# Global Future Cities Programme

## Smart City Standards Webinar

6th May 2021
3.00pm – 4.30pm

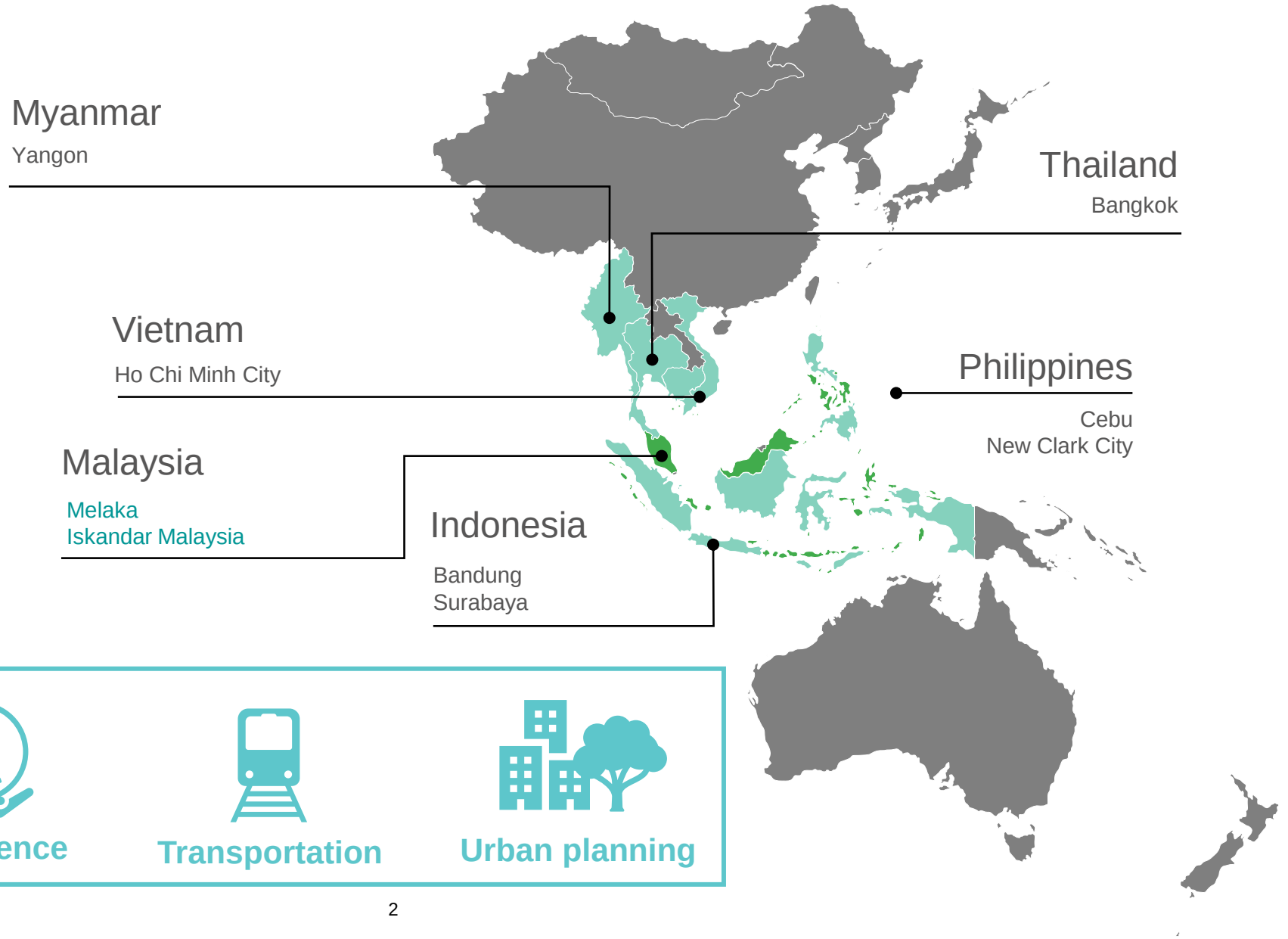
# Global Future Cities Programme

**13** projects

**9** cities

**6** countries

**3** years




**Resilience** **Transportation** **Urban planning**

# Iskandar Malaysia Interventions

## 1. Provide an Implementation Strategy for a Smart Integrated Mobility Management System (SIMMS)

- Optimise road network.
- Reduce traffic congestion, less air & noise pollution.
- Gains in travel time and cost, mobility management.
- Evidence based Urban and Transport Planning (E-bUTP).

## 2. Create Enabling Conditions for Data Utilisation and Management for Evidence-based Urban and Transport Planning (E-bUTP)

- Sustainable planning.
- Efficiency gains in planning processes.
- Improving mobility access for GESI groups.
- Promoting modal shift to public transport.
- Data sharing across different sectors & authorities.

# SIMMS & Iskandar Malaysia Smart City Framework

- IRDA has many development plans put in place in line with their Smart City aspirations.
- Smart mobility is one of the 6 dimensions that are under Iskandar Malaysia's plan.
- SIMMS will connect directly with the Iskandar Malaysia Urban Observatory (IMUO).
- Enables the use of data across sectors and authorities.



# Melaka Interventions 1 & 2

The Global Future Cities Programme will deliver two interventions at Melaka:

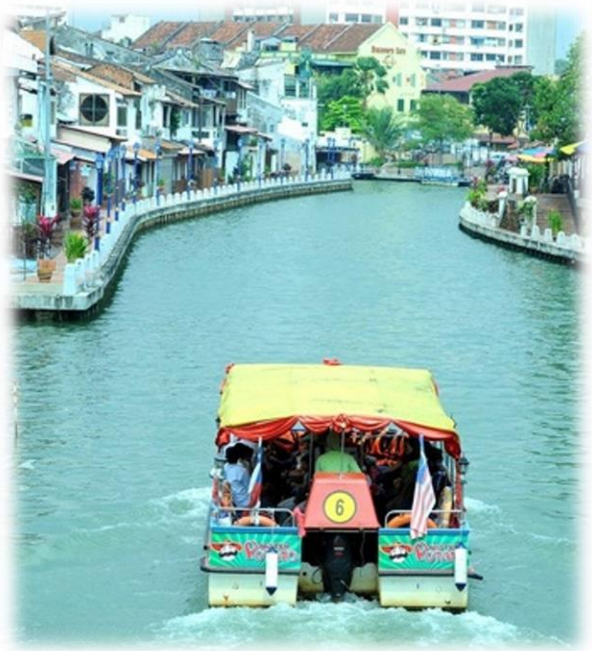
- **1: Green Transport Masterplan**
- **2: Heritage Area Integrated Mobility Plan**

Seek to:

- Improve public and non-motorised transport
- Create behavioural change among residents and tourists

Will be:

- Smart (using the latest technology)
- Integrated
- Evidence based

# Pilot Project – Creation of GTFS

## Why do we need this?

- To provide data driven public transit that can improve urban life.

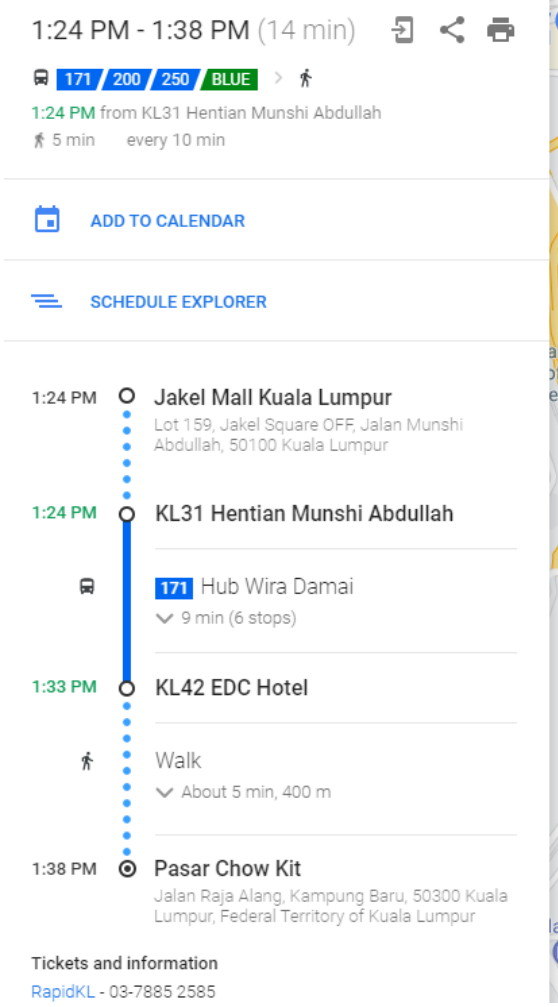
## General Transit Feed Specification (GTFS)

