

# Digital Built Britain: Beyond Level 2

CIAT CPD Day. 26.May 2016.

Richard Saxon CBE, Chairman, JCT.



The Joint Contracts Tribunal  
Setting the standard for construction contracts

# Agenda

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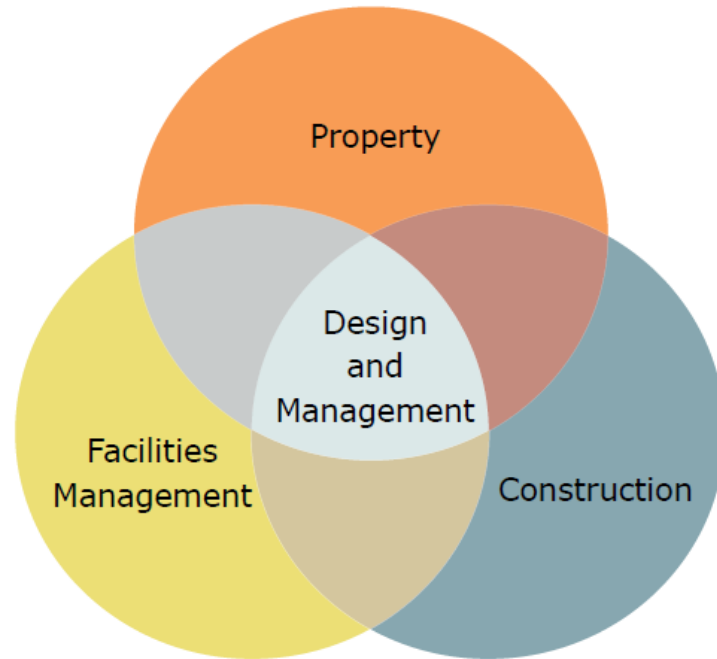
- From 'Construction' to 'Built Environment'
- Value and Sustainability via ICT & Automation
- Digital Built Britain, the thesis
- New business models

# Built Environment

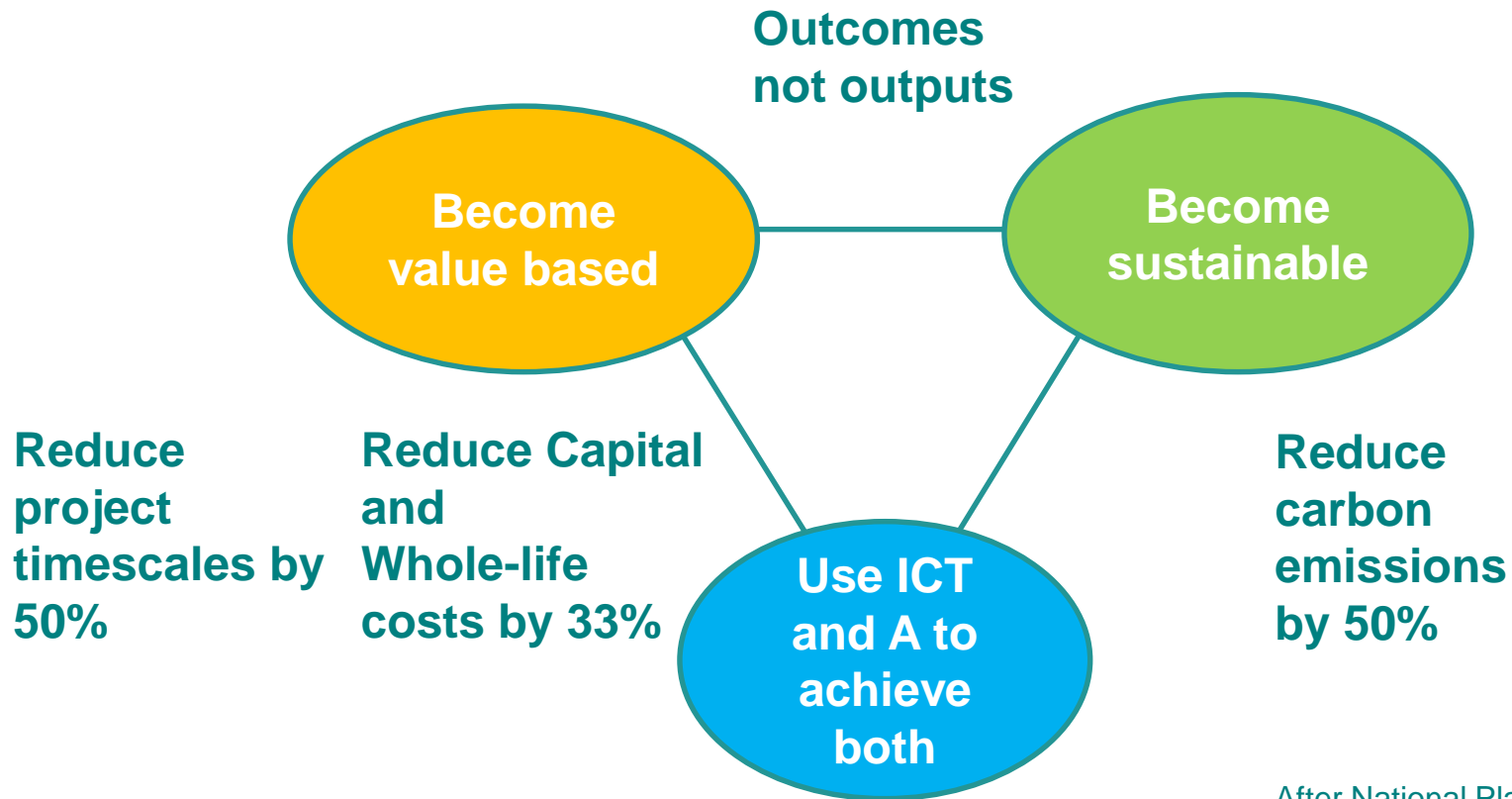
Three sectors overlap and represent 15-20% of GDP.

Built environment is the great enabler, supporting all other sectors of the economy and contributing to the quality of life.

