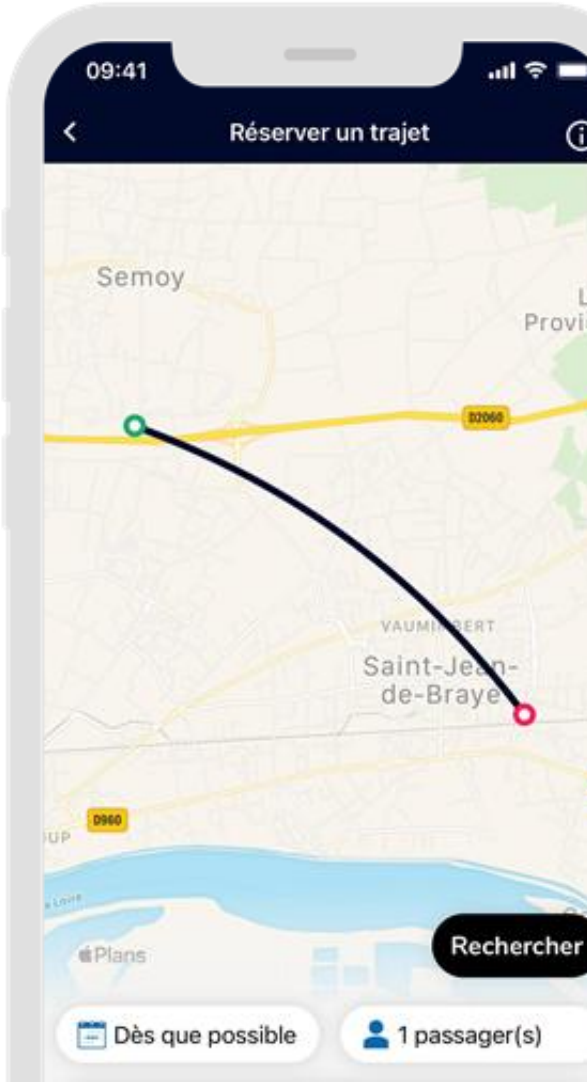
PADAM MOBILITY

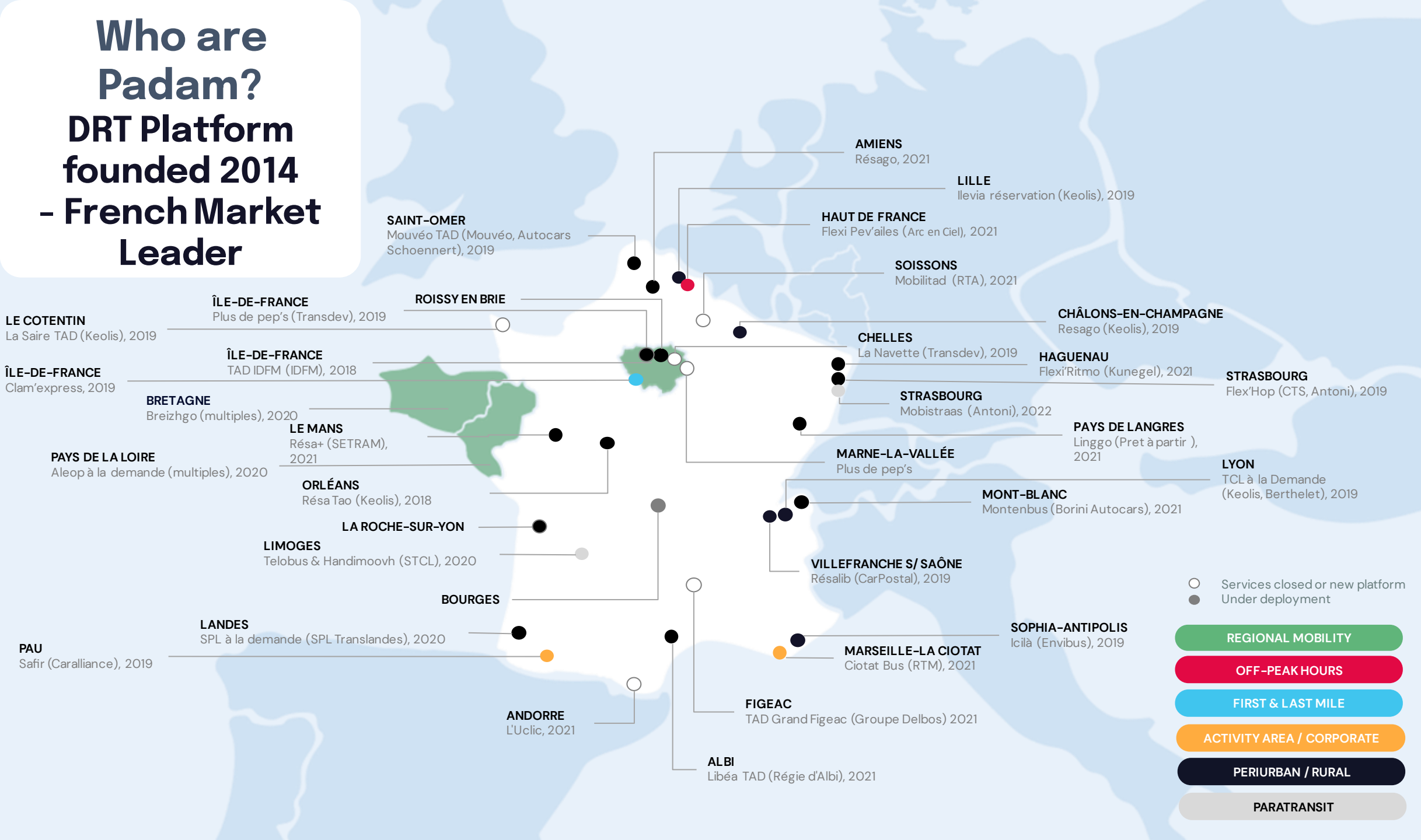
Frequency is Freedom, but is On-Demand Better?

