



CityVerve, Synchronicity & Open Ecosystems

Prof John Davies, BT



CityVerve

Smart. Innovative. Manchester.



£15M collaborative R&D project, with HMG investing £10M

Smart Cities: doing more with less in a time of financial constraints

CityVerve will provide Smart City demonstrators, networks, platforms and infrastructure to enable open innovation

Central to this will be **BT's IoT data hub**, interoperating via **Hypercat** with a range of other platforms

Replicable, sustainable and scalable

CityVerve's Use Cases:

What is being built?



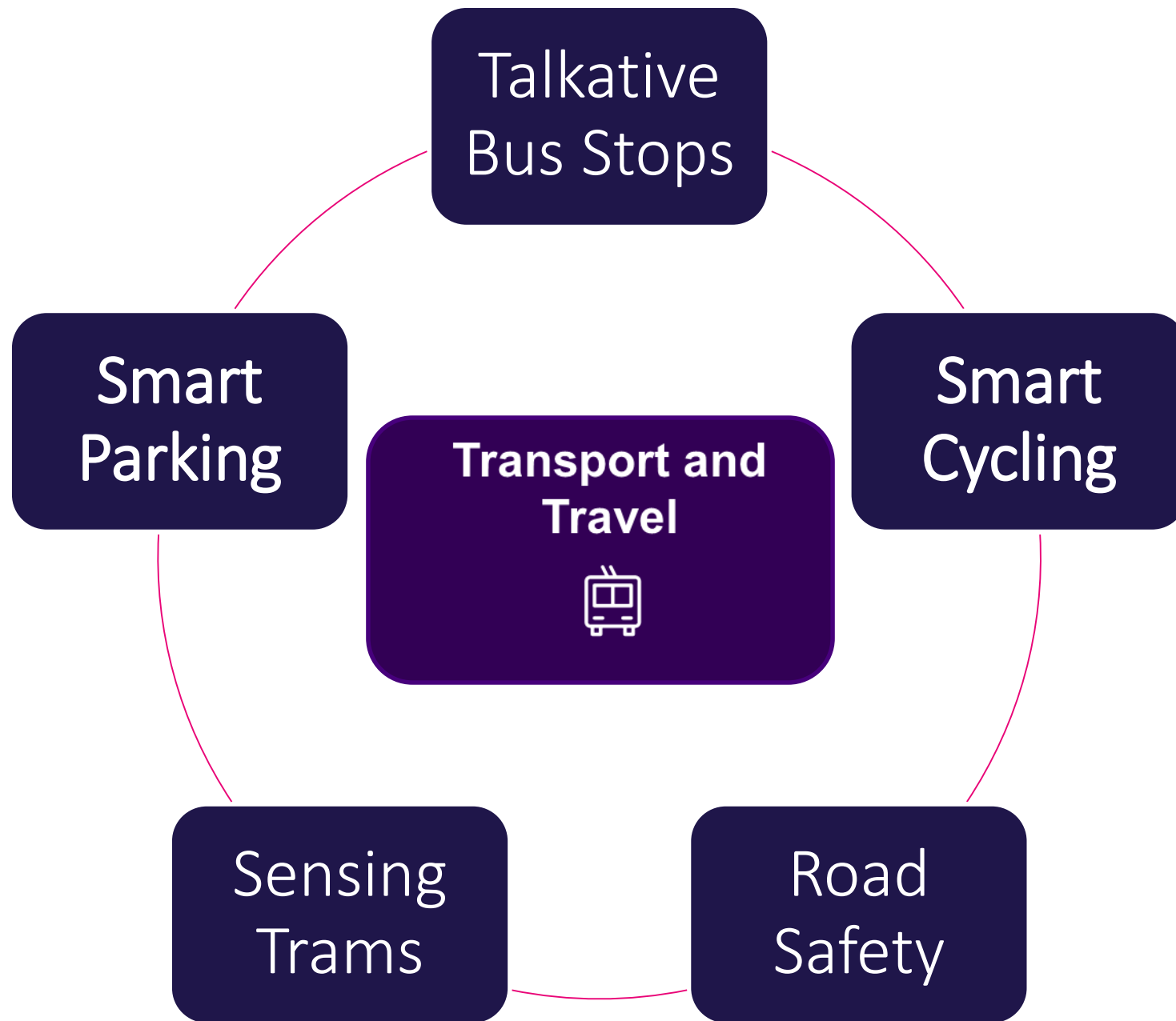
Transport and Travel



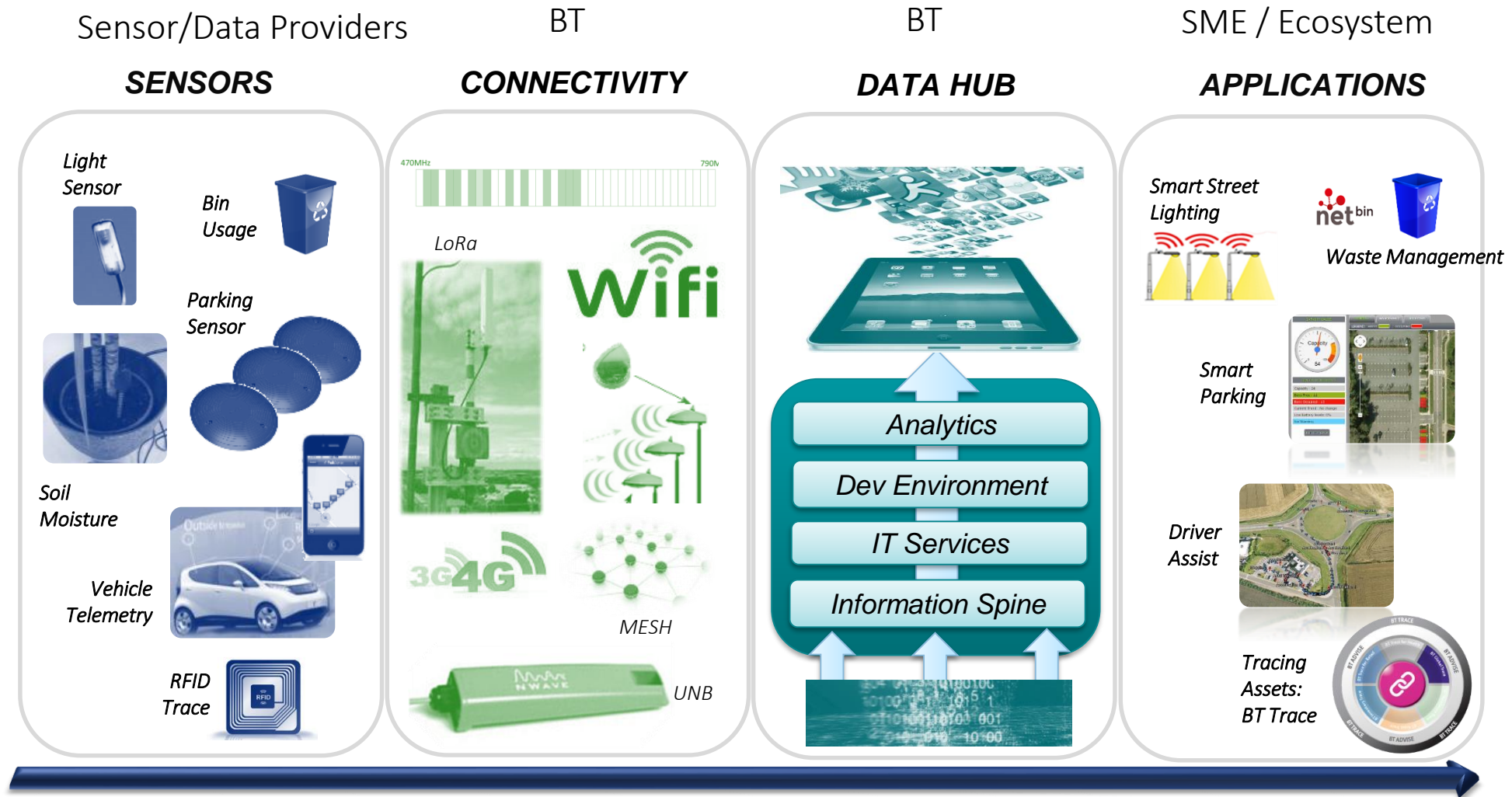
Energy and the environment



Health and Social Care



IoT Technology layers

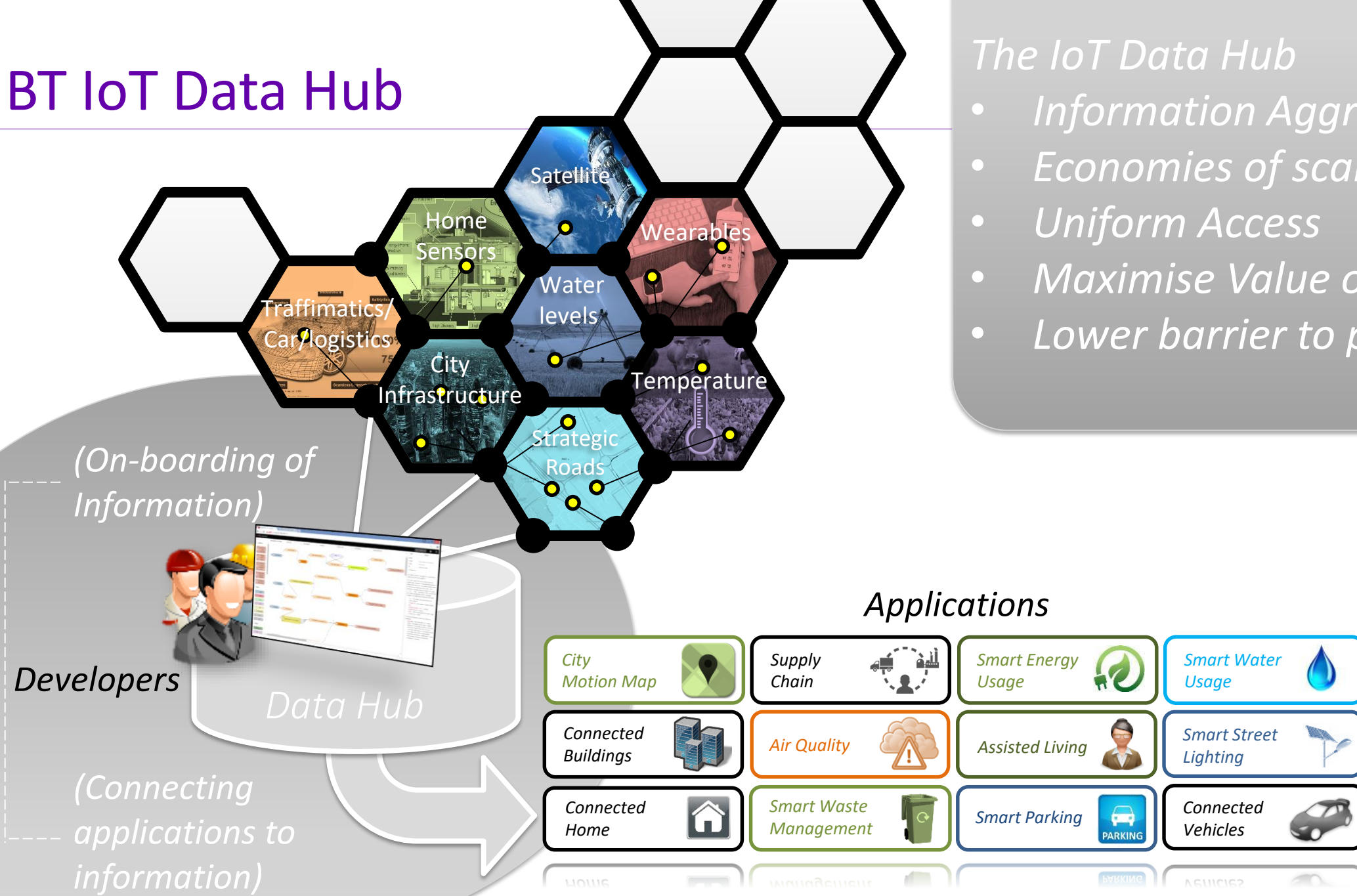


Enabling the IoT Ecosystem
SECURITY / RESILIENCE / SCALE

BT IoT Data Hub

The IoT Data Hub

- Information Aggregation
- Economies of scale
- Uniform Access
- Maximise Value of Data
- Lower barrier to participation



Current BT Manchester data

>200 data feeds

Manchester Parking Data

Manchester Automatic Traffic Counts

Manchester Air Quality data

Smart Buildings data

Live and scheduled train

Live and scheduled bus

Cycling usage patterns

NAPTAN (bus stop locations)

