Smart Energy City Action Forum

Smart Cities Guidance Package

Sustainable Smart Cities

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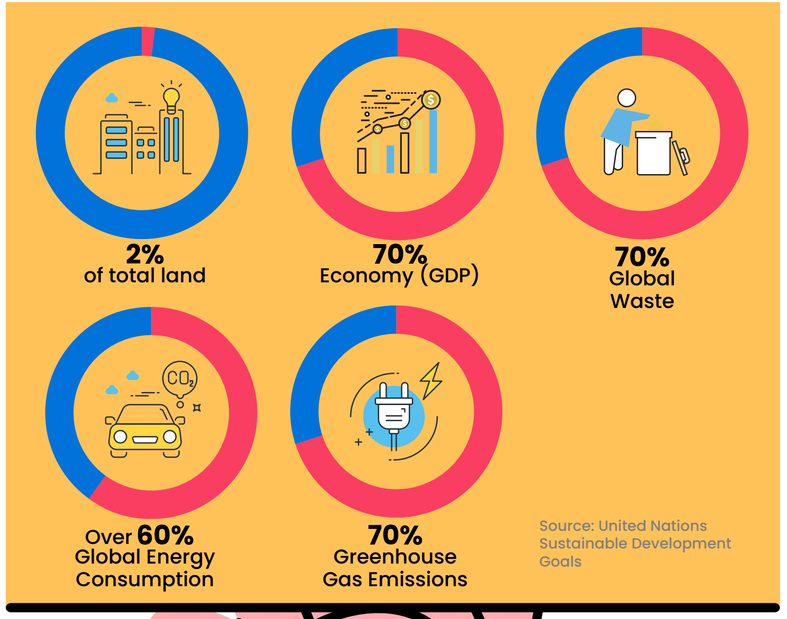
Introduction

Why build Smart City Strategies?

Urgent Urban Issues

- Insufficient measures to deal with the adverse effects of climate change and pollution.
- Lack of protection of biodiversity, national and cultural heritage, and local identities.
- Congested and complex urban areas with unaffordable housings
- Lack of overview of what new ICT technologies mean for cities and their citizens



Impact of Cities

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Introduction

Why build Smart City Strategies?

SUSTAINABLE DEVELOPMENT GOALS

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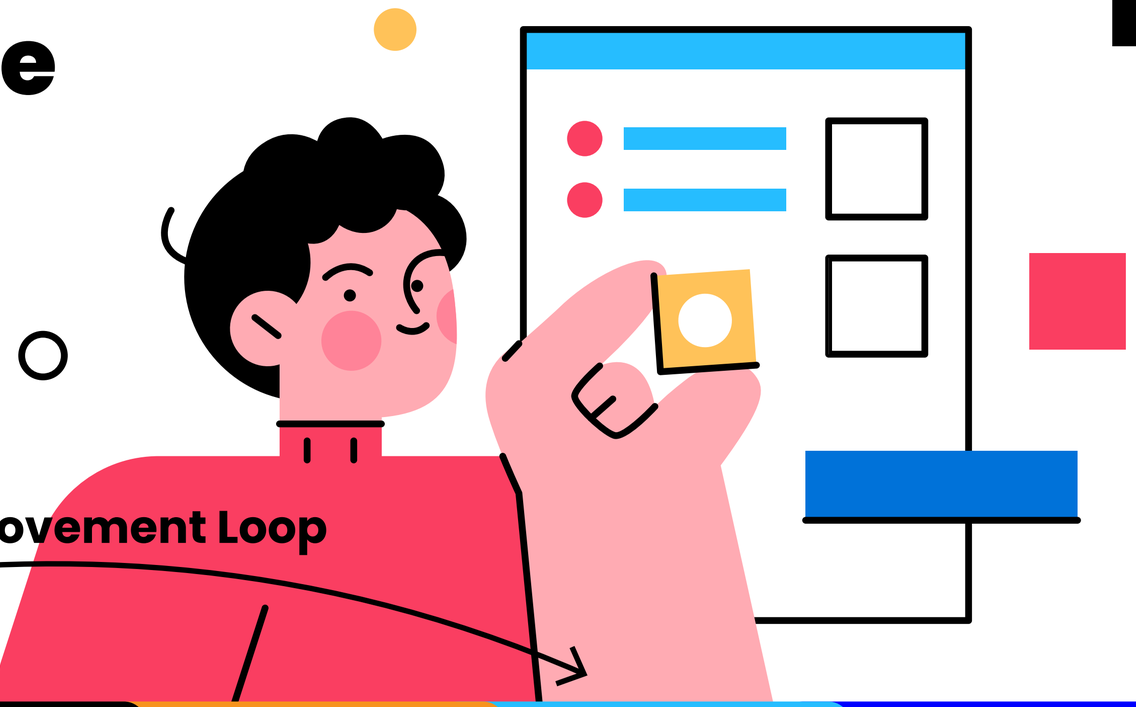
Smart Cities Guidance Package Framework

