Mobility in a future smart city

The effect on people, commerce, infrastructure
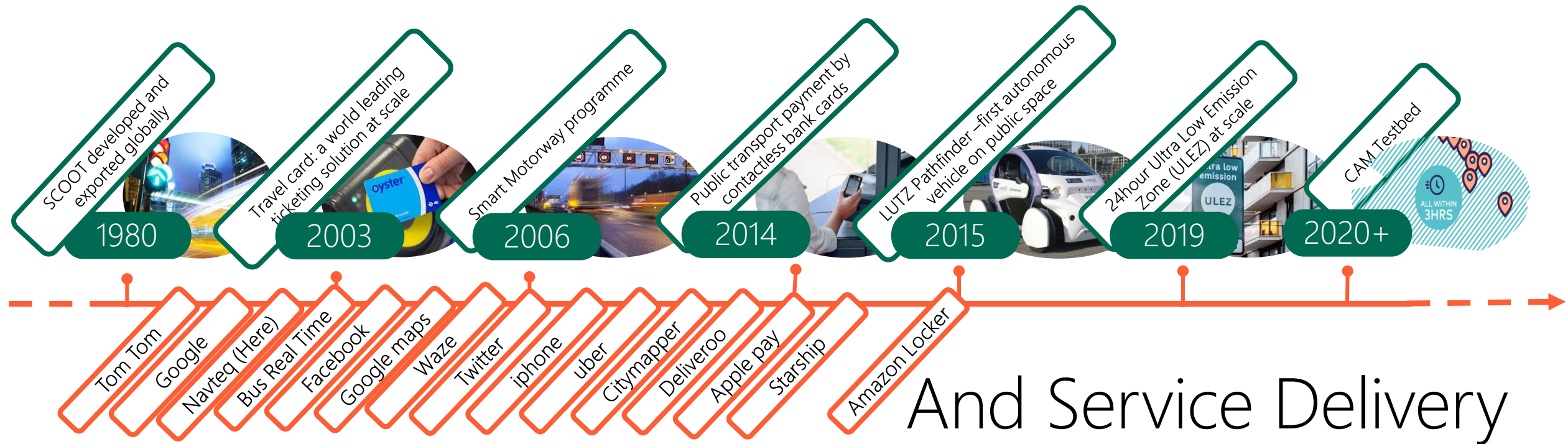
cataPULT
Connected Places

- Mobility
- User Perspective
- Last Mile
- Goods
- Electric
- Assets
- Smart?

Mobility

Innovation in mobility

1980 — SCOOT developed and exported globally

2003 — Travel card: a world leading ticketing solution at scale

2006 — Smart Motorway programme

2014 — Public transport payment by contactless bank cards

2015 — LUTZ Pathfinder – first autonomous vehicle on public space

2019 — 24hour Ultra Low Emission Zone (ULEZ) at scale

2020+ — CAM Testbed

And Service Delivery

- Tom Tom
- Google
- Navteq (Here)
- Bus Real Time
- Facebook
- Google maps
- Waze
- Twitter
- iphone
- uber
- Citymapper
- Deliveroo
- Apple pay
- Starship
- Amazon Locker

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Connected Places

Smart City?

Data Lake

User perspective

Need to travel?	Options? Plan the journey	Start Leg 'the first mile'	Interchange	Main leg	Interchange	End leg 'the last mile'	Arrive and Review

| | • Modes
• Journey times
• Timetables
• Costs
• Tickets
• Accessibility
• Service levels? | • Issues?
• Parking?
• Security? | • Issues?
• Is it on time?
• Payment?
• Security | • Issues?
• Diversions?
• Delays?
• Am I going to make it? | • Issues?
• Is it on time?
• I'm late, are there options
• Payment?
• Security | • Issues?
• Parking?
• Security? | • Was it a good experience?
• Did it work?
• Would I do it again?
• Who do I share with? |

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Improving the public transport

