

The background consists of large, angular shapes in two colors: a vibrant orange and a deep blue. The orange shapes form the majority of the space, while the blue shapes are positioned in the corners and along the edges, creating a dynamic, geometric pattern.

**DANISH
ASSOCIATION OF
ARCHITECTURAL
FIRMS**

Digitalization and value creation

Challenges to research and practice in the built environment

Lene Espersen, CEO Danish Association of Architectural Firms

Fundamental challenges facing the built environment

Value creation – Triple bottom line

Climate Change, Sustainability & Life Cycle Thinking

Fragmentation & Suboptimization in the value chain

Lack of data & qualitative evaluations & hidden treasures

Some government initiatives and ideas

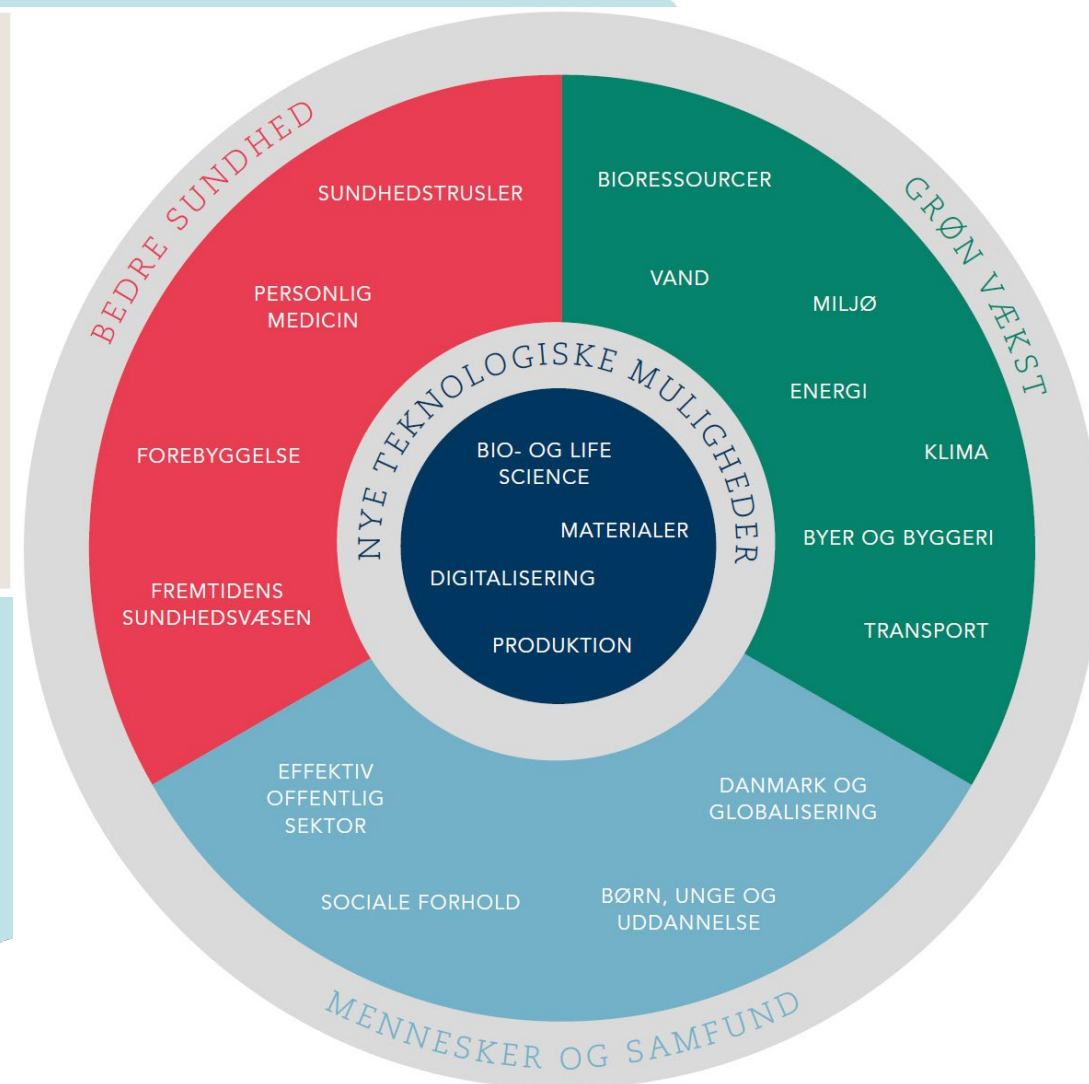
Denmark as a pioneering country

Welfare/ well-being/ wealth ?

