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UK Trade
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Innovate UK
Technology Strategy Board

INNOVATE UK 2014

THE GLOBAL SPOTLIGHT ON UK INNOVATION

GREAT
BRITAIN & NORTHERN IRELAND

CATAPULT

Catapult Centres Review

Hermann Hauser

Technology Strategy Board
Driving Innovation

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Agenda

- 2010 Report on Technology Innovation Centres (Catapults)
- What is a Catapult Centre?
- Science Base vs Science Translation
- 2014 Review
- 7 Catapults
- 9 Recommendation
- Conclusion

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2010 Report on TICs

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2010 Report on TICs (Catapults)

- UK science excellent, translation poor
- Study of translational infrastructure in
- US: DARPA
- Germany: Fraunhofer Gesellschaft
- Holland: TNO
- Taiwan: ITRI
- Korea: ETRI
- Finland: VTT
- Recommendation to set up Catapult Centres

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What is a Catapult Centre?

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What is a Catapult centre?

- Business-focused technology and innovation centre that makes world-leading technical capability available to businesses to solve their technical challenges
- Provides:
  - Access to world-leading technology & expertise
  - Reach into the knowledge base for world-class science
  - Capability to undertake collaborative R&D projects with business
  - Capability to undertake contract research for business
  - Create a critical mass of activity
  - Skills development at all levels

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Catapult criteria?

- Multi billion £ market
- UK global lead
- Platform technology
- UK absorptive capacity, commercialisation strategy

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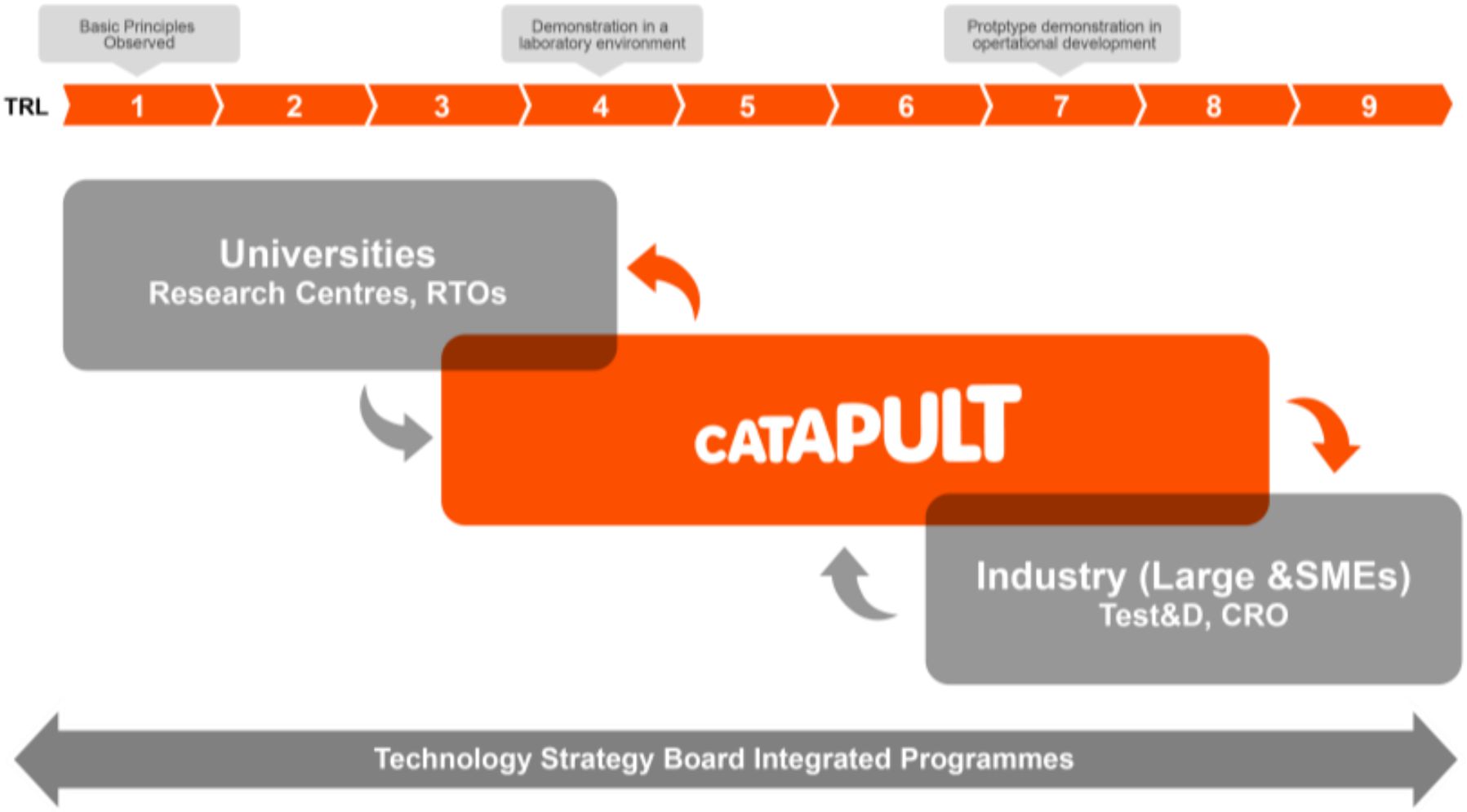
Technology Readiness Levels