11 July
Rural Transport Round Table



Who are Padam?

DRT Platform founded 2014 - French Market Leader



Currently active in +130 territories who deploy our solutions

GATINEAU, CANADA
STO à la demande (Taxi Loyal), 2021

KARLSTAD, SWEDEN
Karlstadsbuss Nära (Keolis), 2021

ODSHERRED, DANEMARK
Movia Trafik, simulation, 2020

AVIAPOLIS, FINLAND
HSL, simulation

BRUXELLES, BELGIUM
Sam-e on demand (STIB), 2019

UK

- **CHESHIRE WEST AND CHESHIRE** 2023
- **GLOUCESTERSHIRE** The Robin, 2022
- **HERTFORDSHIRE** HertsLynx (Uno Bus), 2021
- **LINCOLNSHIRE COUNTY** Call Connect (Lincolnshire county council), 2021
- **SURREY COUNTY** (Surrey County Council), 2021
- **LEICESTERSHIRE** New Lubbesthorpe (Vectare) 2022
- **SOLENT TRANSPORT** Southampton and Isle of Wight 2022
- **SOMERSET** (Somerton) 2023
- **HEATHROW AIRPORT** (Reading Buses) 2023

Germany

- **BADEN-WUERTTEMBERG** ZF Friedrichshafen, 2022
- **RHÉNANIE-PALATINAT** WDW NOW (DB Regio), 2020
- **HÜRTH** Hüpper (SWH), 2021
- **HÖXTER** Holibri (NPH),2021
- **PFAFFENHOFEN** Stadtbus Pfaffenhofen (Stadtbus Pfaffenhofen, GmbH), 2022
- **INGOLSTADT** VGI Flexi (Hengl Reisen), 2022

Italy

- **PADUA** QuiBus ex NightBus (Busitalia Veneto), 2019
- **ROVIGO** (Busitalia)
- **BOLOGNA** Colbus (SRM), 2021
- **VENICE** (AVM Holding)

Spain

- **MADRID** Celering Shuttle (Celering), 2020
- **EXTREMADURA** TAD Extremadura (Damas, Solis Autocares), 2021

Switzerland

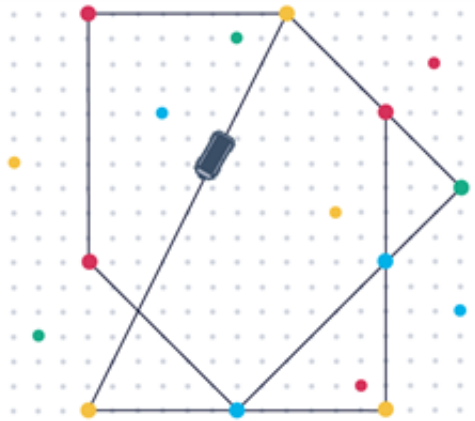
- **WIL** BOS (Bus Ostschweiz), 2022
- **GENEVA** TPG Flex, 2021

- Closed services
- Services currently in deployment

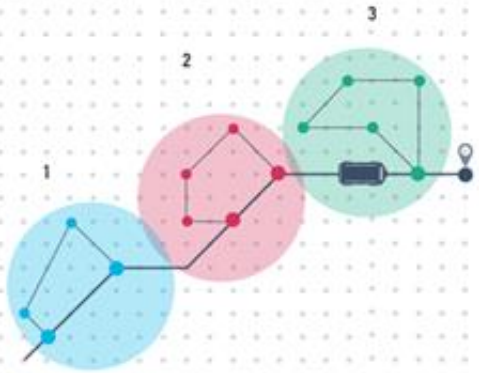
REGIONAL MOBILITY
OFF-PEAK HOURS
FIRST & LAST MILE
ACTIVITY AREAS / CORPORATE
PERIURBAN / RURAL
PARATRANSIT

