

Project Objectives

‘Develop a process that will assist in the production of a value case for a given Smart Scheme in a given city’

- ① Must develop a means of calculating a value case for Smart Schemes
- ② Must consider the transferability of such a process
- ③ Should consider a broad range of beneficiaries
- ④ Should be applicable to city-wide schemes
- ⑤ Should develop understanding of Smart Scheme integration for city leaders

The **Smart Scheme Value Assessment (SSVA)** process has been developed in response to these requirements.

Introduction

The world industry for Smart City projects is estimated to reach £200bn by 2030.

Increasing urban populations put great pressure on city resources and public services. Smart City concepts promise to alleviate many of the problems which plague cities, through the implementation of Smart practices and the creation of Smart Schemes.

Initiatives such as Catapult in the UK aim to bring together government, academia, and business. The aim is to generate world-beating expertise in Smart Cities and create an exportable market of products and skills.

The desire to create a process which is exportable has been a driving factor during this project. **The process that has been developed is applicable to any Smart Scheme in any city.**

What is Value?

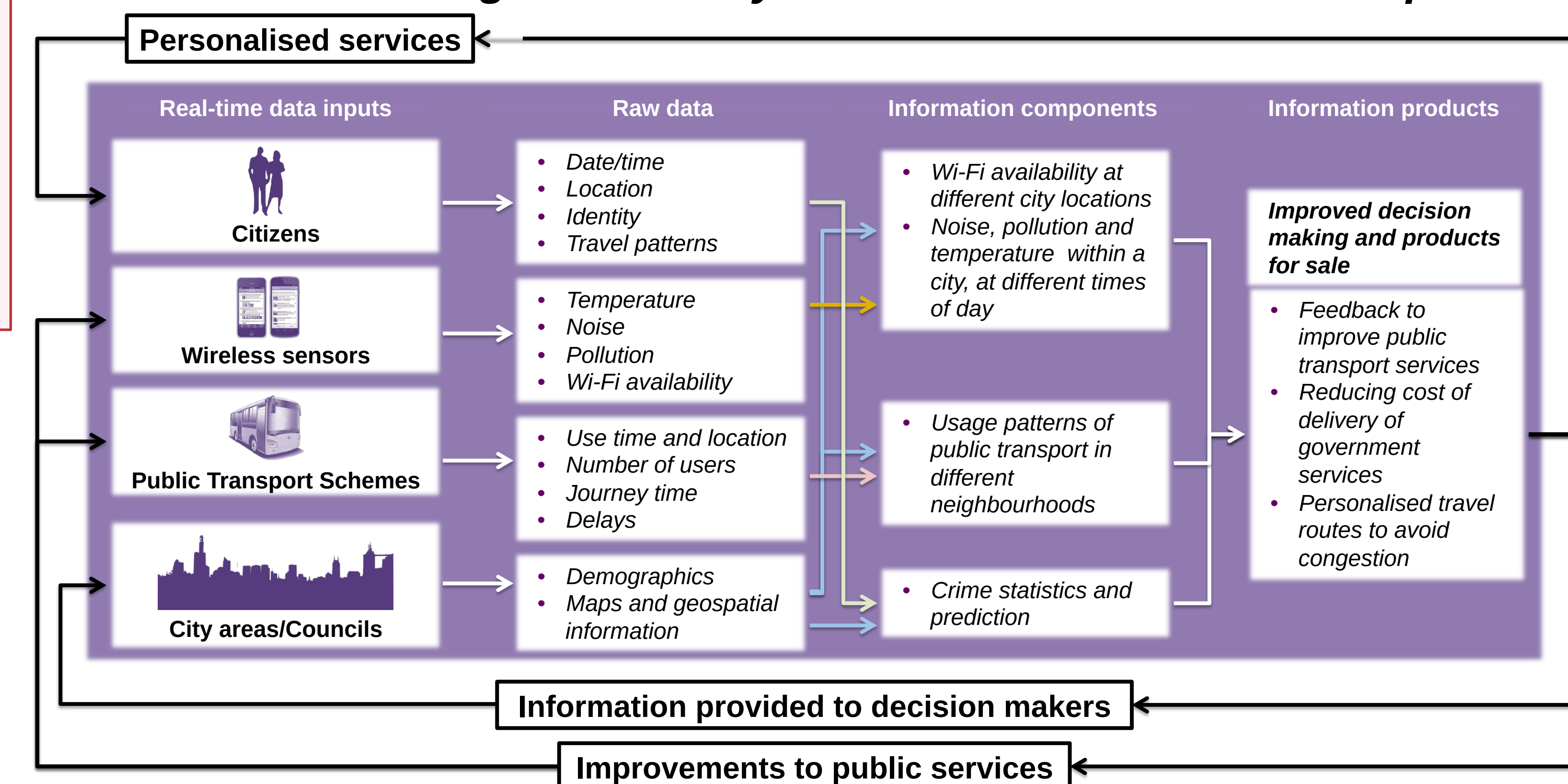
In order to prioritise spending on Smart Schemes. A method is required to determine the value they offer.

The ability to collect and use data makes a scheme Smart.

Data without context is **raw data**, and value is gained by conversion to **information products**. Organisations and individuals who can access this information will gain **knowledge**. Increased knowledge means better decision making.



