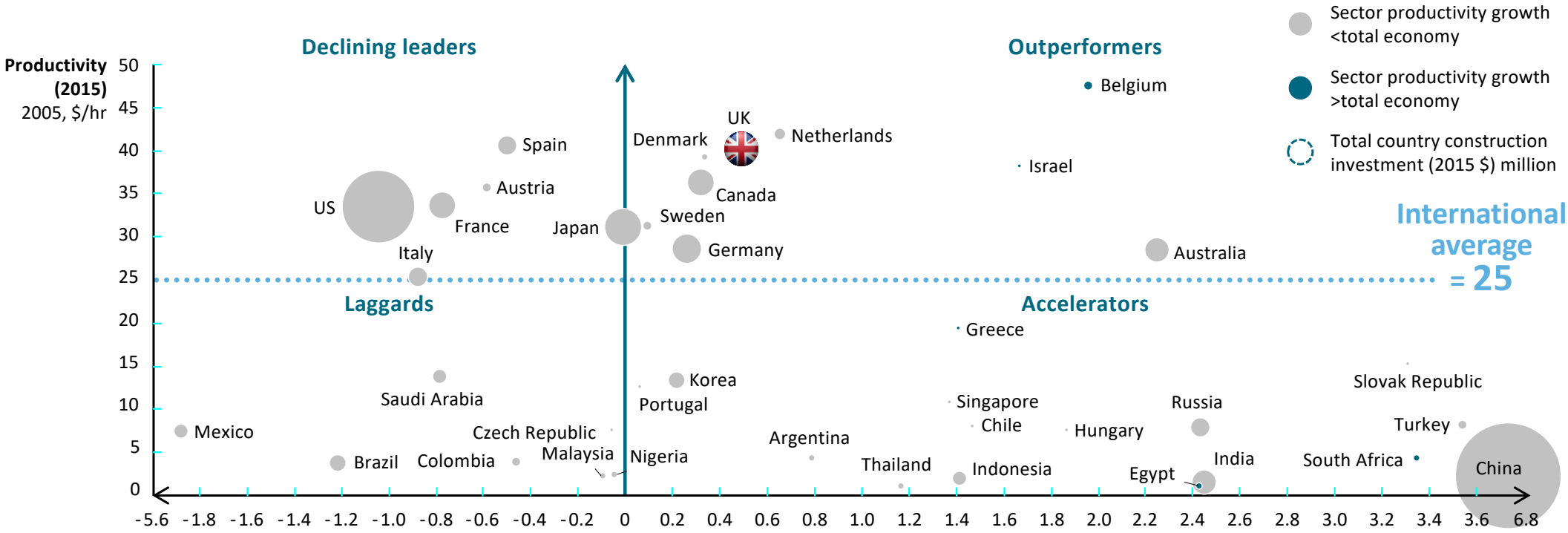
INDUSTRIAL STRATEGY

Transforming Construction

Sam Stacey
Challenge Director

UK Research and Innovation

Construction productivity



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SOURCE: OECD Stat; EU KLEMS; Asia KLEMS; World KLEMS; KSA CDSI; KSA MoL; WIOD Socieoeconomic accounts, GGDC-10; Oanda; IHS; ITF; GWI; McKinsey Global Institute analysis

