

# Geospatial Data Engineering for Urban and National Digital Twins

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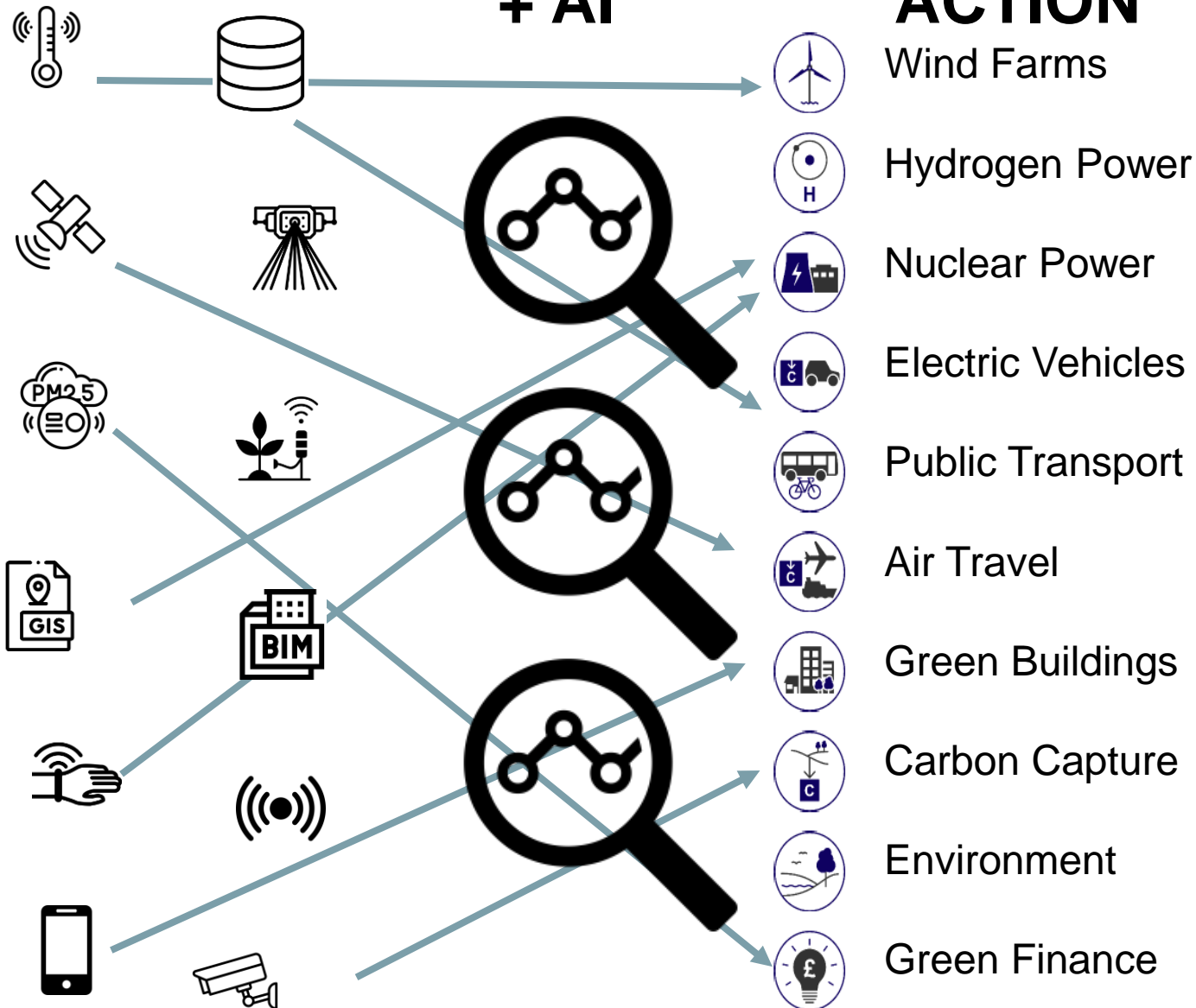
**DATA**

**DATA  
SCIENCE  
+ AI**

**Net Zero  
DECISION/  
ACTION**

Physical

Physical



# Electrical Vehicle Chargers

[Perth & Kinross Electric Vehicle Charging](#)

[Electric Vehicle Charging Points](#)

## About Us

Zap-Map makes electric vehicle (EV) charging simple.

We are the UK's leading app and digital platform for EV drivers to share updates with other EV drivers.

