Innovate UK

Innovation funding, knowledge exchange and academic-business engagement

Funding & Support for Business Led Innovation

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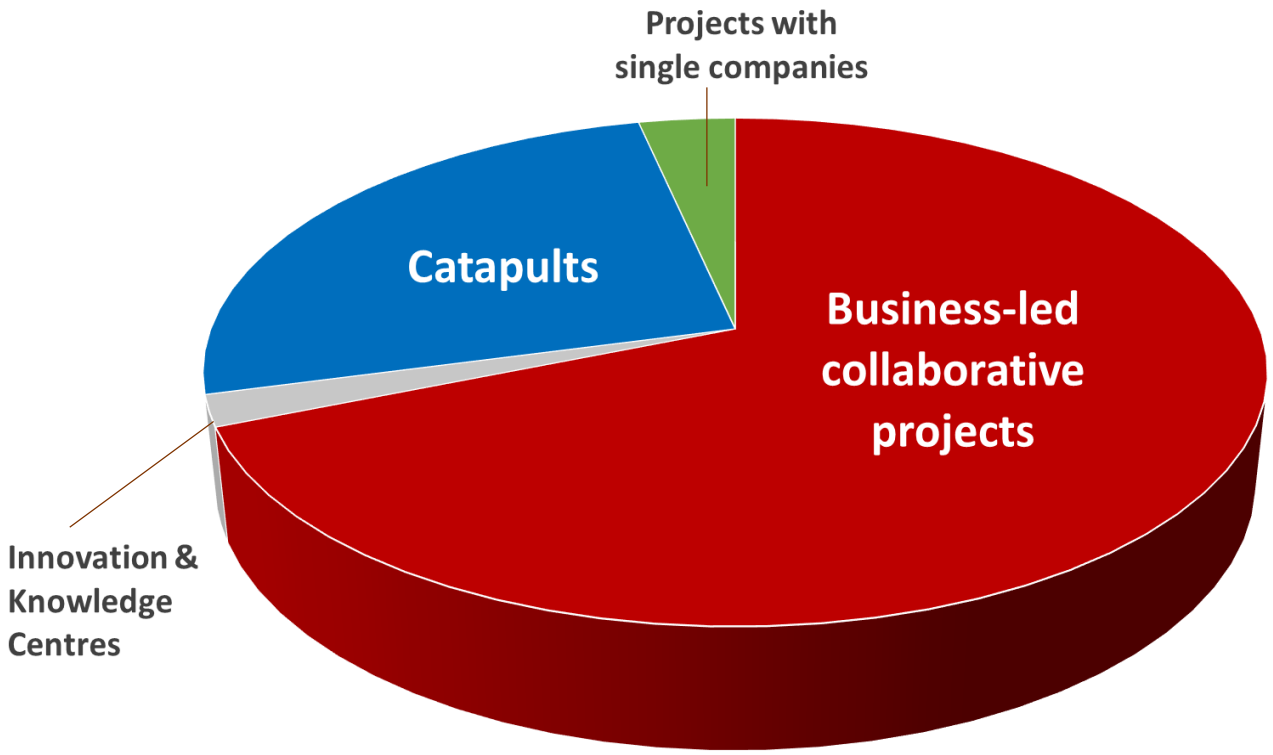
Technology readiness level (TRL)	1	2	3	4	5	6	7	8	9
Activity	**Discovery & Research**		**Innovation**					**Commercialisation**	
TRL Description	Basic principles observed and reported	Concept or application formulated	Experimental proof of concept	Concept or process validated in laboratory	System or component validated in relevant environment	System model or demonstrator in relevant environment	System prototyping demonstrator in operational environment	Actual System completed and qualified test & demo operational environment	Actual system mission proven in successful mission operations

Source: NASA Technology Readiness Level model

Where does Innovate UK funding go?



- **60%** businesses
- **20%** researchers
- **20%** RTOs
- **82%** of collaborative projects involve research base partner
- We work with **>140** individual research base organisations (inc Institutes and RTOs)