Data Lake

Bus

NEXT BUS 2 m

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Connected Places

Other last mile options

Recent Demonstrations in Milton Keynes

Micromobility

A freight perspective
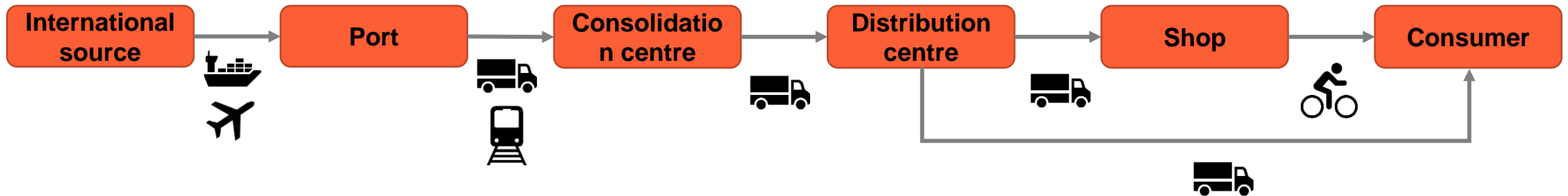
What is the status quo?

- In the UK, 60% of journeys between 1 and 2 miles are completed by motor vehicles.

- The number of Light Goods Vehicle (LGV) miles has grown by 70% over the last 20 years and vans are the fastest growing subcategory of vehicle.

Department for Transport

Congestion   Poor Air Quality   Carbon emissions

What are the opportunities and challenges?

Cost

Last-mile delivery costs on average 41% of total delivery costs

Demand

Consumers expect fast and free delivery and returns

Consolidation

Consolidation of deliveries of goods and people in low population density areas

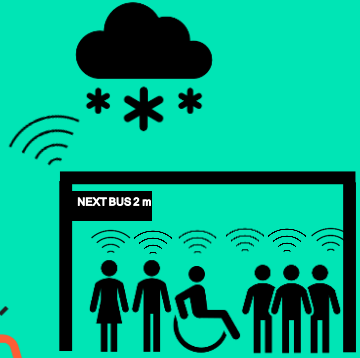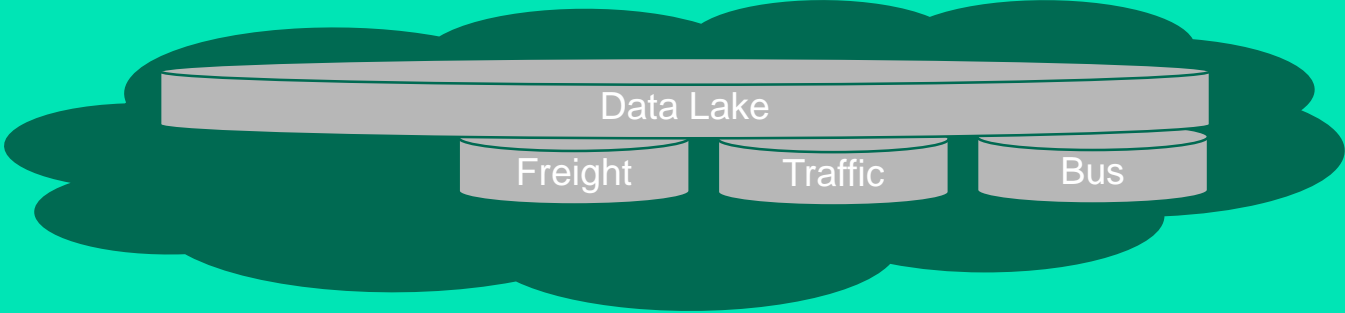**Figure 13.** Last-mile delivery is the biggest cost driver in the supply chain

