Towards A Digitalised Smart Cities with ISO 37106

Wilson Ong

British Standards Institution

Who is BSI

Experienced

The **world's first National Standards Body** established in 1901 **and a founding member of ISO and IEC**

Trusted

A Royal Charter company reinvesting profits back into our business

Specialist

Standards Creation, Training, Certification, Software Solutions, Supply Chain Solutions.

Reputable

Thought Leaders – Shaped the world's most adopted standards…

By Royal Charter

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Some of the world's top standards created by BSI

(1987) Quality
BS 5750 (1979) > ISO 9001

(1999) Health & Safety
BS 8800 (1996) > BS OHSAS 18001

(1996) Environment
BS 7750 (1992) > ISO 14001

(2007) Building Information Modelling
BS 1192 > ISO 19650

(2005) Information security
BS 7799 (1995) > ISO 27001

(2014) Smart Cities
PAS 181 > ISO 37106

Reputable

Thought Leaders – Shaped the world's most adopted standards...

Over 1.6m organizations worldwide use these standards as best practice, helping them to run more efficiently, saving money and resources

The rise of the smart sustainable city

We are undergoing the largest wave of urban growth in history.

At the turn of the 20th century, just 15% of the world population lived in cities. Now it's over 50%. And by 2050, three-quarters of the world's 9 billion people will be city-dwellers.

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The need for Smart Cities & Communities

Shaping Standards to support Smart Cities :Accelerate The Market

BSI has been creating a trusted framework to shape, share, embed and support innovation, and the safe and reliable adoption of smart cities and communities.

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**
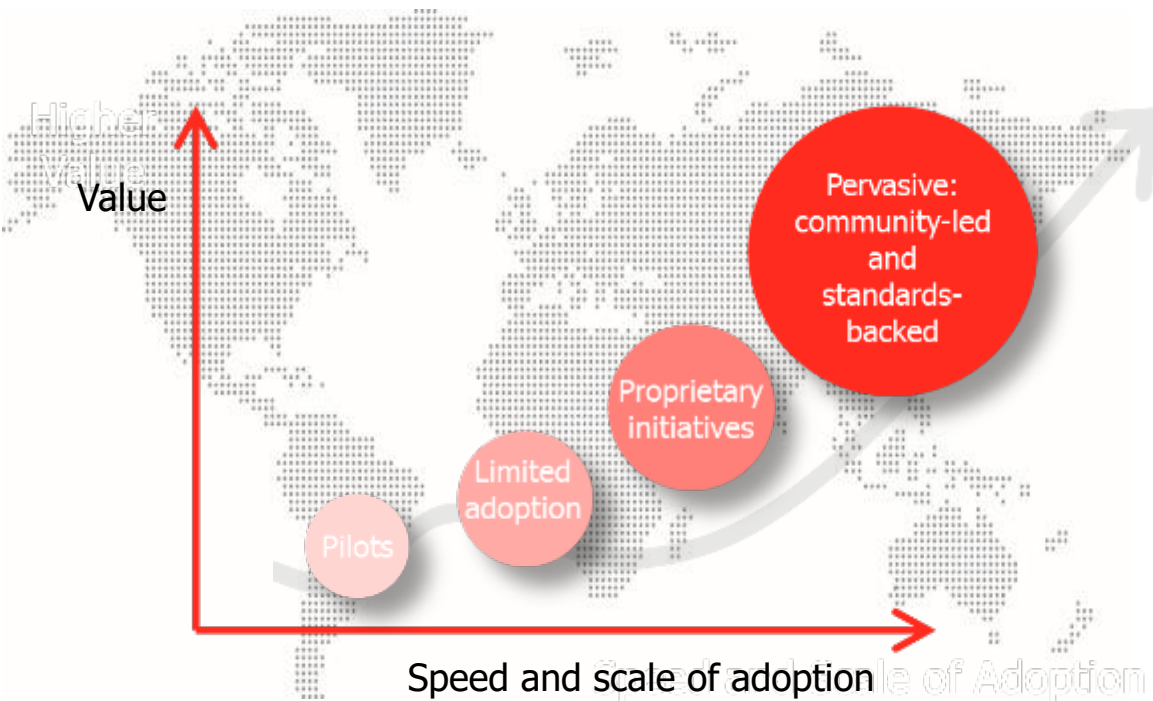
The need for Smart Cities & Communities
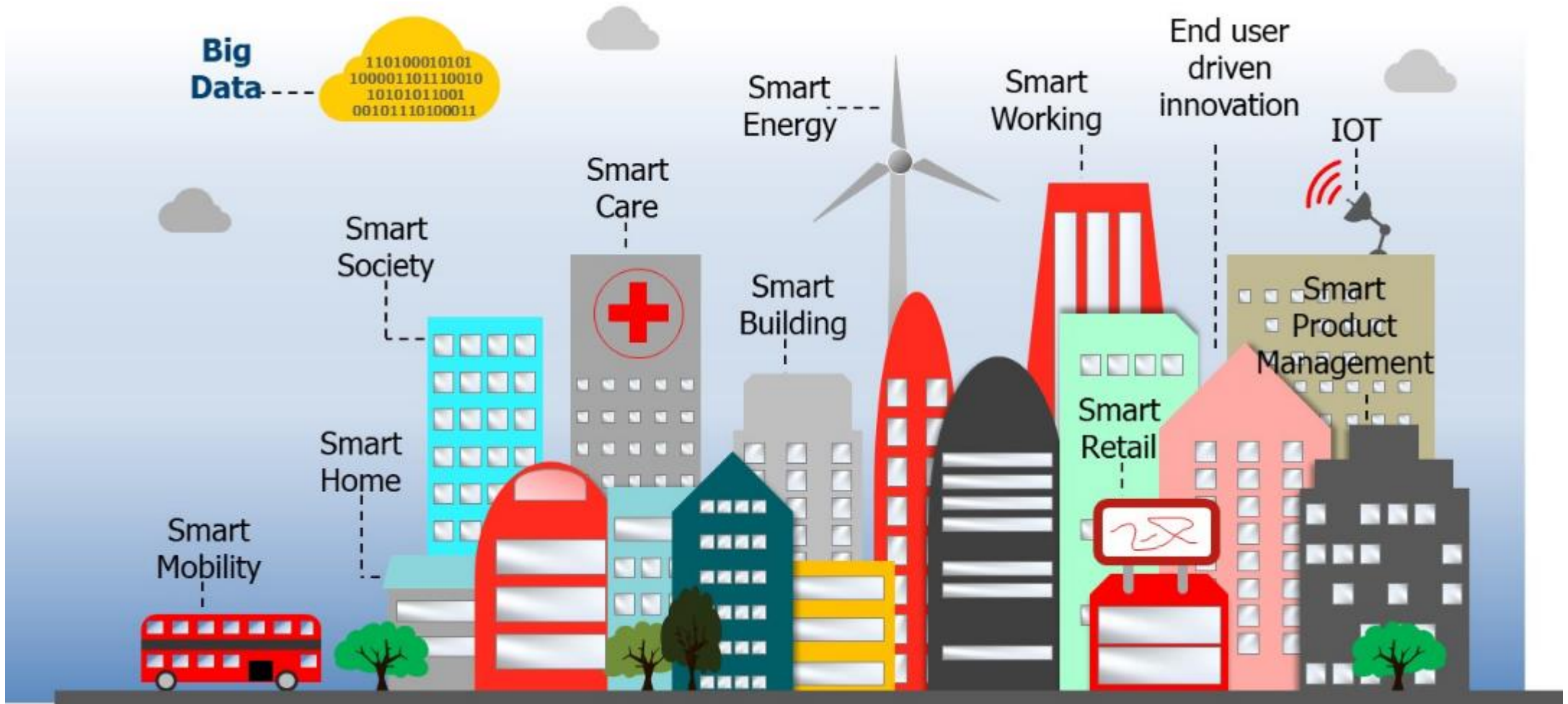## Community-needs led portfolio approach to best practice