Types of DRT service designs

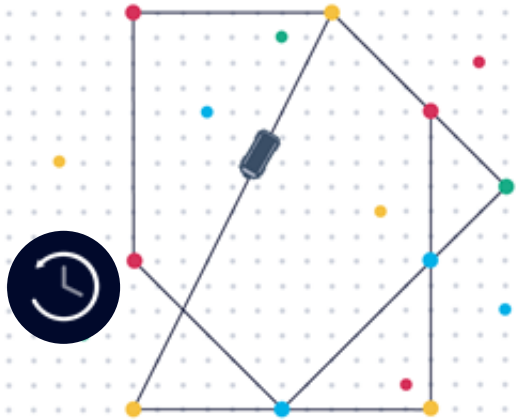
Zonal - Free Floating



Zonal - Semi Flexible

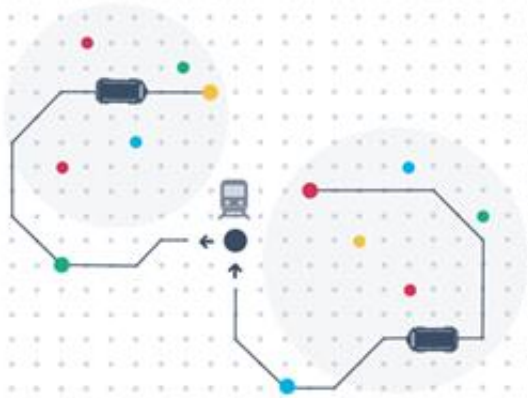


Zonal - Scheduled free-floating

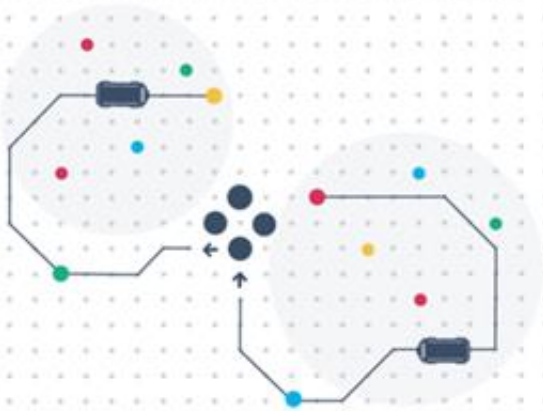


Fixed line

Zonal - Feeder



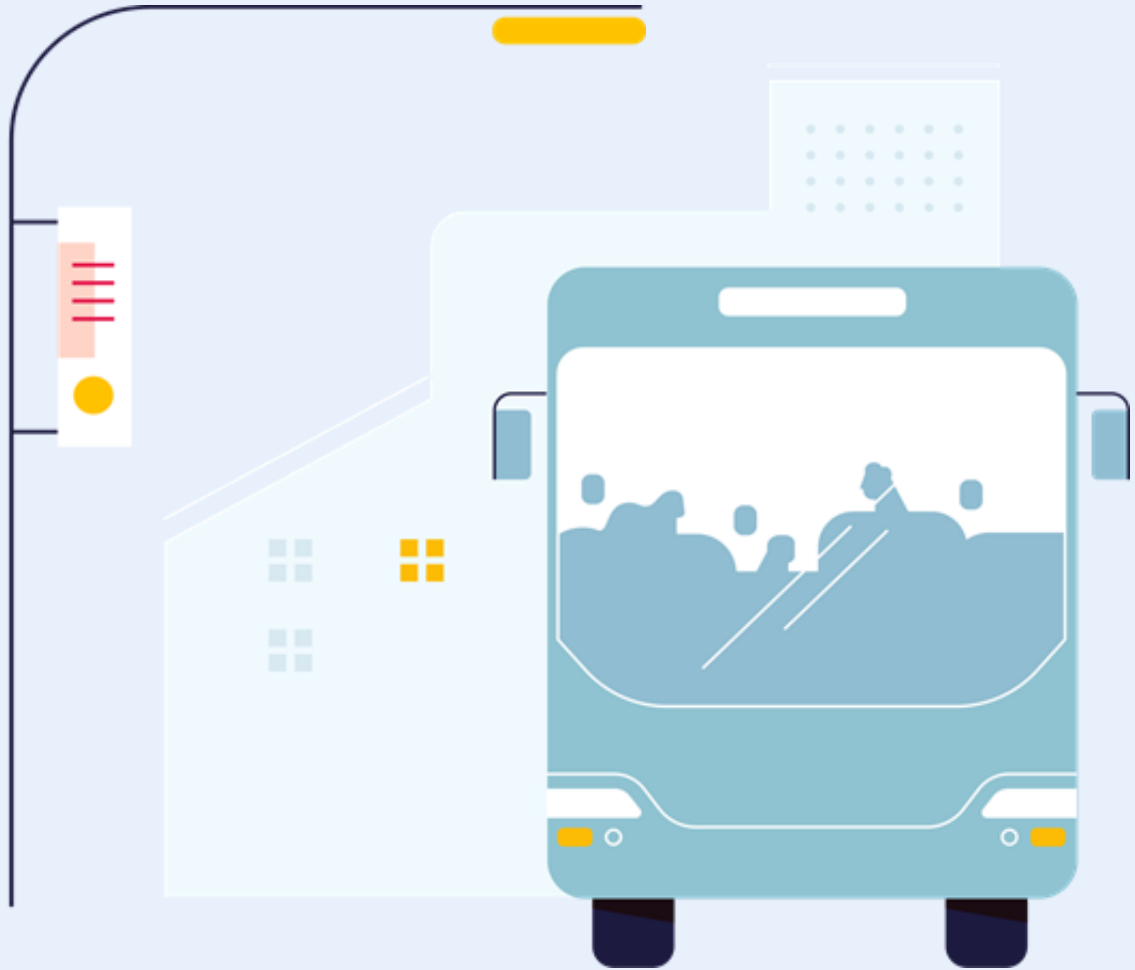
Zonal - Multi-feeder



Divergent

Virtual line

Comparing DRT and Fixed Line – What metrics can we use?



