

Digital Transformation for a Sustainable Built Environment



Organized by

malaysiaGBC

Establish Member of
 WORLD GREEN BUILDING COUNCIL

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Platinum Partner 2021/2022
 AJIYA®

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Silver Partner 2021/2022
 EBARA

Presented by
 bsi.

Ts. Khairul Nizam Anuar Bashah
Global Scheme Owner, Sustainability and Traceability
British Standards Institution

● PRESENTATION OUTLINE

- 1) About BSI
- 2) Sustainability
- 3) Digital Transformation
- 4) Training Support for the Industry



Shaping and Supporting Best Practice



By Royal Charter



BSI spans the world

4,600
colleagues
and **12,200**
experts

84,000
clients in
193
countries

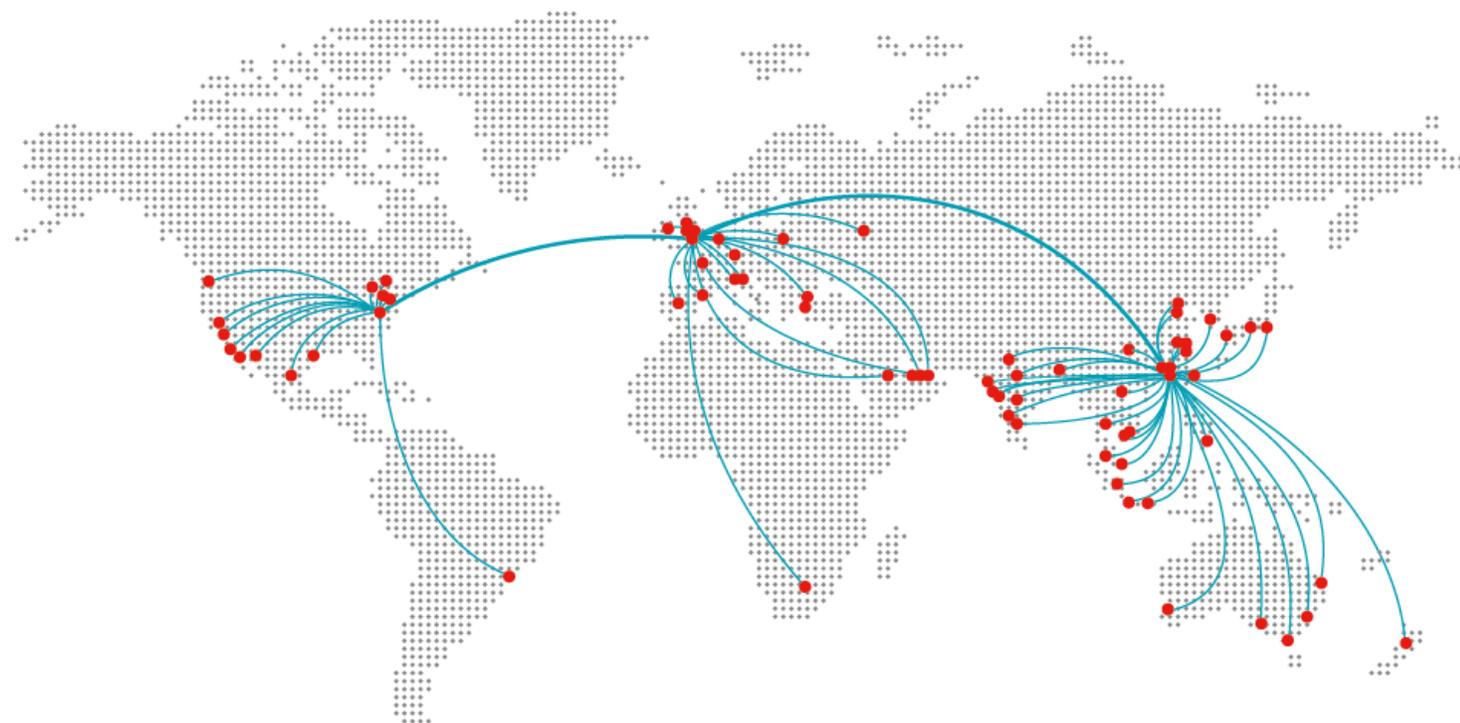
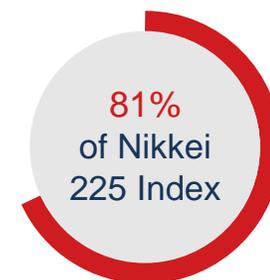
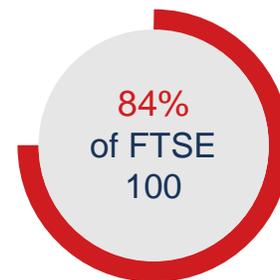
Over 15,000
active product
certifications

3,100
new standards
per year
63,000*
in all

232,000
audit days
delivered last
12 months

212,000
delegates
trained last
12 months

BSI clients represent



59,000 different areas of collective best practice - created by industry, for industry

From tram tracks...



... to the Internet of Things



Tea



Information Security



Connected and Autonomous Vehicles



Robot Ethics / Artificial Intelligence

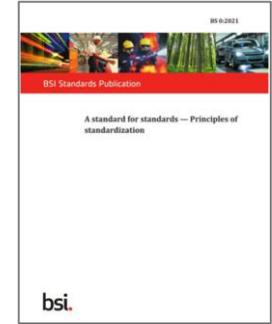
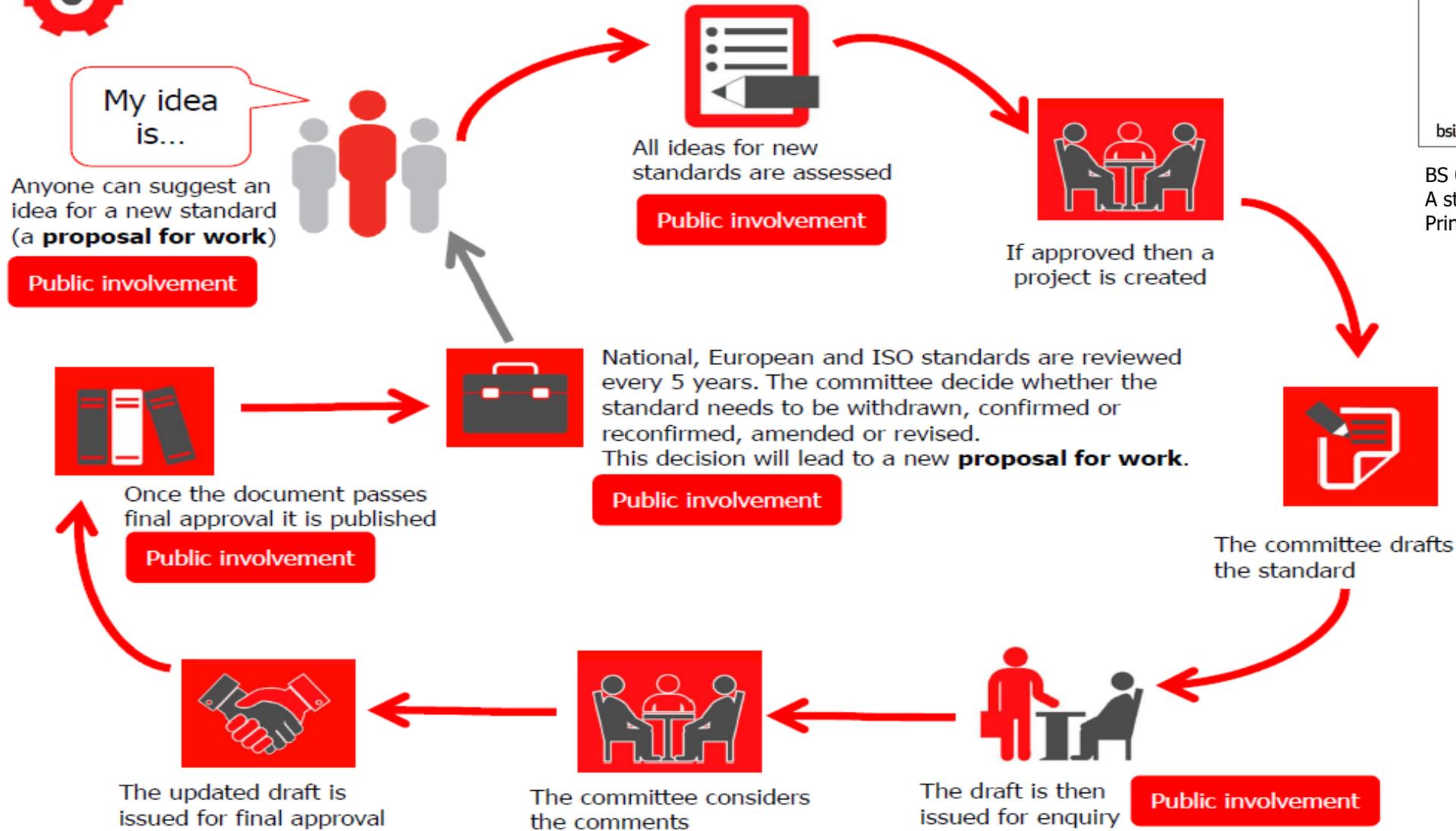


