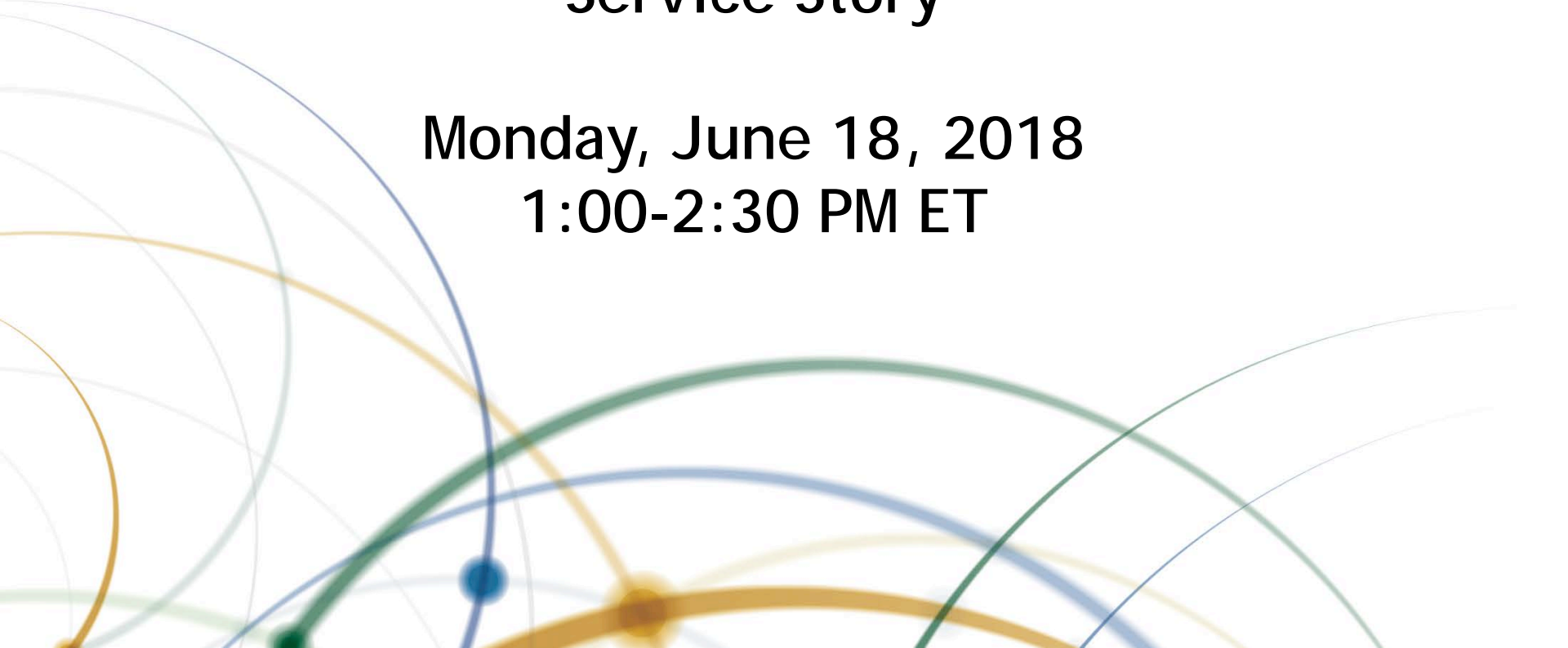


TRANSPORTATION RESEARCH BOARD

Nail it or Fail it: Building a Successful Mobility as a Service Story

**Monday, June 18, 2018
1:00-2:30 PM ET**



The Transportation Research Board has met the standards and requirements of the Registered Continuing Education Providers Program. Credit earned on completion of this program will be reported to RCEP. A certificate of completion will be issued to participants that have registered and attended the entire session. As such, it does not include content that may be deemed or construed to be an approval or endorsement by RCEP.



REGISTERED CONTINUING EDUCATION PROGRAM



Purpose

Discuss the state-of-the-practice of Mobility as a Service (MaaS) in Europe and the United States.

Learning Objectives

At the end of this webinar, you will be able to:

- Discuss history of Mobility as a Service
- Identify the main drivers for successful MaaS programs
- Describe the necessary functionality for a MaaS mobile app





MaaS ecosystem and success factors for implementation

Piia Karjalainen

Senior Manager

ERTICO – ITS Europe & MaaS Alliance



@PiiAnnika @MaaS_Alliance

Mobility as a Service

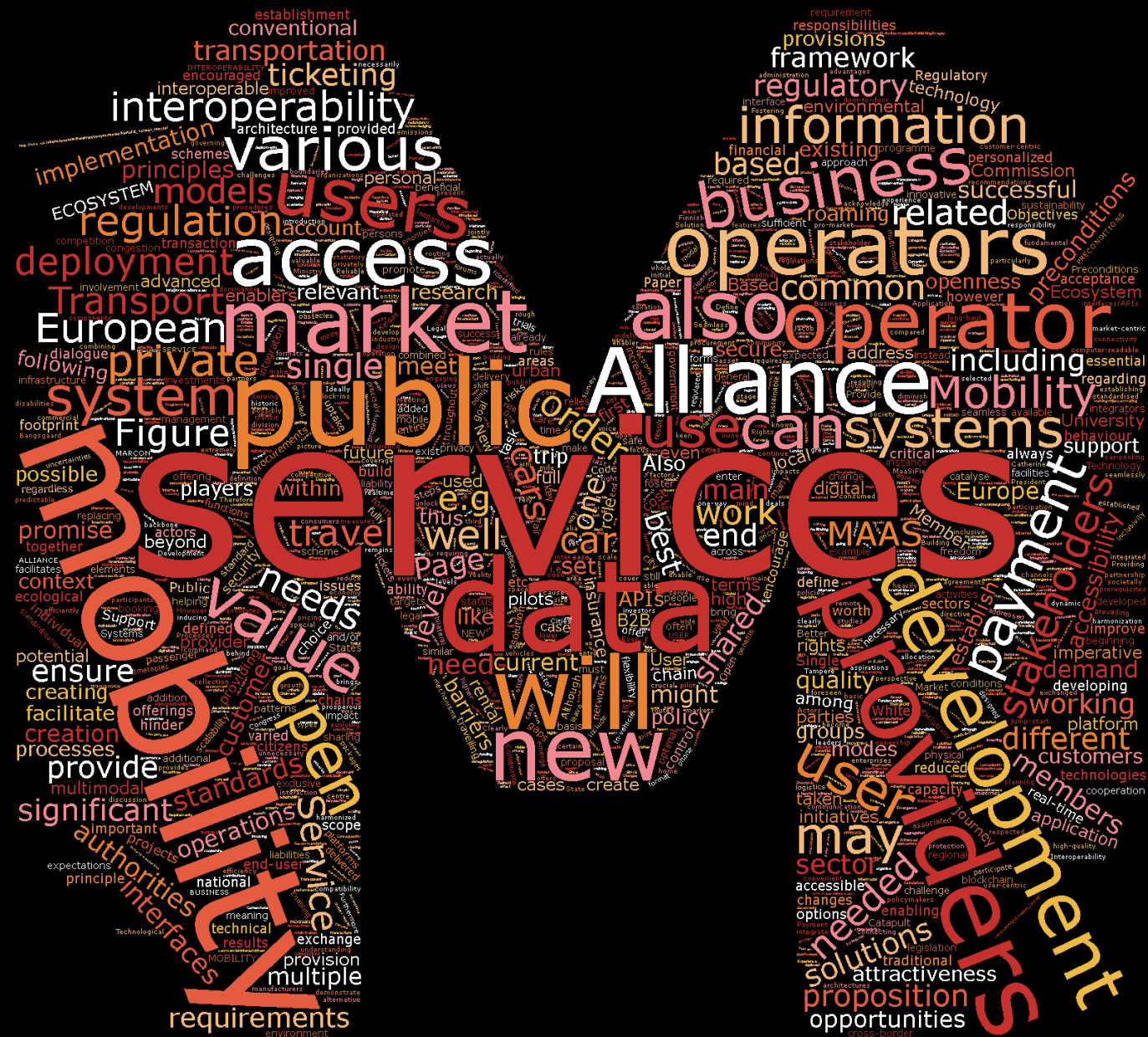
1. What?

2. When?

3. Why?

4. How?





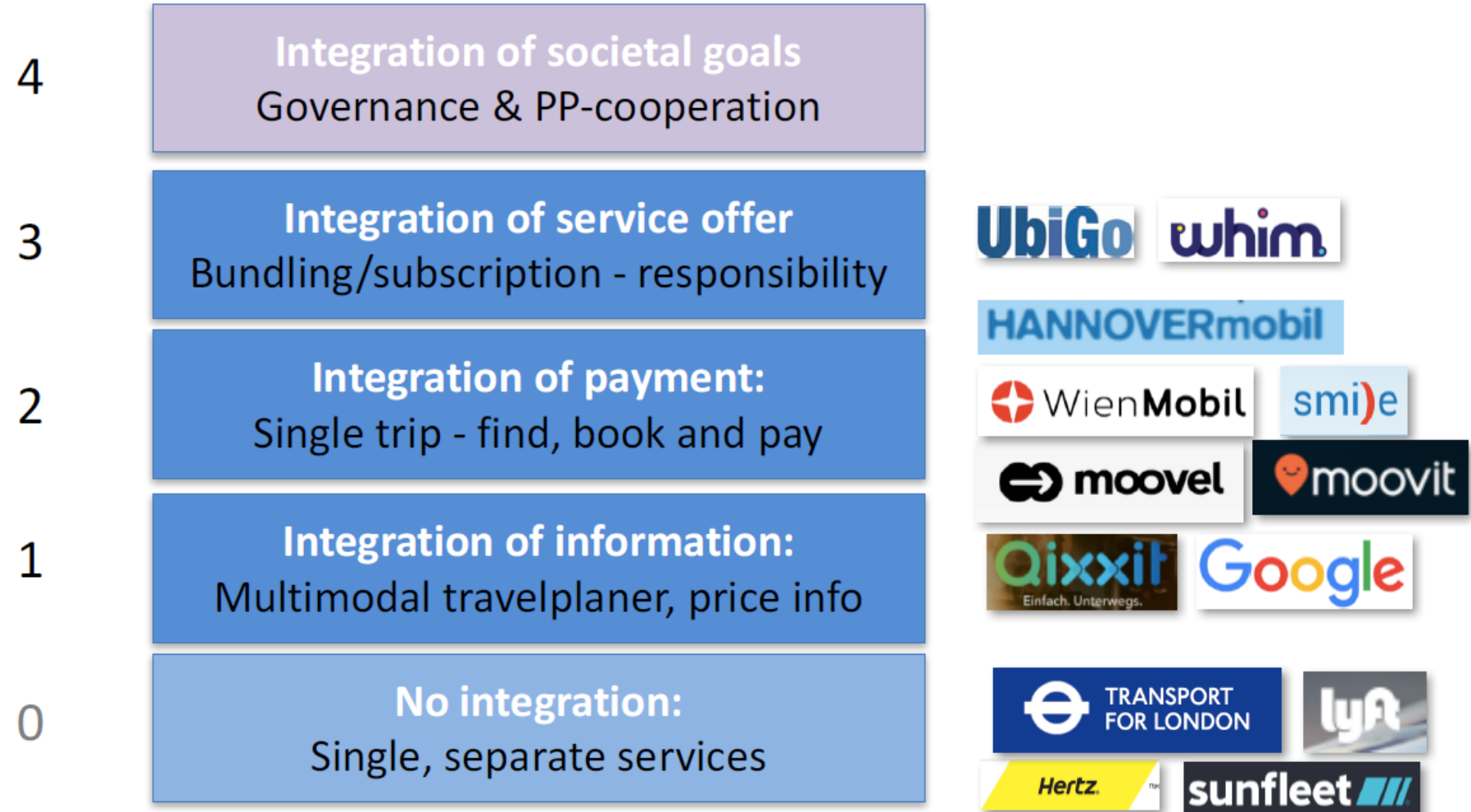
“Mobility as a Service (MaaS) is the integration of various forms of transport services into a single mobility service accessible on demand.”

MaaS Alliance White Paper

https://maas-alliance.eu/wp-content/uploads/sites/7/2017/09/MaaS-WhitePaper_final_040917-2.pdf

MaaS topology (Sochor, Arby, Sarasini, Karlsson, Holmberg)

See also **Sochor, J.**, Arby, H., Karlsson, I.C.M., Sarasini, S. (2017) "A topological approach to Mobility as a Service: A proposed tool for understanding requirements and effects and aiding policy integration". 1st International Conference on Mobility as a Service (Tampere, Finland, November 28-29, 2017).



What are we talking about when we talk about Mobility as a Service?

Multimodal

Single
payment

Constantly
informed
user

Integration
of add-on
services

Mobility as a Service

~~1. What?~~

2. When?

3. Why?

4. How?





**MaaS is
Here
Today!**

Visit www.maas-alliance.eu/maps for updated information!

Mobility as a Service

~~1. What?~~

~~2. When?~~

3. Why?

4. How?



New preferences & end of the ownership model

"Traditional ownership models will not meet the future expectations of consumers, as 42 percent are very interested in subscription pricing, while another 24 percent of respondents are very interested in fractional ownership of vehicles."