Quality Management System Approach



Permanent Improvement Loop

Quality Management System Approach

Steps from vision to implementation and permanent improvement loop

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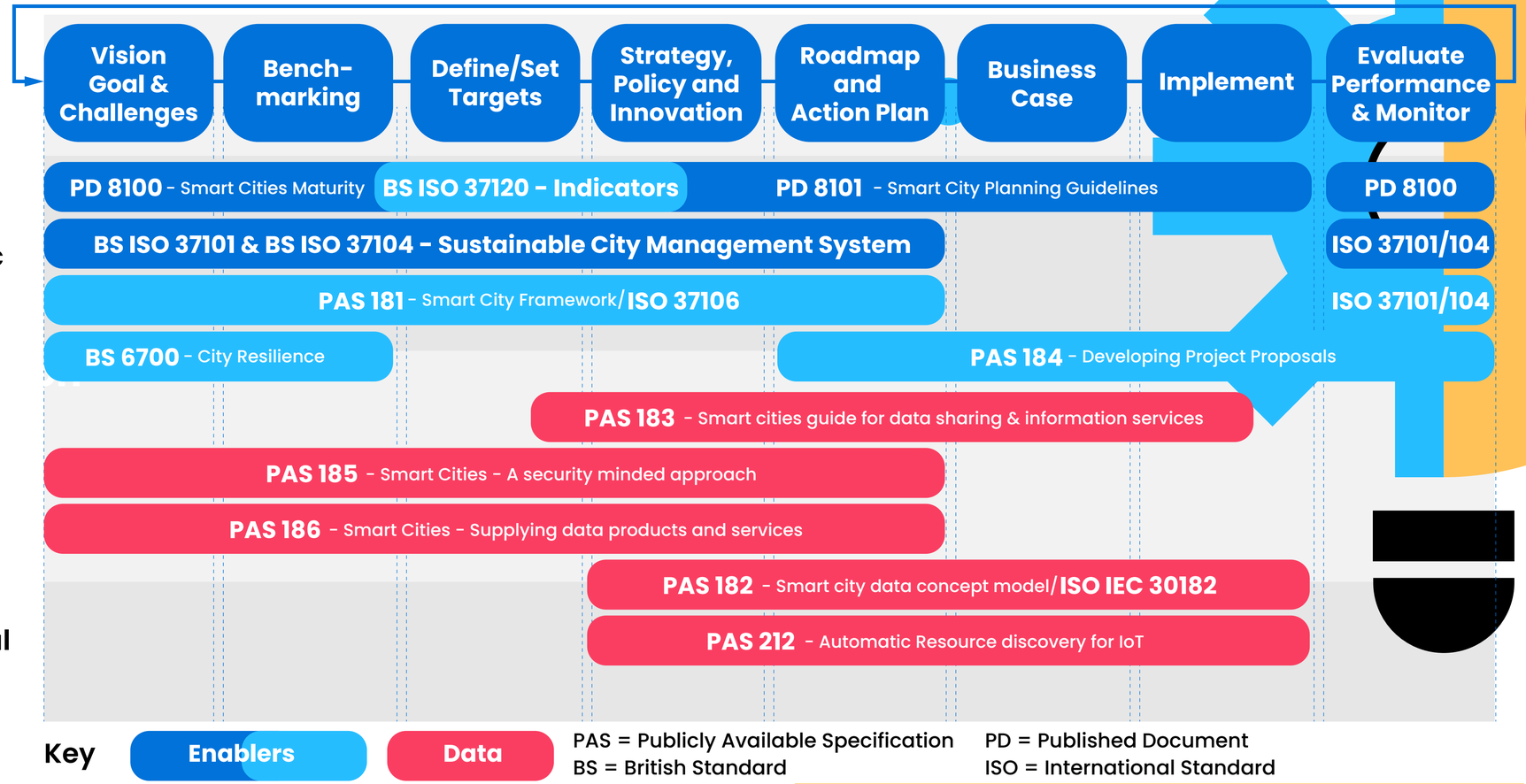
Smart Cities Guidance Package Framework

Smart Cities Standard Framework



Smart city standards and publications | BSI

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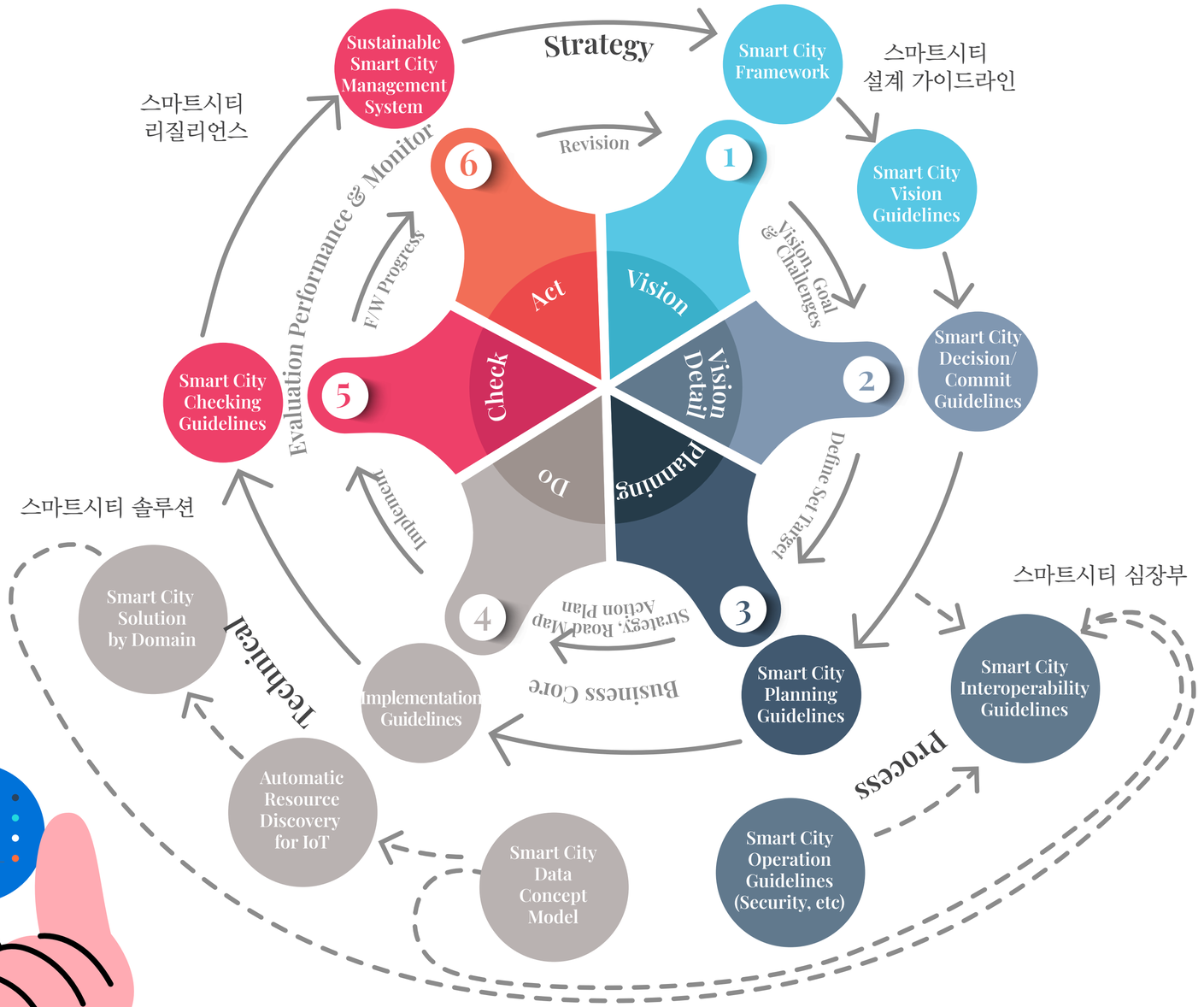
Smart Cities Guidance Package Framework

