

Sustainability Performance and Metrics

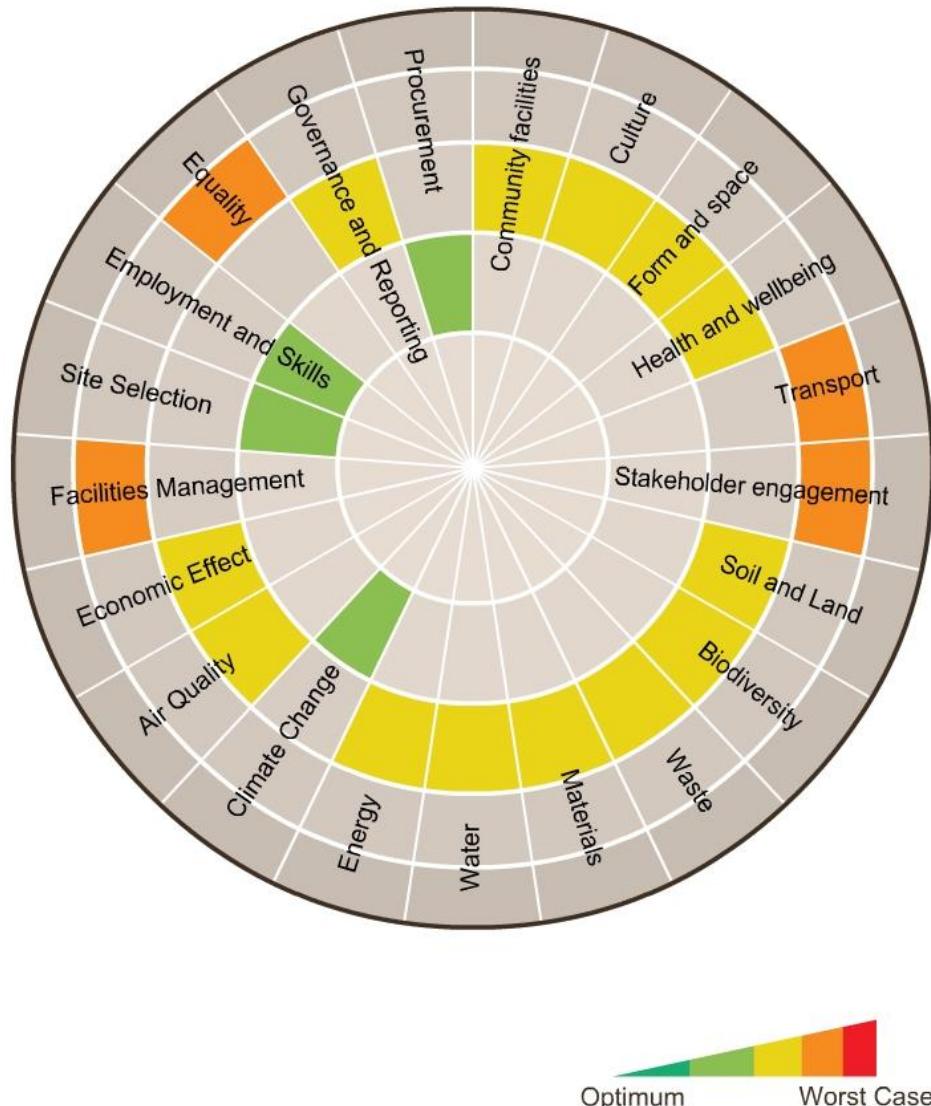
Fiona Cousins | 12 November 2015 | Washington, DC

Introduction



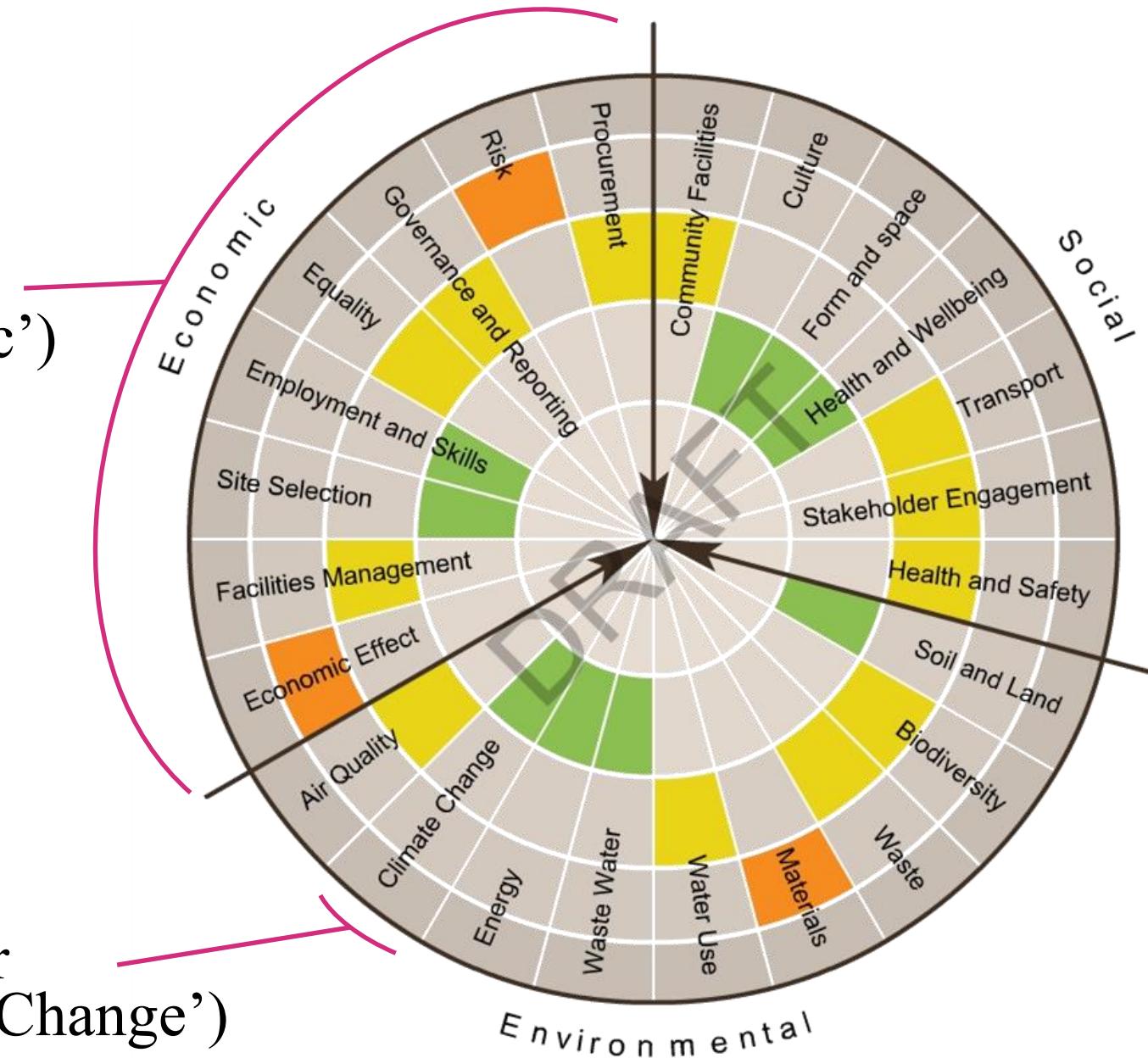
Early sustainability metrics - SPeAR®

- Holistic sustainability decision-making framework to support project development and communicate outcomes
- Covers all aspects; **environmental, social and economic**

