UK Research and Innovation

INDUSTRIAL STRATEGY

Transforming Construction Challenge

Part of the Industrial Strategy Challenge Fund

Delivered by Innovate UK

RESEARCH COUNCILS UK

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Transforming Construction: Manufacturing Better Buildings

Dr Mike Pitts
Interim Challenge Director

@EPSRC
@InnovateUK
@pittso
#industrialstrategy

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What is the Industrial Strategy Challenge Fund (ISCF)?

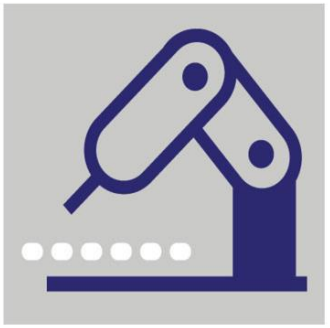
The ISCF aims to bring together the UK's world leading research with business to meet the major industrial and societal challenges of our time, as part of the Government's £4.7 billion increase in research and development over the next 4 years.

First Wave of Challenges

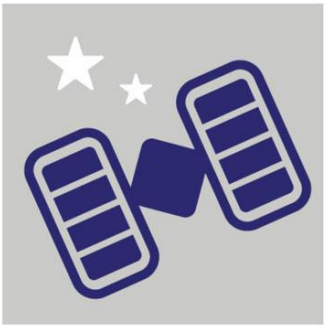
Healthcare and medicine

Robotics and AI

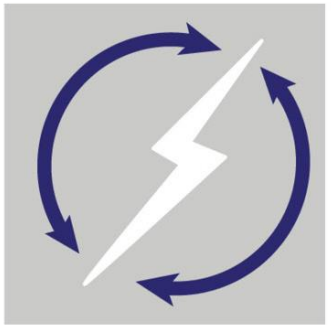
Driverless vehicles



Manufacturing and materials of the future



Satellites and space technology



Clean and flexible energy

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INDUSTRIAL STRATEGY

Transforming construction

Data to early diagnosis & precision medicine

Transforming food production

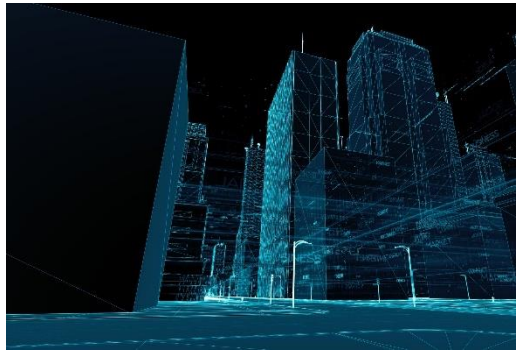
Next generation services

Energy revolution

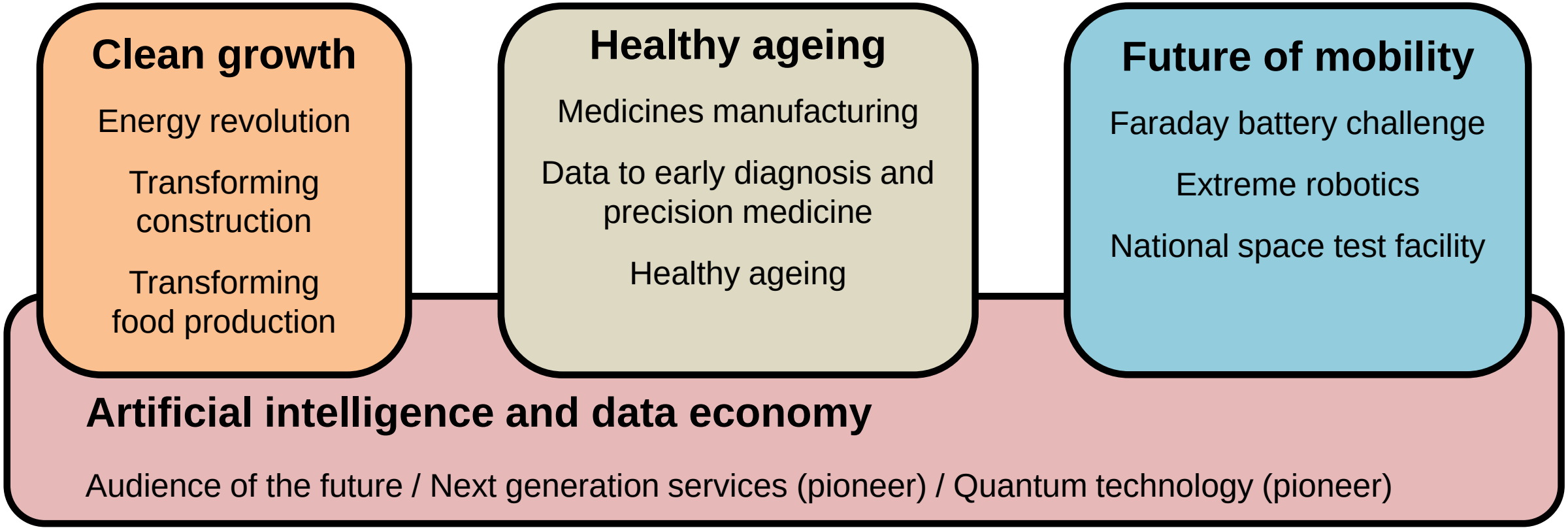
Healthy ageing

Audience of the future

Quantum technology



ISCF and the Industrial Strategy Grand Challenges



Transforming construction, up to **£170m*** – The way we create our buildings has not changed substantially in 40 years and needs a drastic overhaul if it is to deliver the buildings that the UK needs. Construction is currently expensive and too many buildings waste energy. We need to transform construction so that we can create affordable places to live and work that are, safer, healthier and use less energy. By taking a lead in the UK, we can increase our ability to export. Global demand for efficient buildings is rising rapidly, driven by the pressures of urbanisation, affordability, and the need to cut emissions.