*Three sectors form the built environment*



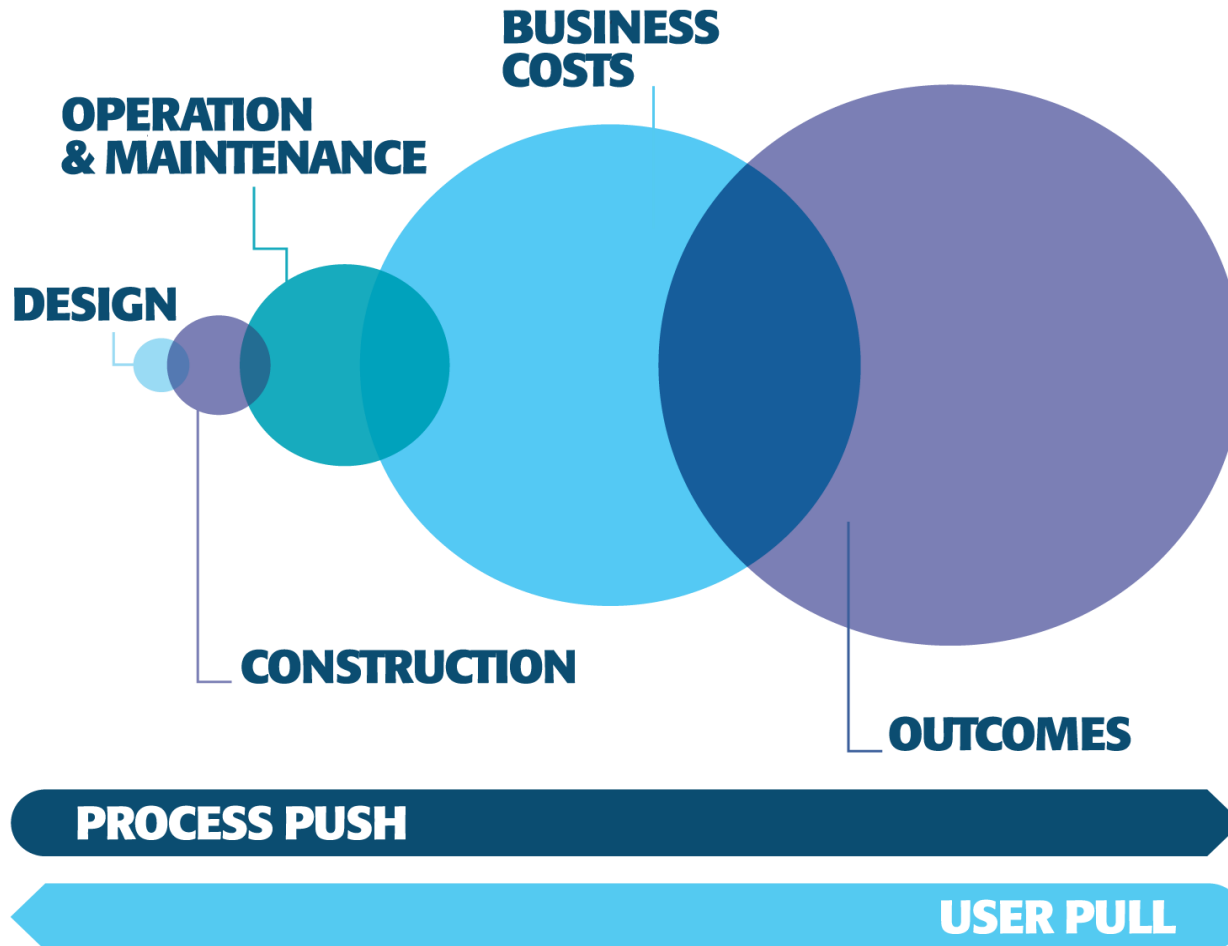
# Built environment industry strategy



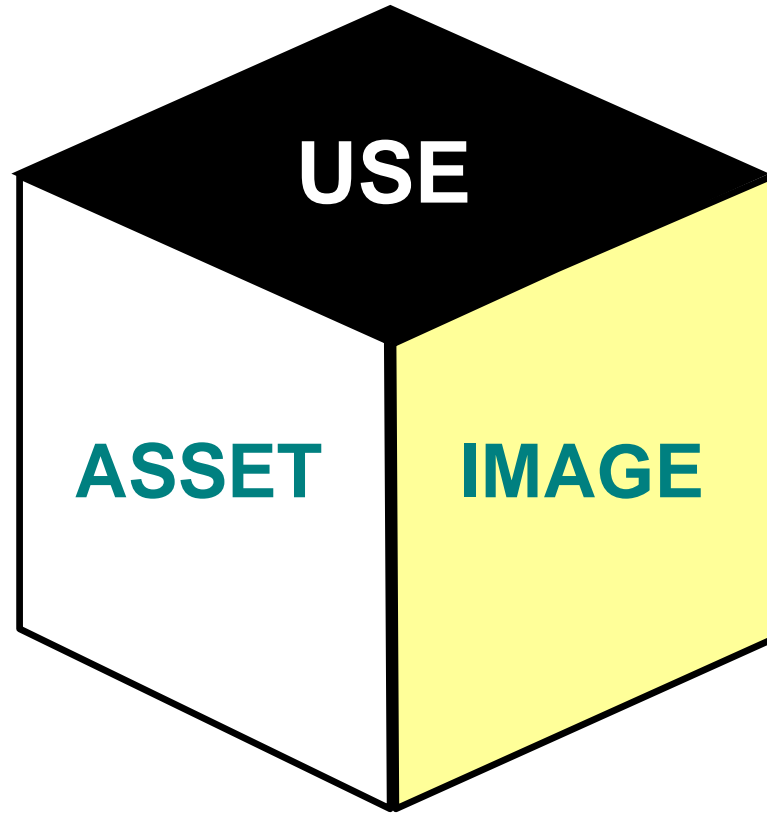
c. Richard Saxon 2014

After National Platform 2008  
& UK Industry Strategy 2013

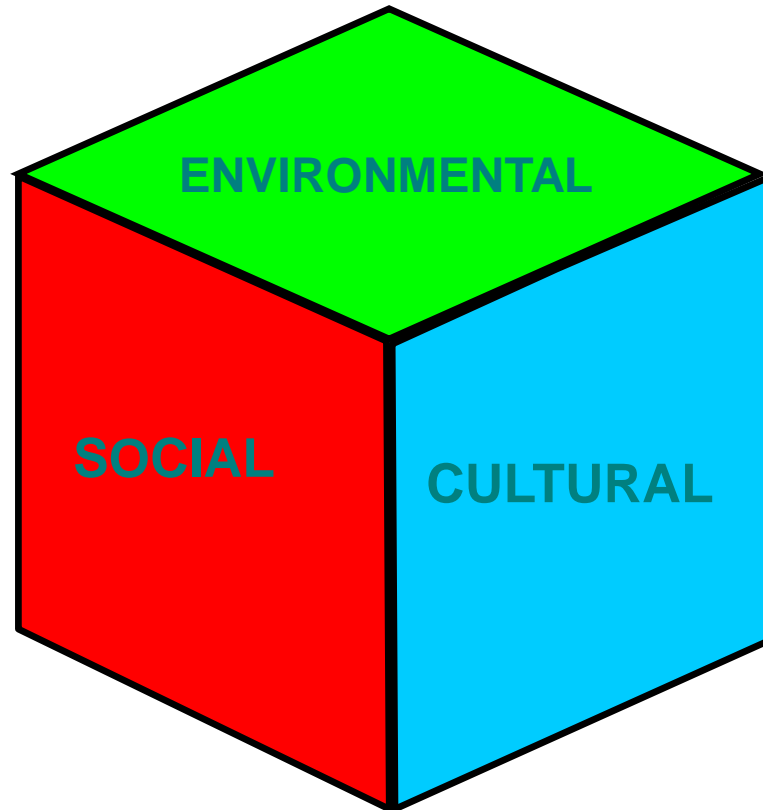
# Understanding Value. Thanks to Constructing Excellence



# Six Dimensions of Product Value



# Six