Support

INDUSTRIAL STRATEGY

RETHINKING CONSTRUCTION

THE REPORT OF THE CONSTRUCTION TASK FORCE

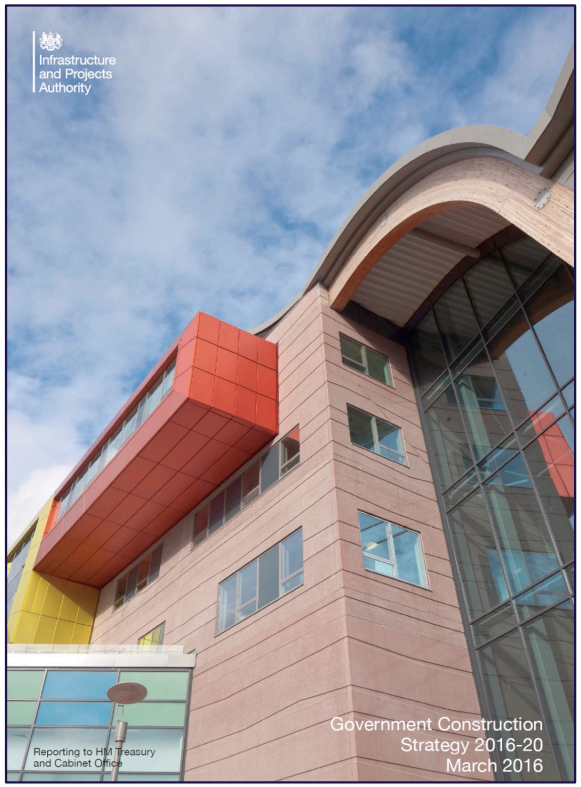
1998

CONSTRUCTING EXCELLENCE

CabinetOffice

Government Construction Strategy

May 2011



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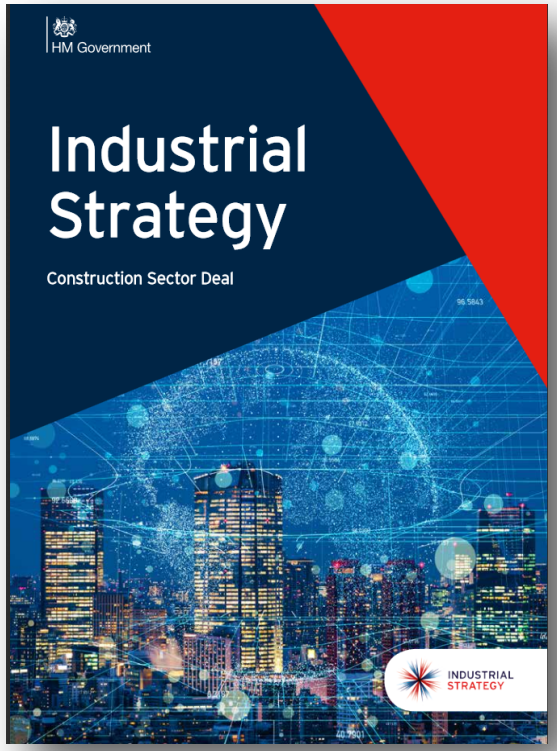
Waste

- Defects
- Materials
- Energy
- Waiting
- Unused talent
- Double handling
- Excess inventory
- Movement of people

Sector deal



Infrastructure and Projects Authority

Ministry of Defence

Ministry of Justice

Department for Education

Department of Health

Department for Transport

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UK's Construction Sector Deal

