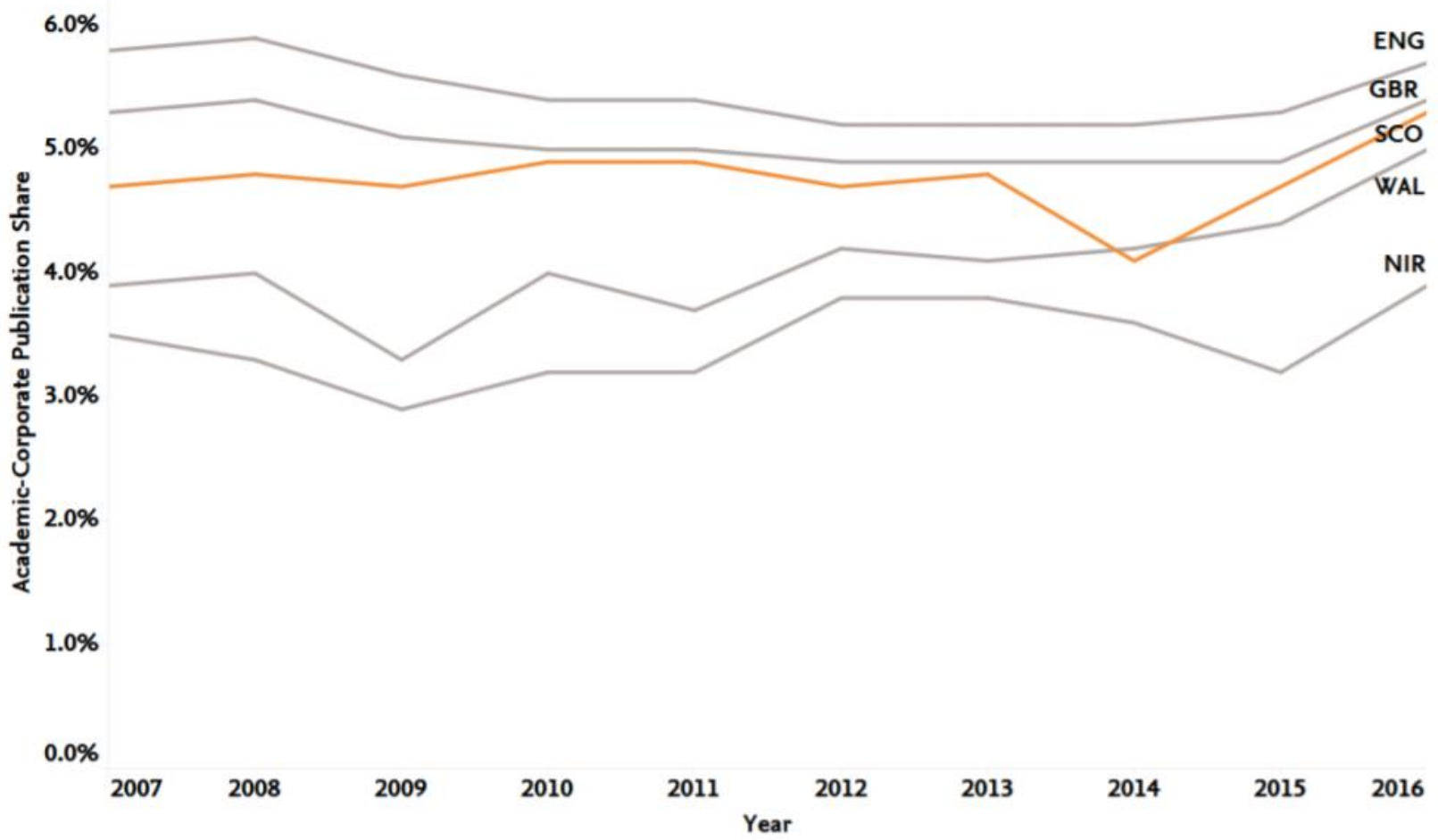
Thank you

Business expenditure on R&D for UK regions



BERD as a percentage of GDP for UK nations, 2007-16. Source: ONS

Academic-corporate collaboration share for UK regions



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LUNCH

12:45 – 13:45

Martin Sadler

Special Advisor to the Vice Chancellor on Industrial Strategy, University of Bristol

&

Maddy Nichols

COO of Spin Up Science

University of BRISTOL

Spin Up SCIENCE

It's all about the ecosystem

Foster a scientific innovation ecosystem through entrepreneurship and strategies for collaboration with industries

Maddy Nichols, Spin Up Science

Martin Sadler, University of Bristol

bristol.ac.uk

The West of England innovation ecosystem

- Creative mix of digital, engineering design and manufacturing, finance, legal, and creative clusters
- Critical mass of world-class academic, industrial and entrepreneurial capability
- University and industry track record of success in innovation at scale
- Emerging “science tech” cluster

Bristol –
Building a Lean Innovation Ecosystem, Quickly

- This is a talk about stimulating and sustaining regional ecosystem development
- In under 2 years Bristol has moved from 2 science-driven start-ups to 37
- Lean ecosystems aim to maximise value creation for every penny spent
- They provide access to exactly what is needed for the different stages of the ecosystem's development

Overview

Take homes

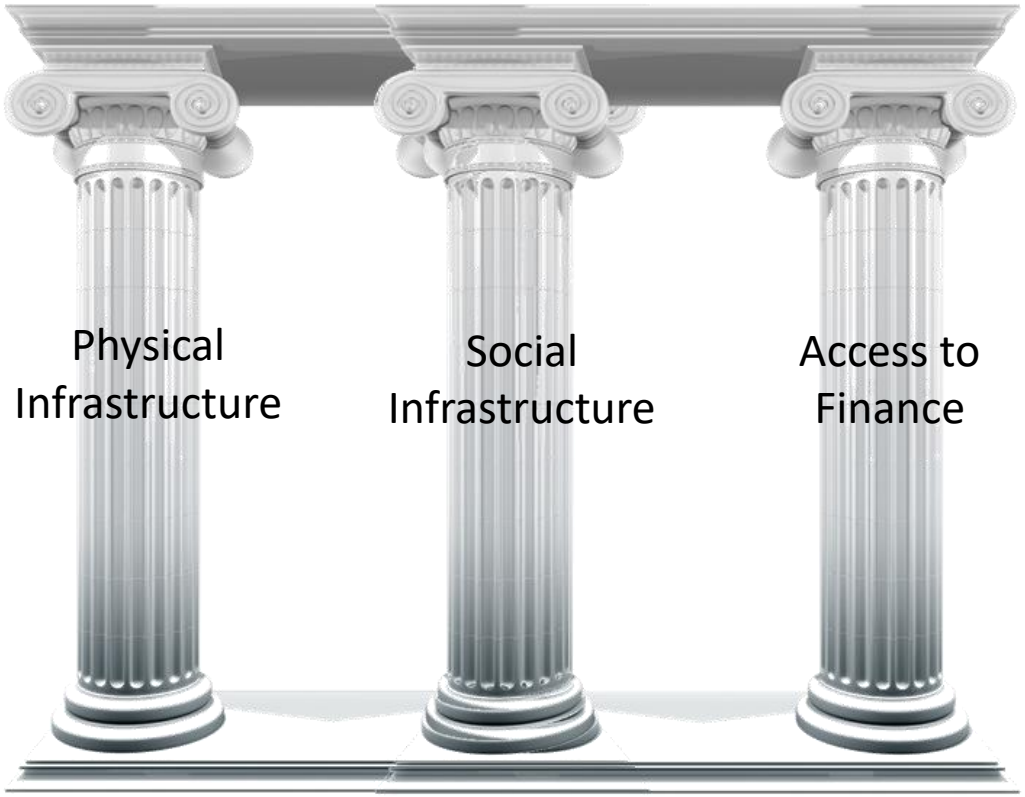
- Fostering talented individuals should be the main goal of all ecosystems and the metric of success

- Regional ecosystems can drive innovation culture and support technology transfer

- SMEs filling these support roles can be very light-weight, adaptable, and effective

An Ecosystem

Scientific Innovation



World Class Research

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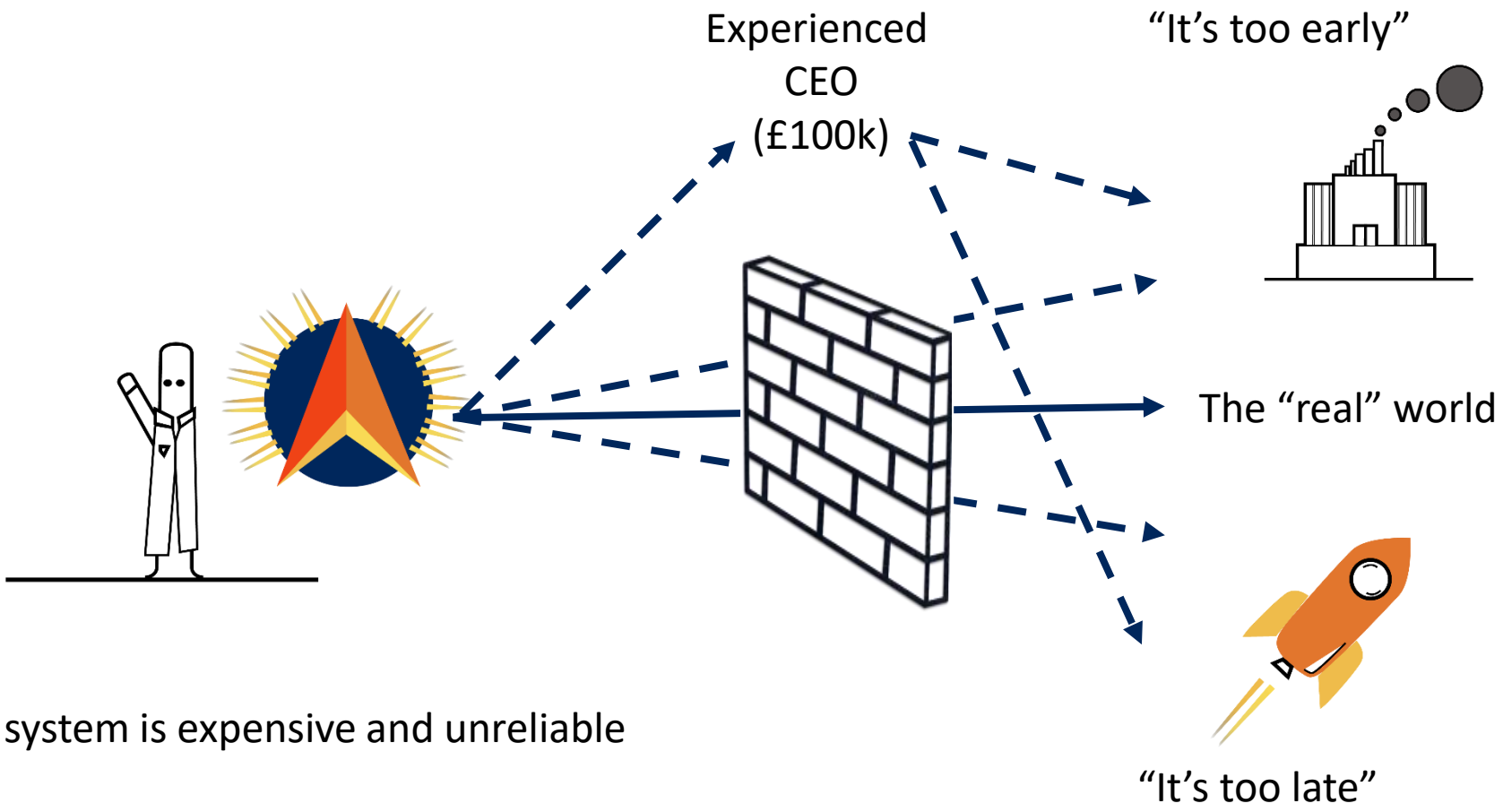
Origins of the Bristol Ecosystem