Dimensions of Product Value



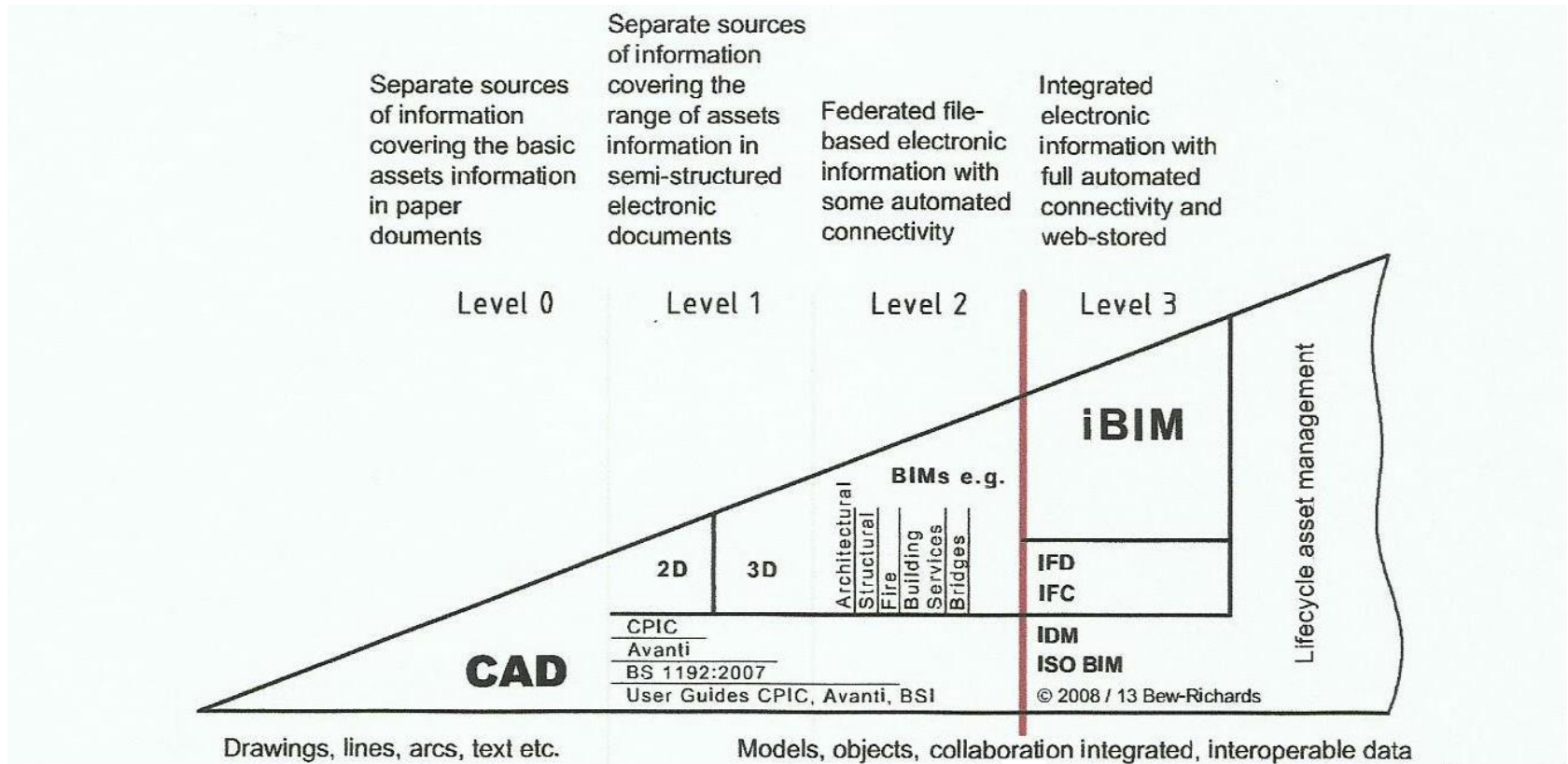
# Sustainability has three dimensions

- Economic: need to be profitable and have rising productivity, to pay well and invest in R&D
- Social: need to provide healthy work and work-life balance for a diverse workforce, attracting a new generation
- Environmental: improving urban quality whilst reducing impact dramatically.