page 74,
Industrial Strategy white paper

Transforming Construction Challenge

The Transforming Construction Challenge comprises a £170m commitment over 4 years to more quickly provide safer, healthier and more affordable places to live and learn that use dramatically less energy.

This ISCF challenge will bring together the construction, manufacturing, energy and digital sectors to revolutionise how we deliver the buildings the UK needs. Concentrating on:

- How we manufacture buildings
- How we design & manage buildings
- How we power buildings

Transforming Construction: Why?

- Productivity of the construction sector is low compared to other parts of the economy.
- Current construction methods and inefficient and labour intensive (with often late and over budget projects).
- Large part of the economy relies on the services buildings enable.
- Building whole-life value is not optimised – i.e. what the building is designed for.
- Building energy performance is poor – often using >2x energy designed for, driving demand for more heat/electricity capacity.
- Significant government commitments to housing, schools and other infrastructure.
- Ability to deliver compromised in future by ageing workforce/Brexit.

Transforming Construction: Challenge objectives

1. **Establish the facilities for integration, demonstration and research and development to enable faster commercialisation of a digital manufacturing approach to construction and inclusion of active components.** These will include:
    - A Core Innovation Hub (CIH) of digital standards, design, manufacturing, regulation and testing facilities
    - An active buildings development and deployment facility
    - A support project for offsite housing in collaboration with MHCLG (formerly DCLG)
    - Collaboration with Sector Deal (BEIS) and Transforming Infrastructure Performance (TIP), programme (IPA) to accelerate adoption and drive change.