- *Projects with 2 or more academic partners have greater return on investment*

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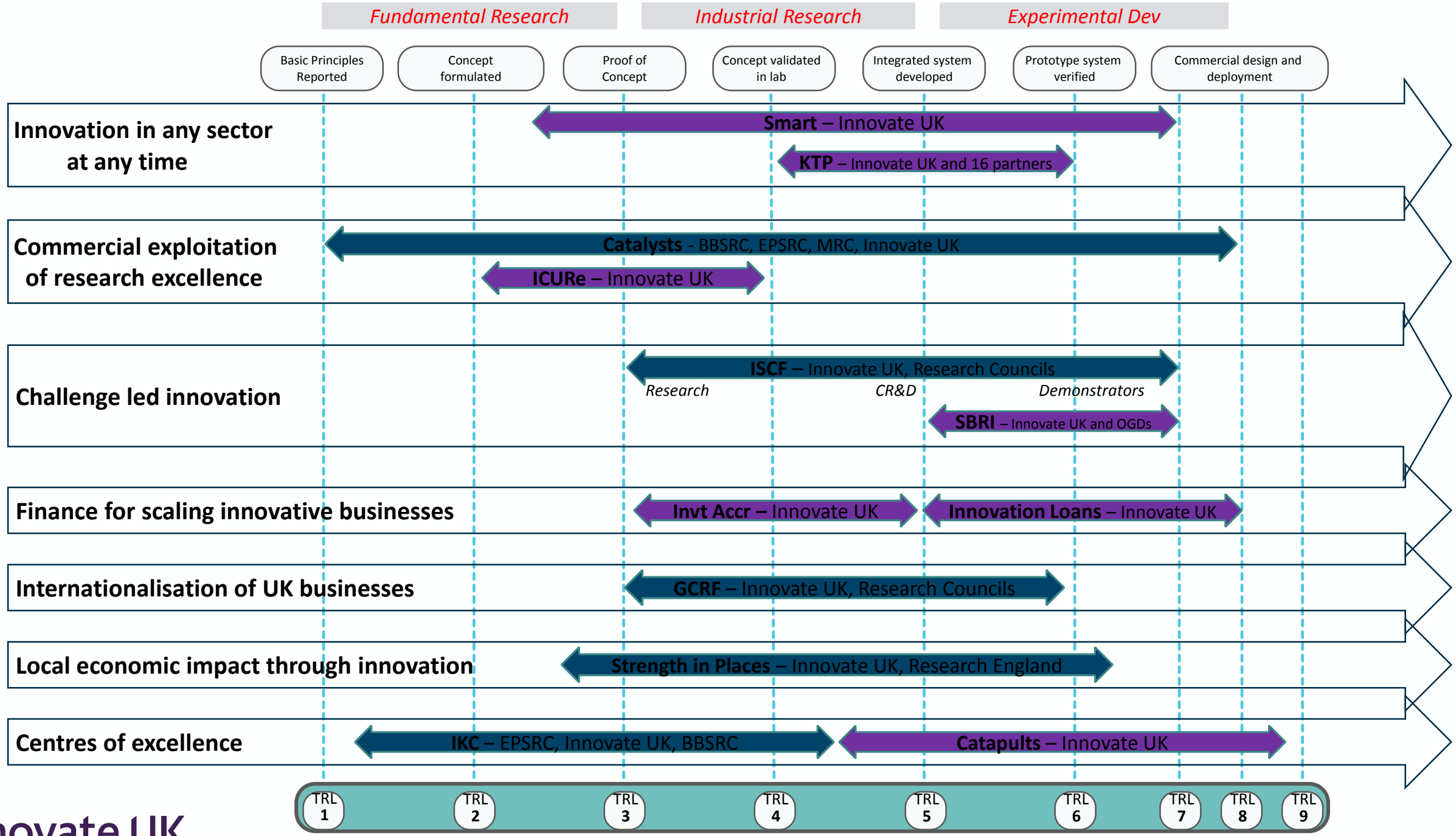
Fundamental Research
Industrial Research
Experimental Dev
Basic Principles Reported
Concept formulated
Proof of Concept
Concept validated in lab
Integrated system developed
Prototype system verified
Commercial design and deployment
Innovation in any sector at any time
Smart – Innovate UK
KTP – Innovate UK and 16 partners
Commercial exploitation of research excellence
Catalysts - BBSRC, EPSRC, MRC, Innovate UK
ICURe – Innovate UK
Challenge led innovation
ISCF – Innovate UK, Research Councils
Research
CR&D
Demonstrators
SBRI – Innovate UK and OGDs
Finance for scaling innovative businesses
Invt Accr – Innovate UK
Innovation Loans – Innovate UK
Internationalisation of UK businesses
GCRF – Innovate UK, Research Councils
Local economic impact through innovation
Strength in Places – Innovate UK, Research England
Centres of excellence
IKC – EPSRC, Innovate UK, BBSRC
Catapults – Innovate UK
TRL 1
TRL 2
TRL 3
TRL 4
TRL 5
TRL 6
TRL 7
TRL 8
TRL 9

Innovate UK

Smart grants

- Innovate UK Smart grants support development of disruptive ideas from UK businesses, through a regular, competitive application process
- Grants are for projects that offer a major innovation and have strong potential for commercialisation
  - an idea for a completely new product, service or process
  - a brand-new use or an unprecedented use for an existing product, service or process
  - In any industry or technology area
- Businesses in the UK of any size can apply for grants
  - Needs 30-50% match funding
- They can work alone or with other businesses, the research base or third sector, depending on the amount of grant and the duration of the project

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Knowledge Transfer Partnership