2017

Bristol huge research base
-> Russell group university
-> High Research Excellence

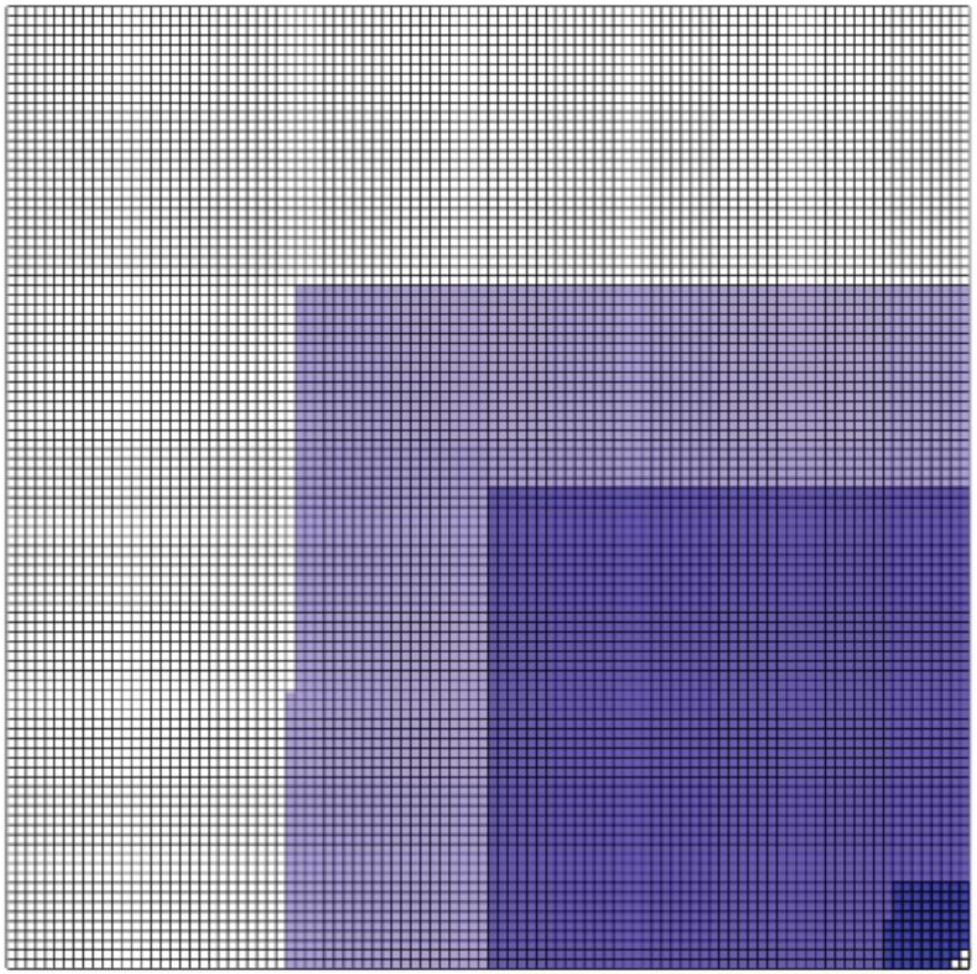
2 science spin-outs/ start-ups…
Average: ~0.5 spin-outs/year

Problem: The System Doesn't Work



This system is expensive and unreliable

Stanford's innovation record since 1970



10,000 Invention disclosures, by faculty and students

5,000 Patents issued

2,500 License agreements made with companies

77 License agreements generating $1m

3 Generating $100m

After 45 years and 10,000 discoveries at Stanford, just three have generated multimillion dollar licenses.

Spin Up SCIENCE

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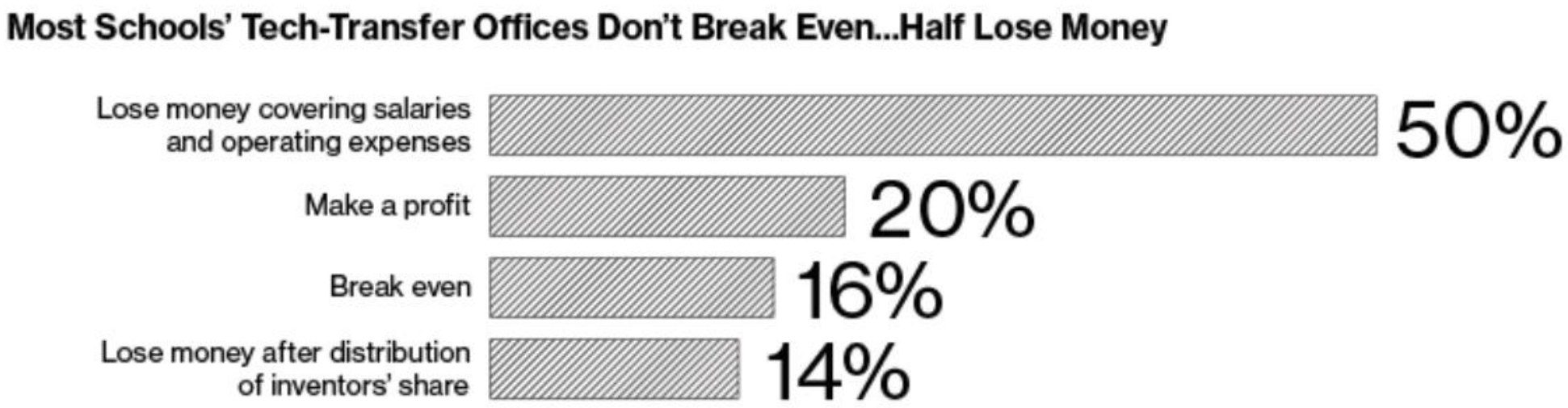
https://www.bloomberg.com/graphics/2016-university-patents/

Technology Transfer



Technology transfer is hard

It's a numbers game and the cheaper you can make it the better

https://www.bloomberg.com/graphics/2016-university-patents/

Proposition: A Lean Ecosystem

Innovation support as a “Minimum Viable Product”

Ecosystem Need – Case Study

Small start up commercialising UoB IP for glucose sensing

ziylo™

Aug, 2018

Forbes Billionaires Innovation Leadership Money Consumer Ind

4,590 views | Aug 17, 2018, 04:37am

Bristol Diabetes Spin-Out Acquired By Novo Nordisk For $800M

Gemma Milne Contributor

I cover the world of deep tech and science startups

Bristol University spin-out Ziylo announced today that Danish pharmaceutical Novo Nordisk has acquired all the shares in the company. Novo Nordisk will now have full rights to Ziylo's glucose

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Ecosystem Need – Case Study

Spin Up SCIENCE

ziylo™

Bristol - 2015

- No Research Facilities
- Limited Social Infrastructure
- No Start-Up Finance

No Ecosystem

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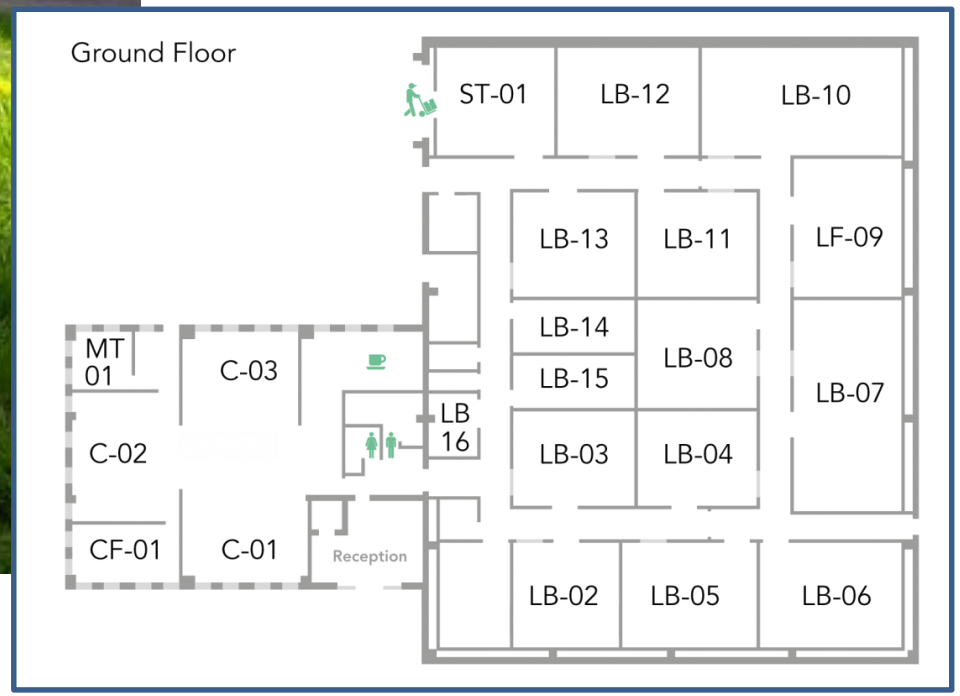
Spin Up SCIENCE

If you build it, they will stay.

