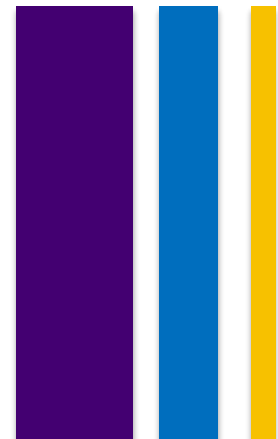




New Approaches to Data Science Call Information Day

15 November 2016



10:30 Introduction

Dr Liam Blackwell, EPSRC

10:50 Details on the scope and requirements of the call

EPSRC

11:30 Coffee and networking

12:00 Interaction with the Alan Turing Institute

Professor Sir Alan Wilson, The Alan Turing Institute

12:10 Speakers

Professor Des Higham, Strathclyde

Professor Robert Stevens, Manchester

12:40 Lunch and networking

13:40 Speakers

Dr Ben Dias, Tesco

Dr Sian Thomas, Food Standards Agency

14:10 Panel Discussion

14:40 Final Q&A





Setting the wider context

Dr Liam Blackwell, ICT Theme Lead, EPSRC



EPSRC central to UK prosperity

RESEARCH COUNCILS

RCUK
AHRC
BBSRC
ESRC
MRC
NERC
STFC

GOVERNMENT DEPARTMENTS

BEIS
HO
DoH
DfT
MOD

UK PROSPERITY



ACADEMIA

University partners
Learned societies
Professional bodies

INDUSTRY

Innovate UK
Leadership Councils
Strategic Partners





The UK's success will be driven by whole new industries and services, as yet unimagined, as well as new, more cost effective ways of delivering existing services through the development of transformational technologies to connect people, things and data together, in safe, smart, secure, trustworthy, productive and efficient ways.

This will be a major driver of economic growth and efficiency across all regions and sectors of the UK. This will rely on discovery and innovation in mathematical sciences, computing, engineering and physical sciences and is essential to the continued delivery of a knowledge economy.

- C1: Enable a competitive and data driven economy
- C2: Achieve transformational development and use of the Internet of Things
- C3: Deliver intelligent technologies and systems
- C4: Ensure a safe and trusted cyber society
- C5: Design for an inclusive, innovative and confident digital society