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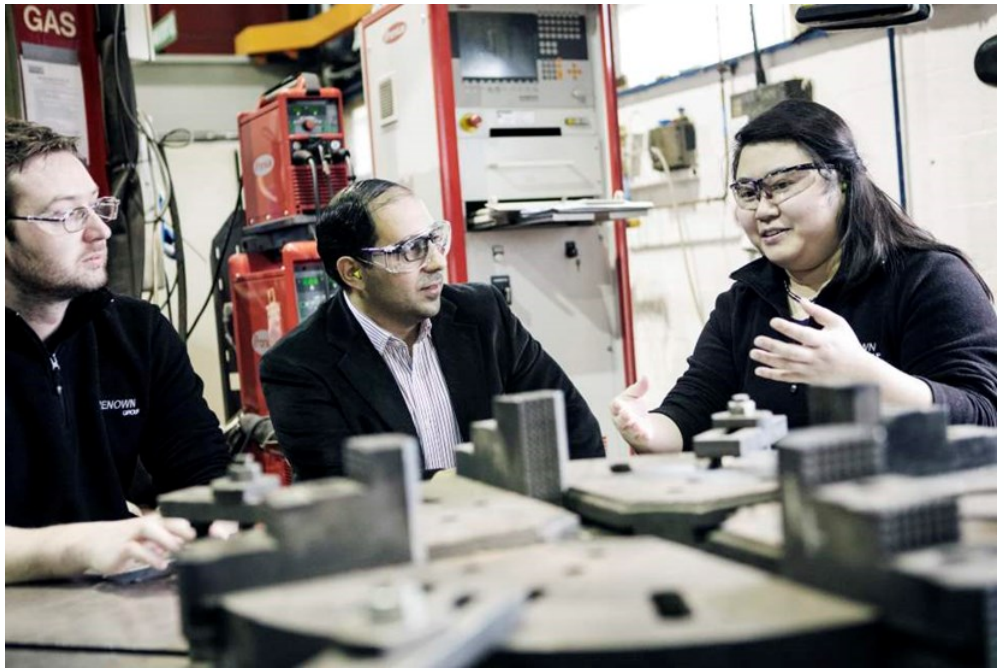
- A KTP is a 3-way partnership between:
  - a UK-based ***business*** of any size or not-for-profit
  - an ***academic*** or research organisation
  - a suitably-qualified graduate, known as an ***Associate***, with the capability to lead a strategic business project
- A KTP enables a business to access new skills and latest academic thinking
- The academic partner employs the associate, who works at the company during the project



- A KTP can last between 12 and 36 months, depending on the project and the needs of the business
- KTP programme is approx. £30m p.a., we currently have 700+ KTPs running (£120k avg)

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Home / Innovation / Creating new businesses

Creating new businesses and helping new businesses to innovate

Company name	No of projects	Grant funding (£k)	Total costs (£k)
Anacail	9	950	1,400
Kromek	11	2,100	3,500
Ikinema	1	195	432
Zeeko	5	850	1,400
Imitec	2	110	174
Mirico	3	500	868
Cella Energy	5	393	700
Teratech	2	150	325
Keit	2	118	267
Electrospinning	5	171	740
Constellation	1	50	102
Cobalt	1	180	400
ThruVision	1	142	387
Oxsensis	13	3,200	5,800
Petrra	1	50	131
Total	**62**	**9,159**	**16,626**