Different **needs** of stakeholders:

- **why**" smartness?
  Leadership Guides

- "**how**" smart initiatives can be executed across multiple sectors?
  Management Frameworks

- "**what**" kind of solution or application?
  Technical Standards

The rise of the smart sustainable city

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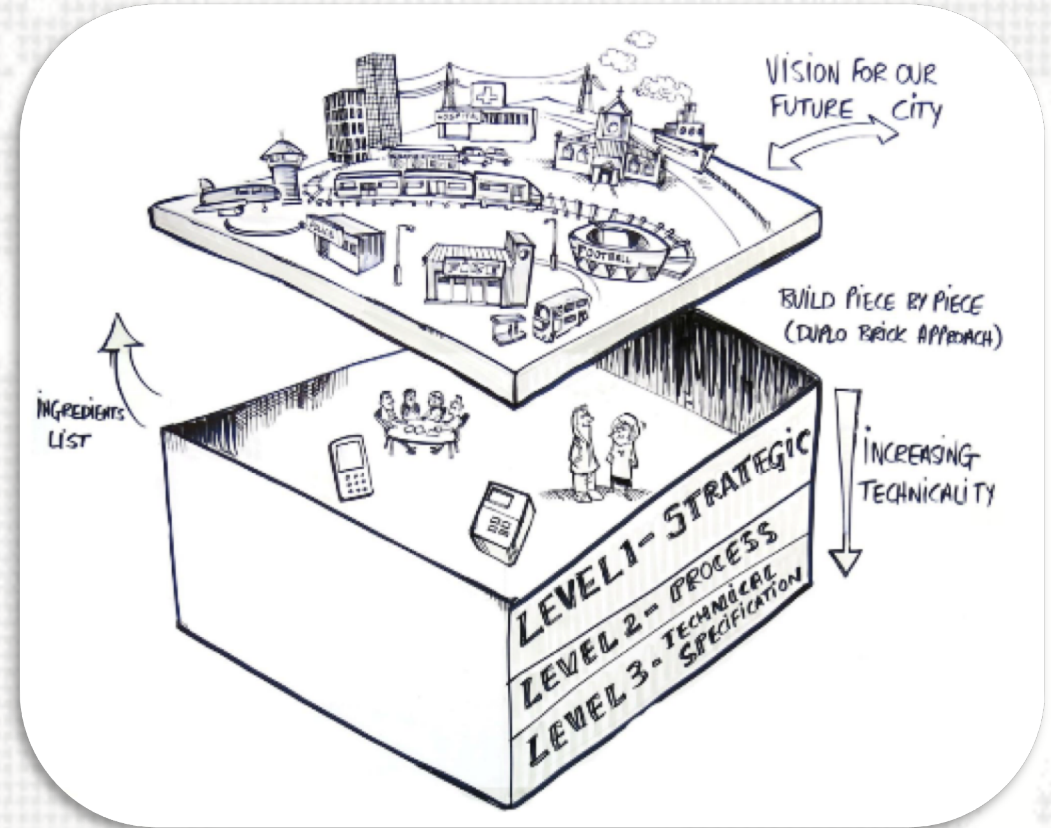
The Value of Standardisation

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From tram tracks...