Smart Cities Comprehensive Level Guidance Package



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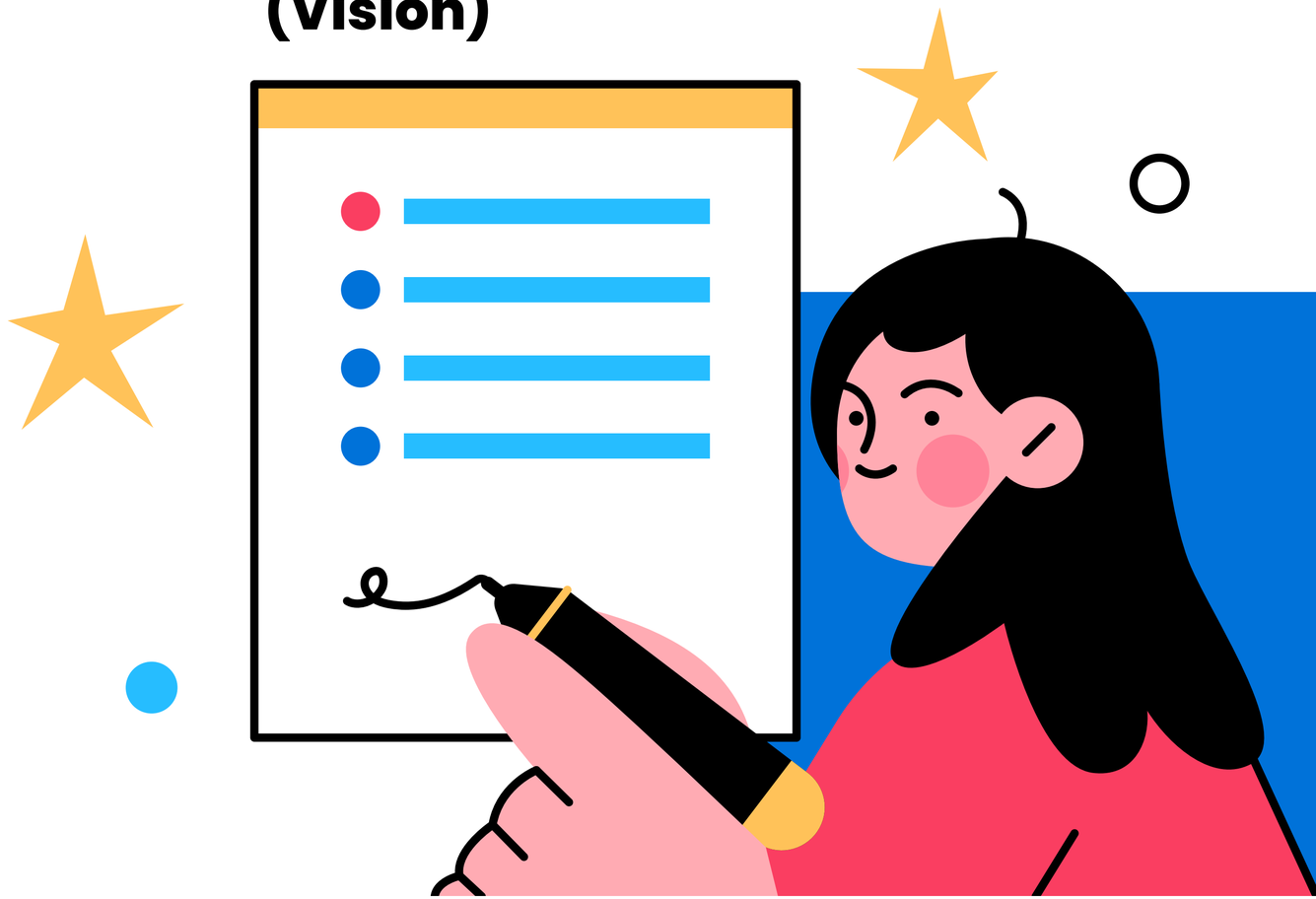
STAGE 1
Creating a Joint Long-term (Vision)