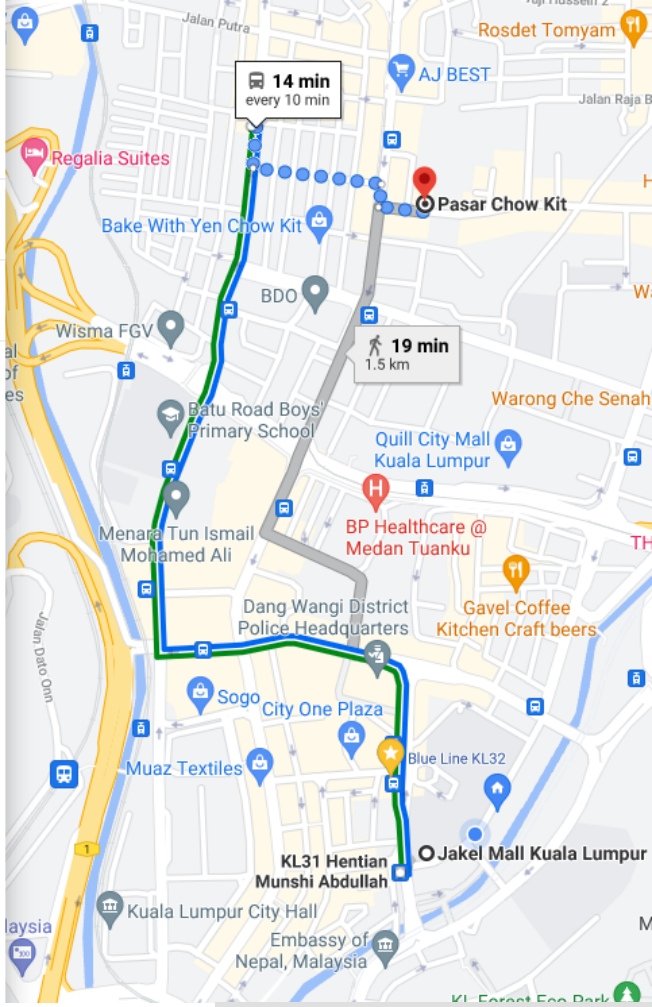
Online feed for

- Public transport routes and timetables
- Real time data

## An example of a standard specification of data:

- Sharing data openly
- Informs mobility
- Monitors performance
- Reduces private vehicle dependence
- Reduces emissions
- Improves the lives of all sectors of society




## Malaysia Smart City Framework

Ultimately, the aim is for at least 90% of all public transport stops or stations to have real-time dynamic info available to the public either via information panel, website, mobile apps or other electronic means

# Malaysia Smart City Framework

1. Based on the IMD World Competitiveness Center (ESCI) 2020, Kuala Lumpur is ranked 54th in its list of smart cities globally.

2. Global index of smart cities is measured based on:
   - Transportation and mobility attainment
   - Urban sustainability
   - Governance
   - Economic innovation
   - Digital technology
   - Quality of life of the community

3. Standards drive technical alignment ensuring that smart city development is connected and all encompassing

4. National IoT Strategic Roadmap

5. This framework references standards on 251 occasions.



Source: Malaysia Smart City Framework, 2018

# Introduction to the Speaker

## Emilia Cardamone

- Construction Engineer, with extensive experience in the market.
- She is the Programme Manager for the Digital Construction stream with the British Standards Institution (BSI).
- Currently managing the Smart Cities and Smart Communities Kitemark and has a strong technical background in Urban Planning and Policies.

# Learning Outcomes

By the end of this session, you should be able to:

1. Understand standards for smart cities and the international smart cities framework, ISO 37106;
2. Understand how stakeholders can align guidelines and local requirements into international frameworks.

# BSI supporting Smart Cities and Communities

A global  best practice approach

**Emilia Cardamone**
Programme Manager- Digital Construction

By Royal Charter

bsi.

# Shaping and Supporting Best Practice

By Royal Charter

## Standards

- National Standards Body
- Standards
- Knowledge Solutions

## Assurance

- Training
- Certification

## Consultancy

- Consultancy Services

# Inspiring trust for a more resilient world

- We work for the public good to improve, standardize and simplify; business systems, products and services
- Profit is reinvested back into BSI and never distributed
- We are independent from outside influence

- Working constantly to serve industry
- Committed to finding new ways to deliver services
- Focussed upon enabling organizations to become more resilient;

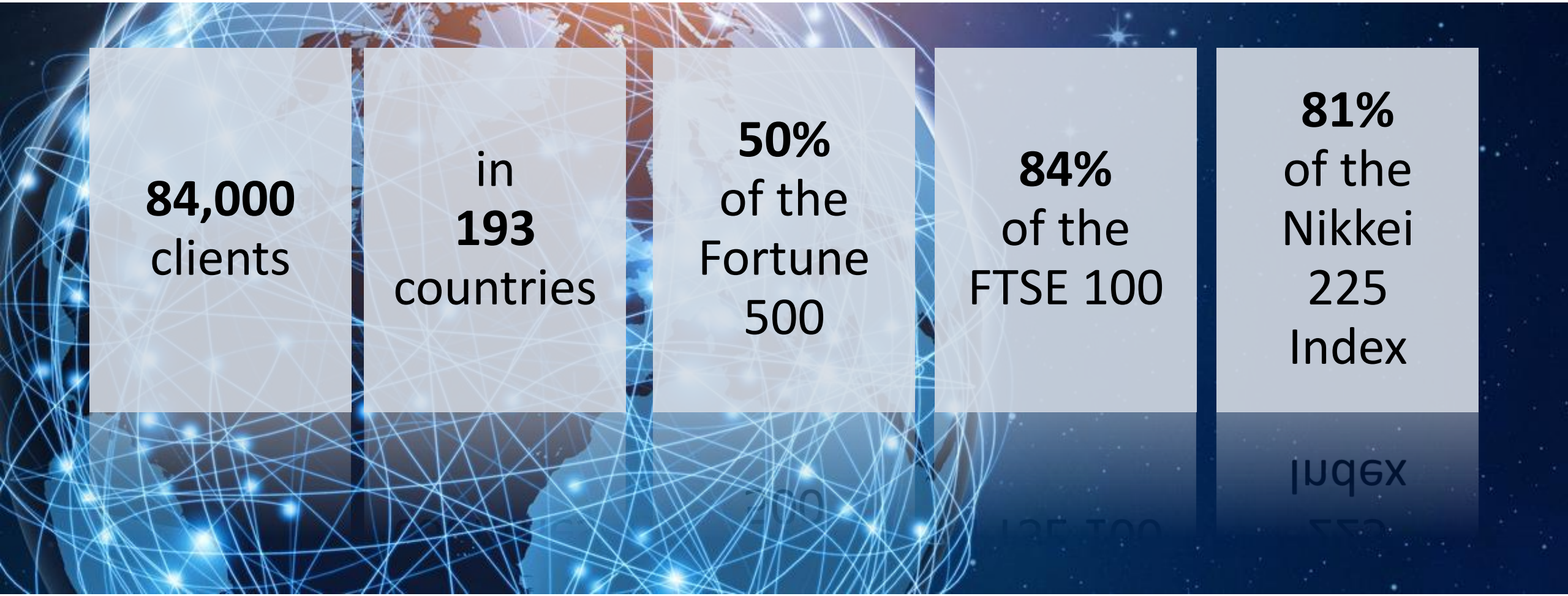
  survive

  stabilize

  rebuild

  be resilient

# Around the world, we enable businesses to turn best practices into habits of excellence



# Innovation is in our DNA from the first standard developed by BSI to align London's tram track gauges in 1901…

# BSI credentials

BSI is the UK's only National Standards Body, incorporated by Royal Charter and responsible independently for preparing British Standards and related publications and for coordinating the input of UK experts to European and international standards committees. BSI has 120 years of experience in serving the interest of a wide range of stakeholders including government, business and society.

## Function

- Memorandum of Understanding with the UK government.
- Public function in support of the UK Economy.
- Mandated robust standards development process requires open and full consultation with stakeholders to build consensus based outcomes.
- Standards legitimacy and degree of market acceptance to be used for public policy purposes.

## Representation

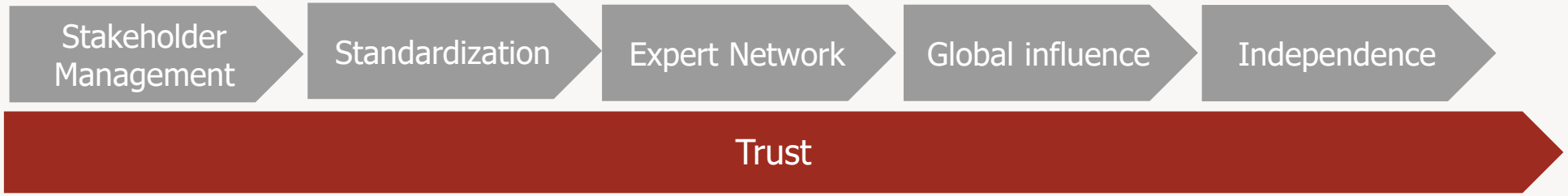
- UK view on standards in Europe (via the European Standards. Organizations CEN, CENELEC and ETSI), internationally (via ISO and IEC).
- Support of the UK government membership of ITU (International Telecommunications Union).
- Globally recognized reputation for independence, integrity and innovation ensuring standards are useful, relevant and authoritative.

## Responsibility

- Maintain the integrity of the national standards-making system.
- Benefit of UK industry and society.
- Ensure that standards developed by UK experts meet international expectations.
- Open consultation, stakeholder involvement and market relevance.
- Standards kept current, updated, revised or withdrawn as necessary.

## Rigour

- Developed only when there is a defined market need.
- Consultation with stakeholders and a rigorous development process.
- Stakeholders represent their communities in order to develop standards and related documents.
- Inclusive representatives from a range of bodies, including government, business, consumers, academic institutions, social interests, regulators and trade unions.