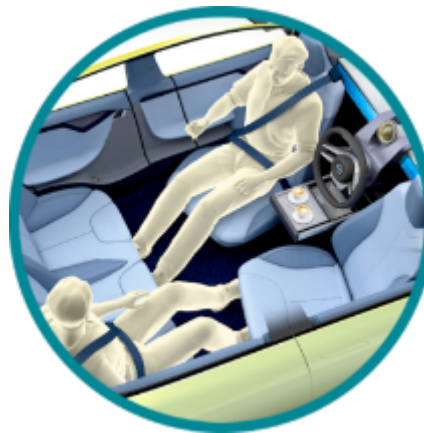**... to the Internet of Things**

Tea

Information Security

Connected and Autonomous Vehicles

Robot Ethics / Artificial Intelligence

Smart Cities / Building Information Modelling
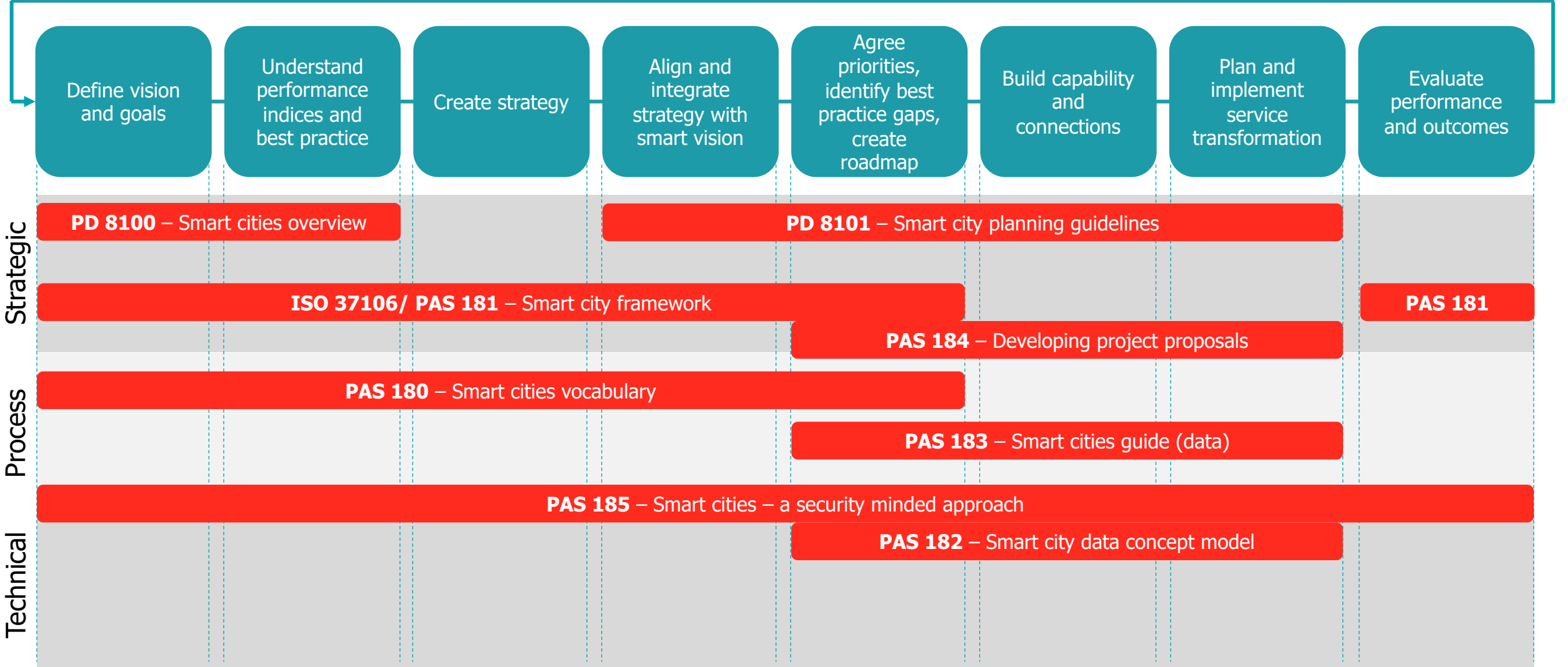
Shaping Standards to support Smart Cities
How do we make standards?

idea

Feedback and new proposals

Stakeholder 'community'

Committee drafting

Public consultation

Review comments

Consensus

Publish and support

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Shaping Standards to support Smart Cities
BSI Portfolio

	Define vision and goals	Understand performance indices and best practice	Create strategy	Align and integrate strategy with smart vision	Agree priorities, identify best practice gaps, create roadmap	Build capability and connections	Plan and implement service transformation	Evaluate performance and outcomes
Strategic	**PD 8100** – Smart cities overview			**PD 8101** – Smart city planning guidelines				
	ISO 37106/ PAS 181 – Smart city framework				**PAS 181**			
				PAS 184 – Developing project proposals				
Process	**PAS 180** – Smart cities vocabulary							
				PAS 183 – Smart cities guide (data)				
Technical	**PAS 185** – Smart cities – a security minded approach							
				PAS 182 – Smart city data concept model				

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Guidance for city leaders

PD 8100 Overview description of a smart city
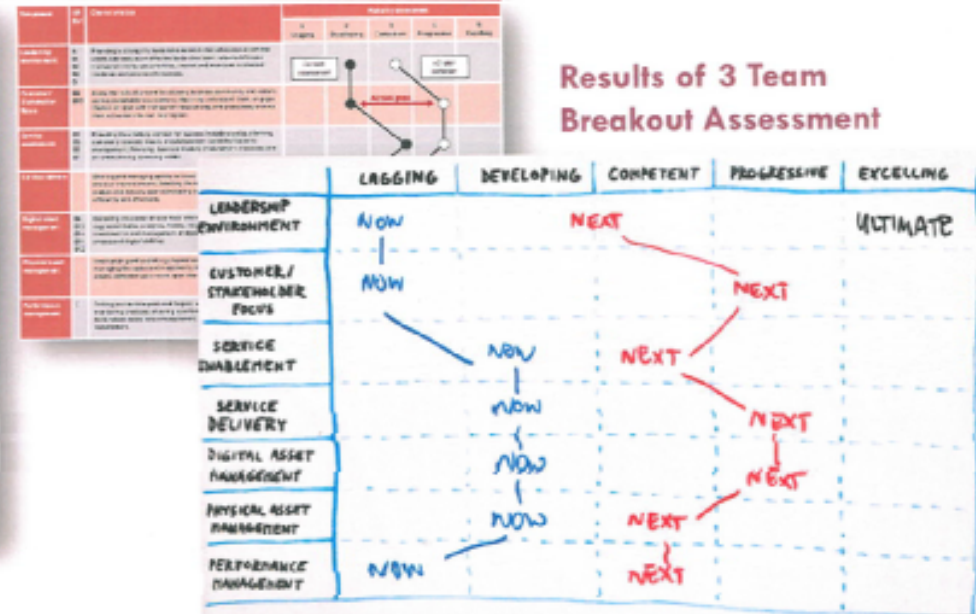
✓ An **overview of a smart city** to guide city leaders on making their city smarter

✓ Gives a **maturity framework** for assessing "smartness"