STAGE 1

Q. How do we see the city we are living in, in 20-30-50 years from now on?

- 1. Define the problem
- 2. Take stock of what you already have and what you would need
- 3. Start organizing the local ecosystem
- 4. Brainstorm
- 5. Create shared knowledge base
- 6. Explore legislation and commitment



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STAGE 1
Creating a Joint Long-term (Vision)

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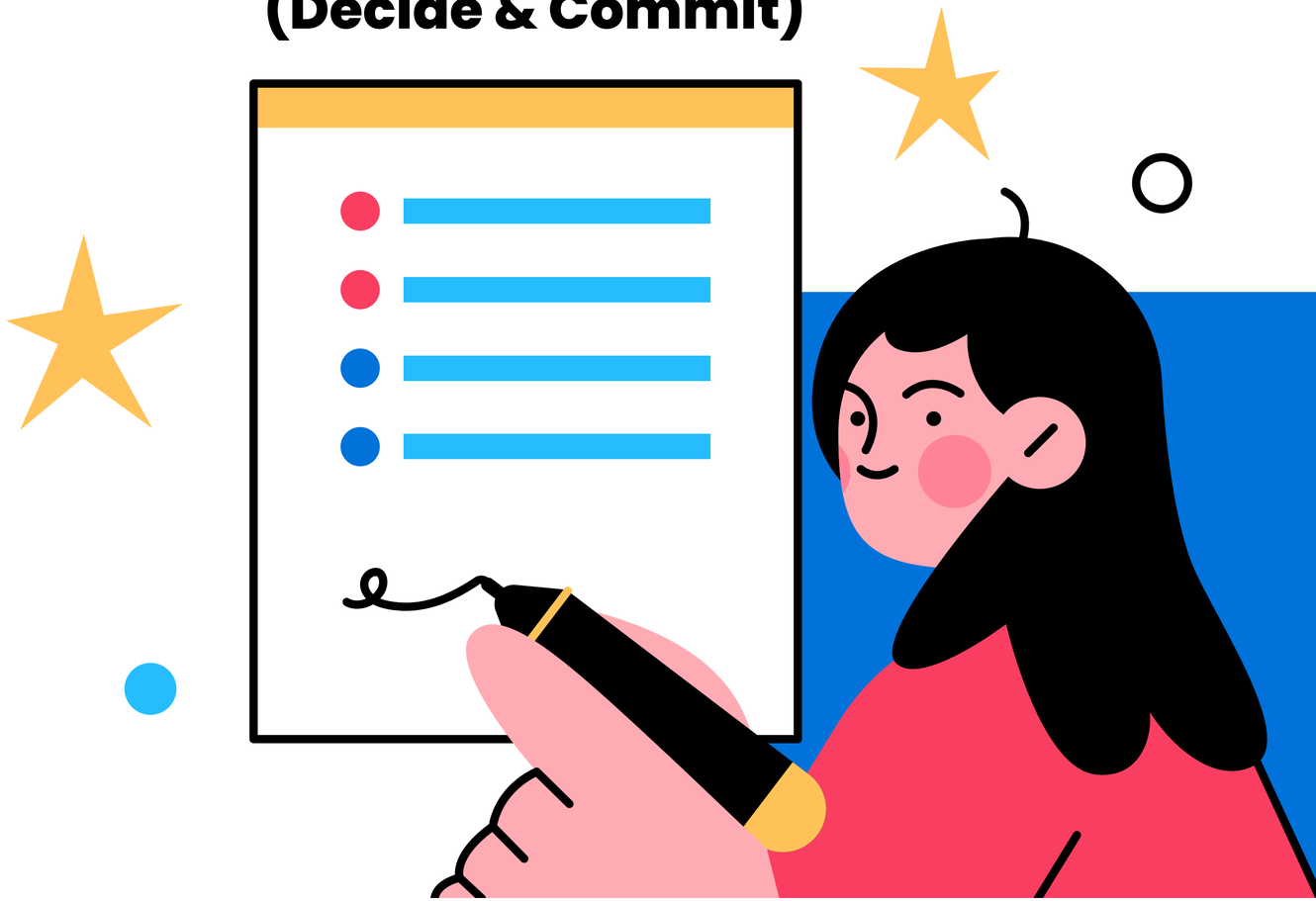
STAGE 2
The Vision Made Concrete (Decide & Commit)

STAGE 2

Q. How are we going to meet these long-term objectives by working out this vision in a smart city strategy or policy per objective?

1. Translate the generic vision
2. Detail the roles of stakeholders
3. Re-align smart city goals, ambitions and policies
4. Jointly prioritise routes within each strategy and policy
5. Allocate resources for the preparation of plans
6. Form internal and external teams
7. Explore different financial schemes