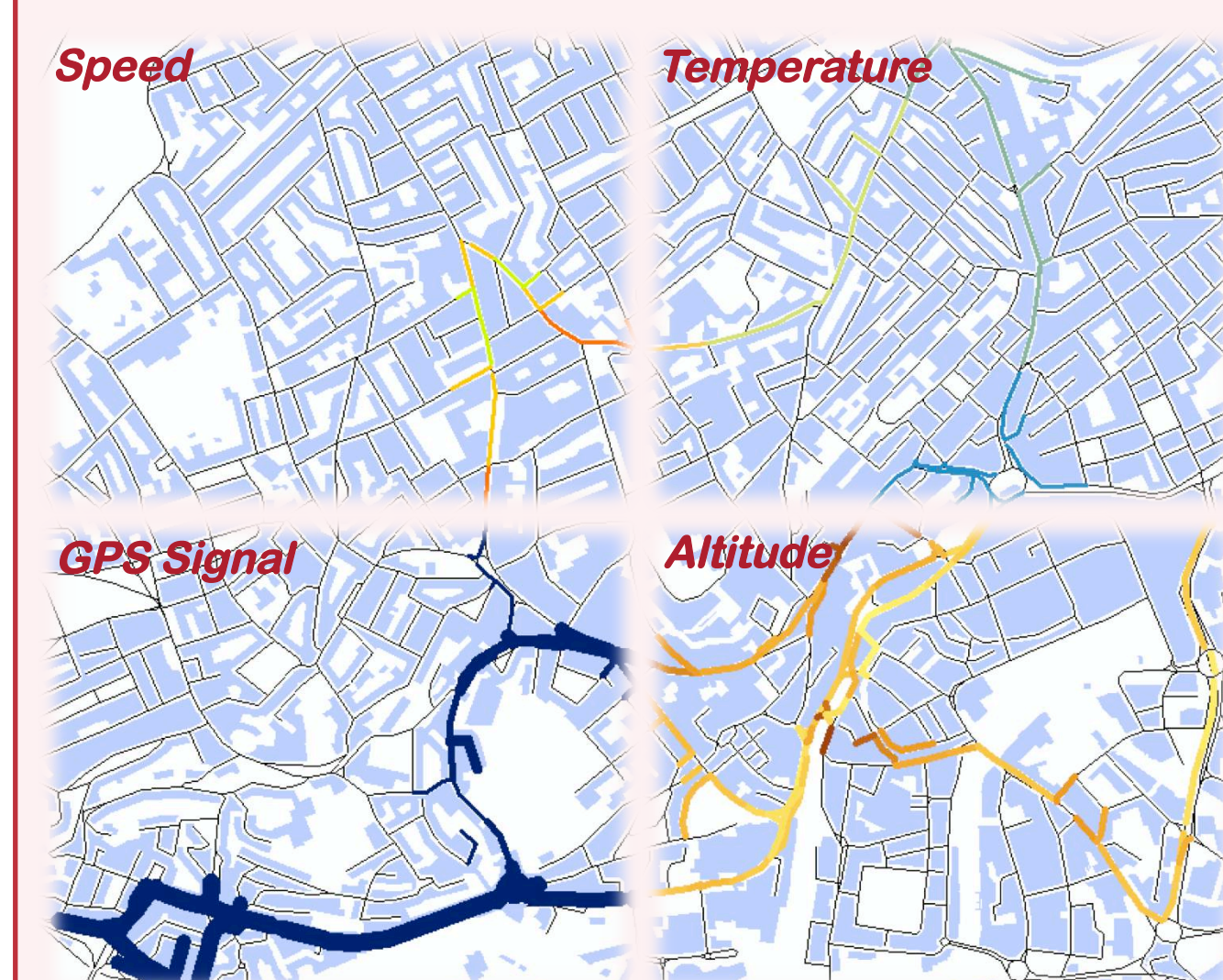
The Information Marketplace [adapted from Arup, The New Economics of Cities, 2011] A model for data to gain value by the creation of information products



A Process to Identify the Value of Implementing Smart Schemes in Cities

Data Collection and Analysis

Data collected by a Bike Scheme was simulated in order to better understand the information a Smart Scheme could generate.