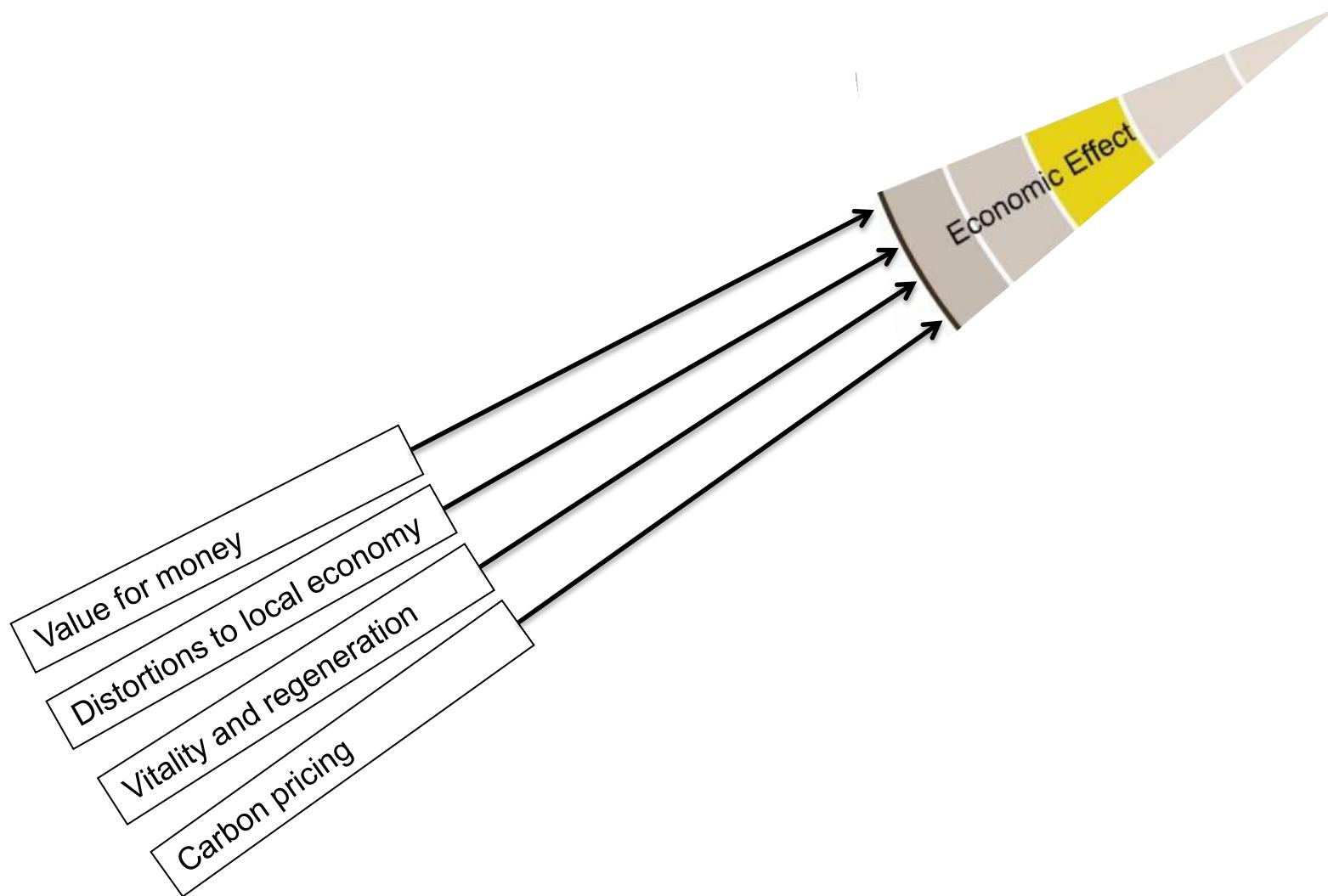


Segment
(i.e. 'Economic')

Core Indicator
(i.e. 'Climate Change')