✓ Piloted in Peterborough – World Smart City of the Year 2015

Integrating city data sources

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
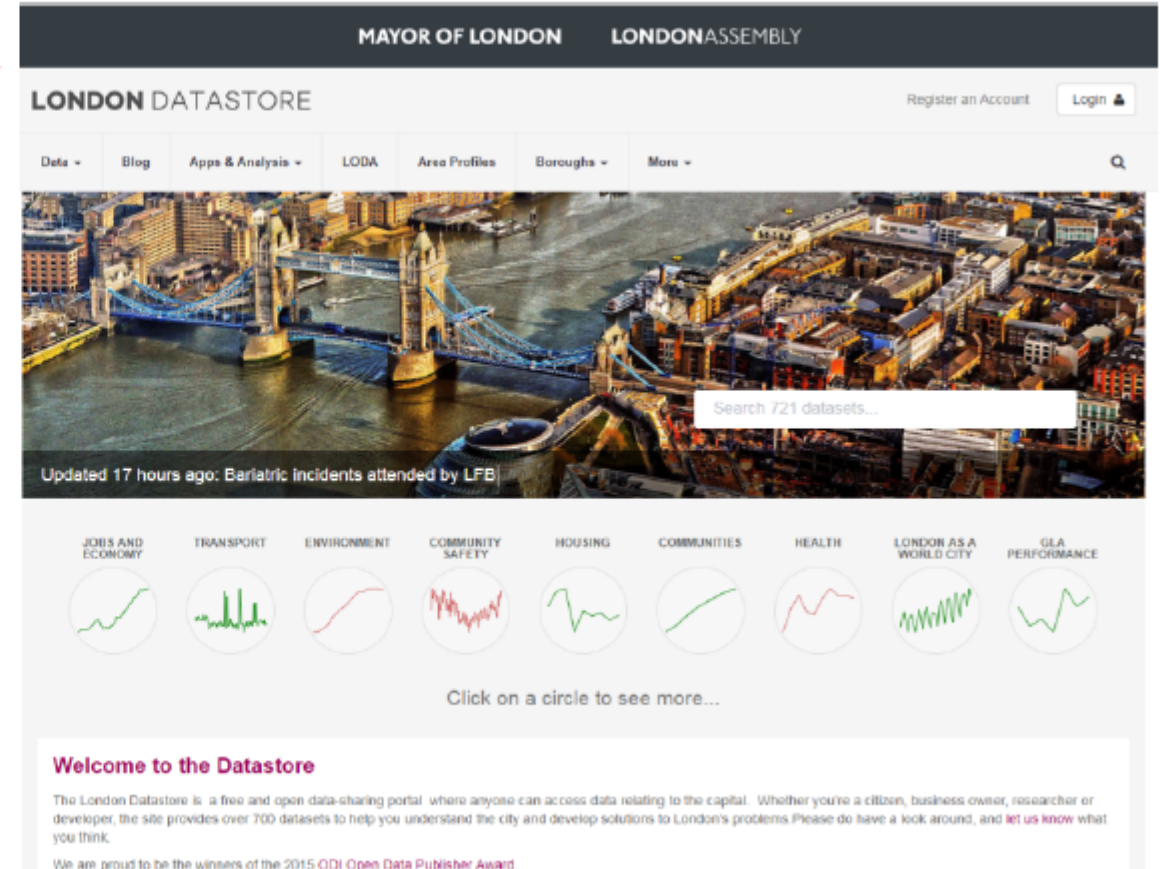

Source: www.futurecity.glasgow.gov.uk

Establishing a data-sharing culture

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

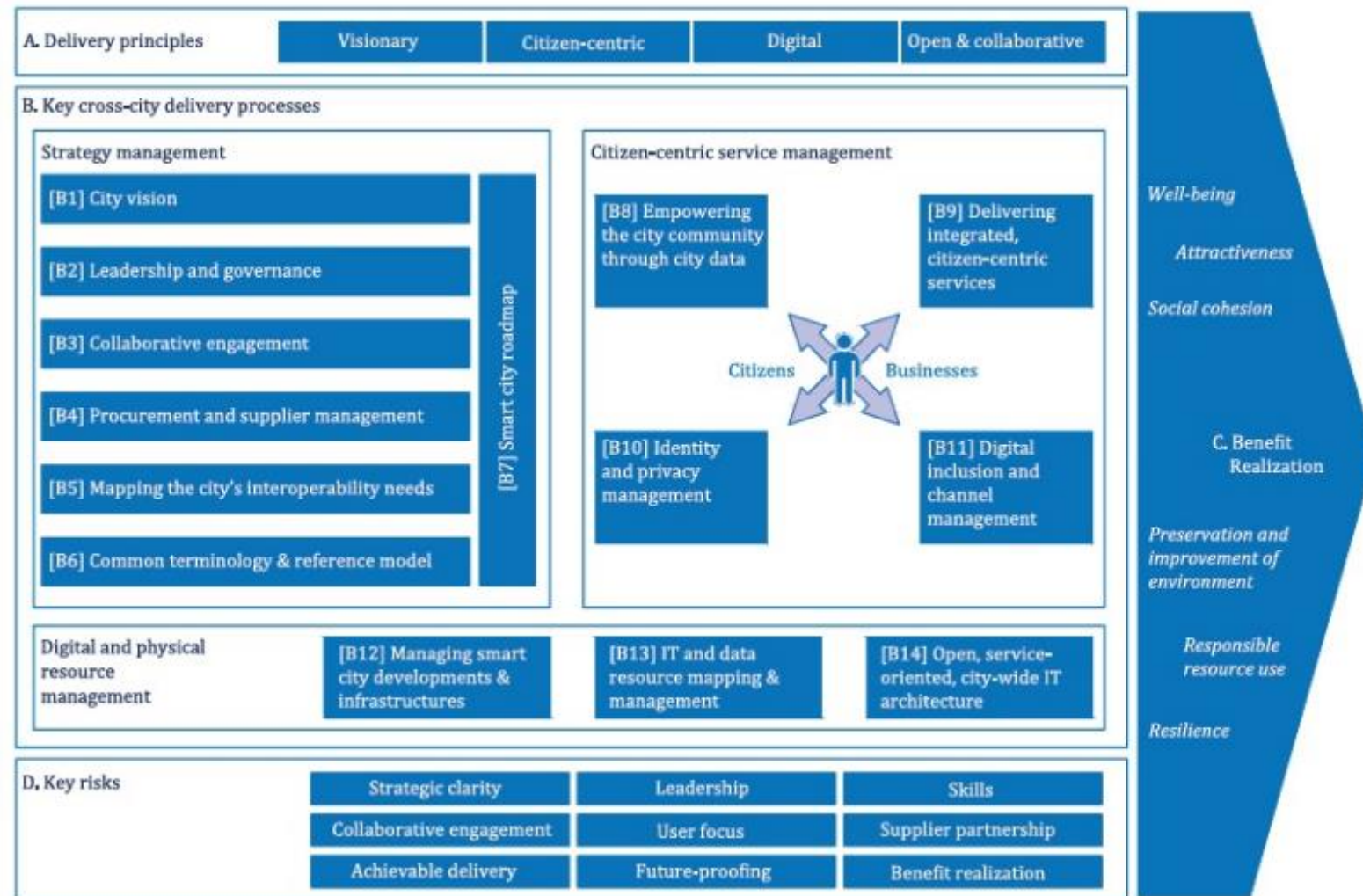# Shaping Standards to support Smart Cities
ISO 37106