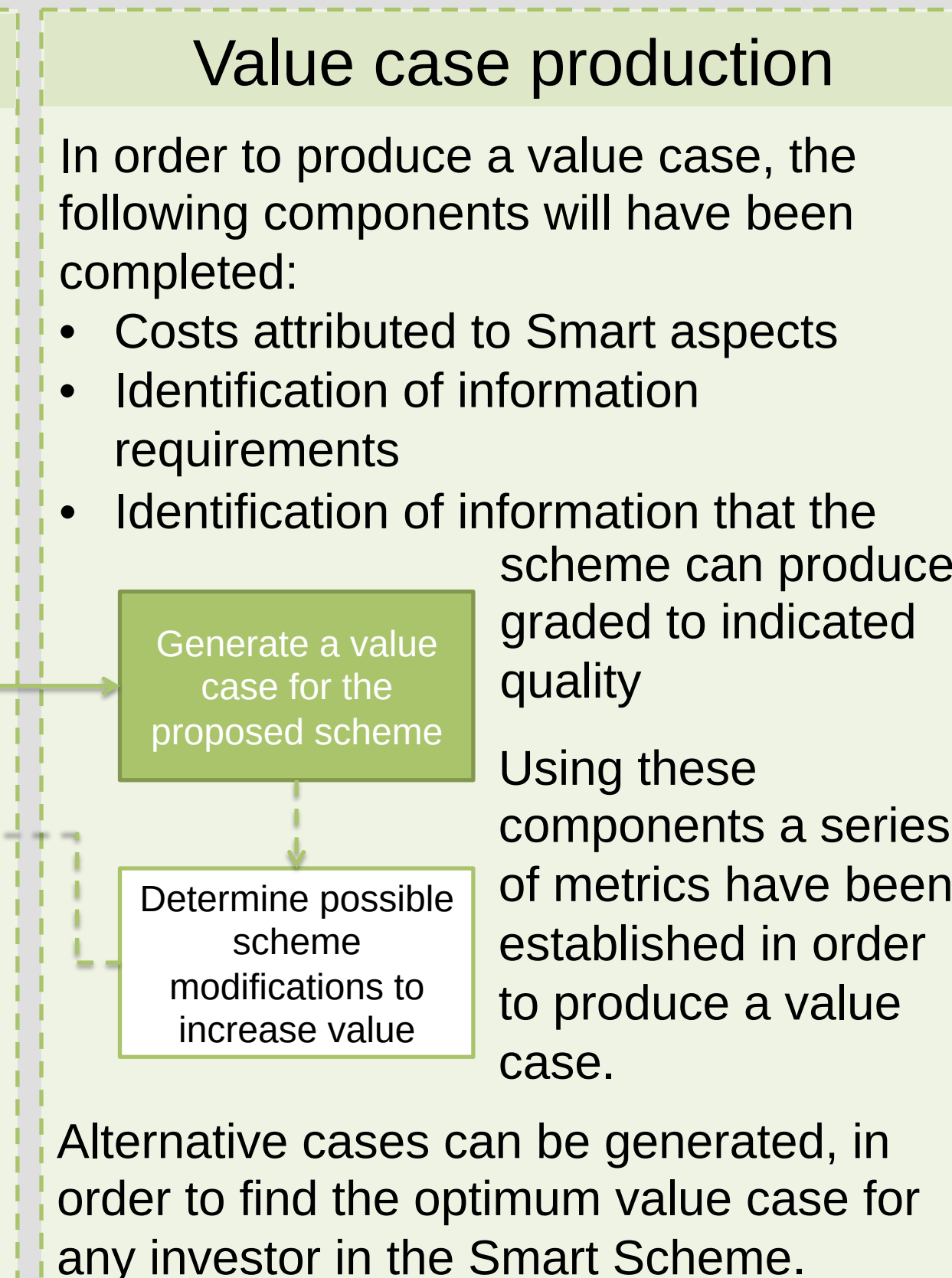
