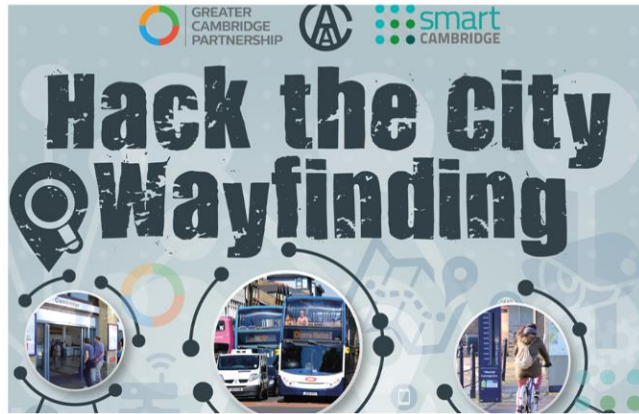


PURPOSE

“To investigate, trial and develop emerging technologies and data solutions that can be adopted to assist in the successful mitigation of sustainability challenges across the region, encouraging further economic growth”

Collaboration



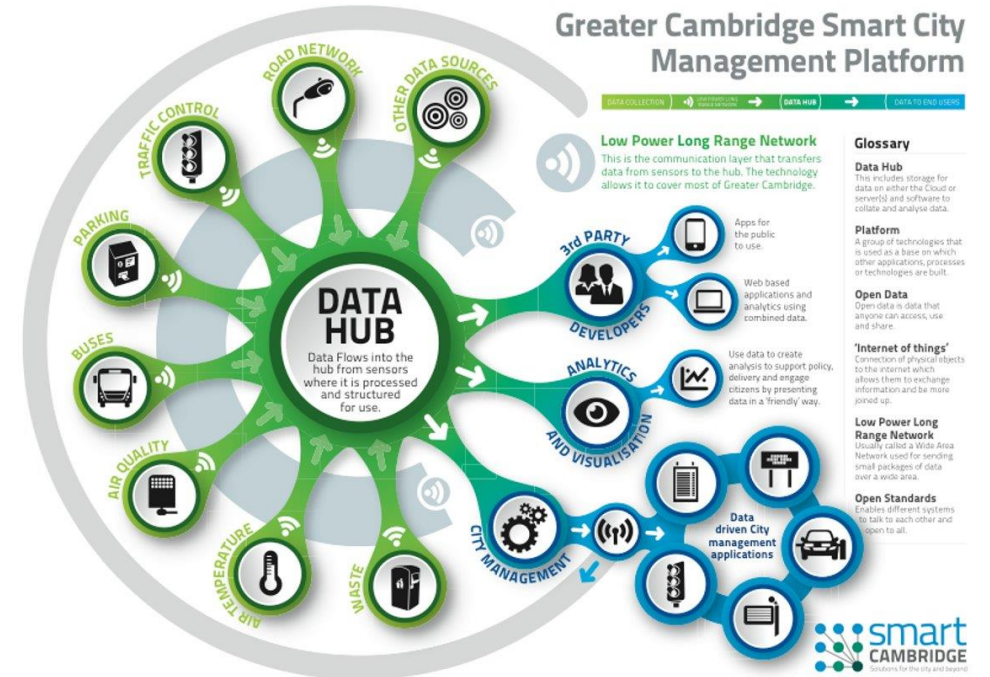
At scale sensing network city/county

- Journey times, classified counts, cycling and pedestrian data
- Who wants access to data – County Council, Greater Cambridge Partnership – Combined Authority
- Who owns and maintains the infrastructure
- Who pays what
- 3rd party access and additional sensors – developers, companies etc



Data Infrastructure

- Move from university built infrastructure to a corporate data architecture
- Looking at federating platforms
- Discovery and re-use
- Integration into corporate tools – Power BI and open sources (Kepler etc)
- 3rd party access