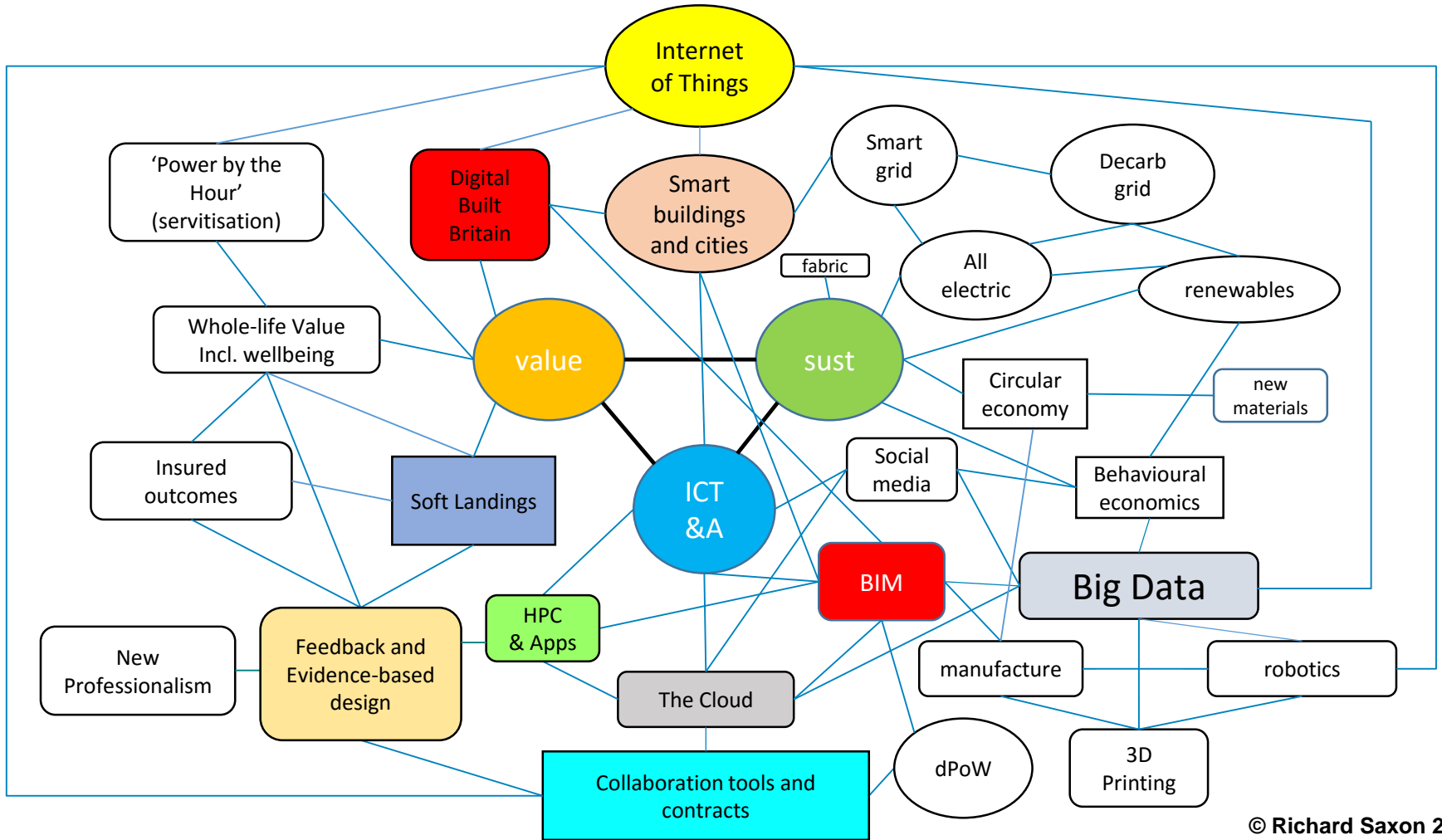


# ICT and Automation

- Bew-Richards ramp diagram

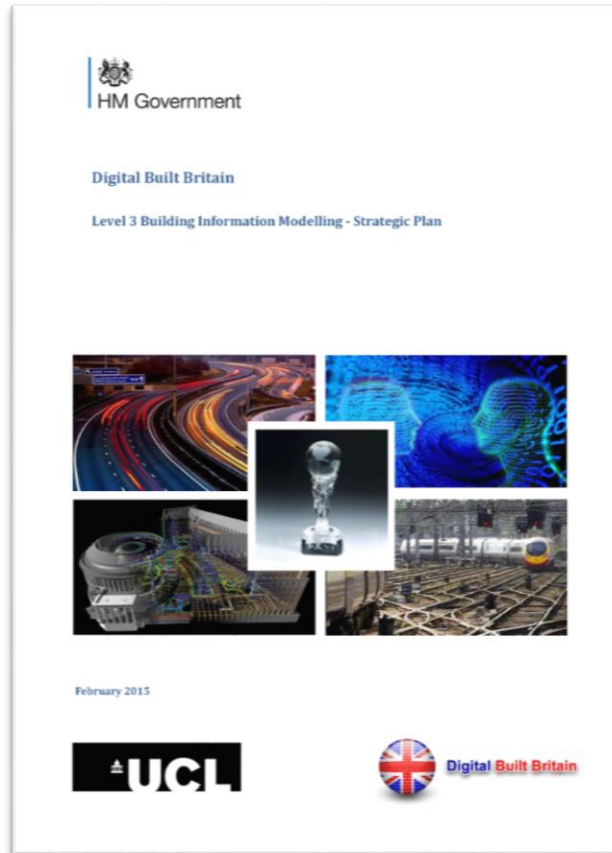


# Built Environment Innovation Galaxy



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# Digital Built Britain

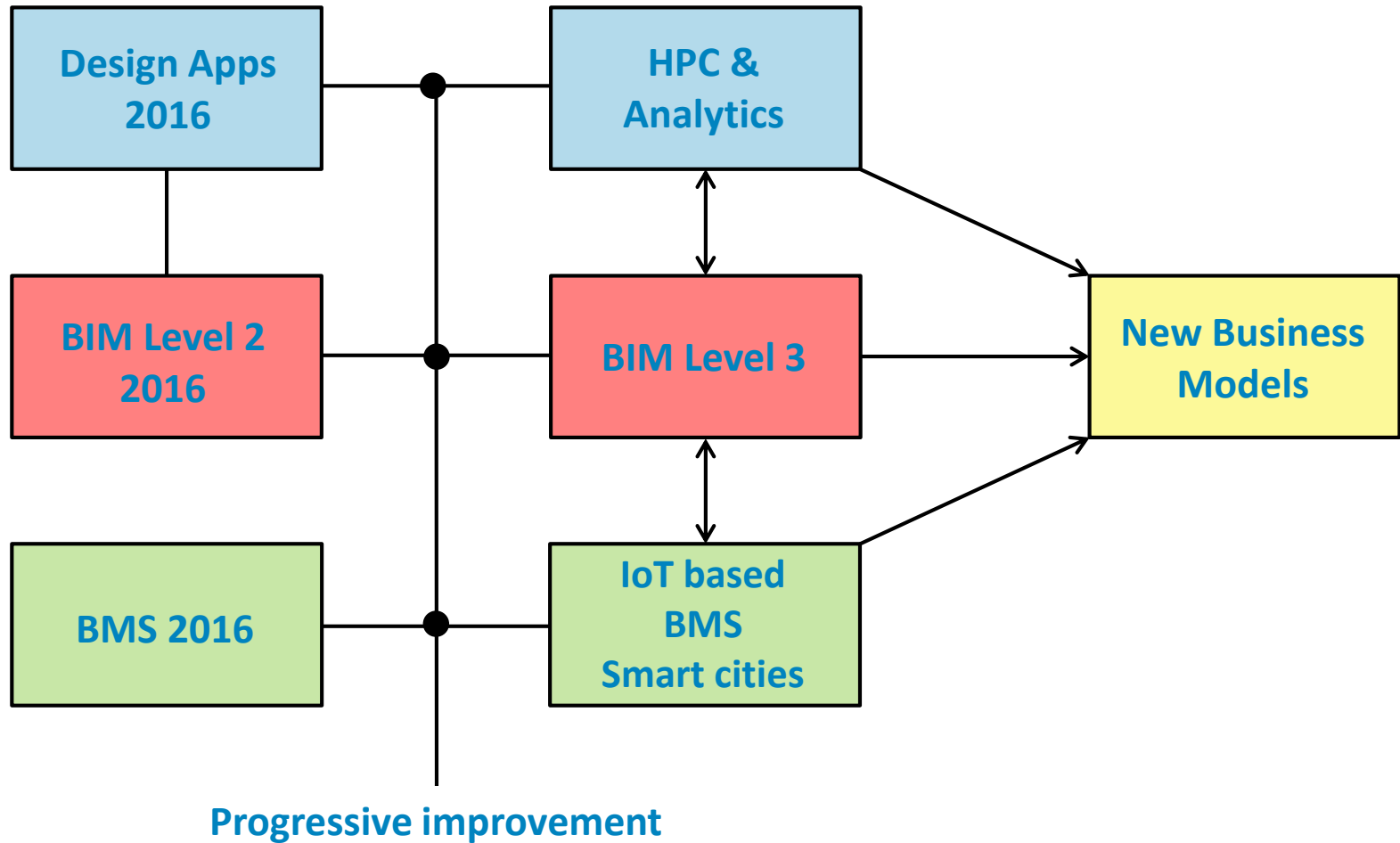


- The road to Level 3 BIM;
- The parallel rise of the Internet of Things;
- New Business models as a result of both;
- Need for new forms of contract and insurance;
- Potential for the UK to lead the world.