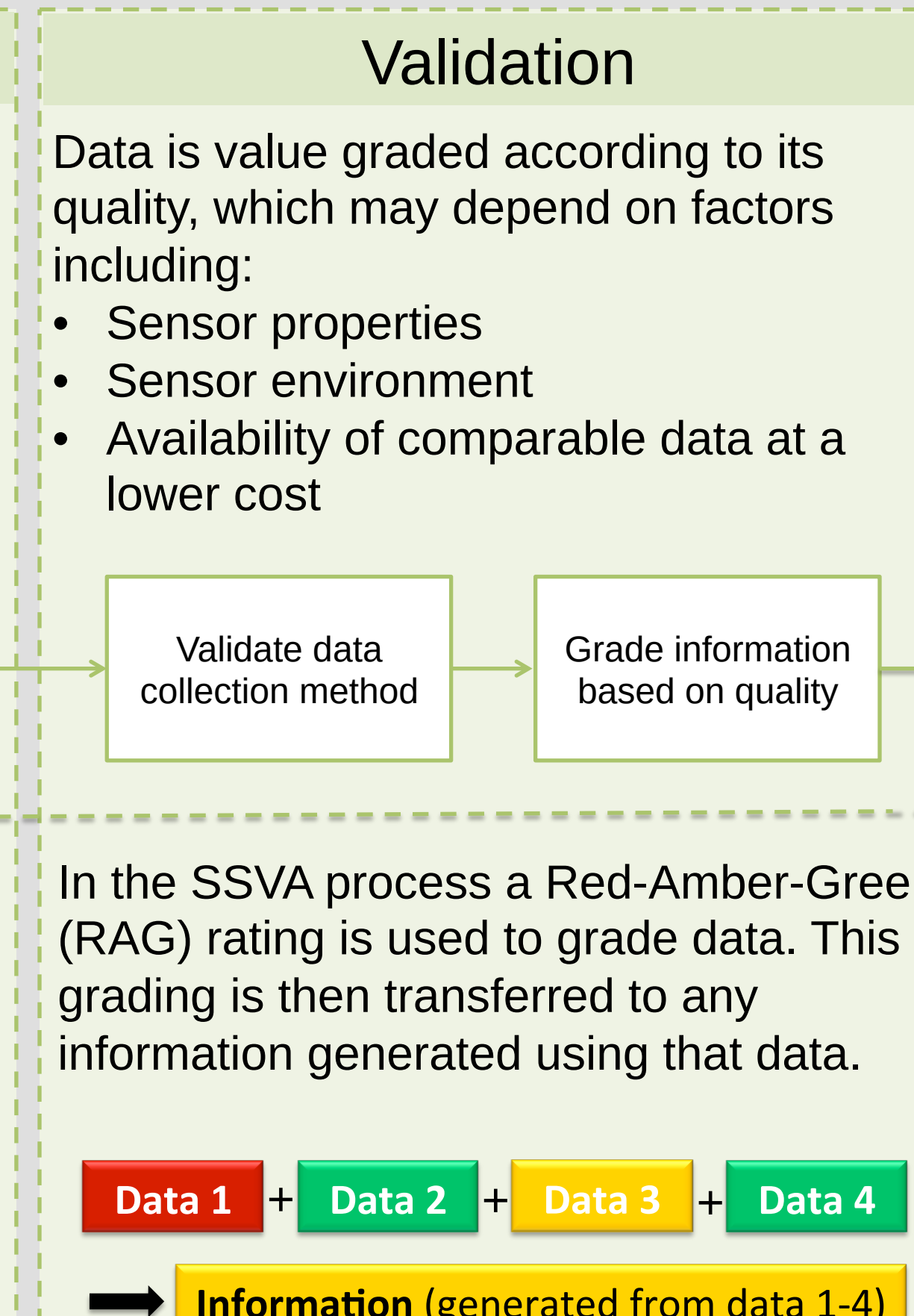
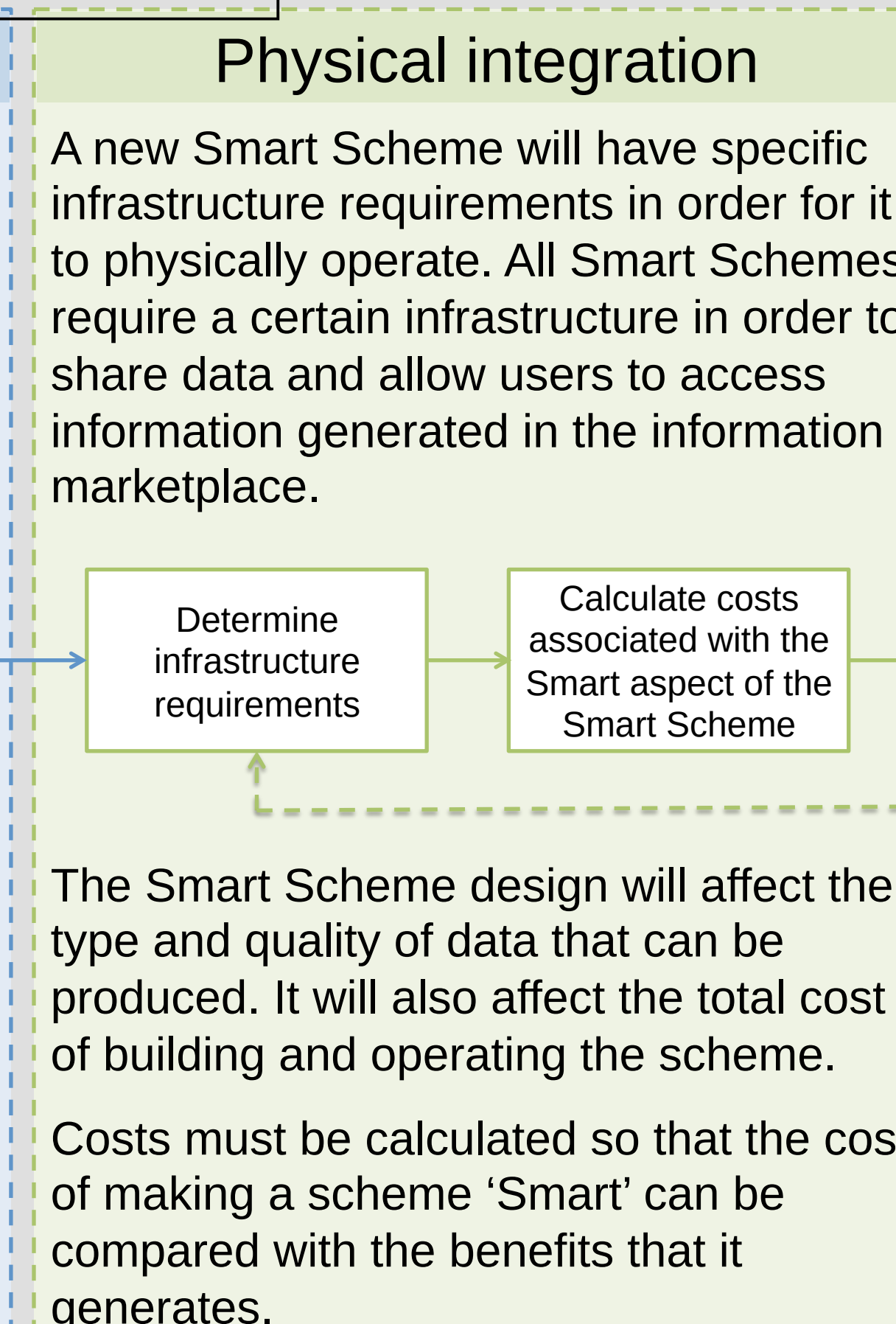