# BSI – From Strategy to Sensor:

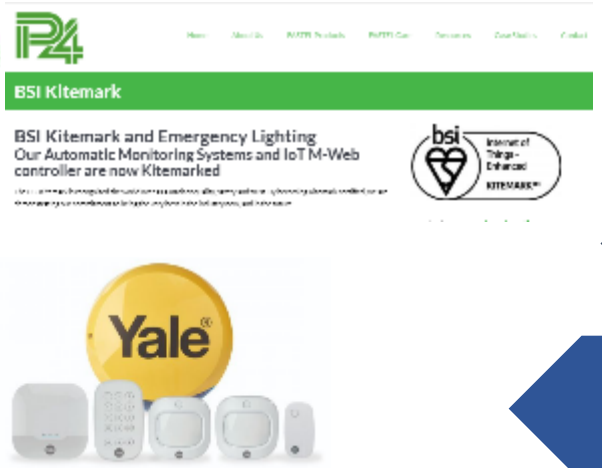
## Shaping and supporting digital innovation in the Built Environment


RTA
هيئة الطرق والمواصلات
ROADS & TRANSPORT AUTHORITY



News

BAM is one of the First in the World to achieve BSI Kitemark for BIM





- Smart Cities
- Smart Communities
- Smart Assets
- Smart Systems
- Smart Products

# Digital Transformation in cities:
# How standards can help

# How to accelerate Smart Cities and Communities development

How to address the challenges

## Challenges

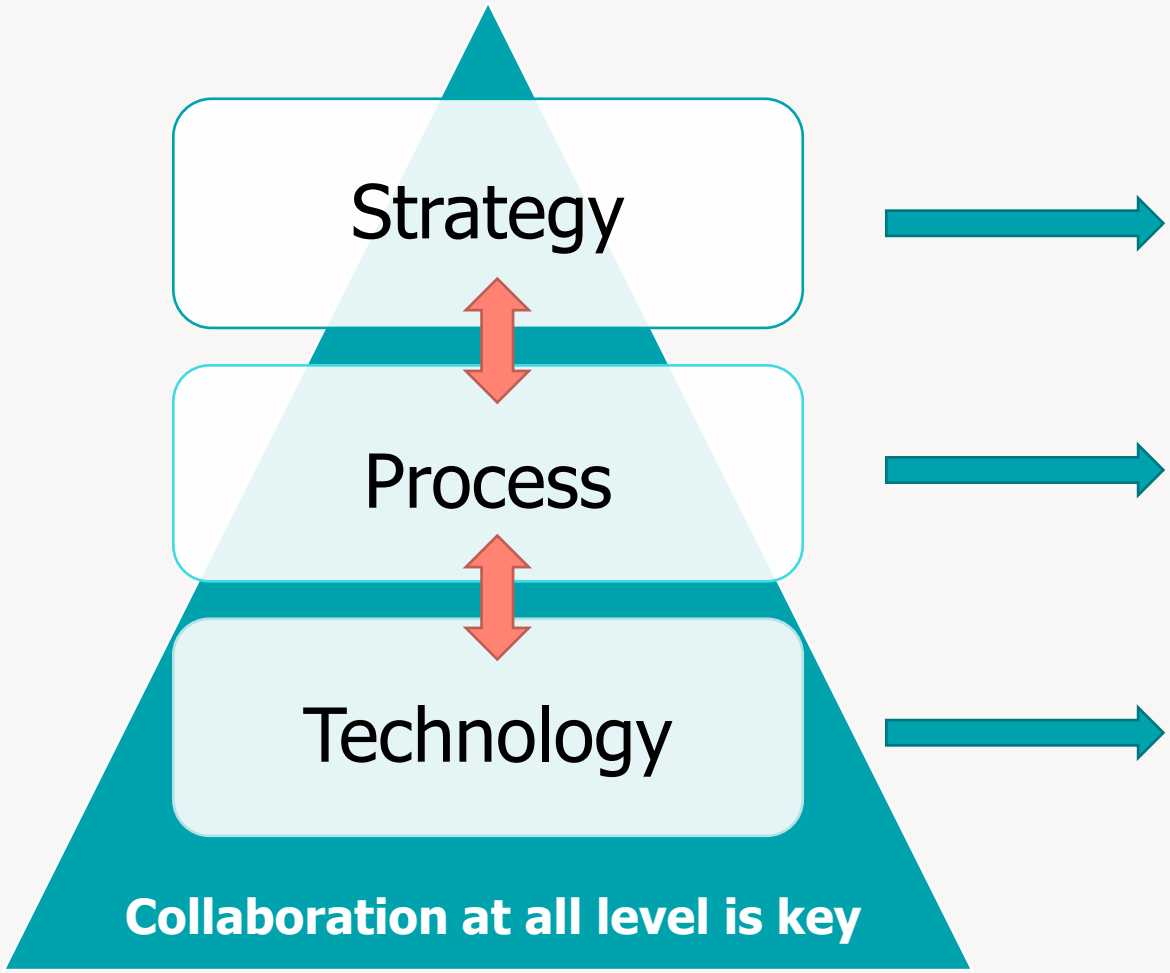
- Moving from innovation to **global scale**
- **Silos** (organisations and systems) make it hard to connect the dots across programmes to **release value**
- Buyers **not sufficiently engaged**
- **Trust and security concerns**
- **Complex** standards and security landscape – with lots of **gaps**


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




Governments, Property and Asset owners, Property developers, etc..

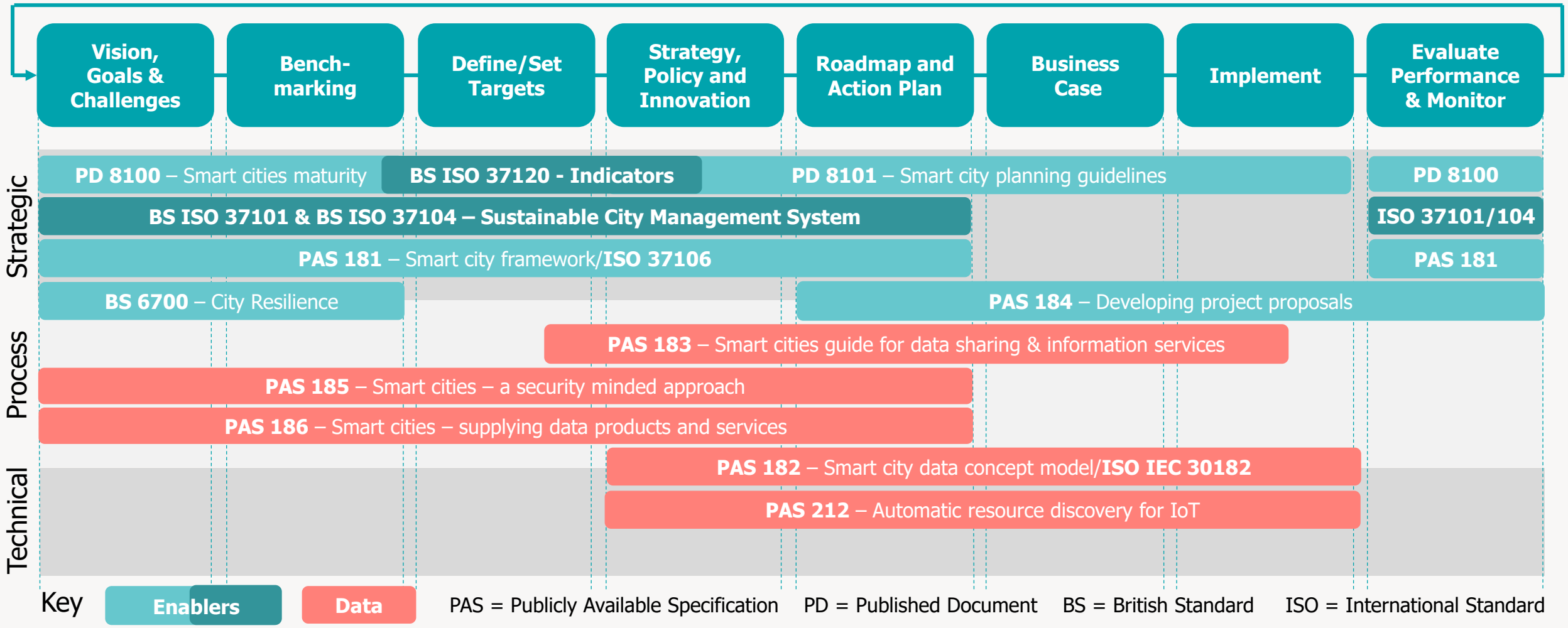
Governments offices, Main Contractors, Lead designers, etc..

Manufacturers, Tech companies, Architects, consultants, special contractors, etc..