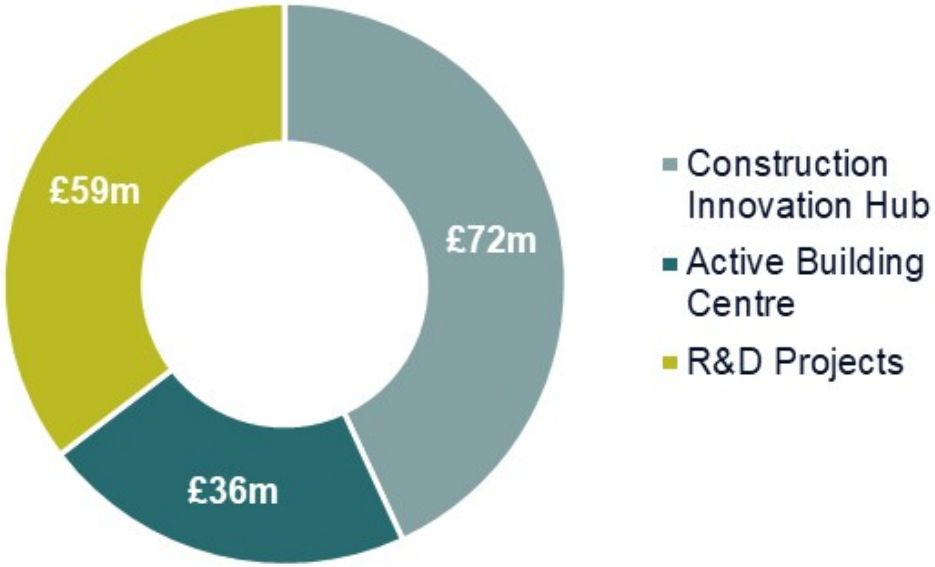
INDUSTRIAL STRATEGY

£170m
Government funding

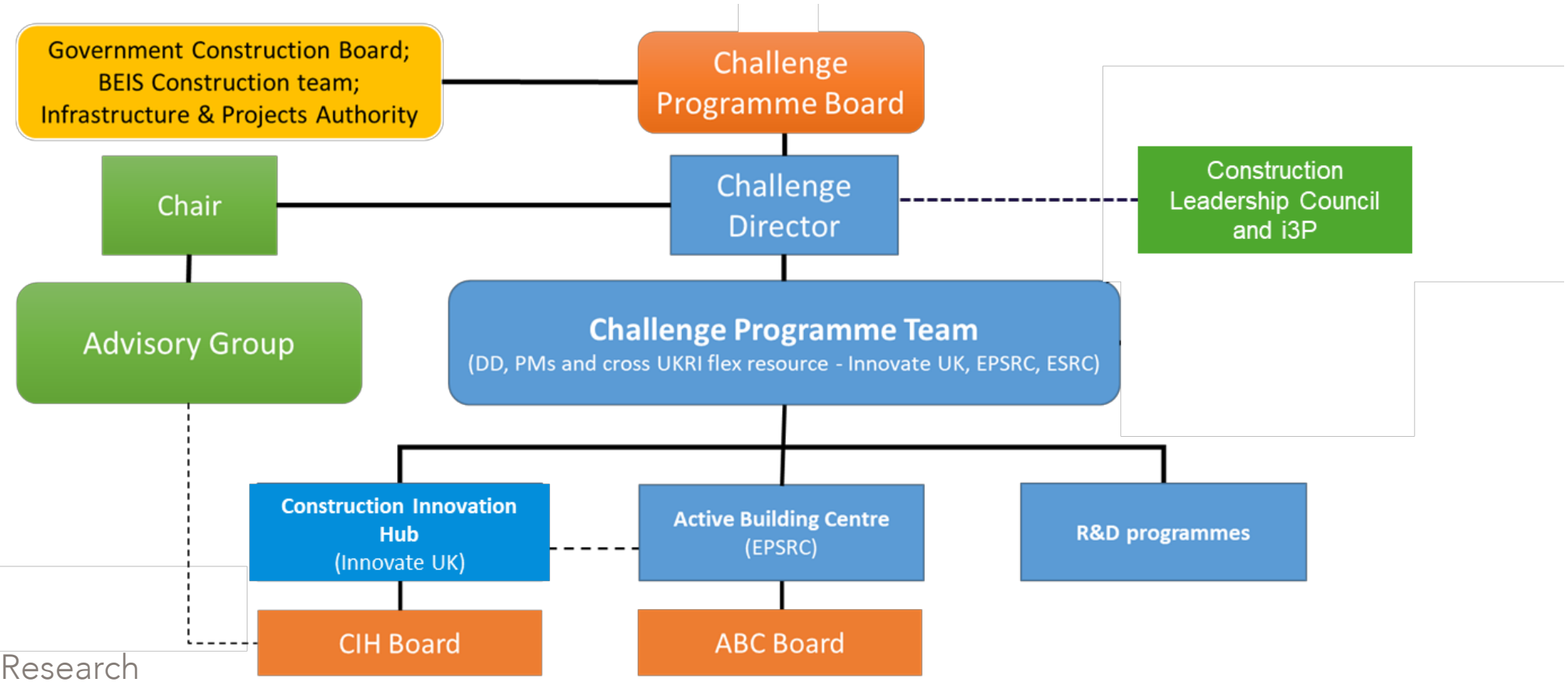
£250m
Matched industry funding

4 years
of funding

Sustainable
long-term model



Governance