BS ISO 37106:2018

BSI Standards Publication

Sustainable cities and communities —
Guidance on establishing smart city operating
models for sustainable communities

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A. Delivery principles	Visionary	Citizen-centric	Digital	Open & collaborative

B. Key cross-city delivery processes

Strategy management		Citizen-centric service management	
[B1] City vision		[B8] Empowering the city community through city data	[B9] Delivering integrated, citizen-centric services
[B2] Leadership and governance			
[B3] Collaborative engagement	[B7] Smart city roadmap		
[B4] Procurement and supplier management		Citizens — Businesses	
[B5] Mapping the city's interoperability needs		[B10] Identity and privacy management	[B11] Digital inclusion and channel management
[B6] Common terminology & reference model			

Digital and physical resource management	[B12] Managing smart city developments & infrastructures	[B13] IT and data resource mapping & management	[B14] Open, service-oriented, city-wide IT architecture

D. Key risks	Strategic clarity	Leadership	Skills
	Collaborative engagement	User focus	Supplier partnership
	Achievable delivery	Future-proofing	Benefit realization

C. Benefit Realization

Well-being

Attractiveness

Social cohesion

Preservation and improvement of environment

Responsible resource use

Resilience

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Component	181 Ref	Characteristics	Maturity Assessment				
			1 Lagging	2 Developing	3 Competent	4 Progressive	5 Excelling
Leadership Environment							
Customer / Stakeholder Focus	B9 B10	A city that is built around its citizens, business community and visitors (as key stakeholders / customers); that truly understand them; engages them effectively; and proactively ensures their active contribution to progress					
Service Enablement	B2 B3 B5 B7	Providing the enabling context for success: including policy, planning, common protocols; means of collaboration; capability / capacity mgmt.; financing; business models; procurement processes; & an underpinning operating model					
Service Delivery		Offering and managing quality services to city stakeholders, through direct or indirect means.					
Digital Asset Mgmt	B6 B13 B14 B11 B12	Exploiting the power of data sharing and modern technologies (e.g. social media, analytics, mobile, cloud, sensors) through investment in and mgmt of digital assets; including respect of privacy and digital abilities					
Physical Asset Mgmt							
Performance Mgmt	C						

Scores the client 1-5 in each of the areas individuated in the standard. **Important to note that a low score is not a failure**; it demonstrates a low development/ **low priority**
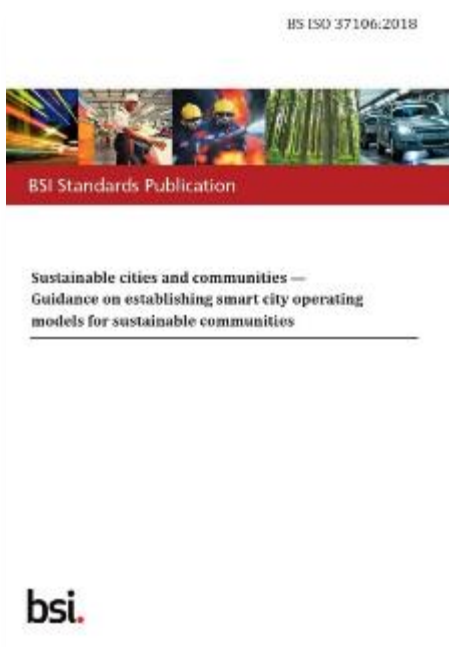
+2yr Ambition