# Portfolio approach to smart city standards

Tools for supporting the development of smart city strategies

bit.ly/BSI-Cities



# Examples of Standards: an ISO approach

# 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**

# Smart communities - Strategy
## ISO 37101 – Supporting UNSDG

**ISO 37101 helps Cities and Communities support the United Nations Sustainable goals, by taking in consideration :**

- **6 purposes of sustainability**
- **12 sustainability issues to consider against each purpose**

# 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.

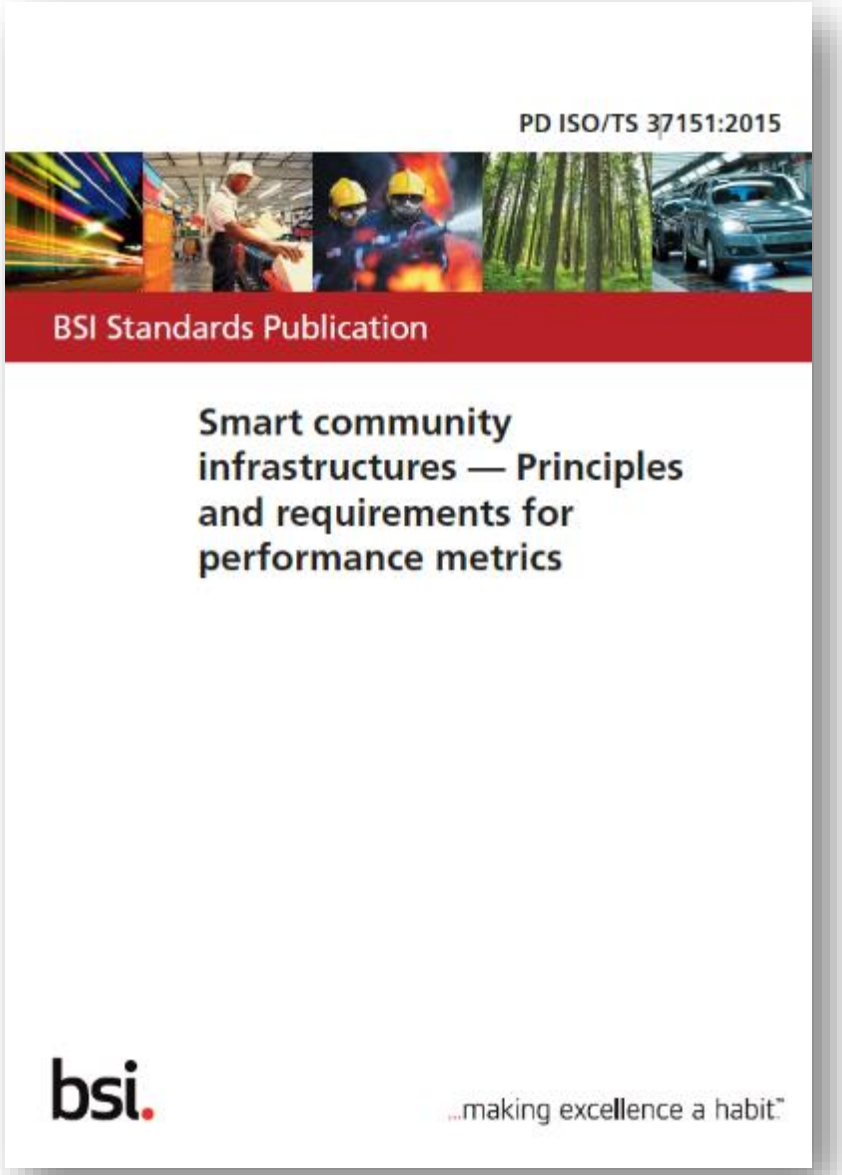
**Can be used in conjunction with ISO 37101 management system**

# Smart communities – Technical Specifications

## PD ISO/TS 37151 - Content

This Technical Specification gives principles and specifies requirements for the
— definition,
— identification,
— optimization, and
— harmonization

Of community infrastructure performance metrics, and gives recommendations for analysis, including
— smartness,
— interoperability,
— synergy,
— resilience,
— safety, and
— security
of community infrastructures.
the concept of smartness is addressed in terms of **performance relevant to technologically implementable solutions**



# Smart communities – Technical Specifications

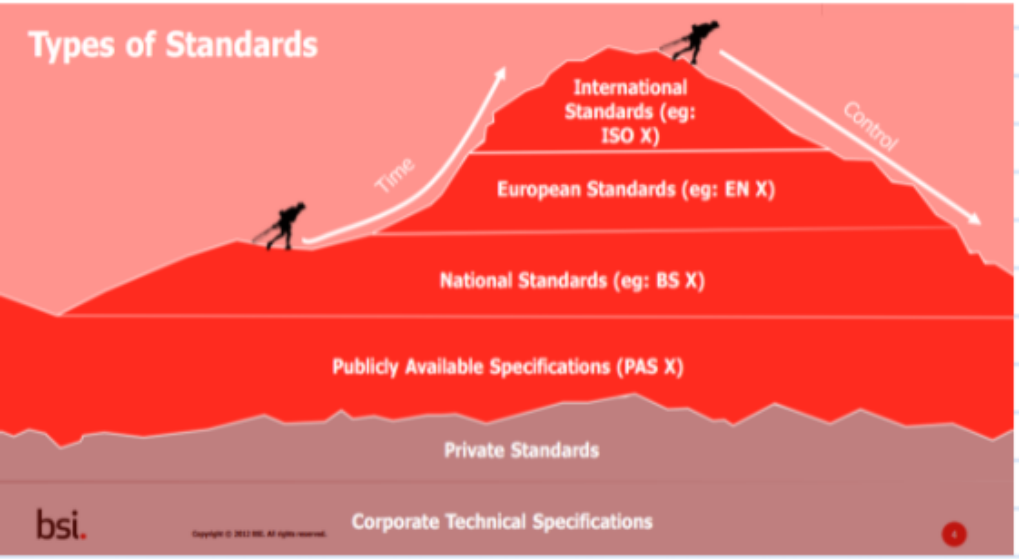
## PD ISO/TR 37152 - Content

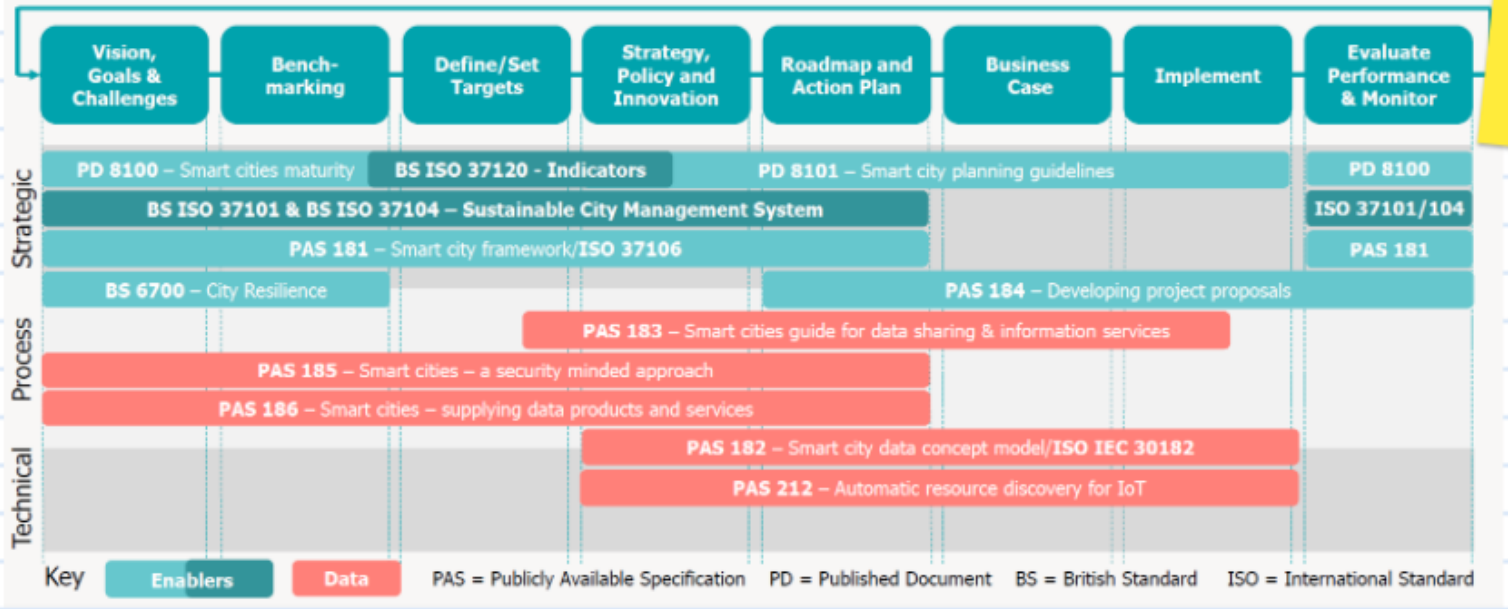
Outlines the basic concept of a common framework for the development and operation of smart community infrastructures.
The framework describes the planning, development, operation and maintenance methodology to facilitate the harmonization of each infrastructure as a part of a smart community and ensures that the interactions between multiple infrastructures are well orchestrated.
The framework is applicable to all processes of smart community infrastructures' life cycle (from conceptual design through planning, development, operation, maintenance, redevelopment and feedback).
The framework can be adopted by all relevant stakeholders who are engaged in planning, development and operation of smart community infrastructures.
The framework is intended to cover the processes in which these stakeholders are engaged, such as management, organizational structure, analyses and design methods, and documentations.