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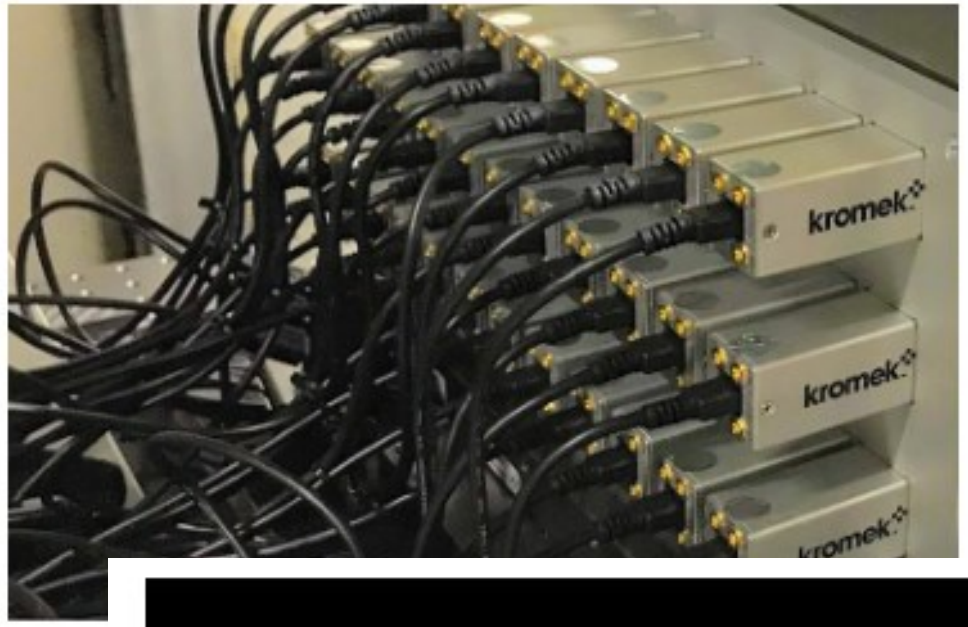
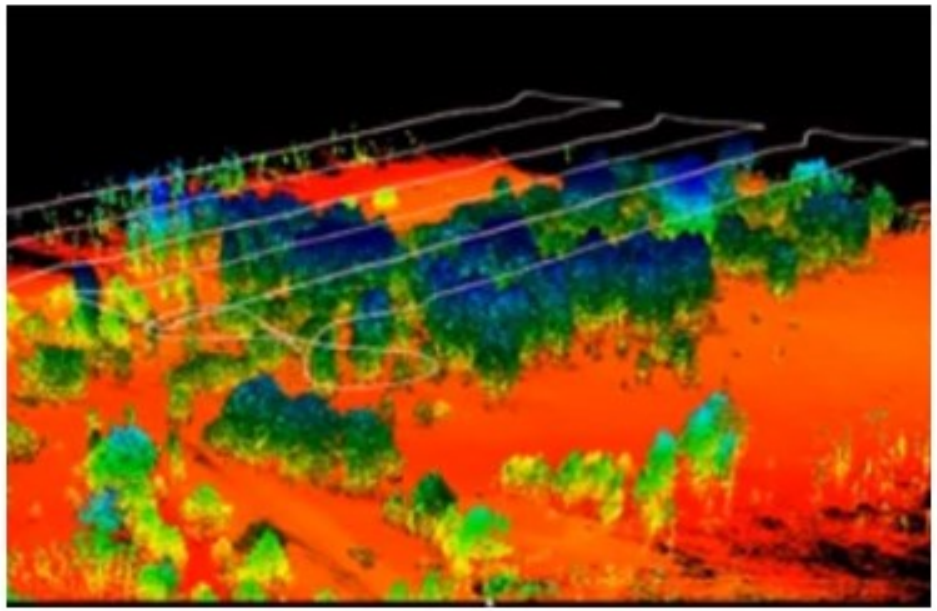
kromek

- CZT radiation detectors, medical imaging
- Durham spin-out in 2003
- 11 Innovate UK projects since 2012
  - £2m grant, out of £3.5m costs
  - £50k-£680k
  - Novel technology, new markets
  - 5 on their own
  - Others with Edinburgh, York, Kings College London
  - Also with Newcastle NHS trust, Catapult (CPI)
- Innovate UK, DARPA, NASA
- Grown to 108 employees, across 4 sites (incl 2 in US)