Smart Cities / Building Information Modelling

bsi.



The Standards Making Process



BS 0
A standard for standards.
Principles of standardization



How do we go from here...



...to somewhere here?





SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD



Conference of the Parties (COP26)

31st October to 12th November 2021

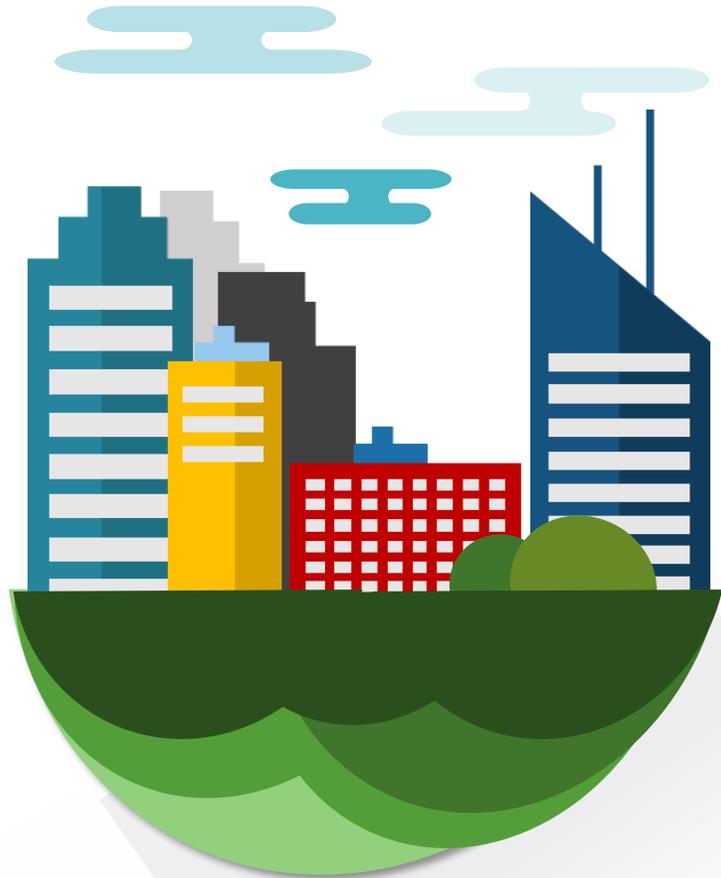
Hosted in Glasgow, UK in partnership with Italy

Signatories of the Paris Agreement submitted nationally determined contributions on climate action for the first time in 2021

The goals which will define the next decade of climate action are:

1. Secure global net zero by mid-century and keep 1.5 degrees within reach
2. Adapt to protect communities and natural habitats
3. Mobilize finance
4. Work together to deliver

WHAT IS SUSTAINABLE CONSTRUCTION?



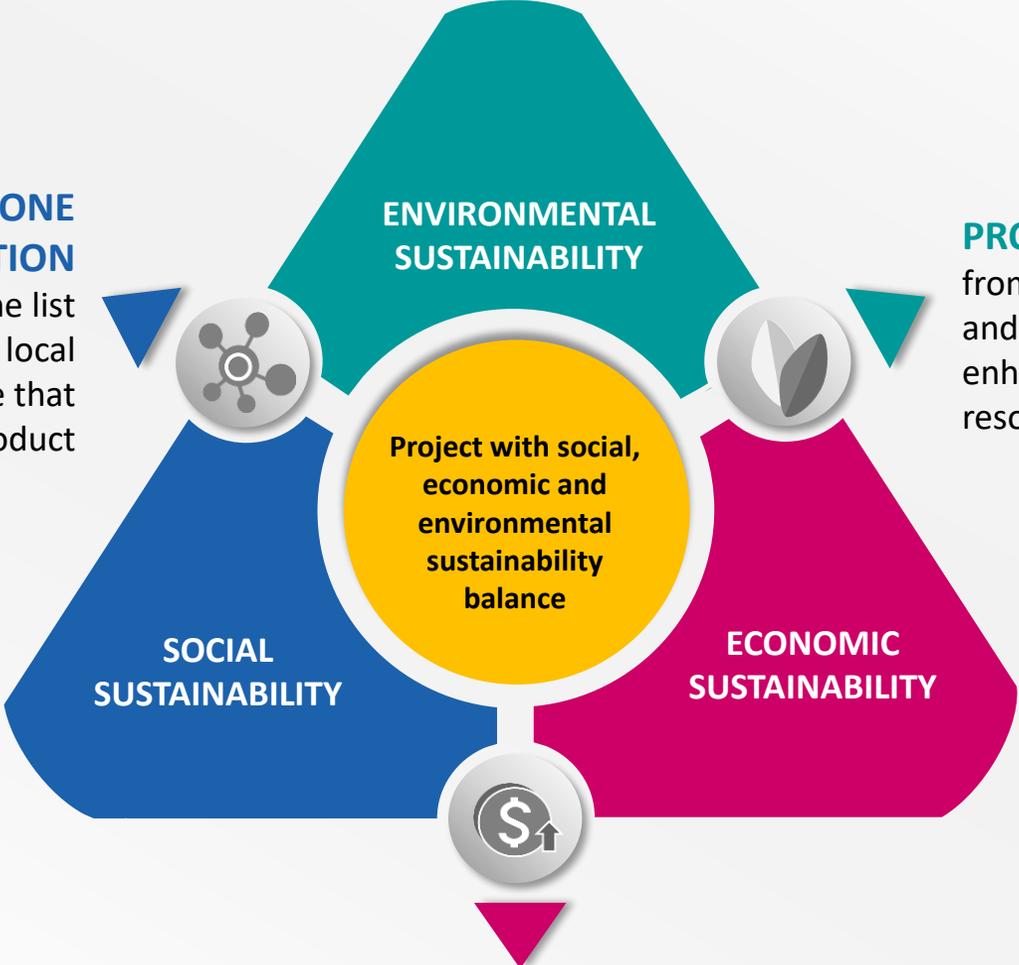
A sustainable construction approach takes account of the need for your company to prosper in business, without seeking profitability at the expense of the environment or society.

TRIPLE BOTTOM LINE OF SUSTAINABILITY



RECOGNISING THE NEEDS OF EVERYONE IMPACTED BY CONSTRUCTION

from inception of a project to demolish. The list will include construction site workers, local communities, the supply chain and people that will use the finished product



PROTECTING THE ENVIRONMENT

from the impact of emissions, effluent and waste and where possible, enhancing it and using natural resources, carefully.