# Activity 1


How can standards shape your smart cities initiative?
10 minutes

# How can standards shape your smart cities initiative?




## What does these standards mean to you?

provide confidence to investors/funders

enable collaborations between different agencies or developers

Knowing we are working in a common manner to common goals

provide guideline/ framework

improve wellbeing of the community by smart city initiatives as parameters

improve governance and sustainability of projects

Common goal driven by valid & reliable data & collaboration

as a reference and guideline, so we know we are on the right track

Not reinventing the wheel

Standards as guide to implement and control the cities intiatives

Easy for users and communities to understand the standard practice and technologies

common framework of understanding, common terms, common language, able to measure and compare

Ensuring all stakeholders are on the same page but I wonder if any of the standards embeds participative planning into the equation. Cities are nothing without the society.

international recognition

To uniform method of application

Break down the smart city agenda into smaller achievable initiatives through standard indicators

Align to global best pratice

# Examples of implementations: From UK to South Korea

# 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 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*



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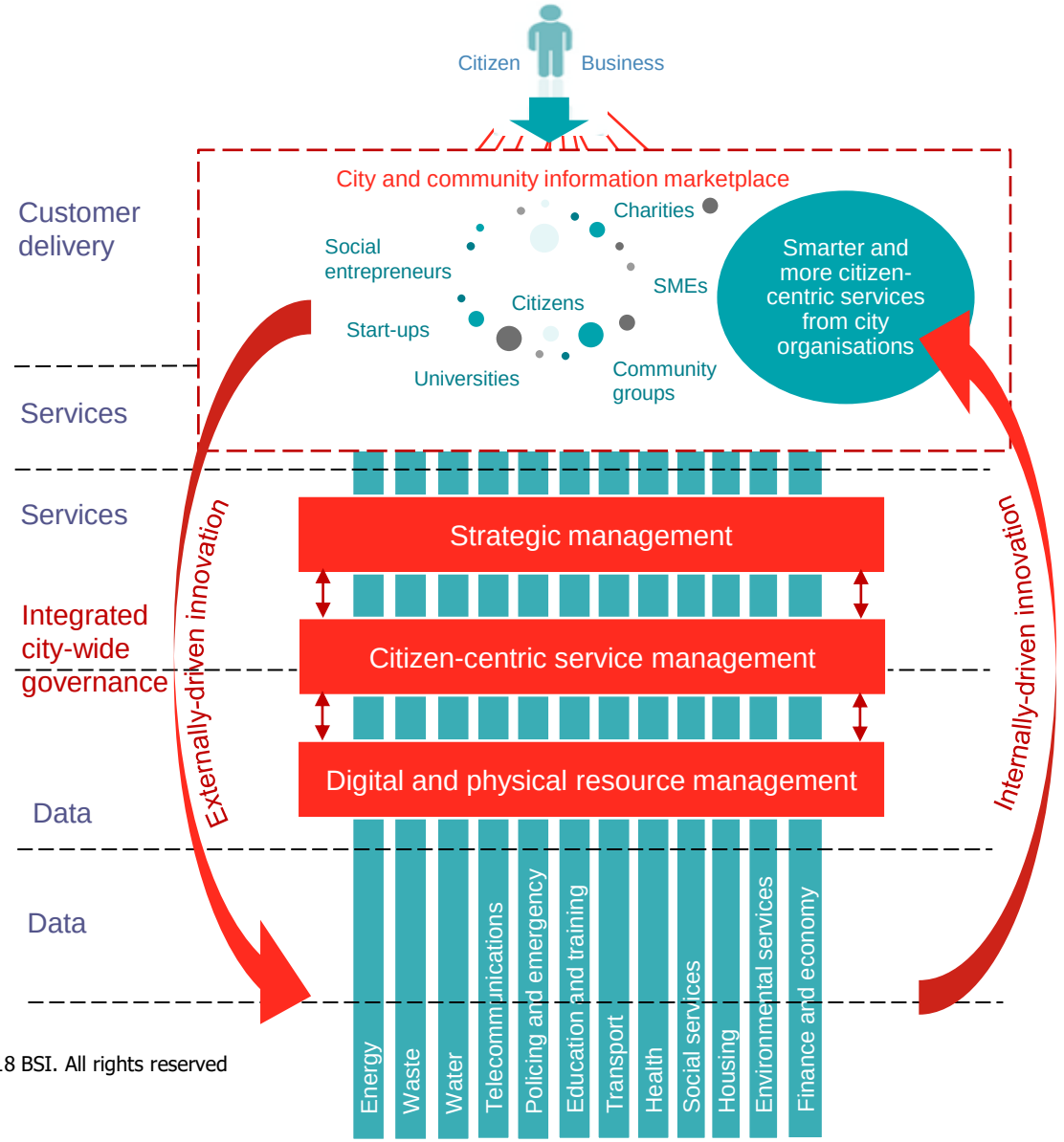
# How can we create Smarter places to live?

# The need for Smart Cities & Communities

## Integrated Community operating model – ISO 37106

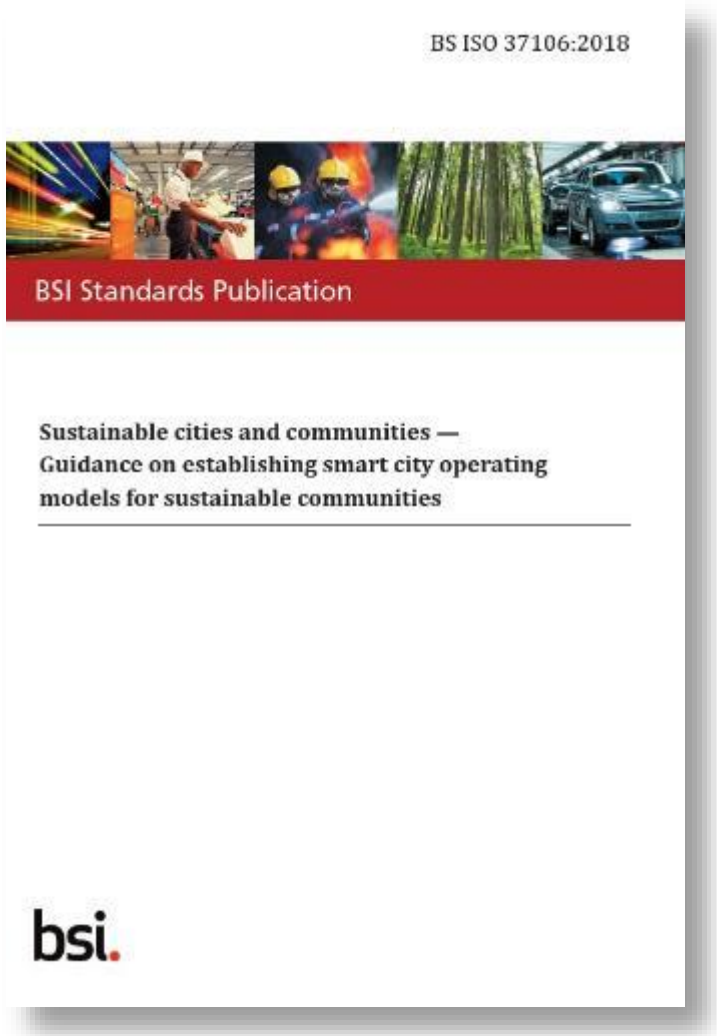



*"A twin track approach needs to be taken to the smart transformation of city services":*

- Enabling externally-driven, stakeholder-led innovation by opening up city data
- Delivering internally-driven, city-led citizen-centric service transformation'

# The need for Smart Cities & Communities

## ISO 37106:2018 Standard




**ISO 37106 outlines 4 key areas :**

- DELIVERY PRINCIPLES
- KEY CROSS-CITY DELIVERY PROCESSES
- BENEFIT REALIZATION STRATEGY
- RISK MANAGEMENT

# The need for Smart Cities and Communities

## Why Smart Cities and communities?

Critical factors for successful smart cities and communities:

- Clear, forward-looking **strategy**, ahead of **technology**
- Linking of strategy to **implementation**
- Close **collaboration** across departments

These factors have been identified as lacking in general across cities globally.

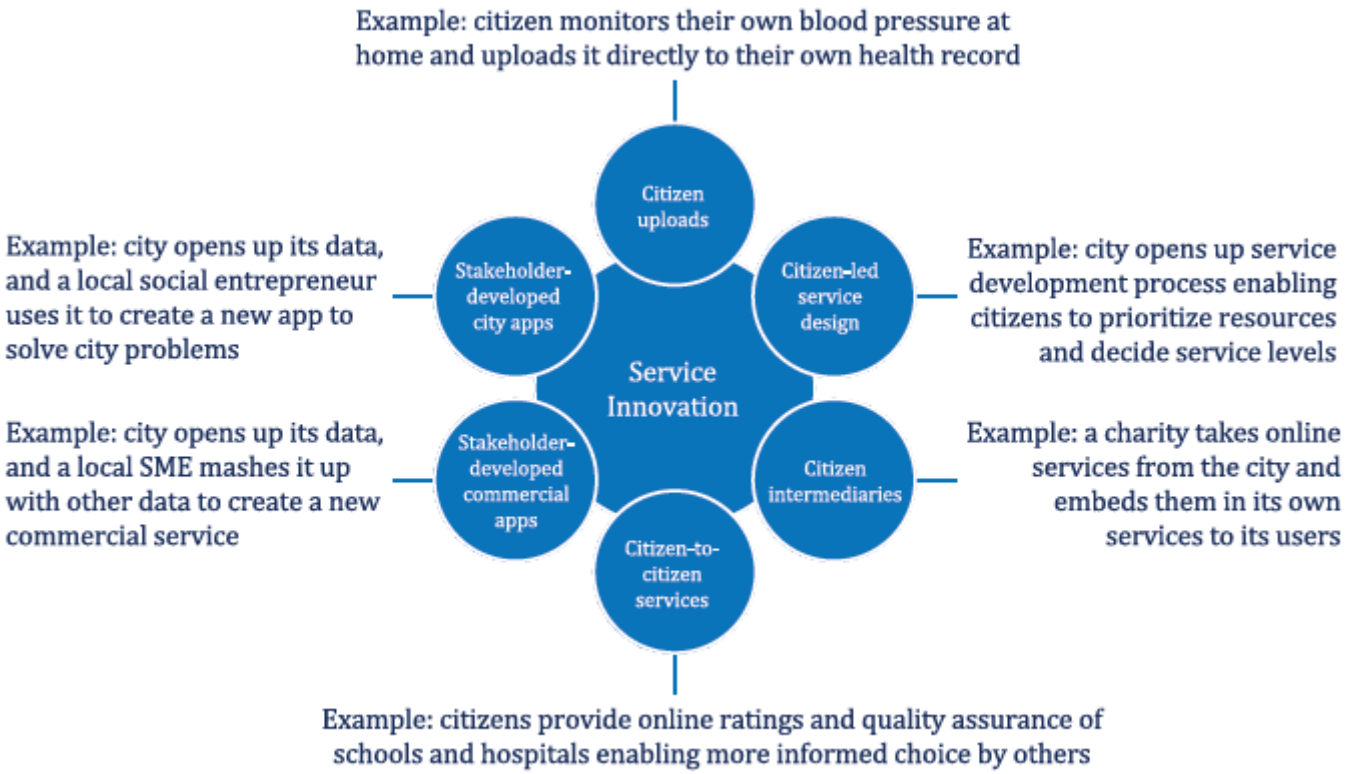
The BSI Smart City and Community "mark of trust" (the Kitemark) has these critical success factors at its heart.