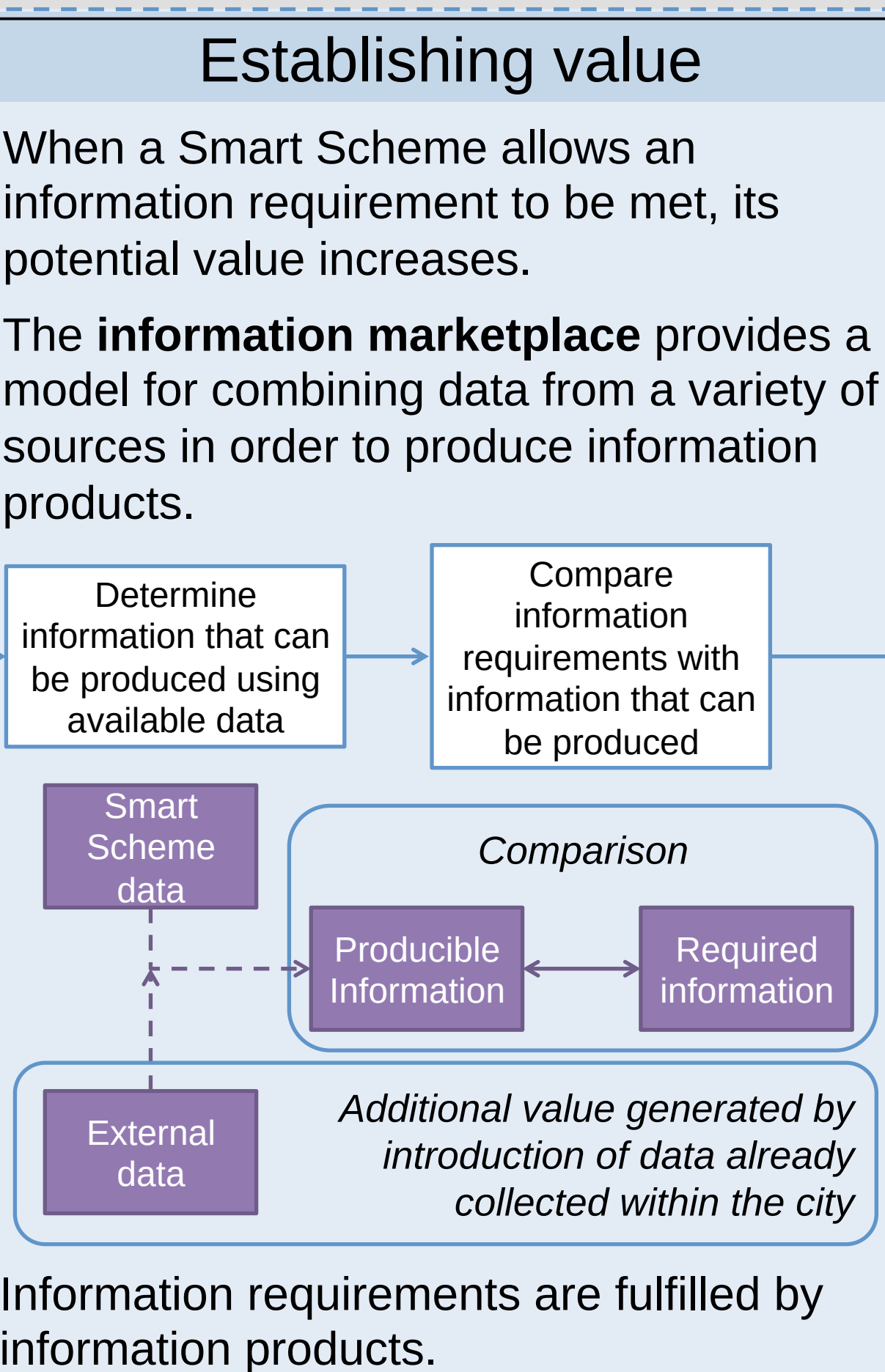