Increasing profitability by making **MORE EFFICIENT USE OF RESOURCES**, including labor, materials, energy and water.

Understanding Carbon

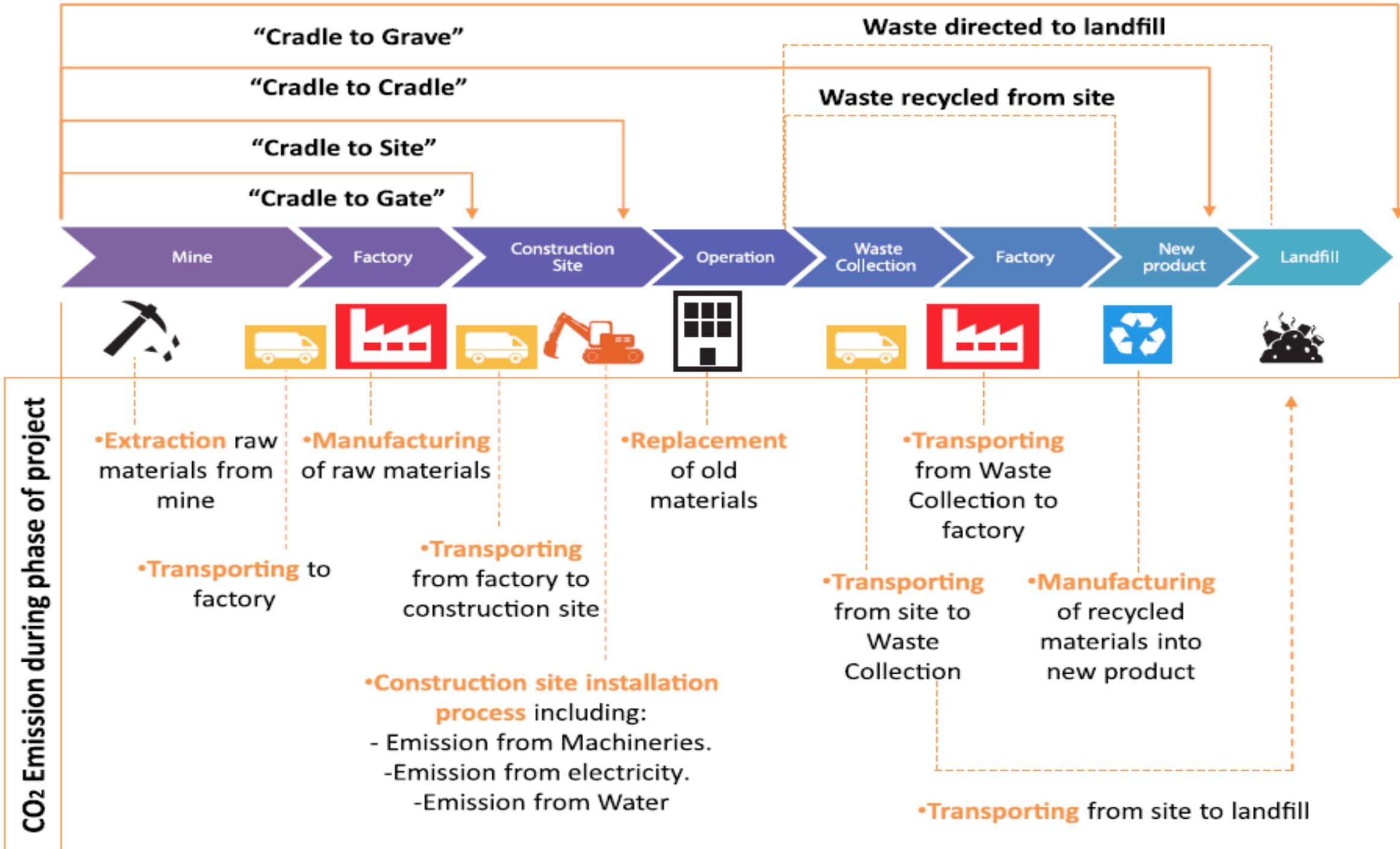


Embodied Carbon

Manufacture, transport and installation of construction materials

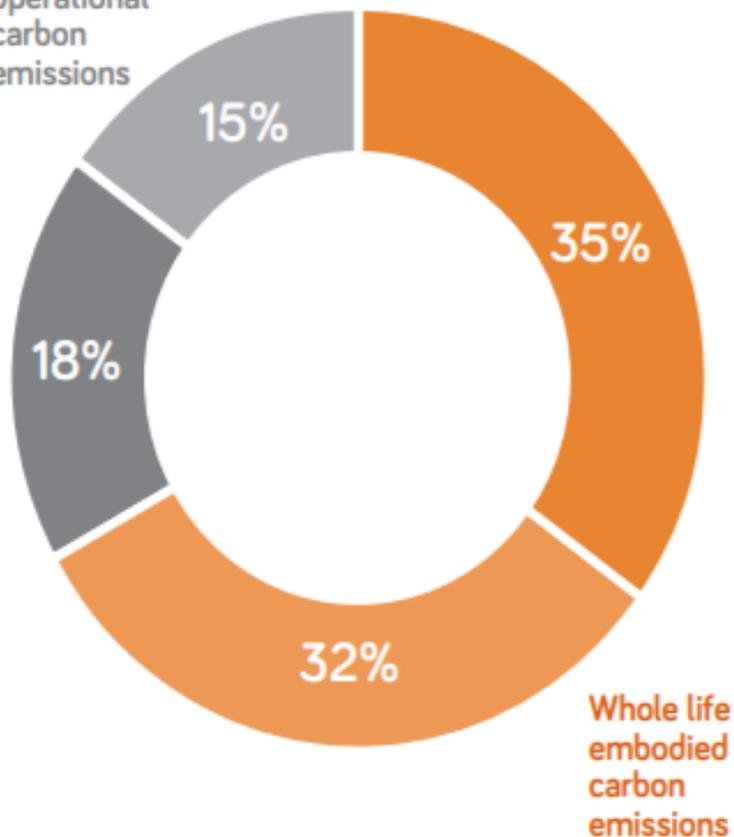
Operational Carbon

Building energy consumption



Office

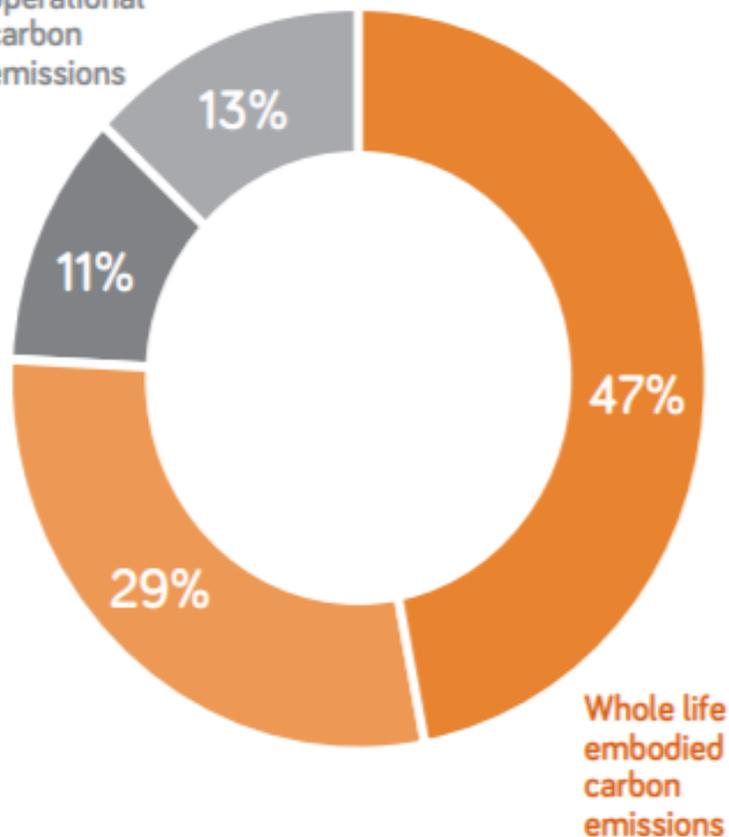
Whole life operational carbon emissions



Speculative office building with Cat A fit out, central London, UK

Warehouse

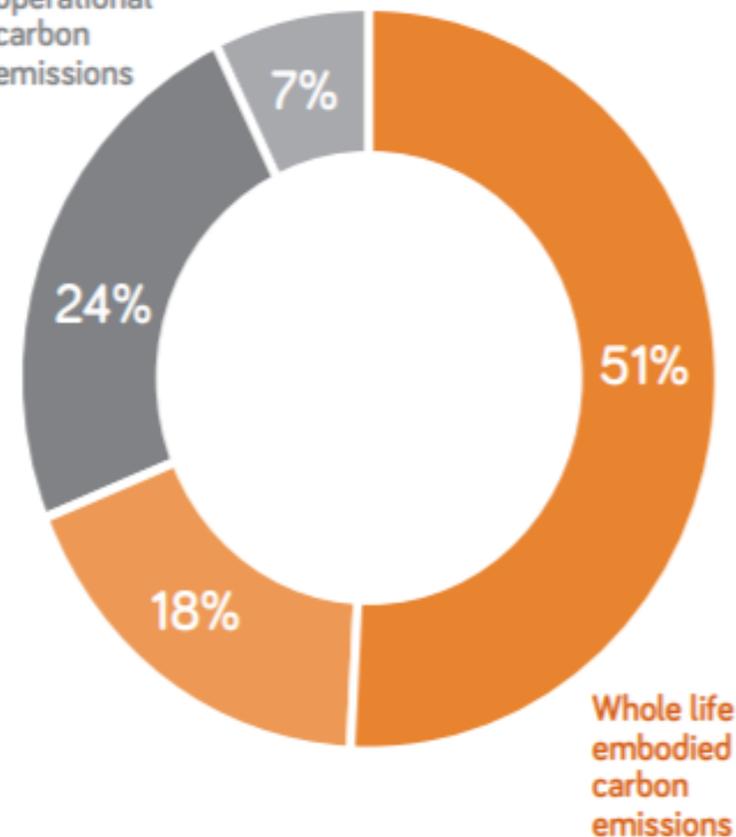
Whole life operational carbon emissions



Typical warehouse shed with office space (15% by area), London perimeter, UK

Residential

Whole life operational carbon emissions



Residential block with basic internal fit out, Oxford, UK