Sub-indicators

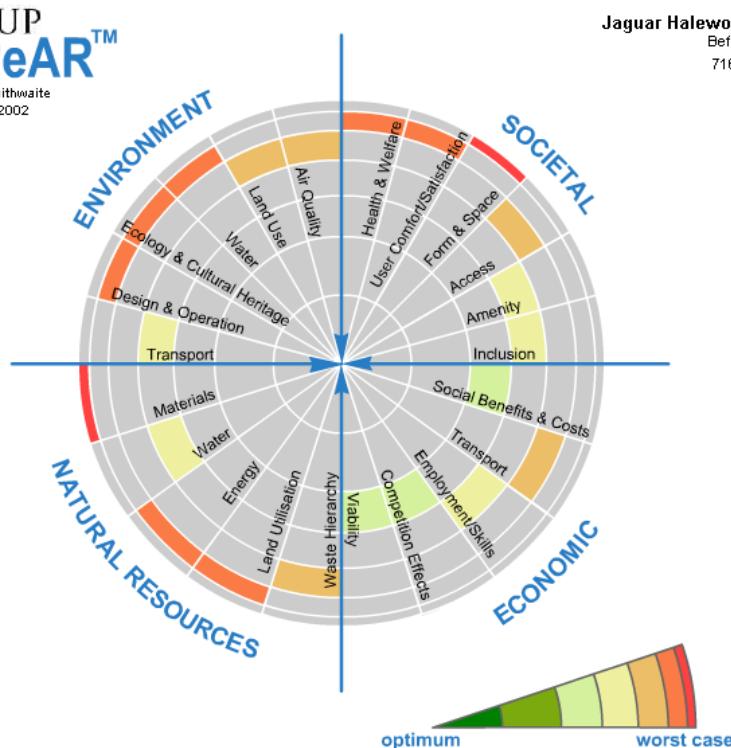


Tracking progress over time



ARUP
SPeAR™

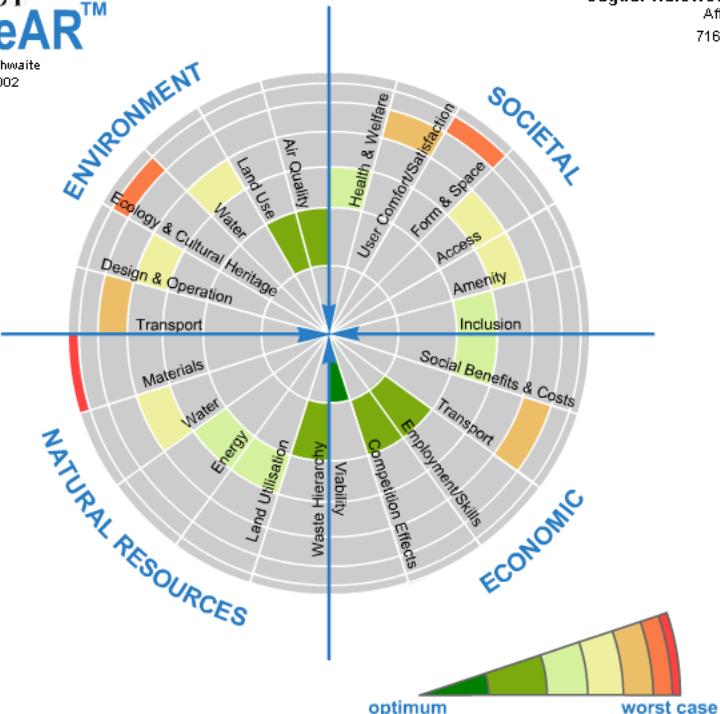
peter braithwaite
02 April 2002



Sustainability Profile - *Before*

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SPeAR™

peter braithwaite
02 April 2002

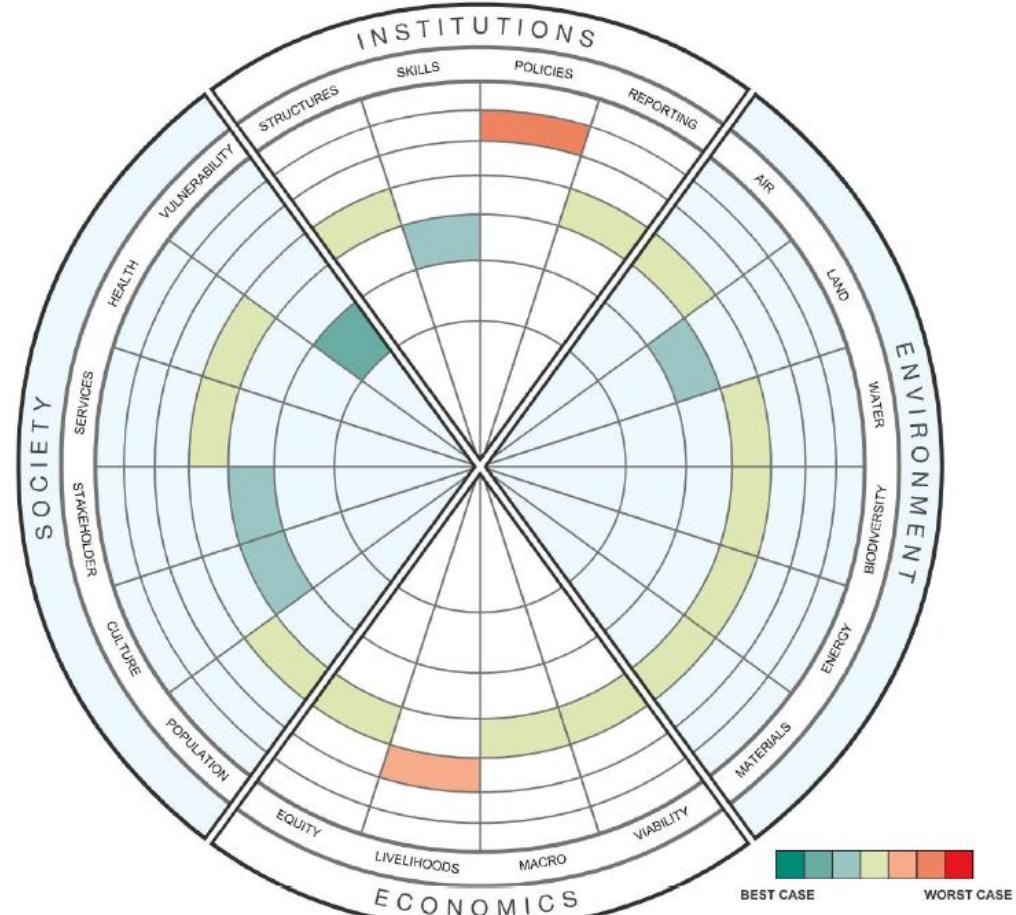


Sustainability Profile - *After*

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ASPIRE

- Applicable to all types and scales of infrastructure projects or programs
- Useful throughout the whole project life cycle
- Consistent framework enables objective comparison across countries or context



ASPIRE

ENGINEERS
AGAINST
POVERTY | ARUP

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ASPIRE - Sabre Kindergarten School, Ghana

- The project was assessed using ASPIRE during concept design, detailed design and again during construction.
- Identified design improvements for implementation.



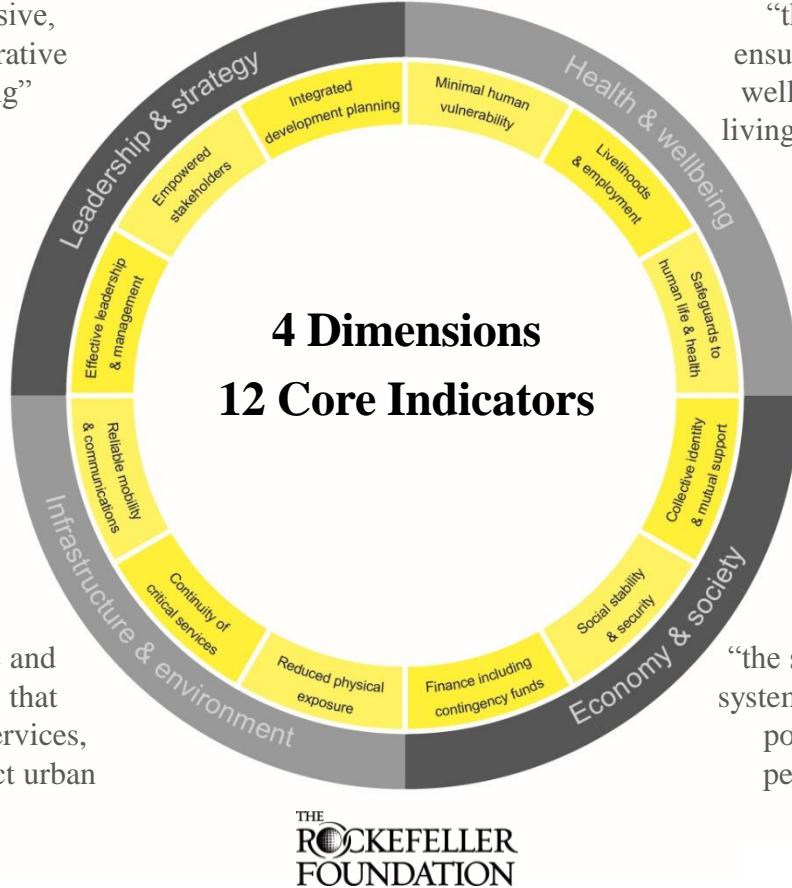
The City Resilience Framework - April 2014



Knowledge
“informed, inclusive, integrated and iterative decision making”



Place
“the man-made and natural systems that provide critical services, protect and connect urban citizens.”