Spin Up SCIENCE

Founders of Ziylo

Private raise : £3.0m
Idea to Open : 18 months
Capacity : 100 scientists



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A seed for a Lean Ecosystem

City centre Cat II wet lab cheaper than a city centre desk

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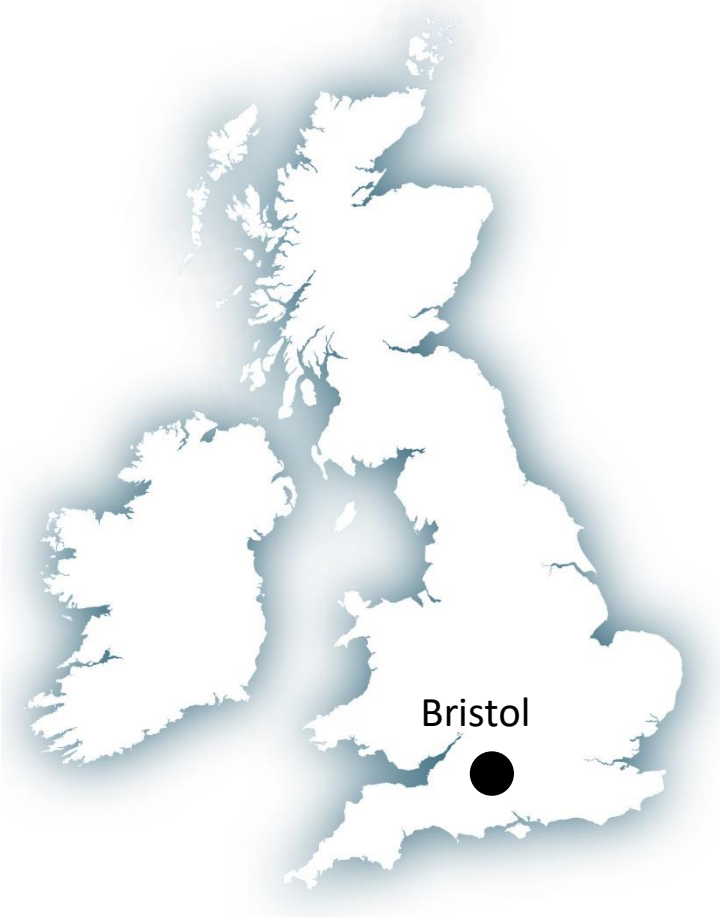
An Ecosystem



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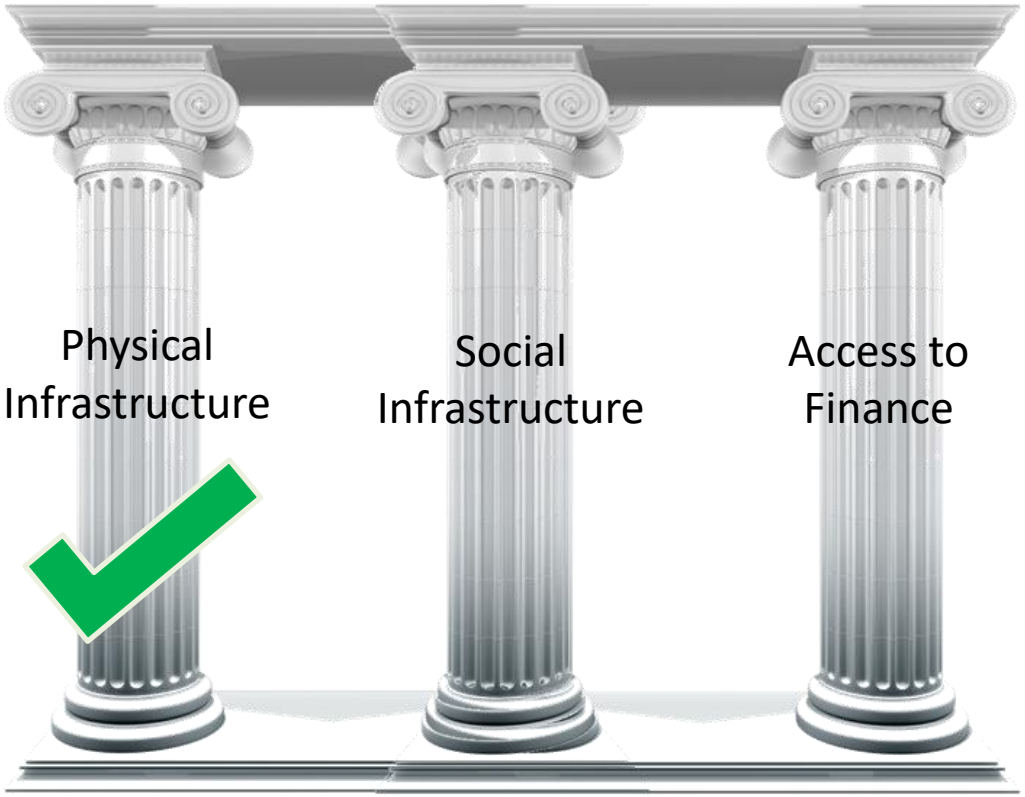
Scientific Innovation



World Class Research

Social Infrastructure

Ecosystems are not just bricks and mortar

-> UK has a lot of “empty” science parks

-> How do we ensure Unit DX isn’t just one more empty innovation facility?

POLICY AND FUNDING | NEWS

UK Catapults fall short, claims review of technology innovation centres

30 Nov 2017 Michael Banks

Sparking innovation: Independent review calls for improved management

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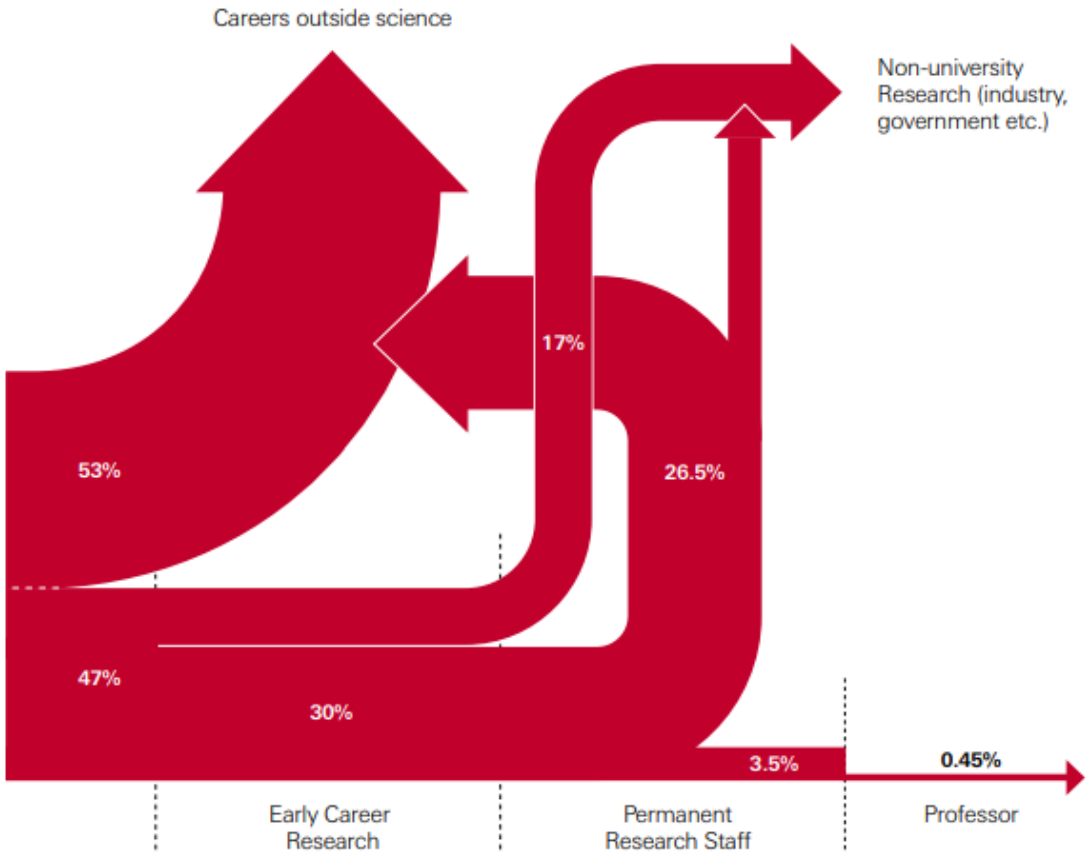
Social Infrastructure

Drives activity and ensures the ecosystem has what it needs to grow

Problem: Misuse of Talent

Figure 1.6 **Careers in and outside science**



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-RS 2014

‘Universities consume students as a cheap way to drive research’

We have a responsibility to appropriately train this talent for success:

-where they are most likely to end up or,
-provide better opportunities for them

Do we use the right metrics?

How do we encourage the growth of ecosystem? (per dollar spent):

- How many innovators supported?
- How many ideas commercialised?
- How many new ideas brought forward for commercialisation?
- How much talent trained to be entrepreneurially aware and commercially minded?
- How much talent engaged in the ecosystem during PhD/PDRA?
- How much talent engaged in the ecosystem post-PhD/PDRA?
- How much value creation (£ or otherwise) is retained in the ecosystem?

Lean Social Infrastructure maximises value to the ecosystem

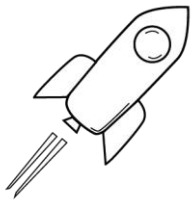
Lean Ecosystem Building

Maximising value creation while training talent

Train on real SMEs as case studies

Found company

Entrepreneurial training for PhD/PDRAs



Turn over:

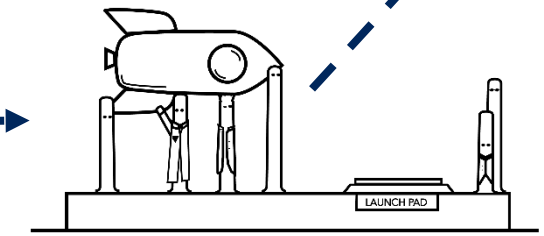
Market research

Financial plans

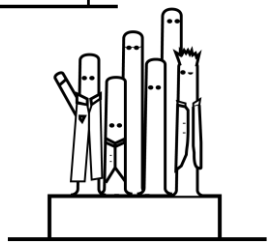
Customer contacts

Brand design

Pitch



Talent pool



Lean Ecosystem Building

Maximising value creation while training talent

Spin Up SCIENCE

Resources Needed

Experienced mentor

~~Training materials~~

~~Room booking~~

~~Guest speaker~~

Learn real lessons while solving real problems

Under resourced SMEs

Over stretched TTOs

Early Academic ideas

Immerse in incubators

-retain value

-increase visibility

-build connections

UNIT DX
Science Incubator | Bristol

Engage prof. services

-build prof. network

-start up friendly advise

-train entrepreneurial behaviour

TLT

RSM

Keltie

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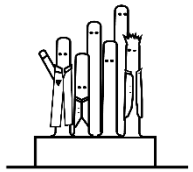
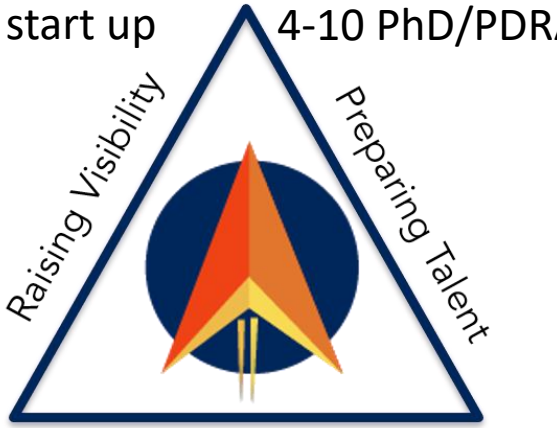
Science Entrepreneur Experience

Based at Unit DX, 5 days entrepreneurial training while connecting an ecosystem



1 start up

4-10 PhD/PDRA



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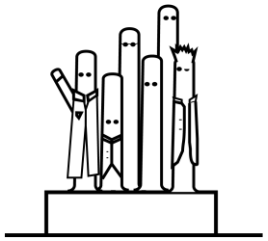
Lean Ecosystem Building (Day 6+)