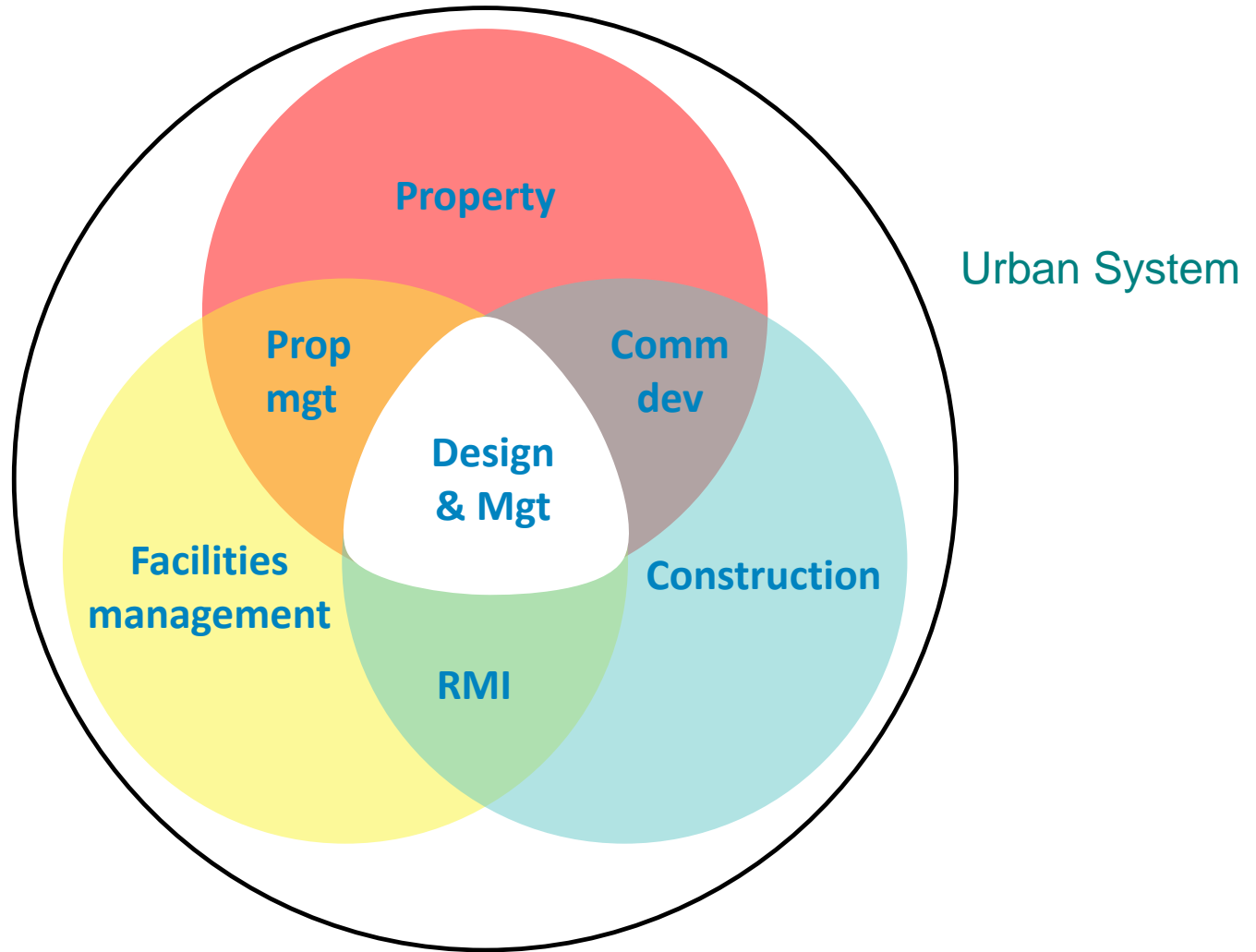
# DBB Rationale

- That fully interoperable BIM will arrive;
- But that IoT will overlay it and open other doors;
- That digital methods will permeate the industry, redefining its potential;
- That radical new ways to provide and run the built environment will ensue;
- That the UK's lead in this will be a global opportunity.