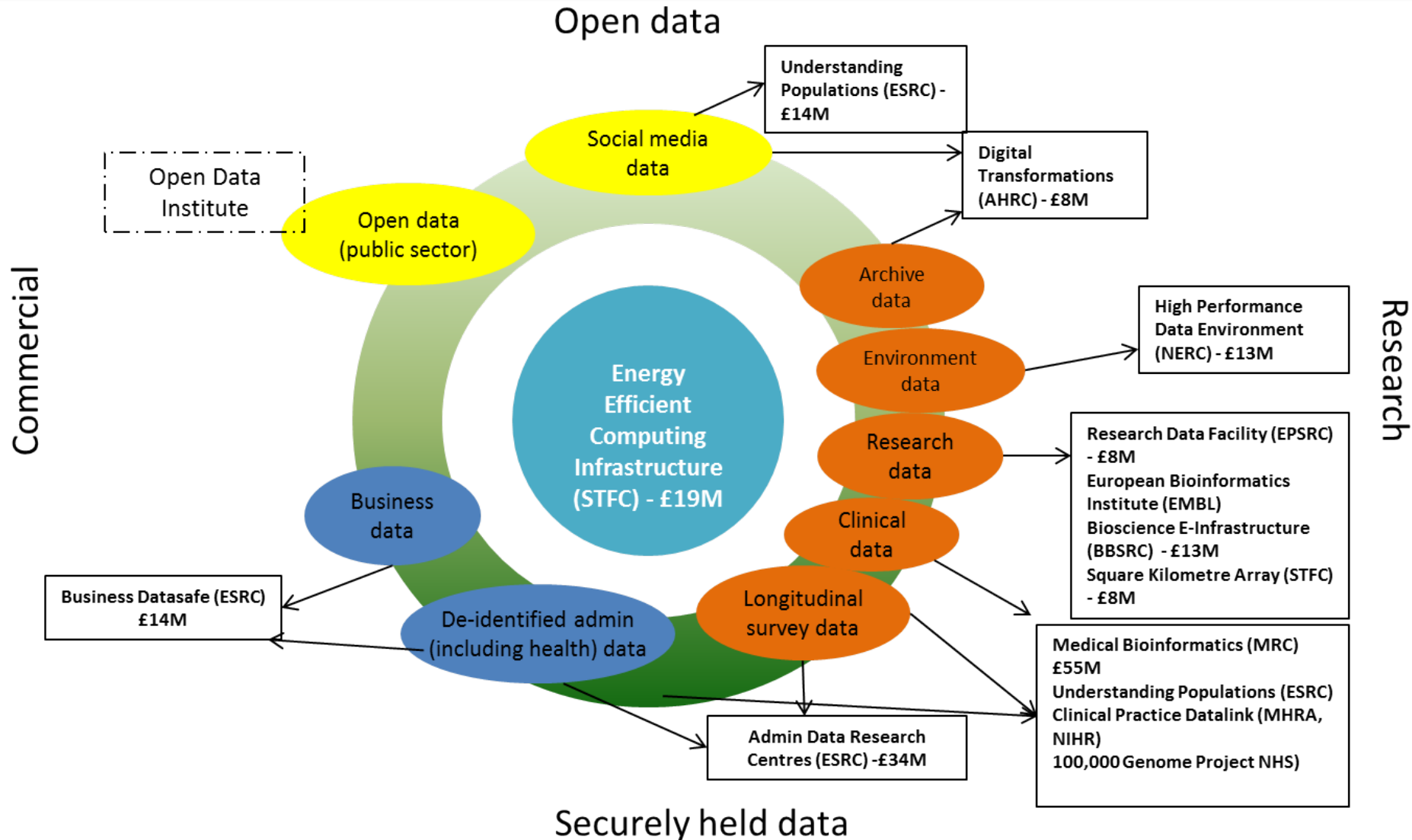


- Delivering the next generation of big data capabilities using novel mathematical and statistical techniques and data analytics to generate insight and value for future business and society, enabling efficient, agile responses to a rapidly changing global market.



RCUK 'Big Data' Landscape –

£189M for capital, Autumn statement 2012



Big Data: Big Opportunity – EPSRC high level position statement 2015

We cannot make sense of Big Data without new tools and methods to harvest, structure and analyse it. The full value of Big Data will only be realised through fundamental research in engineering, mathematics and computer science

Sir Nigel Shadbolt, Professor of Artificial Intelligence, University of Southampton, and Chairman of the Open Data Institute¹

Big Data provides a unique opportunity to deliver better healthcare at lower cost