Building a culture of entrepreneurship

Spin Up SCIENCE



Talent pool

Internships

Consultancy

Over stretched TTOs
Under resourced SMEs
Early Academic ideas

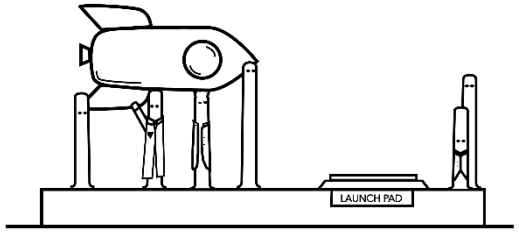
-Market research
-Prototype development
-Software development
-Scientific advisory
-Website design

Engagement

LAUNCH: Great West

Celebrating the success of science start-ups in the SW

Recruitment



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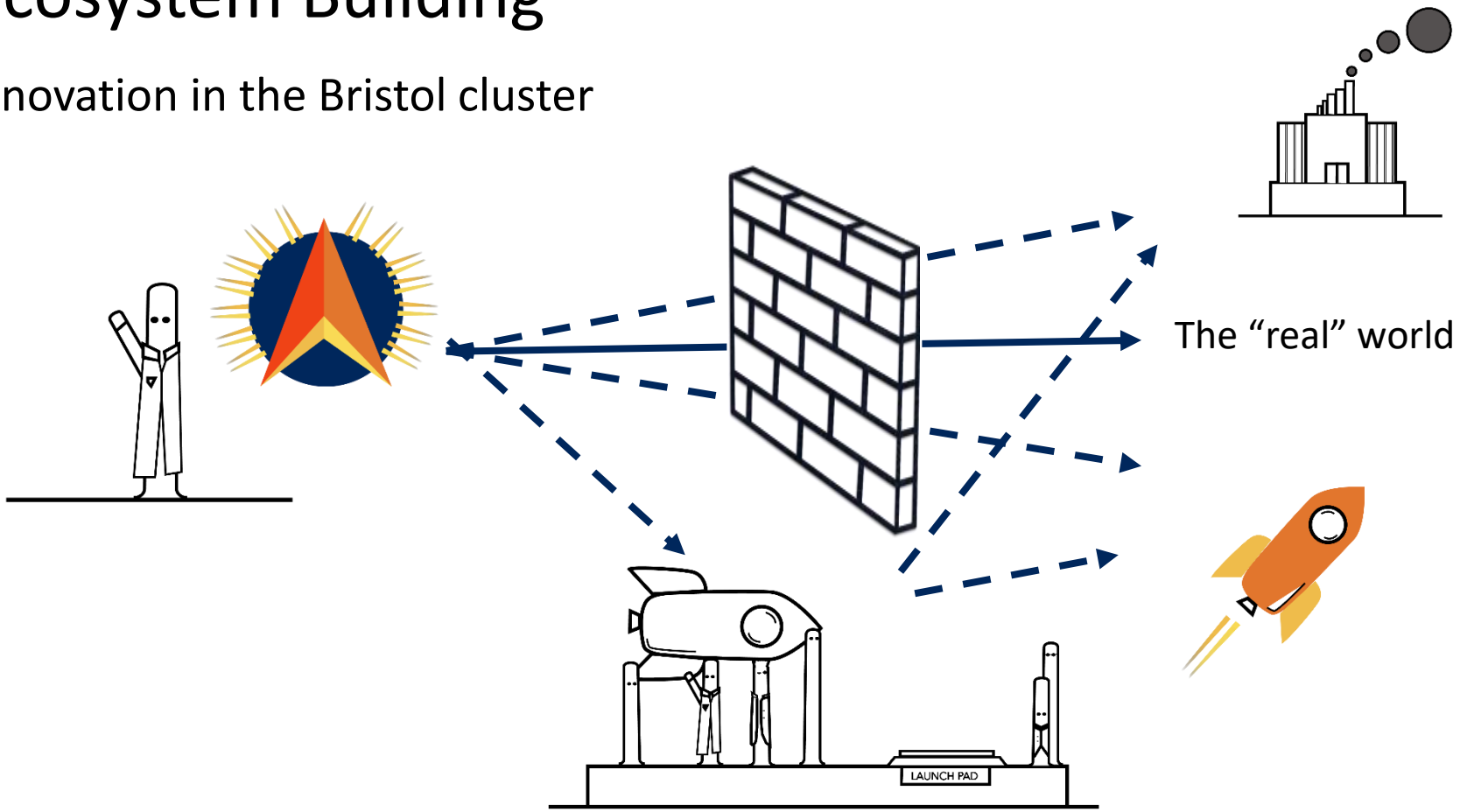
Lean Ecosystem Building

Driving innovation in the Bristol cluster



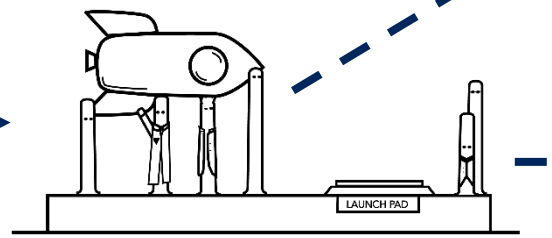
Lean Ecosystem Building

Driving innovation in the Bristol cluster

Train on real ideas as case studies

Found company

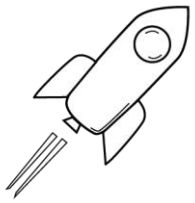
Entrepreneurial training for PhD/PDRAs



Talent pool

Consultancy
Internships
Recruitment

<u>Turn over:</u>
Market research
Financial plans
Customer contacts
Brand design
Pitch



Ecosystem

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Two Years in Bristol

Unit DX & Spin Up Science

- 100% building occupancy
- 20 University Spin Outs
- 250+ PhD students trained
- 45 placements and internships
- 37 Companies
- 100+ jobs (£4.3m wage bill)
- 80% live within 10miles
- 70% public transport
- £21.5M investment and grant funding raised

UNIT DX
Science Incubator | Bristol

Spin Up SCIENCE

Let SMEs Solve Problems

"Seed an ecosystem with commercially aware, entrepreneurially minded PhDs and PDRAs while supporting existing activity"

Hard to do as a university, easy to do as an SME

- Universities are inherently bureaucratic and slow to respond
- SMEs can be agile and adapt to what the ecosystems needs
- SMEs are cheap at small scale

- Driving cultural changes across academia by engaging PhD students
- Important for the university to work in partnership with SMEs supporting the ecosystem

Summary

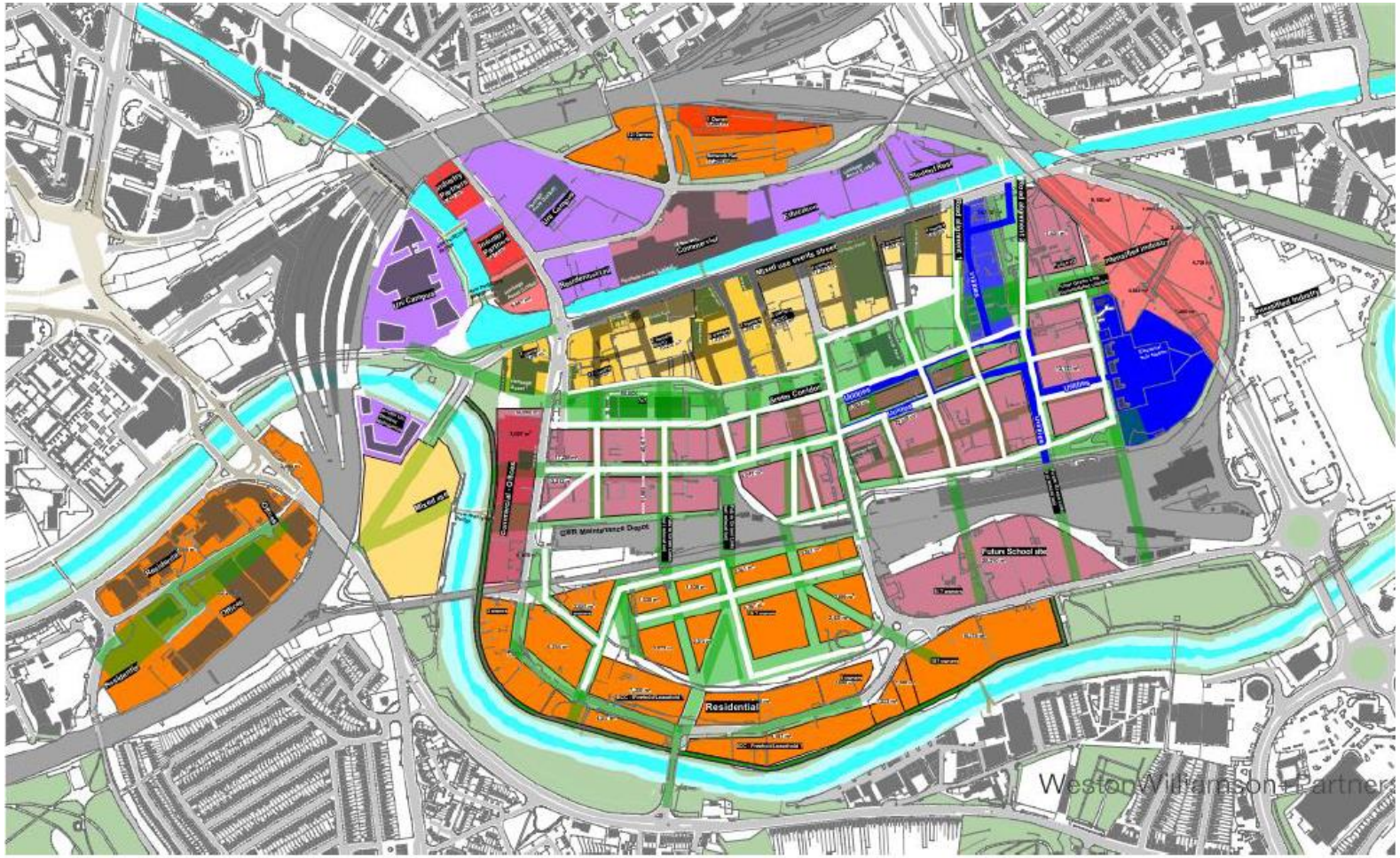
Take homes

- fostering talented individuals should be the main goal of all ecosystems
- outsourcing ecosystem support away from university organisations can be good
- start-ups filling these support roles can be very light-weight and effective

Temple Quarter

The “hub”

20,000 jobs
11,000 homes



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Spaces for fostering innovation

- 350 co-working partners, lounges
- Storytelling and showcasing
- Design thinking and design factory
- Instrumented auditorium
- “Reality emulator” (large scale exploration)
- Inclusive growth

Discussion

- What should universities organise internally?
- What could be outsourced?
- When can others in the ecosystem be relied upon to facilitate and manage knowledge exchange?