People

“the imperative of ensuring the health and wellbeing of everyone living and working in the city”

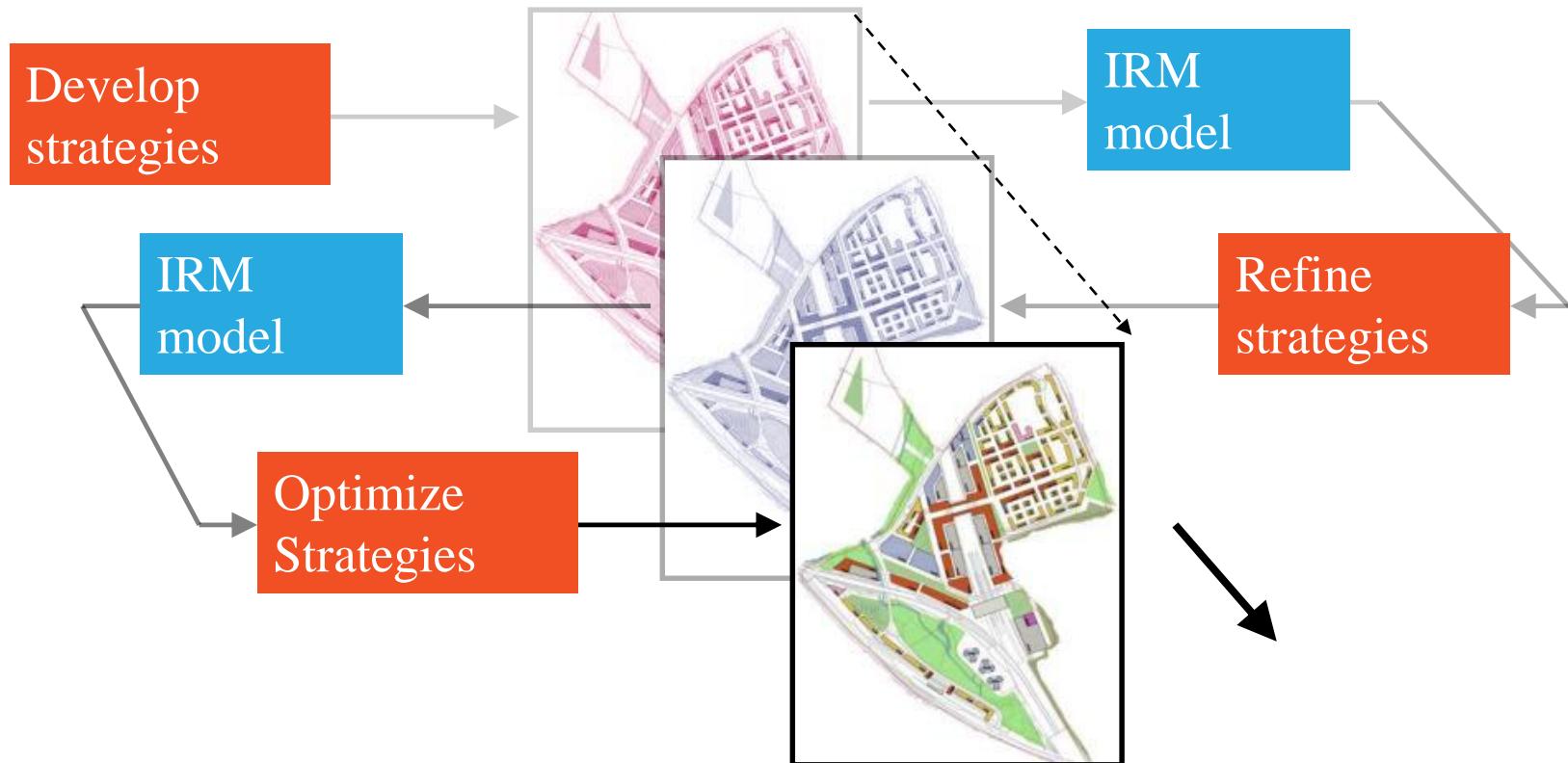


Organisation

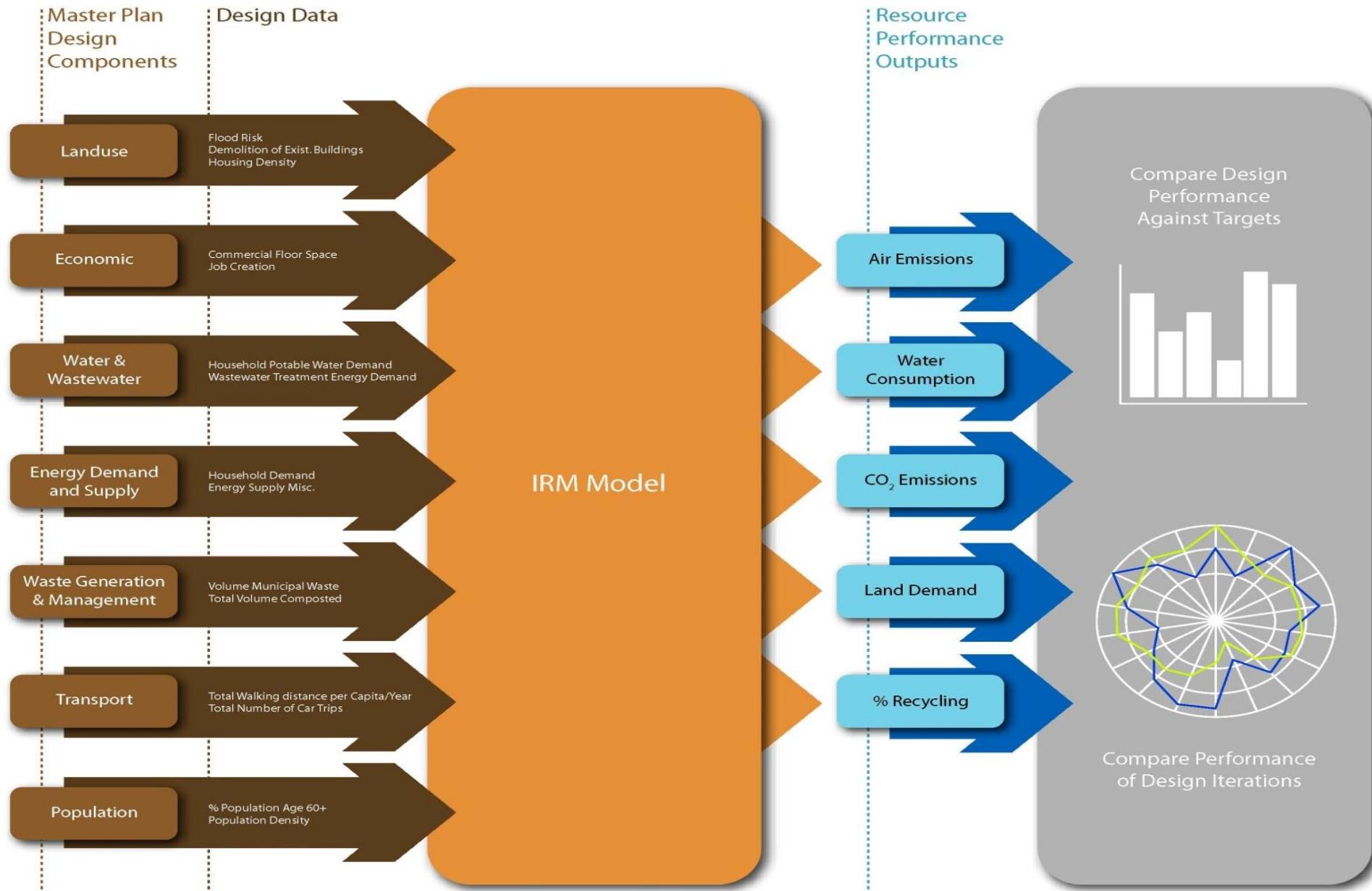
“the social and financial systems that enable urban populations to live peacefully, and act collectively”