Warehousing	Sorting	Parceling	Last-mile delivery	Remaining supply chain cost
13%	20%	16%	41%	11%
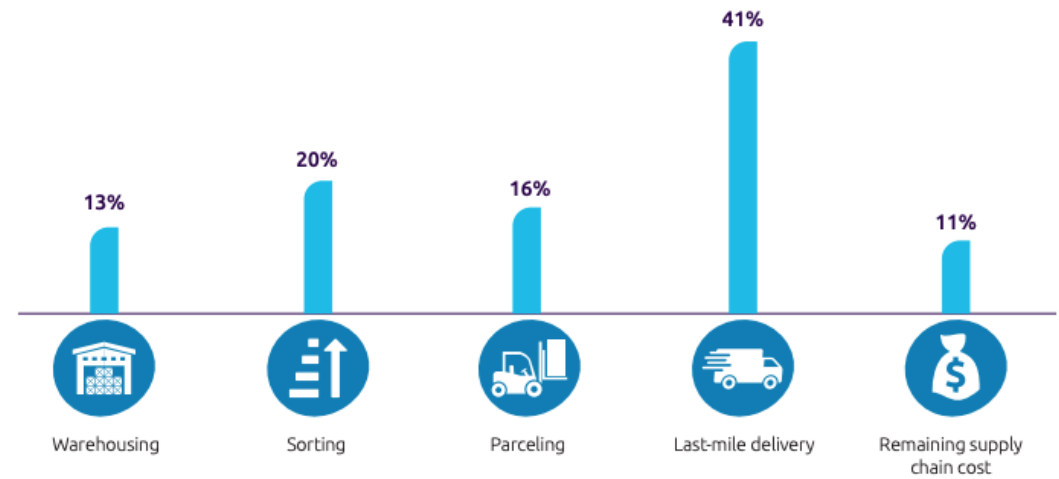
Source: Capgemini Research Institute, Last-mile delivery executive