Through adoption of the BSI Kitemark, our clients would be **demonstrating** clear **leadership as an effective and successful smart community.**

bsi.

# BSI Smart Cities and Communities Kitemark

## Can be used at a community level




Much in the ISO 37106 can be helpful to leaders of communities other than at city-scale, including both **smaller urban areas and larger, regional-scale initiatives.**

**Vison of the community needs to clear** and possibly aligned  with the city one .

The community needs to have a mix of different uses :
e.g. residences, commercial, offices, services , education etc.

Management team have ownership of the procedures and the competencies

# Smart cities and community Kitemark

# Smart Cities and Communities Kitemark

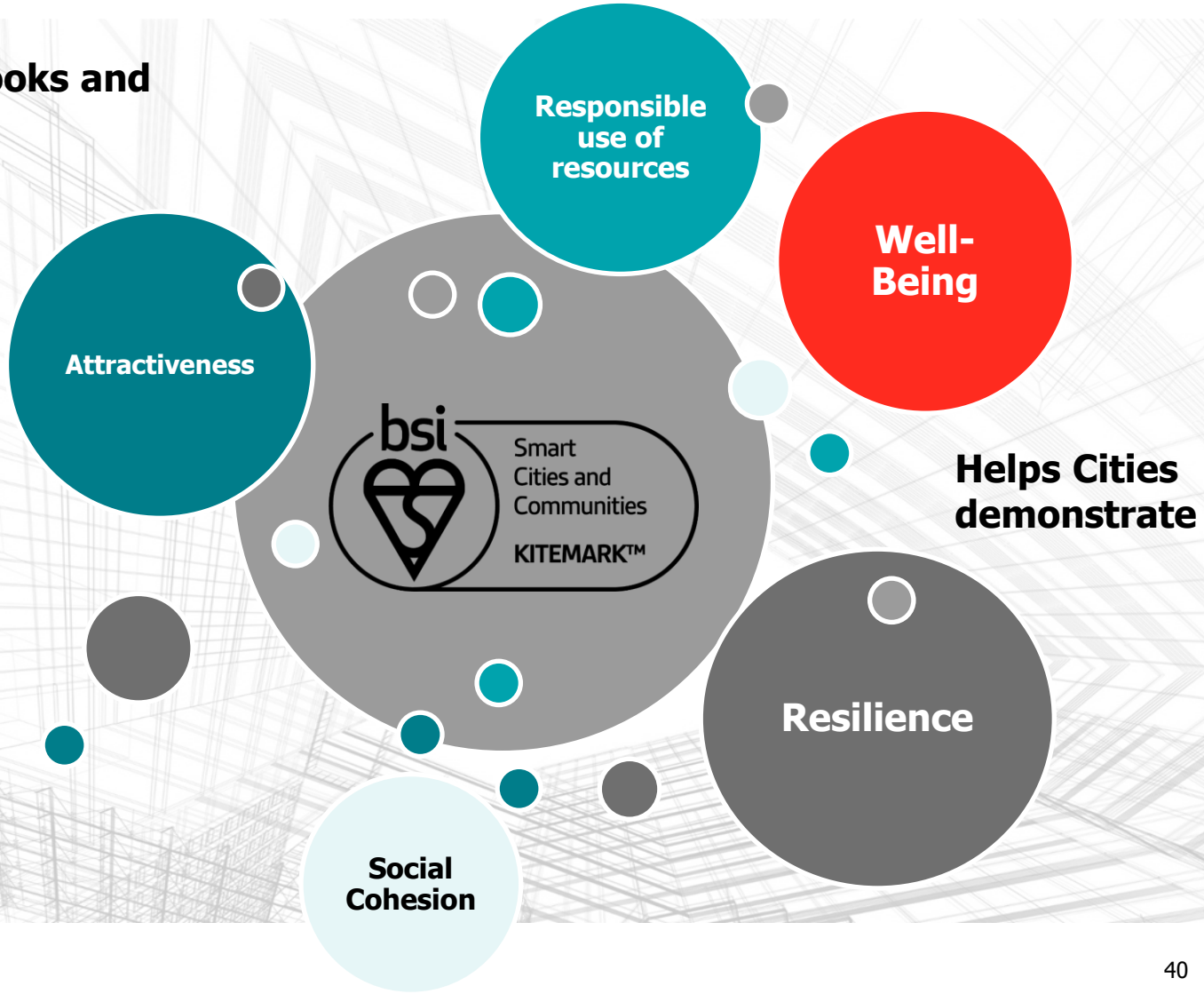
An international recognition based on international standards: ISO 37106 and ISO 37101

**An agreed vision of what a "sustainable future" looks and feels like for the city is essential for success.**

The Kitemark process implements and evaluates how the Smart City/Community **strategy** is implemented as a living, breathing part of its **transformation**. It helps Cities and Communities demonstrate a process of **Continual improvement** and a strong **Stakeholder engagement** that help support strategic objectives in the communities.

**Some of our clients**

SEJONG CITY · Hwaseong · Yangju 양주시 · 서초 SEOCHO · Goyang City · 万达集团 WANDA GROUP · Gwacheon City