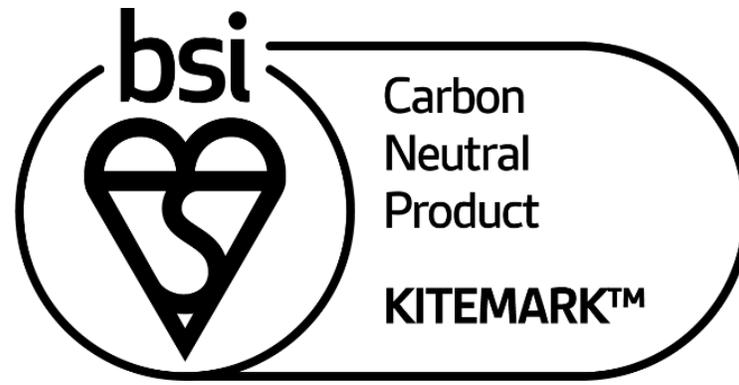
Embodied emissions to practical Completion

Embodied emissions over life cycle

Operational emissions regulated

Operational emissions unregulated

Image credit: from [RIBA's Embodied and whole life carbon assessment for architects](#)



Product Carbon Footprint



BSI Standards Publication

ISO 14067:2018



BSI Standards Publication

PAS 2050:2011

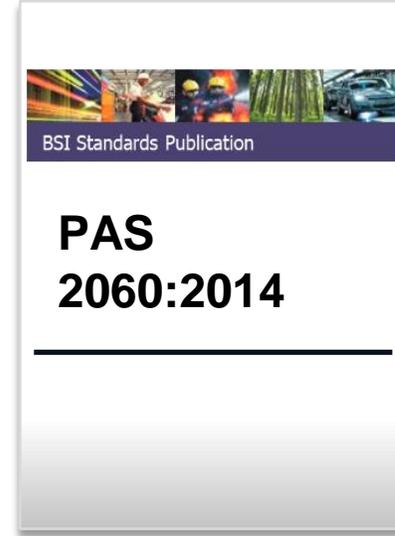
Organizational Carbon Footprint



BSI Standards Publication

ISO 14064 - 1:2019

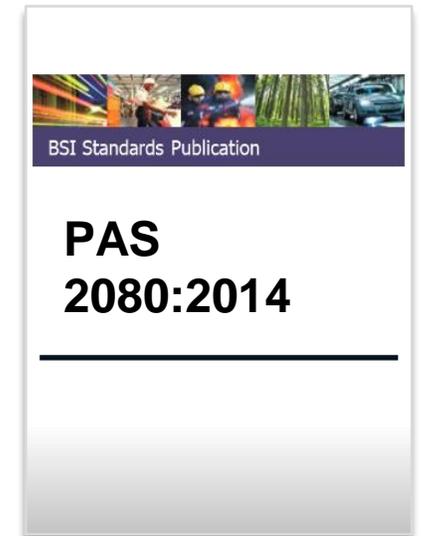
Carbon Neutrality



BSI Standards Publication

PAS 2060:2014

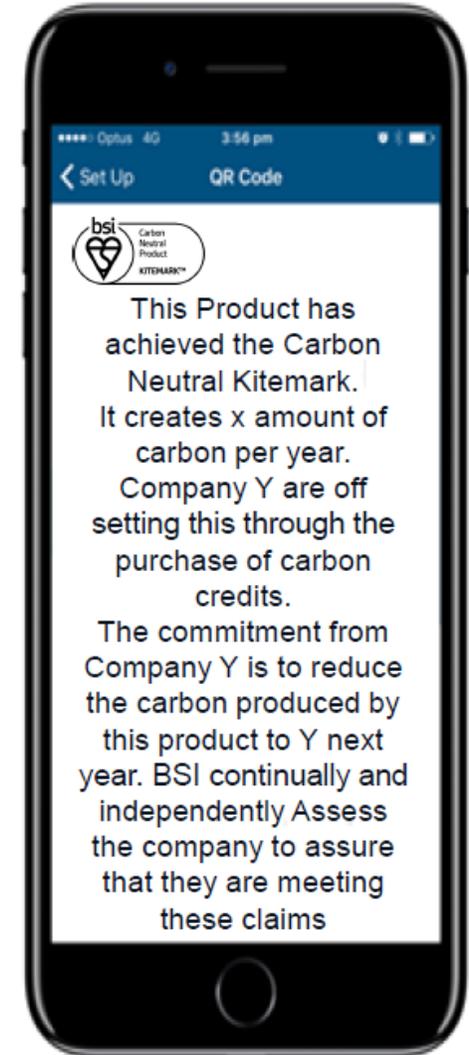
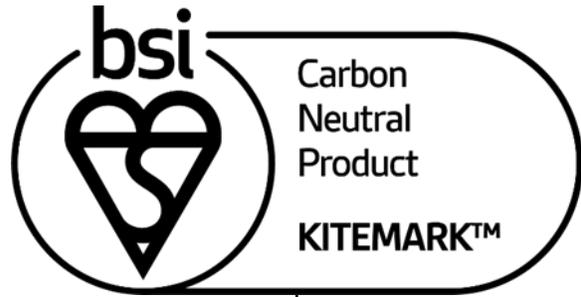
Carbon Management in Infrastructure



BSI Standards Publication

PAS 2080:2014

How will it look on the product?