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Science Base vs Science Translation

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Science Base vs Science Translation

- UK R&D spend (1.8%) below D,F, US (2.8%)
- UK science base is excellent but translation lags behind
- Fraunhofer has €2bn revenue p.a.
- Catapults €250m
- Finland VTT €250m

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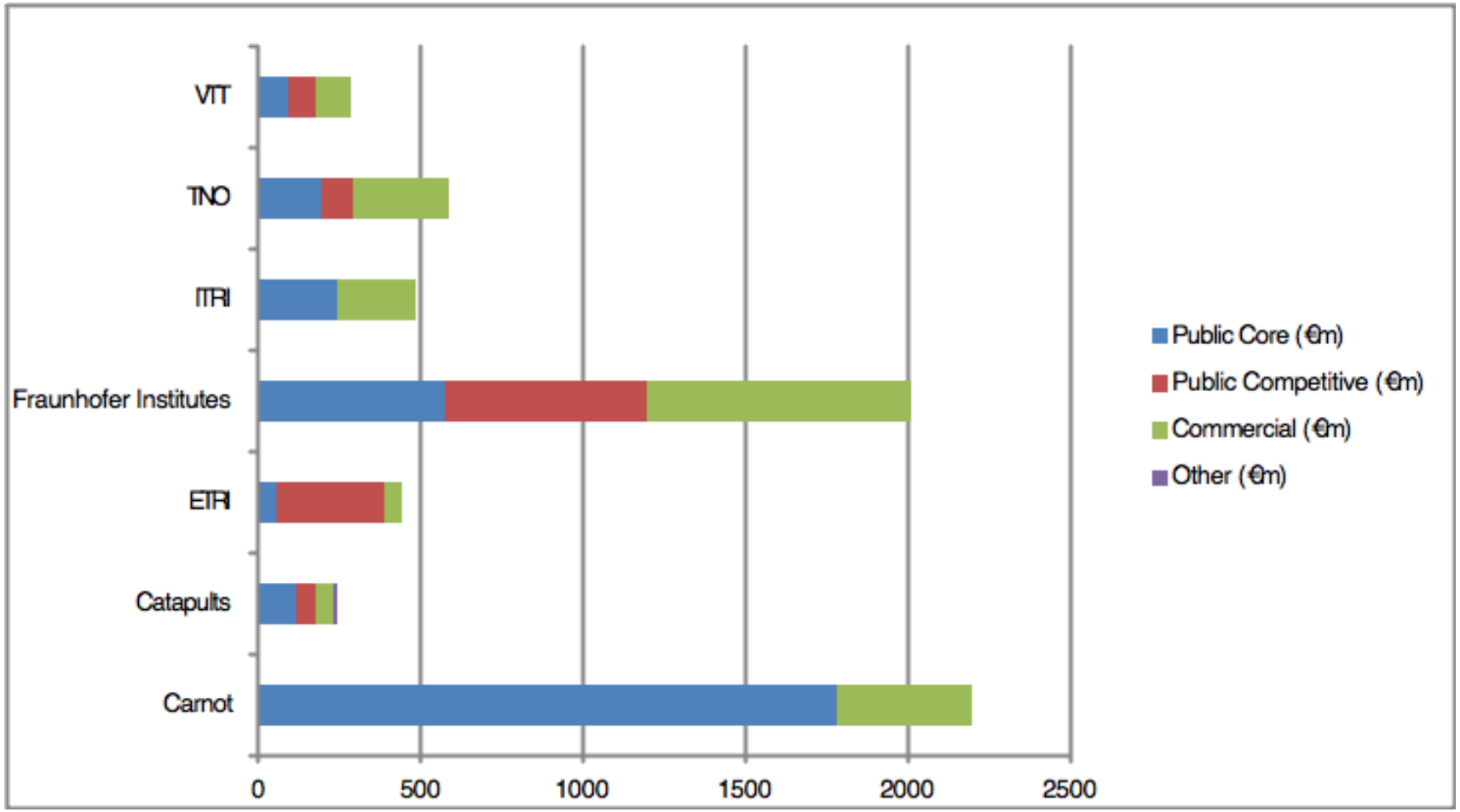
Science Base vs Science Translation