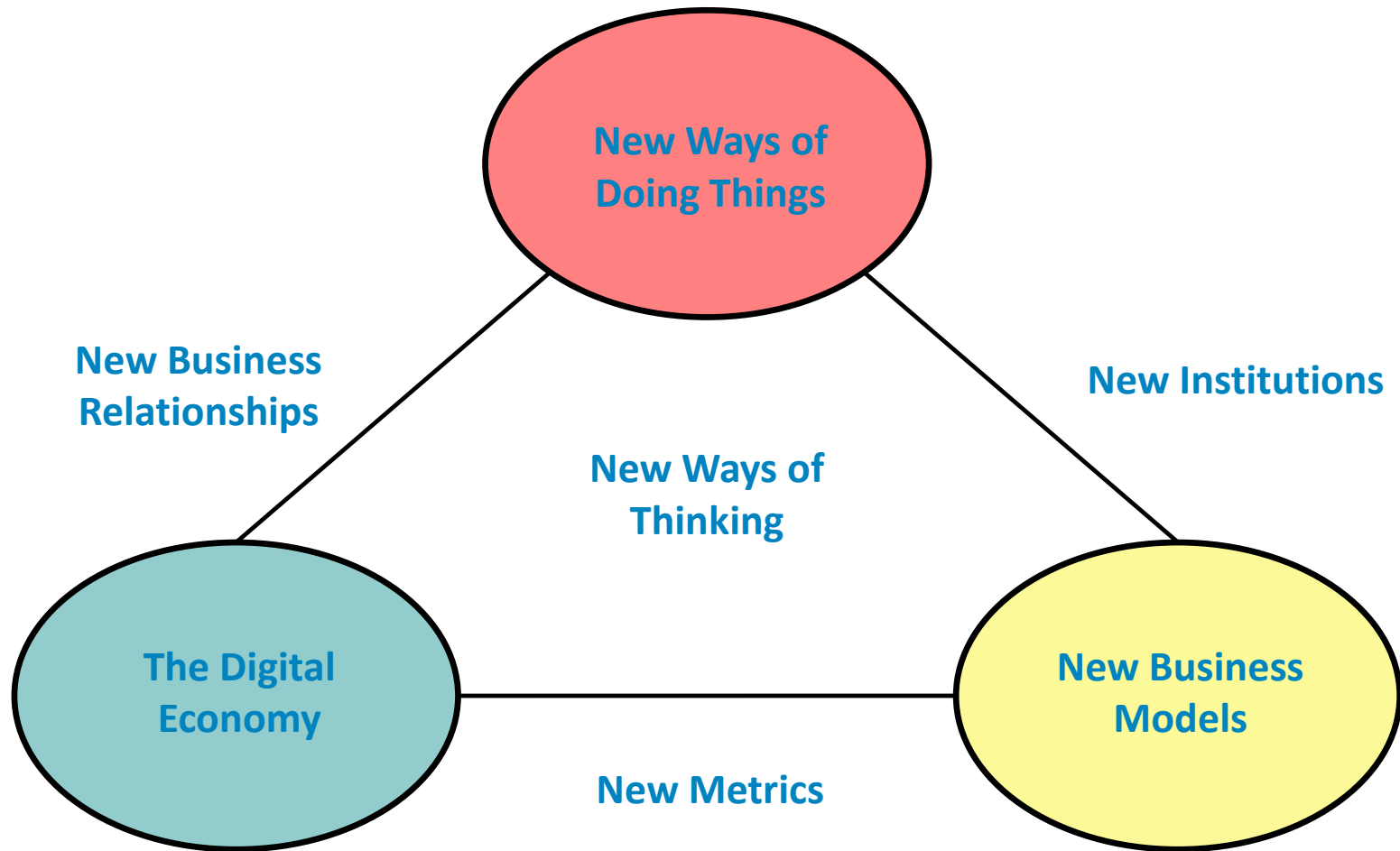
# From Level 2 to DBB



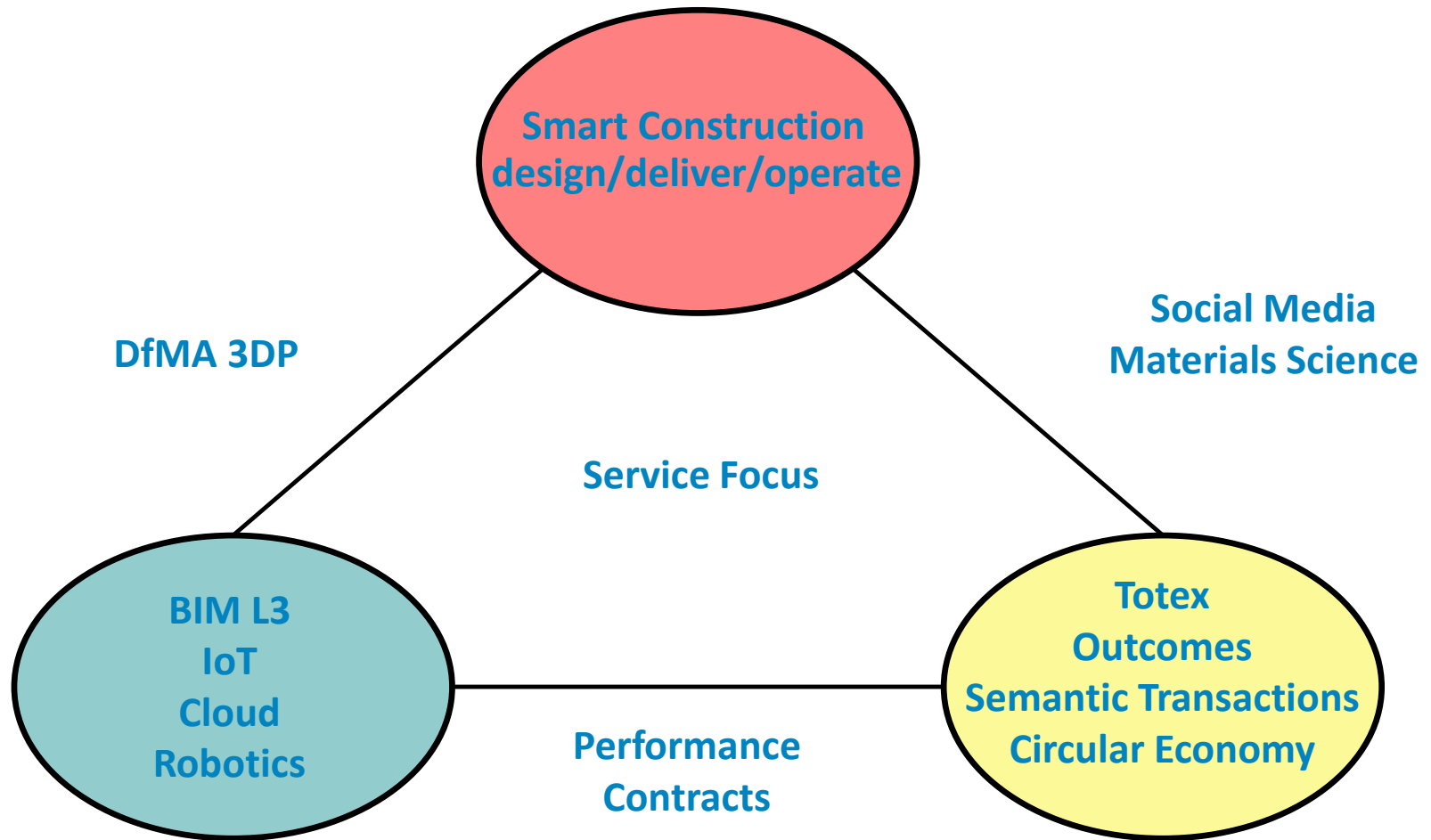
# Built Environment Sector Overlap



# Drivers of Change



# Potential Futures





# Expected Demand effects

- Improvement in performance lifts demand;
- Retrofit of stock becomes a major factor;