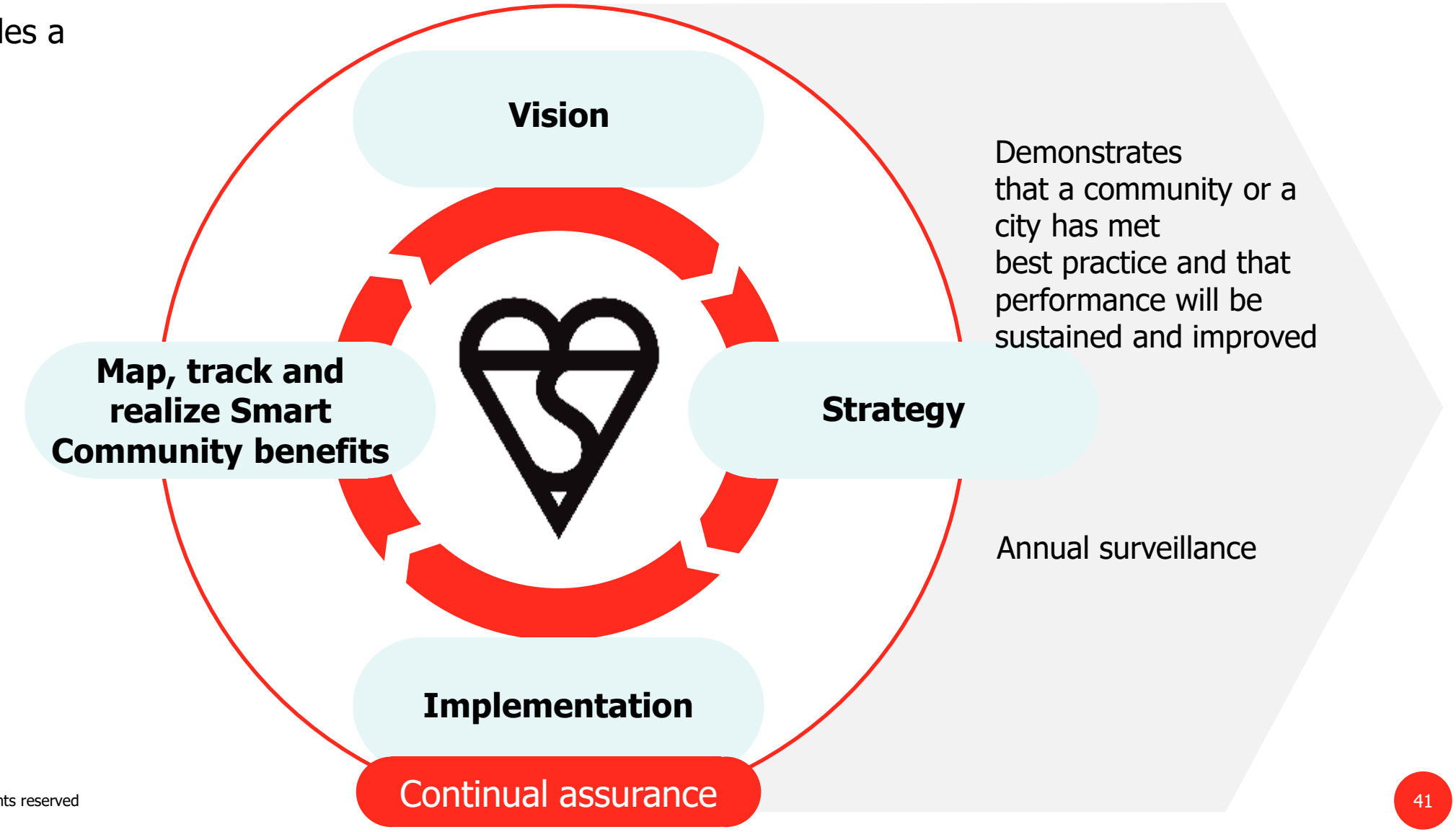



**Helps Cities demonstrate**

# BSI Smart Cities and Communities Kitemark

## A process of continual improvement

The Kitemark provides a process of continual improvement

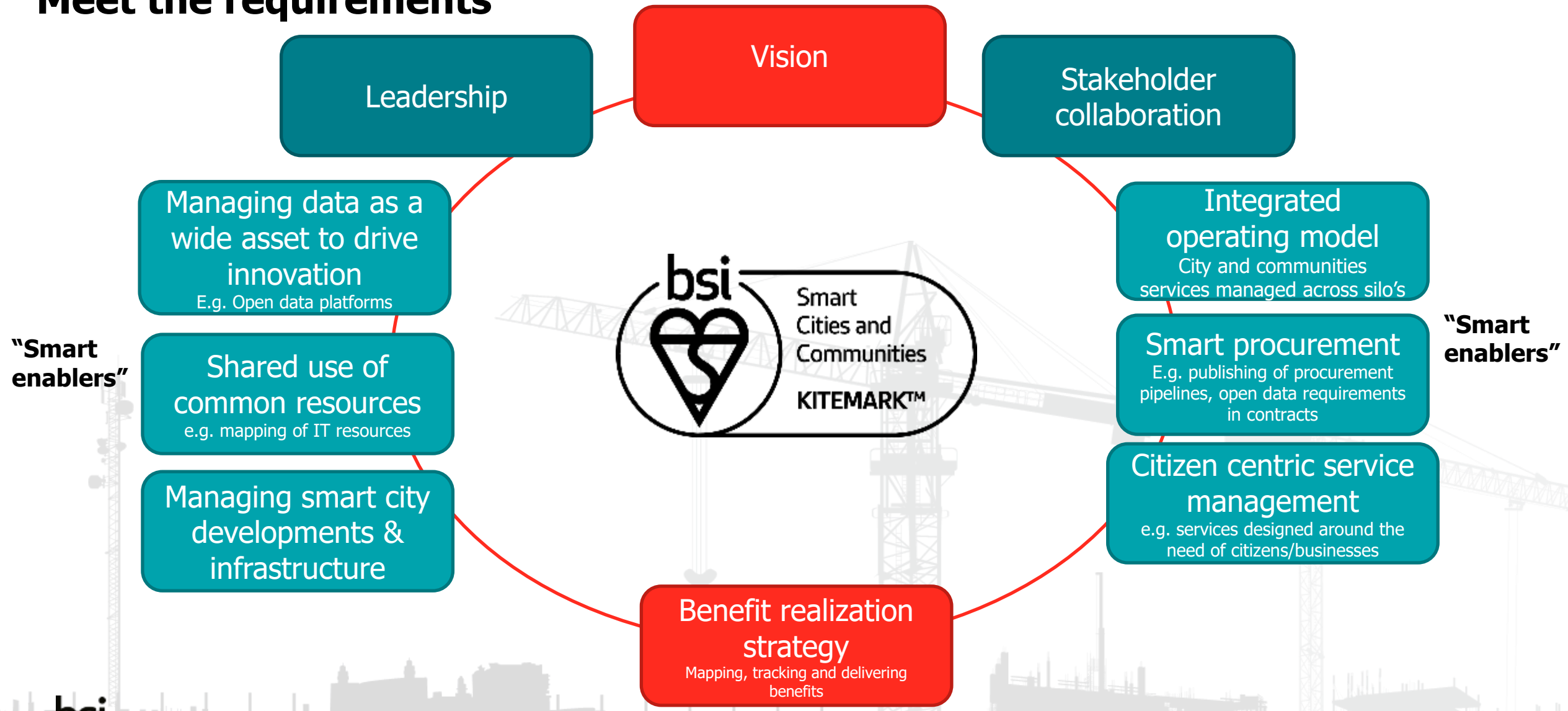



Demonstrates that a community or a city has met best practice and that performance will be sustained and improved

Annual surveillance

# BSI Smart Cities and Communities Kitemark

## Meet the requirements



# Wider Smart Community **benefits**

## Benefits of Kitemark

- Better policy making & decision making
- Increased innovation
- Improve collaboration
- Digital transformation
- Increased citizen engagement
- Improved transparency
- Global competitiveness
- City cost saving

## The value of Kitemark

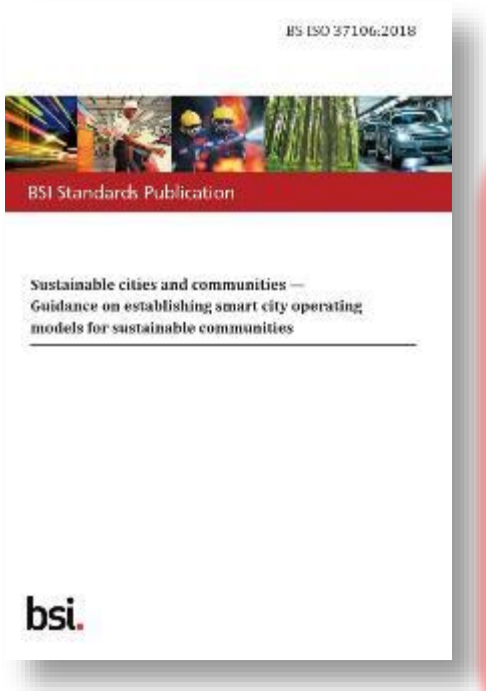
- Improved citizen and visitor experience
- Attract investment
- Job creation
- Economic growth
- Improved productivity
- Good place to do business
- Sustainability
- Better quality of life
- Efficiency in government
- Better public services

## Driving continual improvement

# BSI Smart Cities and Communities Kitemark

## Assessing the maturity of Smart Cities and Communities

Assesses the maturity of Smart Cities and Communities




**Level 1: Pre-development**

The City/Community 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/Community 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/Community is implementing ISO 37106 processes, improving, measuring success

