Electric Vehicle Energy Taskforce

Work Package Four:
Accessible data for decision making

Agenda

- Agreed Questions

- Supporters

- Digital Integration

- Key Challenges: Use Cases, Data Ownership, Data Sharing

- Stakeholder Interdependencies

- Customer Acceptance & Whole Energy System Benefits / Readiness

- Charging Infra-structure Deployment Considerations

- High Level Principles

- Q&A

Agreed Questions

(1) What is the relevant data for decision making, who owns and benefits from it and where does it come from? What standards should this data feed?

(2) How can data help remove barriers/ease access to getting a connection for EV charging infrastructure (and help inform EV infrastructure investment decisions)?

(3) How can data help system operators improve system operation to help with EV demand?

(4) How could sharing of data (e.g. around demand forecasting) help the energy sector better meet the energy impacts of EVs? How should we use data and how could sharing it be enabled and encouraged?

(5) Do DNOs need better monitoring of the low voltage network or will real-time data from smart charging largely avoid the need for this?

(6) What data is needed to get the right types of chargepoints in locations that best meet the needs of EV users and the energy system?

Supporters

BEAMA
BMW
Citizens Advice
EA Technology
Energy Network Association
Eversheds Sutherland (International) LLP
Gemserv
Greater London Authority
HSBC, Sustainable Finance Unit
Imperial College London
LowCVP

National Grid System Operator
National Grid Transmission Owner
Nuvve
Octopus Electric Vehicles
Ofgem
Pod Point
Scottish and Southern Electric Networks
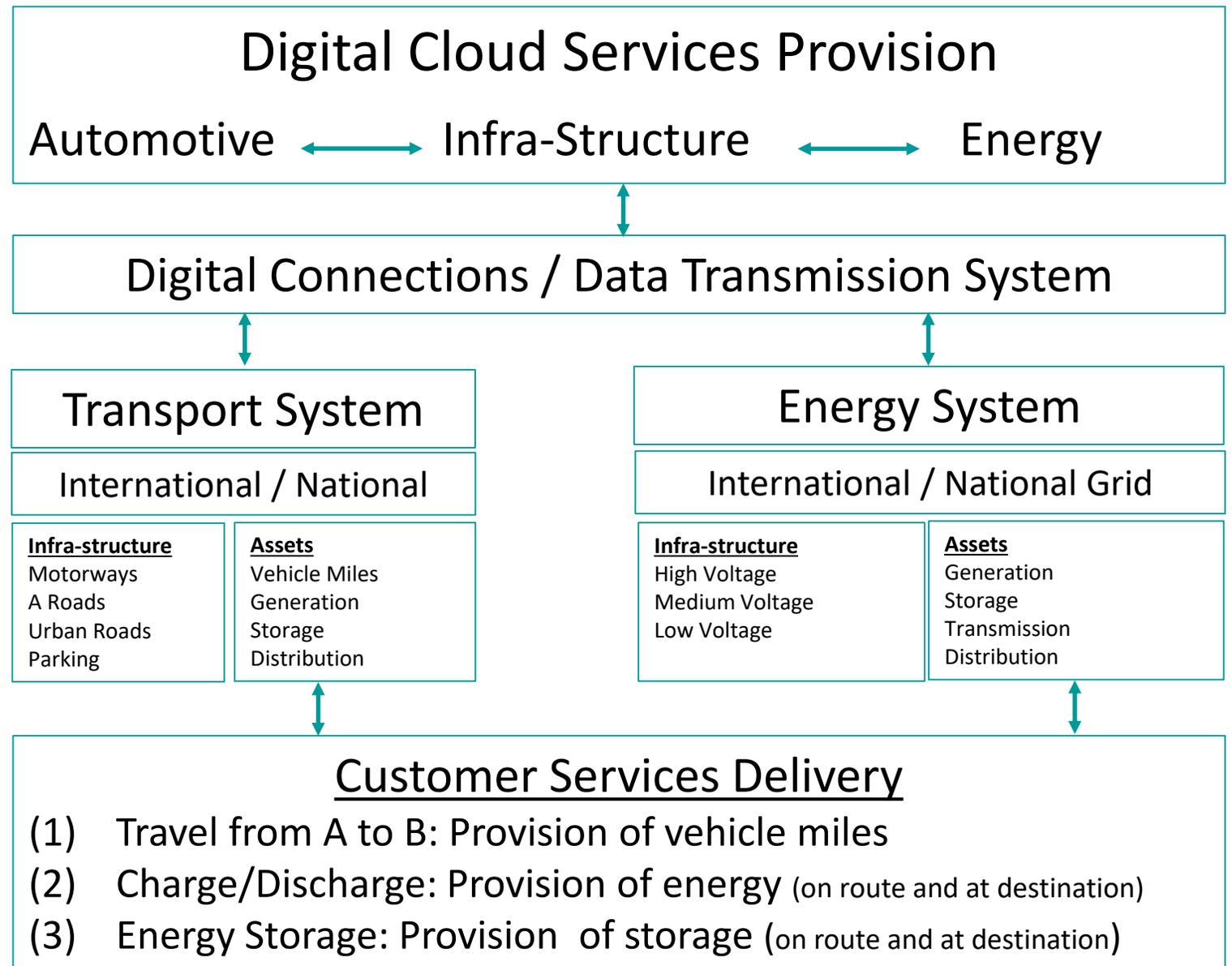Scottish Power
TechUK
Tesla
UK Power Networks
Vodafone