Climate Action and Climate Adaptation

Forsk 2025– research strategy

Forsk 2025



Forsk 2025– research strategy

- Better Health
- Greengrowth
- Humans & Society
- Technology & opportunities

Forsk 2025

Climate Action and Climate Adaptation

- 70% carbon footprint reduction by 2030 – all sectors
- Sustainability in Building regulations
- Retrofit strategy for buildings

The big question is how to add value while providing solutions

UN Sustainable Development Goals - UIA 2023



Architectural design

”When the architect wants grass on the roof...
...who has the ‘can-it-be-sold-hat’ on?”

EDC Real estate 2015

What is it worth?



CASE: Moesgaard – Henning Larsen Architects



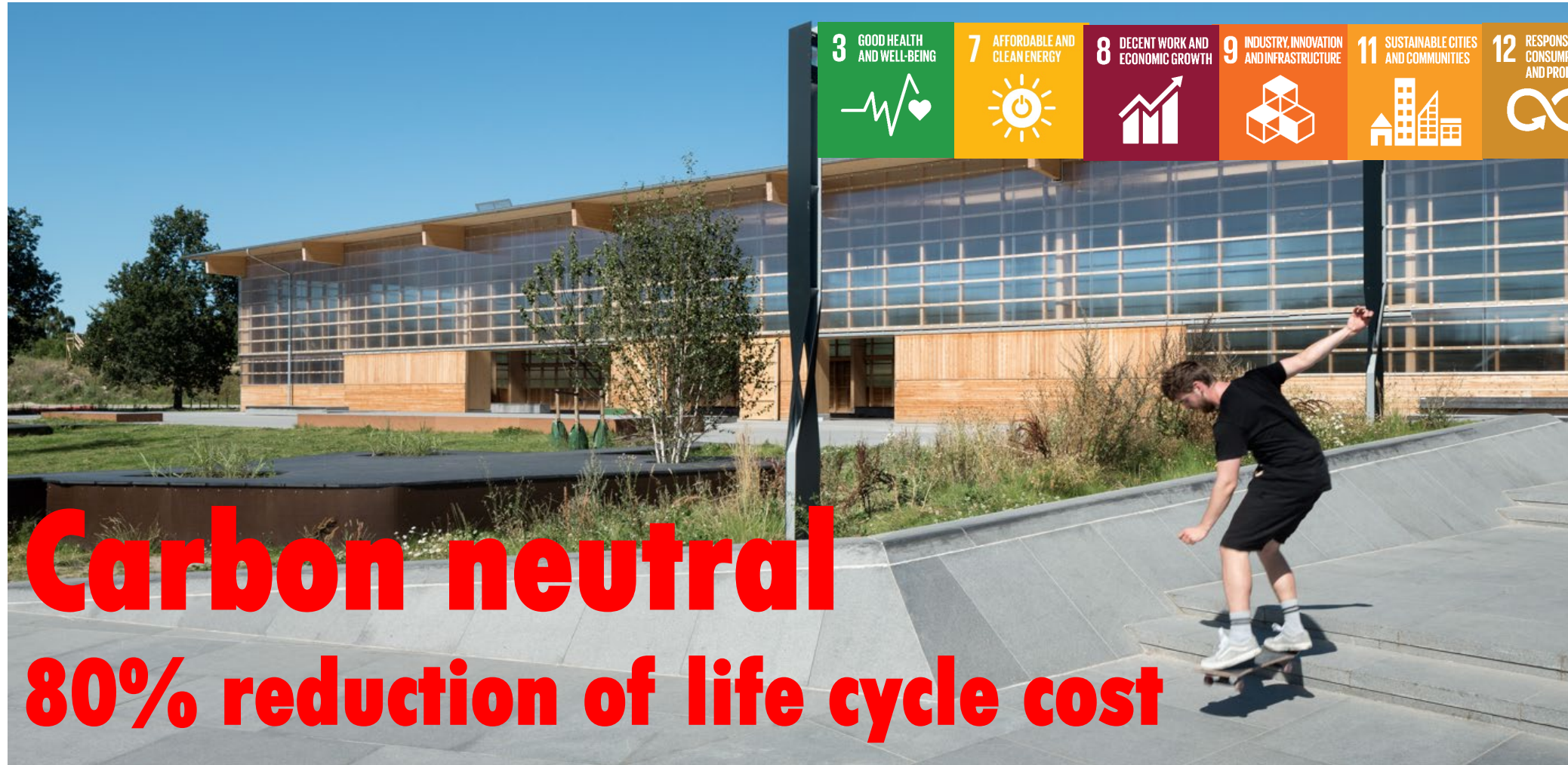
Photo by Jens Markus Lindhe

CASE: Moesgaard – Henning Larsen Architects



Photo by Jens Markus Lindhe

CASE: Jaegers sports facility – Vandkunsten



- 3 GOOD HEALTH AND WELL-BEING
- 7 AFFORDABLE AND CLEAN ENERGY
- 8 DECENT WORK AND ECONOMIC GROWTH
- 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
- 11 SUSTAINABLE CITIES AND COMMUNITIES
- 12 RESPONSIBLE CONSUMPTION AND PRODUCTION
- 13 CLIMATE ACTION

Carbon neutral
80% reduction of life cycle cost

CASE: Ryegade 30 – Krydsrum arkitekter



3 GOOD HEALTH AND WELL-BEING 	7 AFFORDABLE AND CLEAN ENERGY 	11 SUSTAINABLE CITIES AND COMMUNITIES 	13 CLIMATE ACTION
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56% energy savings
Financed by communal rooftop terraces
And attractive attic apartments

CASE: Sønder Boulevard– SLA



3 GOOD HEALTH AND WELL-BEING 	8 DECENT WORK AND ECONOMIC GROWTH 	11 SUSTAINABLE CITIES AND COMMUNITIES 	13 CLIMATE ACTION
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Park 'paid back' in 1½ years