survey, October–November 2018, N=500 executives.
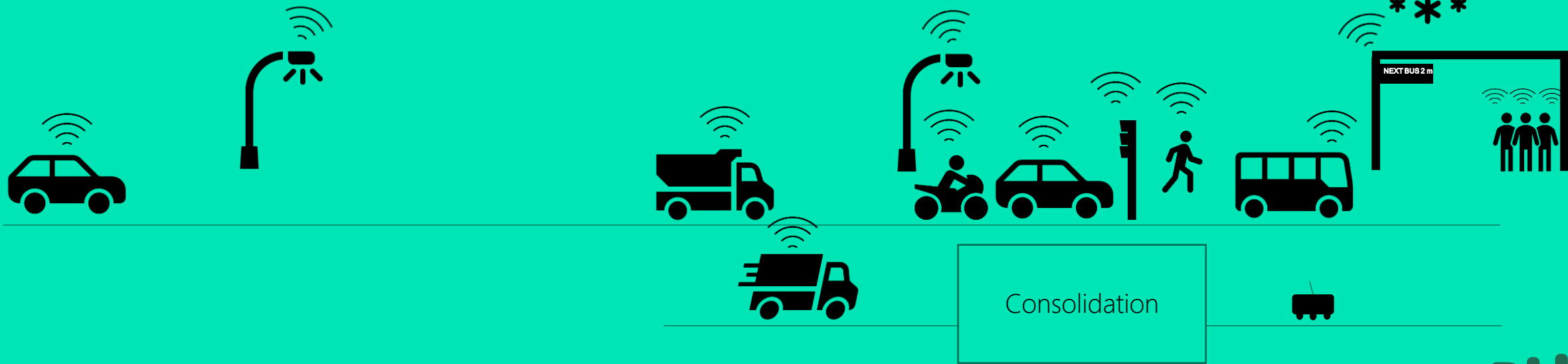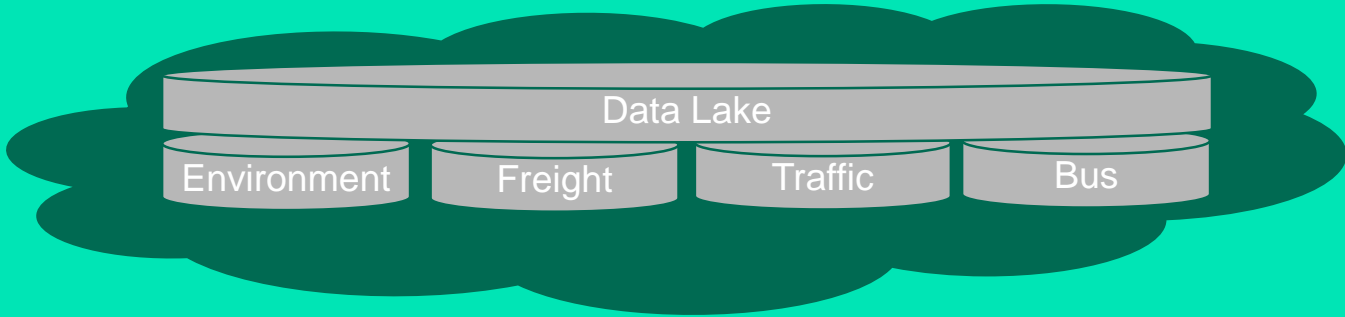
Goods Mobility
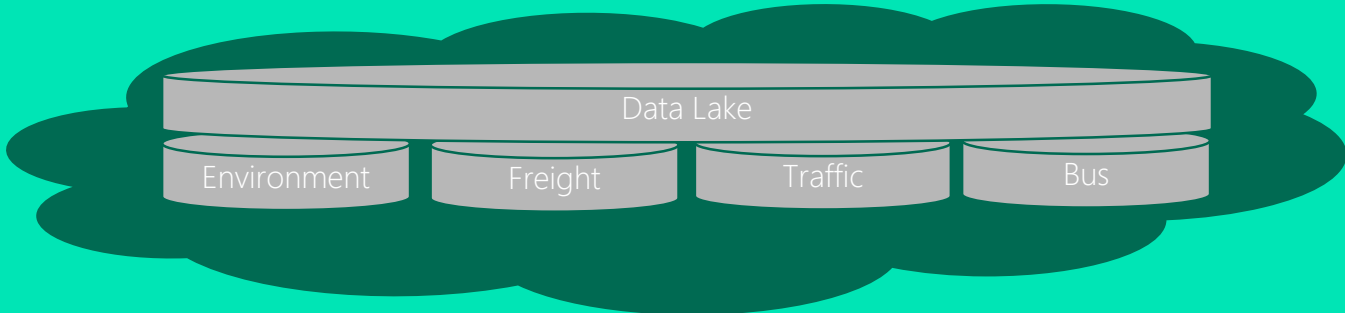
Improving the operation