Four-stage process to demonstrate Carbon Neutrality

Assessment of GHG emissions based on accurate measurement data

Reduction of emissions through a target-driven carbon management plan

Offsetting of excess emissions, often by purchasing carbon credits

Documentation and verification through qualifying explanatory statements and public disclosure.



VALUE PROPOSITION

1. Identify **opportunities to reduce environmental impact** through reduction in material use, water, waste and energy
2. **Hotspot analysis** - identify inefficiencies in value chain and **save cost** thus further improving performance.
3. **Enhance sustainability credentials** and increase resilience from a brand and marketing standpoint.
4. Give a **competitive edge** in the marketplace
5. Increase **confidence among investors** for long term valuation.
6. Align with the **17 UNSDG**



Digital Transformation: Integrating Sustainability

How to accelerate Smart Cities and Communities development

How to address the challenges

Challenges

- Moving from innovation to **global scale**
- **Silos** (organisations and systems) make it hard to connect the dots across programmes to **release value**
- Buyers **not sufficiently engaged**
- **Trust and security concerns**
- **Complex** standards and security landscape – with lots of **gaps**

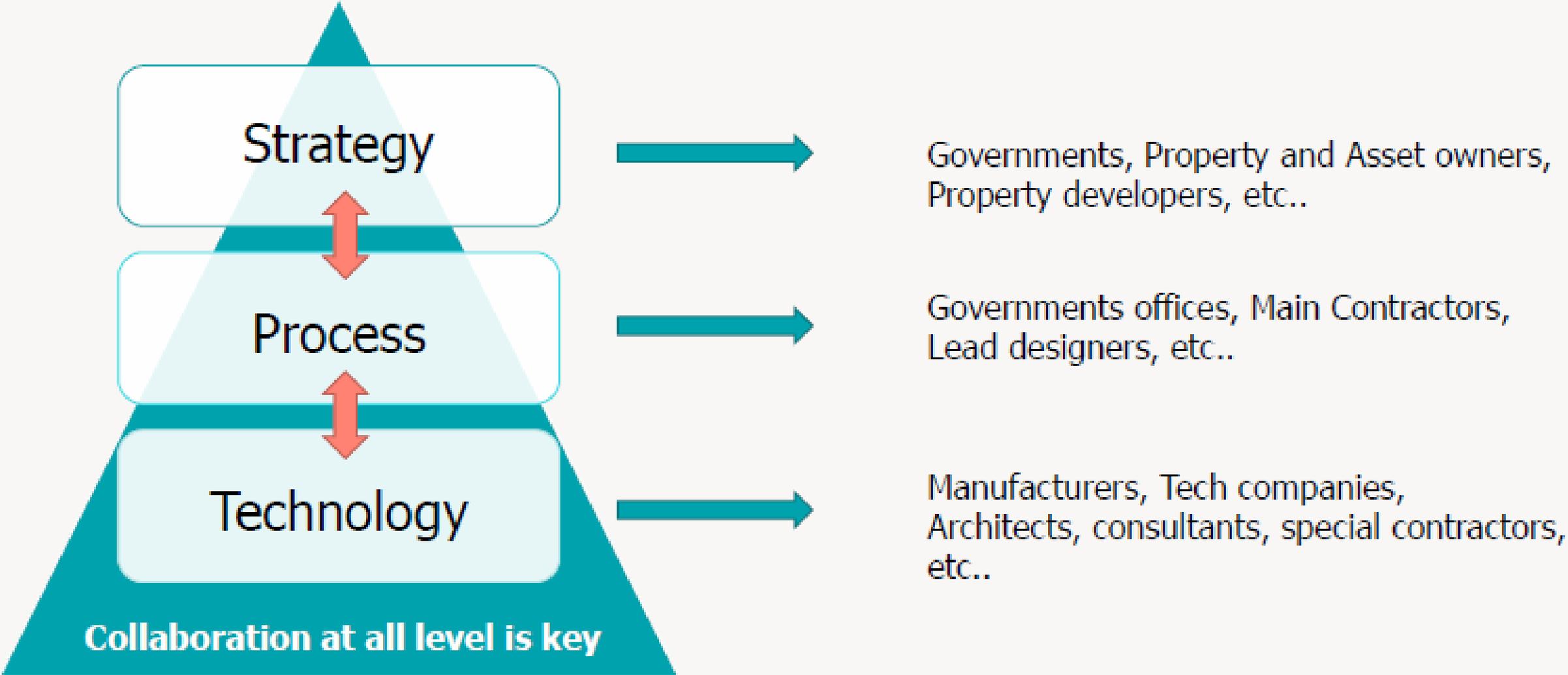


Standards can address different **needs** of stakeholders:

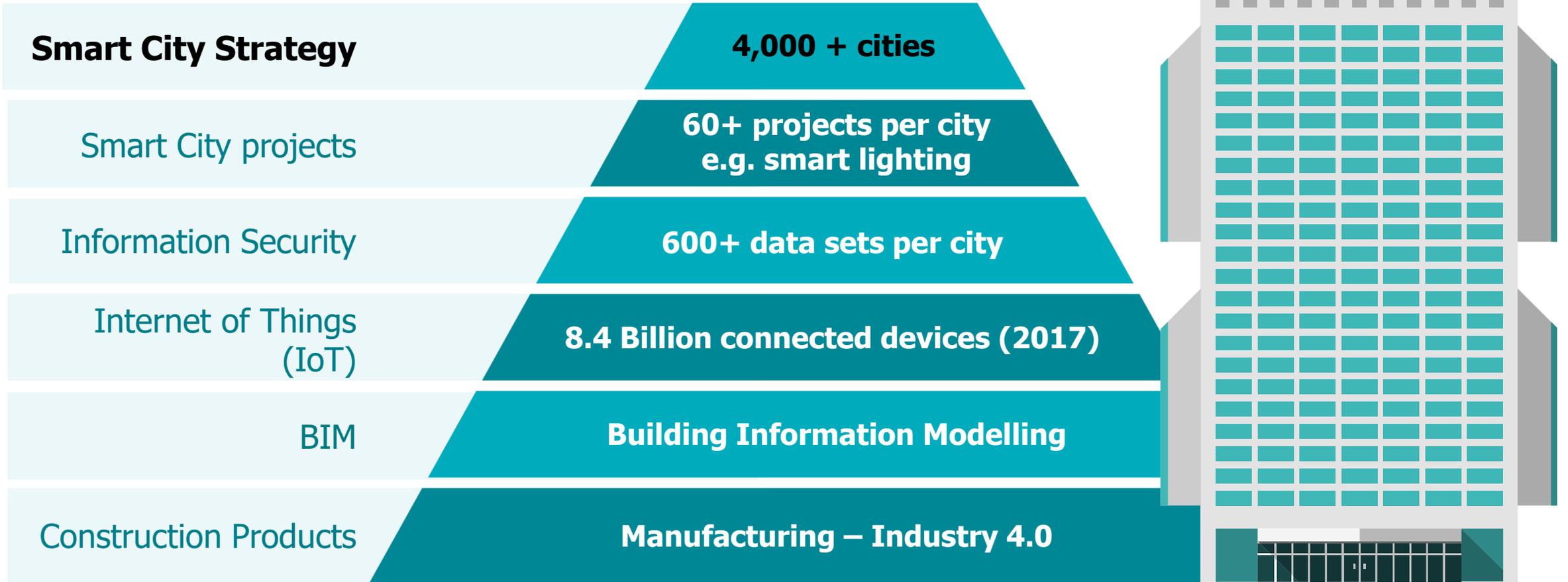
- “**why**” smartness? **STRATEGY**
- “**how**” smart initiatives can be executed across multiple sectors? **PROCESS**
- “**what**” kind of solution or application? **TECHNICAL SPECIFICATION**