Optimized and informed planning – Integrated Resource Management (IRM)

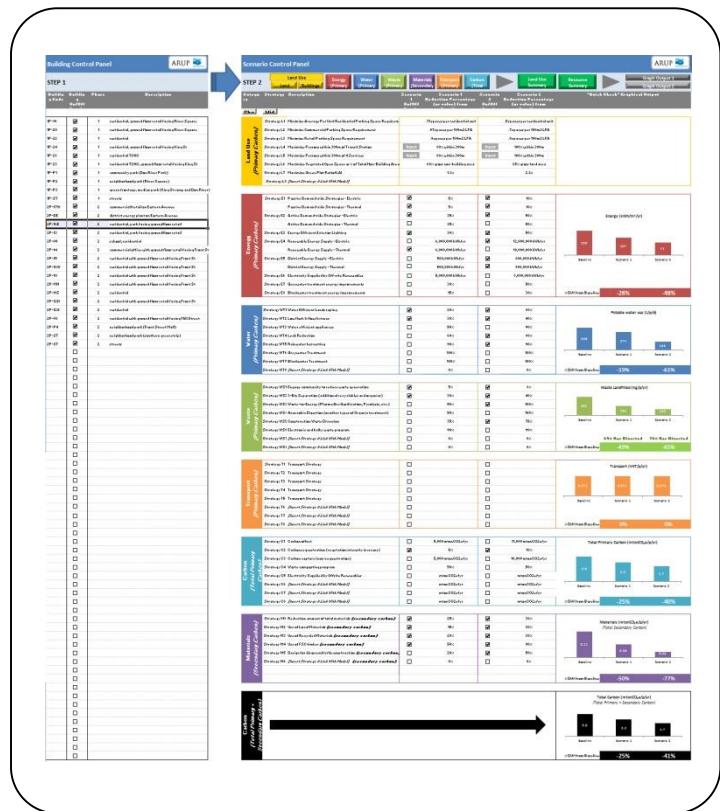


Integrated Resource Management (IRM)

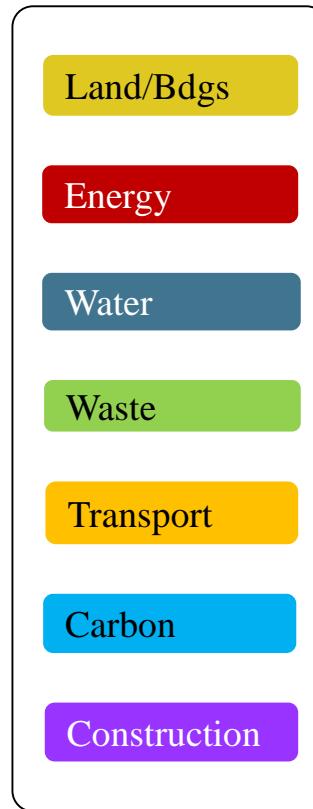


Climate+

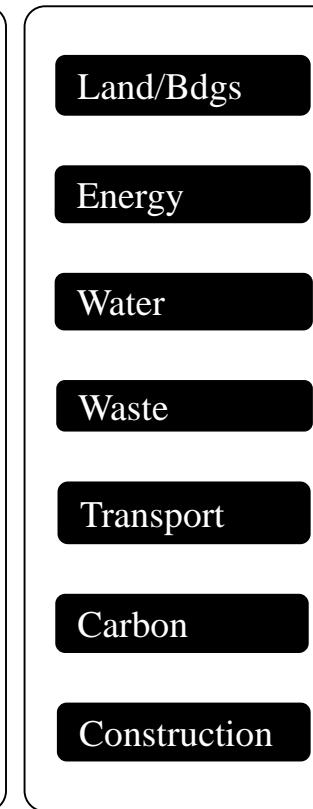
Control Panel



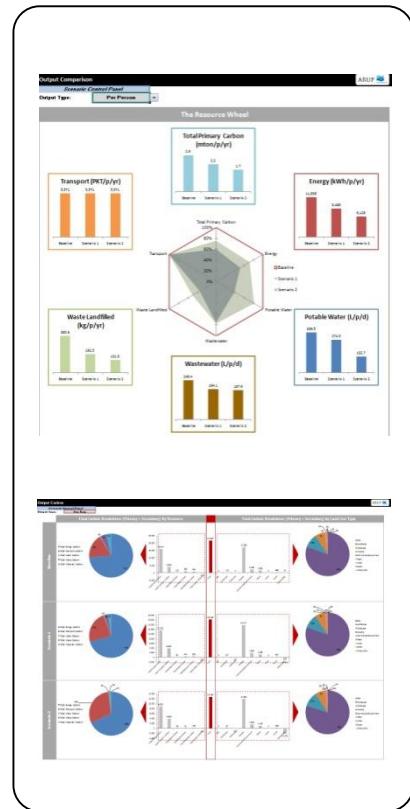
Baseline Inputs



Calculations



Output



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SoWa EcoDistrict



CLIMATE



LEED

- At a more analytical, but smaller scale.
- Set a baseline for quality in the market and a way of aspiring to something higher.
- Emphasis on energy and environment.
- What might LEED miss?