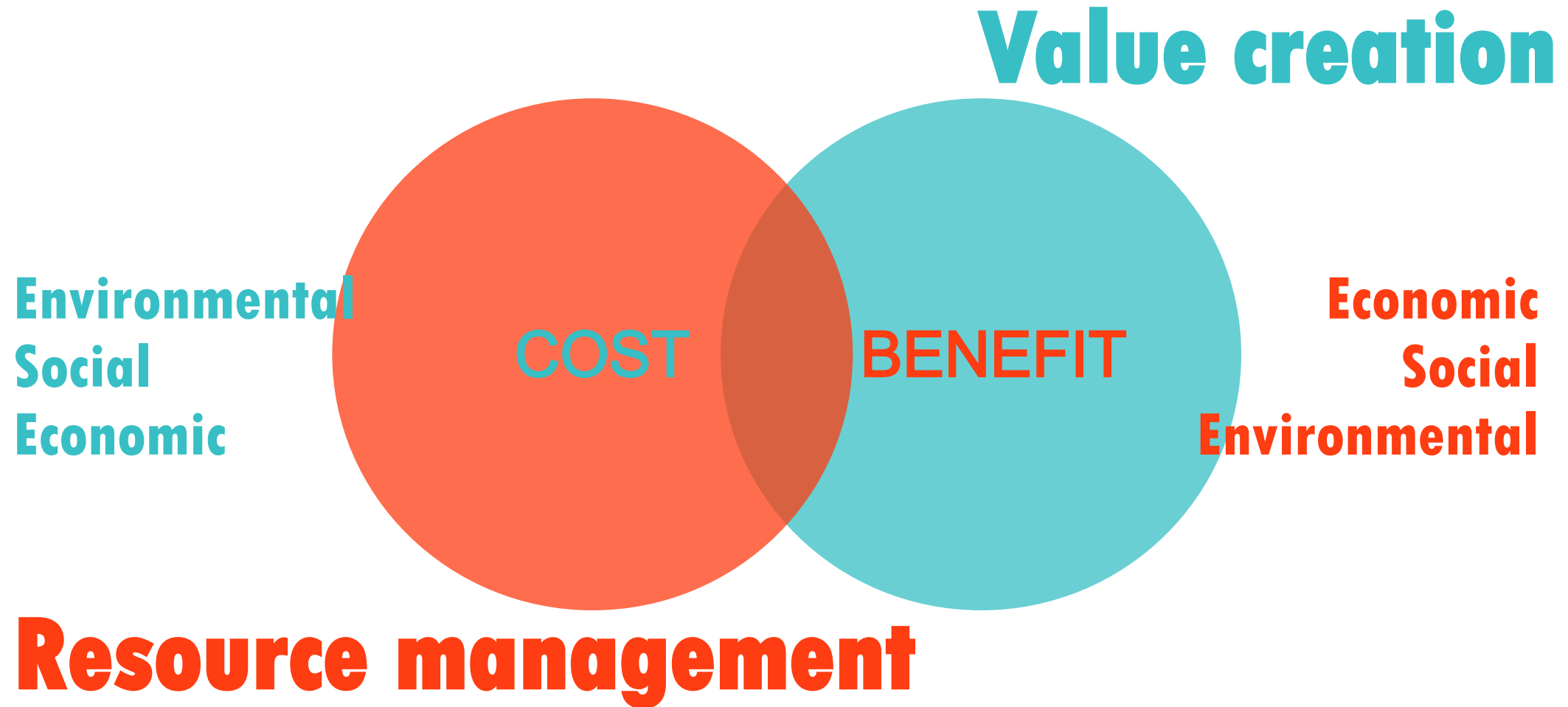
Photo by Mads Klitten

Value ?

Meaning