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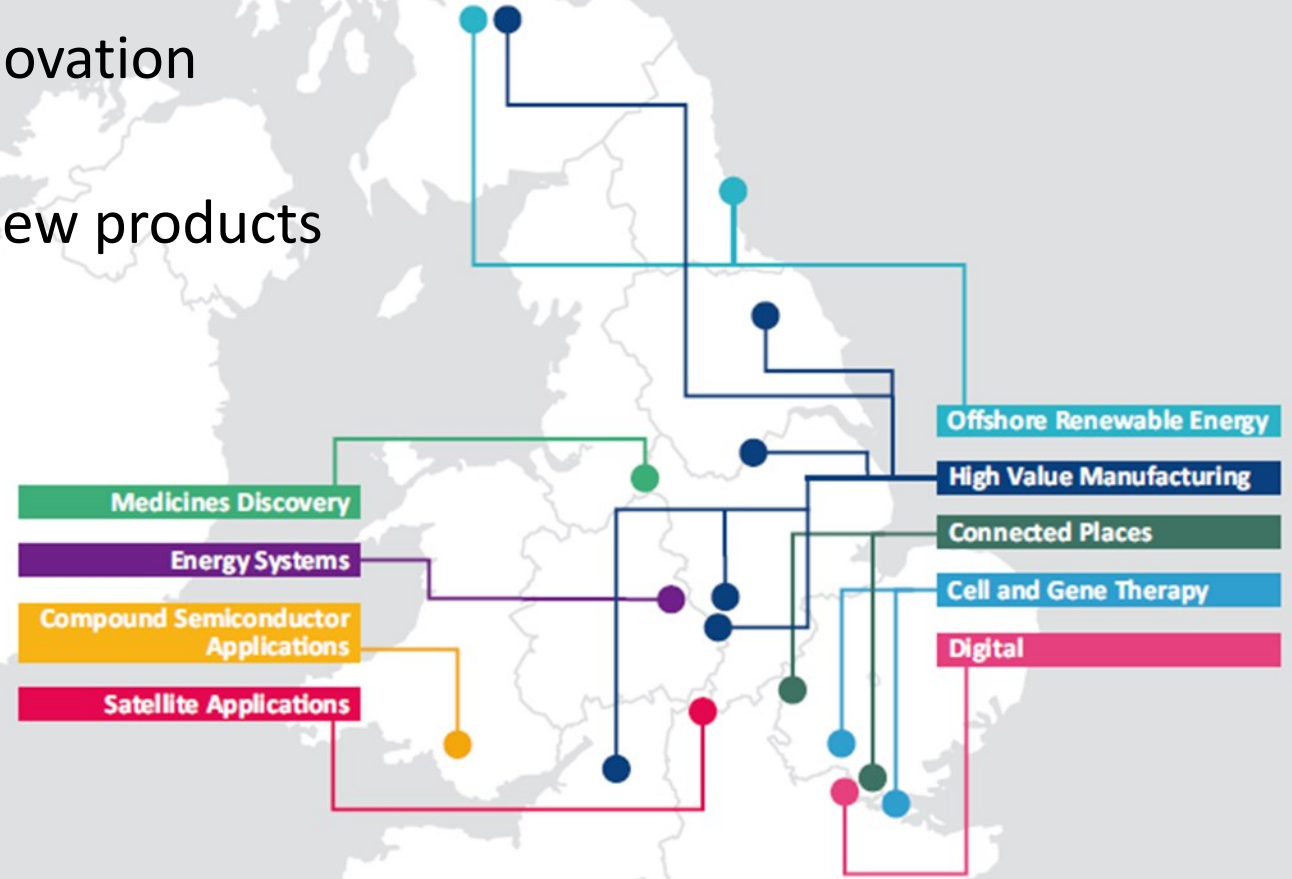
Catapult centres: access to cutting edge equipment and expertise

- bridge the gap between businesses, academia, research and government
- part of a network of technology and innovation centres
- transforming the UK's ability to create new products and services
- ensure global opportunities for the UK and sustained economic growth for the future



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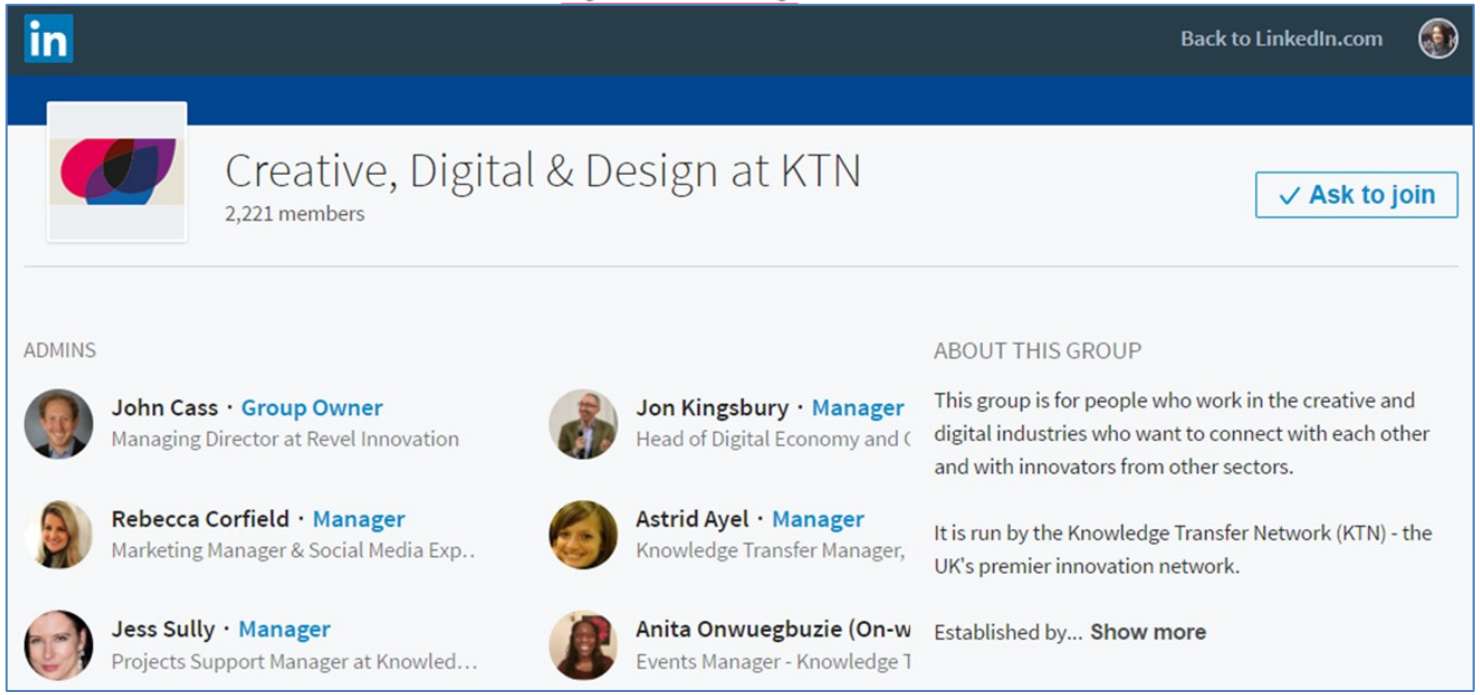
Innovate UK
Knowledge Transfer Network

