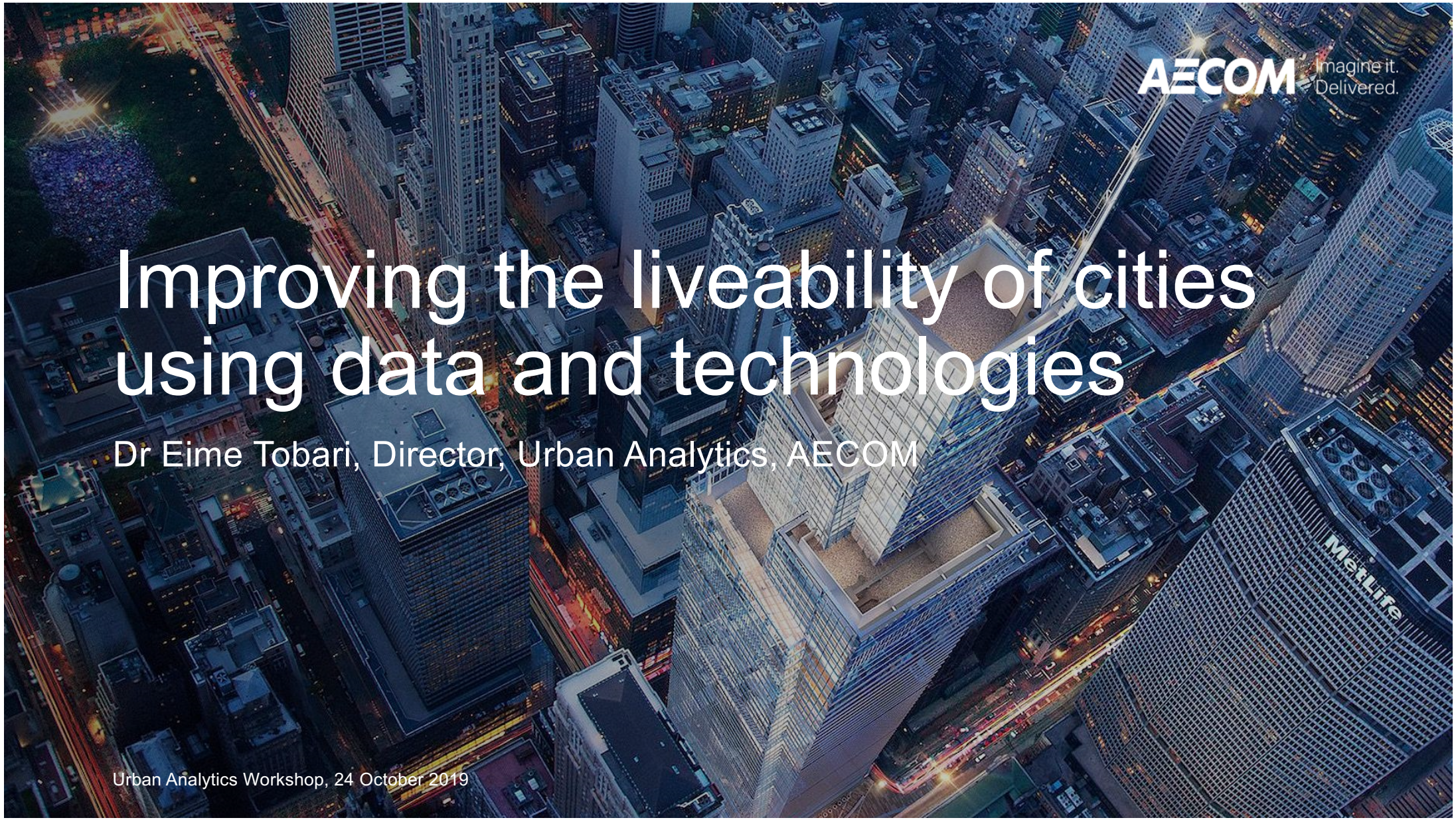


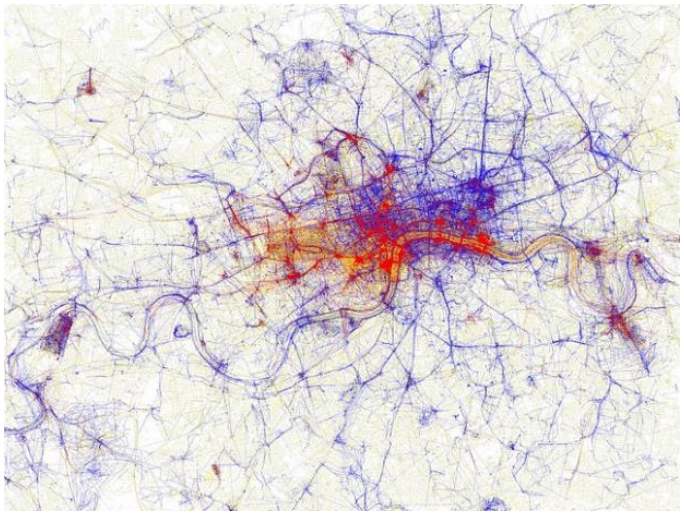
Improving the liveability of cities using data and technologies

Dr Eime Tobari, Director, Urban Analytics, AECOM

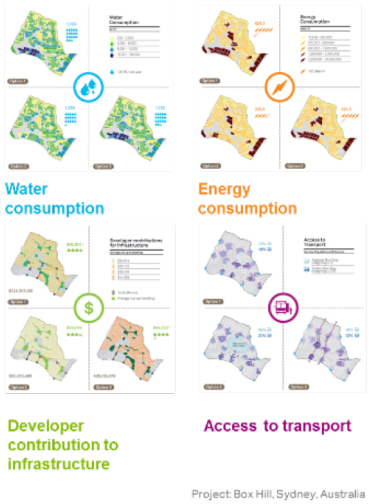
Urban Analytics Workshop, 24 October 2019

What is Urban Analytics?

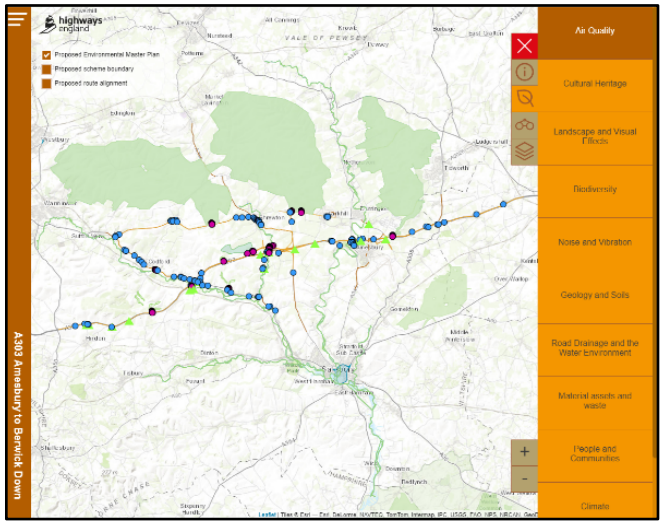
Use of data and technologies to generate specialised insight in order to address complex issues cities are facing.



Data visualisation
Flicker data for London
Locals vs Tourists



Data analytics
SSIM, predictive modelling for option assessment



Interactive tools
Web-based Digital Environmental Statement tool, AECOM

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Our mission

Promote an outcome-oriented approach in development and infrastructure projects to improve efficiency, mitigate risk and optimise the social value generated by the projects.

Measure what matters most to our lives **but difficult to quantify such as: wellbeing | equality | diversity | social cohesion | cultural identify | productivity | resilience.**

Support seamless transition from planning to design.

Project: Northwest Cambridge

Urban Analytics for better outcomes and efficiency

Define

Explore data to identify issues and develop measures for social, economic and environmental outcome objectives through a workshop.

Measure

Build an integrated systems model to measure outcomes for various scenarios to support planning and design of development/infrastructure.

Engage

Communicate value that projects would generate to enable informed decision making and meaningful stakeholder engagement.