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2014 Catapult Review

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Hermann Hauser review of Future Catapult Strategy

- Is the policy as set out in 2010 working – review where the network has got to in the last three years
- What should the future direction and scope and scale for the network be, Vince Cable Harwell speech on Catapults
- Review will consider Including consideration of:
  - Organic growth
  - Distinct Catapult models – challenge (e.g. Future Cities), technology (e.g. Offshore Wind), network (e.g. High Value Manufacturing)
  - Is there a role for adding other (Catapult-like) centres to the network, can the model be franchised in any way
  - The role of the network in delivering the government's Industrial Strategy & Eight Great Technologies
  - The role of the network delivering skills in each area

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2014 Catapult Review

- Progress impressive in all 7 Catapults
- HVM and Satellite catapults performing well
- 5 new catapults have attracted excellent teams and set up the right infrastructure
- 2 further Catapults planned
- Aim for 20 by 2020 and 30 by 2030

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7 Catapults

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Catapult Timeline

Current Catapults	Date Operational
High Value Manufacturing	*October 2011*
Cell Therapy	*October 2012*
Satellite Applications	*December 2012*
Offshore Renewable Energy	*March 2013*
Connected Digital Economy	*June 2013*
Future Cities	*June 2013*
Transport Systems	*August 2013*

2 New Catapults	Target Date Operational
Energy Systems	*April 2015 target*
Precision Medicine	*April 2015 target*

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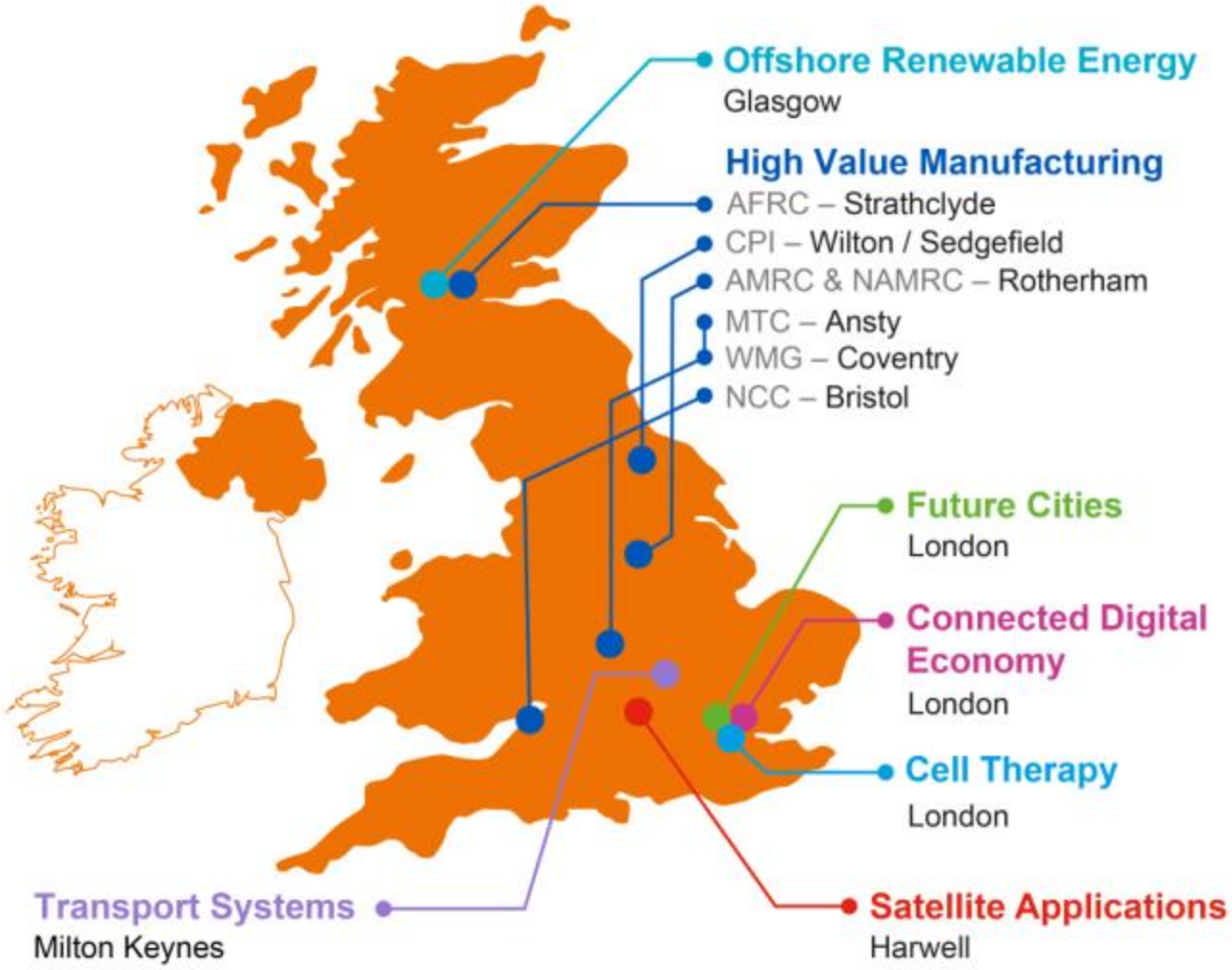
Catapult Locations



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Catapult People

Catapult	CEO	Chair	Board
High Value Manufacturing	*Dick Elsy*	*Bob Gilbert*	✓
Cell Therapy	*Keith Thompson*	*John Brown*	✓
Satellite Applications	*Stuart Martin*	*Tim Sherwood*	✓
Offshore Renewable Energy	*Andrew Jamieson*	*Colin Hood*	✓
Connected Digital Economy	*Neil Crockett*	*Andy Green*	✓
Transport Systems	*Steve Yianni*	*Will Whitehorn*	✓
Future Cities	*Peter Madden*	*Sir David King*	✓

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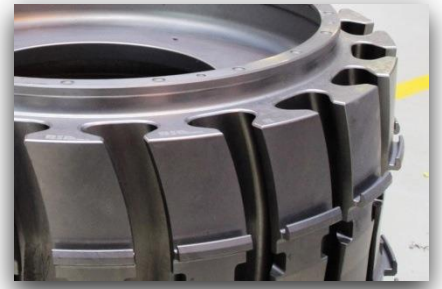
High Value Manufacturing Catapult