- Skill shortages are offset by automation;
- Service content of offer increases, with FM better integrated.



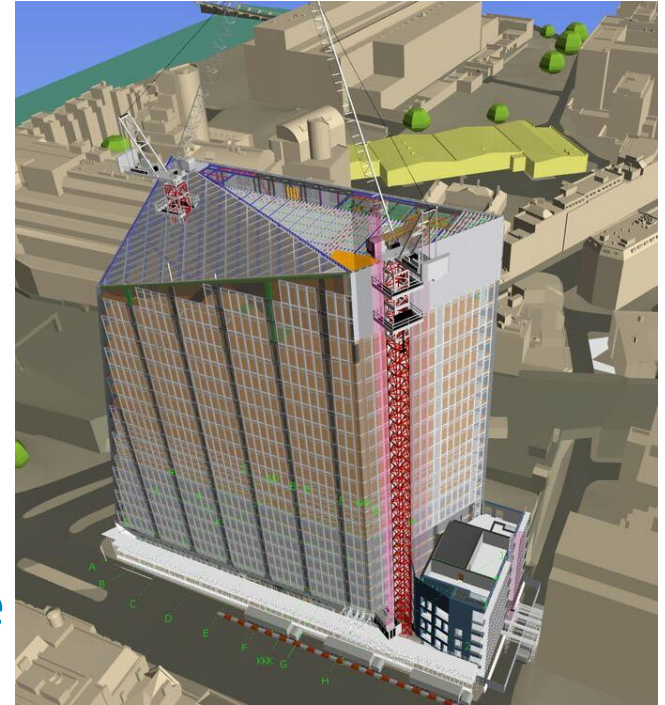
# Stages of Deployment

- 3A: progressive improvements to BIM
- 3B: impact of the Internet of Things
- 3C: rise of new business models enabled
- 3D: global competitiveness resulting