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Defining issues and objectives - Liveability Framework

Goals	Objectives
Social resilience Connectivity Diversity and identity Inclusivity and equity Happiness and Pride	Provide metropolitan connectivity Create neighbourhoods with character Integrate existing neighbourhoods Accommodate students and key workers Encourage mix of activities Develop cultural identities Offer access to a range of lifestyle choices Foster sense of belonging
Economic innovation Connectivity Diverse activities Innovation and creativity Vitality	Attract multi-national businesses Attract diverse activities Improve productivity and economic efficiency Enhance innovation and research industry
Environmental balance Resilience Bio-diversity	Reduce carbon emission Improve air quality Increase usage of sustainable transport Increase inner city bio-diversity Better experience of nature Reduce energy consumption Mitigate flood risks Minimise heatwave negative impact

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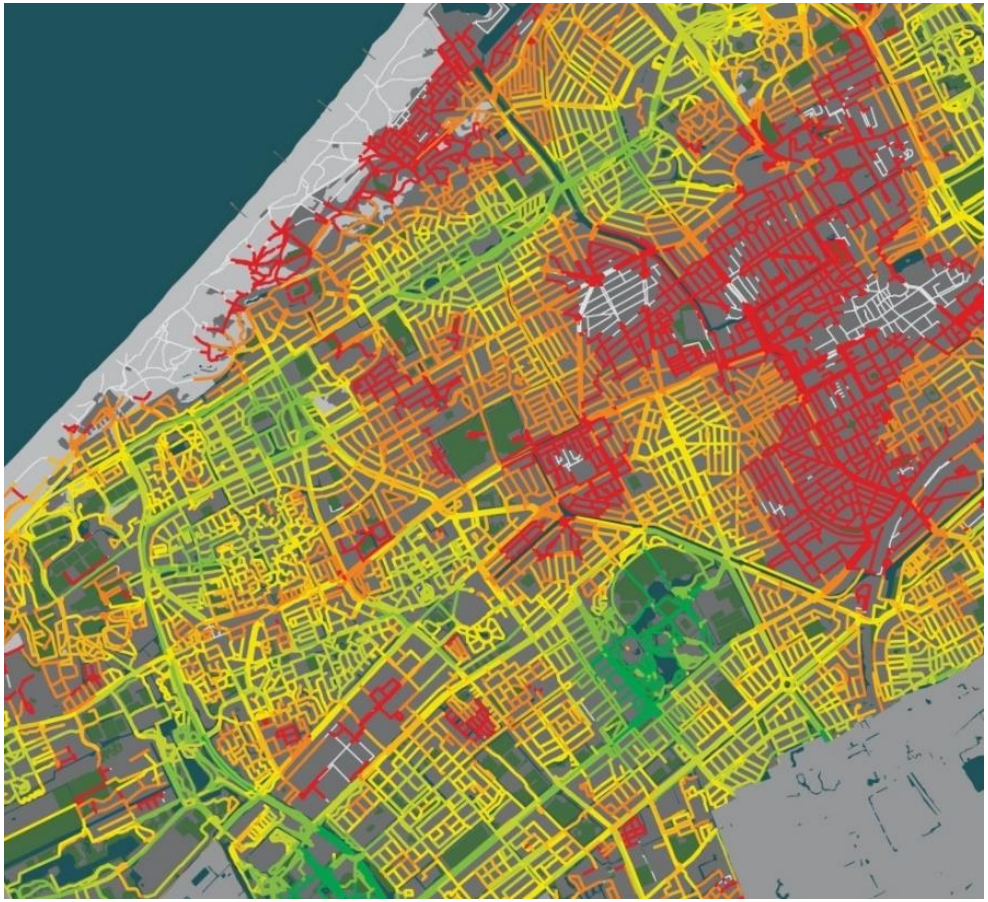
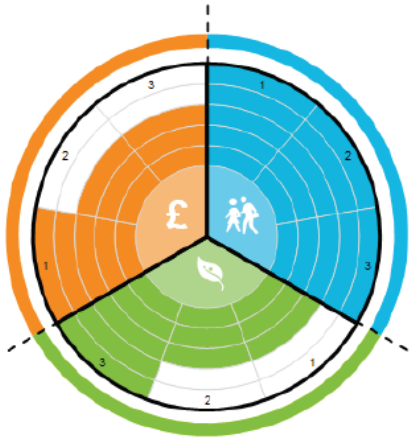
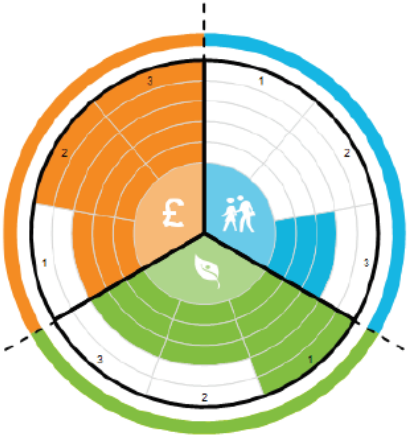
Measuring and scenario comparison



Best Scenario



Compliant Scenario



Environmental Balance

E1 Develop Sustainable Urban Drainage Systems (SuDS).
E2 Promote productive green areas (allotments, agricultural markets, etc.)
E3 Reduce carbon footprint by reusing warehouse building structure.