Action Plan

Current Assessment
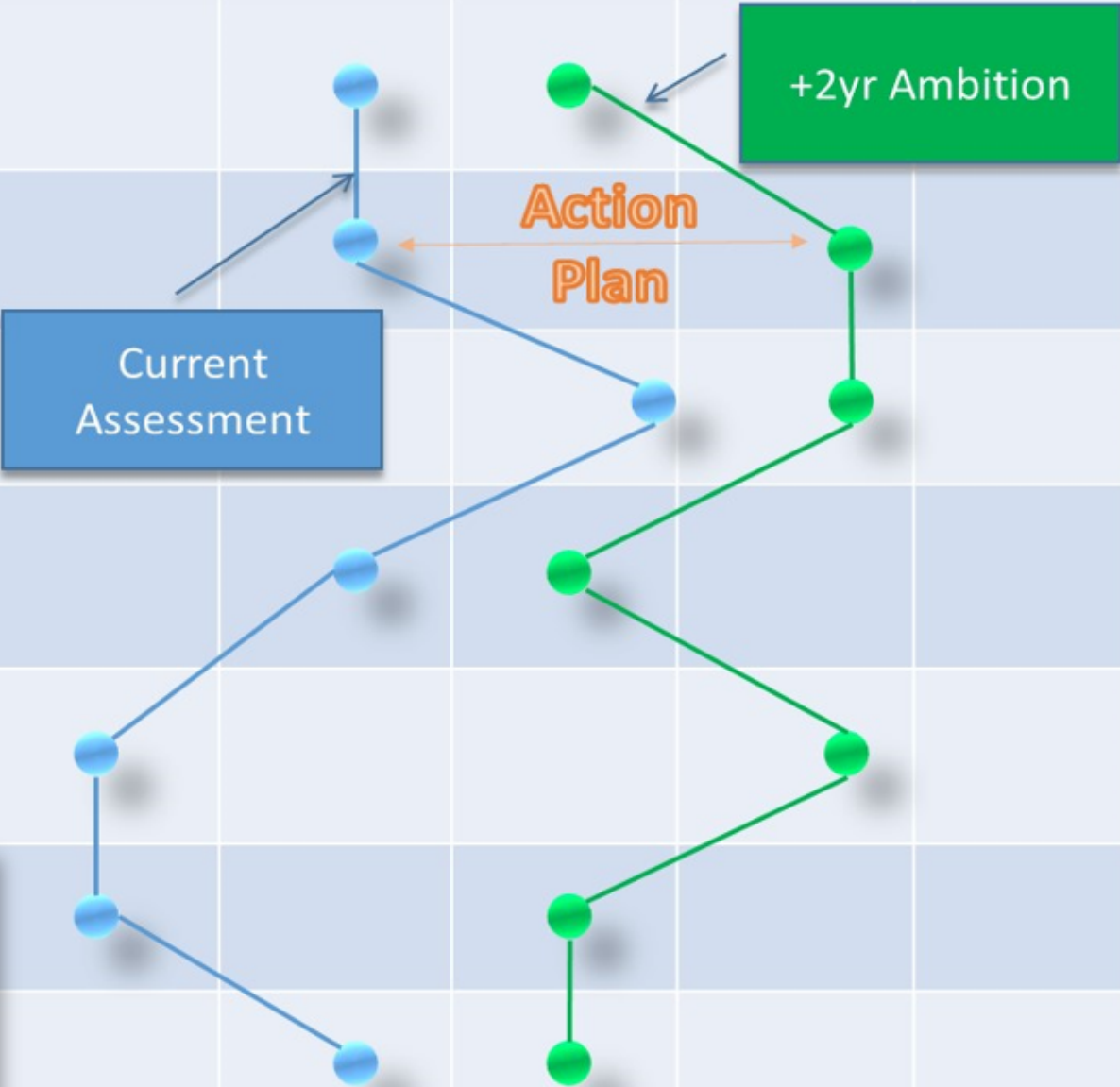
The client is assessed against all areas, so needs to have considered each one, even if the majority are low priority/ not advanced.

BSI Smart Cities and Communities Kitemark
Assessing the maturity of Smart Cities and Communities

Assesses the maturity of Smart Cities and Communities

BS ISO 37106:2018

BSI Standards Publication

Sustainable cities and communities —
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Smart Cities
and Communities
KITEMARK™

Level 1: Pre-development
The City has not a clear idea of a vision and processes to meet the ISO 37106 are not put in place yet

Level 2: Developing Smart City
The city is developing processes to meet ISO 37106

Level 3: Collaborative Smart City
There are processes in place to meet the requirements of ISO 37106

Level 4: Leading Smart City
The city is implementing ISO 37106 processes, improving, measuring success

Level 5: Visionary Smart City
The city is implementing a process of continual improving

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BSI Smart Cities and Communities Kitemark
A Scheme based on the ISO 37106

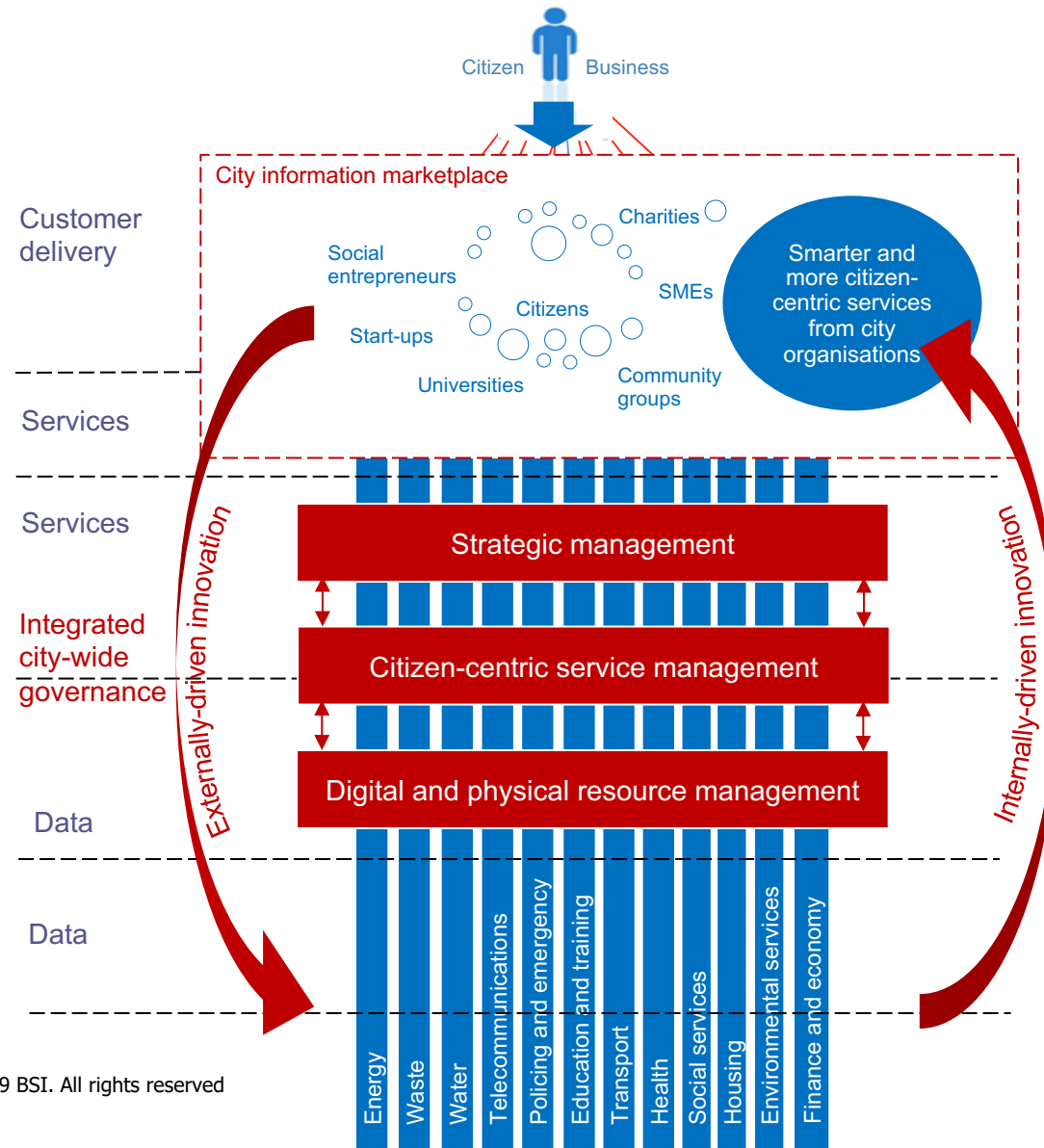Looks at four key components covering:

- Citizen centric service management
- Benefit realization
- Strategy Management
- Asset Management

Citizen-centric Service Management

Benefit Realisation

Citizens Businesses

Strategy Management

Asset Management

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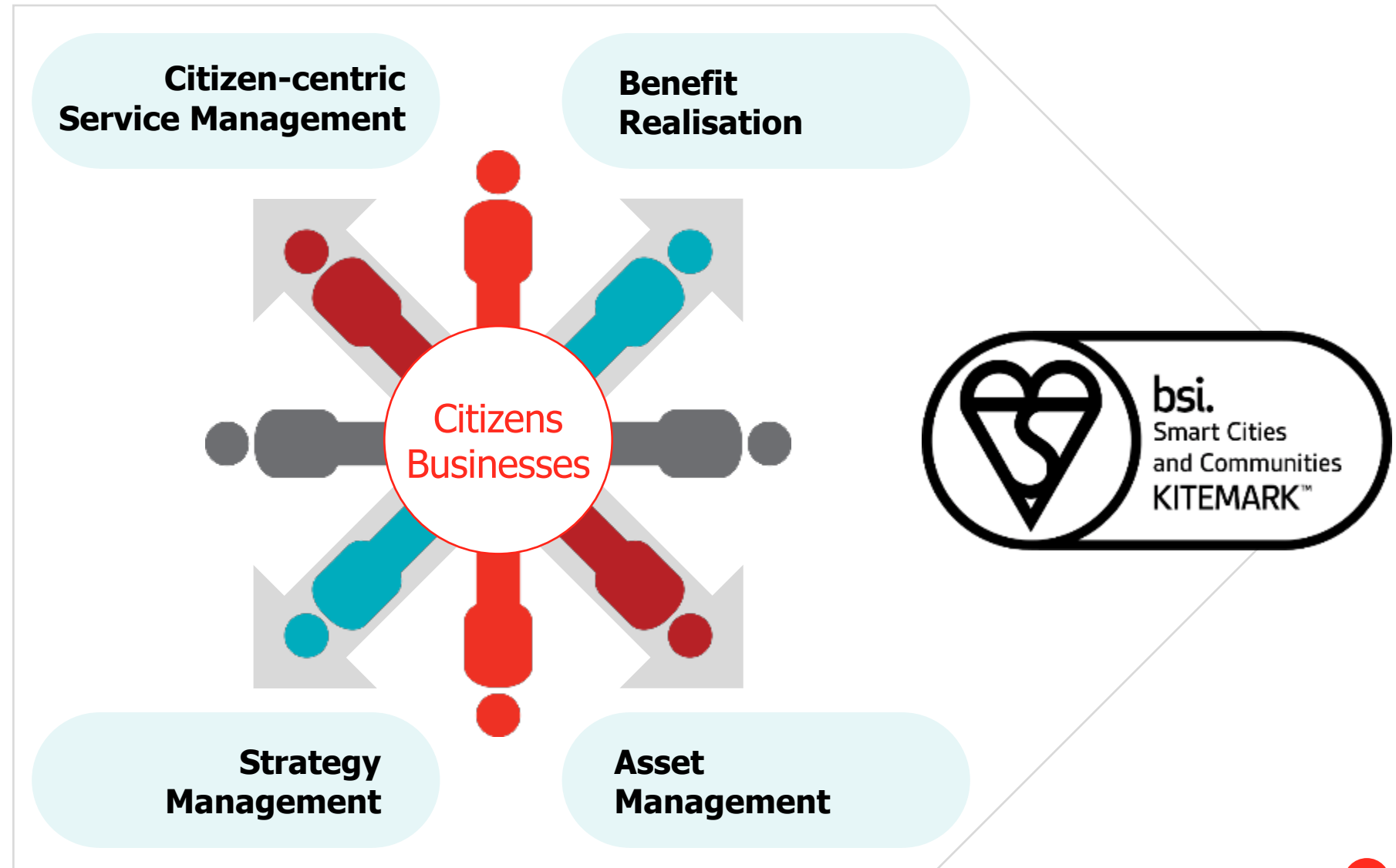
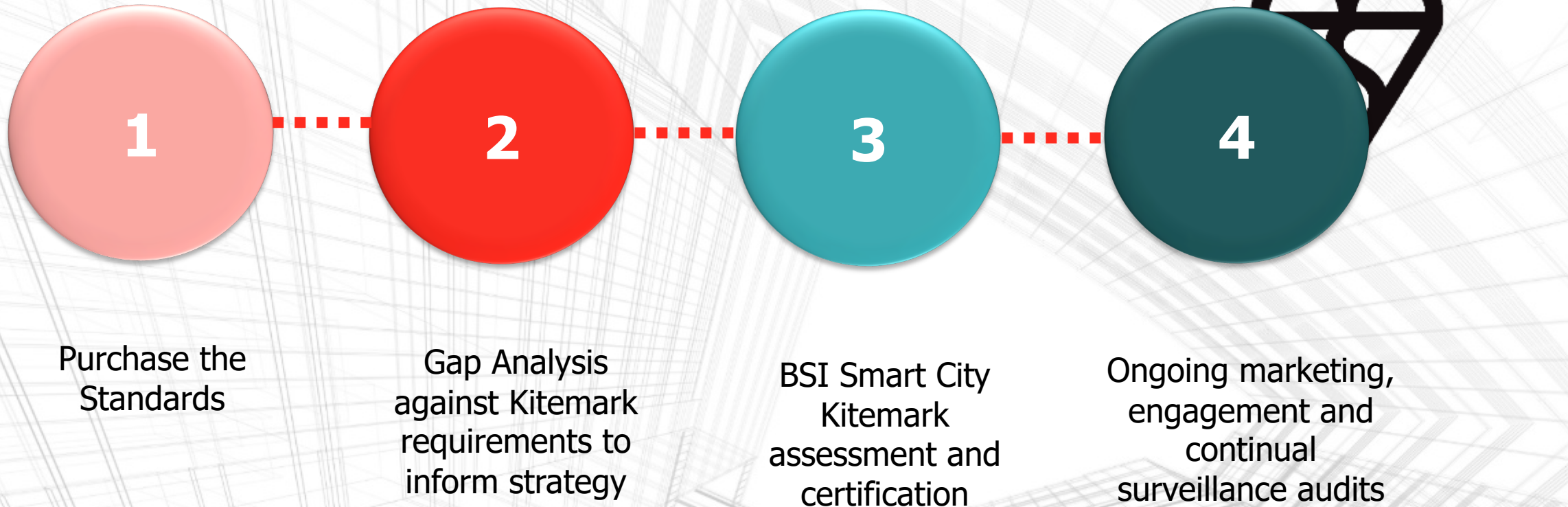# Shaping Standards to support Smart Cities
Integrated community Operating Model