30% reduction in water use

29% reduction in energy use

15% of the building came from recycled material

Image source: Arizona State University

LEED FACTS

Biodesign Building A
Tempe campus

LEED for New Construction
Certification awarded
5/21/2007

Gold

40*

Sustainable Sites

12/14

Water Efficiency

4/5

Energy & Atmosphere

6/17

Materials & Resources

3/13

Indoor Environmental Quality

10/15

Innovation & Design

5/5

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GREEN BUILDINGS
FOR EVERYONE
WITHIN THIS
GENERATION



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4.25 BILLION+ SQUARE FEET



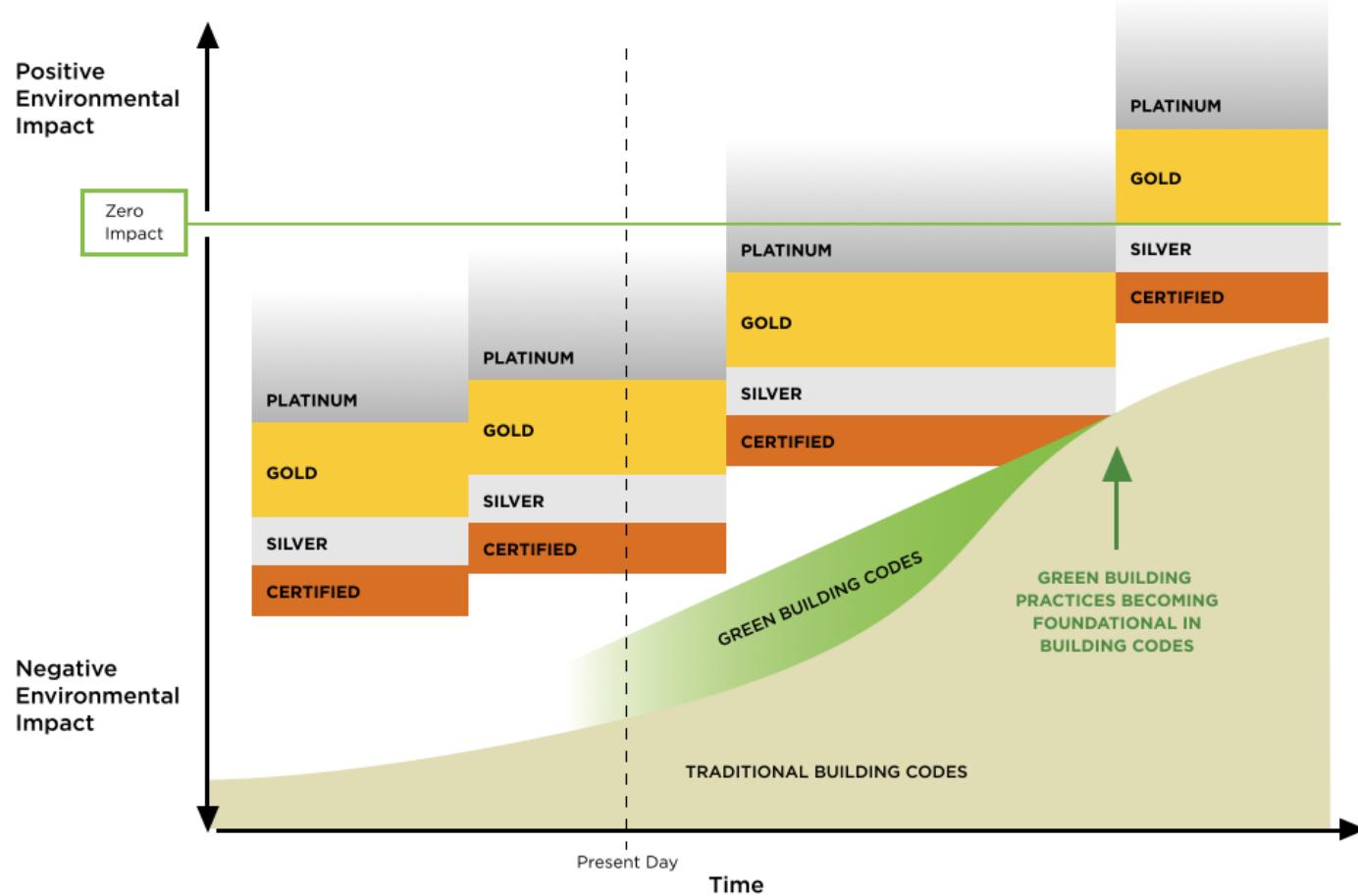
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150+ COUNTRIES & TERRITORIES



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We Are Going to Take You Here



The future of measuring sustainability

- Dynamic metrics that are data-driven
- Human-centered
- Socioeconomic equity

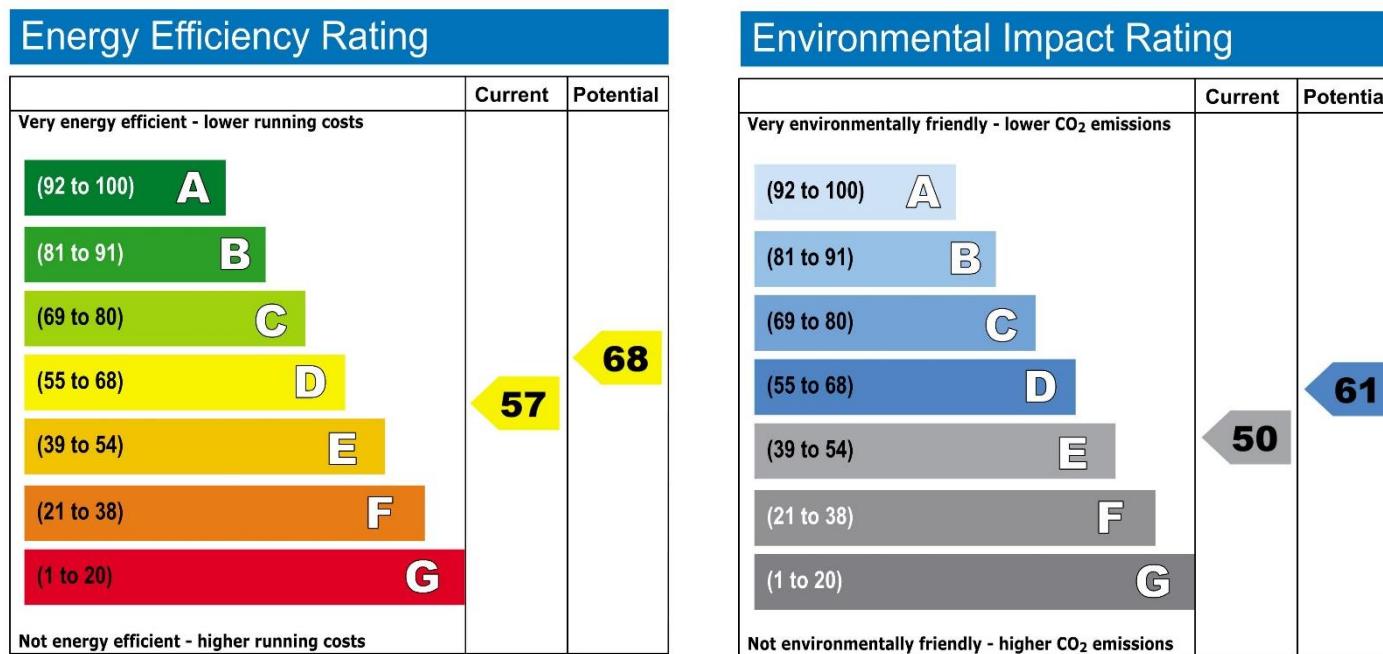


WELL SCORECARD



EU Energy Performance of Buildings Directive

- The Europeans had a different approach and used the EPBD to set asset metrics and performance metrics.
- They tend to look rather similar in their graphic display, but are clearly different, and the performance metrics started to give feedback.

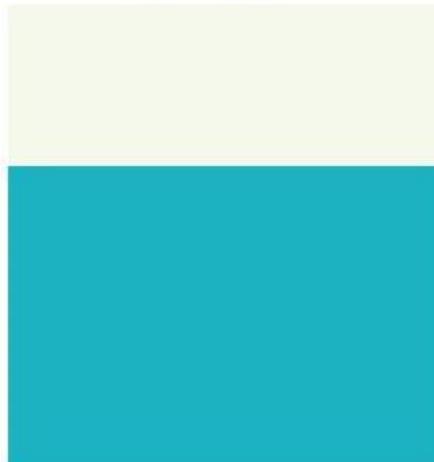
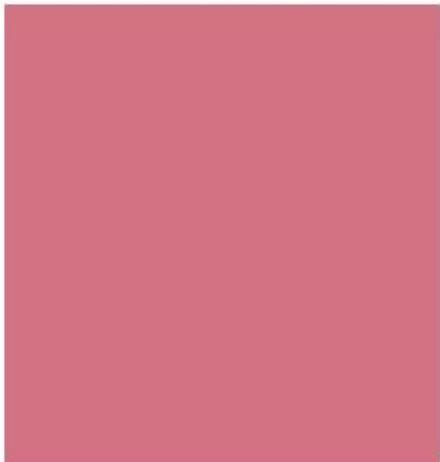


Energy Retrofits for Caribbean Hospitals - RMI

Current annual energy costs

\$35,038 estimated savings

\$5,276 estimated savings



Your facility's **annual energy costs**
\$100,000

Your facility with **Energy Saving Bundle #1**
\$64,962 new annual energy cost

Your facility with **Energy Saving Bundle #2**
\$94,724 new annual energy cost

Bundle #1

Highest Potential Energy Savings

Total annual energy savings (average)

47.7%

Total annual cost savings

\$30,513 (USD)

Capital cost

\$28,626 (USD)

Payback (average years) ?