Data Lake

Freight

Traffic

Bus

NEXT BUS 2 m
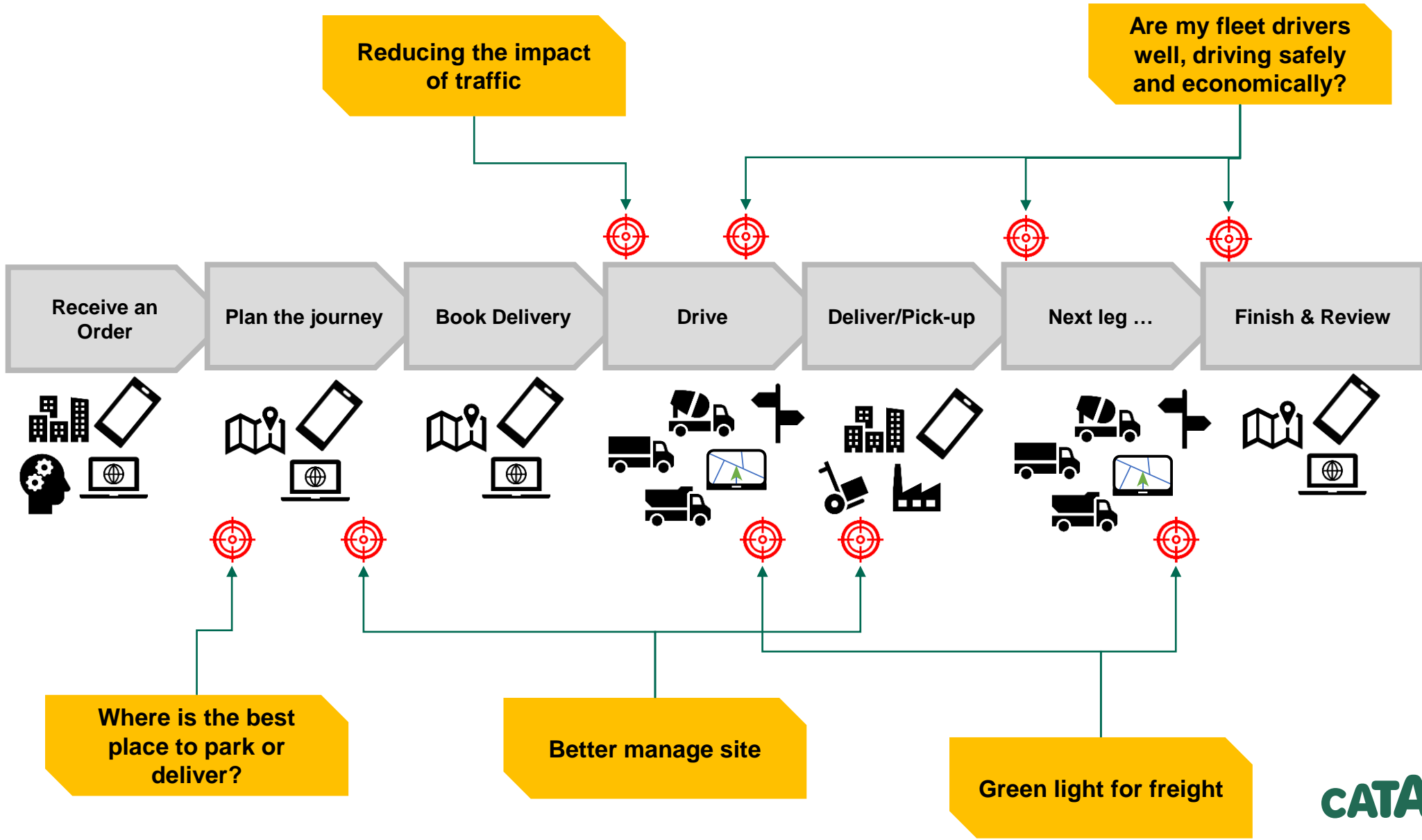
Consolidation
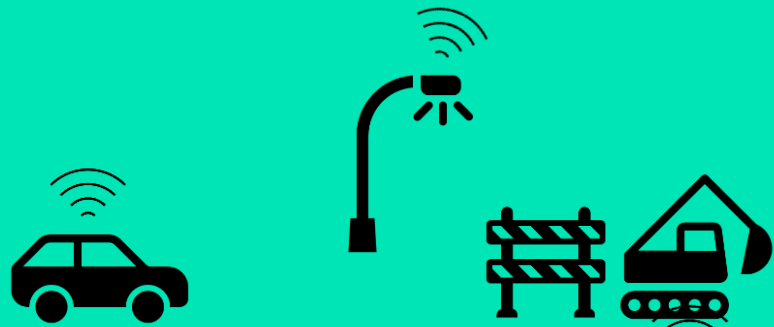
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Connected Places

Improving the operation

Going electric

Managing the assets

Data Lake

Environment   Freight   Traffic   Bus

Sewer
Water
Gas
Telecoms
Power

NEXT BUS 2 m

Consolidation

CATAPULT
Connected Places

Smart City?