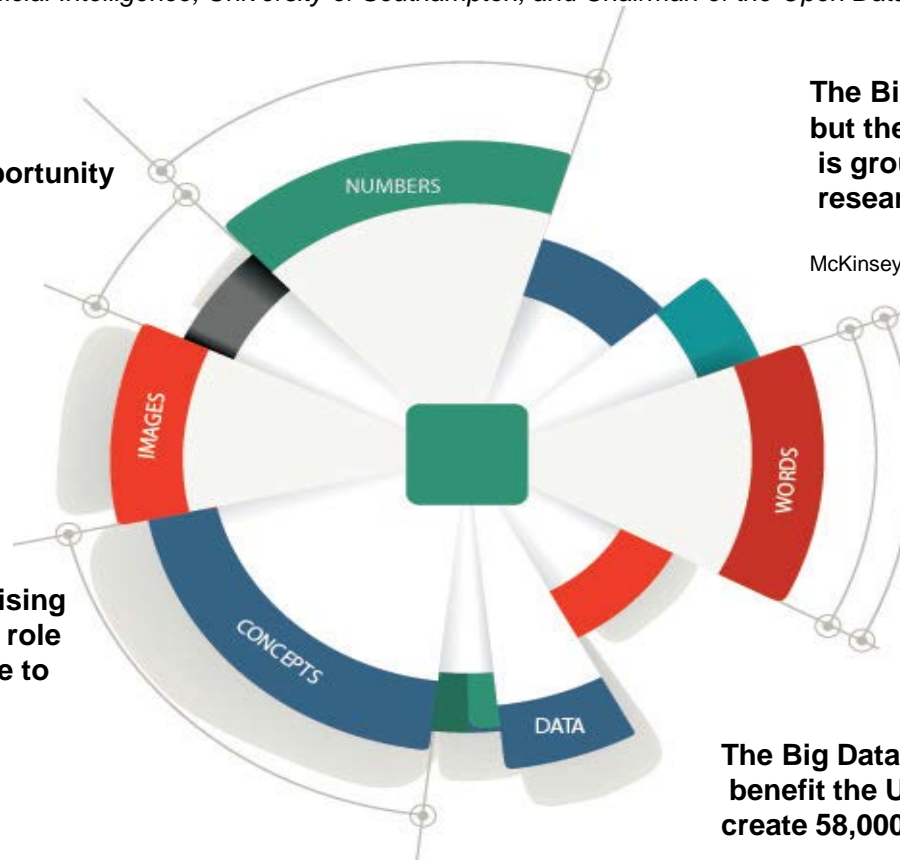
Sir John Bell, Regius Professor of Medicine, University of Oxford

Analysing, simulating and visualising complex data plays an important role in our business, and will continue to expand in the future

Dr Wolfgang Epple, Director for Research and Development, Jaguar Land Rover

The Big Data era has only just emerged but the practice of advanced analytics is grounded in years of mathematical research and scientific application

McKinsey, How Big Data Can Improve Manufacturing, July 2014



The Big Data marketplace could benefit the UK economy by £216 billion and create 58,000 new jobs in the UK before 2017

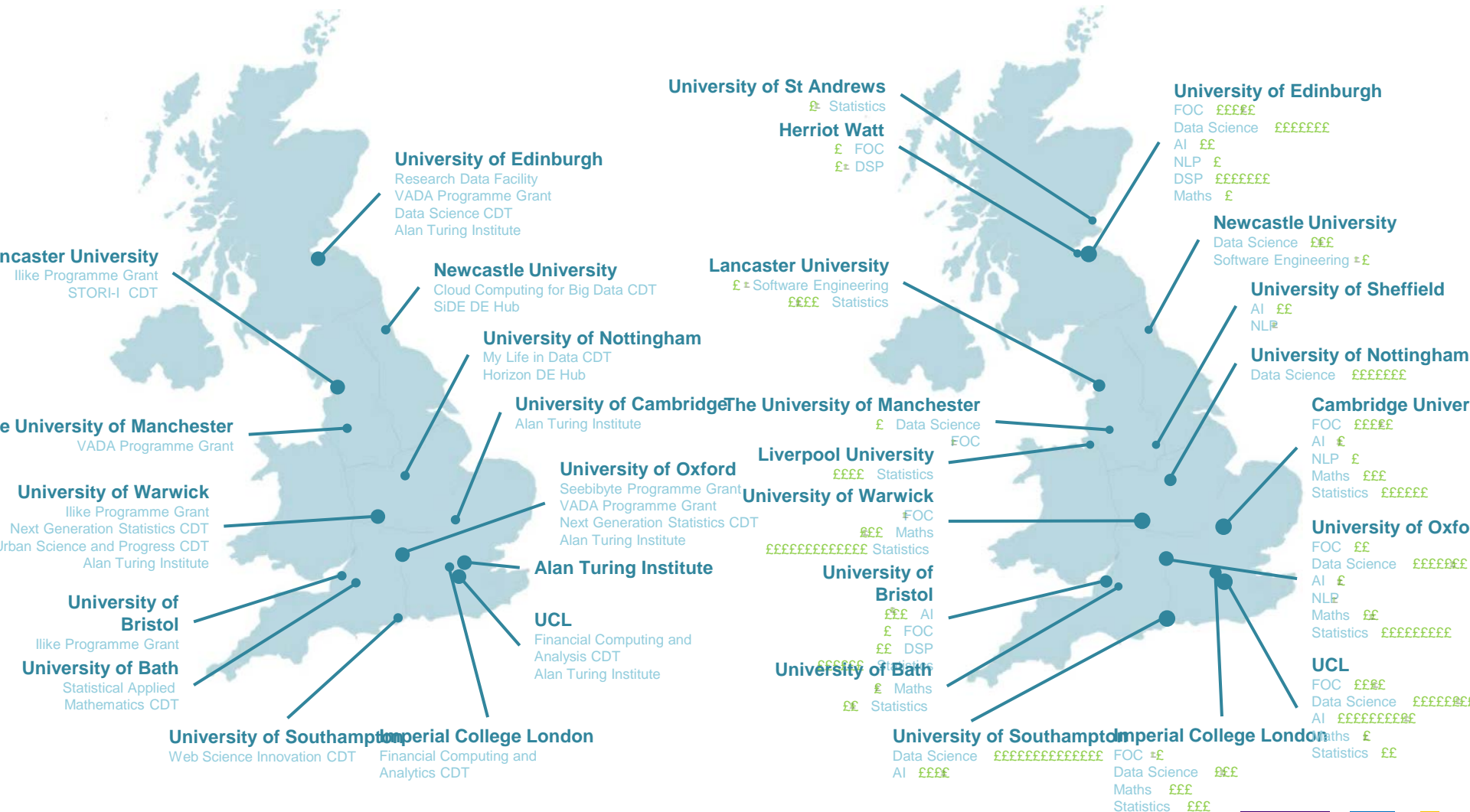
Centre for Economics and Business Research