Special Interest Groups

Additive Manufacturing
Compound Semiconductors
Energy Harvesting
Graphene and 2D Material
Immersive Experience
Quantum Technologies
Robotics and Artificial Intelligence
Sustainable Aviation Fuel
Synthetic Biology
Uncertainty Quantification and Management

Advanced Materials
Aerospace
Agri-Food
Bioscience & Biotechnology
Built Environment
Chemistry
Connected and Autonomous Vehicles (CAV)
Creative, Digital & Design
Cybersecurity



Sustainable Aviation Fuel
Synthetic Biology
The Internet of Things (IoT)
Transport
UK Additive Manufacturing

Industrial Strategy Challenge Fund

Innovate UK

- Delivers the science that business needs to **transform existing industries and create new ones**
- **Accelerates commercial exploitation** of the most exciting technologies the UK has to offer the world
- Ensures that scientific investment truly delivers **economic impact, jobs and growth right across the country**
- **Industry-led** and powered by **multi-disciplinary** research and **business-academic collaboration**

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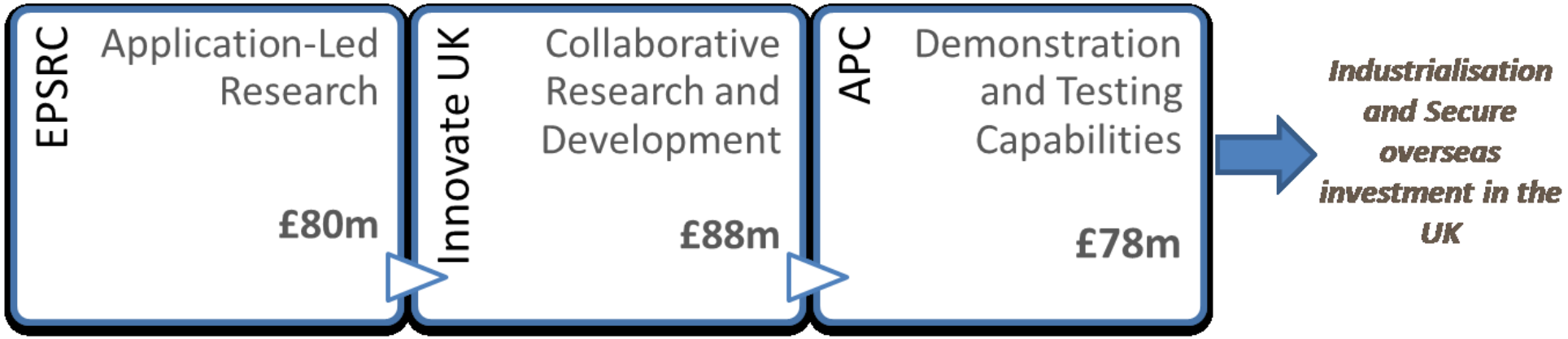
ISCF Faraday battery challenge

£246m to develop world leading **batteries**, designed and manufactured in the UK, to fully exploit the industrial opportunity of vehicle electrification



UK Battery Industrialisation Centre

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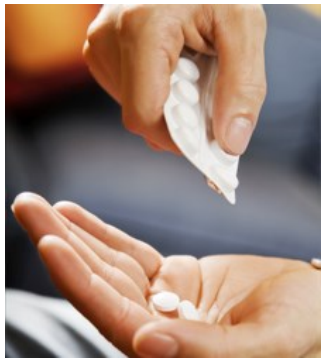
Any questions?