Spin Up
SCIENCE


Spin Up
SCIENCE

BREAK

15:00 – 15:30

Alice Frost

Director Knowledge Exchange, Research England

Research England

History, context and progress of the Knowledge Exchange Framework (KEF)

AESIS "Knowledge Exchange Structures for Impact", University of Oxford, 16 May 2019

Alice Frost
Director of Knowledge Exchange (KE)
Research England

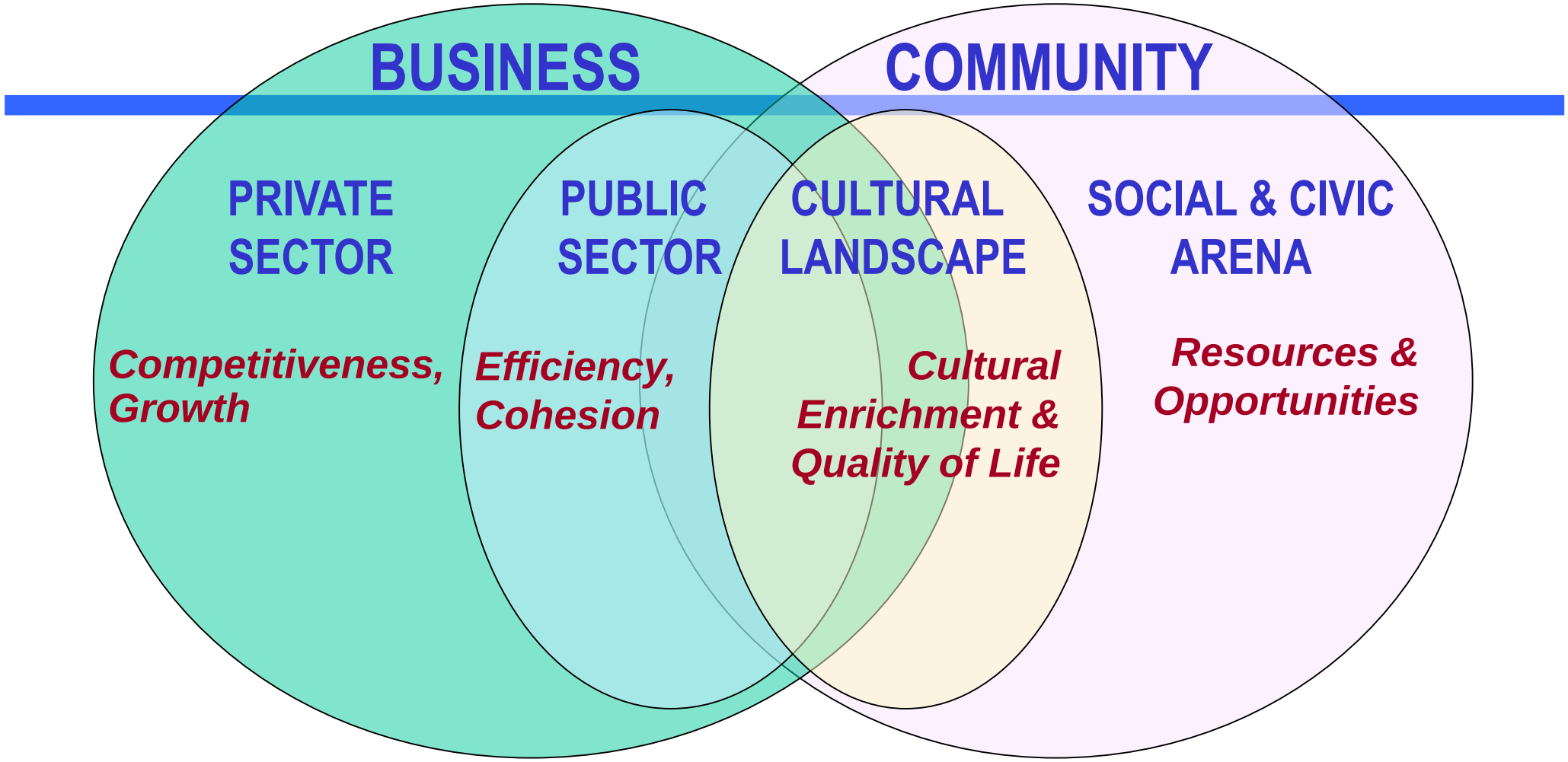
Agenda

- KE policy: history and concept
- Methods – impact, outcomes and engagement
- Why KEF is important
- KEF development

History and concept

HEFCE 1998

- “We aim to increase the impact of the HE knowledge base to enhance economic development and the strength and vitality of society, particularly focusing on innovation and enterprise. Together with other stakeholders, we are seeking to secure long-term and adequate support for such third stream activities as a significant HE function.”


BUSINESS
COMMUNITY
PRIVATE SECTOR
PUBLIC SECTOR
CULTURAL LANDSCAPE
SOCIAL & CIVIC ARENA
Competitiveness, Growth
Efficiency, Cohesion
Cultural Enrichment & Quality of Life
Resources & Opportunities

hefce

‘trend among many universities toward a third function, which has been described using a range of terms such as knowledge transfer, community service, community engagement and the third stream.’

> *‘Third Stream is about the interactions between universities and the rest of society.’ (SPRU, 2002)’*

Research England

HE Business & Community Inter-action (HEBCI) survey

Business and community services:

- consultancy, research, or facilities and equipment related services
- courses to upskill and develop workforces and to enhance individual employability and professional skills
- contributions to publicly funded research from collaborative partners

Social, community and cultural engagement

public events, such as lectures, performance festivals and exhibitions

Intellectual property

patents, copyrights, design registrations and trademarks. Numbers and income. Spin-offs and start-up companies based on university IP, or started by their staff, students or graduates and success

Regeneration and development

way for universities to invest intellectual assets in economic, physical and socially beneficial projects. Income from public bodies allocating regeneration funds.

Research England

Strategies, approaches and infrastructures

indicators of universities' plans, resources and priorities for KE

Definition of KE – HE & Research Act

For the purposes of this Part, “knowledge exchange”, in relation to science, technology, humanities or new ideas, **means a process or other activity by which knowledge is exchanged** where—

- (a)the knowledge is in, or in connection with, science, technology, humanities or new ideas (as the case may be), and

- (b)the exchange contributes, or is likely to contribute, (whether directly or indirectly) to an economic or social benefit in the United Kingdom or elsewhere.

Commercialisation system/National IS Policy

The university

- Project costs: Institutional scoping studies e.g. physical infrastructure; co-investment with local or national funders, or follow on funds
- Project and academic costs: Investing in staff and student entrepreneurship, mobility, buying out time and new innovation enterprise posts and projects
- Staff costs: IS institutional/academic leadership
- KE professional staff: IS strategy intelligence, dissemination, partnering, bid development
- Costs of R&D/innovation centres: Staff for specialist management and support of centres, incubators etc., projects in centres

Industry partners & networks

- KE staff costs: corporate or strategic R&D partnership support
- Project costs: road-mapping, pump priming academic-IS partnerships and bid developments, events & networks

Business 1

Business 2

Business 3

Local partners & networks

- KE staff costs: engaging with local partners and implementing local developments e.g. SIAs. Enterprise capacity for local hubs and networks, SME initiatives and skills pipeline
- Project costs: enterprise hubs, student projects; CPD, skills and apprenticeships. External exports for local planning, gap analysis and marketing, events for IS awareness raising

Business 4

Business 5

Business 6

Technology partners & networks

- KE staff costs: marketing and managing IP; support to new company formation, accelerators/entrepreneurship and investors relations
- Project costs: IP exploration and exploitation; costs of external advisers and specialists: acceleration costs; spin-off and scale up investments

International partners & networks

Costs of events for R&D and investor links, technology showcases. Project costs: studies of international markets, opportunities

Methodological issues

Issues in measuring university impacts

- All activities/funding streams have impacts
- University impacts – teaching, research, KE
  - Widespread/diffuse/long-term/skewed
  - Importance of complementary assets ie users, employers
  - Confounded with each other?

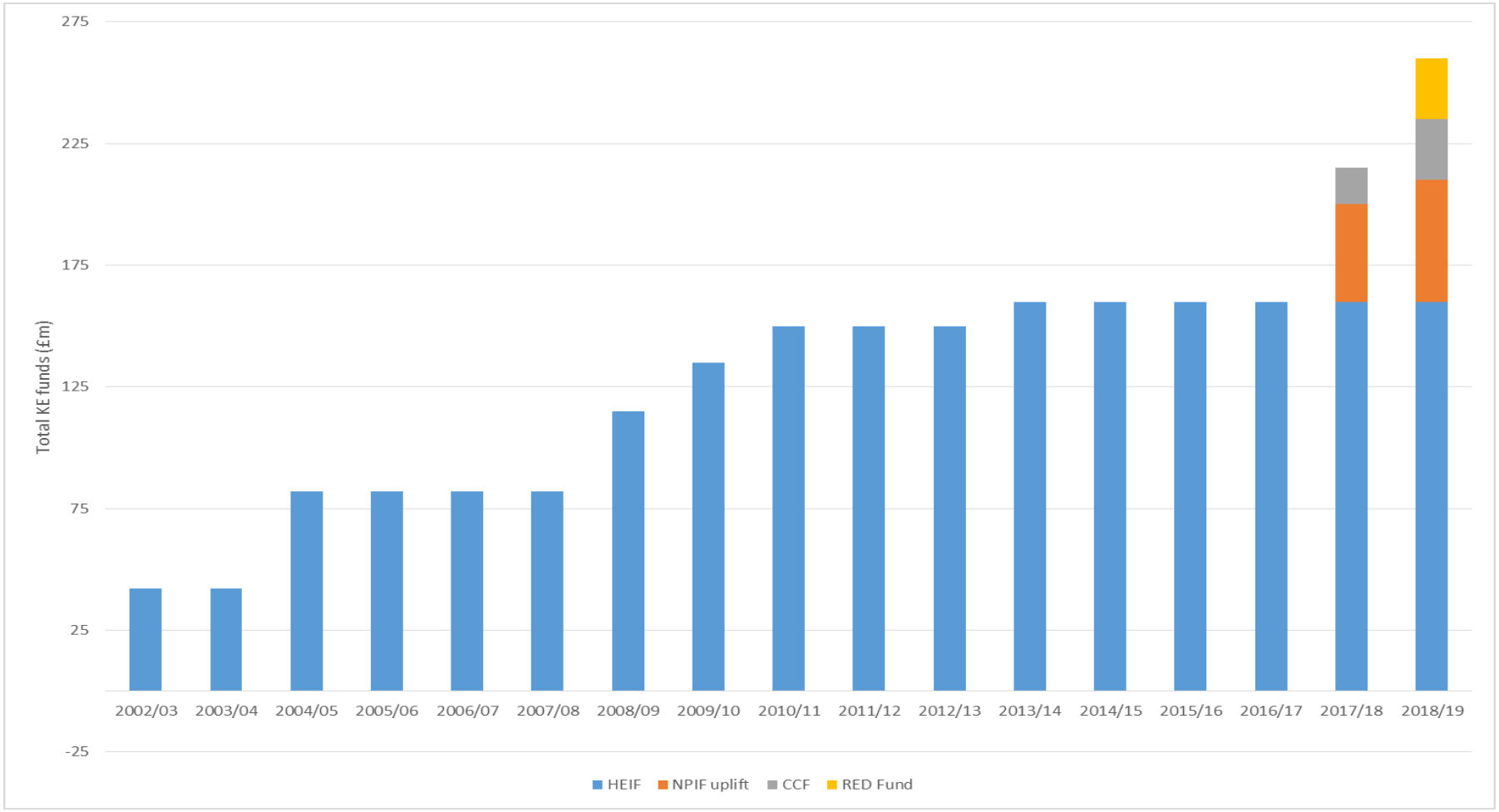
Some methods

- Assessing case studies (not measuring) – REF
- Measuring volume and value of inter-actions ie KE (eg EC Siempi “productive relationships”)
- Data-linking (Cambridge Centre for Science, Technology and Innovation (CSTI) Productive Evidence Programme (PEP))