Embracing Digital Transformation

The importance of collaboration



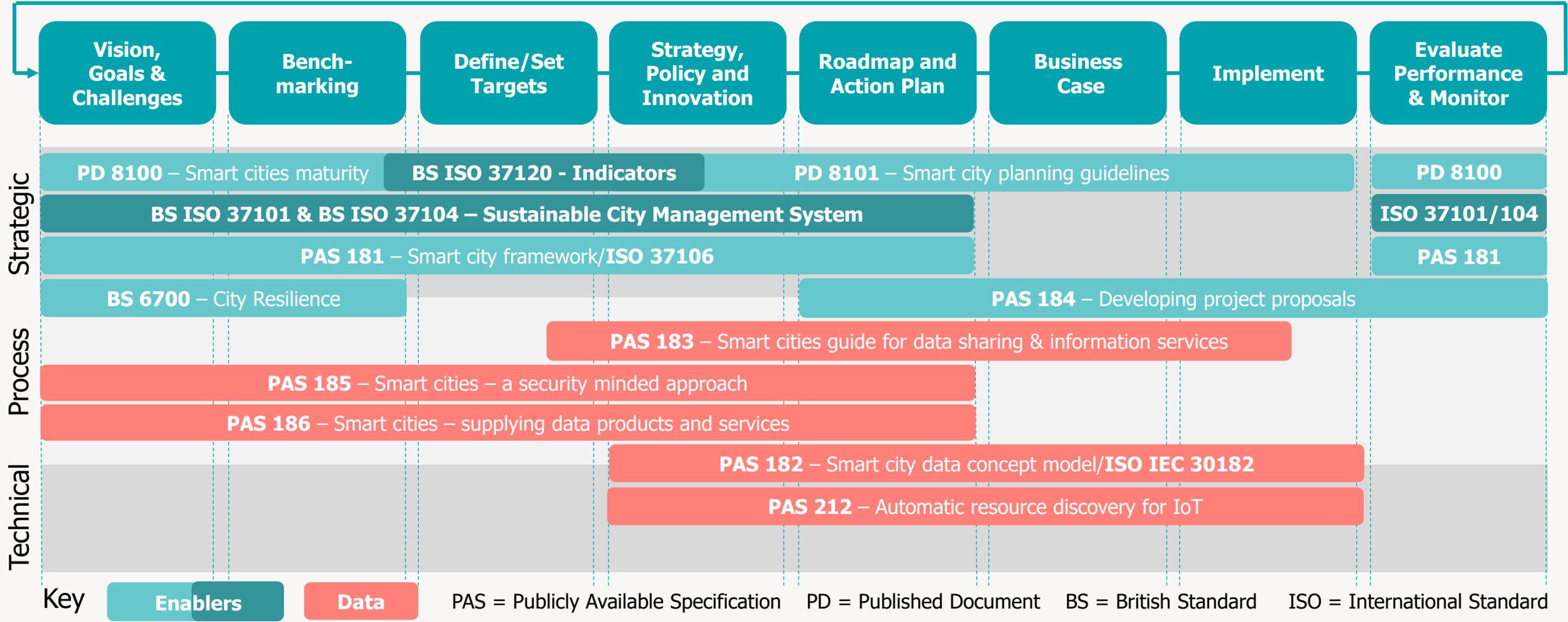
Supporting Built Environment Digital Transformation



Portfolio approach to smart city standards

Tools for supporting the development of smart city strategies

bit.ly/BSI-Cities



Smart communities - Strategy

ISO 37101 - Content

This International Standard establishes requirements for a management system for sustainable development in communities.

The intended outcomes of a management system for sustainable development in communities include:

- managing sustainability and fostering smartness and resilience in communities, while taking into account the territorial boundaries to which it applies;
- improving the contribution of communities to sustainable development outcomes;
- assessing the performance of communities in progressing towards sustainable development outcomes and the level of smartness and of resilience that they have achieved;
- fulfilling compliance obligations.

**Can be used in conjunction with ISO 37106
ISO 37104 gives guidance for implementation**

bsi.

BS ISO 37101:2016



BSI Standards Publication

Sustainable development in communities — Management system for sustainable development — Requirements with guidance for use

bsi.

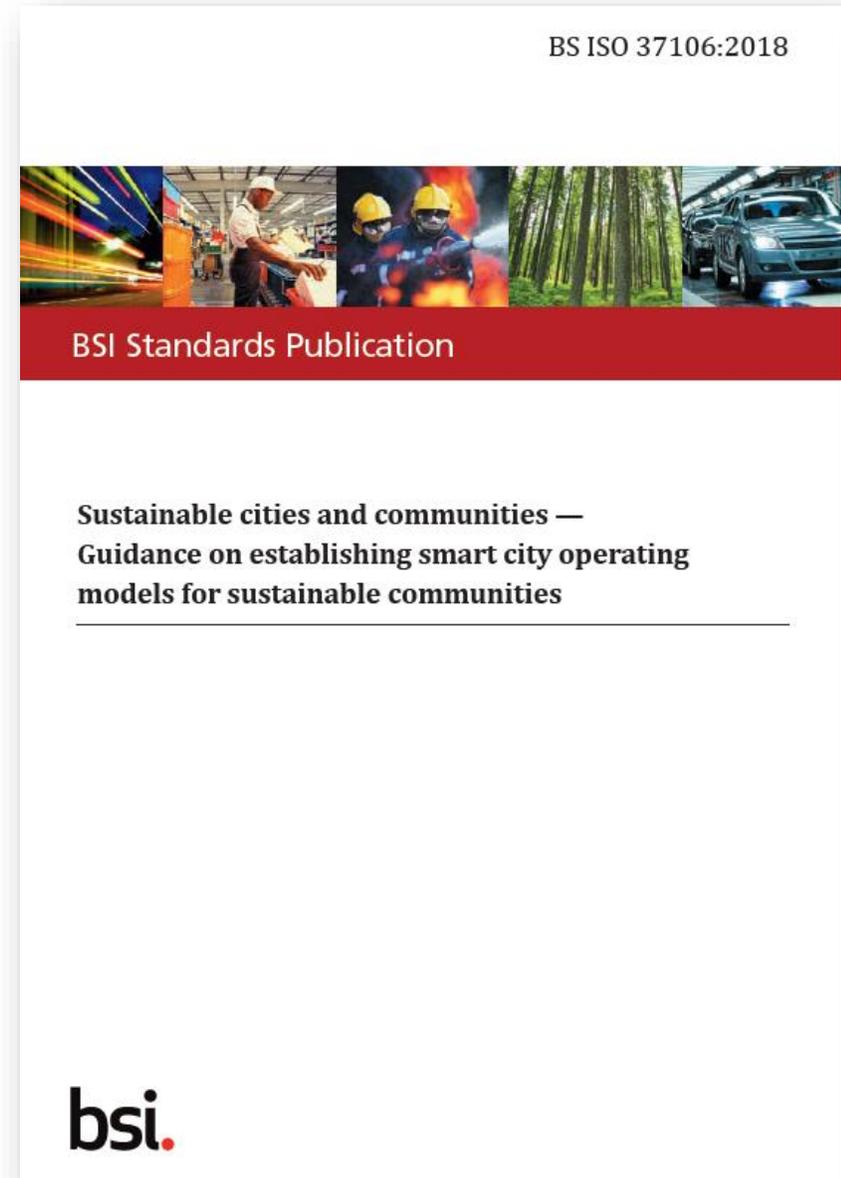
Smart communities – Process/Management

ISO 37106 - Content

guidance for leaders in smart cities and communities on how to develop an open, collaborative, citizen-centric and digitally-enabled operating model for their community that puts its vision for a sustainable future into operation.