With 95%+ of public charge points mapped and around 70% of cl of mind and the confidence to drive any length of journey in their

**GOV.UK**

Guidance

## Find and use data on public electric vehicle chargepoints

Accessing and adding data on the National Chargepoint Registry (NCR) on public electric vehicle chargepoints in the UK

From: [Department for Transport](#)  
Published 11 August 2020

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 — [Adding data to NCR](#)

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The NCR is a database of publicly available chargepoints for electric vehicles in the UK established in 2011. While the database is freely open to all who wish to use the database, the main data users are business data users for their products (such as smartphone apps, satellite navigation and route planning).

### Accessing data on NCR

The dataset is available in CSV, JSON or XML formats as a download using the links below or by using an API. No registration or login is required.

[NCR dataset in CSV format](#)

For Developers:

[NCR full dataset in XML format](#)

[NCR full dataset in JSON format](#)

### Related content

[Child Trust Funds: communication resources](#)

[Triggering the JCPoA Dispute Resolution Mechanism: Foreign Secretary's Commons statement](#)

	Oct-21
per 100,000	
devices	
	25,927
	25,595
	21,925
	916
	124
	31
	11
	30
	186
	34
	85
	415
	66
	124
	47

ng and

ceace

650,000 data scientists

178,000 data-related vacancies

22% time spent searching for data

22% time spent preparing data

10 million hours lost per year

Urban and National DT delayed

Net Zero Not Achieved

**Data Engineering**

**What do we have?**



Loads of Net Zero data



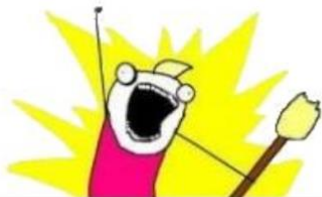
**What do we want?**



Trusted, clean data for  
Net Zero Digital Twins



**What do we do with it?**



Share it via a portal or  
keep it to ourselves



**Why don't we have it?**



We can't find it,  
it's not usable



**What happens next?**



££ and CO2 impact  
Data isn't used



**What can we do?**

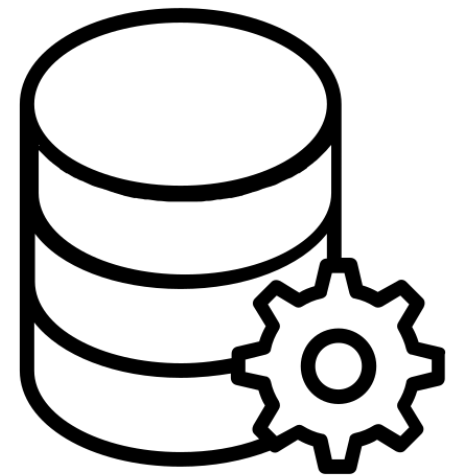


**Waste up to 50%  
of our time!**



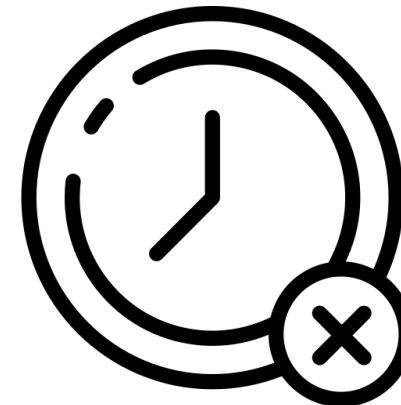
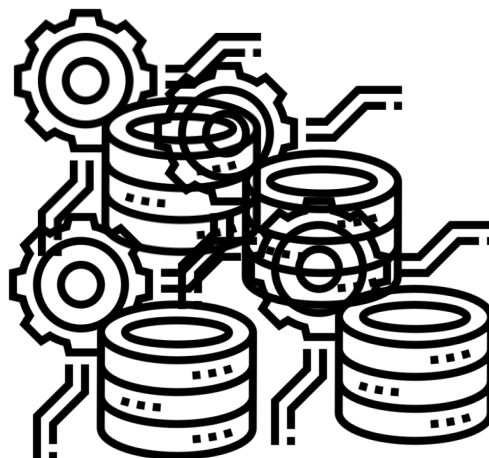
# Data Engineering for Digital Twins

- Data Engineering
  - Maintain the flow of data between producers and users, converting captured data to data that a data scientist can easily use
    - “All about the movement, manipulation and management of data” (Lewis Gavin)



“Data engineers are responsible for building the infrastructure that helps data scientists work their magic”  
(Brian Murray, Fundamentals of Data Engineering)