0.94

Bundle #2

Shortest Payback

Total annual energy savings (average)

43.1%

Total annual cost savings

\$27,607 (USD)

Capital cost

\$7,883 (USD)

Payback (average years) ?

0.29

[View Bundle #1](#)

[View Bundle #2](#)

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Energy Retrofits for Caribbean Hospitals - RMI

Click on the categories below to show or hide:

Building Envelope **Compressed Air System** **Controls & Motors**
Electrical Distribution Systems **HVAC** **Plug & Process Loads**
Recommission & Maintenance **Renewable Energy** **Hot Water** **Lighting**

Prioritize EEMs into complementary groups? [?](#)

Include in calculations?	Total Annual			
	Energy Savings	Cost Savings	Capital Cost	Payback (years)
<input checked="" type="checkbox"/> Install low solar gain window films	0.6%	\$2,699	\$43,388	16.1
<input checked="" type="checkbox"/> Add a reflective roof covering	4.1%	\$17,182	\$38,565	2.2
<input type="checkbox"/> Replace windows and frames with double-paned low-e, thermally broken, vinyl-framed windows, with high visible light transmittance	0.6%	\$2,616	\$31,235	11.9
<input type="checkbox"/> Install automated louver shading systems on all sun-exposed windows	2.8%	\$11,455	\$47,172	4.1
<input checked="" type="checkbox"/> Install exterior window shading	2.8%	\$11,455	\$33,056	2.9
<input type="checkbox"/> Perform blower testing and sealing of envelope	0.4%	\$1,461	\$3,391	2.3

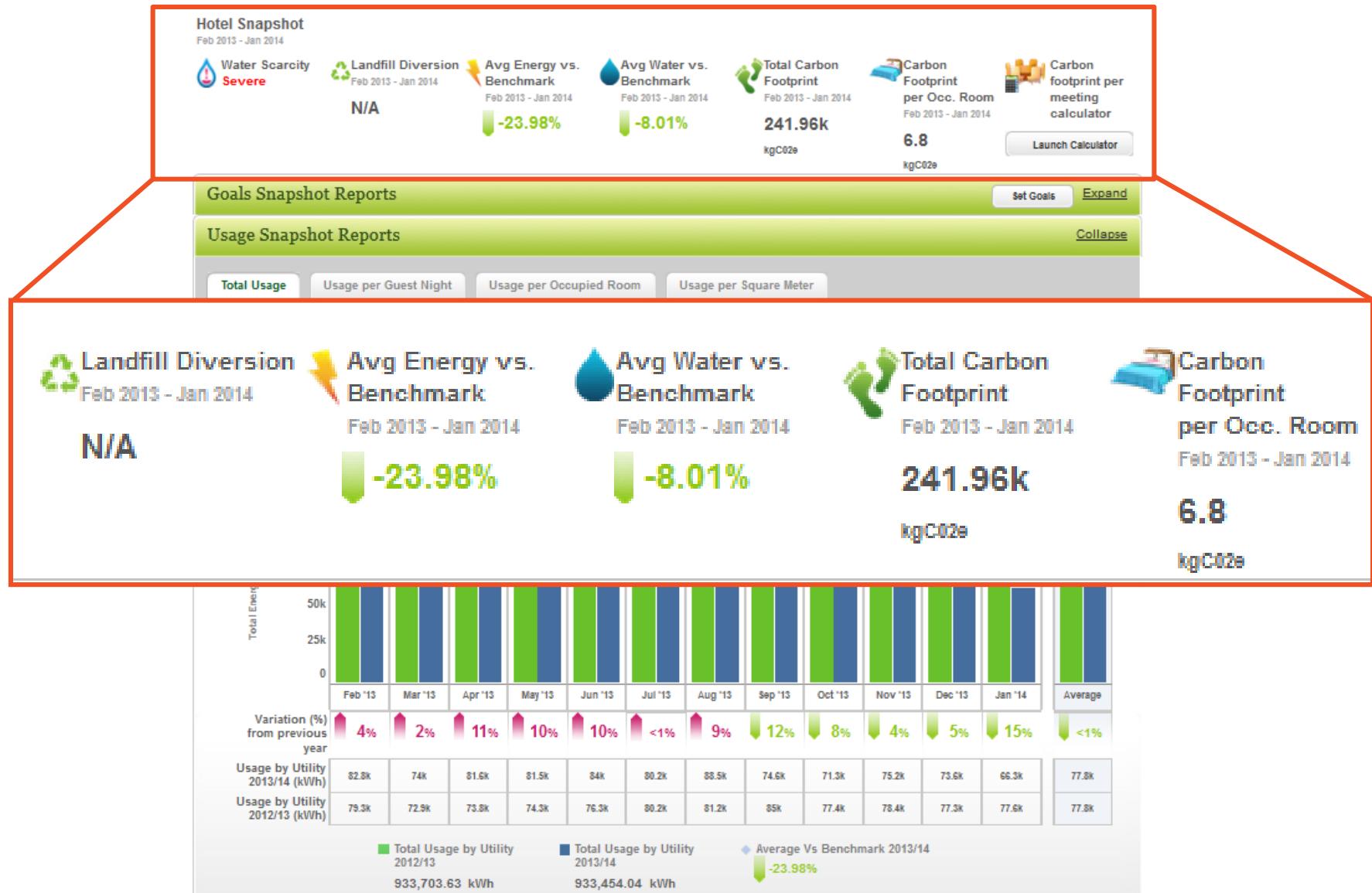
Totals

Total annual energy savings (average)	7.38%
Total annual cost savings	\$30,678 (USD)
Capital cost	\$115,009 (USD)
Payback (average years)	3.7