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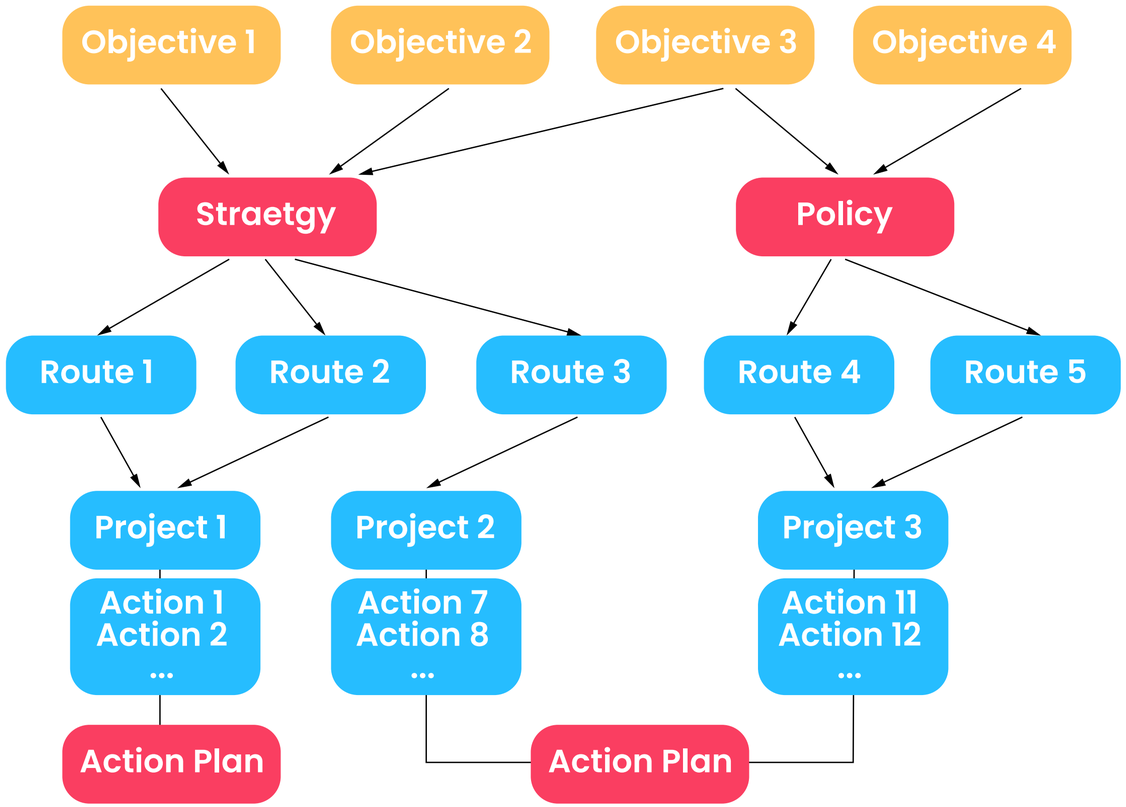
STAGE 2
The Vision Made Concrete (Decide & Commit)



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STAGE 3
Prepare the Plan (Plan)

STAGE 3

Q. What are appropriate action plans or projects for implementing the strategies and policies agreed upon in the previous stage?

1. Set milestones and targets
2. Explore state of the art of relevant and applicable methods and technologies
3. Reconnect to stakeholders
4. Visualise local challenges and potential impact
5. Draft a list of relevant on-going and possible new projects
6. Elaborate costs and risk mitigation, choose financial schemes and sources
7. Rank and short-list projects
8. Ensure approval and commitment
9. Prepare the monitoring process
10. Prepare implementation

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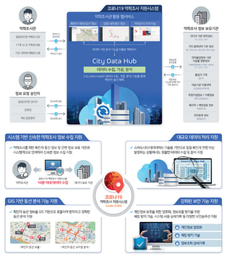
Smart Cities Guidance Package

STAGE 3 Prepare the Plan (Plan)

PoC (Proof of Concept)

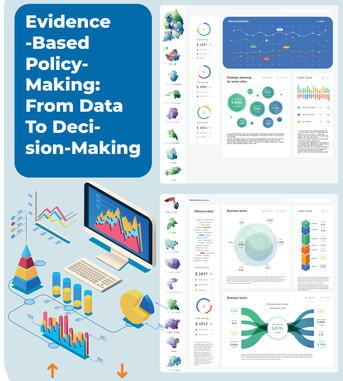
COVID-19 Smart Management System
스마트시티 데이터허브 운영 및 시험 검증

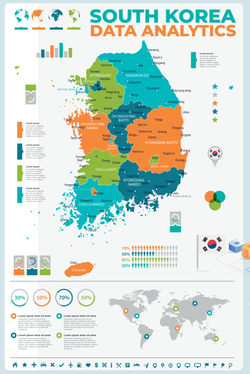


Data Marketplace | Smart City Services | Data Hub Admin Portal

Urban Intelligence: Data Driven Smart Society

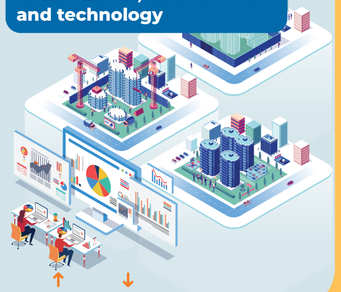
Evidence-Based Policy-Making: From Data To Decision-Making





Smart City As A Service: Tools and Models for Smart Cities

Smart City Certification System: Innovation, Governance and institutional environment, and Service and technology



Smart City Data Hub

API Gateway | **City Data Hub APIs** | **API Management**

Data-Driven Understanding of Smart Service Support

- Data Service: Data Portal; Data Access API/SKI; Data/SW Markt Place; Accounting; Data Reputation
- Semantics: Common Knowledge; Semantic Data Mgmt.; Semantic & Machine Learning; Analysis
- Analytics: Visualization/ Dashboard; Analytics/ ML; Libraries; Sandbox

NGSI-LD Context Information Management API

Data Management

Data Manager (Model, Flow, Metadaat, Quality, Lifecycle) → Context Broker (with Linked Data Extensions) ↔ Data Lake ETL (Extract, Transform, Load)

Semantic | Analysis | Operation | Primitive | Data Qulity & Life Cycle Mgmt.