A new relationship—people and cars
How consumers around the world want cars to fit their lives

IBM Institute for Business Value

We want something more personal

Hyperdrive

Mercedes-Benz Starts Subscription Pilot For

By Gabrielle Connola

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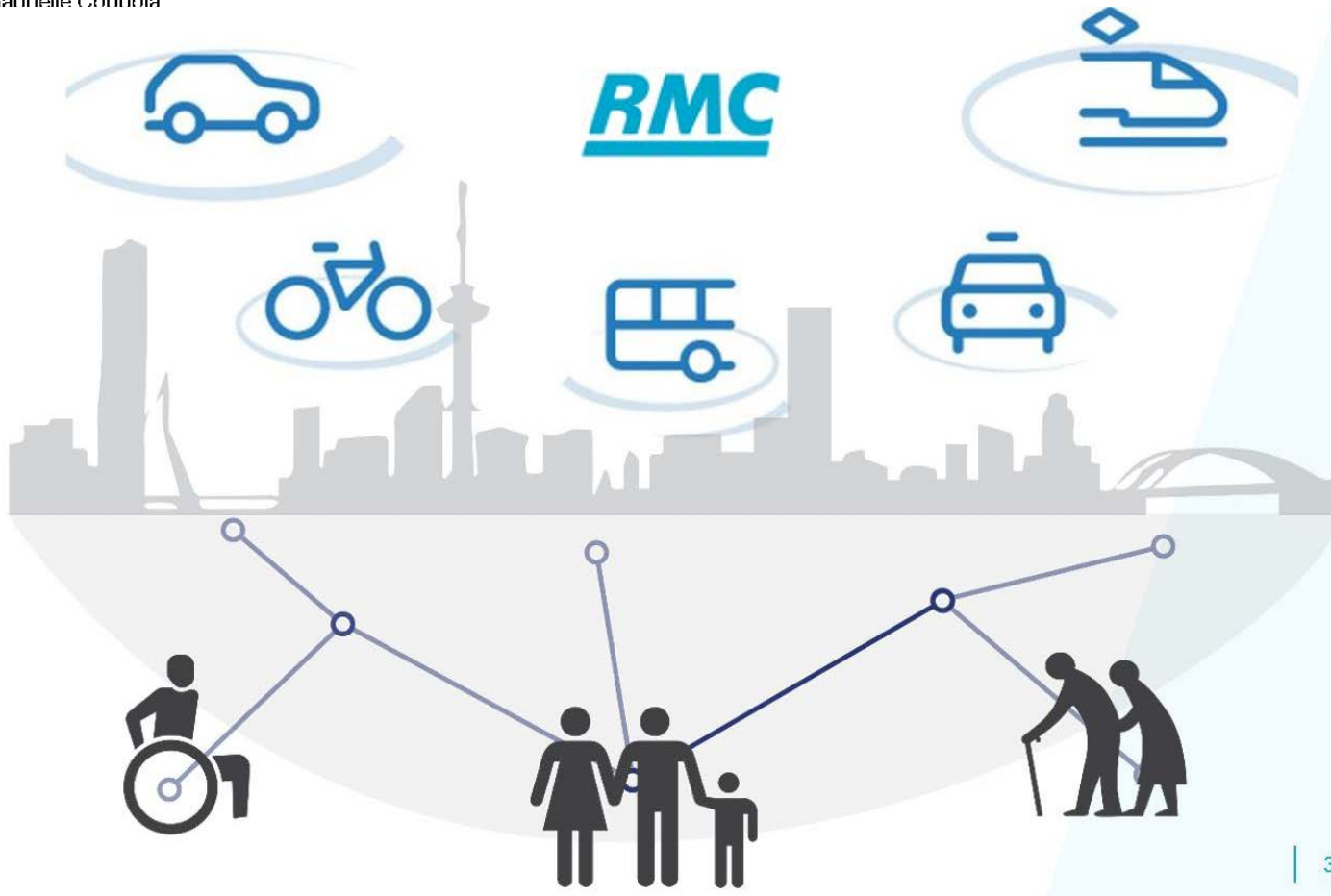
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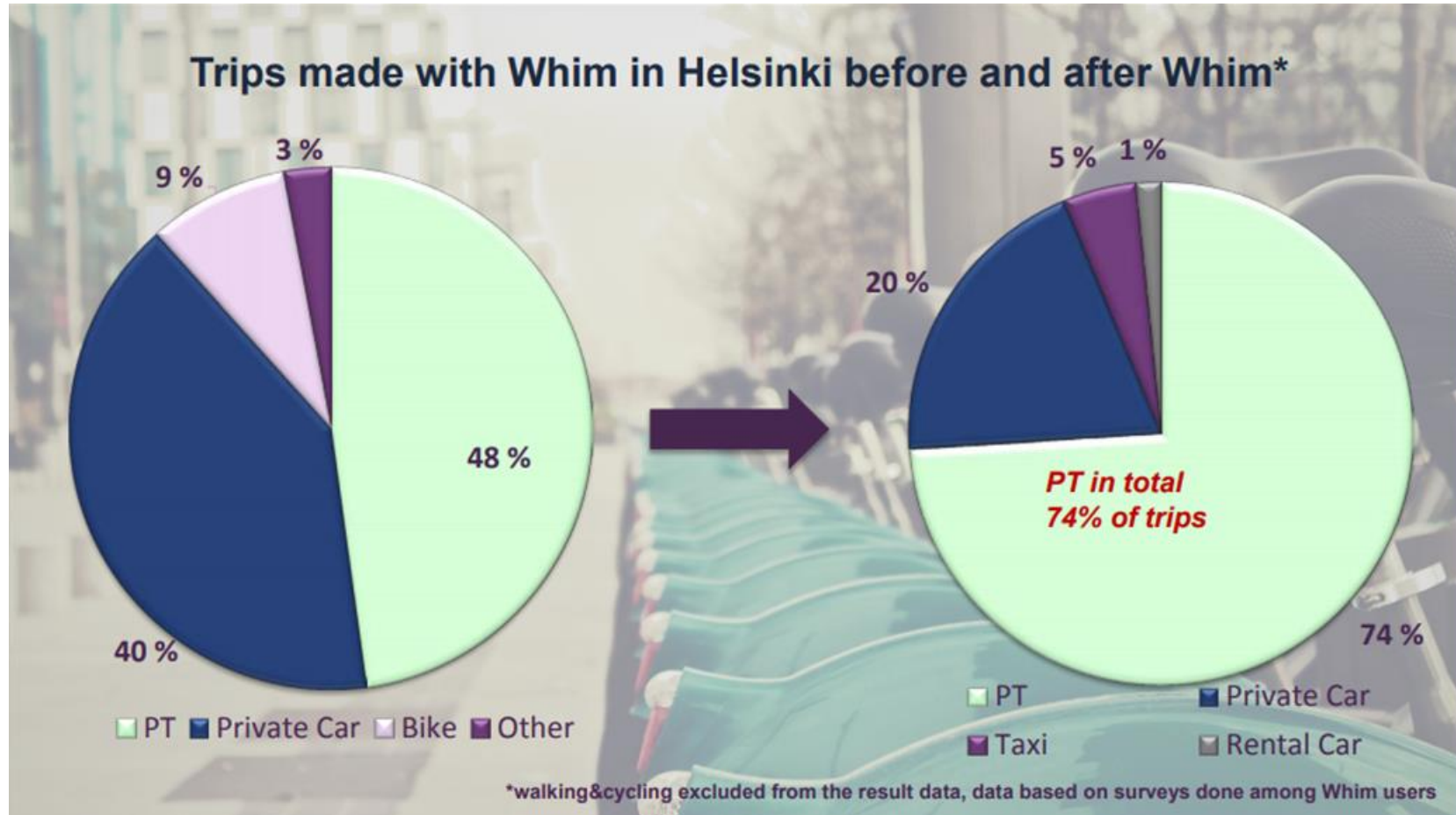
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New public transport app developed for child-specific needs

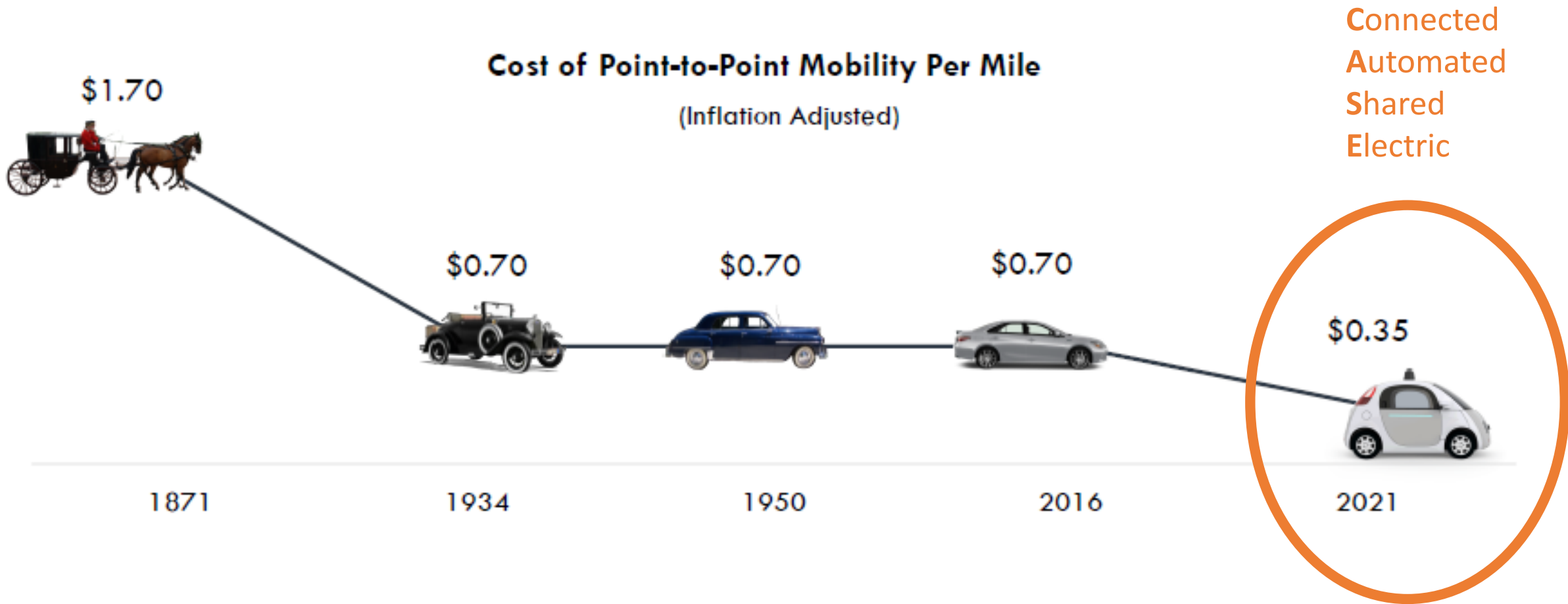
Application will encourage younger users to travel on transport, whilst keeping them safe and informed...



Mobility as a Service provides tools for transport decarbonisation



The price of personal mobility



ARK Invest: Big Ideas 2018

https://research.ark-invest.com/hubfs/1_Download_Files_ARK-Invest/Infographics/Big%20Ideas%202018%20-%20ARK%20Invest.pdf?hsCtaTracking=37c67fc6-1932-4b42-887c-ba1332a0e7a9%7C4a9f618a-acf9-428b-a7ab-11965014a86b

Mobility as a Service

~~1. What?~~

~~2. When?~~

~~3. Why?~~

4. How?



Nail it or fail it....

Integration

- * Technical interoperability
- * * Access to market

Better than owning our own car

- * Flexible
- * * Reliable

Based on the best local ingredients, but also...

- * Scalable
- * * Roamable



Piia Karjalainen

p.karjalainen@mail.ertico.com

ERTICO – ITS Europe & MaaS Alliance

www.maas-alliance.eu

info@maas-alliance.eu

@MaaS_Alliance

The background is an abstract image featuring a series of light streaks in shades of blue, teal, and yellow, creating a sense of rapid motion or a tunnel effect. A solid white square is positioned in the upper right corner.

Rejseplanen – Digital Transport

Danmarks Digitale Transformation

Siemens 125 års jubilæums konference den 3. maj 2018

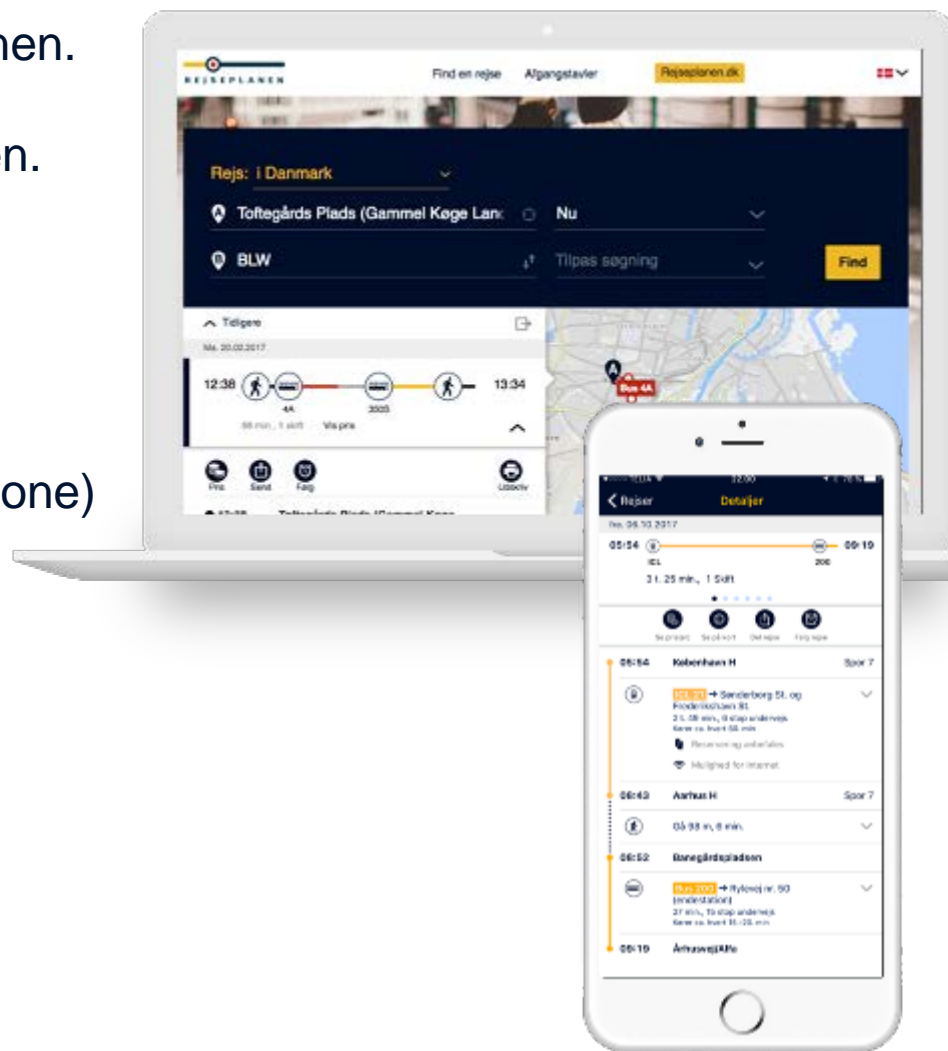
Christina Hvid, CEO, Rejseplanen A/S



**Rejseplanen
right now**

Right now

- 90% of Danes know Rejseplanen.
- 75% of Danes use Rejseplanen.
- 3.5 mill downloads of Rejseplanen's apps.
- 40 mill requests for journeys a month. (85% from mobile phone)
- 500+ companies receive open data from Rejseplanen (among them Google, Apple, Baidu and Microsoft).