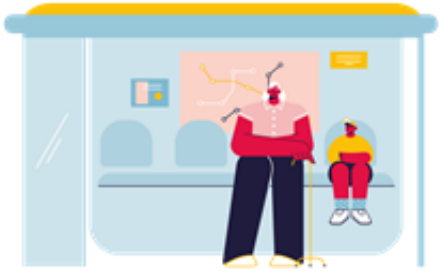
4 Suggested Metrics

Numbers of people served

- Walking distance to service stops
- And by level of service

Speed of service

- How long the journey takes



Frequency and Span of service

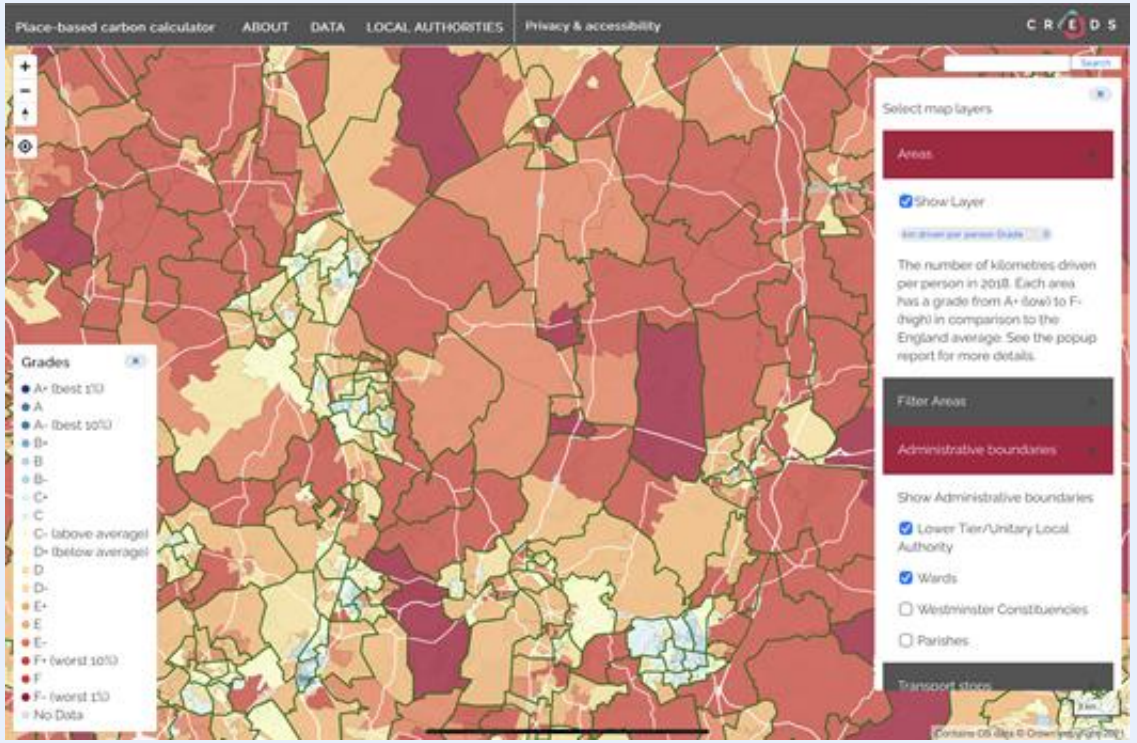
- The first and last service of the day – when can people realistically expect to travel
- How often the service runs is an indicator of how useful it is
- **Frequency is freedom = every 15 minutes**

Relative cost of provision

- Vehicles
- Service hours
- Fuel

Area studied - North East Hertfordshire

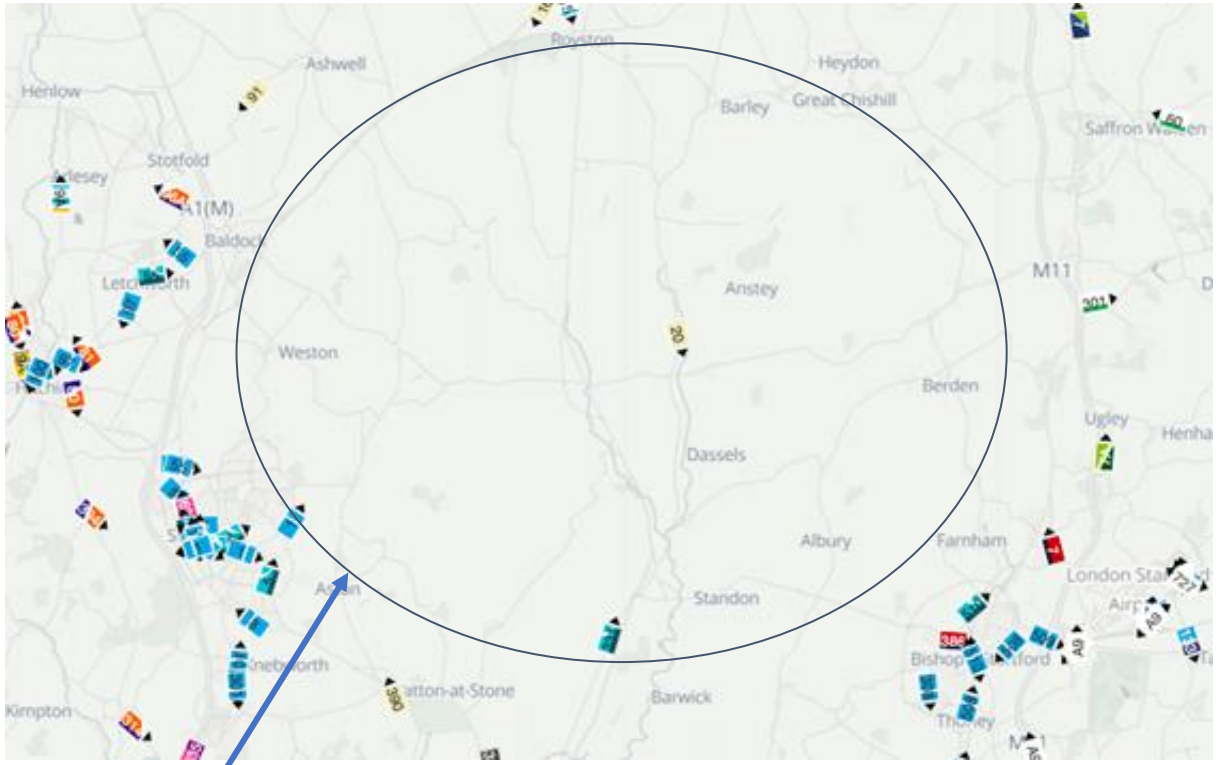
Low population density but still around 50,000 people total population