Social Resilience

S1 Recover industrial heritage buildings.
S2 Promote ground floor as community hubs, through public consultation process.
S3 Disincentive the creation of single use enclaves, at least 30% of non-residential functions.

Economic innovation

F1 More Gross Floor Area.
F2 Lower construction / refurbishment costs.
F3 Lower operation / maintenance costs.

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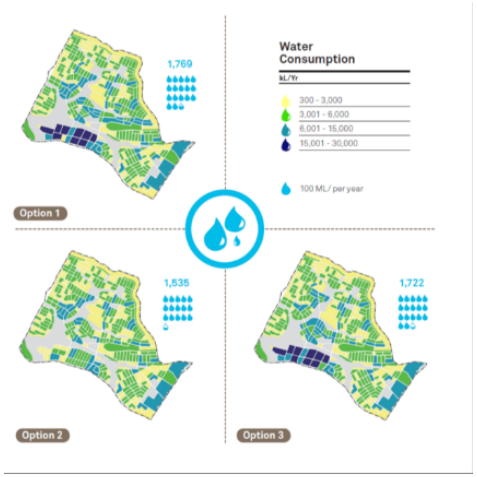
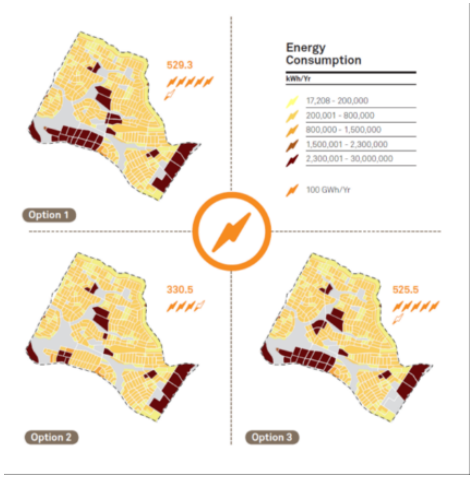
SSIM: Sustainable Systems Integration Model

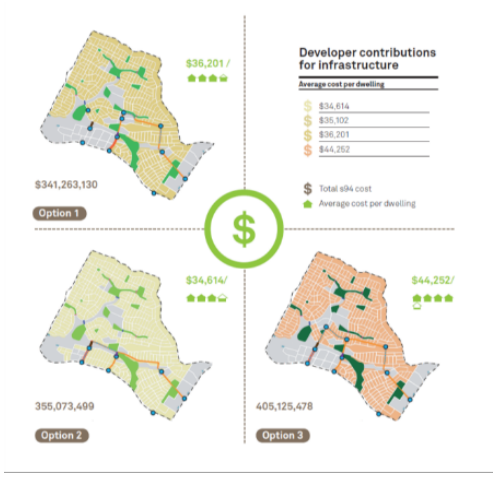
Simulating outcomes and communicating value



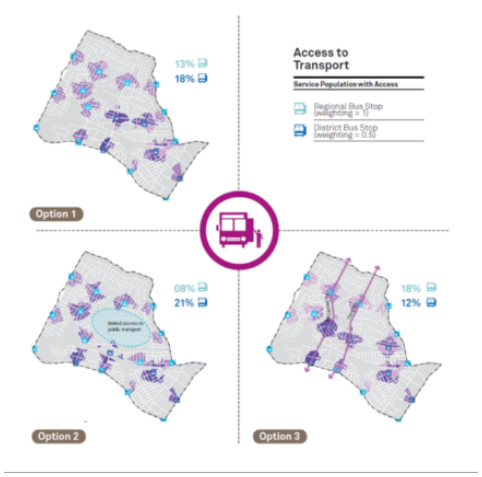
Water consumption



Energy consumption



Developer contribution to infrastructure



Access to transport

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A large regeneration project in Italy