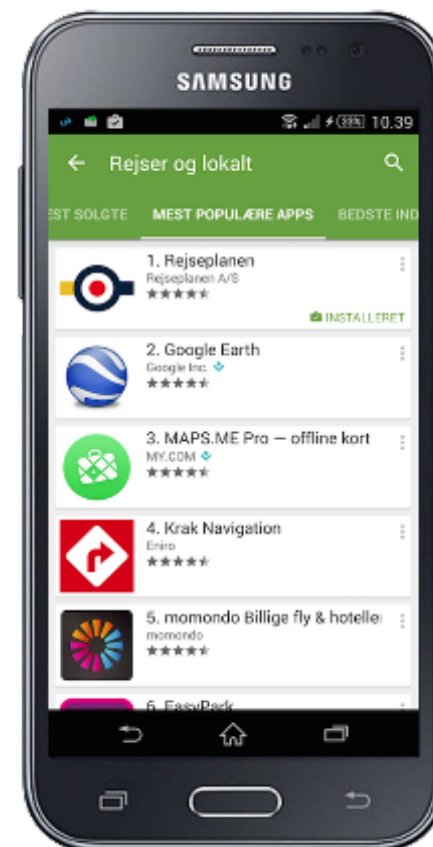
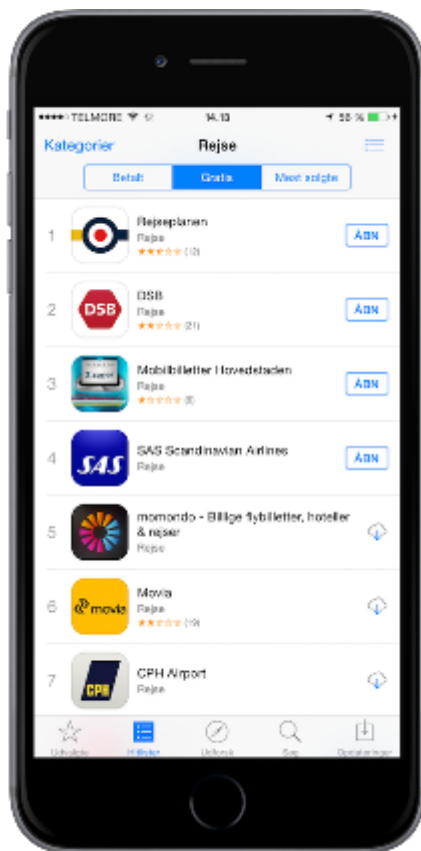


Produces three areas of service:

1. Rejseplanen has its own brand and platforms: www and apps
2. We also supply white label services for our owners that build these into their own customer facing solutions
3. And we share open data













In the top 5



In the top 5



In the top 5

1		Facebook	33%
2		Mobile Pay	24%
3		Facebook Messenger	11%
4		Rejseplanen	8%
5		Spotify	7%
6		Gmail	7%
7		Snapchat	7%
8		DMI Vejr	6%
9		Google Maps	6%
10		Instagram	6%

Source: Audience Project september 2017

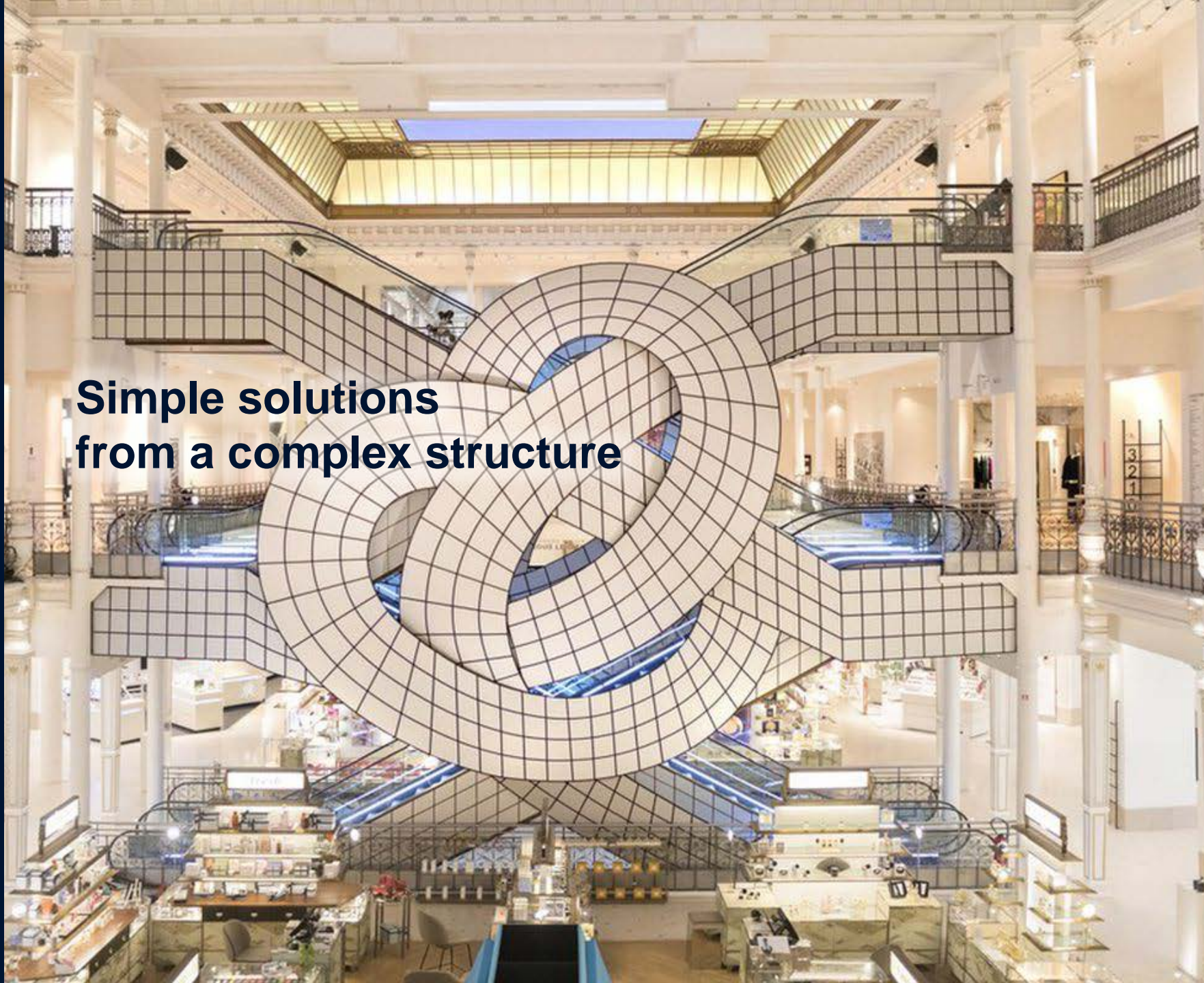


It feels good to be popular!

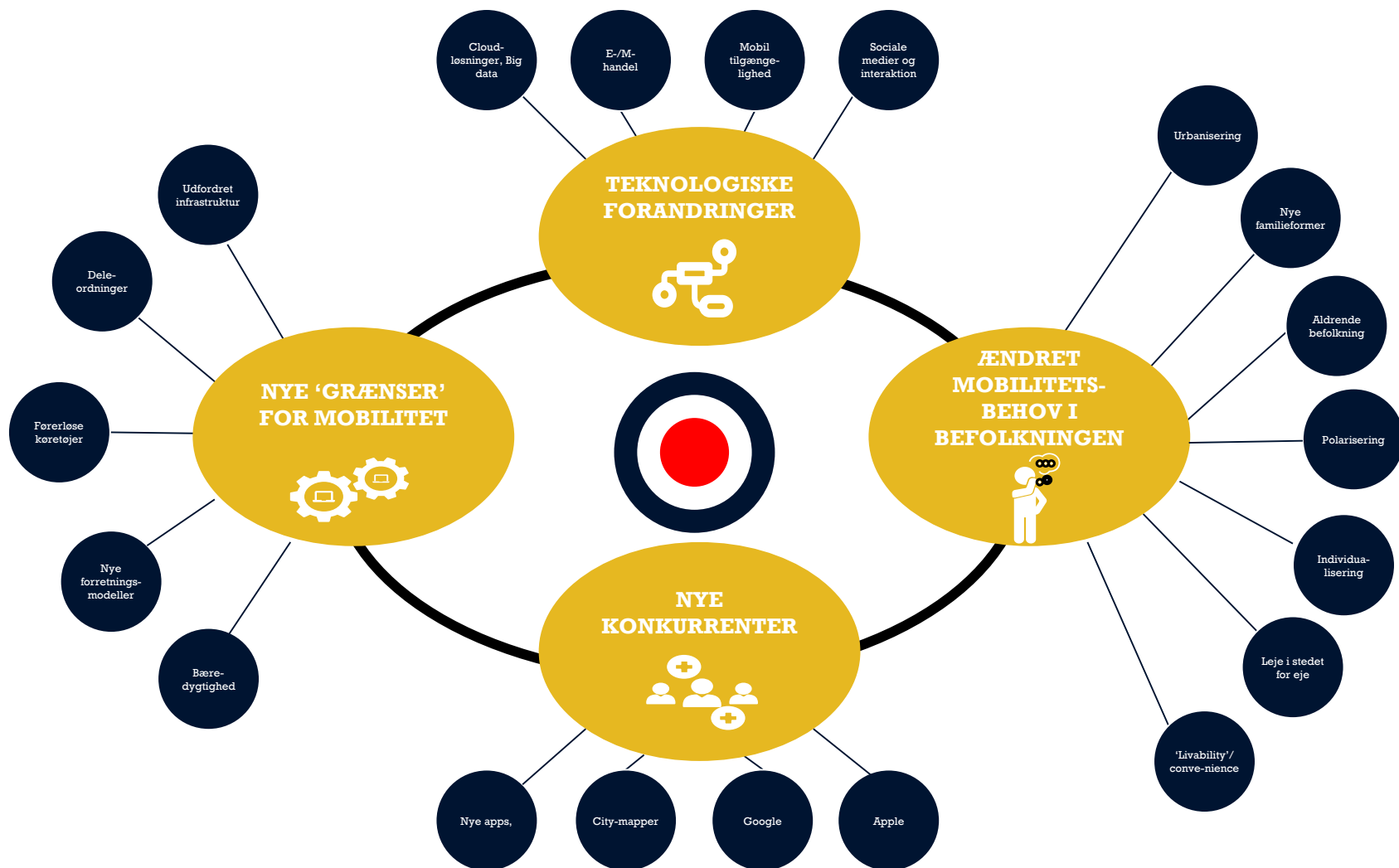
Born digital – grown on big data

- Rejseplanen was born together with the internet.
- Rejseplanen is grown on public transport data (DSB, Metro, Movia, FynBus, Sydtrafik, Nordjyllands trafikselskab, BAT og Midttrafik).
- Over time more private companies like Arriva, Flixbus, ferries, private bus companies etc. deliver data and thus get their journeys shown in the journey planner, through the APIs and in the departure boards supplied by Rejseplanen.
- Rejseplanen collects all transport data:
 - planned
 - Realtime
 - disturbances
 - prices
- By always placing the customer at the center we make it easier for them to utilise public transport.

**Simple solutions
from a complex structure**



An ever changing world means we must learn and stay relevant



Trængslen i de danske storbyer stiger voldsomt: Bilister bruger 150 procent mere tid i trafikken i 2030

Af Jonas Stenbæk Christoffersen joch@berlingske.dk



Der bliver tættere mellem bilerne i København og de andre store byer mod år 2030. De Konservative foreslår, at der bliver nedsat en trafikkommission, der kan udarbejde skitsen til en bred og langsigtet transportplan, der løser de trafikale udfordringer. DF er positive, men regeringsfællerne i Venstre

Danskerne skal vænne sig til mere kø og langsom kørsel. Alene i centrum af de fire største byer vil en rejsende i bil bruge 150 procent mere tid på trængsel i 2030 i forhold til i 2015, viser fremskrivninger, som en ekspertgruppe nedsat af Transport-, Bygge og Boligministeriet offentliggjorde for nylig.

På den baggrund foreslår de Konservative, at der bliver nedsat en trafikkommission i forbindelse med finansloven senere på året. Den skal udarbejde et grundlag for en bred langsigtet national infrastrukturplan, der omfatter hele det trafikale område i Danmark.

Vi har behov for en ny, stor plan, så vi ikke står i stå, men bliver ved med at udvikle Danmark,« siger Rasmus Jarlov (K), der er transportordfører og tilføjer:

Hvis vi nedsætter en kommission, kan den levere med en plan, der er klar umiddelbart næste folketingsvalg.

Berlingske kunne for nylig berette, at politikerne fra både Dansk Folkeparti, Socialdemokratiet og regeringspartierne er enige om, at Danmark har behov for en langsigtet plan for trafikken i Danmark – som bliver bakket bredt af i Folketinget. Det vil gavne både den enkelte borger og økonomien i landet. Men skal man om på den anden side af 2020, kan man blive sat i værk, da der er sat en grænse på de offentlige investeringer, fordi



Arkivfoto: Dennis Lehmann

man frygter økonomi.

Enighed om forslaget er dog positivt i sig selv, ingen grund til at frygte.

»Jeg kan indtil en vis grad se, at det er en kostningsnedsættelse,« siger stansens (D).

Regeringen mod, at en

»Vi har allerede udmærket i landet. Så transporten

Uden V kan forestille sig noget i forbindelse

Læg afgiften

Men måske portplan

det eneste svar på vores udfordringer

ken.

Mogens Fosgerau, der er professor i økonomi ved Københavns Univ

anbefaler i stedet en kontinuerlig plan

»Man skal have en planlægningsproces, som man opdaterer med tre til fire år i mellemrum, så man har en løbende plan af vores transportpolitik og infrastrukt

Arkivfoto: Dennis Lehmann

BILTRAFIK

Trængsel vil koste os endnu mere tid fremover

I 2030 vil hver rejsende i centrum af Danmarks fire største byer bruge godt 150 procent mere tid på trængsel end i 2015. I forstæderne til de samme byer stiger den tid, folk bruger på trafik med 65 procent – og mellem forstæderne og de store byer stiger den med 101 procent.

	Stigning i rejsetid 2015-2030	Så meget rejsetid i 2030
Centrum i de fire største byer	149 pct.	19 p
Forstæderne i de fire største byer	65 pct.	14 p
Mellem centrum og forstæder	101 pct.	18 p
Mellemstore byer	9 pct.	10 p
Land og mindre byer	8 pct.	1 p
Mellem byer	54 pct.	7 p
Øvrigt	34 pct.	5 p

Berlingske Grafik: Malling

Kilde: Ekspertgruppen: Mobilitet for Fremtiden. Rapport udarbejdet for Transport-, Bygnings- og Boligministeriet



A strategy for fully
integrated mobility

**When we say integrate. We mean integrated.
This is the future**

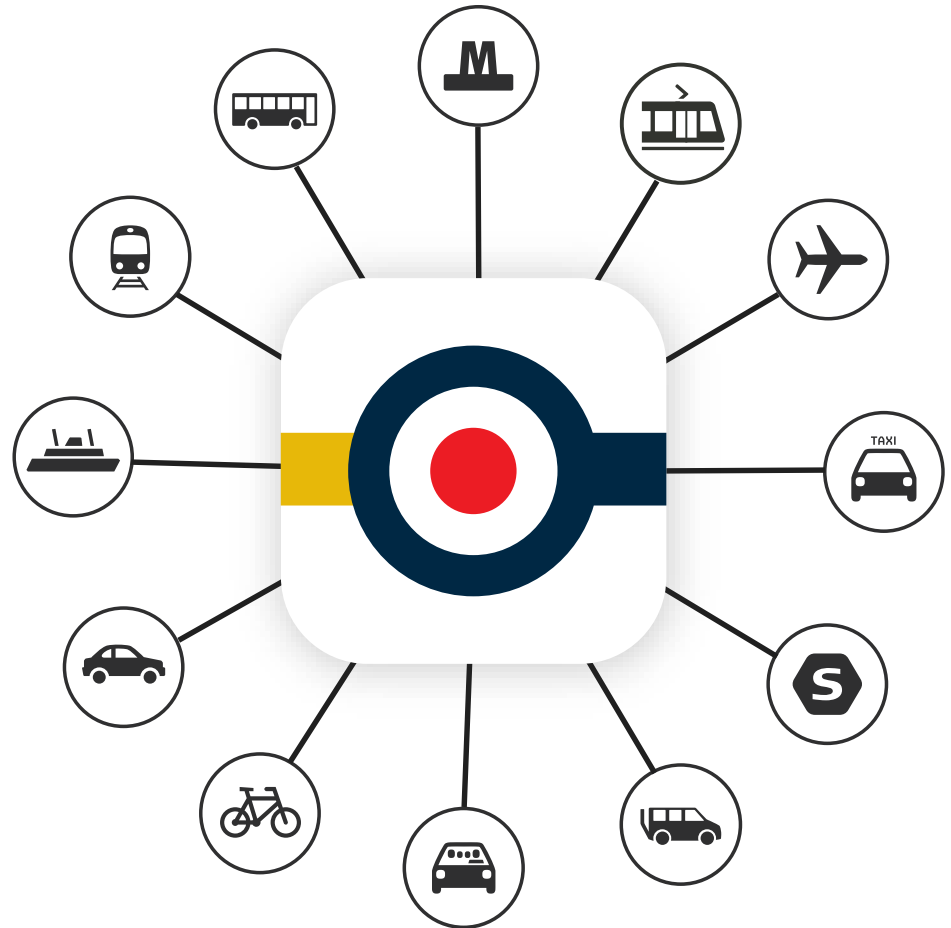




We start with small steps

The digital transformation starts with pilots

1. The rural pilot
2. The urban pilot
3. The payment pilot
4. The flight pilot



The rural pilot



The rural pilot


- Pilot project to make a Multimodal apps that integrates car-pooling, taxi and demand responsive transport in Northern Jutland into the "normal" journeyplanner
- App to launch in may 2018 – built upon Rejseplanen's existing platform and brand