Highly car dependent – The area is among the highest emitting 10% for England and Wales, with some parts amongst the top 1%

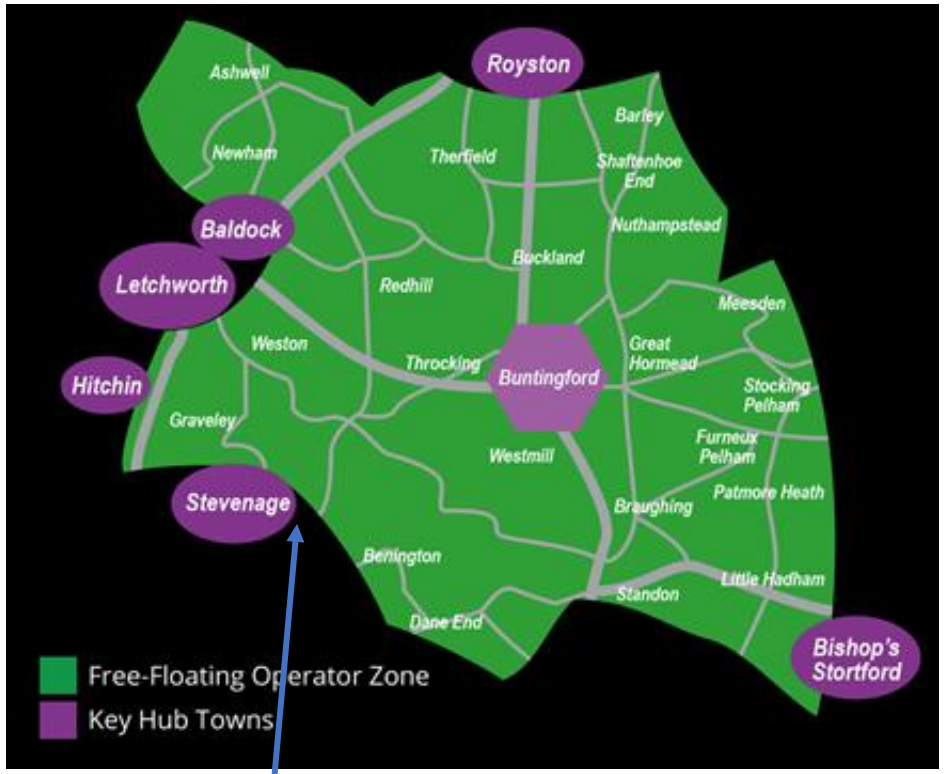
Overview of the service today

Map of fixed buses in Hertfordshire



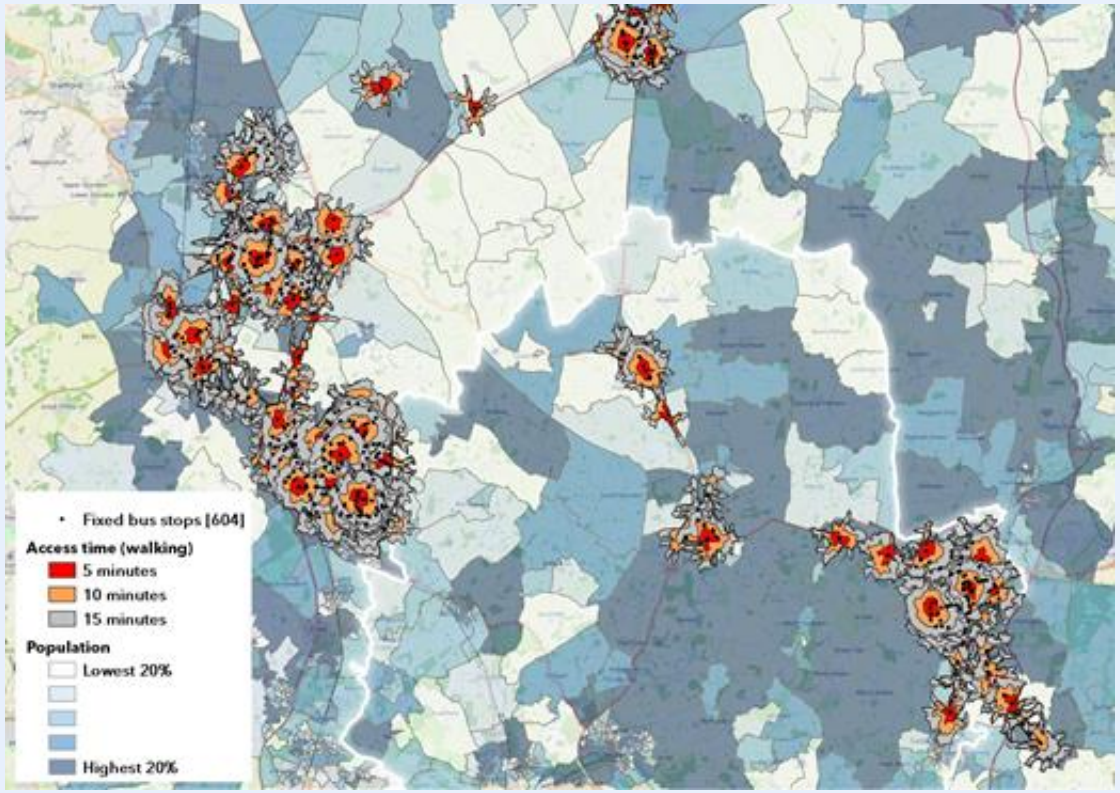
Transport Desert with no public transport for rural area to connect to market towns. **4,000 residents with no access to a bus service**