NGSI-LD Context Information Management API

Data Ingest (Data Hub Connectivity)

- LOD (Linked Open Data) Harvesting
- CKAN (Comprehensive Knowledge Archive Network) Harvesting
- oneM2M System Adaptor
- FIWARE NGSI-LD Adapter
- Integated Platform Adapter
- Legacy Adapter
- Device Management

Adapter: Data Processing; Data Transmission

Adaptor Management: External System Mgmt; Data Processsing Mgmt

NGSI-LD, JSON-LD, Data Twins and Smart Data Models

Legacy Systems

Third-Party Systems | Context Broker | Integrated Platform | IoT Sensor Data | Real-Time Streams ••• | Open Data Portal | oneM2M Platform | Urban Platform | Information System

Security

- OAuth2-based Authentication
- OAuth2-based Authorization
- User Management
- Blockchain/ Distributed Ledger Technology (DLT)

Cloud Management

- Auto Scaling
- Hybrid Cloud
- Orchestration
- Monitoring Metering

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STAGE 4
Realising the Plan(s)

STAGE 4

Q. How to implement the action plans for smart and sustainable cities in order to achieve their targets?

- 1. Compose a skilled Local Team
- 2. Allocation of Resources
- 3. Drafting a detailed action and/or project plan
- 4. Organisation of the Kick-off
- 5. Set up the monitoring process
- 6. Start organizing access to and sharing of relevant data and project information
- 7. Execution of the projects

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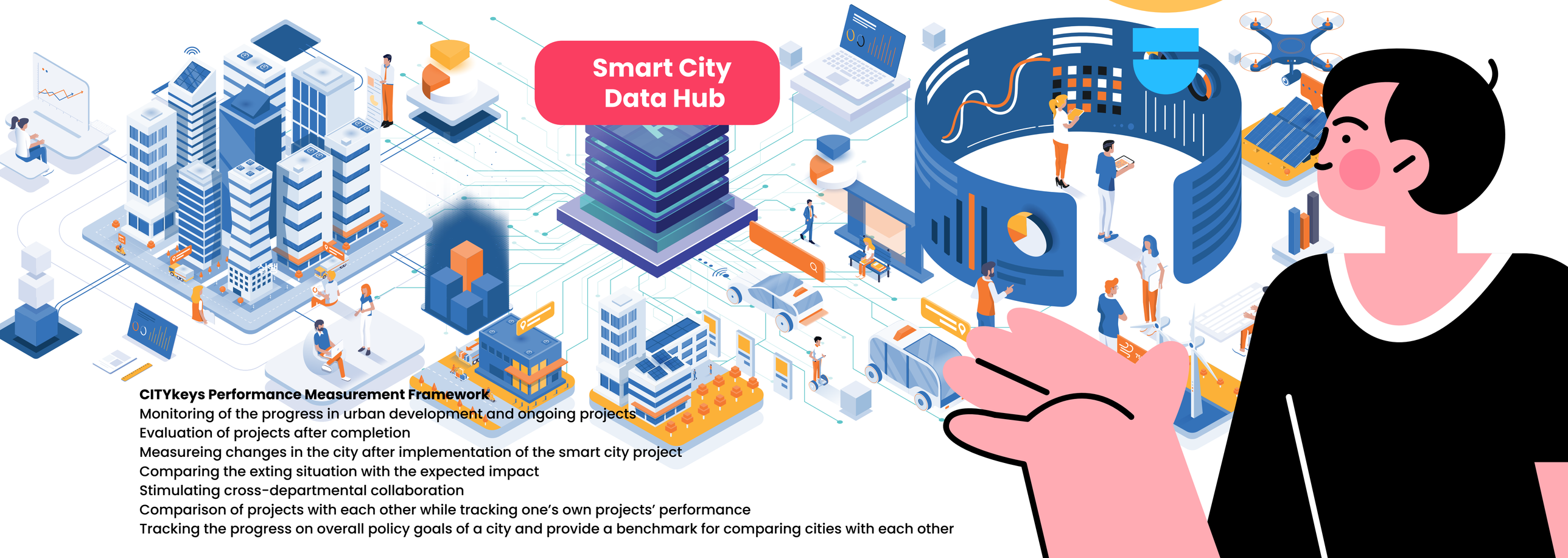
STAGE 4
Realising the Plan(s)



CITYkeys Performance Measurement Framework

Monitoring of the progress in urban development and ongoing projects
Evaluation of projects after completion
Measureing changes in the city after implementation of the smart city project
Comparing the exting situation with the expected impact
Stimulating cross-departmental collaboration
Comparison of projects with each other while tracking one's own projects' performance
Tracking the progress on overall policy goals of a city and provide a benchmark for comparing cities with each other

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STAGE 5
Realising the Plan(s)

STAGE 5

Q. Are we following the right track to meet the targets agreed upon during the implementation of the project?

- 1. Choose a platform for monitoring
- 2. Alignment with other current reporting obligations
- 3. Establish the baseline and start collecting
- 4. Organize frequent meetings for analysis and interpretation
- 5. Explore how to solve possible problems and identify which adjustments are needed

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STAGE 6
Making Amendments

STAGE 6

Q. How to adjust the action plan and/or projects in order to meet its eventual targets?

- 1. Relate suggestions for improvements and amendments to the goals and ambitions
- 2. Select and agree upon the most suitable improvements and amendments
- 3. Implement proposed changes
- 4. Regular reporting
- 5. Identify critical success factors
- 6. Adaptation and fine-tuning

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STAGE 7
Increasing the Impact Beyond the Project

STAGE 7

Q. Which organizational and financial models sustain the projects' upscaling and which parts of the project can be replicated in other places?