Public and private

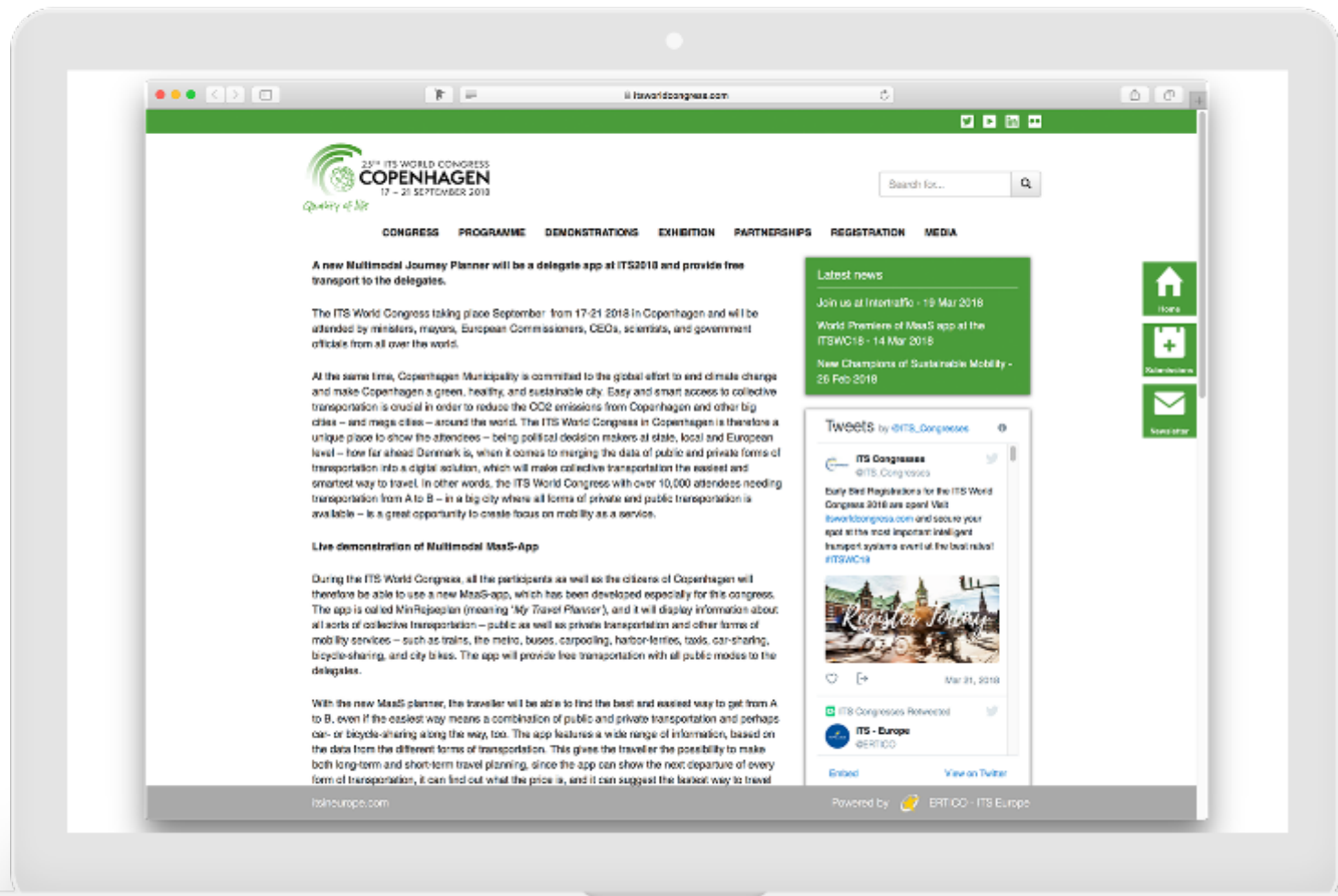
- Strengthen mobility in rural areas
- Make people realise that you can get access to the "main network" of public transport (grey/dotted lines)
- The car is not the enemy but a necessary part of many peoples' lives
- Demand Responsive Transport is central



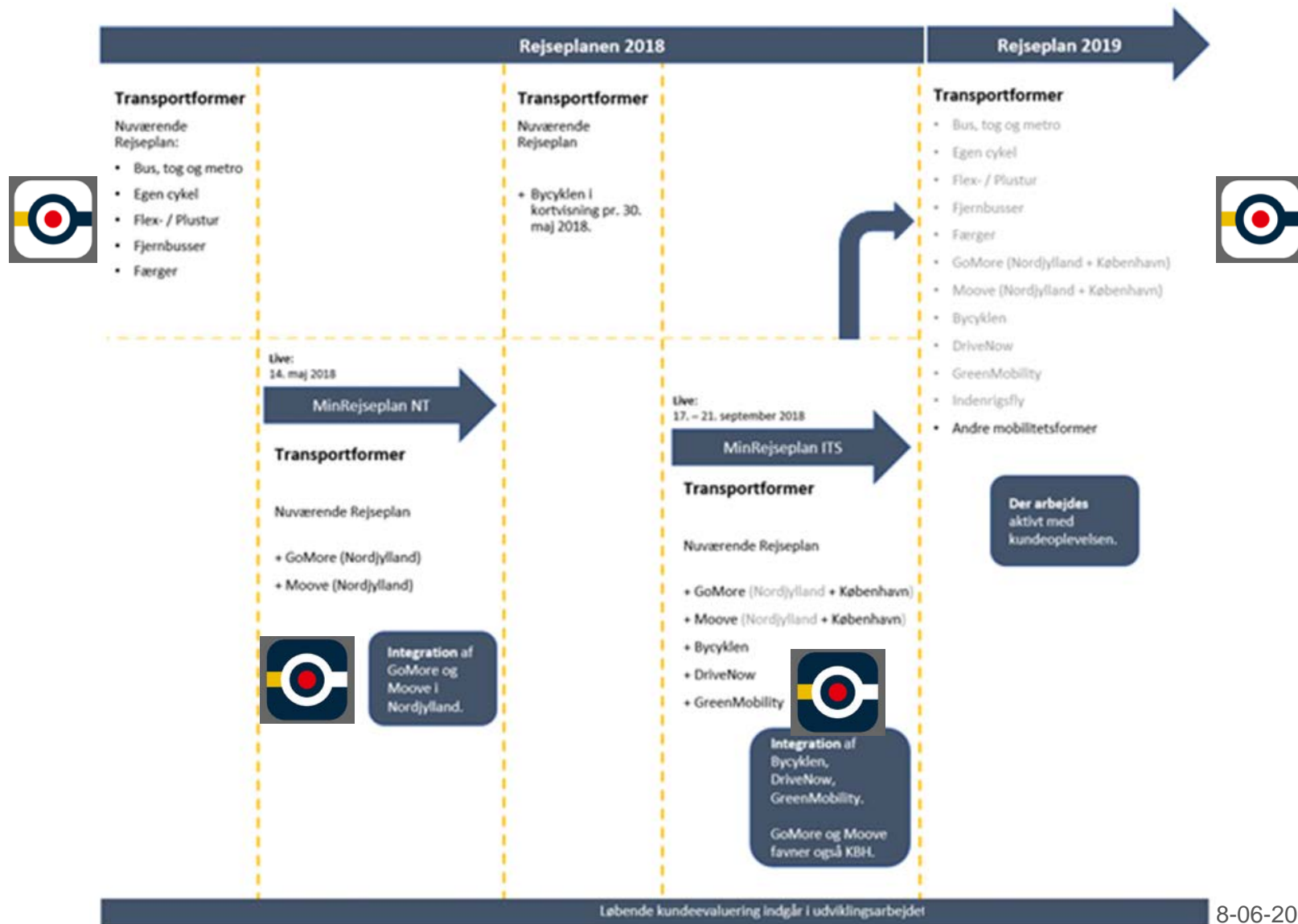
An aerial night photograph of a city. In the foreground, a large, historic brick church with a dark, multi-gabled roof and several spires is illuminated. A red digital display on its facade shows the number '22:55'. To the right of the church, a large, modern stadium with a blue-lit roof is visible. The background is filled with a dense urban landscape of various buildings, some with glowing windows and others with external lighting. A bridge with a red sign is visible in the lower right. The overall scene is a vibrant depiction of a city at night.

The urban pilot

For the whole world to see



Det kører mens vi bygger om

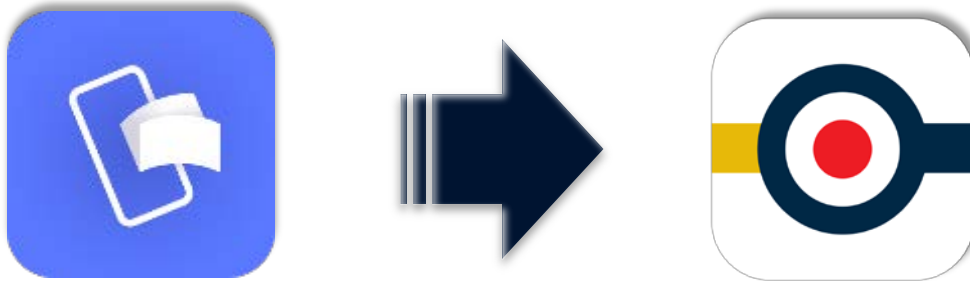


The payment pilot

The payment pilot - Bornholm integrated ticketing solutions

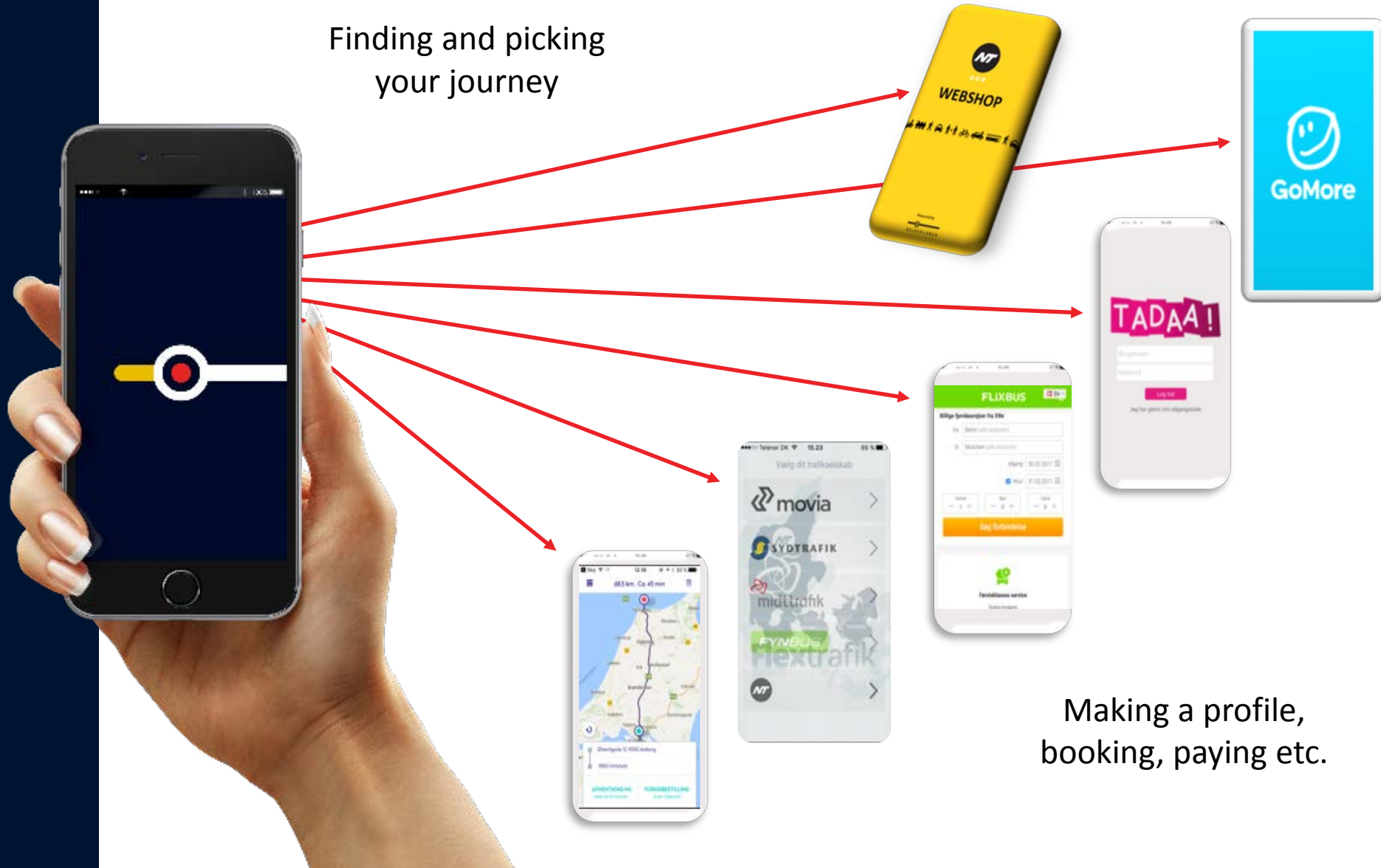
- Aim: Make the customer's ease of travel even higher
- Rejseplanen's apps has Dec 5th, 2017 launched an integrated ticketing solution on Bornholm
- The customer finds his journey and pays it swiftly with MobilePay (2nd most popular app in DK)
- This solution is a nice and easy way for the customer to purchase a ticket

Seamless payment



An array of partners

Finding and picking
your journey



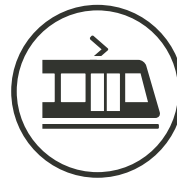
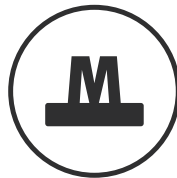
Making a profile,
booking, paying etc.