It focus is on the enabling processes by which innovative use of technology and data, coupled with organizational change, can help each community deliver its own specific vision for a sustainable future in more efficient, effective and agile ways.

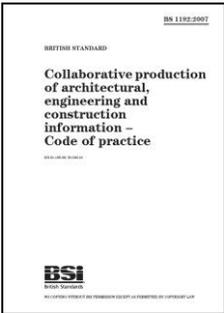
Can be used in conjunction with ISO 37101 management system



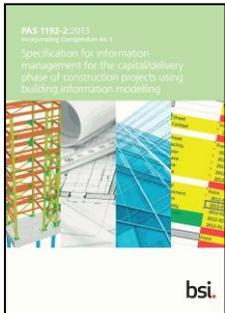
Introduction to ISO 19650

BIM International Standards

UK STANDARDS



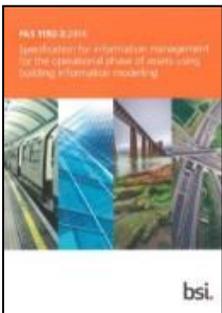
BS 1192



PAS 1192-2



PD 19650-0
Guide to BS EN
ISO 19650



PAS 1192-3



BS 1192-4



PAS 1192-5



PAS 1192-6



BS 8536-1/-2

INTERNATIONAL STANDARDS



ISO 19650-1
2018



ISO 19650-2
2018



ISO 19650-3
2020



ISO 19650-4
2022



ISO 19650-5
2020



Examples of implementations

Application of PAS 181/ ISO 37106



The Greenwich Peninsula, in East London, is the largest urban regeneration project in the UK. PAS 181 and ISO 37106 were used to develop the approach to smart city delivery

“A strategy that follows international standards to enable easy sharing of data across the entire market and the creation of a cultural environment which is co-operative, seeks to learn and share” – Greenwich Smart City Strategy

Examples of implementations

Application of ISO/IEC 30182 (PAS 182)

Smart city data concept model

The Glasgow city technology platform has over 300 data feeds. The smart city data concept model was developed to allow cities to integrate multiple sources of city data

Integrating city data sources



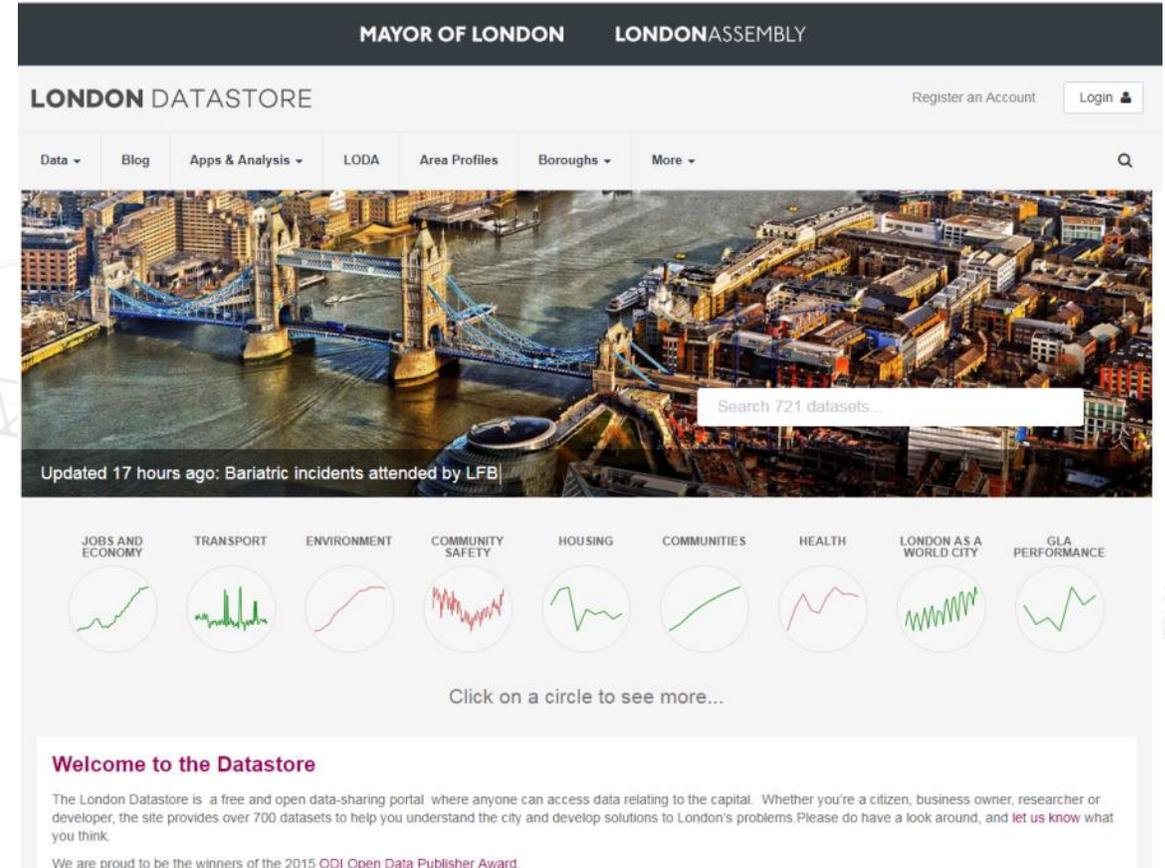
Source: www.futurecity.glasgow.gov.uk

Examples of implementations

PAS 183 Decision-making framework for sharing data and information

- Type of data required to be shared
- Roles and responsibilities across the data value chain
- Purposes and access rights
- Assessing data states
- Data formats and transportation

Establishing a data-sharing culture



The screenshot shows the London Datastore website interface. At the top, it features the logos for 'MAYOR OF LONDON' and 'LONDON ASSEMBLY'. Below this is the 'LONDON DATASTORE' header with a search bar and a 'Register an Account' button. A navigation menu includes 'Data', 'Blog', 'Apps & Analysis', 'LODA', 'Area Profiles', 'Boroughs', and 'More'. The main content area displays a large aerial photograph of London with a search bar overlaid that says 'Search 721 datasets...'. Below the photo, there is a news ticker that reads 'Updated 17 hours ago: Bariatric incidents attended by LFB'. A row of ten circular icons represents different data categories: 'JOBS AND ECONOMY', 'TRANSPORT', 'ENVIRONMENT', 'COMMUNITY SAFETY', 'HOUSING', 'COMMUNITIES', 'HEALTH', 'LONDON AS A WORLD CITY', and 'GLA PERFORMANCE'. Each icon contains a small line graph. Below the icons is the text 'Click on a circle to see more...'. At the bottom, there is a 'Welcome to the Datastore' section with a brief description of the portal and a note about winning the 2015 ODI Open Data Publisher Award.

The world's first Smart City Kitemark



Sejong City in South Korea has been the first city worldwide to achieve the Smart Cities and Communities Kitemark in 2018 against ISO 37106

As part of the assessment, infrastructure of the city has played a fundamental role. We had the chance to look at transportation systems, smart infrastructure and security system.

How does Kitemark helps you demonstrate your goals and achievements ?

It was able to confirm the effectiveness and maturity of construction and operation of Sejong Smart City, which was promoted in 2006. In addition, it was able to identify the direction of achieving the vision for sustainable smart city construction, and the status of Sejong City as a smart city was strengthened.