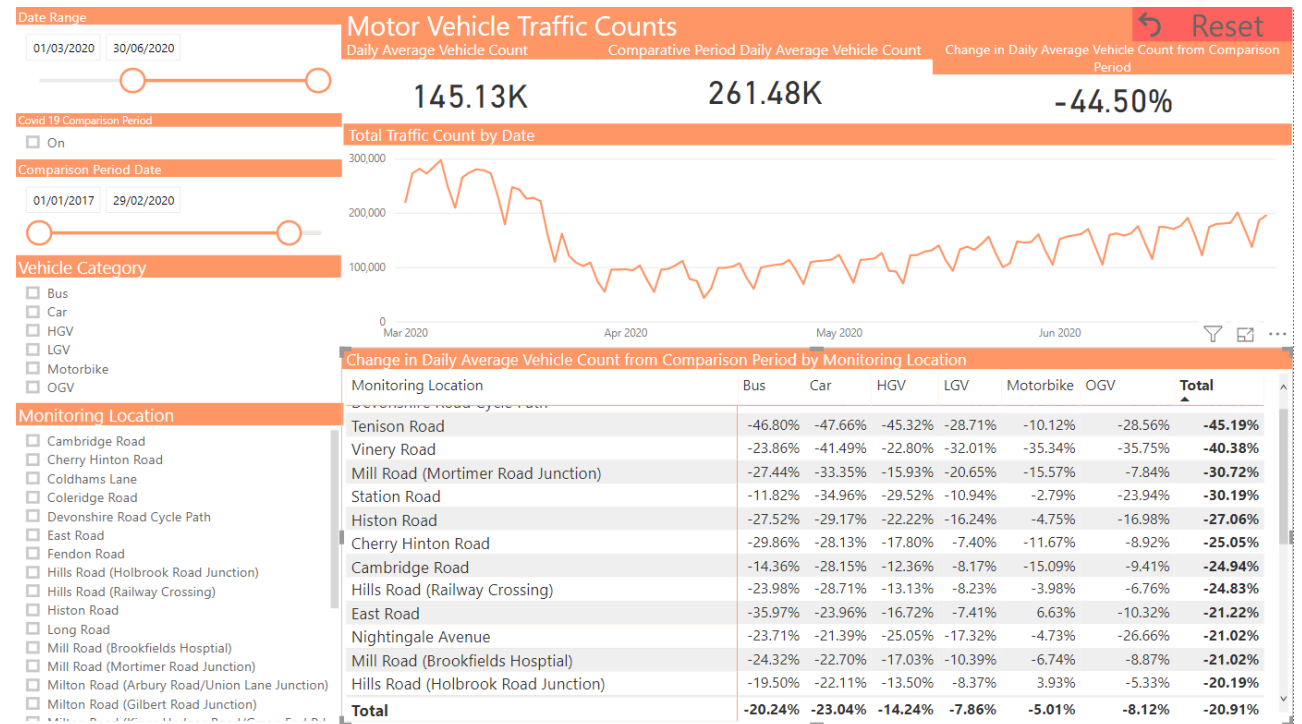


Power of data –CV19

Measuring the impact of CV19 on the transport system

Power BI dashboards:

- Traffic counts
- Pedestrian counts (BID & Cameras)
- Bus occupancy
- Car parking
- Air quality
- Journey times



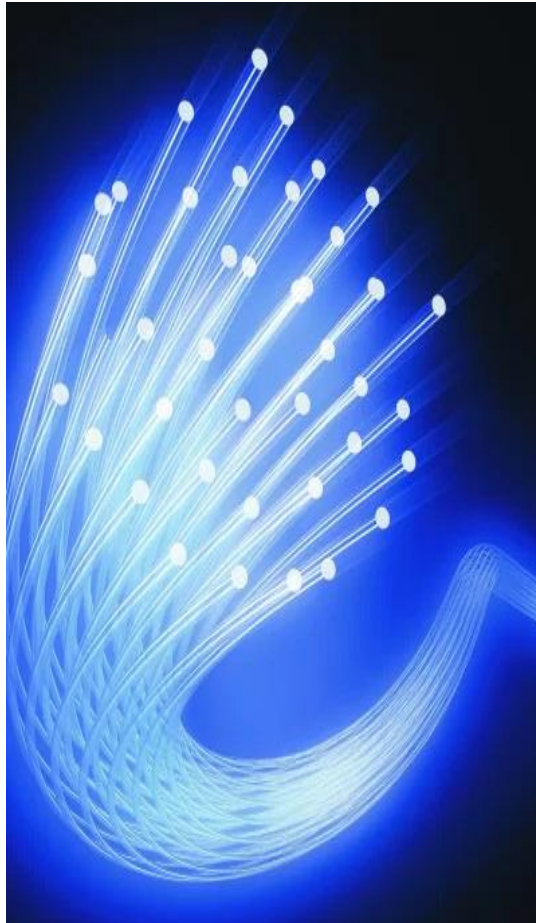
Advanced Connectivity Emerging Technologies (Smart Places) work stream – Combined Authority

- Work with market town and rural communities to understand how emerging technology and data can help create better places
- Put in place connectivity to support IoT deployments
- Roll out tools already developed in the Smart Cambridge programme'
- Test bed and trials for new 'smart town' model



Mobility

Support economic recovery – continue to support sustainable travel



Economic Recovery – 5G

Importance of advanced connectivity in supporting economic recovery

The Cambridgeshire and Peterborough Independent Economic Review:

‘Subsidiary Recommendation vii): The government should make Cambridgeshire and Peterborough a vanguard authority for new 5G infrastructure.’