Data Science

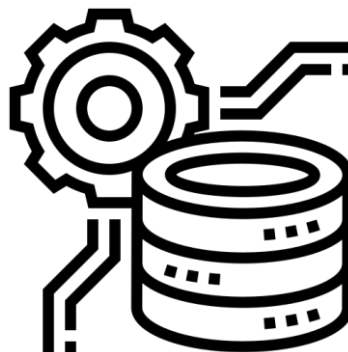
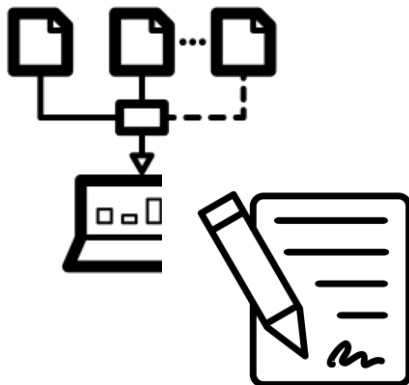


Sourcing /  
Licensing Data

Pre Processing  
Cleaning  
Data Pipelines

(Long Term)  
Data Curation/  
Publication  
Standards

Data  
Engineering



Data Engineering

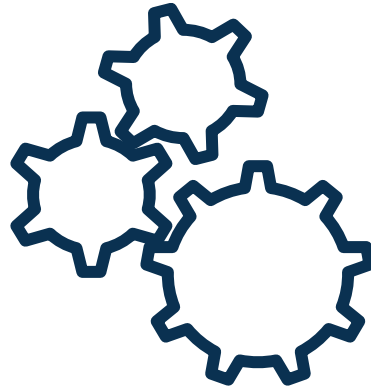
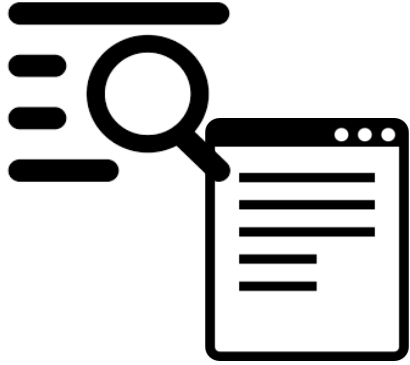
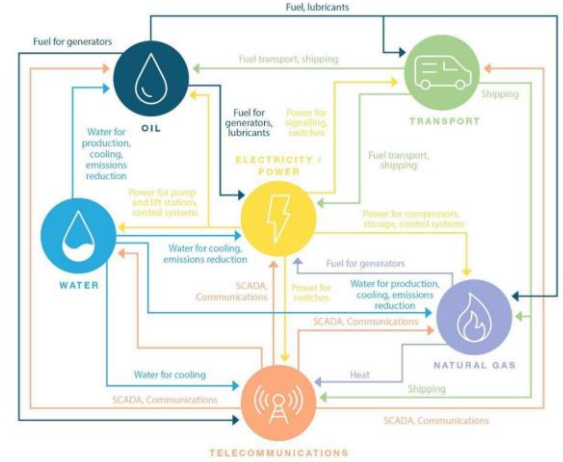


Image: National Infrastructure Commission



Discovery

Interoperability

National Scale  
Connected DT

Geospatial-First

Data  
Engineering

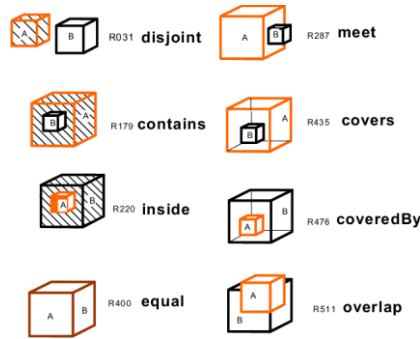


Image: Prof. Sisi Zlatanova

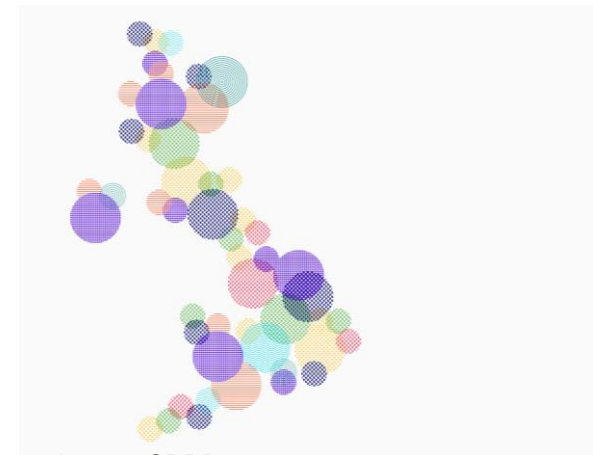


Image: CDBB



## Next Steps - Evidence Gathering

- The evidence for the 22% search time + 22% pre-process data time is a little flimsy
  - However, practitioners do seem to all agree that they spend extensive time on these tasks
  - We need some good evidence – and user studies – to substantiate these numbers
- Quantify the benefits of a geospatial-first data engineering approach for Urban and National DT