Why KEF is important

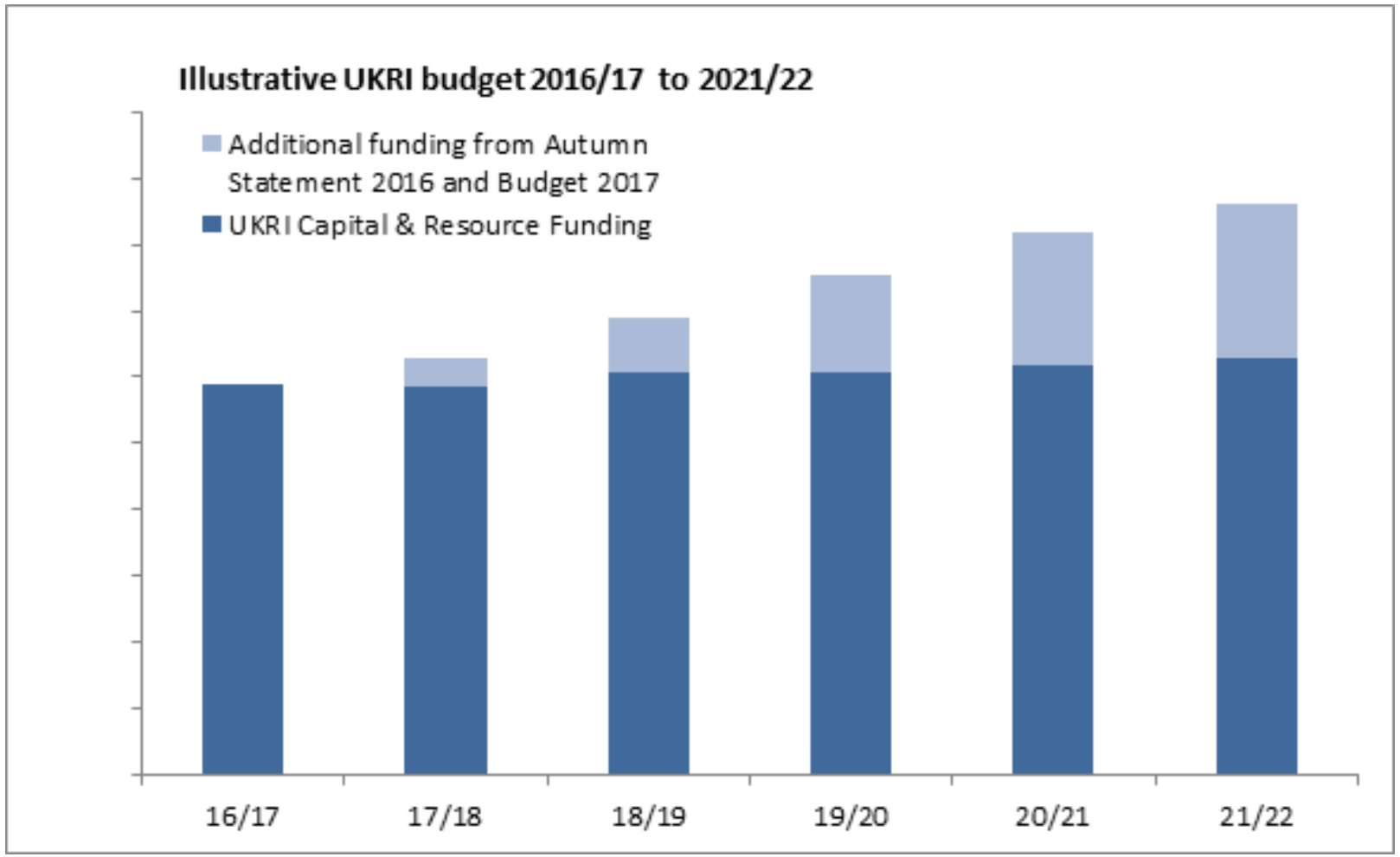
Funding

Growth in HEIF, KE etc funding

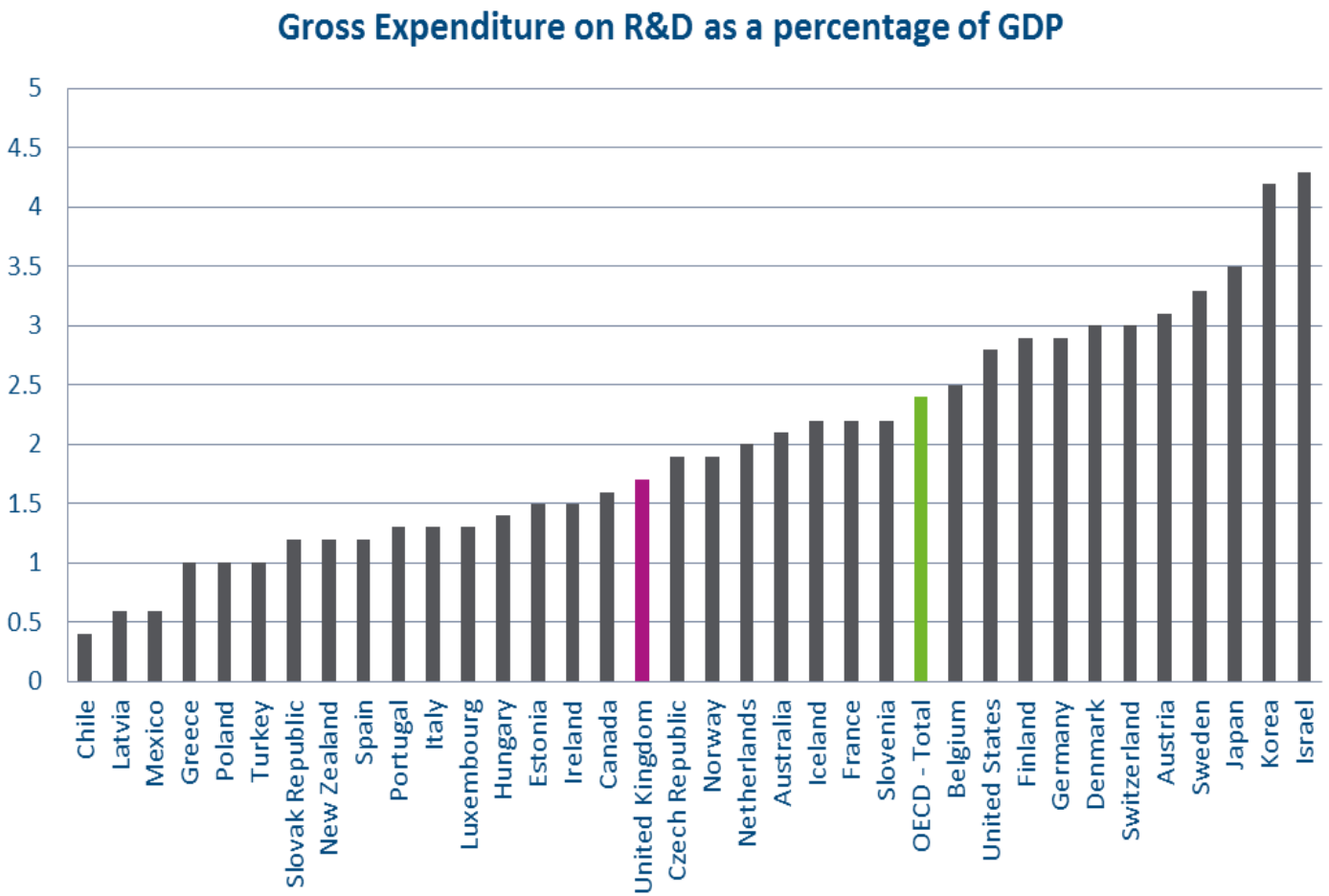


Funding continued

Context: rising funding in UKRI



Context: the 2.4% target



Source: OECD STI. Data is the latest available for each country.

The Government has committed to reaching 2.4% of GDP investment in R&D by 2027, and to reaching 3% in the longer term.

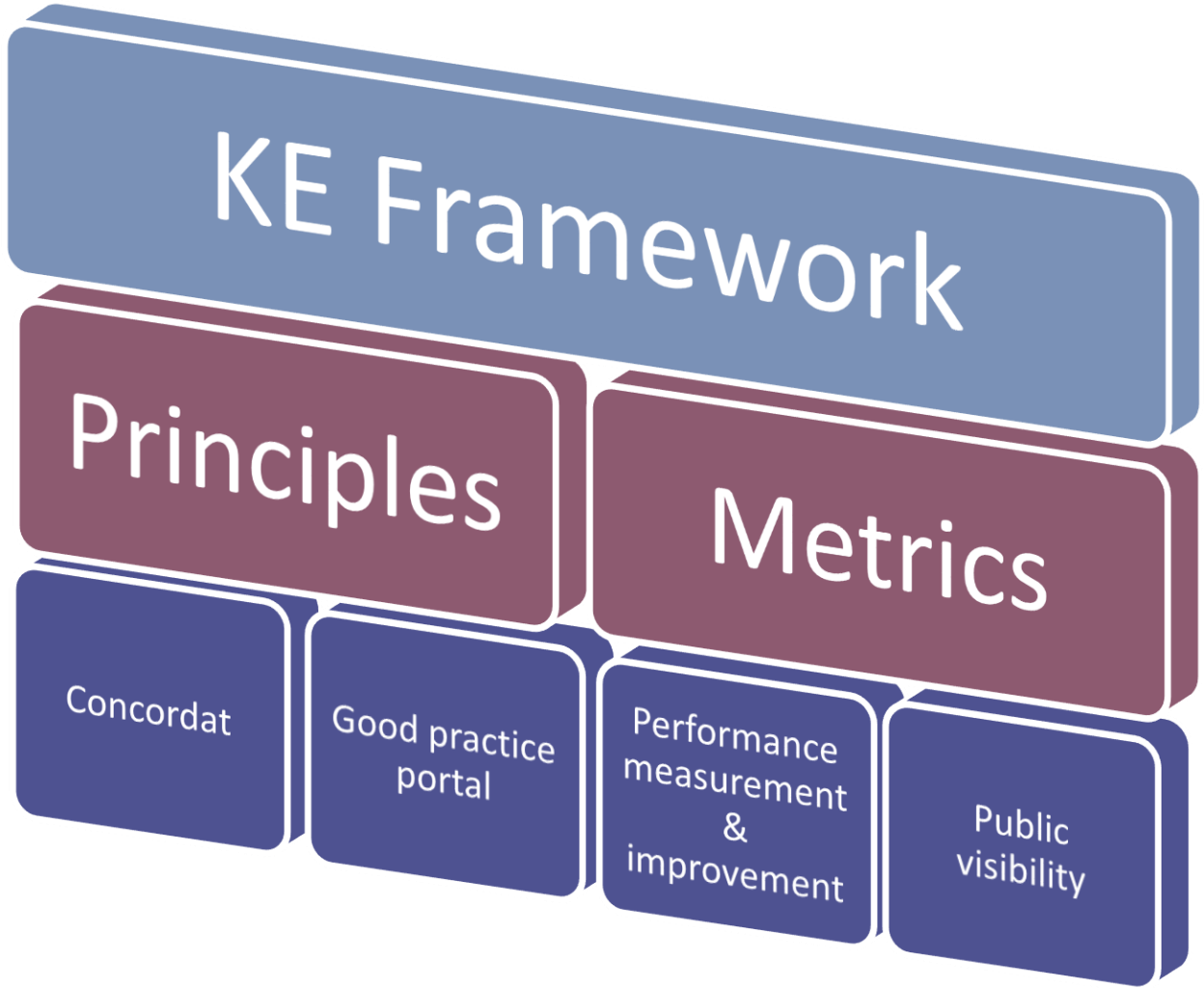
As a first step it will invest an additional £2.3bn over what was previously planned in 2021/22.