Mobility as a Service - MaaS

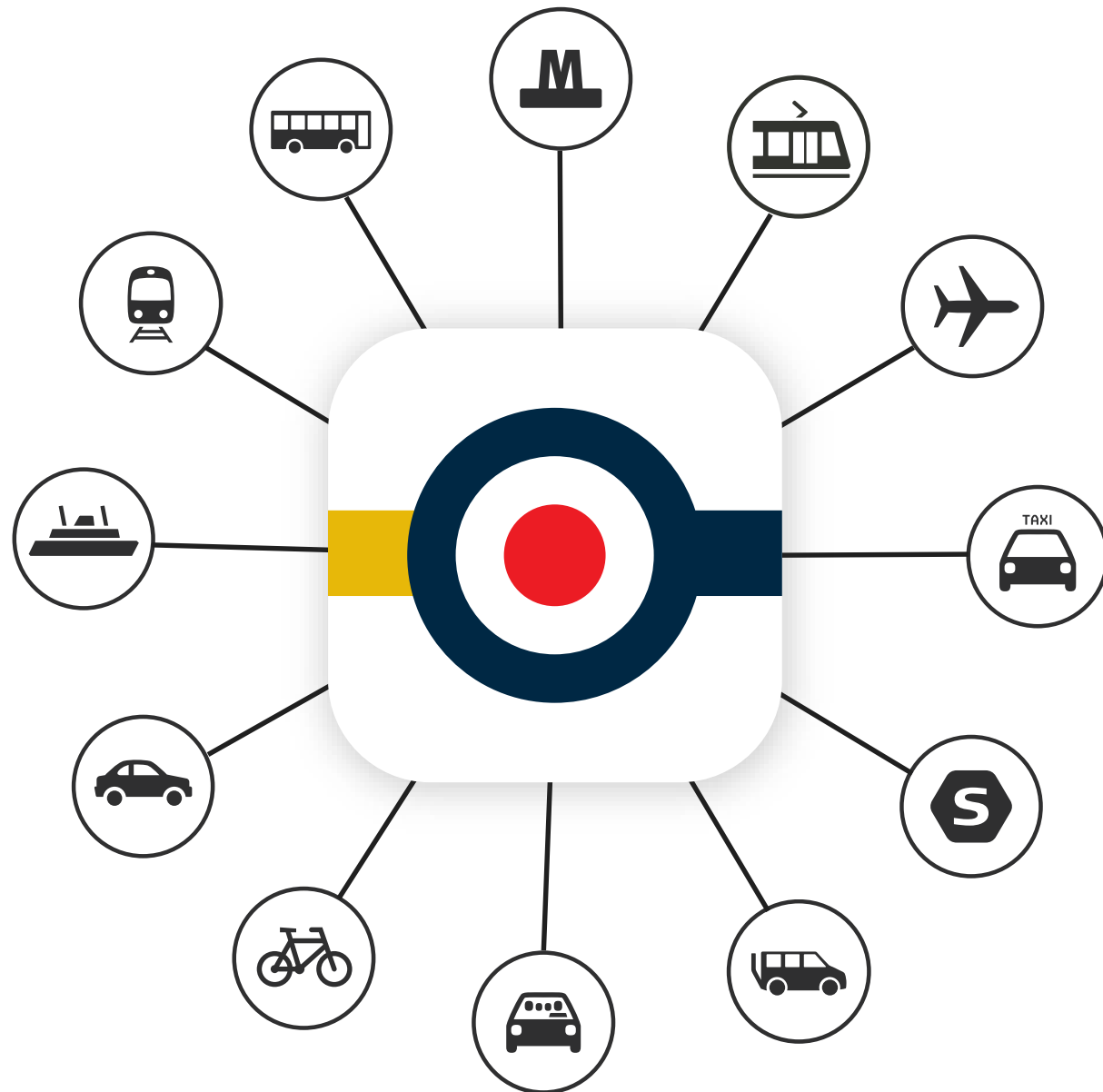
The flight pilot

The flight pilot



Summary

- Rejseplanen is in the top 5 services and apps among the danes
- Build on public transport
- During 2018 we will integrate all kind of transport/mobility forms
- Rejseplanen will display all means of transport – both public and private
- We implement the strategy with small pilots – and disrupt ourselves
- Payment will be integrated and more easy, on the way to MaaS.
- We take small incremental steps and adjust the strategy every 6 months in today's fast-changing digital world
- Rejseplanen is part of the Danish digital infrastructure
- Big data - new insights - better solutions



Thank you



chv@rejseplanen.dk



Mobility as a Service The End of Car Ownership?

Jonna Pöllänen / Head of Early Markets / MaaS Global Ltd

Twitter: @jonnapollanen, @WhimHQ / @maas_global



A close-up photograph of a person's hand holding a set of car keys. The person is wearing a grey t-shirt and dark overalls. The background is blurred, showing an outdoor setting with greenery and a paved area. The text "What would it take for you to give up your own car?" is overlaid in white, bold, sans-serif font.

**What would it take for you to
give up your own car?**

◦

503 €*

Average cost of owning a car in Finland

85%

Private car share of all transportation cost

29%

Of transport trips made by private cars

4%

Private cars in use of their life cycle

Sources: Kauppalehti, World Bank, World Health Organisation, Inrix, European Commission, Eurostat, Frost & Sullivan

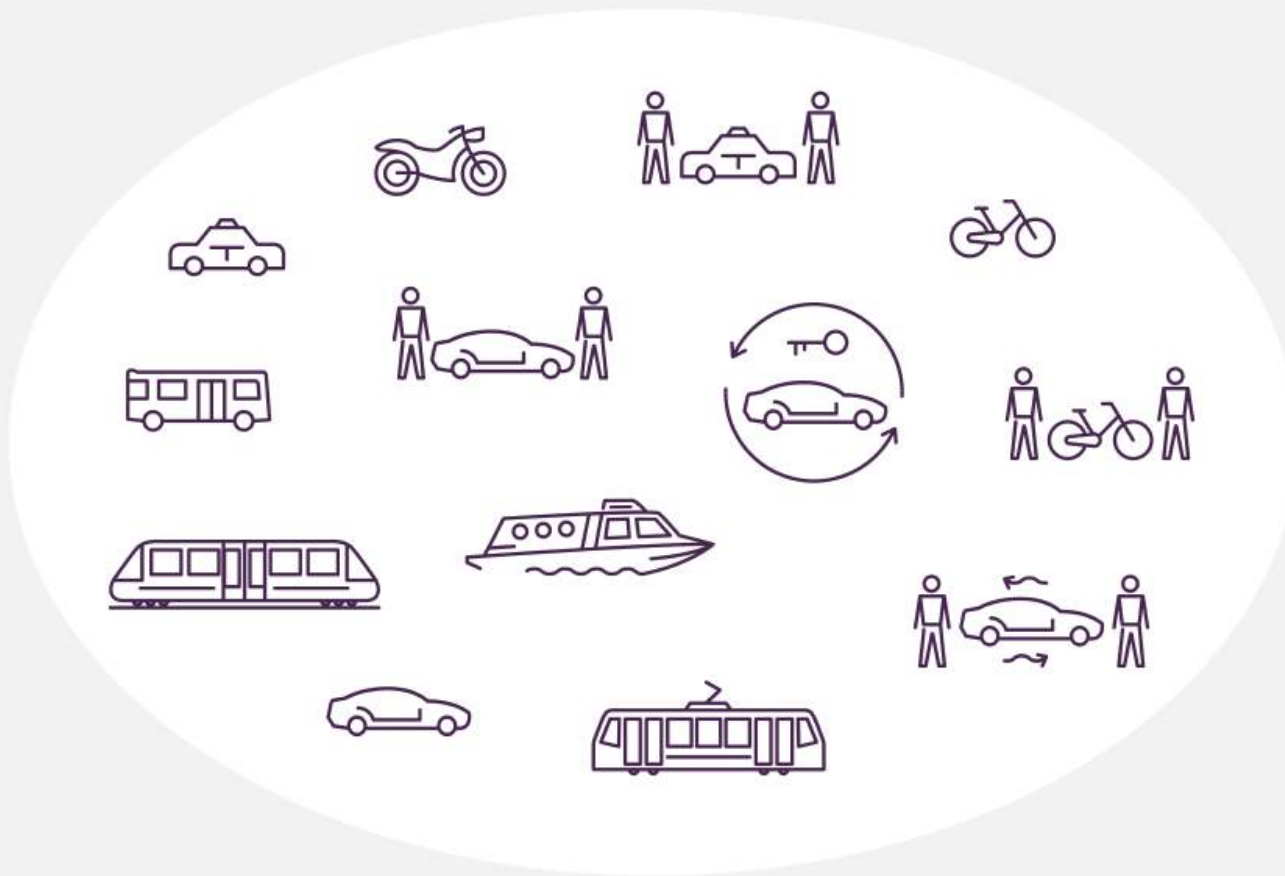
**In United States, the average cost
of a car is annually \$9,122**

Source: AAA (<https://newsroom.aaa.com/2013/04/cost-of-owning-and-operating-vehicle-in-u-s-increases-nearly-two-percent-according-to-aaas-2013-your-driving-costs-study-archive/>)

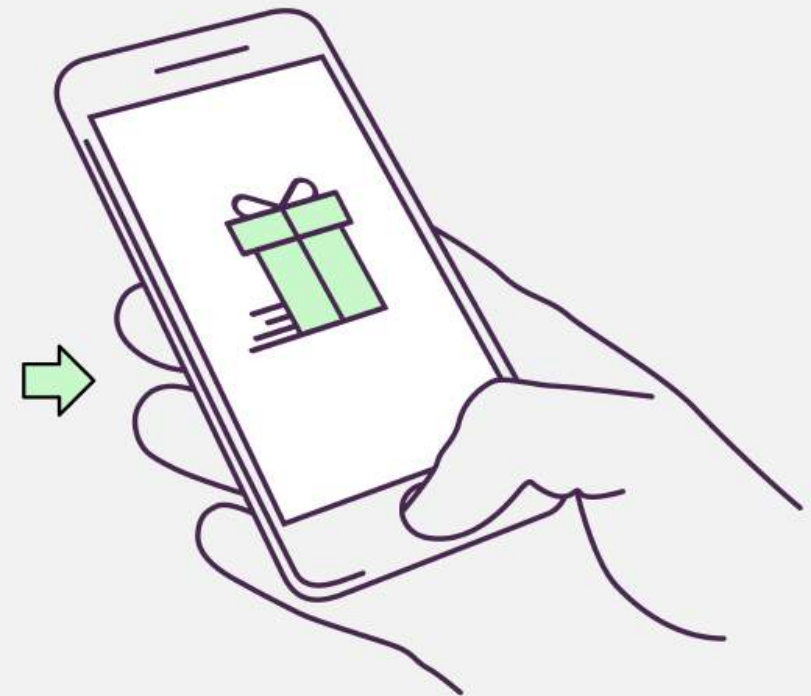
\$760 per month – what could we provide with that same money?

Source: AAA (<https://newsroom.aaa.com/2013/04/cost-of-owning-and-operating-vehicle-in-u-s-increases-nearly-two-percent-according-to-aaas-2013-your-driving-costs-study-archive/>)

What if all transportation
was converged...



...and tailored to your need
as monthly packages?



The dream of tomorrow is not just
open highways, it **is open world**

From ownership model to **Freedom of Mobility**



Today:
Car Ownership with all related
inconvenience



Tomorrow:
Ultimate Freedom with variety of
services worldwide

Mobility operator as your new mobility insurance



Pay as you're moved:

- Bike and segway service included
- 20 cents per minute in vehicles with others in
- 30 cents per minute for a nice car
- 50 cents per minute for a personal driver
- Only vehicles that use renewable energy

15 minutes package for 135 € / month:

- 15 minutes from call to pick up with no more than 15 minutes delay compared to driving.
- No parking hassle



Business world package for 800 € / month:

- 5 minutes pickup in all EU
- Black car status everywhere
- Working conditions guaranteed



Family package for 1 200 € / month:

- Enough space and child seats guaranteed
- Always traceable and safe trips for kids
- Includes one long family trip every month
- Home delivery included

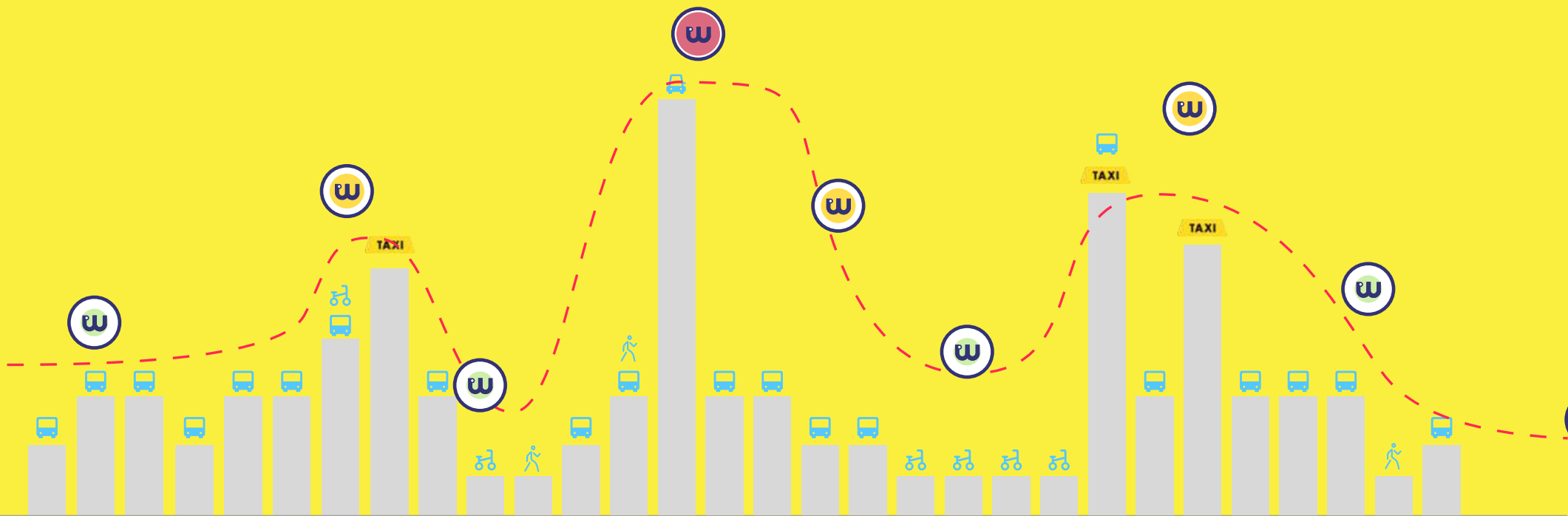
Cup of tea guarantee

- All your rides combined
- Morning tea included
- Tinder extension for a great weekend
- Movember special rides