1. Communicate and educate
2. Define the business model
3. Develop a plan for wider collaboration
4. Perform a visability assessment
5. Adjust applied methods and technologies
6. Consolidate a pipeline of new projects

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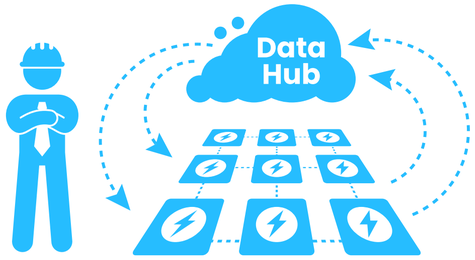
STAGE 7
Increasing the Impact Beyond the Project



City Energy Related Data/Information Input

Discussed Energy Data/Information
Collective Energy Stories

Energy Related Data/Information Resources
Energy Policies (Franework of Action)

Individual

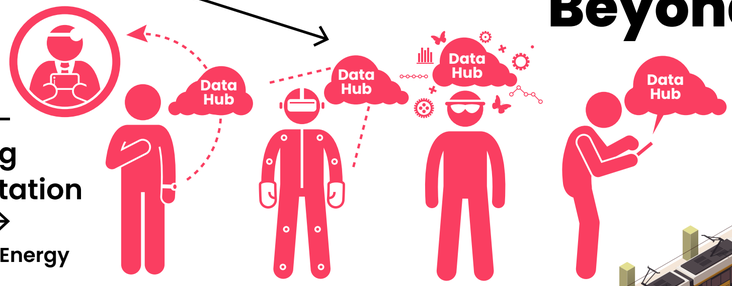
Learning & adaptation

Individual Energy Data/Information
Individual Energy Stories/Tacit Knowledge

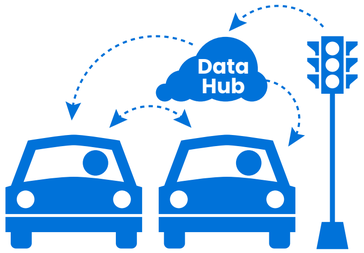
Community

Learning & adaptation

Collective Energy Stories
Social Norms (In-formal Norms)
Feedback on poliies (how to move forward)