HertsLynx DRT Operation

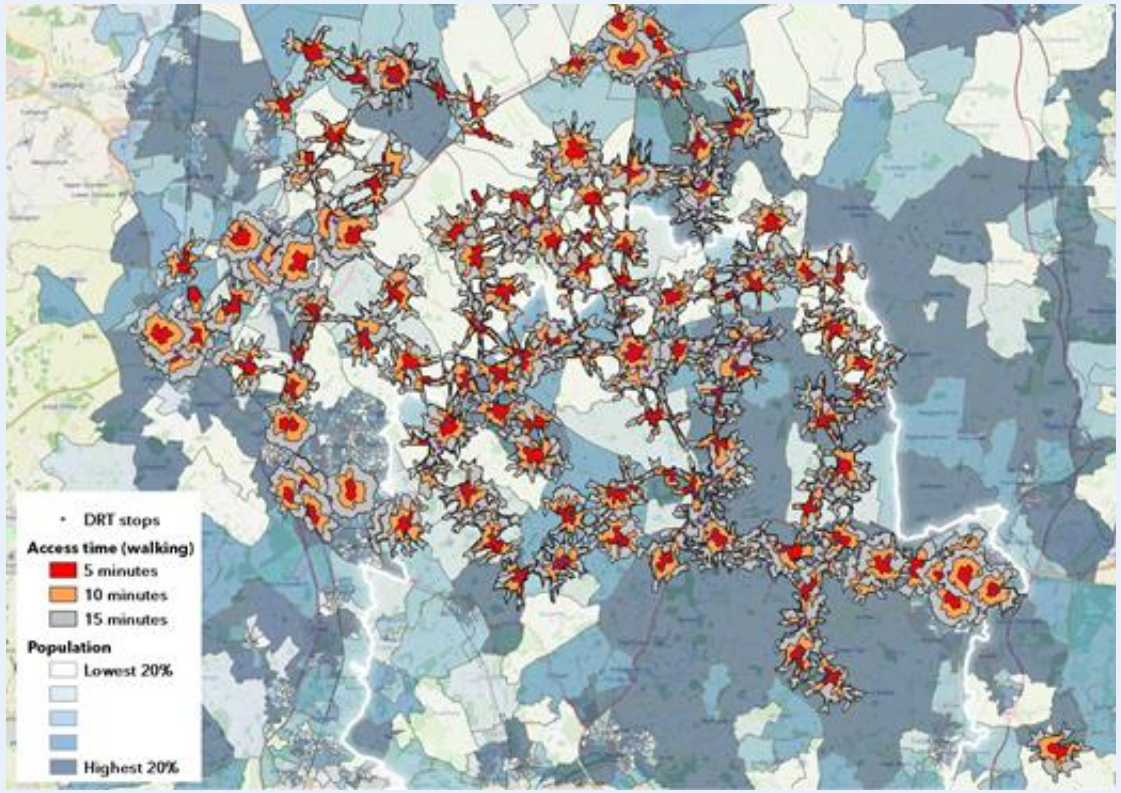


Free floating zone with 3-4 DRT vehicles serving 6 key hub towns outside of the zone. **This will transform how people travel in this region as they previously had no choice but a car.**

Metric 1: Numbers of people served



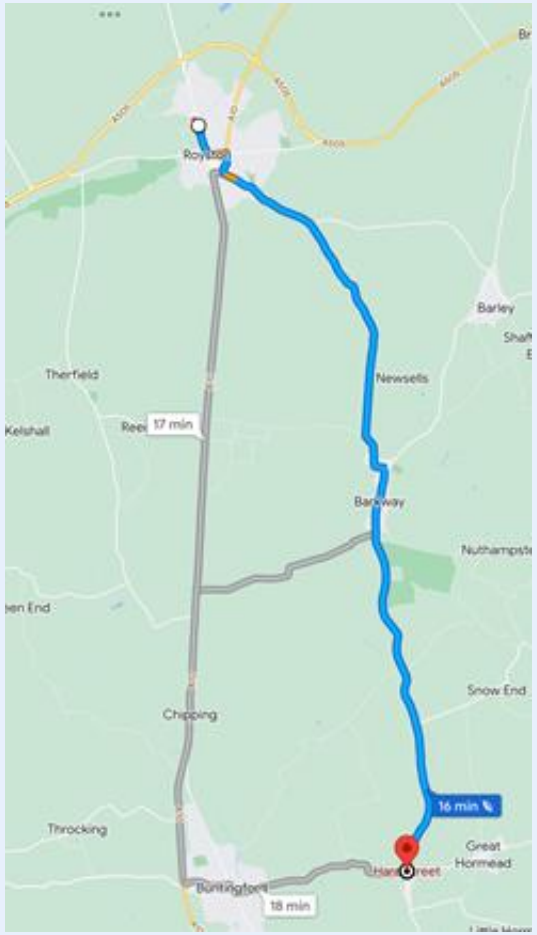
Fixed line: Our estimate is that only up to 10,000 people within the zone have access to an hourly or better service.



DRT: Substantially more people within the zone are within a 15 minute walk of a bus service.