Layered Data Rich Network Model
-
Digital Twin

Data Lake

| Environment | Freight | Traffic | Bus |

Assets and Network

NEXT BUS 2 m

Sewer
Water
Gas
Telecoms
Power

Consolidation

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Connected Places
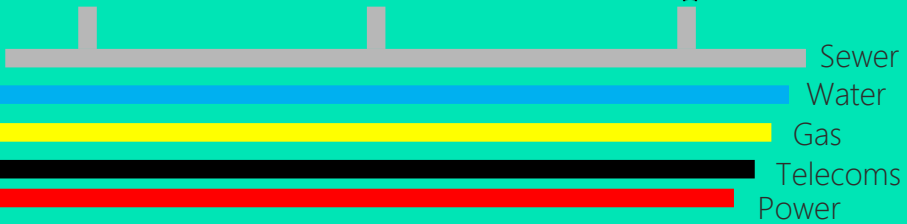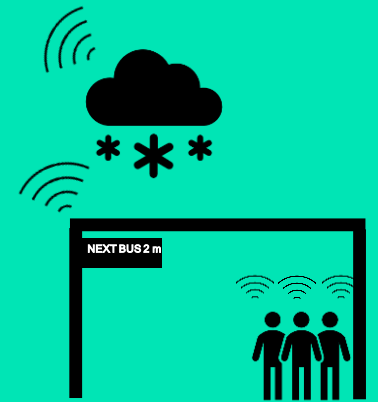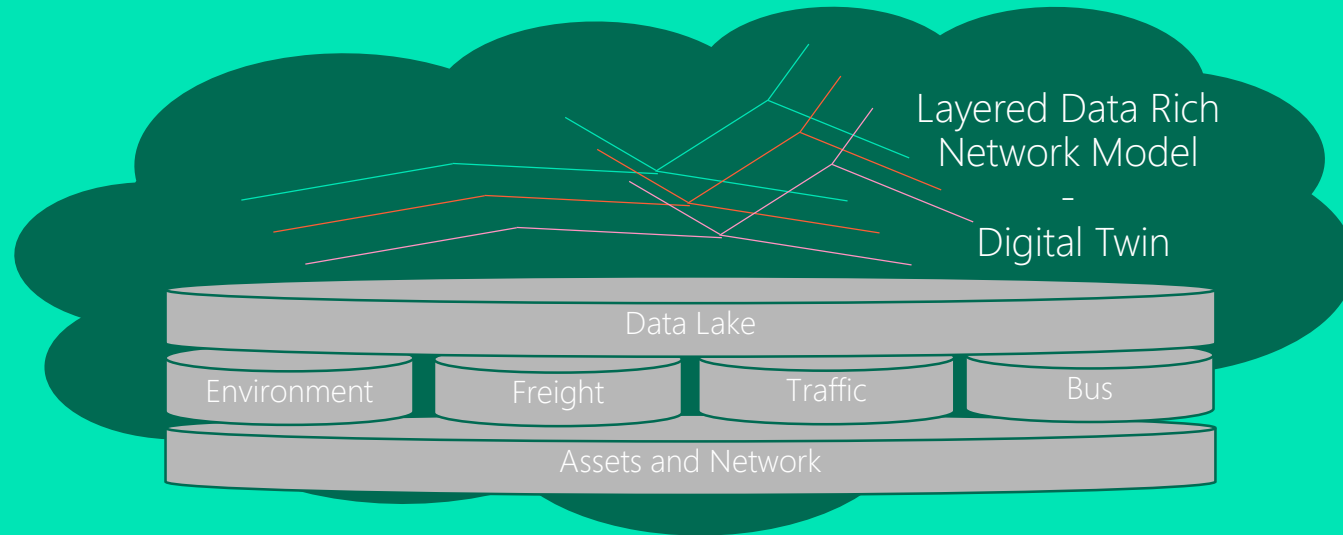
Connected
User Centric
Smart