Transforming Construction: Challenge objectives

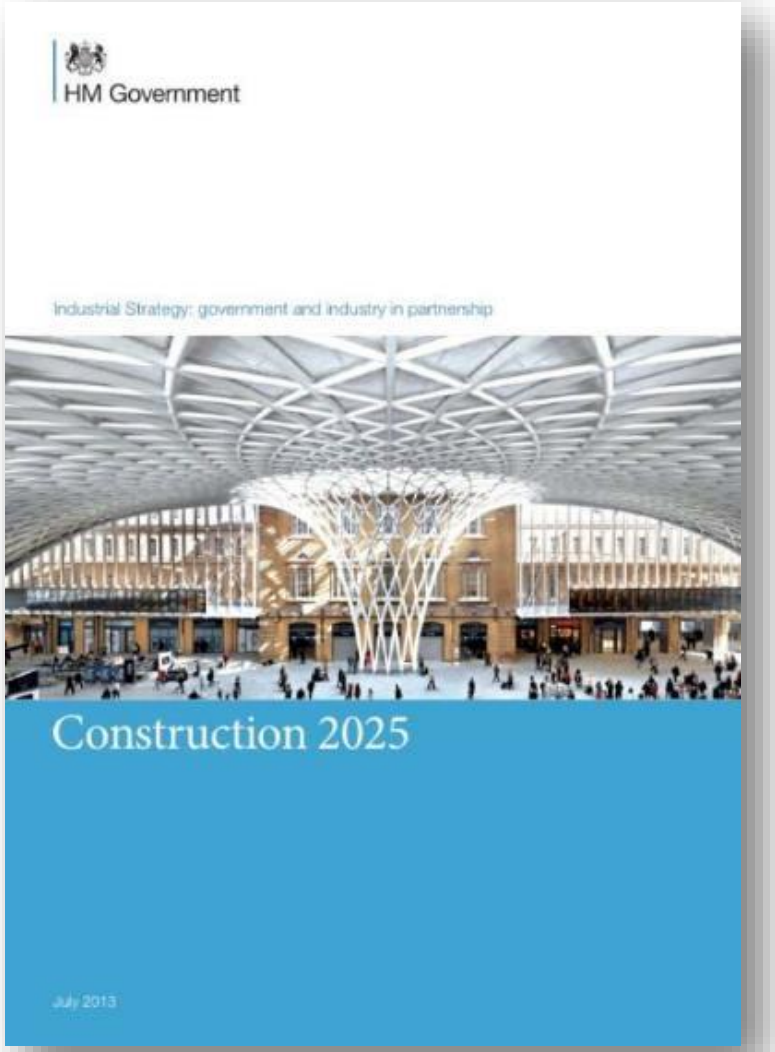
2. **Deliver an R&D programme match funded by industry leading to increased productivity in construction methods.**
    - Continued support for I3P consortium programme with the KTN and its matched funding of £250m.
    - Science research to support aspects such as business model change, whole-life performance benefits and manufacturing improvements

3. **Establish the test facilities, methodologies and research and development programmes to better design buildings for increased lifetime performance and value of buildings and infrastructure.**
    - Generate data and standards to enable wider use of technology and innovation to extract maximum whole life value from our infrastructure at the lowest whole life cost.
    - Establish testing and regulation facilities.

Transforming Construction: Challenge objectives

4. **Develop and demonstrate new building designs that drive faster delivery at lower cost.**
    - Establish a secure, national asset for modular building design product platforms.
    - Work with government departments to deliver schools, housing, prisons and wider infrastructure using modular design approaches.
    - Develop active building components based on the product platforms and reduce cost of delivery of active buildings to be nearer standard market cost.
    - Establish new quality standards based on these product platforms.

5. **Reduction in trade gap between total exports and total imports of construction products and materials.**
    - Support for Sector Deal target of by 2021, deliver £200m of exports directly linked to technologies and techniques developed through this programme.
    - Work with Prosperity and Digital Built Britain programmes to continue support for global adoption of pioneering standards developed by the programme.



Lower costs

33%

reduction in the initial cost of construction and the whole life cost of built assets

Faster delivery

50%

reduction in the overall time, from inception to completion, for newbuild and refurbished assets

Lower emissions

50%

reduction in greenhouse gas emissions in the built environment

Improvement in exports

50%

reduction in the trade gap between total exports and total imports for construction products and materials