UKRI will work with the Government to develop a roadmap for meeting this target to be published in 2018.

Public/Government accountability framework

- Public-government funding for universities, research and teaching
- Requirement to exploit intellectual assets from research (and teaching outcomes)
- Provision of public funding for knowledge exchange, to support capacity and capability to meet requirement
- KE funding dependent on satisfactory strategy and management systems – evidence on achievements
  - What: demonstration of effective performance eg KEF
  - How: continuous improvement, best practice etc eg KE Concordat

KEF – two pillars



KEF metrics

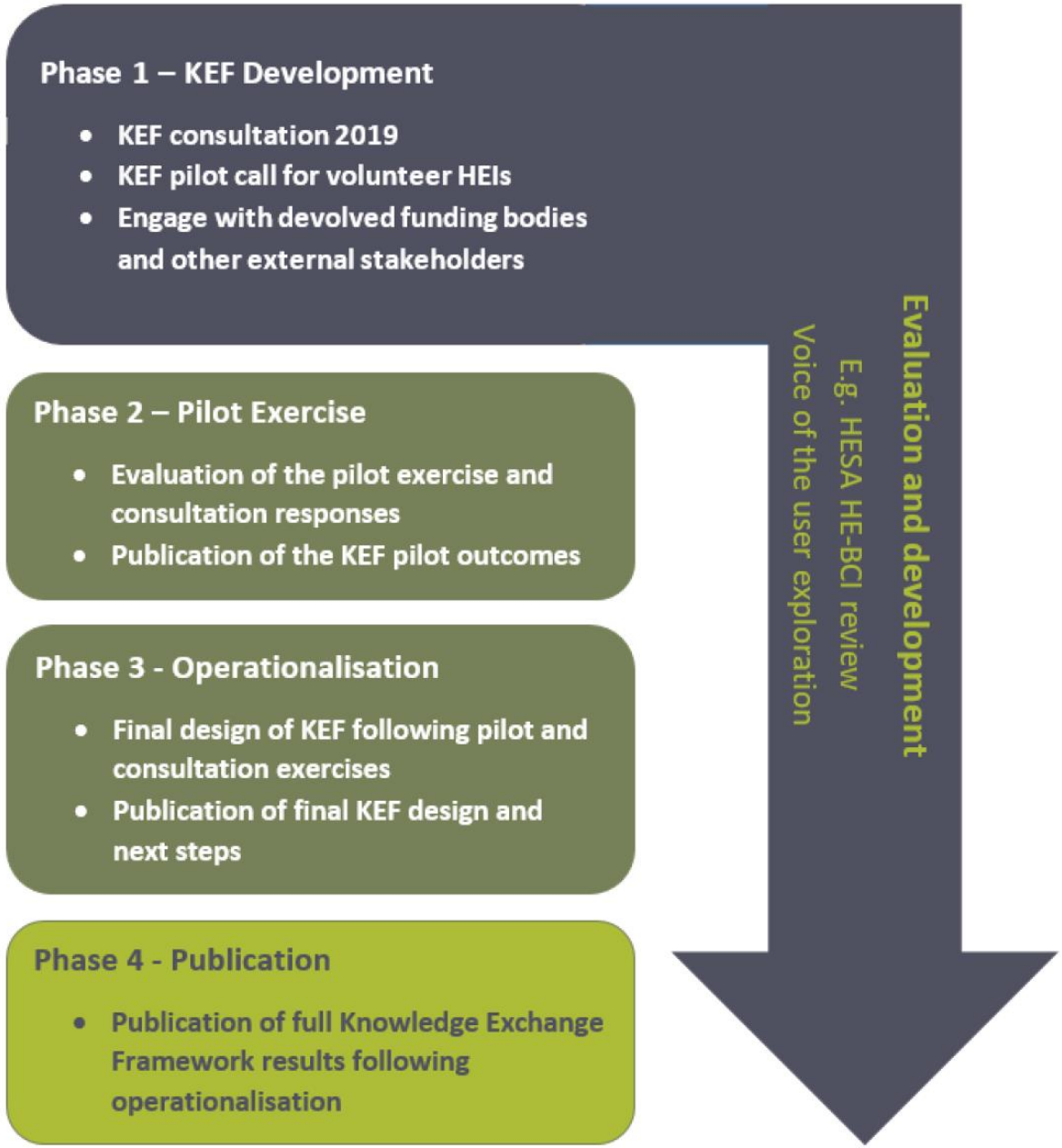
Purpose(s)

1. More accessible information and data for institutions to understand and improve their own performance.

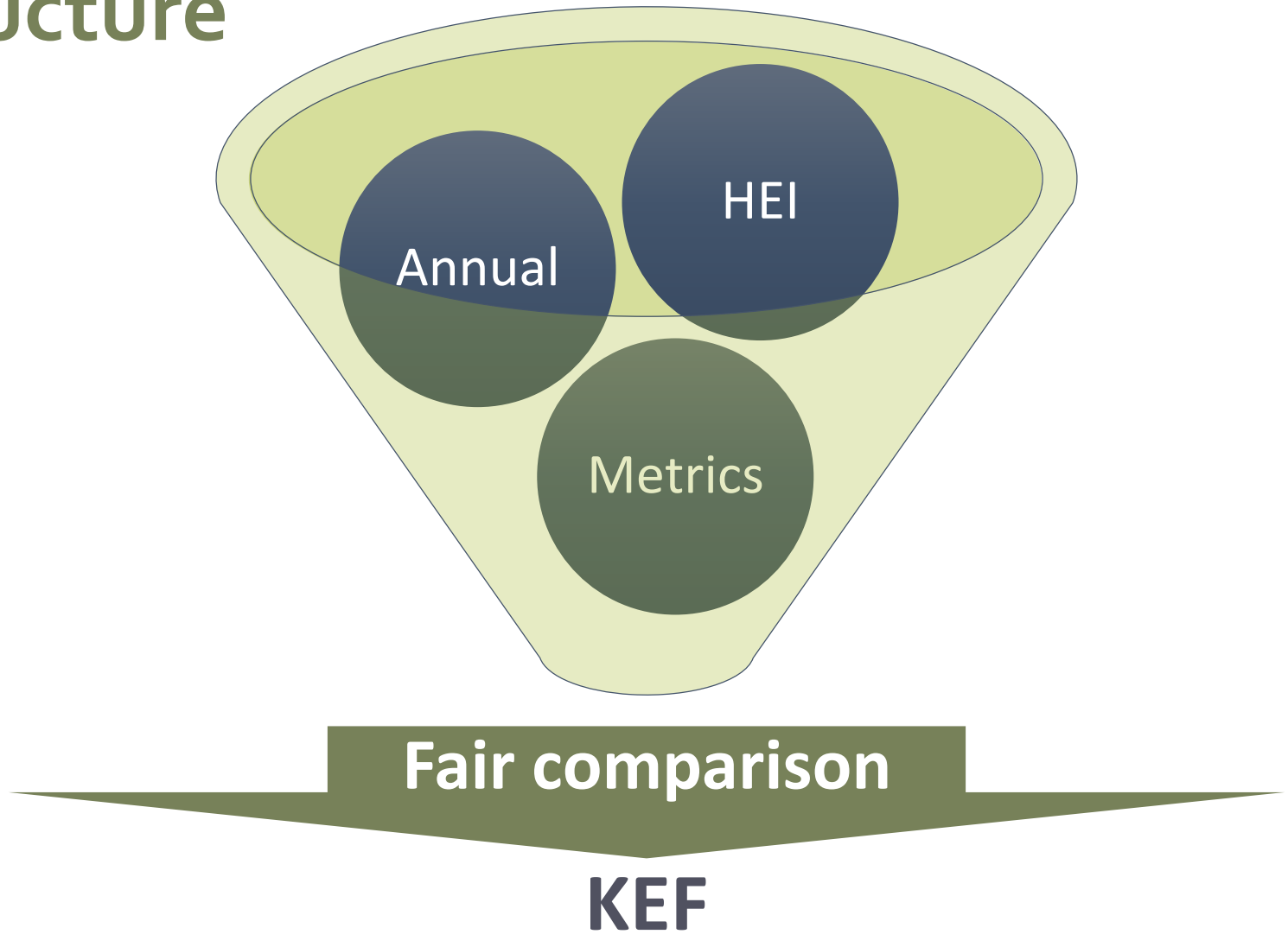
2. More information for businesses and other users of university knowledge and resources.