Met Office Weather Observations

Highways England – trunk route traffic speed and density



Interoperability will be essential

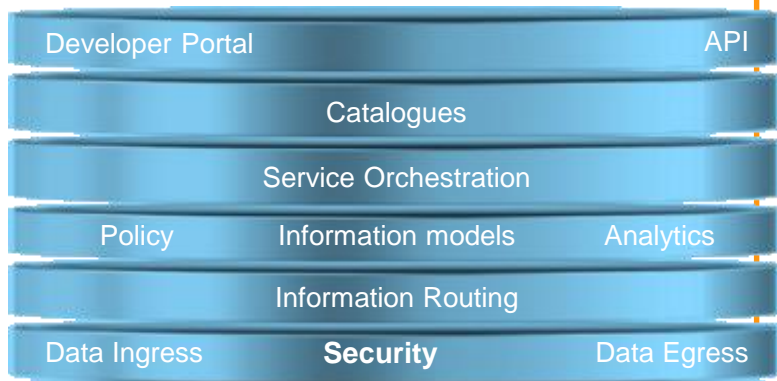
InnovateUK project driving data hub interoperability

- **Hypercat specification (BSI) co-authored by BT**
- *A machine-readable data catalogue*
- *Breaking down silos*
- *Fostering innovation*
- *Maximising the value of data*

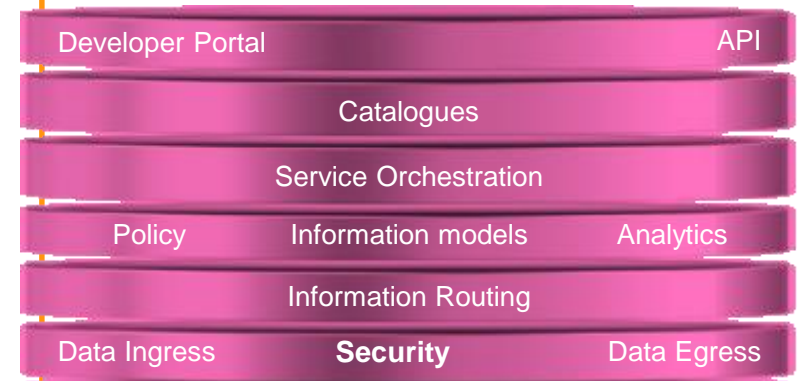


Hypercat enables uniform access to multiple Data Hubs

Data Hub



Data Hub



- Approach is to adopt minimal interoperability model (MIM)
- Use Hypercat to identify CityVerve data feeds
- Create a mapping from Hypercat to the FIWARE Orion Context Broker
- Access CityVerve data via Orion
- Initial implementation has proved the feasibility
- ***CityVerve data from BT will be available to the Synchronicity ecosystem and open call partners***

Search for...

Go

weather voltage vehicle transport train traffic timetable temperature symptom streetside streetlights scotland roadworks road river public transport parking observation noise no2 nitrogendioxide nitrogen monoxide nitric oxide location live lights level humidity highways fleet failure event departures demo cycling carbon monoxide car park car bus arrivals airquality air quality adastral TfGM SimplifAI NO2 NO Milton Keynes Manchester MKSmart IC I3C DFT DSL Cityverve CityVerve CO BuryStEdmunds AdastralPark ATC

environment (243)

towns-and-cities (74)

transport (121)

mapping (5)

education (0)

society (1)

business-and-economy (0)

Showing 20 of 493 results

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

Select All

Subscribe

☐ Pedestrian Counting (Tesco, Tech Centre)

+ See more

☐ Pedestrian Counting (Archie\'s Opp Refuge)

+ See more

☐ Pedestrian Counting (MMU)

+ See more

☐ Pedestrian Counting (127 Portland St)

+ See more

☐ Cycle Counting(Oxford road by the Refuge)

+ See more

☐ Collection of Manchester Air Quality Data

+ See more

☐ SeeSense Oxford Road Cycle Journeys

+ See more

GET

https://orion.synchcity.eu/v2/entities?type=AirQualityObserved&id=urn:ngsiv2:AirQualityObserved:manchester:environment:AirQualityObserved:c44cce1a-e6ec-4f9f-b6dc-0d0a...