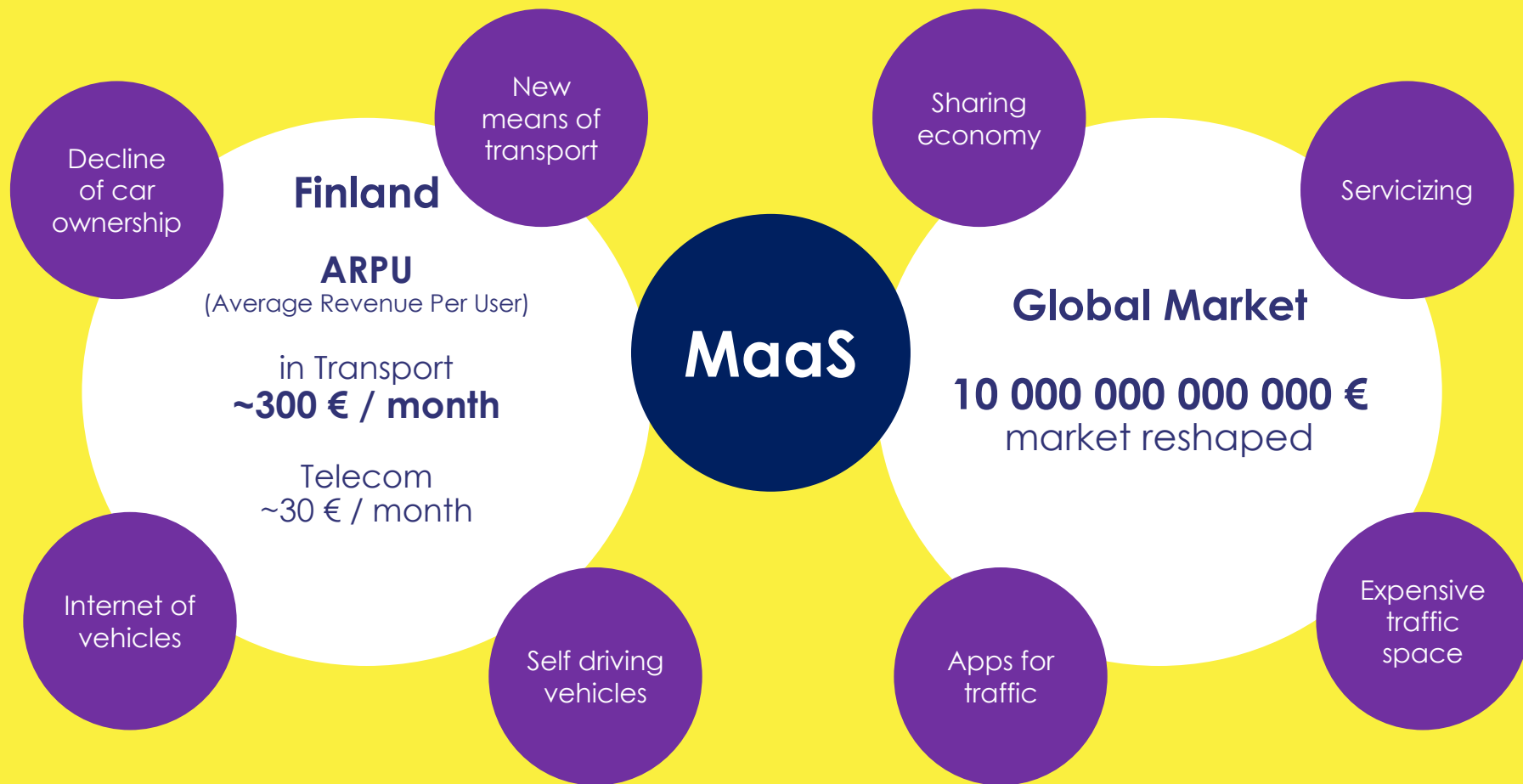
*Packages are examples

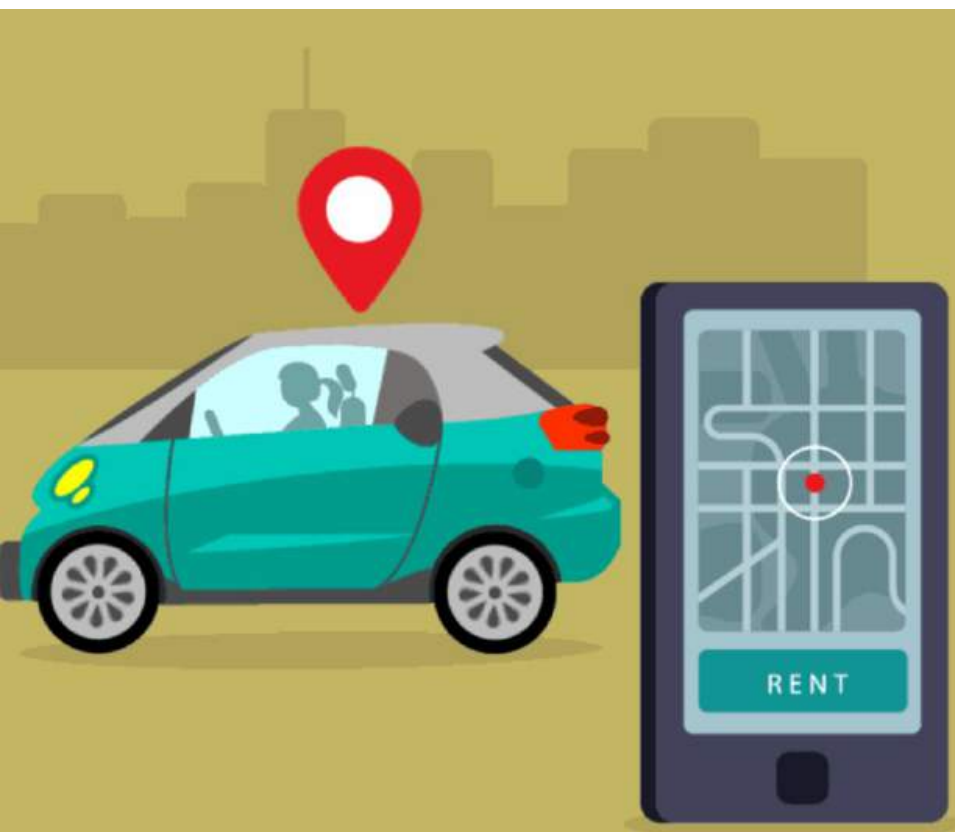
Mobility offering to fit to individual's **changing** mobility needs





Transportation is being hit by a DIGITAL TSUNAMI





Access, not ownership

It's not just homes: Millennials have been reluctant to buy items such as cars, music and luxury goods. Instead, they're turning to a new set of services that provide access to products without the burdens of ownership, giving rise to what's being called a "sharing economy."

"25 YEARS FROM NOW, **CAR SHARING WILL BE THE NORM,**
AND CAR OWNERSHIP AN ANOMALY."

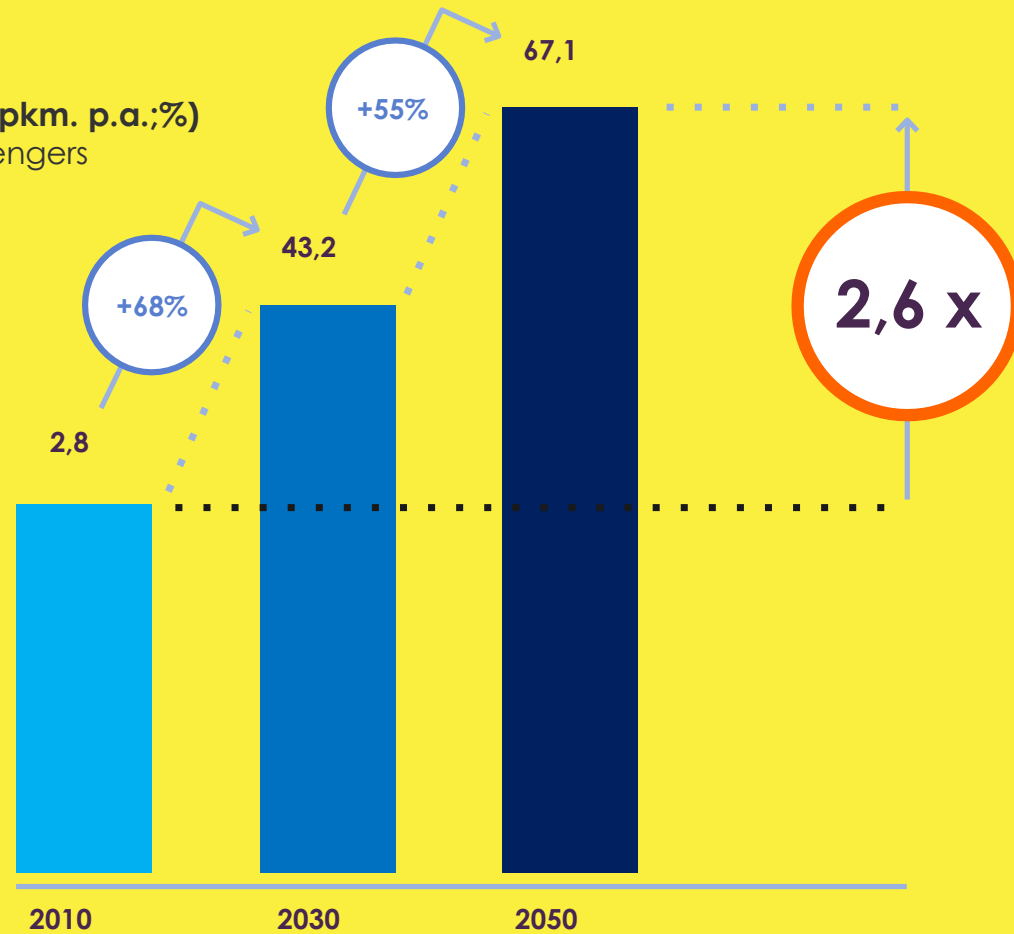
- **Jeremy Rifkin**, Author and Economist

Source: Goldman Sachs Global Investment Research

Urban mobility demand will explode

Urban mobility demand 2010-2050 (trillions pkm. p.a.;%)

PKM = Passenger-kilometre travelled by passengers
on transit vehicles



Space required to transport **48 people**



Car

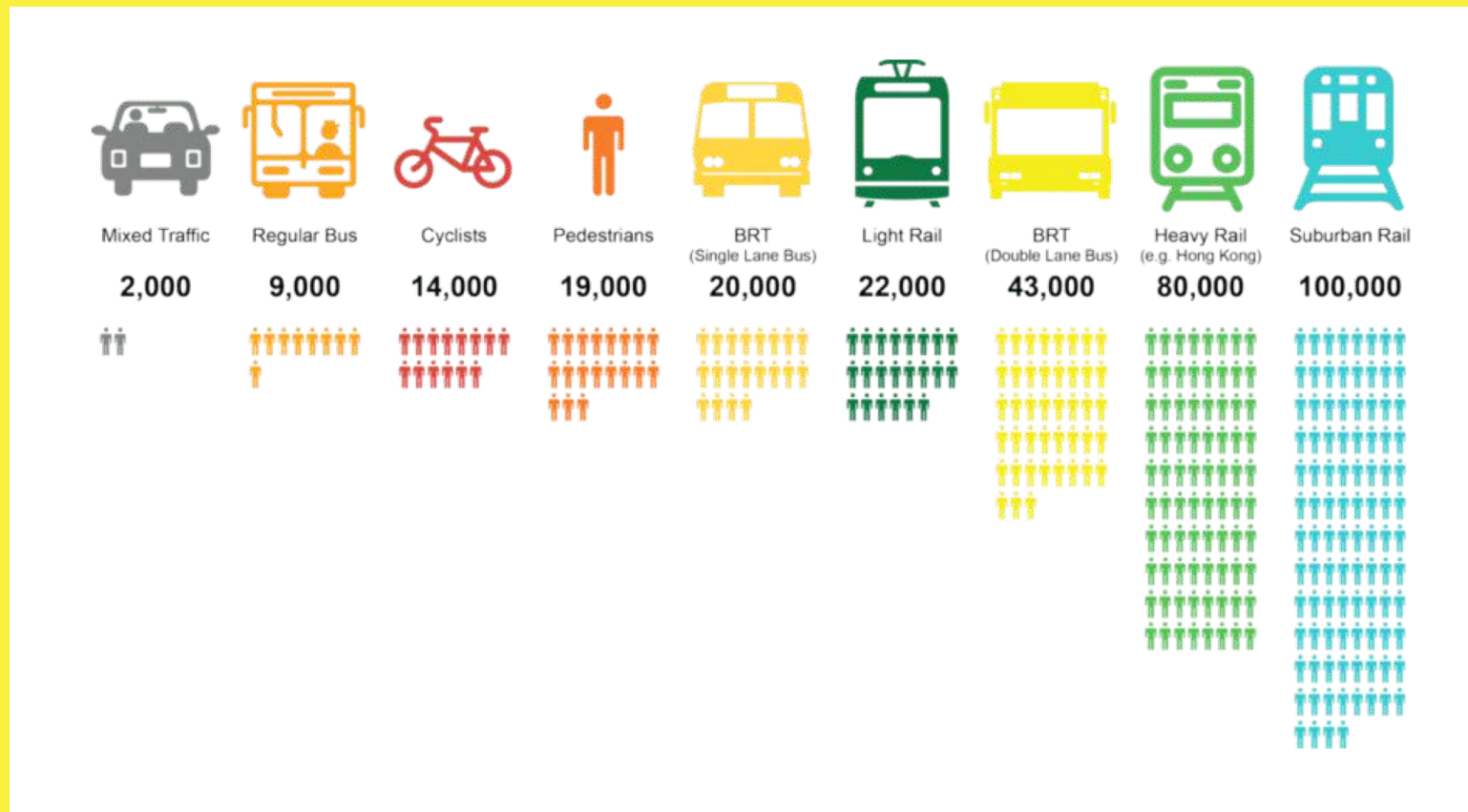


Electric car



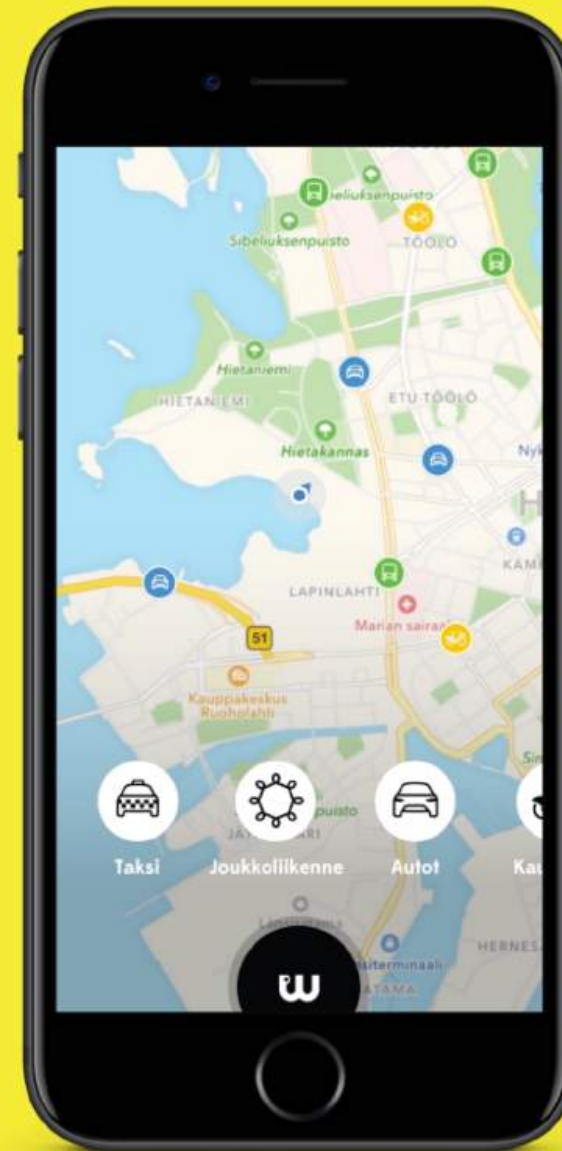
Autonomous car

Making the most out of scarce road space



"Your every move
on a whim."