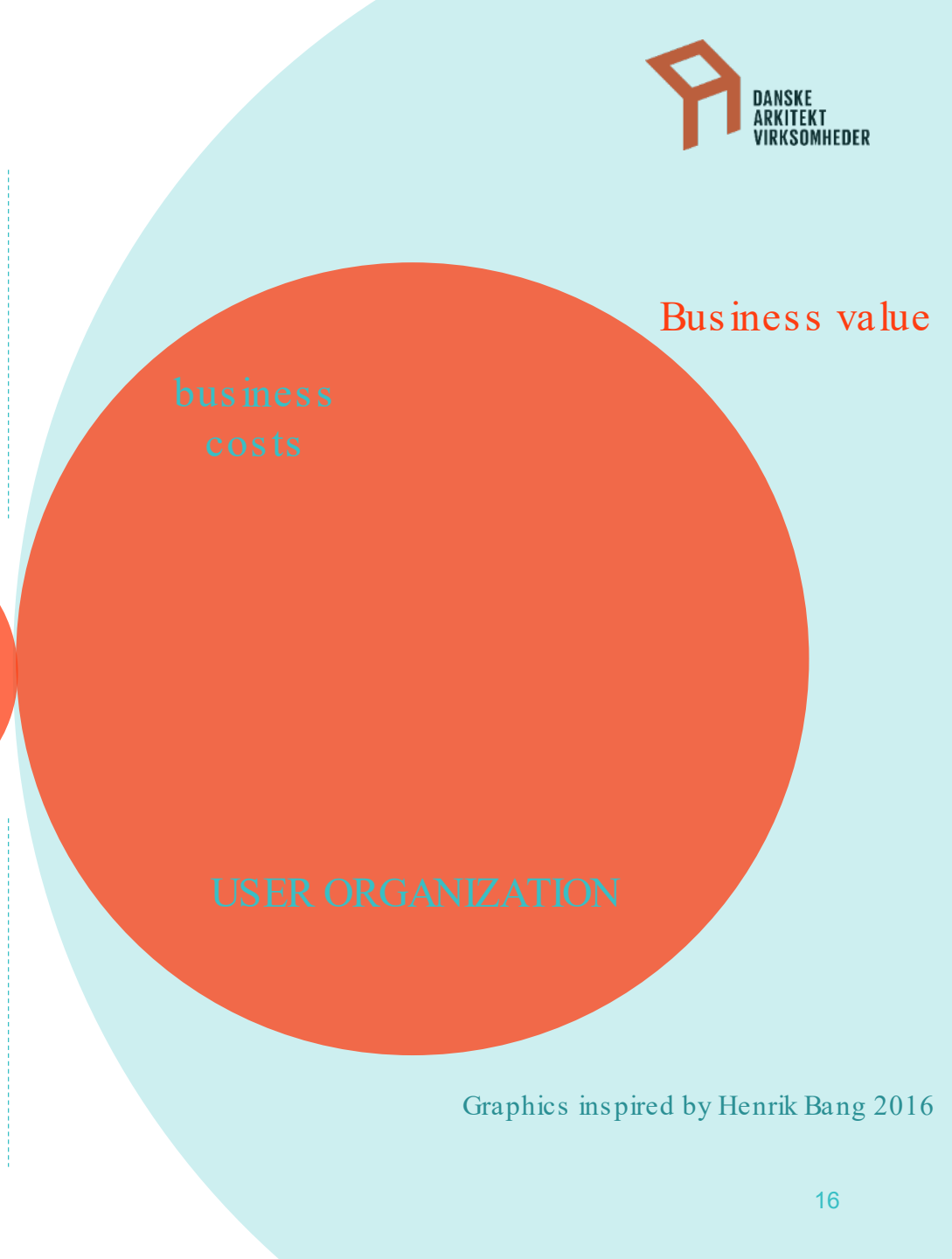
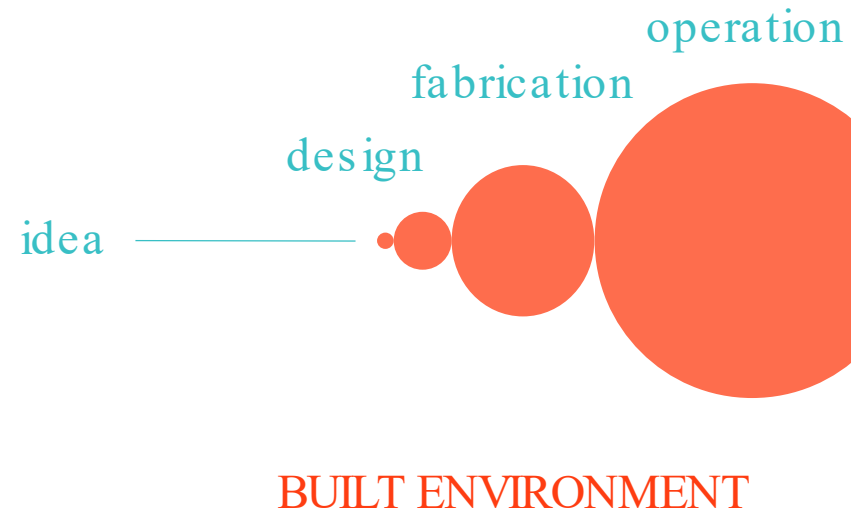
Measurement