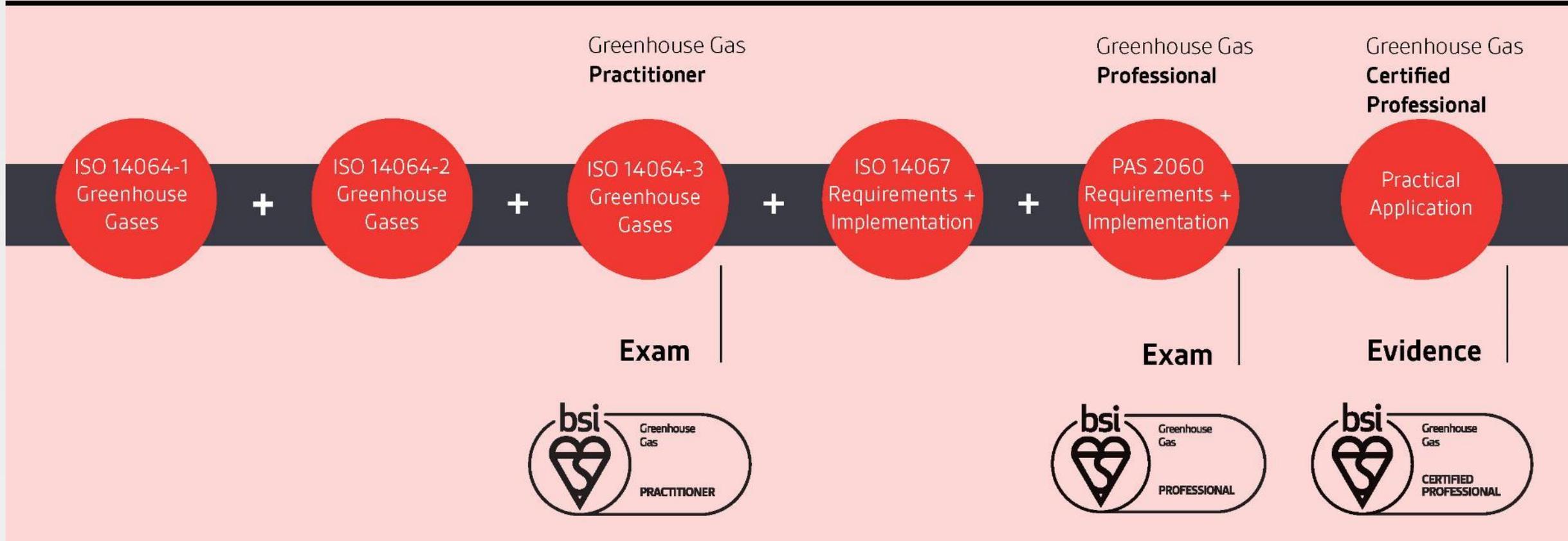
Chae Sik, Lim

Information & Statistics Division Manager, Sejong city

● Training support



The learning path to a Professional Qualification Certificate validates your learning with examinable results, earning you industry recognized qualification badges at each stage of the journey.



The BSI 'Professional' badge

The BSI 'Professional' badge is used by individuals who have passed a BSI education and training course successfully.

The badge provides a strong and credible endorsement that can be displayed in a person's CV, LinkedIn profile, email signature or any similar information. In addition to highlighting a person's professional competence, it also provides confidence and help you stand out.



BSI BIM journey

BIM standards
Buy and read the BIM standards

Standards

Qualifications

Achieve a BSI qualification in BIM Project/Asset information to validate your learning through a combination of learning and assessment. You can also opt to have your qualification certified.

Specific training

Understanding the requirements and practice of ISO 19650-2, ISO 19650-3, BS 1192-4, ISO 19650-5, PAS 1192-6

Introductory training

Collaborative BIM:
Senior Management Briefing* or
Senior Management Workshop*
BIM Fundamentals
– Putting BIM into practice

Training suite

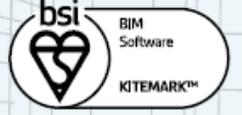
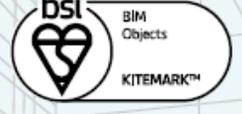
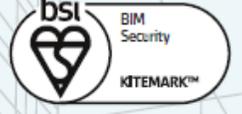
Certification and beyond

Once certified, annual surveillance visits will ensure adherence to the latest standards.

Gap assessment

Optional assessment to identify any gaps in documentation required by the standard.

Certification suite



Your learning journey with BSI

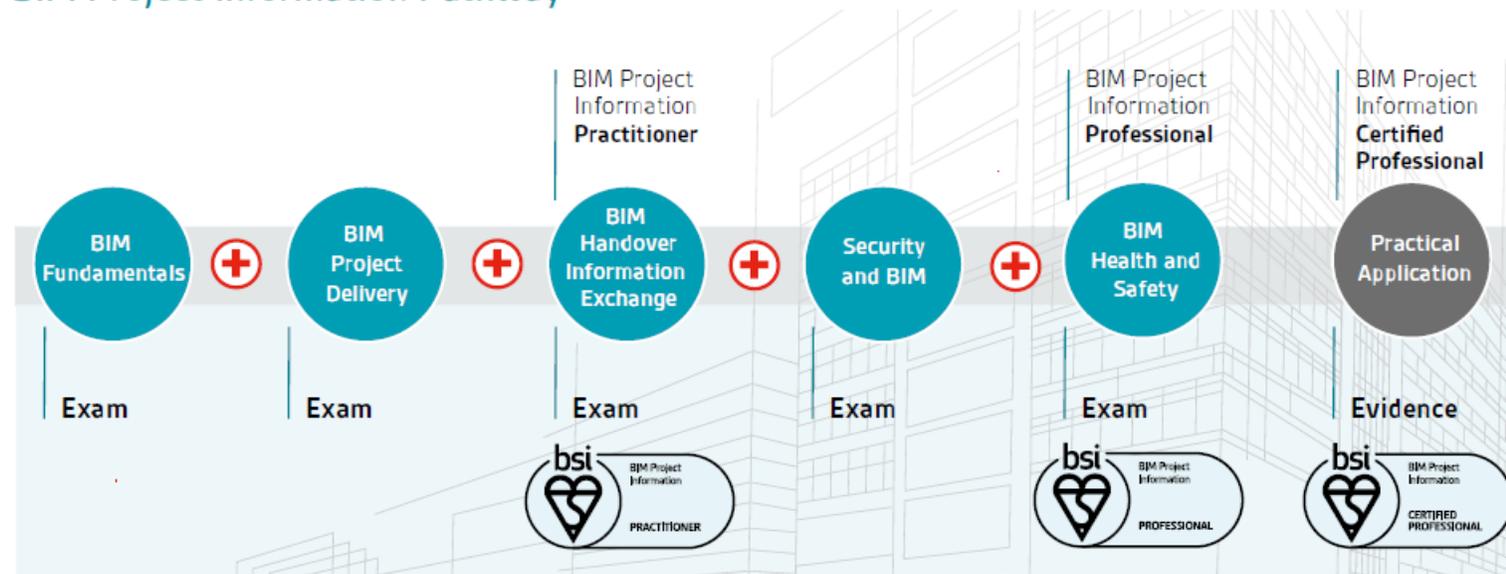
Do you have the right skills within your organization to meet current or future BIM projects? As BIM becomes business as usual, how can you ensure the competency of your teams and consistency on BIM projects?

Our BIM qualifications will give you a BSI Mark of Trust, reassuring your clients, bid-writers and project teams that your skills have been validated. You can achieve Practitioner or Professional status by successfully completing courses and their associated assessment.



Once you've achieved your BSI Professional qualification, and with the relevant three years' experience, you can choose to have your skills certified. The rolling three-year programme will provide evidence that your are experience-based and up-to-date.

BIM Project Information Pathway



BIM Asset Information Pathway



Thank You

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