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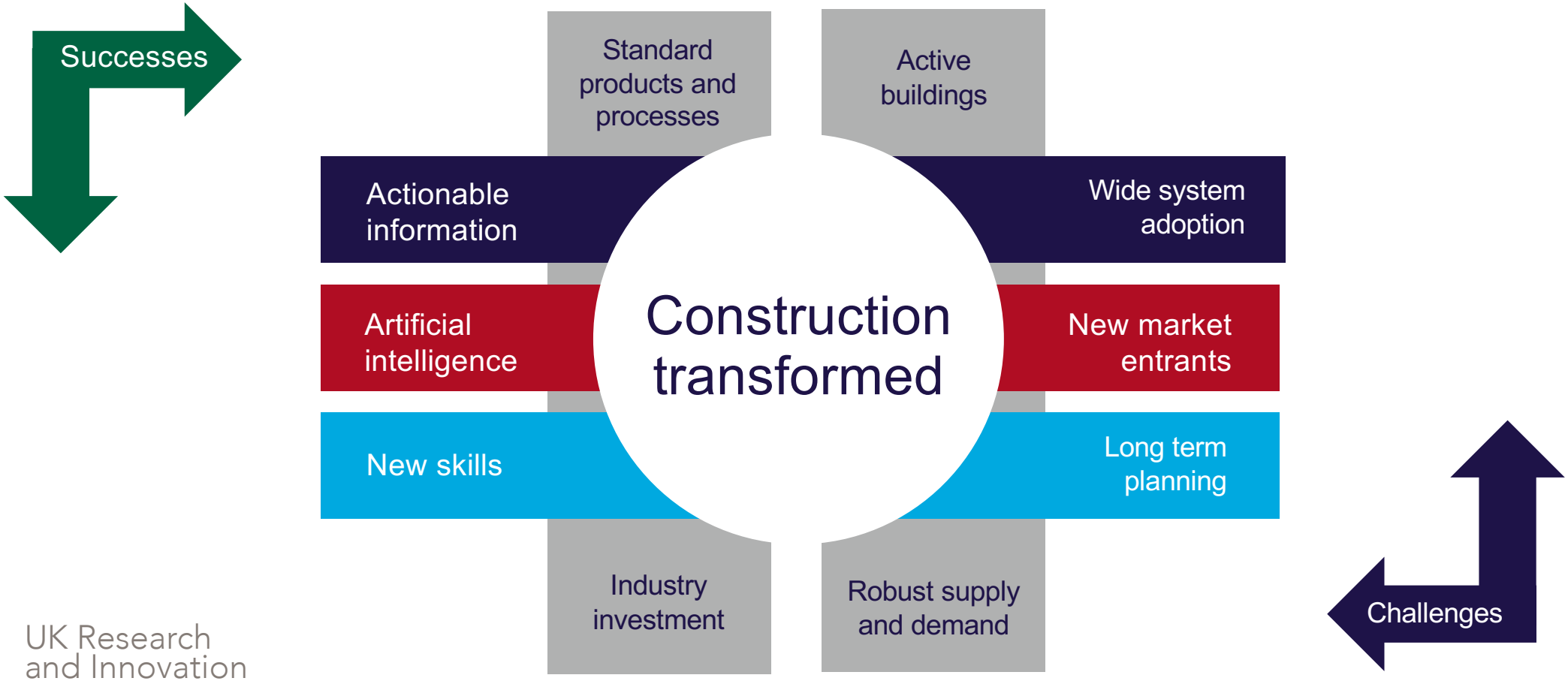
Industry integration



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Delivered through three enablers

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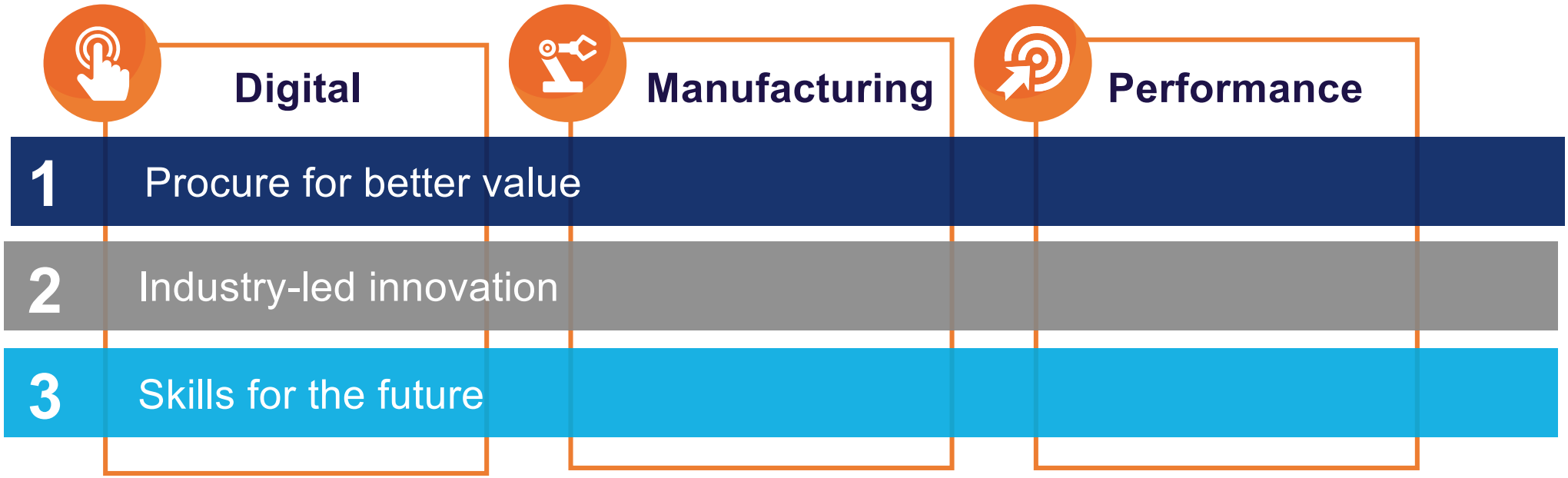