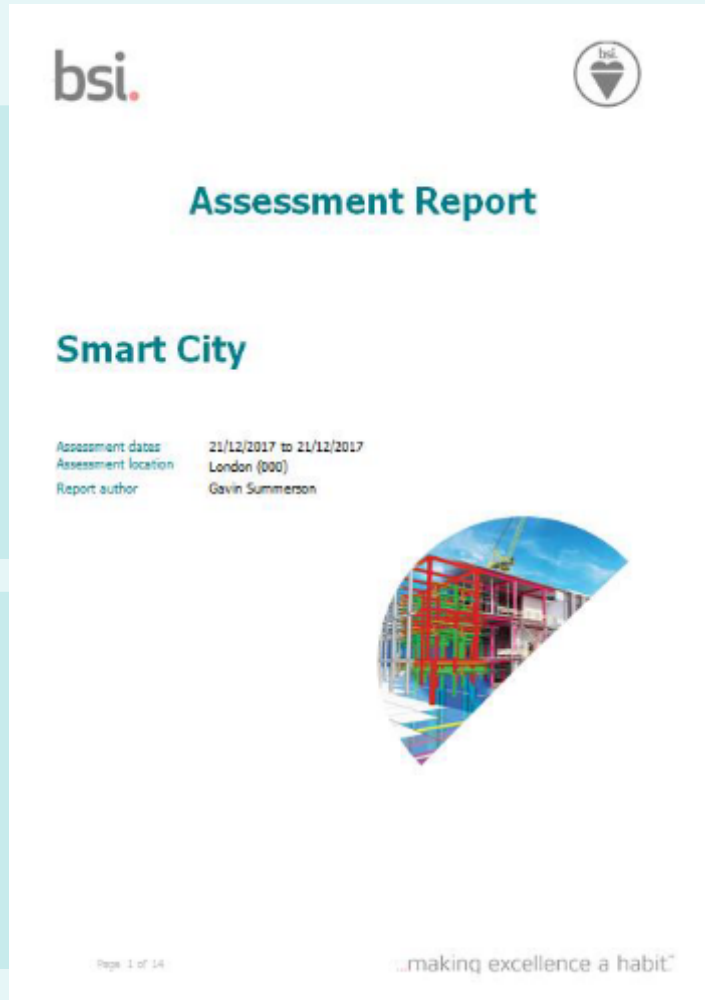"*A twin track approach needs to be taken to the smart transformation of city services*":

- Enabling externally-driven, stakeholder-led innovation by opening up city data

- Delivering internally-driven, city-led citizen-centric service transformation'

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BSI Smart Cities and Communities Kitemark
Steps

1 Purchase the Standards

2 Gap Analysis against Kitemark requirements to inform strategy

3 BSI Smart City Kitemark assessment and certification

4 Ongoing marketing, engagement and continual surveillance audits

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BSI Smart Cities and Communities Kitemark
Assessment Report

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Assessment Report

Smart City

Assessment dates   21/12/2017 to 21/12/2017
Assessment location London (000)
Report author   Gavin Summerson

Page 1 of 14   ...making excellence a habit.

- **We will issue a report to detail:**

  - Performance against 4 components and 22 sub components of ISO 37106

  - Current smart city maturity confirming any minor or major non-conformities that need to be addressed to progress your smart city maturity against all sub components

  - Recommended improvements based on what BSI have witnessed that would benefit your programme against the sub components

  - The output of the report will help you formulate your future smart city plans through independent and impartial audit

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The world's first Smart City Kitemark

Sejong City in Korea is the first City to receive the Smart City Kitemark Certificate.
Sejong has achieved the 3rd level of the maturity model : Collaborative Smart City.
The following organizations are also covered under the scope of the certificate for their contribution to the delivery of Sejong Smart City including:

- Korea Land Housing Corporation (LH), *including the land development, urban development and housing provision for Sejong Smart City*
- National Agency for Administrative City Construction *including overseeing and coordinating te construction project of Sejong Smart City*

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The world's first Smart City Kitemark

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Smart Cities
and Communities
KITEMARK™

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.

Why did you choose BSI?

We considered authority and influence of BSI as the world best international certification body.
Through a meeting with Scott Steedman at the British Embassy in Korea in 2015, we agreed to cooperate in international certification and standardization activities for smart cities.

Chae Sik, Lim
Information & Statistics Division Manager, Sejong city

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Celebrating your success!

Thank you

Wilson Ong
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Q&A

Providing Assurance in the Built Environment for over 115 years

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