Cambridge and Peterborough – COVID19 Understanding the economic impacts and informing the response

‘work with Connecting Cambridge and other partners to accelerate the roll out of fibre 4G and 5G’



Digital twin

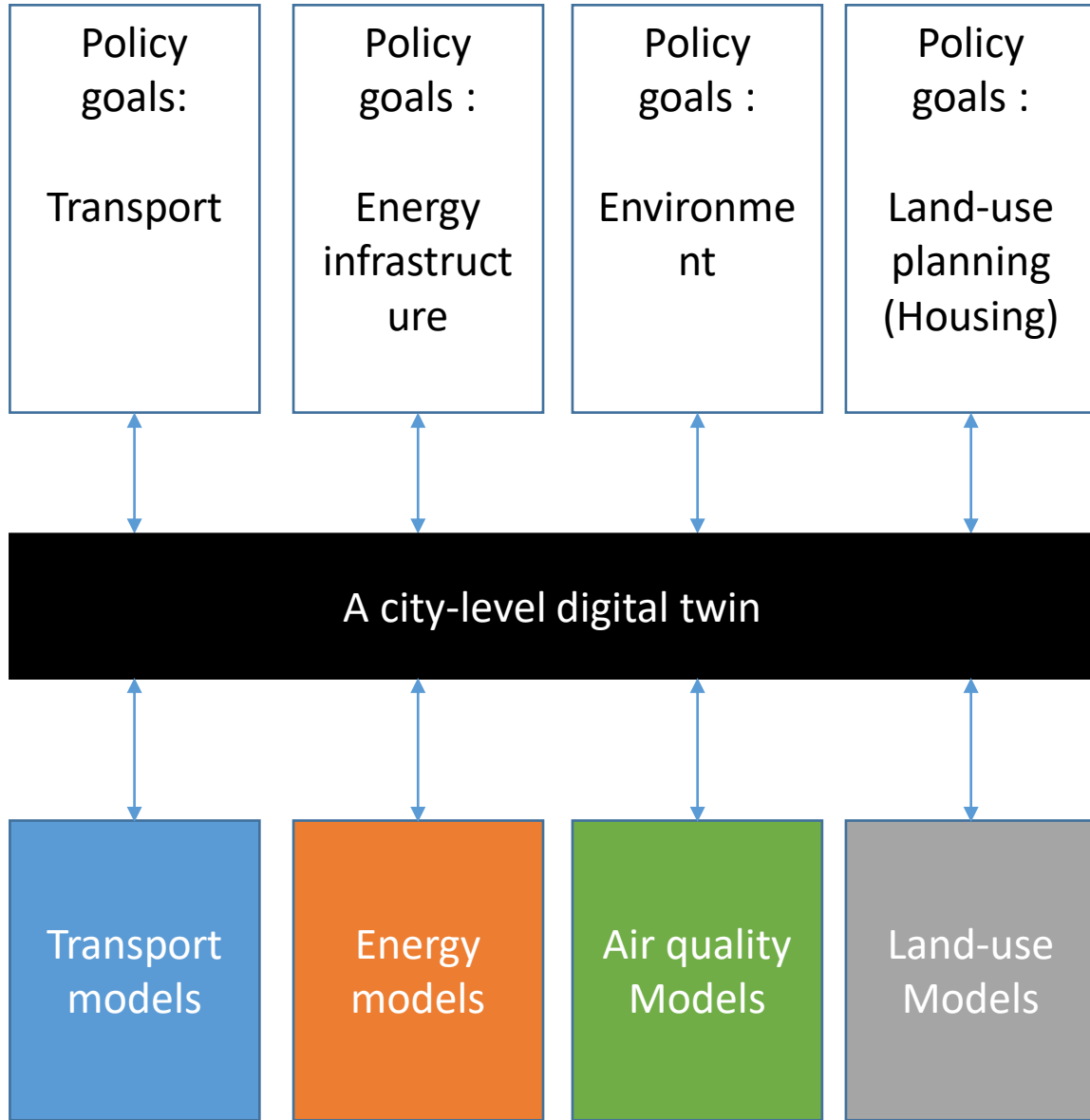
A realistic digital representation of something physical.