Metric 2: Journey times

Royston Station to Hare St Buntingford

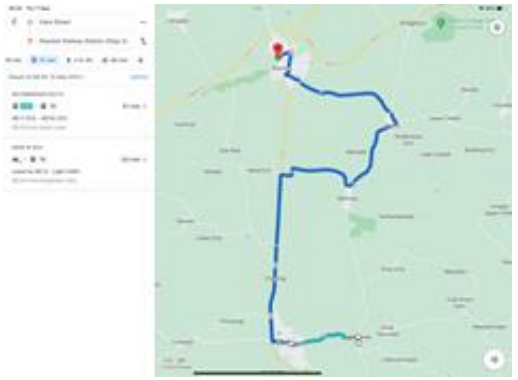


Car

- 16 minutes

Fixed line

- 84 minutes



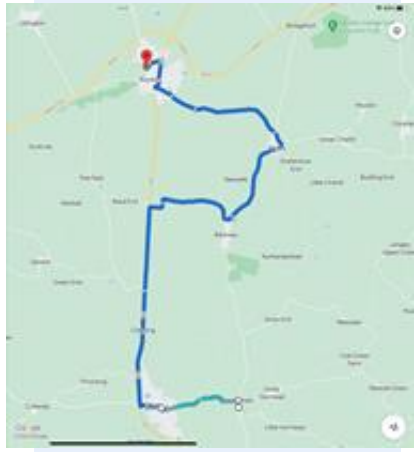
On-demand

- 32 minutes

Metric 3: Frequency

Fixed line frequency: Royston station to Hare Street Buntingford

- Bus service 18 every 2-3 hours (5 services per day)
-
- Bus service 331 every 1-3 hours (8 services per day)
- Span: from 0749 to 1757 (10 hrs 8 mins)



How can we compare frequency for fixed line transport with DRT?

Total journey time penalty score

Add a constraint (start at/arrive by) in the journey planning and calculate how long the total journey takes

Journey time penalty scores

For someone arriving at Royston station on the following trains, we looked at the real journey times

- 0846
- 1018
- 1828

For each we calculated the earliest possible arrival using timetables. For DRT we booked the trip one day, 1 week and 2 weeks ahead to account for different user behaviours (real trip requests were made and the DRT trips offered noted).

How does Fixed line match up to DRT in these situations?

08:48

Fixed: **112 minutes**
DRT: **117/78/61 minutes**

10:18

Fixed: **163 minutes**
DRT: **25/12/12 minutes**

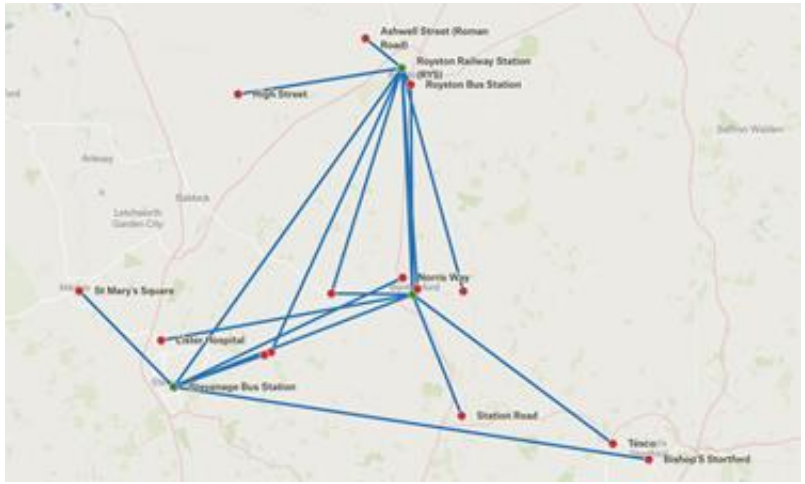
18:38

Fixed: **Not possible**
DRT: **65/52/12 minutes**

Metric 4: Resources

DRT

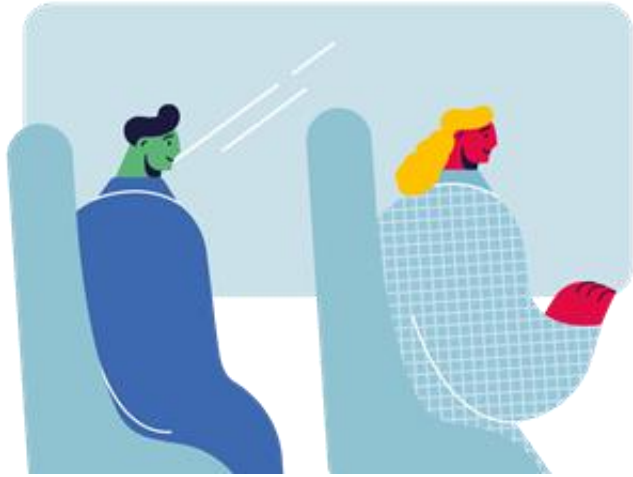
- 4 buses cover 150 square miles



Fixed line

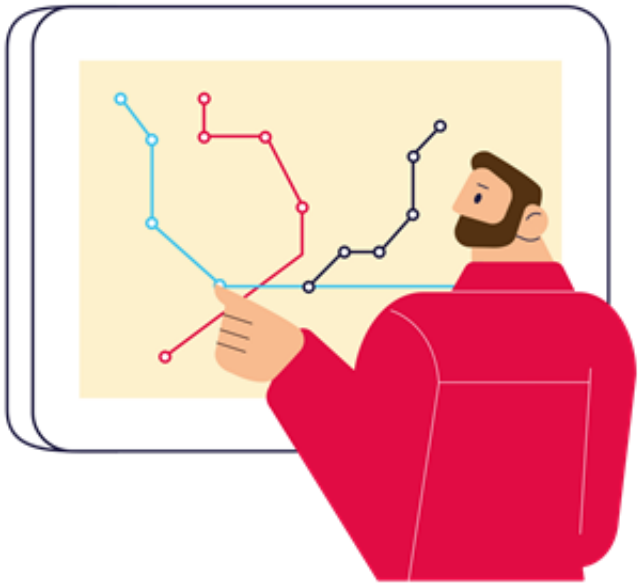
- Make Bus Route No.18 more direct (a new service would be required for Barkway) +1-2 vehicles, double frequency & increase span by 2 hours
- Increase frequency of 331 bus and span by about 25%
- This would improve just **one** of the many different trips made by DRT

Conclusions – What have we seen?