3. Increased public visibility and accountability.

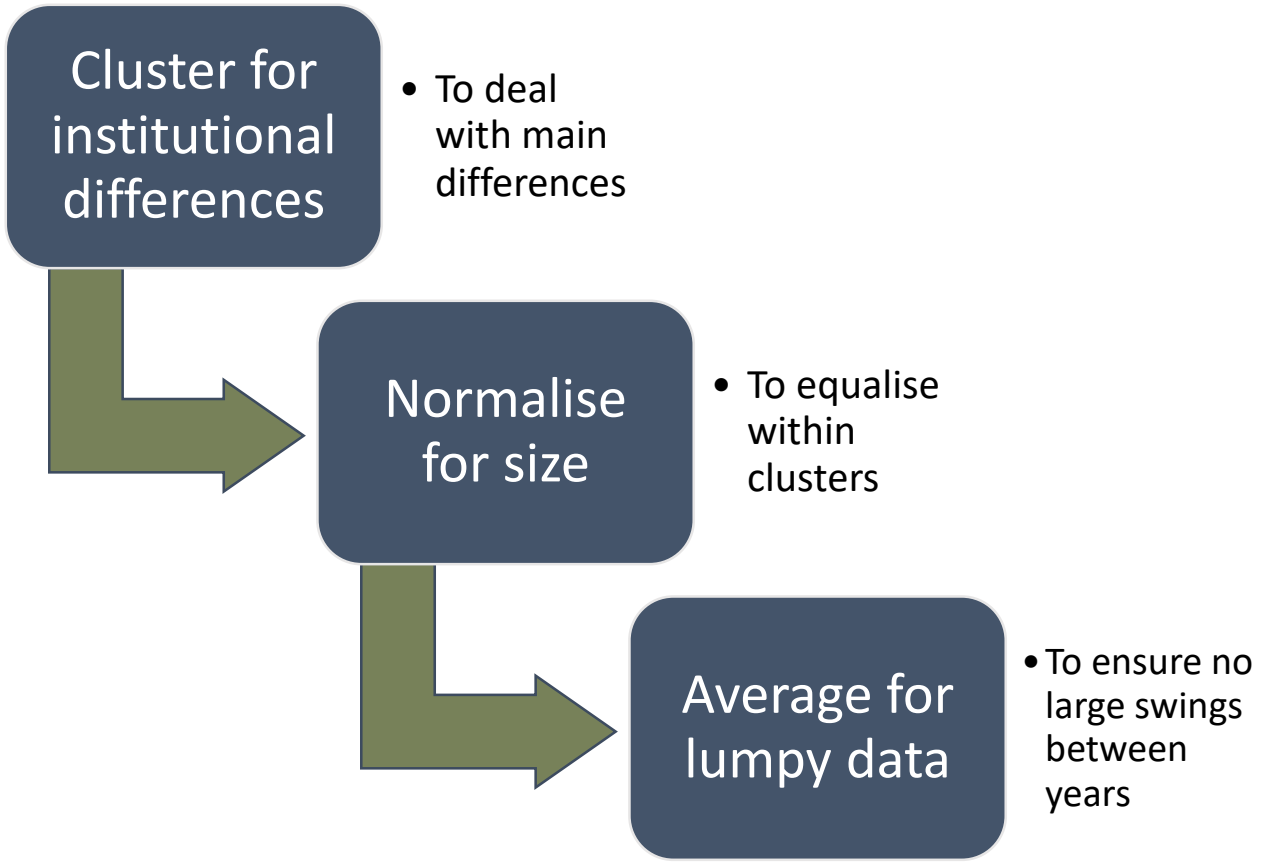
Implementation



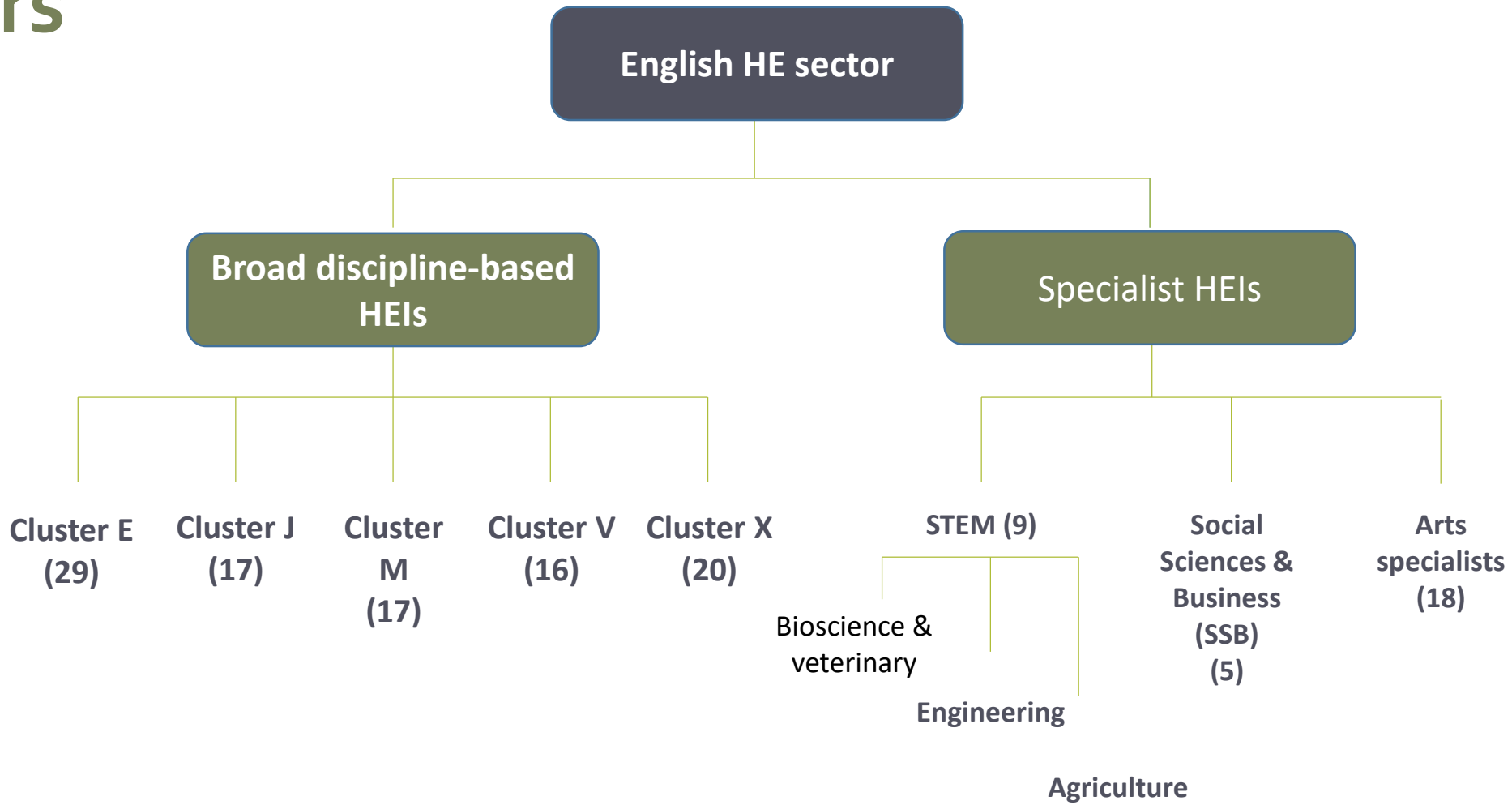
Core structure



Fair comparison



Clusters


English HE sector
Broad discipline-based HEIs
Specialist HEIs
Cluster E (29)
Cluster J (17)
Cluster M (17)
Cluster V (16)
Cluster X (20)
STEM (9)
Bioscience & veterinary
Engineering
Agriculture
Social Sciences & Business (SSB) (5)
Arts specialists (18)

Perspectives

Metrics

Useful

Robust

Universal

Timely

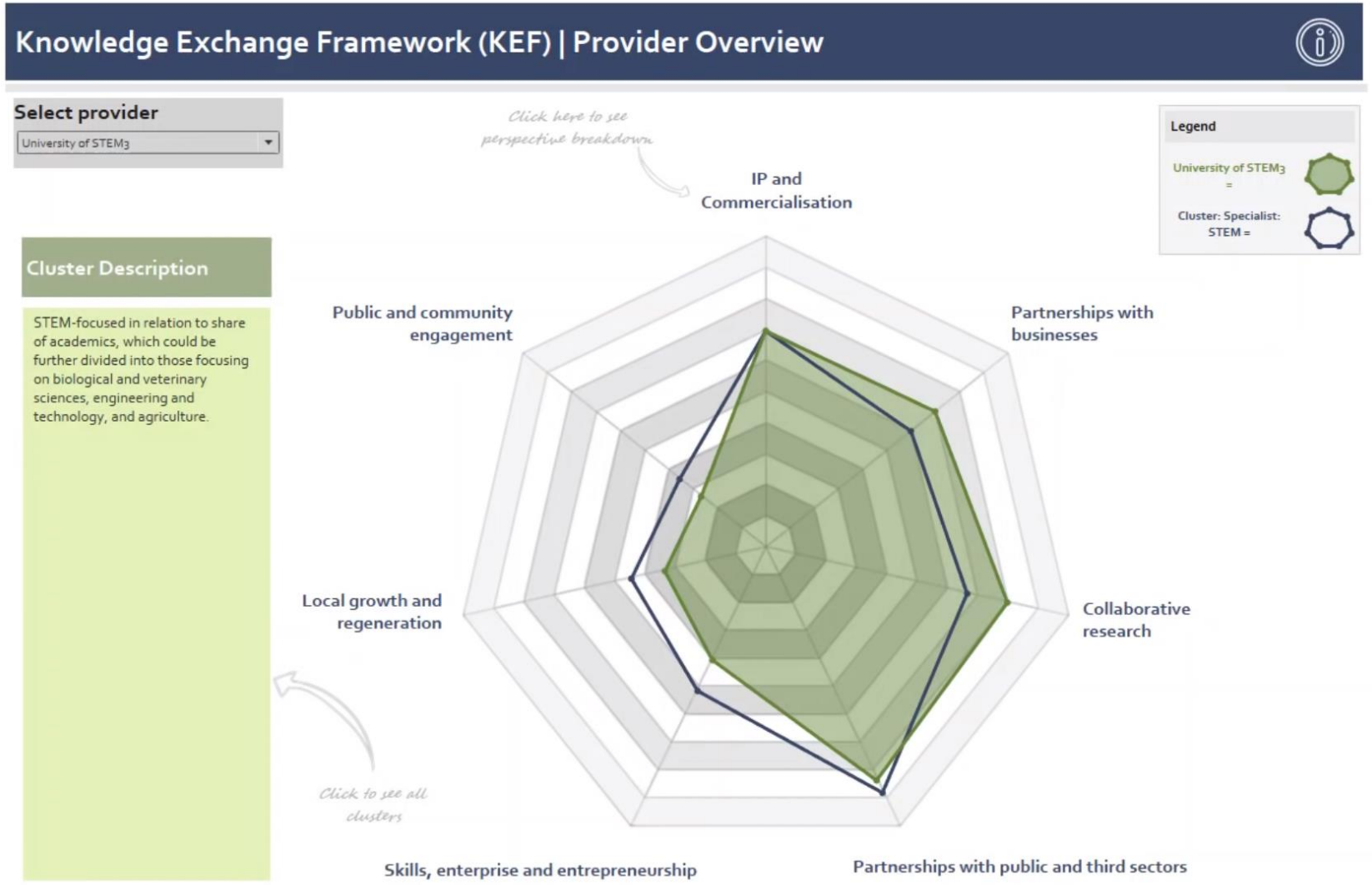
Focussed

And for this first iteration of the KEF…**already available**.

Use of narrative

1. Marker
2. Useful contextual information
3. Comparison

Visualisation



Research England

KEF current/next steps

- Pilots – on-going
- Consultation – just closed
- Next steps
- HEBCI review

Alice Frost
Director of Knowledge Exchange

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@ResEngland
www.ukri.org/re

Research England

Panel

Sharon Ellis (chair)

Phil Clare
Maria de Kleijn
Lesley Thompson

Maddy Nichols
Martin Sadler
Alice Frost

Thank you

on behalf of

AESIS

NETWORK FOR
ADVANCING & EVALUATING THE SOCIETAL IMPACT OF SCIENCE

ELSEVIER

Knowledge Exchange Structures for Impact

16 May, St. Catherine's College, Oxford

Impact of Science

Understanding causalities, correlations and pre-conditions for the different dimensions of societal impact of science

5-7 June 2019
Berlin, Germany

Impact of SSH on Society

Optimising and assessing societal impact of SSH by engaging with government, industry and the public as a whole

17-18 October 2019
Washington DC, USA

AESIS

RECEPTION

17:30 – 18:30