Sustainability - Triple bottom line



Life Cycle Value – the gear box

Value



Cost

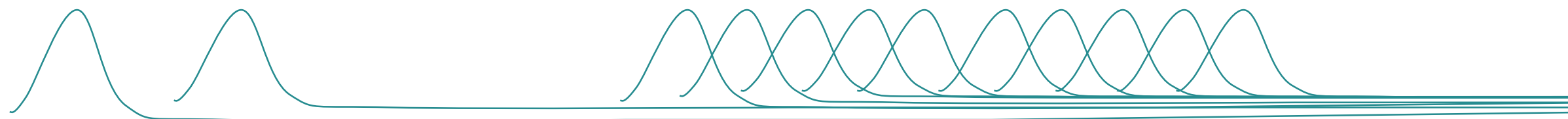
Graphics inspired by Henrik Bang 2016

PERSPECTIVES: TOOLS and METHODS



BEFORE DURING

AFTER



KPIs

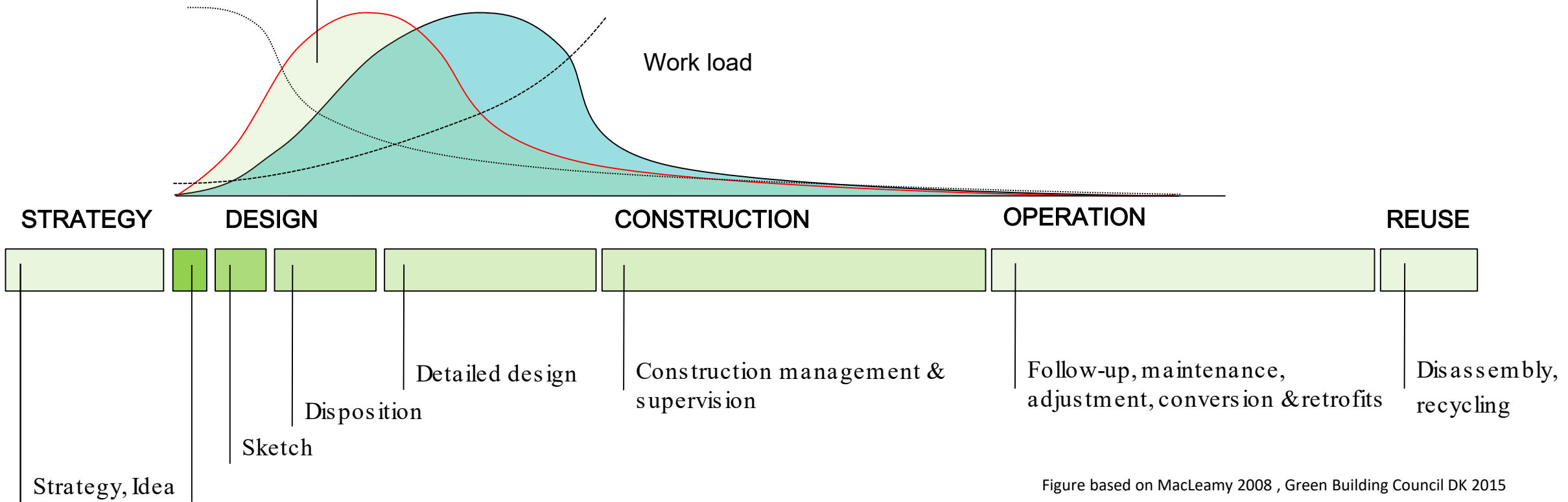
PERFORMANCE ESTIMATES

PERFORMANCE MONITORING

High performance design - Changing work load in the design process

Improved integration:

- Attractive design, user value, social cohesion, functionality
- Lifecycle cost LCC
- Lifecycle assessment LCA, energy, environment, buildability, resource management, impacts



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HIGH RISK ZONE
For architects
GREAT VALUE ZONE
For clients