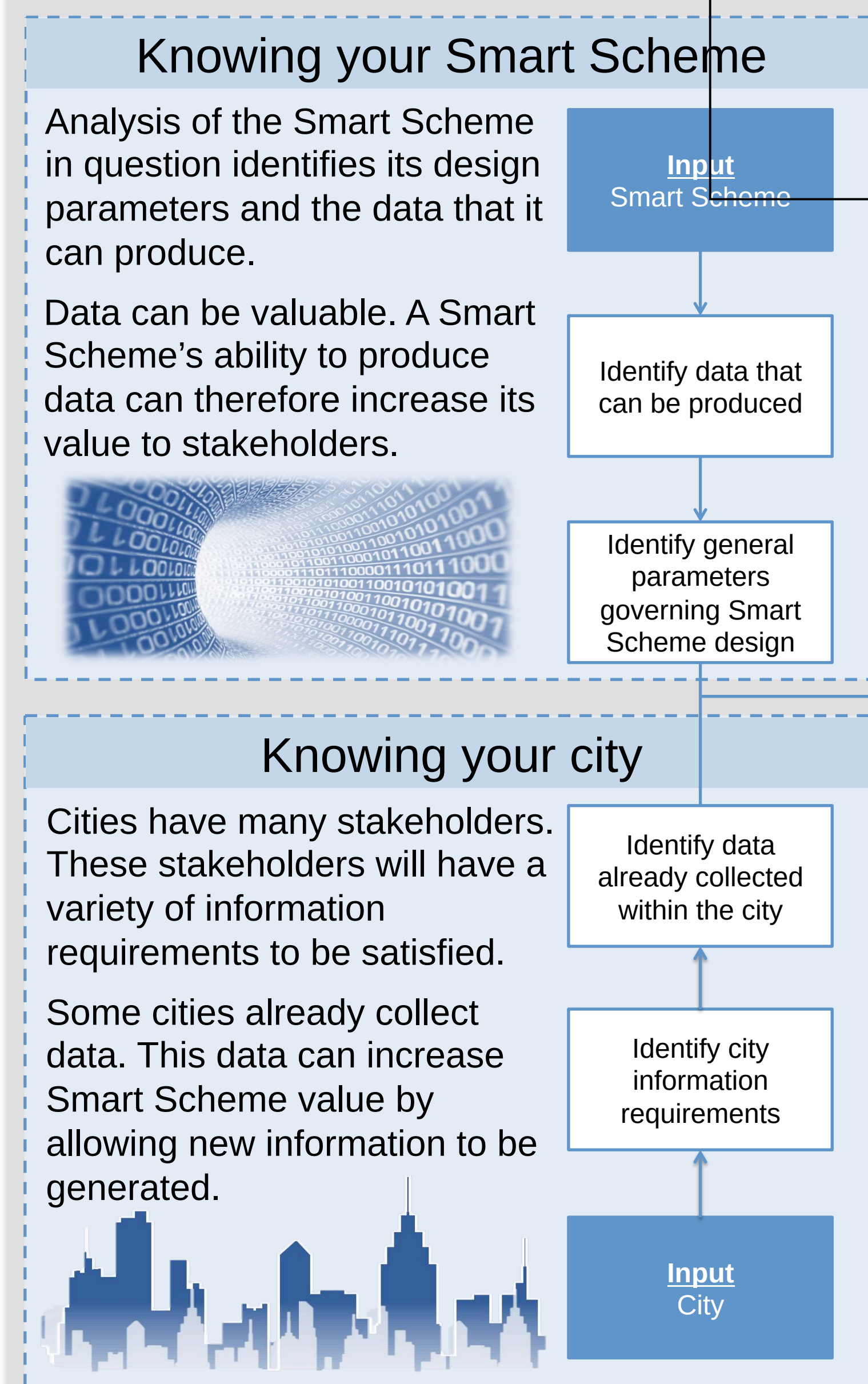