Innovate UK is part of
UK Research and Innovation

Industrial Strategy Challenge Fund: Wave 1 (c. £1bn)



Leading-Edge Healthcare Challenge (including Medicines Mfg) up to £188m

Faraday Battery Challenge up to £246m

Robotics and AI in extreme environments Challenge up to £93m

Next Gen. Affordable Lightweight Materials Mfg (ATI projects) up to £26m

Autonomous Vehicles (CCAV projects) up to £38m

National Satellite Test Facility up to £99m

Industrial Strategy Challenge Fund: Wave 2 (c.£700m)

Audience of the future (up to £33m)

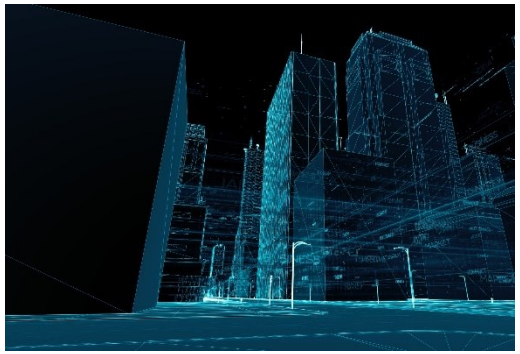
Early diagnosis & precision med (up to £196m)

Energy revolution (up to £102.5m)

Healthy ageing (up to £98m)

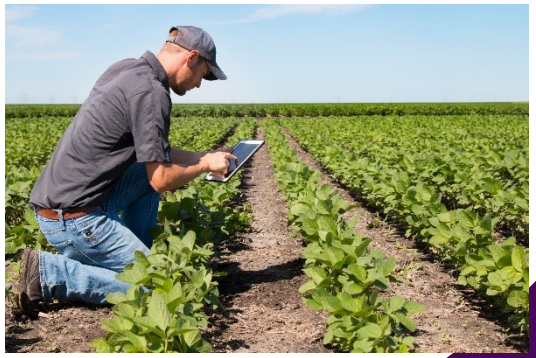
Next generation services (up to £20m)

Quantum technology (up to £20m)



Transforming construction (up to £170m)

Transforming food production (up to £90m)



Creative industries clusters programme & Audience of the future

- Rebalancing regional inequalities in the distribution of Creative Industries R&D
- Establishing new partnerships between research organisations and businesses across the UK, including connecting national and regional stakeholders
- We have funded nine University led creative clusters in total: one in Ireland, two in Scotland, one in Wales and the rest in England.
- Awards (both progs.) so far show a wide geographical spread across the four nations, with high concentration of activity in south-west England, south Wales, north-west England, east Scotland and northern Ireland

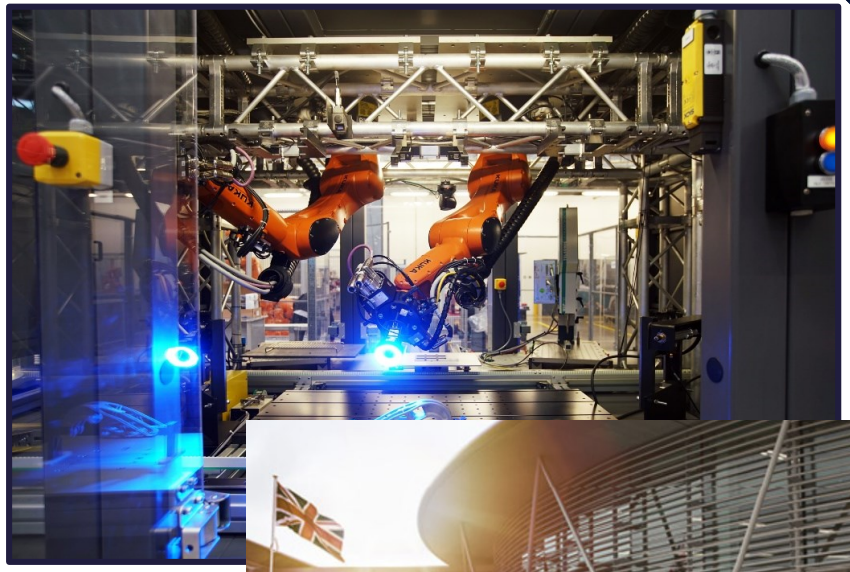
Wave 3 Challenge Shortlist
Subject to business case and successful negotiation

https://innovateuk.blog.gov.uk/2019/02/05/industrial-strategy-challenge-fund-wave-3-shortlist/

ISCF wave 3 challenge
Commercialising quantum technologies (up to £70m*) Digital security by design (up to £70m)
Accelerating detection of disease (up to £79m)
Industrial decarbonisation (up to £170m) Manufacturing made smarter (up to £121m*) Smart sustainable plastic packaging (up to £60m) Transforming foundation industries (up to £66m)
Driving the electric revolution (up to £78m*) Future flight (up to £125m)

CATAPULT
High Value Manufacturing

The go-to place for manufacturing technology innovation in the UK



- 7 centres working with industry, academia and government
- We help companies of all sizes prepare for the 4th Industrial Revolution and maximise their competitiveness
- We help bring the best research to market by bridging the gap between early stage innovation, and full scale commercial production
- 7 founding universities, and working with 57 universities in UK
- We offer access to over £600m worth of industrial scale, world class facilities and to over 2,000 engineers, scientist, technicians
- We help with the full range of manufacturing capabilities, from raw materials to product development, optimisation and automation