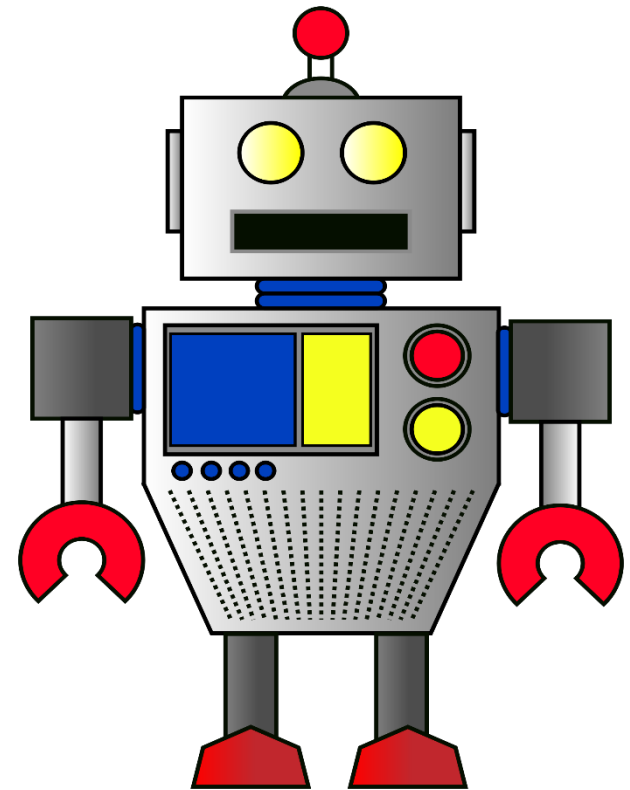
# 3A: Improvements to BIM

- Move to the Cloud, with re-written platforms
- Workflow support from CDE platforms
- Design optimisation tools
- Sophisticated simulation, including VR and AR
- Scanning and computerised photography for as-built data capture
- Completion of IFC standards for interoperability



# 3B: Internet of Things, in built environment

- Robotic constructors
- Sensors and actuators control comfort and building performance, supporting FM
- Social physics measurement of human response and building use
- Feedback to management, future briefs and designs
- Each building as part of an urban network, managing utility flows, traffic, security, etc



# 3C: New business models

- Servitisation: supply of space or building elements as a service;
- Circular economy
- Performance contracting: payment by outcome
- Integrated Project Delivery, via Alliance contracting with Integrated Project Insurance

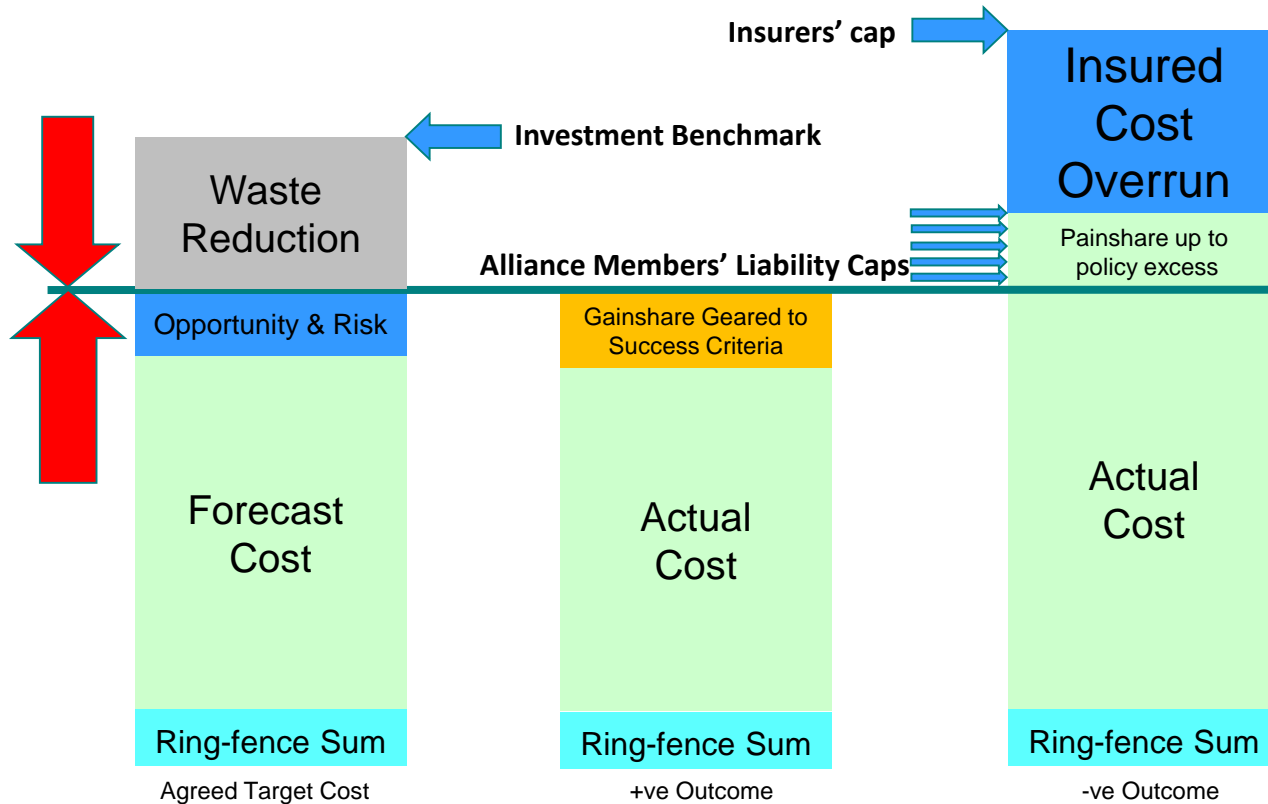


# Integrated Project Insurance concept

- Current insurance model prevents collaboration; fails to protect client;
- IPI cover taken out by client for similar cost;
- Design-Build team, selected for quality of collaboration, forms an alliance to deliver the project below a benchmark cost and with guaranteed profit;
- Due diligence team clears design and process for half the premium;
- Design-Build Team delivers on time and budget with 'pain-gain' terms: bonus for beating targets; capped penalty for missing them, after which insurance pays out;
- Defects covered for 12 years without proof of negligence;



# IPI Project Outcomes



# Commercial and Cultural change



- Value-driven, sustainable industry;
- Stable, collaborative supply teams;
- Feedback revealing true performance;
- Onset of 4<sup>th</sup> industrial revolution.