Examples of GIS Output

A GPS tracking device was used to collect data on several cycling routes in Bristol. The sensors were mounted to the bike and provided information on speed, direction, temperature, signal strength and altitude.

The results were input into a Geographical Information System (GIS) model. This allowed data to be associated with its geospatial position.

Through this method the data collected was turned into useful information about the cycling routes.



The Smart Scheme Value Assessment (SSVA) process

Case Study

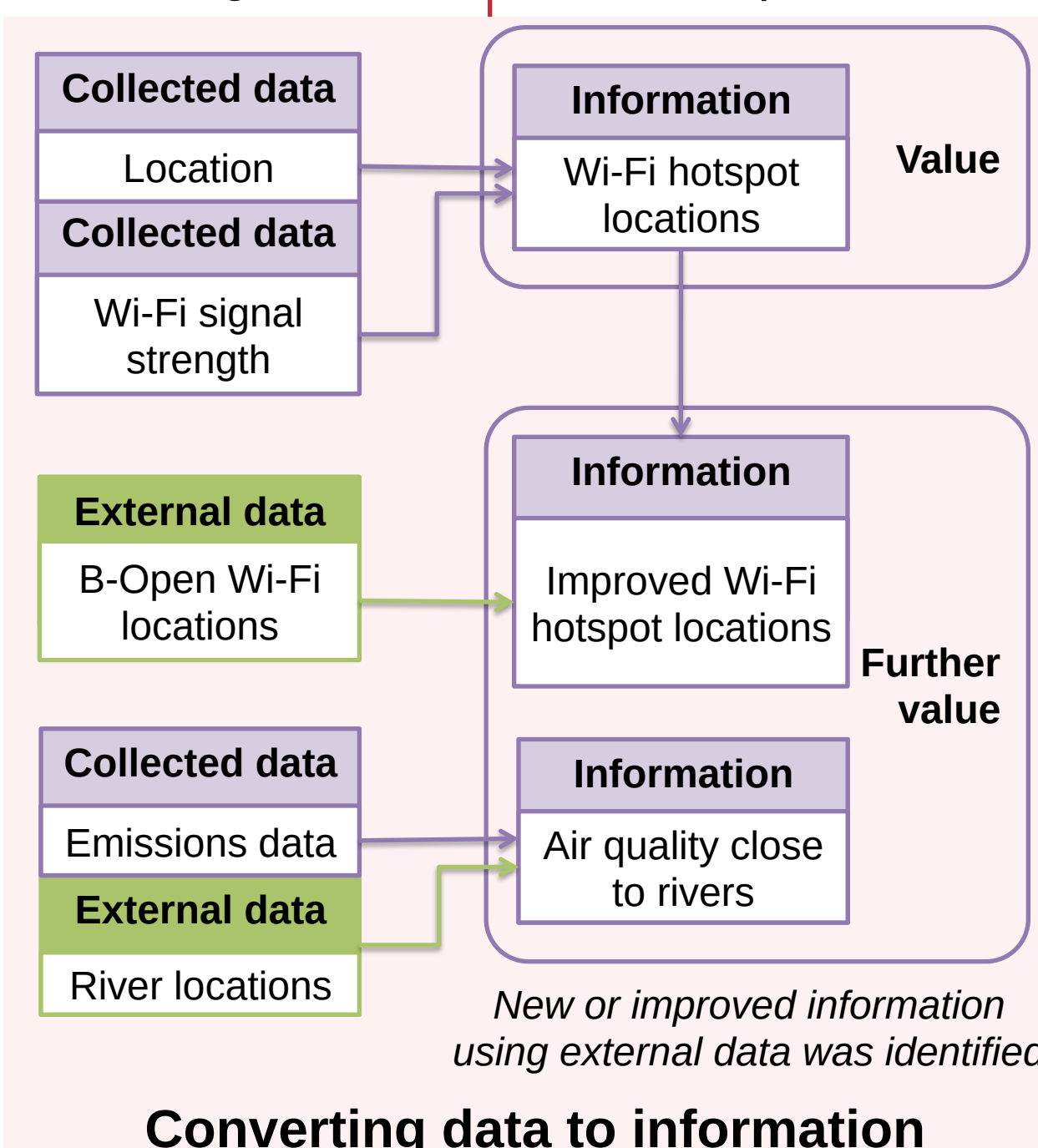
The SSVA process was applied to a theoretical Smart Bike Scheme for Bristol in the UK. This case study sought to prove the applicability of the SSVA principles. A limited set of stakeholders and datasets were considered to focus application on testing and validation of the process, and specific costs were not calculated. The tools used here have been developed specifically for application of the SSVA process.

Key parameters of bike scheme design established by studying feasibility studies for existing bike schemes, including:

- London (Transport for London, 2007)
- New Orleans (BikeEasy, 2012)
- Calgary (Alta Planning + Design, 2011)

Industrial	Retail
• SMEs • Large business	• SMEs • Large business • Public
Residential	Green Space
• Public	• Public

Stakeholder identification



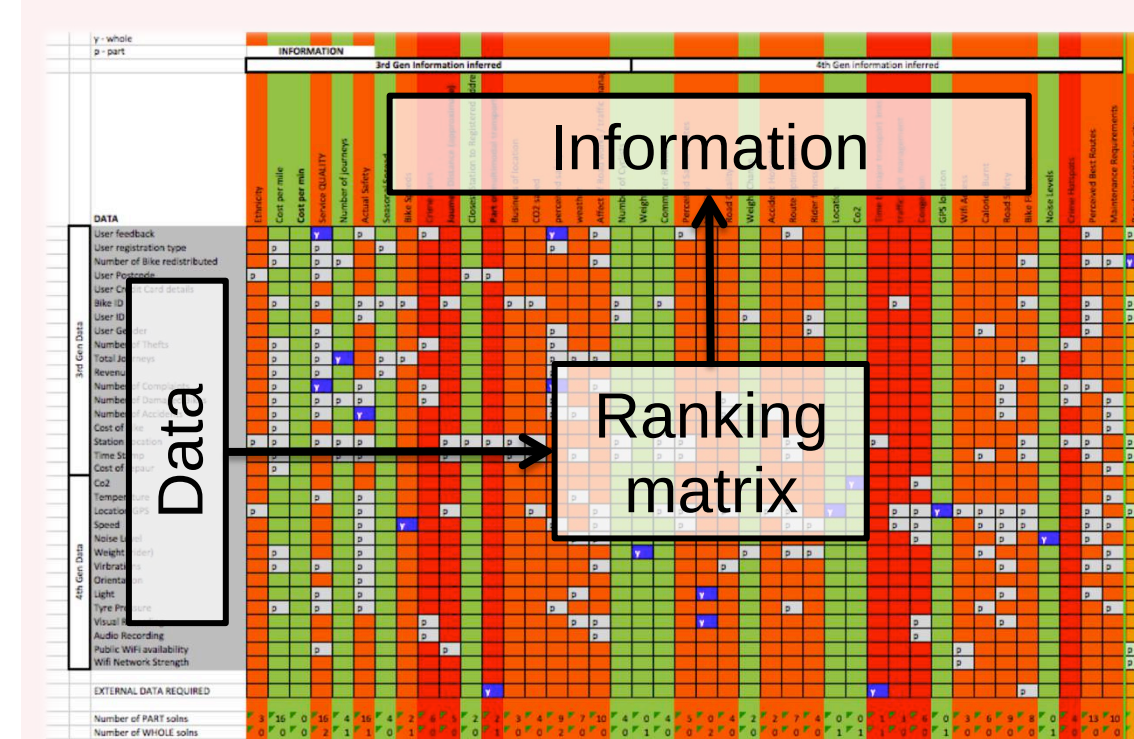
Bike scheme design was based on successful existing bike scheme designs: Velib', Velo'v and Barclays bike schemes.