- DRT has enabled a large increase in PT Accessibility across Hertfordshire
- This has enabled journeys to be made that previously were impossible or required connections
- A frequent service, provided by DRT can minimise the “journey time penalty” and can be influenced by the booking window
- DRT and its associated resource can directly influence this penalty
- Evidence shows that to replicate the same benefit via fixed lined services, a larger economic cost would be required given the upscaling of additional vehicles and higher frequency routes
- Overall the results of the HertsLynx DRT has shown how 4,000 people who previously had no access to PT, can now be served with a new, innovative service and substantially improved access to PT for up to 40,000 more

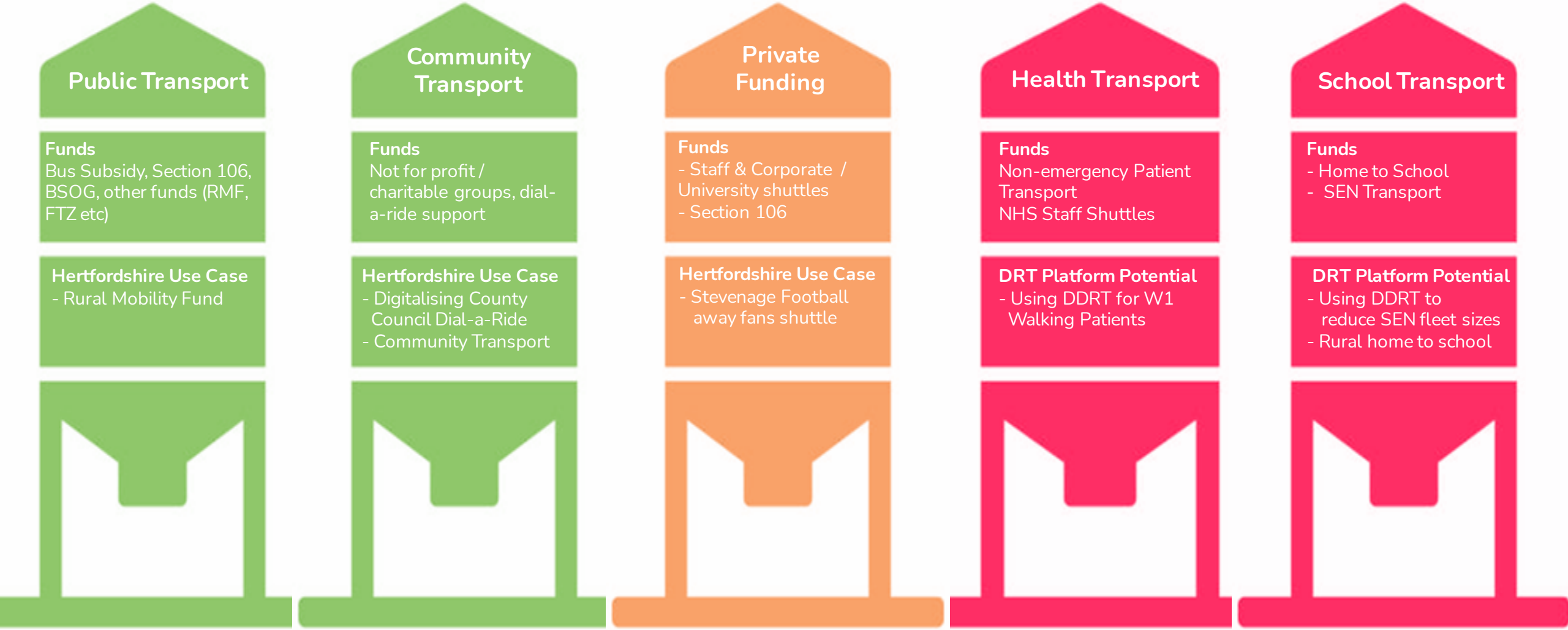
Conclusions – What has HertsLynx Achieved?



Hertslynx to-date has shown that behavioural change and modal shift can take place, in turn driving the success of the service

- 2,600 trips per month, c.30,000 trips across a rolling 12-month period
- 34% of all journeys are feeding/collecting from Train Stations
- 75% of users from the service previously had access to car
- 74% of trips are shared with other users
- 89% of all journeys are booked through the app, 9% Website, 2% Call centre
- Up to 1 in 80 residents across the service area have used the service in the last month (600+ unique customers in the past month / 1,300 unique customers in the past 12 months) in an area that has historically had very poor public transport
- Trips are averaging 8.5 miles and around 20 minutes in duration Reflective of the service area

Total Transport - Using Digital DRT solutions



Hertfordshire - Today

Under discussion

Hertfordshire - Tomorrow?

Key Factors and Metrics

DRT demand & service design depends on several factors

- demography
- geography
- existing public transport
- economical & political situation

- Ensure that the **service design matches the geography** of the region I.e. often feeder services or semi-flexible have stronger groupings and patronage than free floating.
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- Also, a great way to **reduce the cost per passenger** is to blend different forms of transport together - school, health, dial-a-ride etc.Ă

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- **If you only have funding for 1 - 2 minibuses, potentially focus on a specific problem such as a feeder service or semi-flexible**

PADAM
MOBILITY

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