Catalyst for the future growth and success of UK Manufacturing

- Through its 7 Centres and c1100 staff, it offers access to:
  - World class open-sourced manufacturing technology at industrial scale
  - The UK's best relevant university research
  - Specialist engineers, technicians & scientists
  - Opportunity to collaborate and co-innovate
  - Full range of manufacturing capabilities, from raw materials to product development, optimisation and automation
- Is in second year of full operation, and exceeding performance targets
- Generating approx. 40% of its income from industry contracts



CATAPULT High Value Manufacturing

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High Value Manufacturing Locations

Strathclyde

Advanced Forming Research Centre

Coventry

Manufacturing Technology Centre

Warwick Manufacturing Group

Bristol

National Composites Centre

Wilton/Sedgfield

Centre for Process Innovation

Rotherham

Advanced Manufacturing Research Centre

Nuclear Advanced Manufacturing Research Centre

CATAPULT High Value Manufacturing

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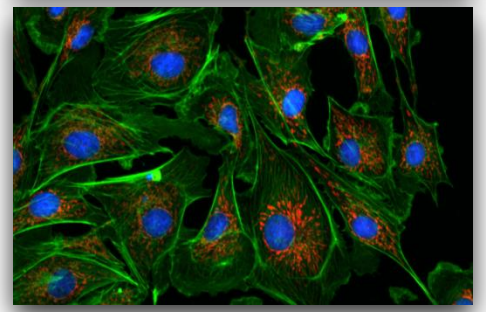
Cell Therapy Catapult

Building a world-leading cell therapy industry in the UK

- Translating cell therapies into investible propositions from early-stage projects
- European centre of cell therapy expertise
  - Clinical trials & regulatory affairs
  - Manufacturing & supply chain
  - Business issues such as models & market access
- Operational since 2012
  - Working on a range of projects with varied partners
  - European regulatory expertise recognised
  - New state-of-art facilities at Guy's Hospital
  - UK cell therapy pipeline growing
- Continuing to grow UK cell therapy industry
  - Ongoing international engagement
  - Delivery of new Cell Therapy Manufacturing Centre
  - Further portfolio development



ReNeuron stem cell therapeutic
Loughborough University
CCRM Centre for Commercialization of Regenerative Medicine
UK STEM CELL FOUNDATION
gsk GlaxoSmithKline
Athersys inc.
CATAPULT Cell Therapy
CATAPULT

Offshore Renewable Energy Catapult

Abundant, affordable energy from offshore wind, wave and tide

- ORE Catapult rapidly positioning as focal point for innovation in complex landscape
- Team of c110 across two sites
- Apr 2014 merger with Narec combines testing, demonstration and research assets with technical and industry expertise to further knowledge service capabilities
- Strong commitment, engagement and support from senior Industry and Research Advisory Groups
- Established programmes in partnership with industry and senior stakeholders to address costs of offshore wind and marine energy
- Working with SMEs to advance technology innovation in targeted areas

CATAPULT Offshore Renewable Energy

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Satellite Applications Catapult

Drive economic growth through the exploitation of satellite data; and linking existing space organisations with new market sectors

- Provide a collaborative environment for industry, academics and government organisations
- Provide end-to-end infrastructure that enables systems prototyping and service demonstrations, e.g. Illegal Fishing Technology Demonstrator
- Integrate satellite & terrestrial data sources to demonstrate viability of new applications, e.g. Emergency Services Mobile Communications
- Develop, operate & exploit satellites. Provide expertise & access to ground & in-orbit test facilities
- Facilitate access to existing satellite infrastructure, communication networks & data sources
- High SME engagement – provides business support & expertise to enable the translation of ideas from concept to market

Emergency Service Communications Demonstration Event

CATAPULT Satellite Applications

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Transport Systems Catapult

Drive UK global leadership in *intelligent mobility* promoting sustained economic growth and wellbeing through integrated, efficient and sustainable transport systems

- Modal integration & more effective use of combined capability
- System performance including smart infrastructure asset management
- New business models to unlock new value chains
- Intelligent Mobility modelling platform
- *Imovation* Centre in Milton Keynes
- Co-funded with Dept for Transport