¹EPSRC High Level Position Statement: Big Data – Big Potential 2015



Large EPSRC Investments in Big Data Analytics

Capability (based on limited information gathered by EPSRC)



Current training portfolio - EPSRC Centres for Doctoral Training relevant to 'Data Science'

- ■ ■ My Life in Data, Professor Steve Benford, University of Nottingham
- ■ ■ Financial Computing & Analytics (covering Computational finance, Financial ICT, Regulation, Retail), Professor Philip Treleaven, University College London
- ■ ■ Data Science, Professor Chris Williams, University of Edinburgh
- ■ ■ Urban Science and Progress, Professor Stephen Jarvis, University of Warwick
- ■ ■ Cloud Computing for Big Data, Professor Paul Watson, Newcastle University
- ■ ■ Statistical Applied Mathematics at Bath (SAMBa), Professor Andreas Kyprianou, University of Bath
- ■ ■ Next Generation Statistical Science: the Oxford-Warwick Statistics Programme, Professor Christopher Holmes, University of Oxford
- ■ ■ Statistics and Operational Research, Professor Jonathan Tawn, Lancaster University



Other activities include:

- ■ ■ 'Making sense from Data' call – 6 grants funded in Autumn 2015
- ■ ■ Digital Economy IoT fellowship priority focussing on data analytics
- ■ ■ Fellowship priority in Statistics and Applied Probability
- ■ ■ Trust, Identity, Privacy and Security, including data aspects – Digital Economy call (grants funded March 2016) and fellowships
- ■ ■ Balancing Capability



- ■ ■ EPSRC Cross-SAT Big Data workshop
- ■ ■ RCUK Data for Discovery workshop
- ■ ■ ICT Perspectives on Big Data Analytics workshop
- ■ ■ Mathematical Sciences Evidence and Engagement workshops
- ■ ■ Data Science in Balancing Capability input meeting (hosted by Alan Turing Institute)



Questions?