Save Custom Bundle

Back to Results

IHG – Green Engage Sustainability Metrics



Mission & Vision

Actionable transparency for institutional investors

Systematic assessment for
companies and funds

Objective scoring for ESG
management and
performance

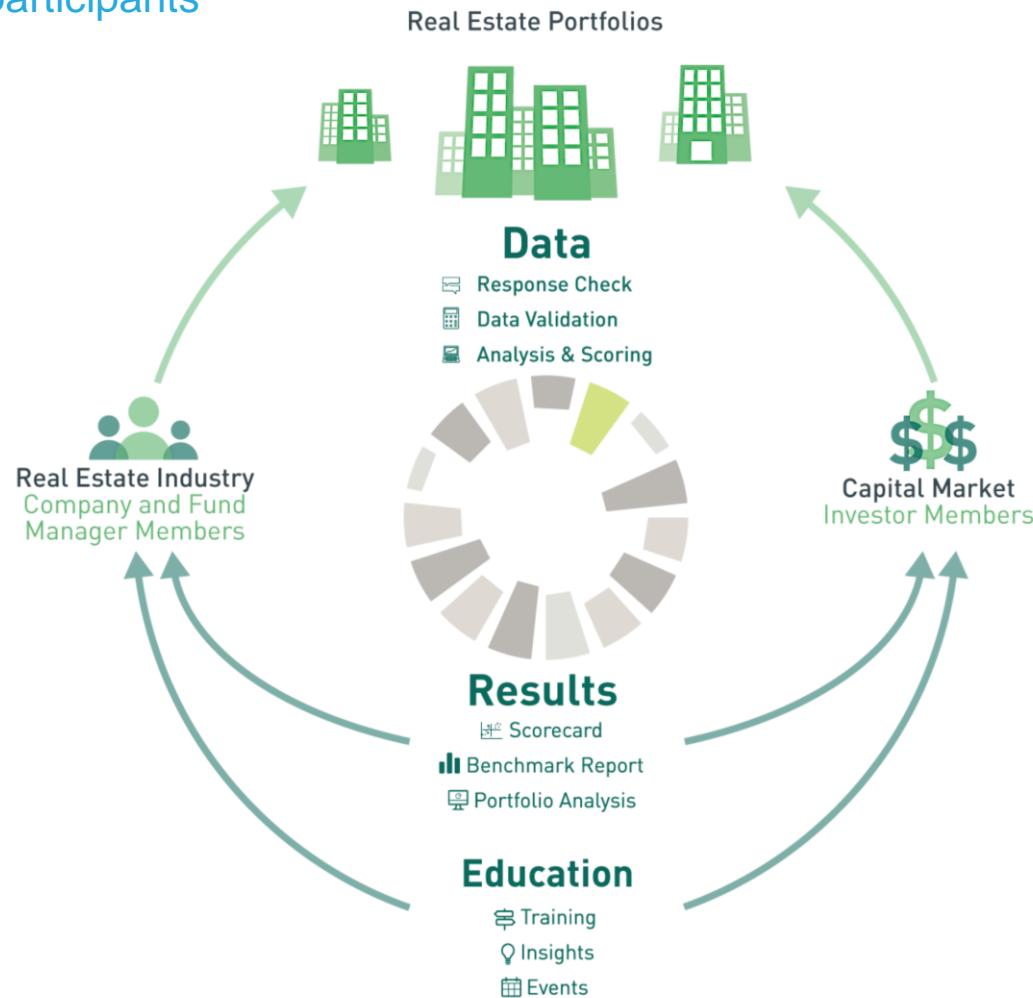
Benchmarking among global,
regional, and sectoral peers



*“GRESB’s mission is to enhance and
protect shareholder value by
evaluating and improving
sustainability best practices in the
global real estate sector.”*

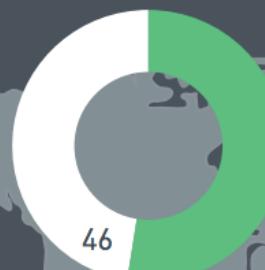
Process

Connecting market participants



2014 2015

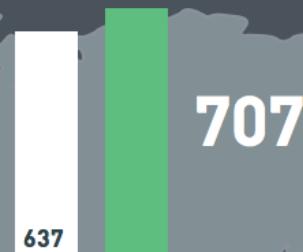
Investor Members



Institutional Capital

\$6.1 trillion
\$5.5 trillion

GRESB Participants



Property value

\$2.1 trillion

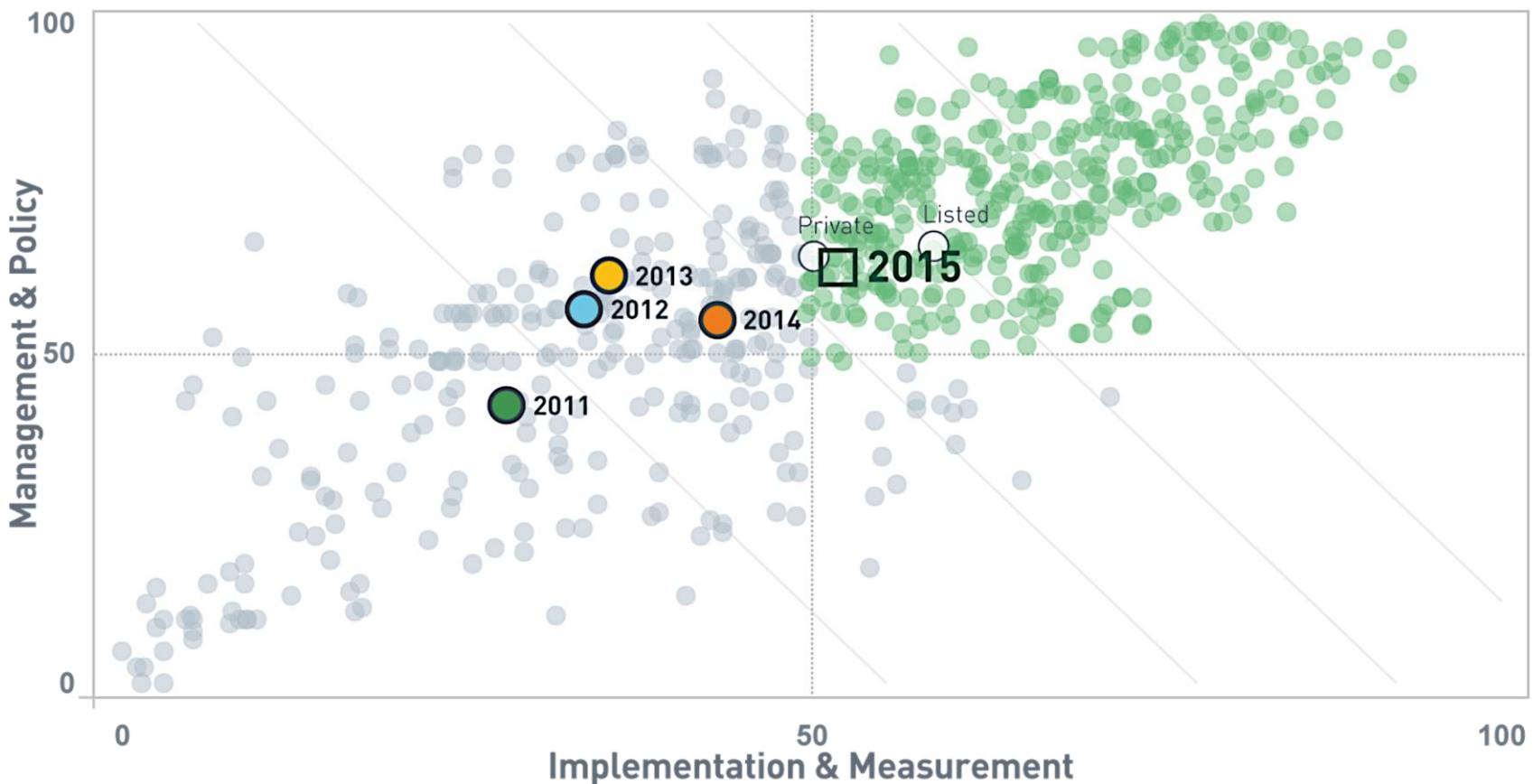
\$2.3 trillion

20

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Quadrant Model

Global history



Thank you

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