Need for revised fee structure / business models

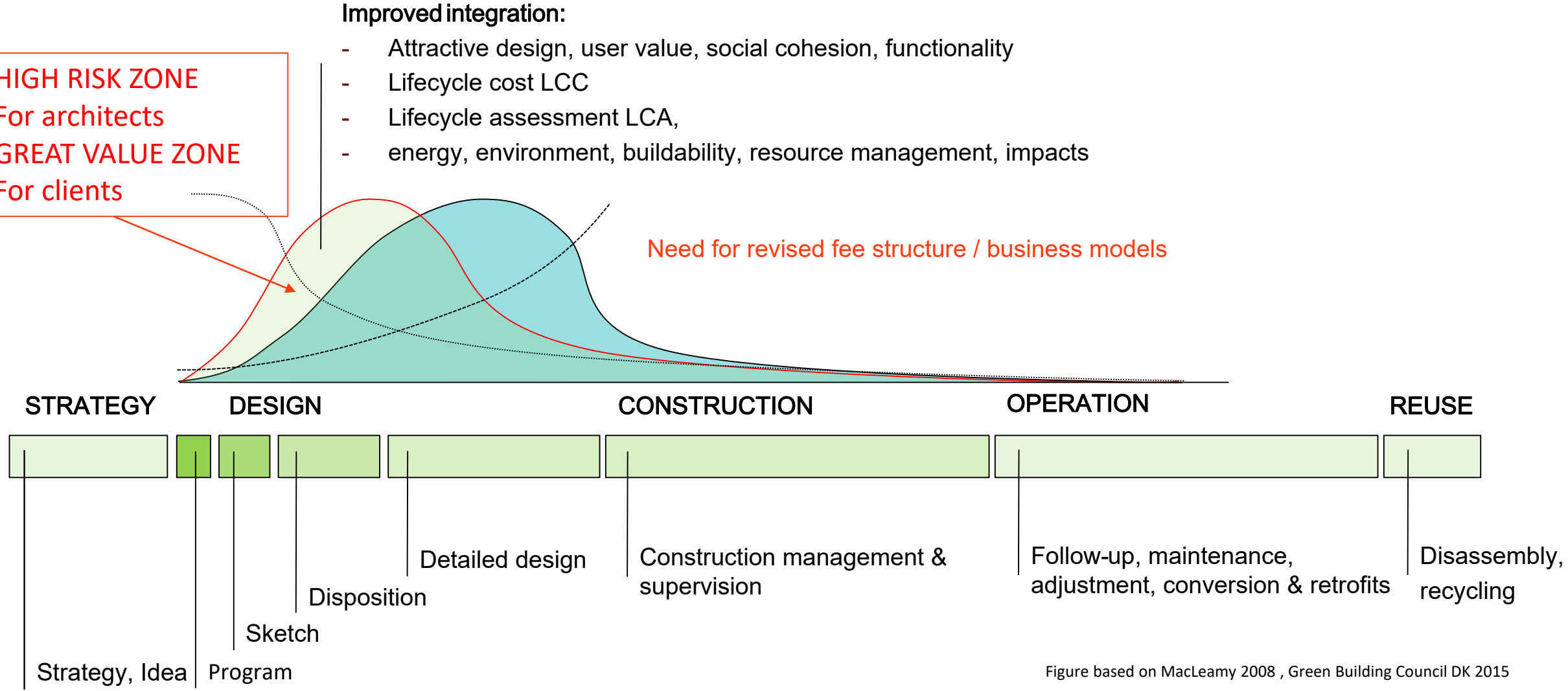
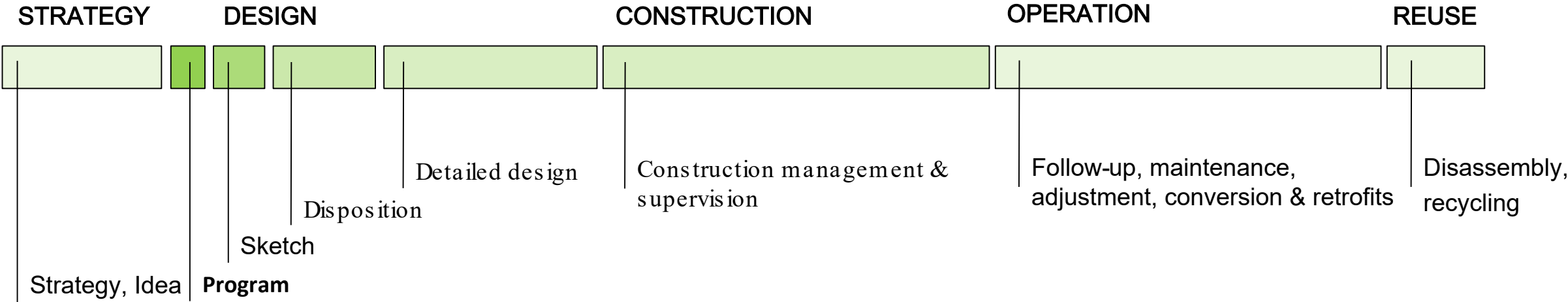
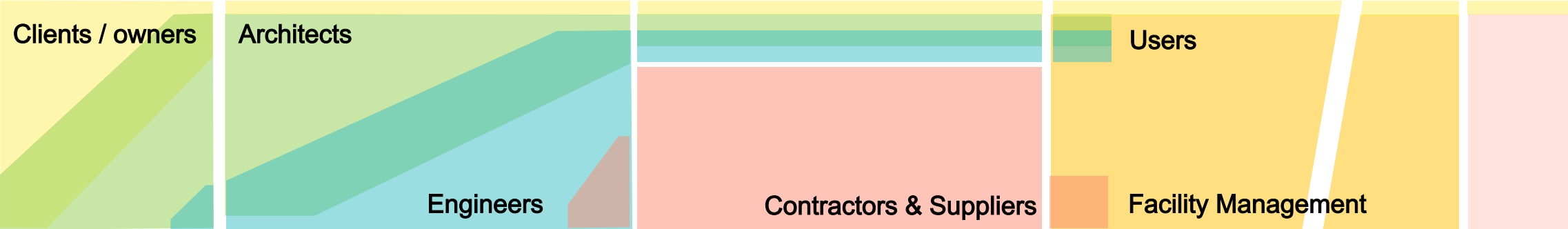
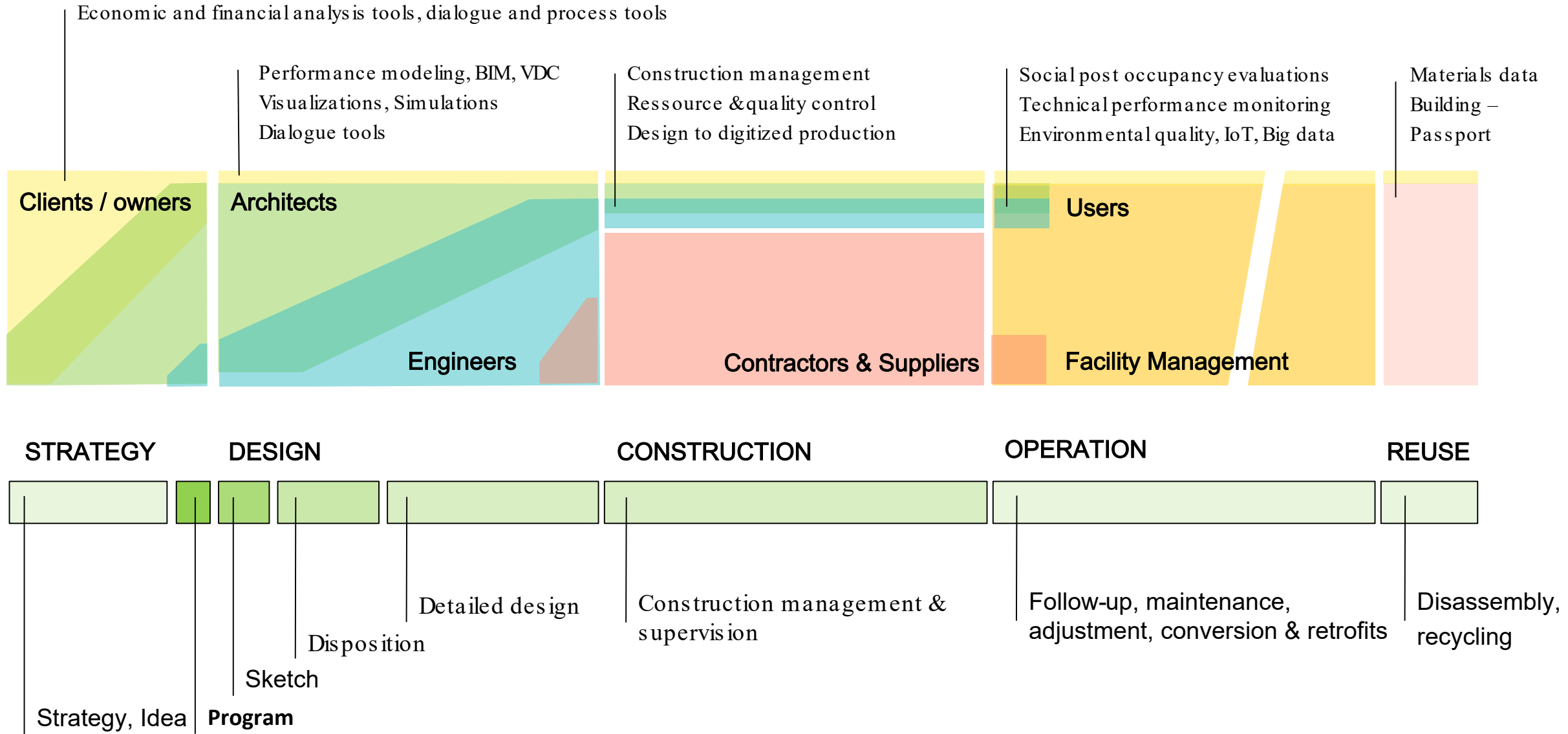


Figure based on MacLeamy 2008 , Green Building Council DK 2015

High performance design - Changing work load in the design process



Need for new supporting tools



Fundamental opportunities to the built environment businesses

Document value creation and wiser use of resources always triple bottom line

Finance, Design, Construct, Operate, Recycle always a life cycle perspective

Create shared value– build on mutual interest integrating the entire value chain

Share knowledge of environmental, economic & social performance gains– engage in user experiences– reveal hidden treasures

More cases & background information:

[www. danskeark.dk](http://www.danskeark.dk)

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