Scope and requirements of the call

EPSRC

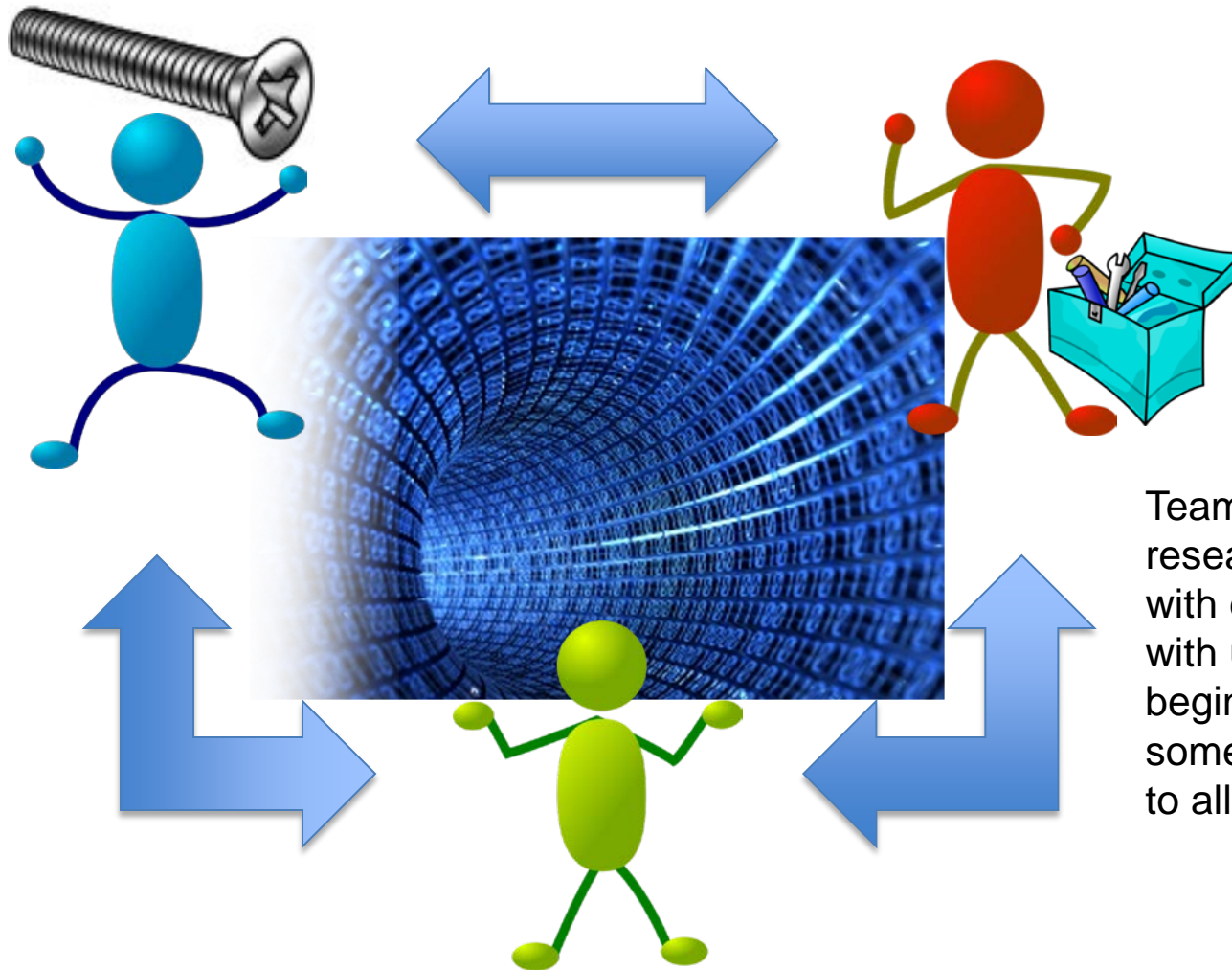


- ■ ■ To make a difference in an already busy and fast-moving landscape....
- ■ ■ To support some (challenging, adventurous, different, exciting, transformative....) New Approaches in Data Science, driven by real-world challenges
- ■ ■ To support 3-4 sizeable programmes of research involving teams of researchers in Mathematical Sciences, ICT and other disciplines working in close collaboration with partners
- ■ ■ To support programmes involving novel Maths and/or ICT research
- ■ ■ To provide complementary support to existing investments in Data Science
- ■ ■ To encourage a culture change in terms of how people work together in this area, building close and lasting collaborations (more on next slide...)