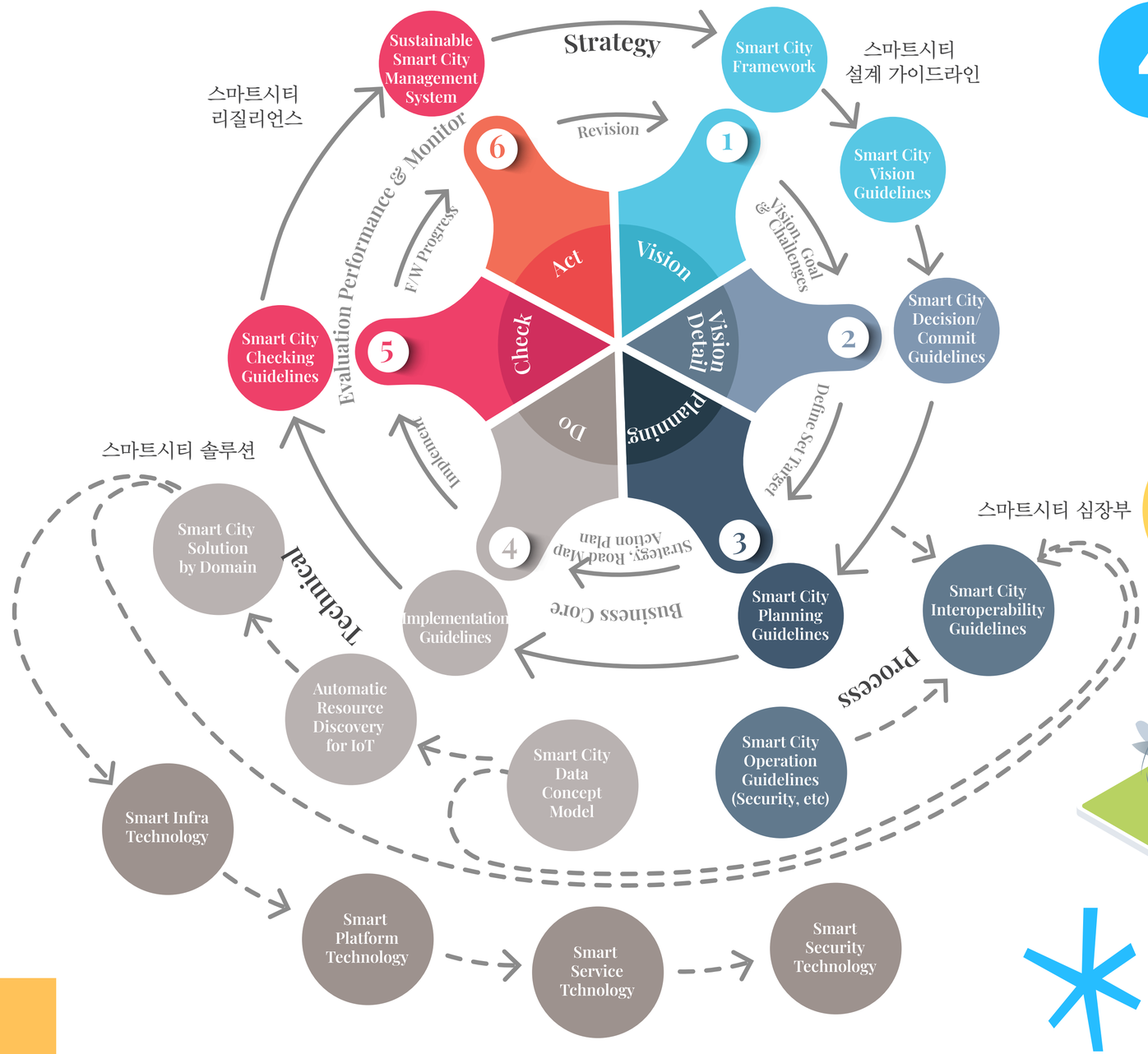


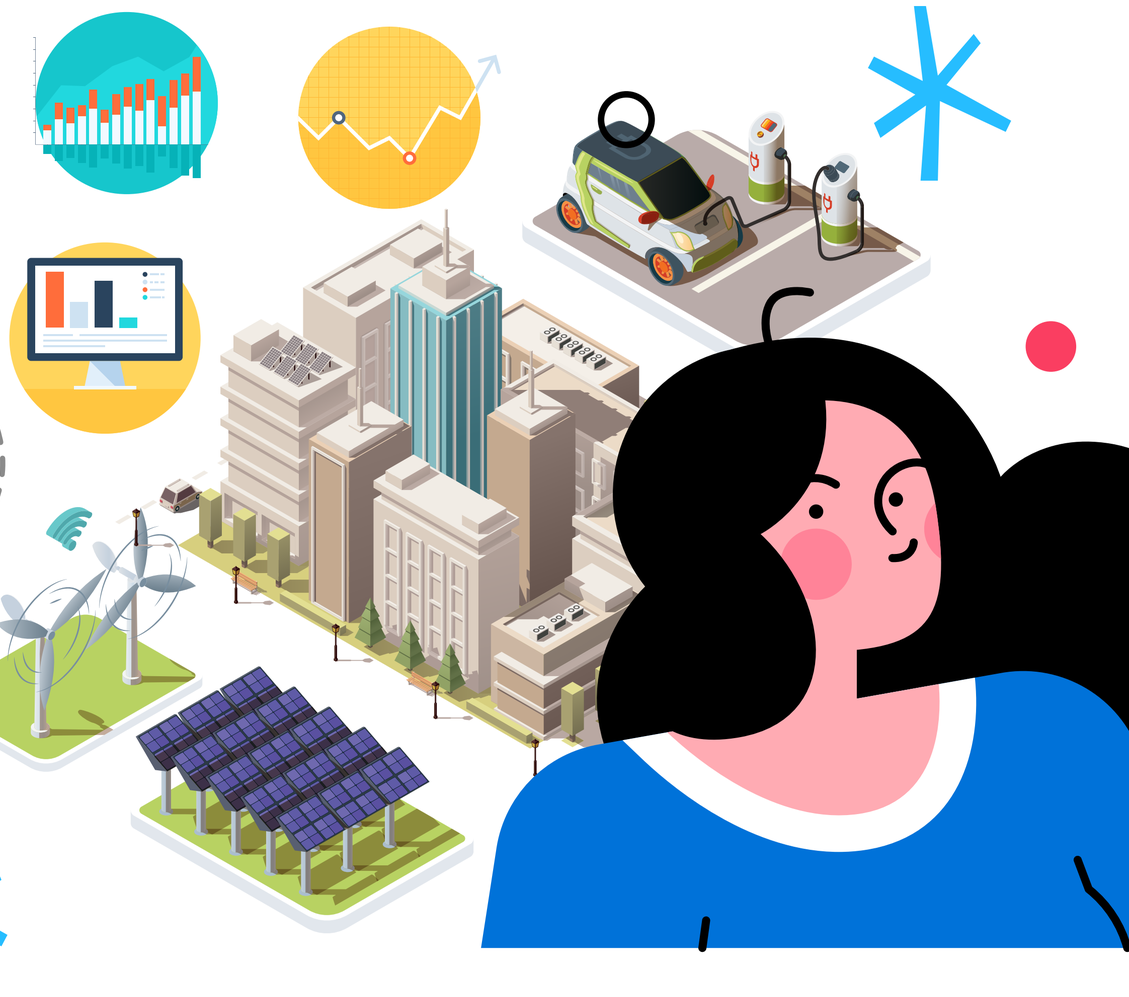
Policy Level



Reference: Concept JPI Urban Europe Project CODAloop(2019)

4 Conclusion and Next Step





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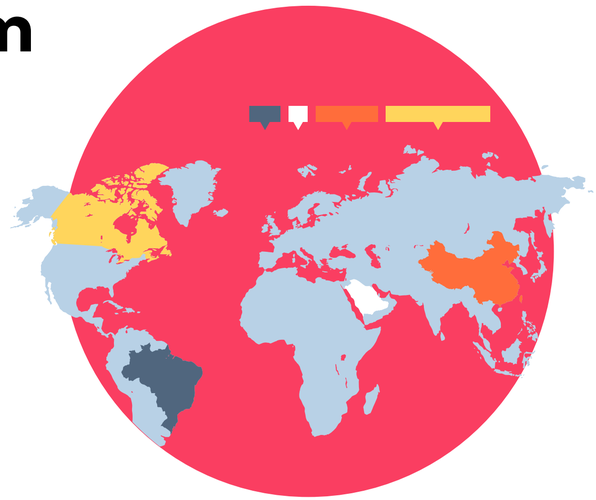
Sustainable Smart Cities

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