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CONSTRUCTION INNOVATION HUB

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Standard products and processes

mtc Manufacturing Technology Centre

bre

cdbb Centre for Digital Built Britain

Product family architectures

Process engineering

Performance testing and validation

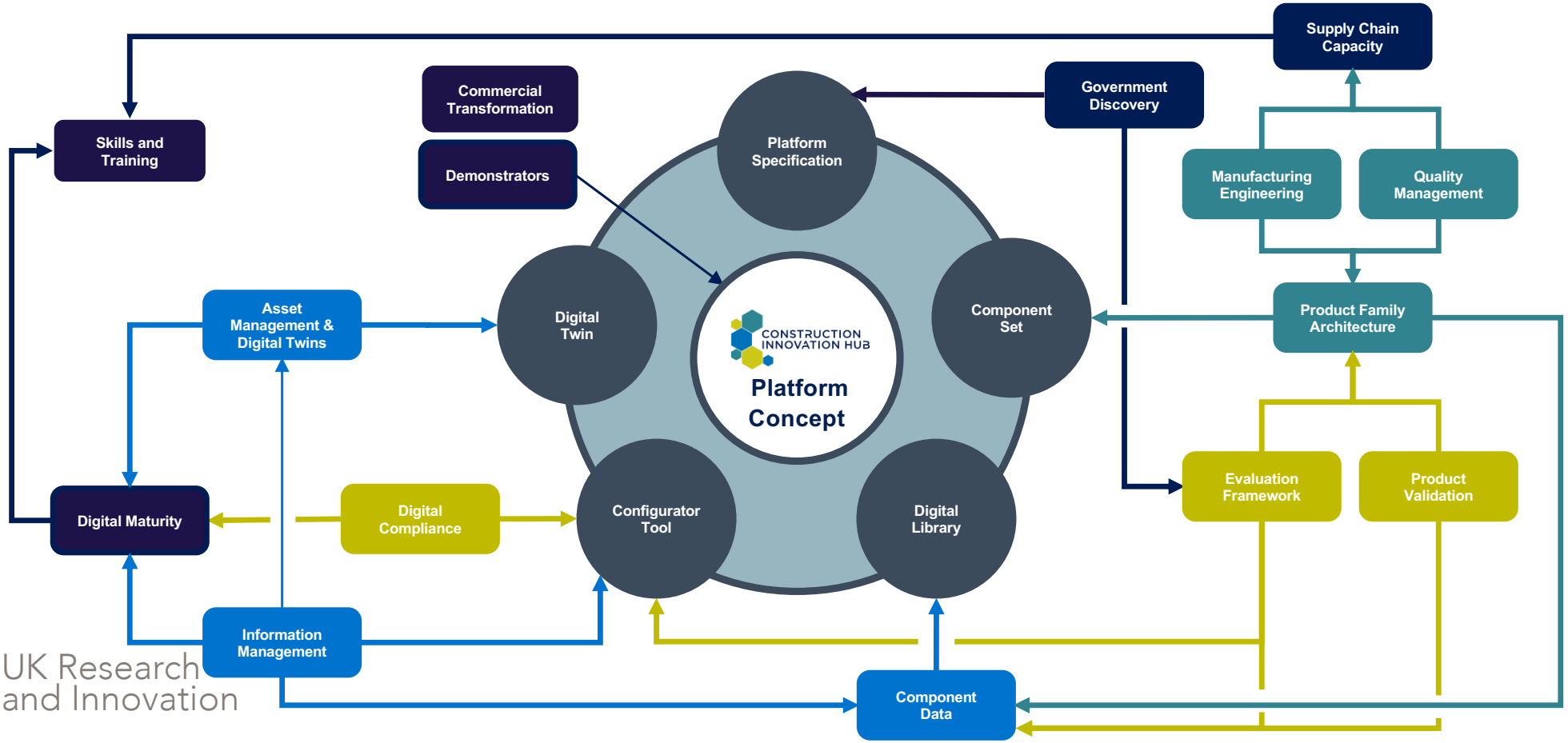
Demonstration and engagement

Digital transformation across asset lifecycle

Information Management Framework

CONSTRUCTION INNOVATION HUB

INDUSTRIAL STRATEGY



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Active Building Centre

INDUSTRIAL STRATEGY

Active buildings

1. Create a critical mass of buildings
2. Smart and Connected Active Buildings Evidence Framework
3. Active Buildings as ‘Energy Positive Agent’
4. Aggregate Active Buildings at National Scale
5. Adapt the Active Building Technology Portfolio to Tackle Existing Stock
6. Create a sustainable National Centre of Excellence
7. Deliver an ecosystem for Active Buildings

Swansea University
Prifysgol Abertawe

Funded innovation

INDUSTRIAL STRATEGY

Information

- Data interoperability
- Digital integration platform
- From BIM to machine control
- AR for efficiency
- IoT for site plant
- IoT and concrete curing
- IoT and thermal performance
- LIDAR for cranes

Machine learning

- AI and logistics
- AI for programme prediction
- AI and BIM
- AI and component tracking
- AI for site safety