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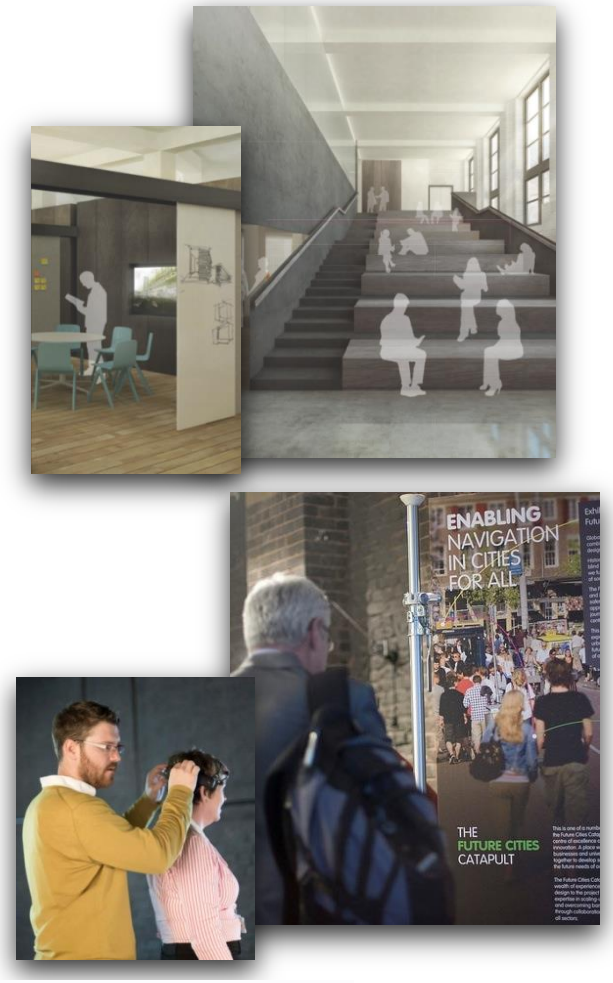
Future Cities Catapult

Urban Ingenuity. Made real. Scaled globally.

- Connecting city systems to enable integration and interoperability
- Increasing city density and population without congestion
- Transition to resource-efficient, low-carbon cities
- Resilient energy systems
- Real time analysis & control and a “cities observatory”

Key Projects:

- Helping blind people navigate cities; improving local authorities’ use of data; revolutionising monitoring of urban environments through smart sensing; and developing new ways to finance future cities.
- Developed the Cities Lab, designing a triple store/ data warehouse, city models and live projects; and run a joint study of the UK’s future cities capability and clusters with UKTI and Arup
- Will be developing simulation and visualisation models of city flows with UCL and fellowship programmes with ESRC and NERC



CATAPULT Future Cities

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Connected Digital Economy Catapult

Make the UK the place where companies innovate, try out new ideas and find ways to make money in the digital economy

- New and sustainable ways to create wealth from digital media & content
- Drive digital service adoption in sectors newer to the internet economy
- New applications & services based on merging of the physical and digital worlds

Key projects:

- The Greater Manchester Data Synchronisation Programme
- Trusted Data Accelerator feasibility to develop a trusted platform
- Open Health Data Platform
- Copyright Hub platform in content and data rights
- Pilot to integrate transport and weather information
- Partner in the 5G Innovation Centre (5GIC) consortium for thefirst 5G telecomms demonstrator

CATAPULT Connected Digital Economy

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9 Recommendations

9 Recommendations

- 1 Support existing Catapults
- 2 Keep 1/3 1/3 1/3 funding model
- 3 Grow network by 1 or 2 per year
- 4 Increase the funding to support 30 by 2030
- 5 More SME engagement
- 6 Stronger links with Universities
- 7 Develop KPIs
- 8 Catapults as neutral convenors for clusters
- 9 Goverment should use Catapult process

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Conclusion

Conclusion

- UK needs to close the translation gap to its main competitors
- 7 Catapults working well
- Expand cautiously at 1 or 2 p.a.
- Aim at 30 by 2030

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