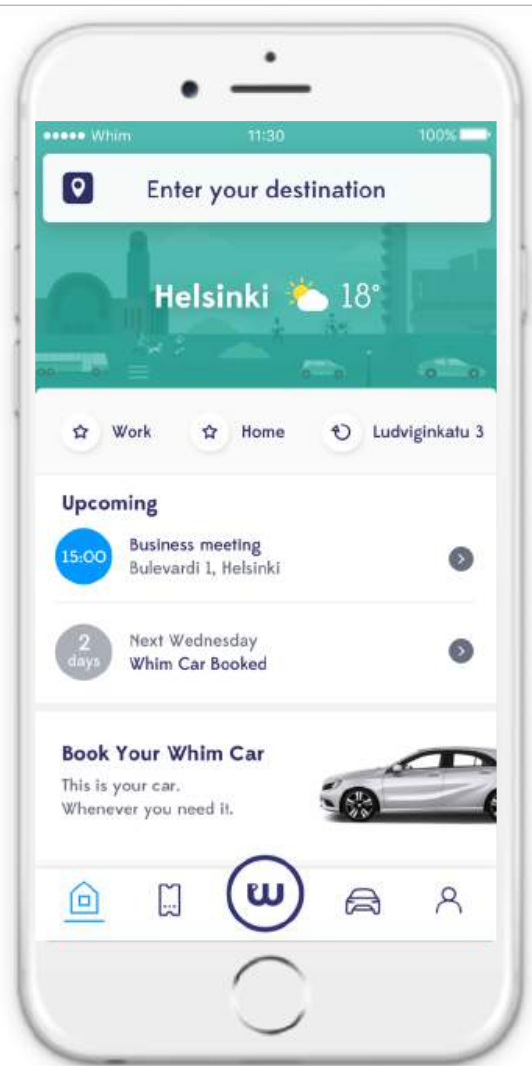
First real examples of Mobility-as-a-Service



Whim by MaaS Global

- We are a Finland-based, fast-growing company enthusiastically building the future of mobility as **the world's first MaaS operator**
- Our award-winning solution WHIM is in use in **Finland, United Kingdom and Belgium**, and underway in various locations such as **Austria and Netherlands**
- **Investments: 15.4M€** - Transdev, Toyota Financial Services, DENSO, Karsan, Veho, Aioi, and other smaller shareholders





Travel info



Planning



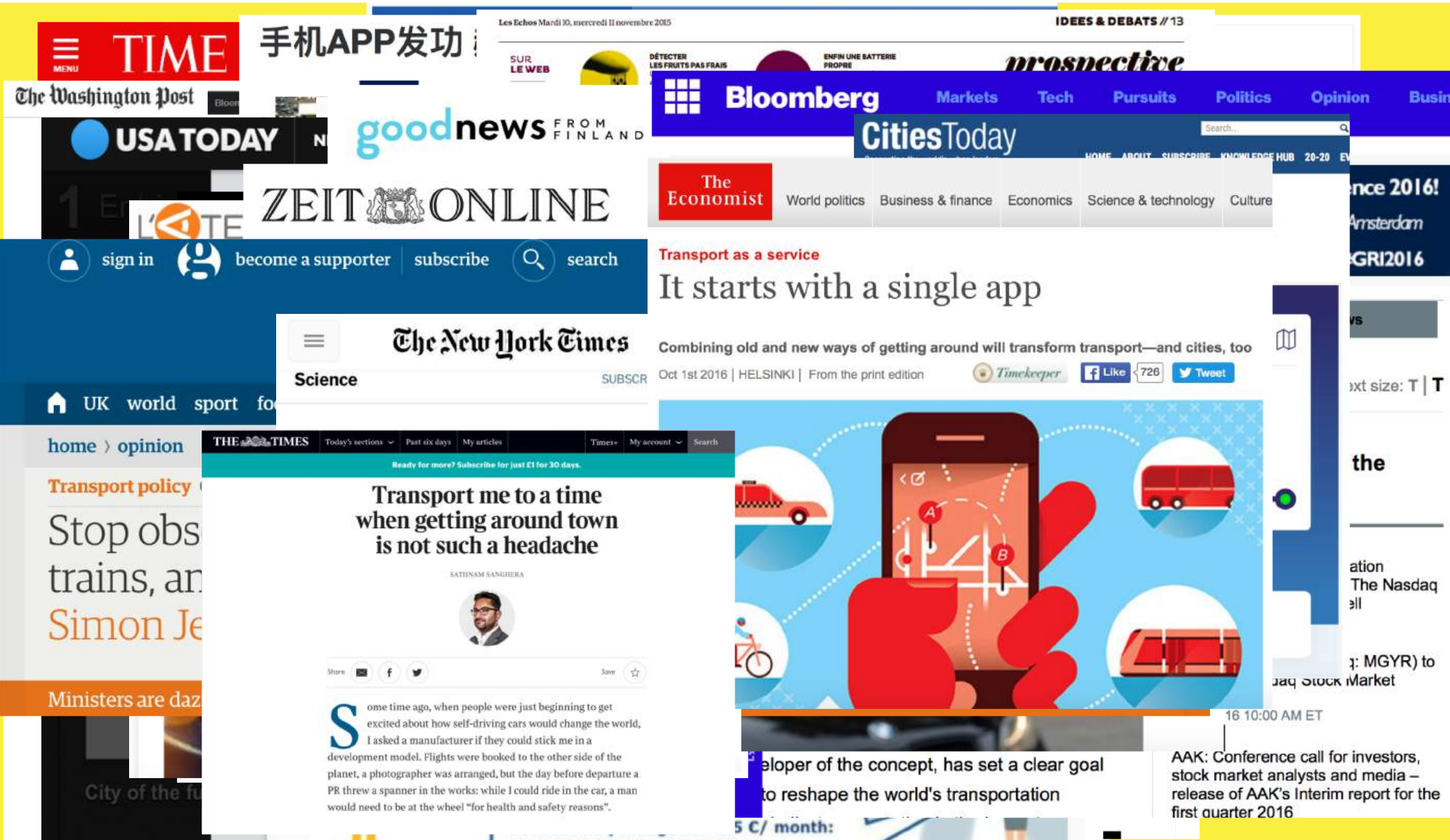
Tickets



Payments



Monthly / Daily



TIME

手机APP发功

Les Echos Mardi 30, mercredi 11 novembre 2015

IDEES & DEBATS // 13

The Washington Post

USA TODAY

goodnews FROM FINLAND

SUR LE WEB

DÉTECTER LES FRUITS PAS FRAIS

ENFIN UNE BATTERIE PROPRE

prospect

Bloomberg

Markets

Tech

Pursuits

Politics

Opinion

Business

CitiesToday

Search...

1. E...

ZEIT ONLINE

The Economist

World politics

Business & finance

Economics

Science & technology

Culture

sign in become a supporter subscribe search

Transport as a service

It starts with a single app

Combining old and new ways of getting around will transform transport—and cities, too

Oct 1st 2016 | HELSINKI | From the print edition

Timekeeper

Like 726

Tweet

UK world sport fo

The New York Times

Science

SUBSCR

home > opinion

THE NEW YORK TIMES Today's sections Past six days My articles Times+ My account Search

Transport me to a time when getting around town is not such a headache

SATHNAM SANGHERA



Share f t Save ☆

Some time ago, when people were just beginning to get excited about how self-driving cars would change the world, I asked a manufacturer if they could stick me in a development model. Flights were booked to the other side of the planet, a photographer was arranged, but the day before departure a PR threw a spanner in the works: while I could ride in the car, a man would need to be at the wheel “for health and safety reasons”.

Transport policy

Stop obs
trains, an
Simon Je

Ministers are daz

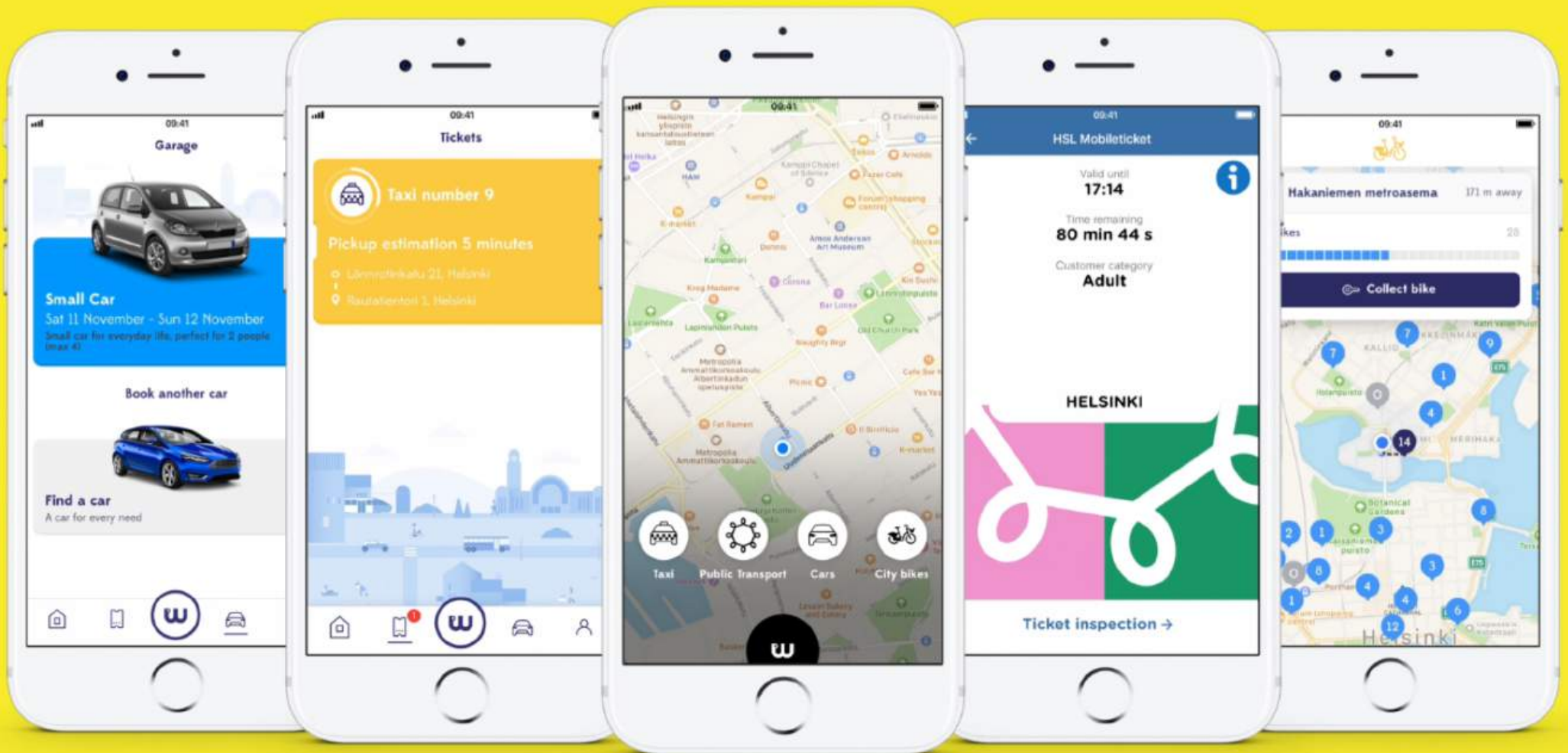


Developer of the concept, has set a clear goal
to reshape the world's transportation

5 C/ month:

AAK: Conference call for investors, stock market analysts and media – release of AAK's Interim report for the first quarter 2016

16 10:00 AM ET



The world's first **unlimited** travel package **including payments**



to go

Pay-as-you-go.

Download for free from
whimapp.com



urban

Unlimited Public Transportation
and Bikes.

Taxis max 10€ per ride
(within 5 km radius).

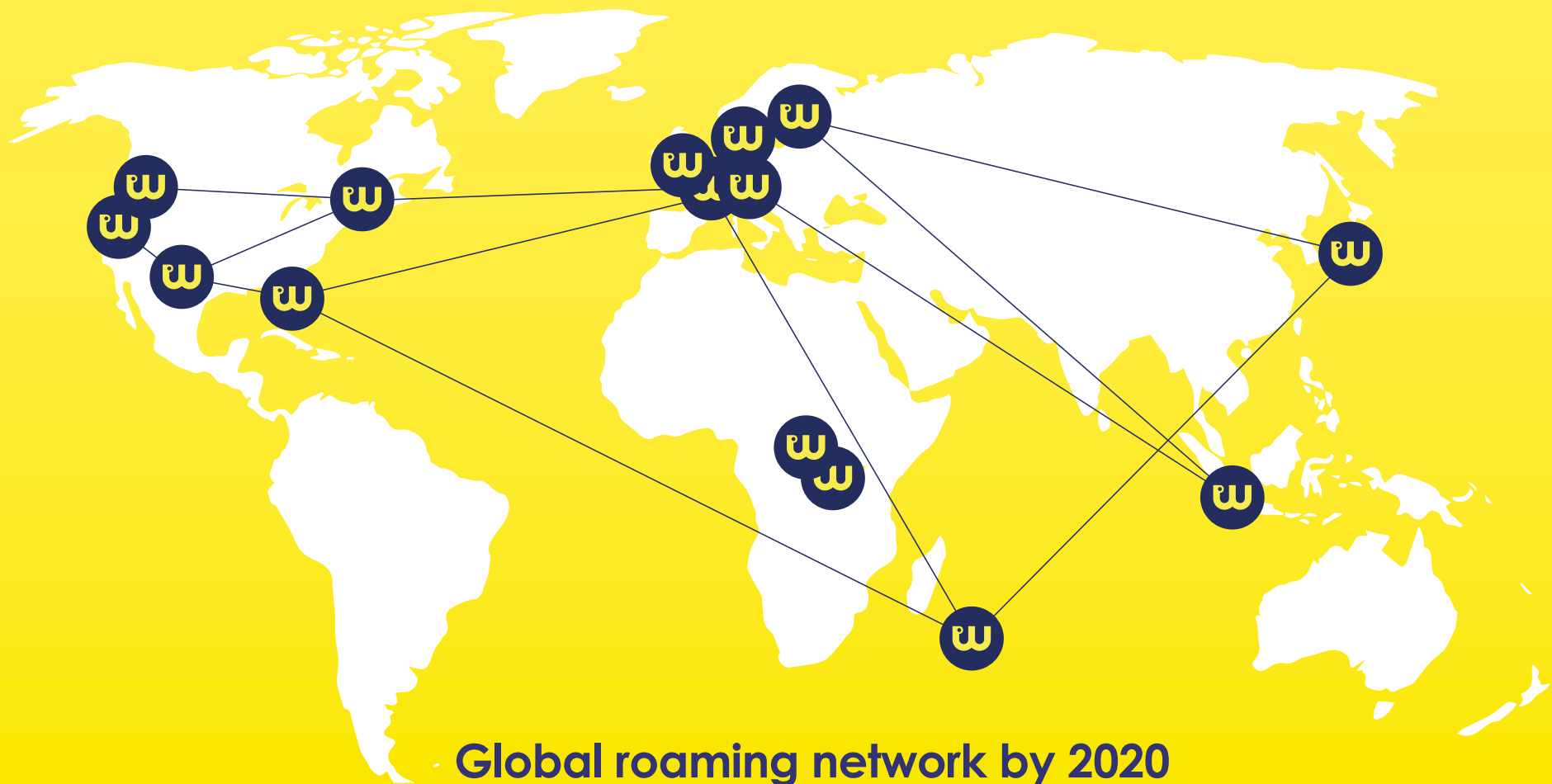
Fixed fees for rental cars with
unlimited mileage,
starting at 49€ per day.