- AI and progress monitoring
- AI for quality
- Alexa for sites

Product and process

- Panelised housing
- DfMA for housing
- Modular Homes
- Industrialised homes
- Energy active prefab
- Smart piles
- Frame optimisation
- Modular steel

- Robot clusters
- 3D concrete printing
- Non-prismatic concrete

AIMCH

- UK's largest house builder and second largest social landlord coming together with their supply chains to industrialise housebuilding
- Using challenge approaches to reduce cost, boost productivity (40% target), increase safety onsite, improve quality (75% less rework) and 30% faster
- Bringing in wider housebuilding community, and establishing data to prove the business case

Impacting 35,000 homes a year

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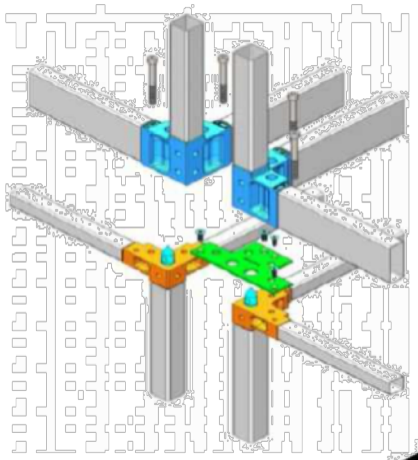
https://www.aimch.co.uk/

SEISMIC

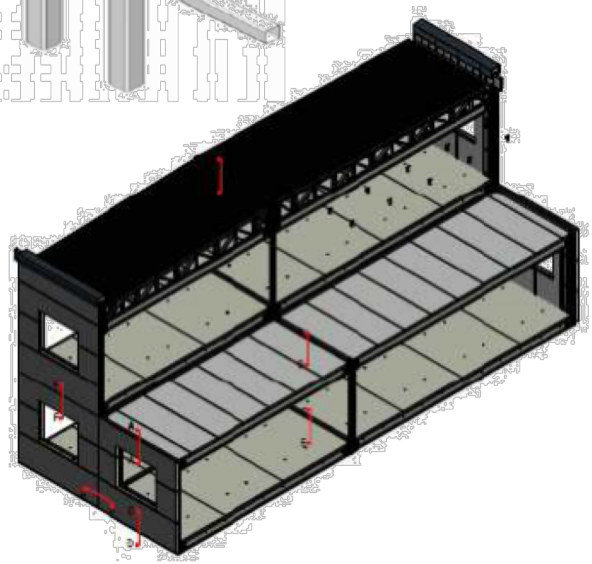
Redesigned steel frame for school buildings, standardised across two major suppliers:

- 40% reduction in cost
- 52% faster assembly
- 57% reduction in weight (40% reduction in emissions)
- Exports - being used overseas



Market uptake:

- Steel frame on Gen. 5 procurement framework for DfE
- Interest for other buildings types
- Digital configurator
- Will extend to other components



New R&D competitions

INDUSTRIAL STRATEGY

£36m total R&D funding available

Two competitions will run in parallel:

£26m Demonstration fund
£10m Collaborative R&D fund

Spending Profile:

£27m in FY20/21
£8m in FY21/22

£26m Demonstration

- Opened 28th August 2019
- Closes 6th November 2019
- Projects start 1st April 2020

£10m CR&D

- Opened 28 August 2019
- Closes 30th October 2019
- Projects start 1st April 2020

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Summary

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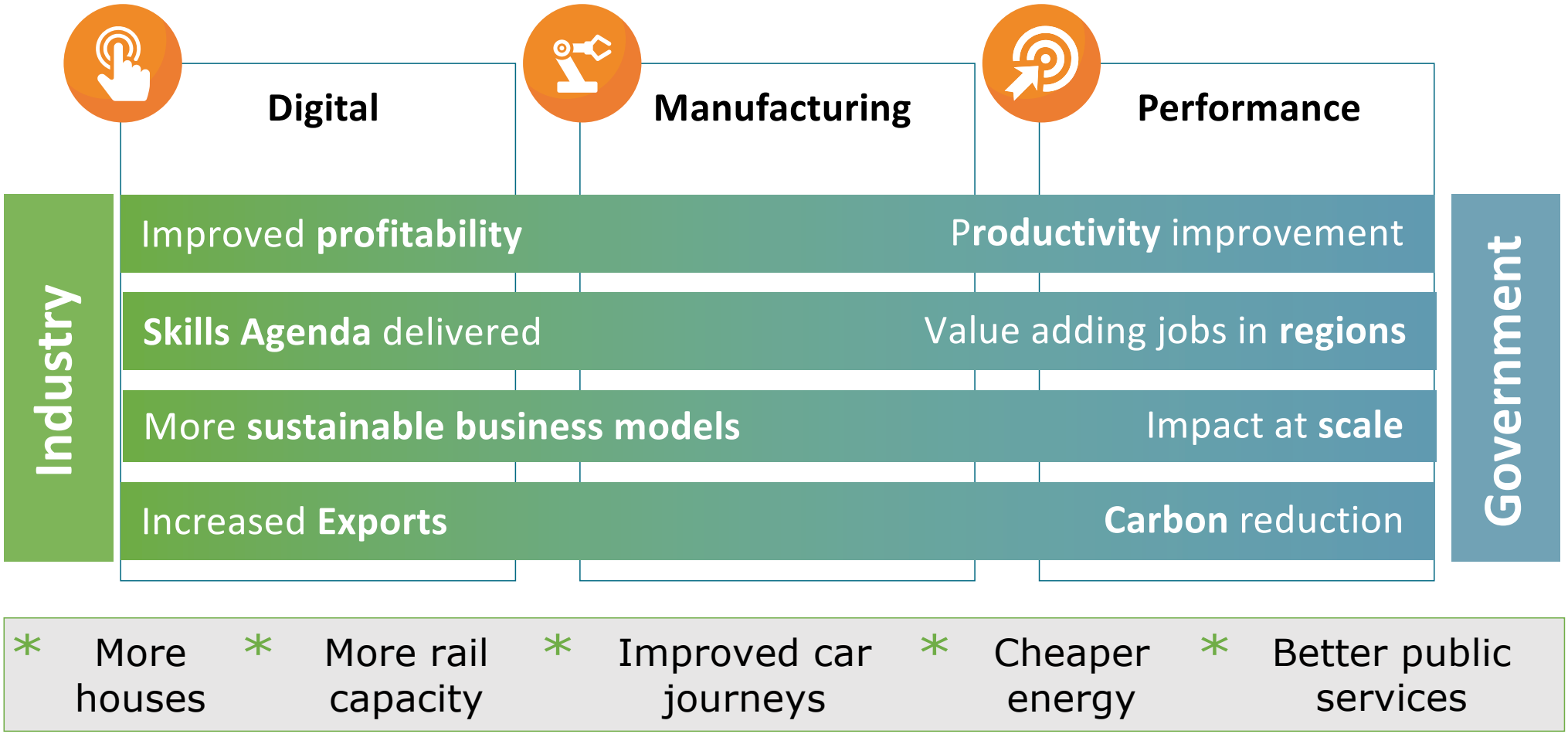

* More houses
* More rail capacity
* Improved car journeys
* Cheaper energy
* Better public services

FOR FURTHER INFORMATION

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WEBSITE: https://www.ukri.org/innovation/industrial-strategy-challenge-fund/transforming-construction/

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Challenge Director – Transforming Construction

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