Availability of a high speed fibre optic network in Bristol (BNet), and websites such as data.gov, were identified as systems which could facilitate the new Smart Scheme, but would require integration.

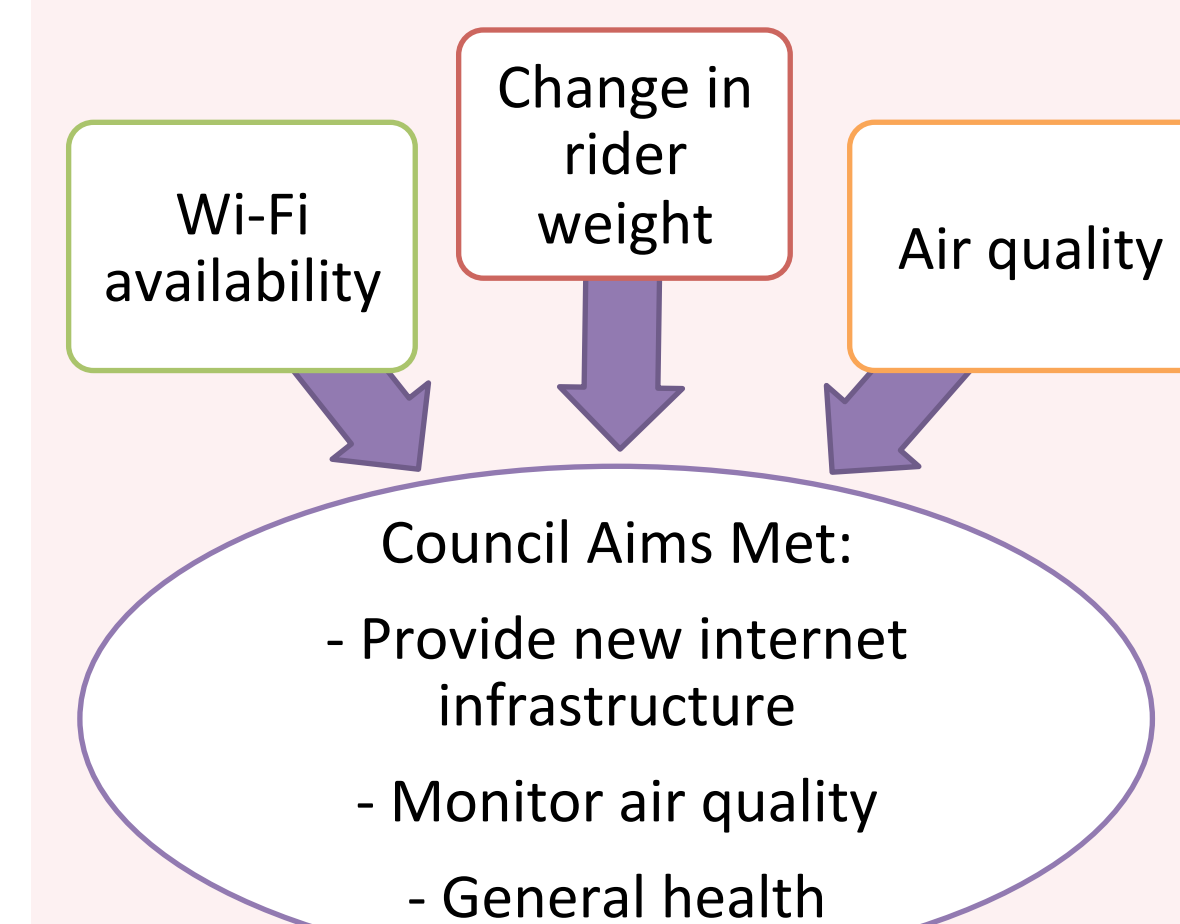


Data collection methods were validated through actual testing of GPS trackers on cycle routes.

A comprehensive matrix was created, identifying the relationship between data sets and the information that could be produced (including a RAG rating).



Information from the Smart Scheme was correlated with Bristol City Council requirements. This allowed areas where the Smart Scheme could provide value to be identified.



Council Aims Met:

- Provide new internet infrastructure
- Monitor air quality
- General health

Further work

- ① Greater detail of how to complete the stages and sub-stages within the SSVA process, giving guidance to the implementer.
- ② Expansion of Phase 1A, 1B and 3 to include elements of Smart Scheme design.
- ③ Establishment of a monetary ranking for value of data.
- ④ Repeated application for a number of different case studies, over a range of schemes, cities and levels of detail, to ensure that the SSVA process is robust, user friendly and provides accurate results.
- ⑤ Development of a baseline against which results from the SSVA process can be compared.