Don't forget.. for smaller proposals or ideas that don't quite fit this brief there is always standard mode.....



What the heck is co-creation?



Teams of researchers working with each other and with users, from the beginning, to create something with value to all.



Institutional requirements – supporting a ‘culture change’

- Explain how they will ensure the new approach to data science is encouraged and supported beyond the length of the grant

What could this look like?

- Additional support for people (short term interns, time for secondments, students...)
- Space for collaborative work
- Access to professional services
- Opportunities for wider engagement
- Access to facilities/equipment
- Partnership with other institutions



- ■ ■ User could be another discipline, SME, big company, third sector, data holder, data producer, data consumer.....

- ■ ■ Will put summaries into report



- ■ ■ What size proposal are you expecting?
 - ■ ■ Up to £10M to support 3-4 grants
 - ■ ■ No strict minimum or maximum – up to applicants to justify

- ■ ■ How long does the proposed project have to be?
 - ■ ■ Ultimately looking for substantial programmes of work
 - ■ ■ No strict minimum or maximum – up to applicants to justify

- ■ ■ Are we allowed to request equipment?
 - ■ ■ Rules for standard mode apply

- ■ ■ Any single investigator is only permitted to appear on one proposal, either as investigator or co-investigator

- ■ ■ We expect an independent advisory board to be appointed to provide guidance and advice



Assessment criteria for Outline Call

Fit to call:

- New approach to data science challenges which is genuinely problem-driven
- Collaborations involving researchers from different areas of data science working with each other and with users of data
- Substantial institutional support for development of an activity that will catalyse long term culture change and build skills capacity

Quality of research, including:

- Novelty and timeliness
- The ambition, adventure and transformative aspects identified
- Appropriateness of proposed methodology

National importance:

- Contribution of the proposal to other research areas, societal challenges, success of UK economy, emerging industry. For more information about EPSRC's portfolio and strategies, see our website: <https://www.epsrc.ac.uk/research/ourportfolio/>
- New activity that complements recent investments in the area of data science in the UK (e.g. relevant current EPSRC grants, Alan Turing Institute, Farr Institute, etc.) and cannot be supported through any other means.

Pathways to impact:

- Relevance and appropriateness of any beneficiaries or collaborators, evidence that the proposal has been developed in partnership to deliver maximum impact.
- Plans for dissemination and knowledge exchange.

Ability of applicant team to deliver the research, including:

- The leadership quality and experience of the Principal Investigator
- Track record of the team in data science
- Balance of skills of the project team and integration of different methodologies and approaches, and different parts of the data science landscape
- Demonstration of a culture of co-creation, with commitment from all partners to engage with each other throughout the research programme

Outline call closes	24 January 2017
Outline panel	W/b 28 March 2017
Full Call closes	W/b 19 June 2017
Interview panel	W/b 09 October 2017



- Please feed back to your colleagues at institutions (or beyond)
- We will be publishing a report, FAQ and the slides on our webpages
- Please get in touch if you have any further questions

Miriam Dowle	ICT	miriam.dowle@epsrc.ac.uk
Claire Tansley	Digital Economy	claire.tansley@epsrc.ac.uk
Michele Erat	Mathematical Sciences	michele.erat@epsrc.ac.uk
Catherine Godbold	Business Relationships	catherine.godbold@epsrc.ac.uk

Turing Gateway to Mathematics

- Launched in March 2013, the TGM is the impact initiative of the Isaac Newton Institute for Mathematical Sciences (INI)
- Acts as a vehicle for knowledge exchange (KE) between the mathematical sciences and users of maths – industry, government, other academic disciplines
- KE intermediary working at a national level to stimulate dissemination and translation of mathematical research and expertise
- A delivery partner for user engagement activities working with academia, industry, funding bodies, networks and centres
- Proven methodologies to maximise knowledge exchange through broad brokering, high quality events, specific brokering for collaborations
- Strong track record of maximising participation across all stakeholders via a wide range of science and industry areas, growing communities
- Contact: Jane Leeks – j.leeks@turing-gateway.cam.ac.uk

Questions?