cATAPULT Energy Systems

LowC VP Low Carbon Vehicle Partnership

Office for Low Emission Vehicles

Digital Integration

Data is everywhere.

How to make the most of it?

Whole system perspective.

Digital Cloud Services Provision

Automotive ⟷ Infra-Structure ⟷ Energy

Digital Connections / Data Transmission System

Transport System

International / National

Infra-structure	**Assets**
Motorways	Vehicle Miles
A Roads	Generation
Urban Roads	Storage
Parking	Distribution

Energy System

International / National Grid

Infra-structure	**Assets**
High Voltage	Generation
Medium Voltage	Storage
Low Voltage	Transmission
	Distribution

Customer Services Delivery

(1) Travel from A to B: Provision of vehicle miles
(2) Charge/Discharge: Provision of energy (on route and at destination)
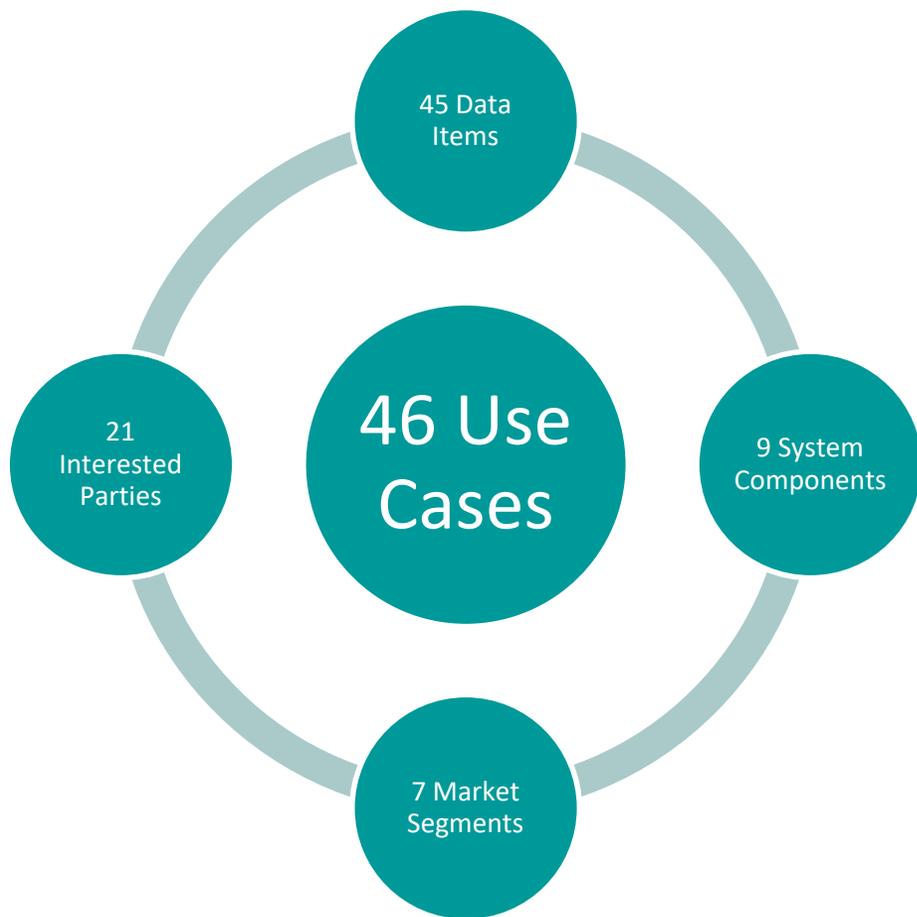(3) Energy Storage: Provision of storage (on route and at destination)

Key Challenges

- Complex use cases

- Interdependent Market Segments

- Data Sharing / Ownership

Stakeholder Interdependencies

45 Data Items

21 Interested Parties

46 Use Cases

9 System Components

7 Market Segments

For example:

If you don't know the state of charge of the vehicle parc by location you have no idea how much flexibility is available to maximise utilisation from renewable generation.