- Digital twin 1: A dynamic model of an asset, with input of current performance data from the physical twin via live data flows from sensors; feedback into the physical twin via real-time control.
- Digital twin 2: A static strategic planning model of a system, with input of long-term condition data from the physical twin via corporate systems; feedback into the physical twin via the capital investment process.

Source – Gemini Principles Cdbb



Role of a City DT



Issues

- Models long turnaround period
- Complexity of outputs – need specialists to interpret
- Models sit in siloes
- Don't allow the testing of new but often radical policy options at an early stage
- need to develop digital tools which support better decision making

Initial Phase

A City-Level Digital Twin Pilot for Exploring the Impacts of Digital Transformation on **Journeys to Work** in the Cambridge Sub-region

Dr Li Wan

The Local **Governance** of Digital Technology – Implications for the City-level Digital Twin

Dr Timea Nochta

Phase 1: Modelling future journeys to work in Greater Cambridge

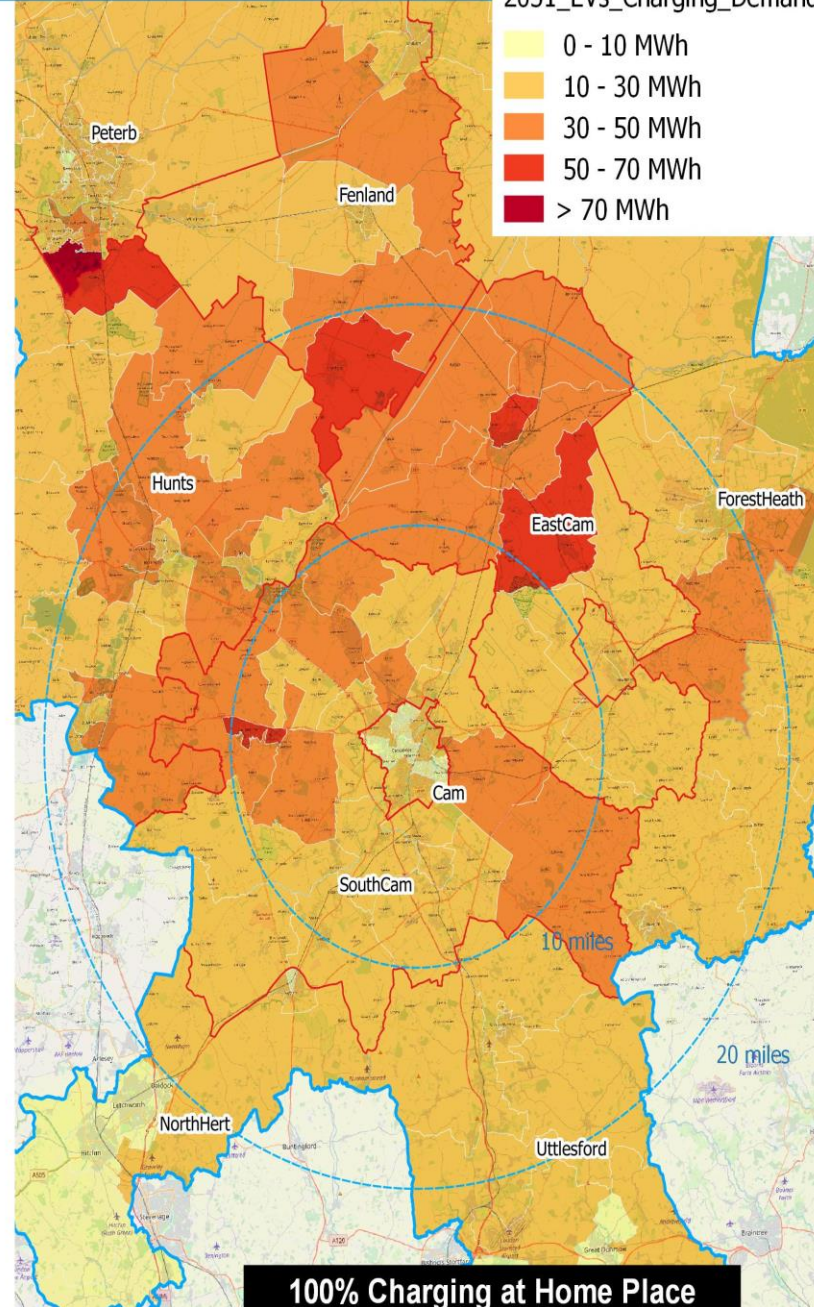