Params

Send

Save

Authorization

Headers (2)

Body

Pre-request Script

Tests

Cookies

Cod

Key	Value	Description	...	Bulk Edit	Presets
Content-Type	application/json				
Fiware-Service	manchester				
New key	Value	Description			

Cookies

Headers (7)

Test Results

Status: 200 OK

Time: 224 ms

Size: 1018 B

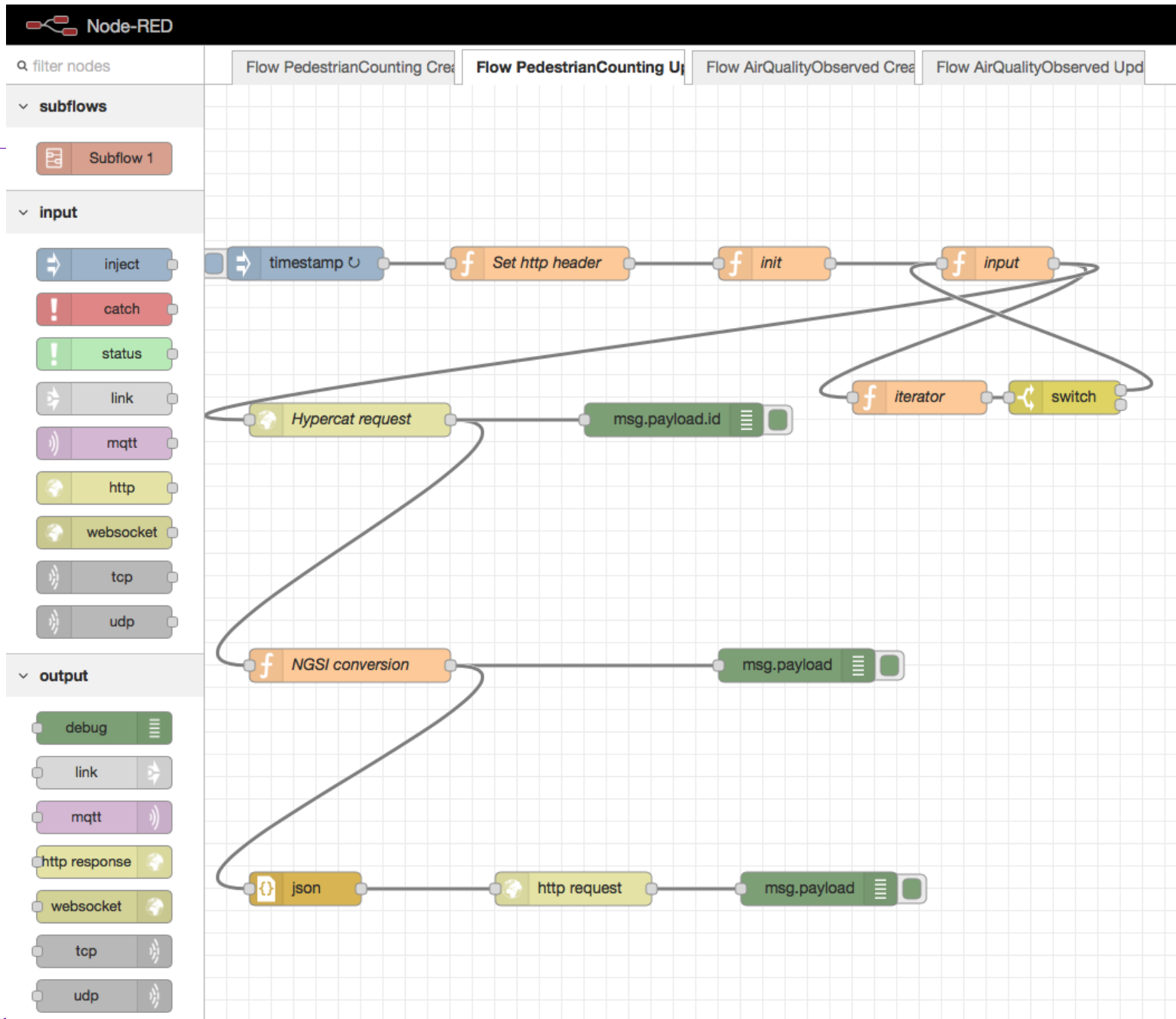
pretty

Raw

Preview

JSON

```
[
  {
    "id": "urn:ngsiv2:AirQualityObserved:manchester:environment:AirQualityObserved:c44cce1a-e6ec-4f9f-b6dc-0d0a98259eed",
    "type": "AirQualityObserved",
    "NO": {
      "type": "Number",
      "value": 141,
      "metadata": {
        "unitCode": {
          "type": "Text",
          "value": "GQ"
        }
      }
    },
    "NO2": {
      "type": "Number",
      "value": 90,
      "metadata": {
        "unitCode": {
          "type": "Text",
          "value": "GQ"
        }
      }
    },
    "NOX": {
      "type": "Number",
      "value": 306,
      "metadata": {
        "unitCode": {
          "type": "Text"
        }
      }
    }
  }
]
```





SYNCHRONICITY

Thanks for listening