10%
Value Uplift in
+ 200,000 m²

- €80m
Less Cost

- 5 min
Shorter Journey
on average

+ 173,000 m²
More Green Space

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Translating into social value – comparable indicators

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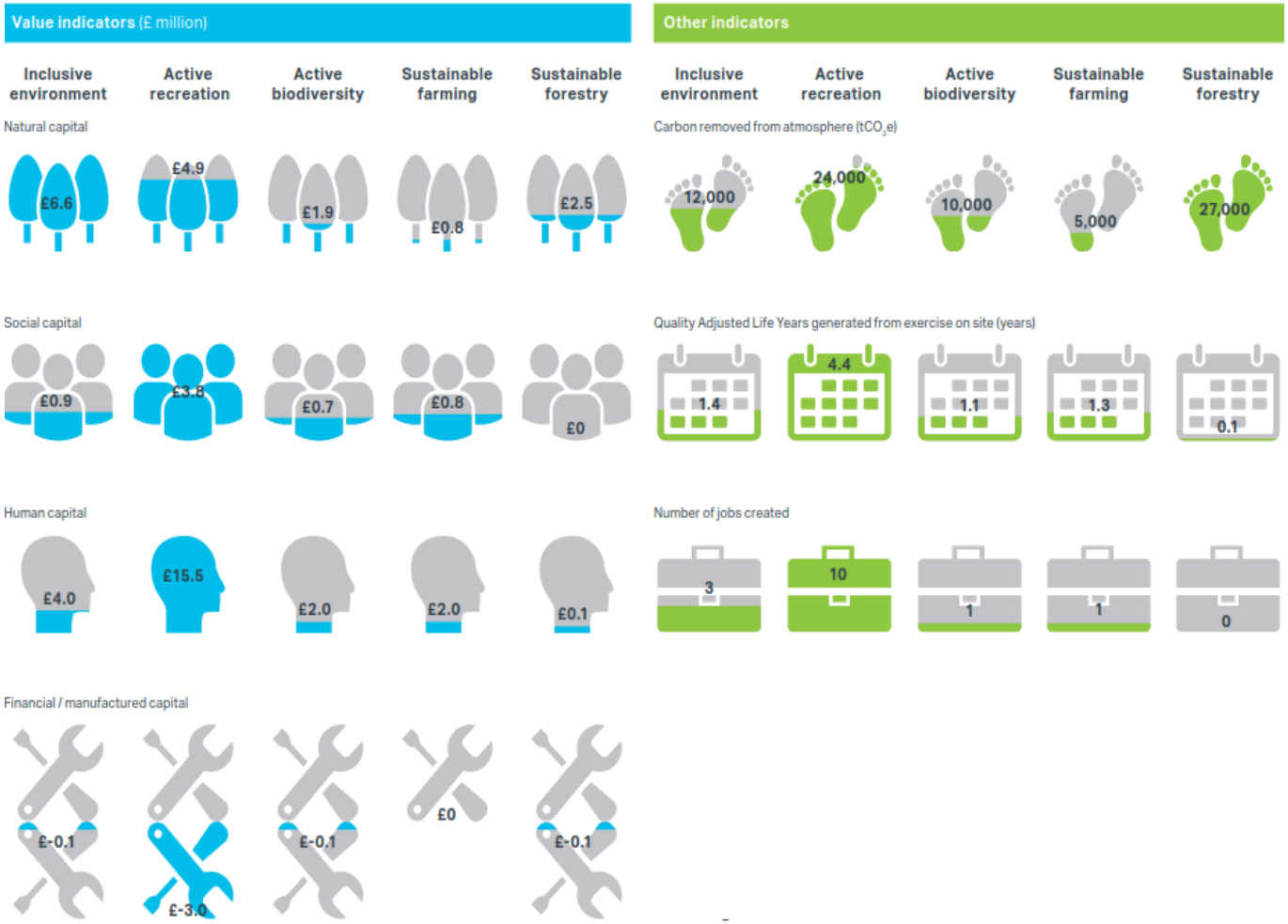
Capitals approach – Cost to Benefit evaluation



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Smart city is where we learn lessons from the past

Assessment ▶ Policies/Design ▶ Implementation ▶ Monitoring


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