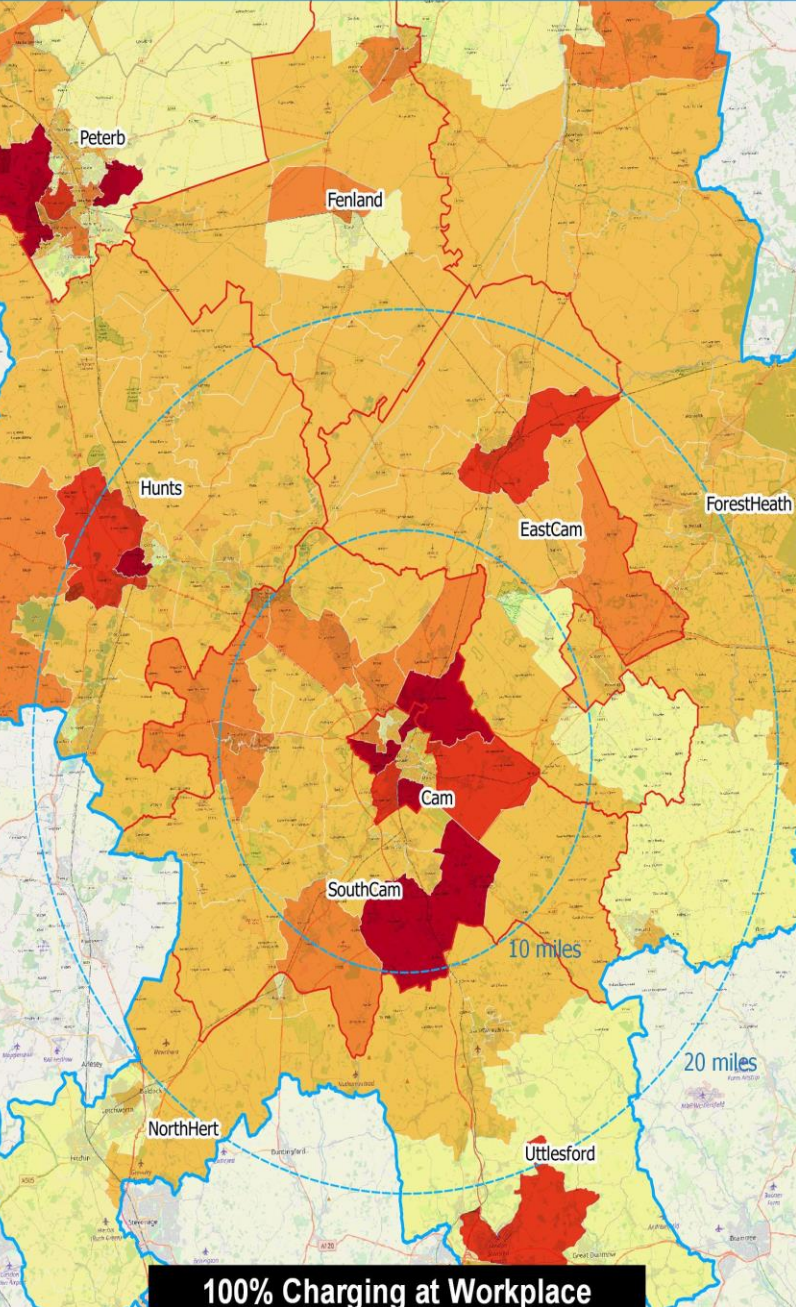
- Scenario 1: Prevalence of teleworking
- Scenario 2: EV charging demand

2051 Electric Vehicles (EVs) Charging Demand

ASSUMPTION: All commuting cars into Cambridge are EVs

Legend

2051_EVs_Charging_Demand



- ‘Demo’ version:**
- Future **journeys to work** and **socio-economic** implications
 - **Interdependence** among infrastructure systems to support **holistic problem solving**
 - Bringing together **data analytics, simulation and interaction** (user requirements, including citizens)

Second Phase

Phase 2: what a digital twin could do for CBC - Exploring the potential of linking multi-source data to inform policy making

- Insight from the Automatic Number Plate Recognition (ANPR) data
- Beginning to build out additional data sets



New communities – NE Cambridge

- Topic Paper – Inform Area Action Plan
 - Future Mobility
 - Environmental Monitoring
 - Connectivity
 - Energy and sustainable development
- Embed ‘Smart Principles’
- Become an innovation district support testbeds and trials
- Create a ‘digital twin’ to support planning process, construction and operation