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Office for Low Emission Vehicles

Customer Acceptance – Whole Energy System Benefits and Readiness

- Products and services need to be designed with the customer in mind

- The uptake of EVs is beyond energy system commodity sales

- **<u>For example:</u>**
  - My EV is not charging because of supply curtailment.

  - My Solar PV is exporting to the grid, because my EV charger has been switched of.

  - I don't know who is using my data for what purposes?

  - Who is responsible, the car manufacturer, the infra-structure operator, the energy supplier, etc.?

Infra-Structure Deployment Considerations – Horses for Courses

Range of Charging Solutions:

- Managed or unmanaged

- Destination or on route

- Low power or high power

- Uni-directional or bi-directional (V2X)

- Plug-in, pantograph, battery swap, static wireless and/or dynamic wireless

- With or without energy storage

Deployment Drivers: Energy System, Vehicle Parc, Technology, City, Road Network, Customer, Business
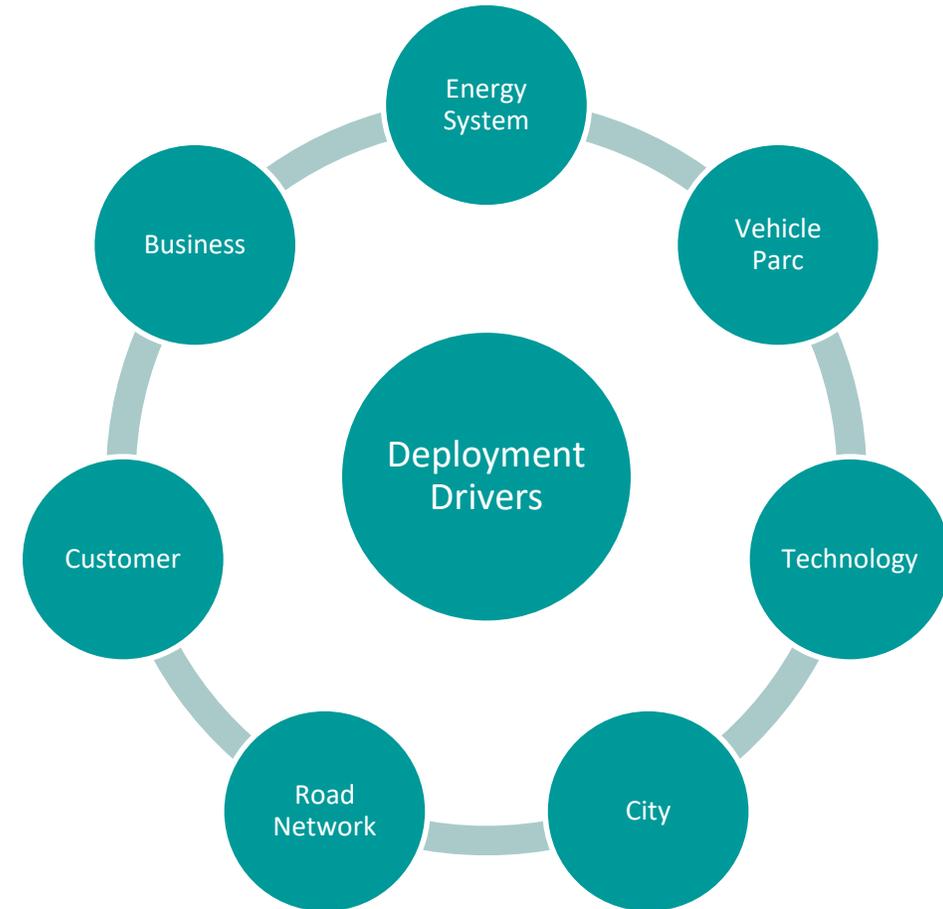
High Level Principles

- (1) Digital integration must be **inclusive to all market participants** to maximise the uptake of electric vehicles and unlock whole system value pools.

- (2) There needs to be clear guidance with regards to **governance** of data ownership, data sharing and management of data between market participants to create a level playing field. A cross market sector approach is required.

- (3) Digital integration is not bound by national boundaries and a **global market view** should be adopted for the UK to enter a global lead position.

- (4) **Customer** choice, customer assurance and customer value will determine the pace of innovation and time to market for novel digital products and services.

- (5) The digital integration of Electric Vehicles from a whole system perspective is a pre-cursor towards Connected Autonomous Vehicles (CAV) and as such wider aspects of **cyber security**, increasing levels of **algorithmic automation** and the rise of **artificial intelligence** should be taken under consideration.

Q&A