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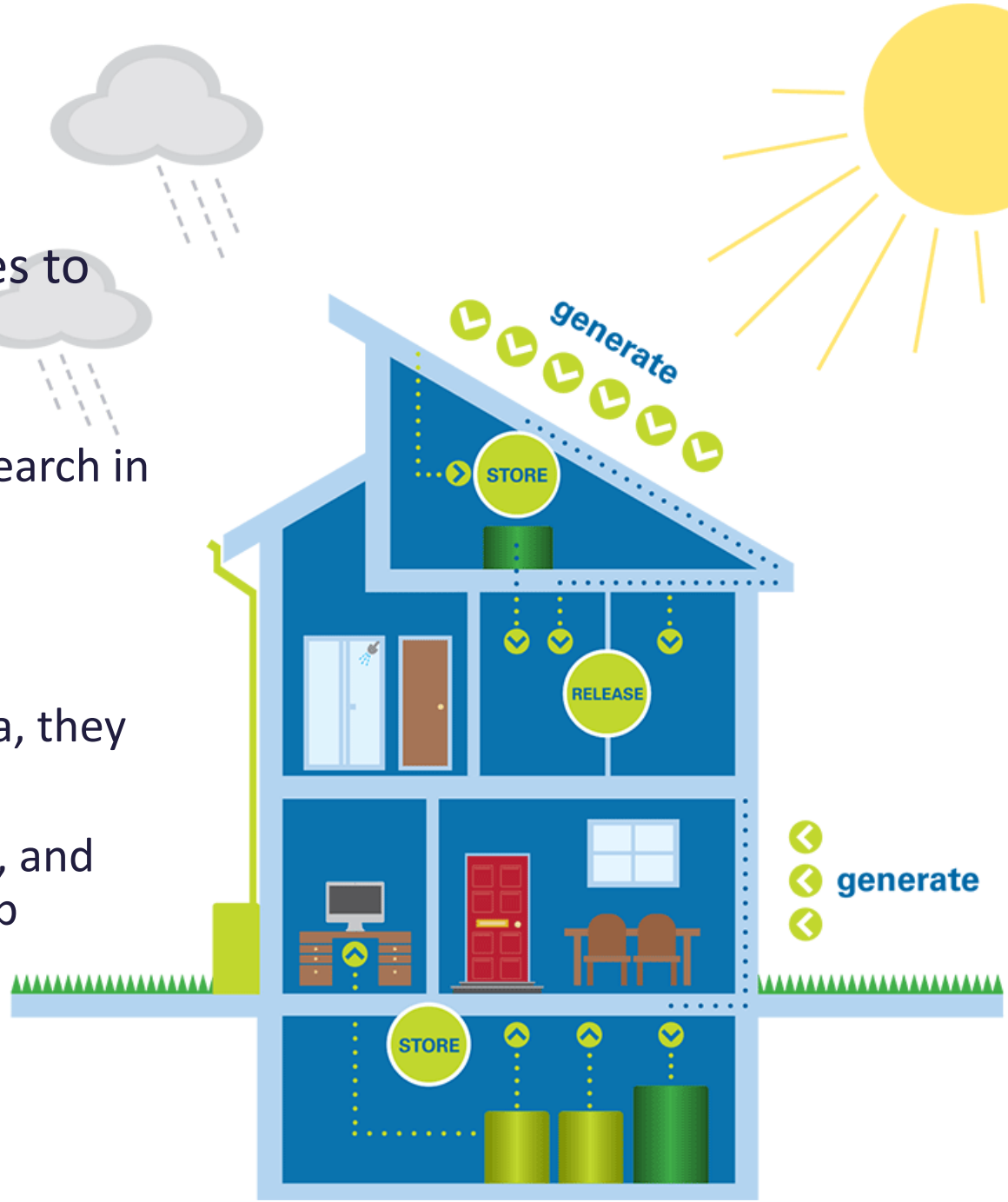
CATAPULT Network

IKCs bring together universities and businesses to develop new ideas and support the commercialisation of the best of these ideas.

- Accelerate business exploitation of emerging research in a strategically important area
- Based in a university they are led by an expert entrepreneurial team
- While continuing to advance the research agenda, they create economic impact
- Provide access for companies to S&T, application, and market expertise, and associated lab and scale-up facilities



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Centre for Secure Information Technology (CSIT)

- Formed in 2009, building on Institute of Electronics, Communications and Information Technology, at Queen's University Belfast
- CSIT has helped to attract and create over 100 high-tech start-up companies, employing more than 2000 people, many through Foreign Direct Investment
- Their work is ***industry informed*** via our Open Innovation Model - Member companies and Associates help shape research roadmaps
- Key to the strategy of CSIT is their ***innovation conduits -*** a permanent group of engineering staff that sit alongside academic researchers and assist with knowledge transfer, rapid prototyping and understanding the language and drivers of industry

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