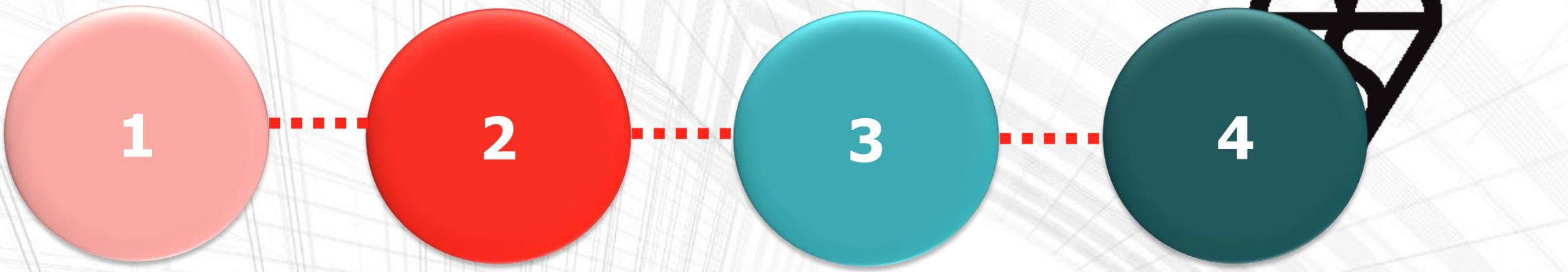
**Level 5: Visionary Smart City**

The City/Community is implementing a process of continual improving

bsi Smart Cities and Communities KITEMARK™

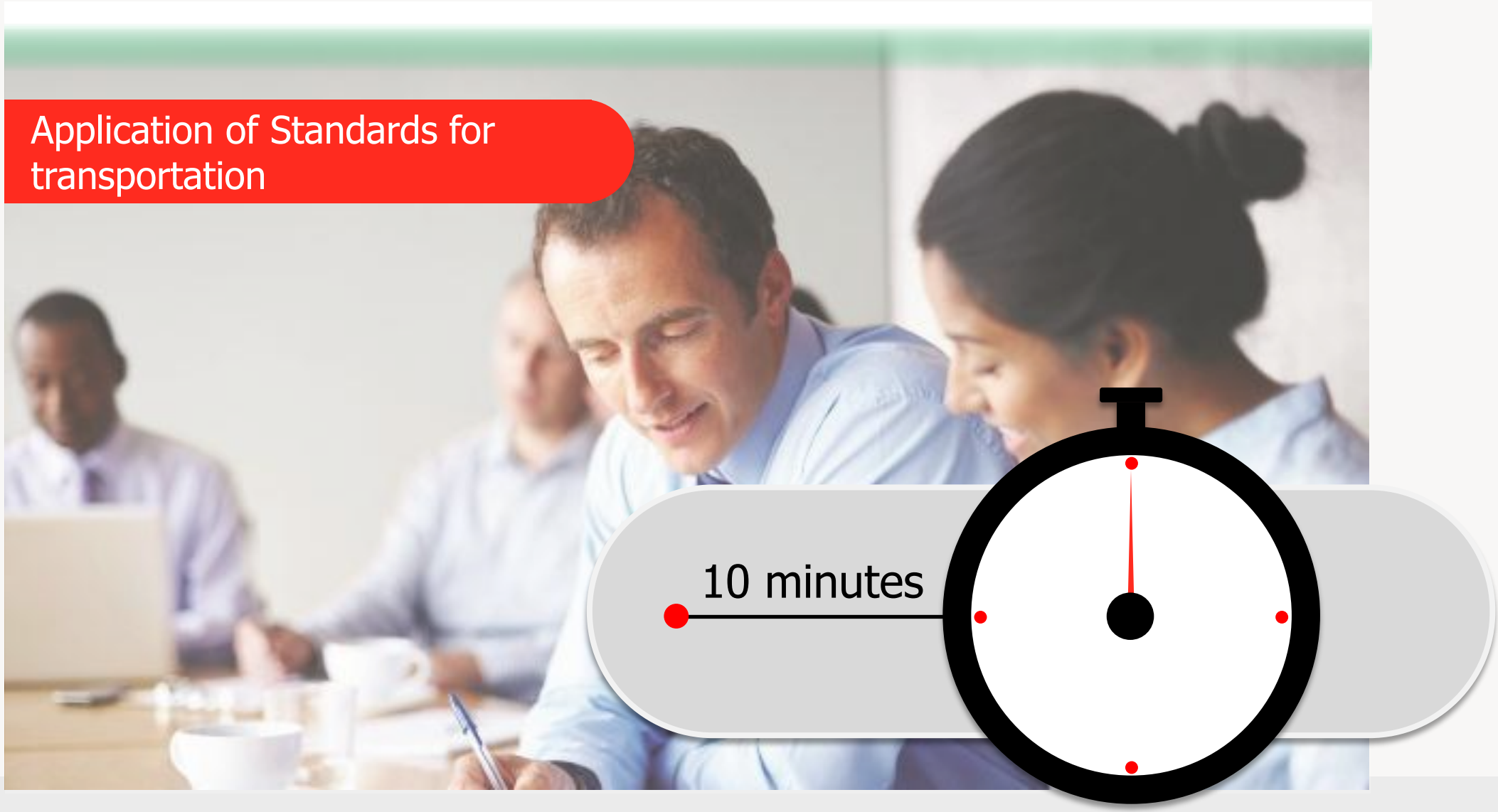
# BSI Smart Cities and Communities Kitemark

## Steps




1. Purchase the Standards
2. Gap Analysis against Kitemark requirements to inform strategy
3. BSI Smart Community Kitemark assessment and certification
4. Ongoing marketing, engagement and continual surveillance audits

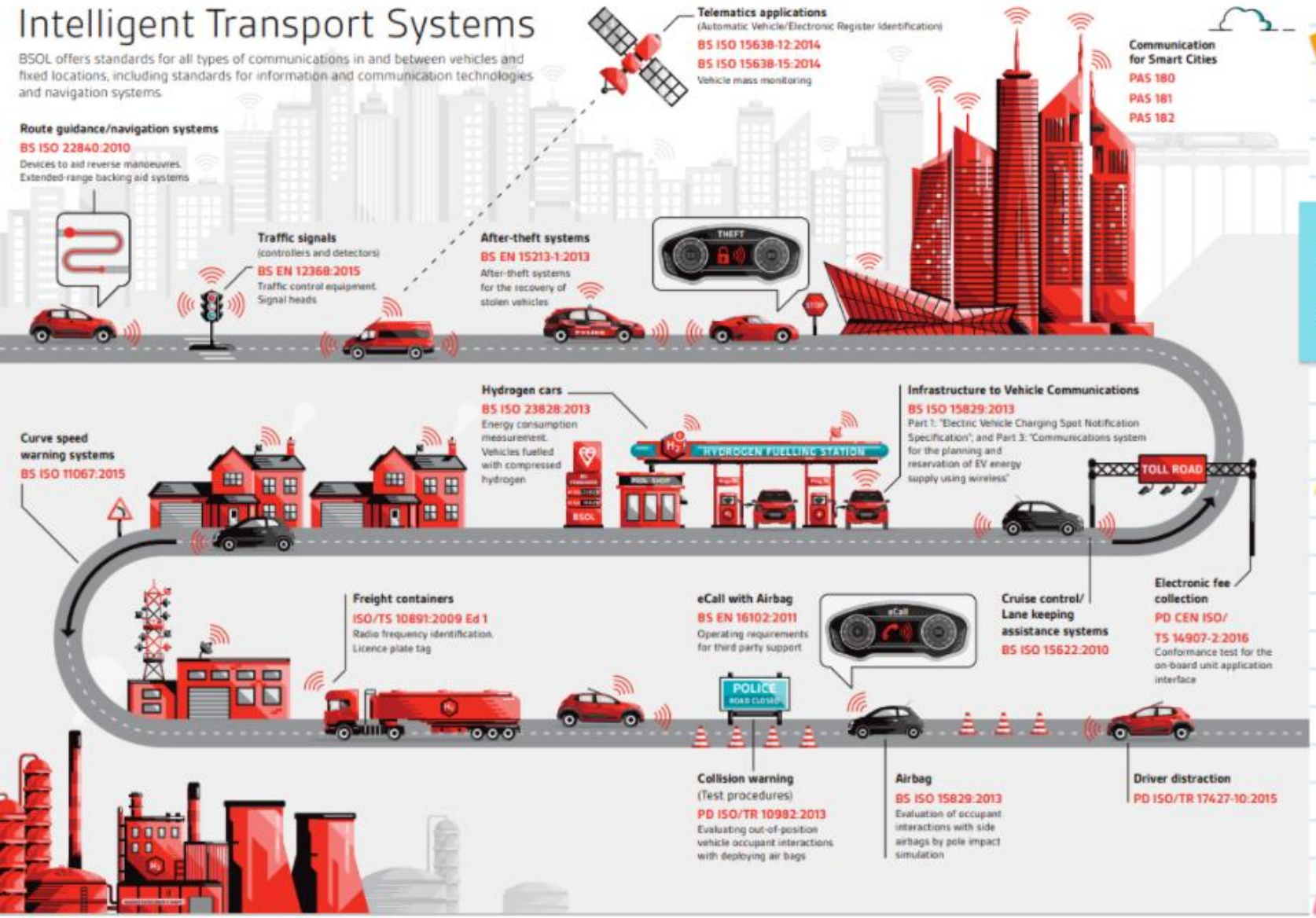
# Activity 2



# Application of Standards for transportation

## Intelligent Transport Systems

BSOL offers standards for all types of communications in and between vehicles and fixed locations, including standards for information and communication technologies and navigation systems.




How can these standards be integrated into your smart cities intiative?

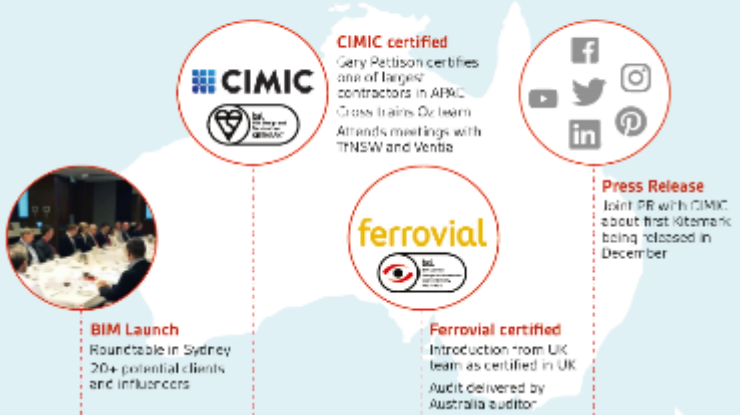
- Smart Parking
- Smart Traffic Light
- Autonomous vehicle comm
- Smart CCTV
- CCTV network
- Logistic/ freight planning
- Smart time schedule of public transport (buses)
- Electric Vehicle - charging infra data
- Traffic real-time data
- Reliable Public Transportation Management
- waste collection
- single point/app to get travel info
- Smart Trafiic Mgmt System, e.g Lts will turn green when there is NO traffic
- Smart energy usage on roads / highways
- Drone surveillance
- real time information and connect to mobile phone
- transport information dissemination method
- Micro mobility comms with pedestrian crossings

# Celebrating your success

# Global development of the BSI Kitemark

BSI Expertise and Experience:
**Kitemark a Global Brand – Europe**

BSI Expertise and Experience:
**Kitemark a Global Brand – Australia**




**Kitemark a global brand - UK**


BSI Expertise and Experience:
**Kitemark a Global Brand – Middle East**

RTA

- Applying **BIM** to the entire lifecycle of the asset
- Adoption of **Partnership** approach across the supply chain

"I congratulate RTA on their achievement in becoming the World's first organization to be awarded the Kitemark across the whole asset lifecycle"
BSI Group

BSI Expertise and Experience:
**Kitemark a Global Brand – China**

Wanda Group, Beijing – largest commercial property owner in China

万达集团
WANDA GROUP

# BSI Smart Cities and Communities Kitemark

## Case Study : South Korea

After Sejong's success, three other cities have been certified:

- **Hwaseong**
- **Goyang**
- **Gwacheon**
- **YangJu**
- **Seocho District in Seoul**

Having a defined View and Roadmap is key in setting up future cities. The Land and Housing Corporation of South Korea shares this view and has been working closely with cities in order to have a common Smart city development framework.




bsi Smart Cities and Communities KITEMARK™

# Key takeaways

By now, you should be able to:

1. Understand standards for smart cities and the international smart cities framework, ISO 37106;
2. Understand how stakeholders can align guidelines and local requirements into international frameworks.

**Emilia Cardamone**

emilia.cardamone@bsigroup.com

# Thank you!
# Any Questions?