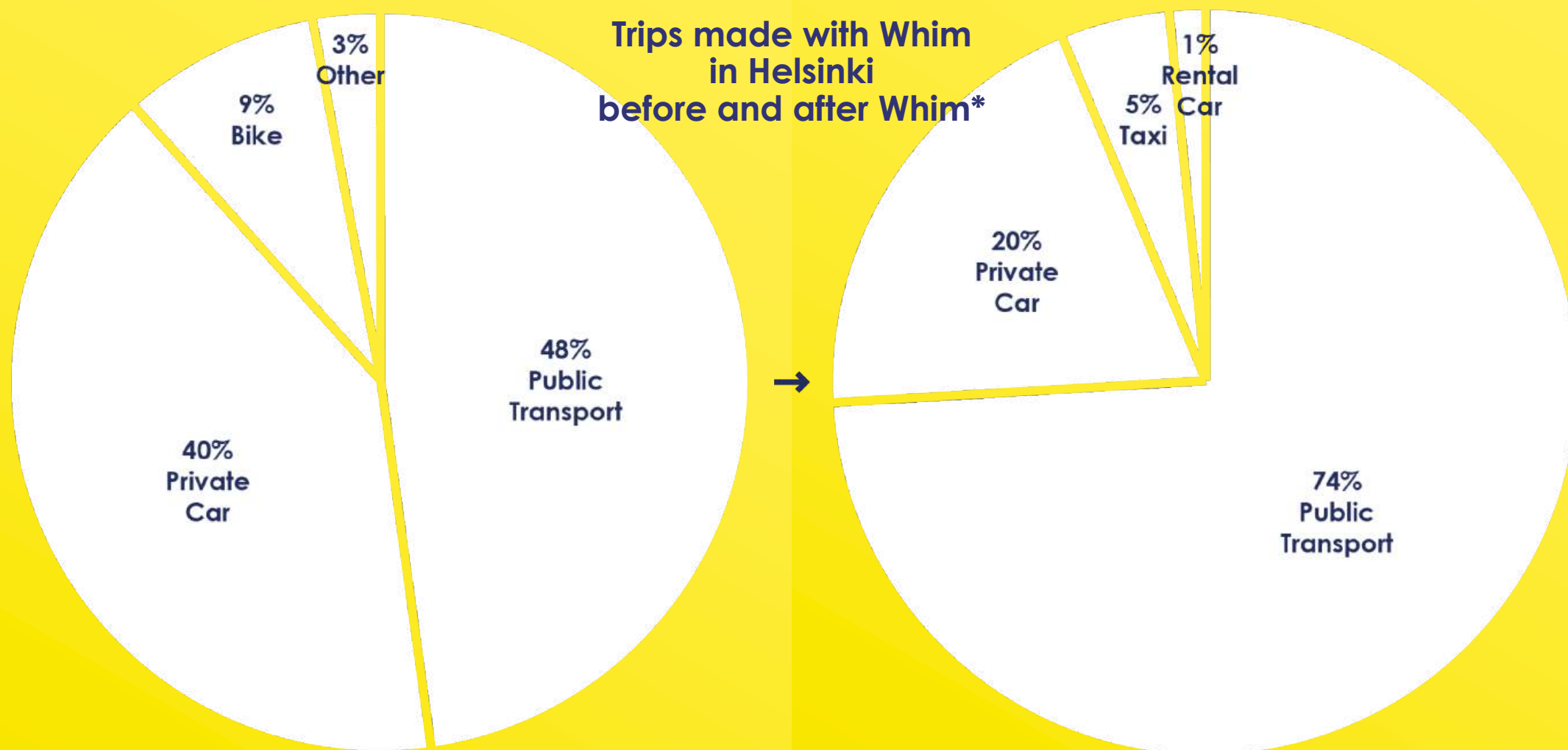


unlimited

All modes of transportation,
for all your needs,
with unlimited usage,
all month long.

Price less than car ownership.





Money shifts from expensive car costs to use of different services

*Walking and cycling excluded from the result data, data based on surveys done among Whim users.

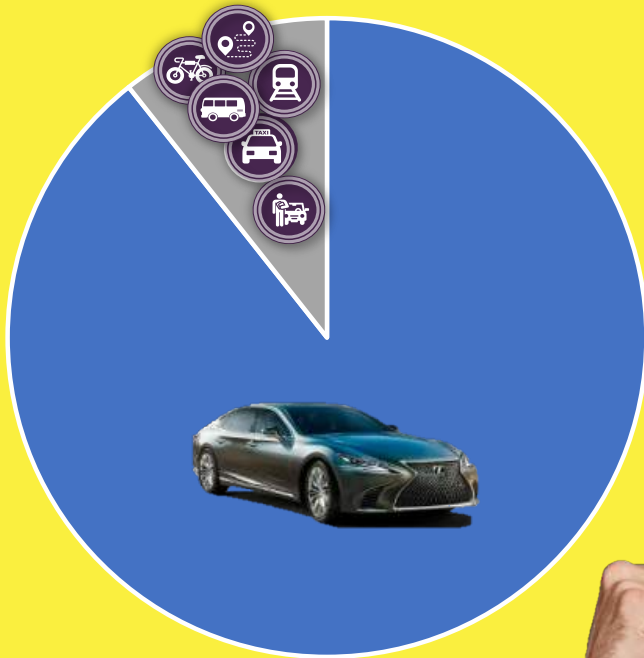


Mobility as a Service

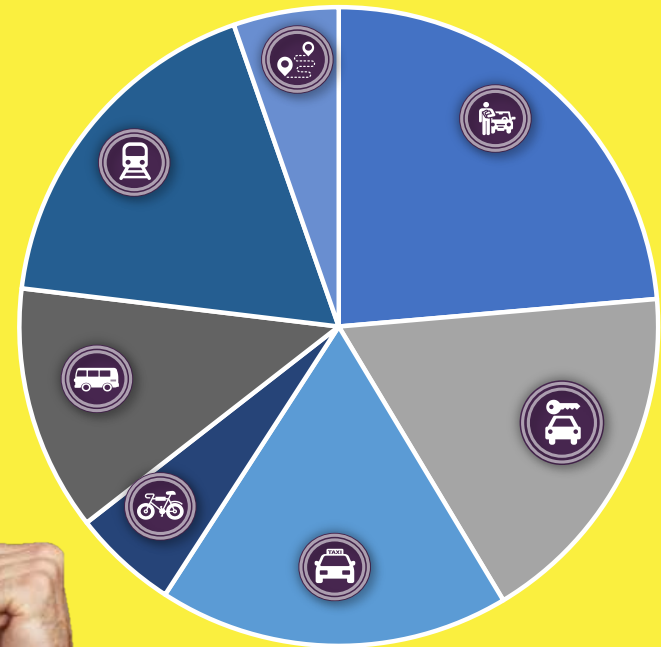
How to make it happen?

Business Model

Mobility spend now



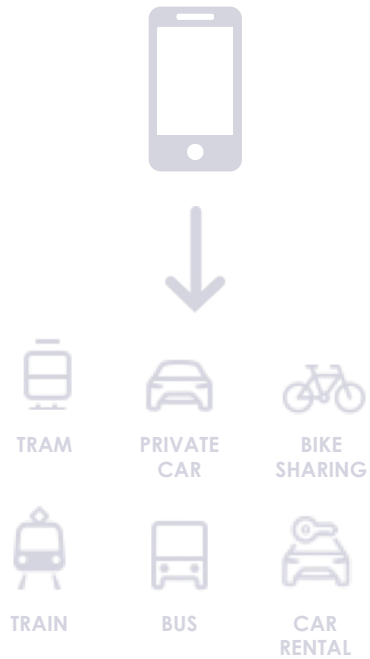
Mobility spend with operator



- **Step 1: Willingness for cooperation**
 - **Contracts between transportation providers and MaaS operators to buy transportation from at least**
 - Public transport (urban, intercity)
 - Taxi or taxi-like service
 - Access to car (car share, car rental etc.)
 - Bike sharing
- **Step 2: Technical readiness**
 - **API's allowing 3rd party service providers including**
 - Information about transportation services (timetables, routing, locations, disturbances etc.)
 - Background payment, hailing, ticketing, validation
 - **To learn more about technical integrations for MaaS, go to:**
www.maas-api.org
- **No need for city financing, just co-operation and active enabling**
- **If a city or government wants to speed MaaS, incentivize the end-user**

It is mobility ecosystem, not ego-system

Winner
takes it all



Public Transportation
takes it all



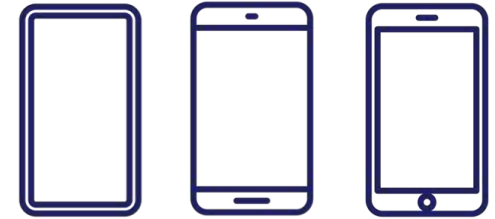
Open Ecosystem



Mobility as a Service
(Aggregators)

Transportation
Providers

Freedom of Choice



open competition



roaming in
transportation

A photograph of the interior of a bus, showing rows of purple seats and passengers. The perspective is from the back of the bus looking forward. The seats have a patterned fabric. There are yellow and red handrails. The text "Mobility as a Service" is overlaid in white. The main title "What about United States?" is also overlaid in white, centered on the image.

Mobility as a Service

What about United States?

◦

Potential obstacles

- Public transit is partly incomplete – **MaaS could end-up being very car-centered**
- Requires several players to work in an ecosystem, not an ego-system – **joint timelines need to be met**
- **Technical building blocks are mandatory**



Opportunities in the United States

- Massive amount of **innovation and supply**
- Trends are there – **access, not ownership**
- Authority management is **pro-market**



How to speed up getting MaaS to US?

1. Make yourself digitalized

- Create an API to your services to work with 3rd party service providers

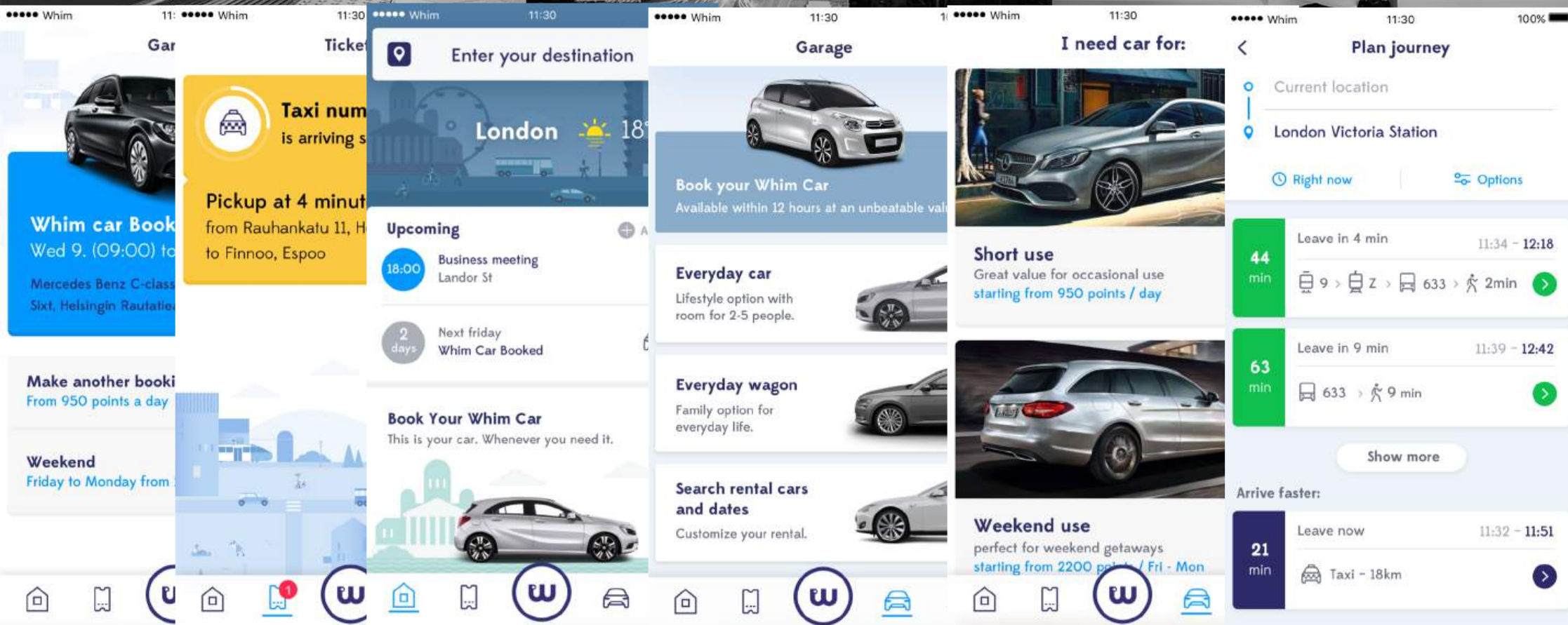
2. Take leadership and enable

- Mobility as a Service is a growing market, we don't have all the answers yet – try and learn
- If you are a city: act as a facilitator to bring all the relevant TPSs around the same table and support the market creation

3. Incentive

- Don't incentive MaaS operators, incentive end-users to affect to their modal split

Helsinki vision: “2025 in Helsinki you can live a perfectly good life without being forced to own a car”



Thank you!

Jonna Pöllänen

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www.whimapp.com
www.maas-api.org

◦

Mobility as a Service

DART Case Study

Presented by

Gary Thomas

President/ Executive Director

Dallas Area Rapid Transit

Dallas, Texas

DART Fast Facts



*700 square miles
2.3M service area population
13 service area cities*



*Trips:
Annual Fixed Route: 65.5M
Total Annual System: 67.1M
Average weekday FR: 228,000*





"Moving people one journey at a time"

A GROWING AND DIVERSE REGION

The Dallas-Fort Worth area is the fourth largest metropolitan region in the country in terms of population – and it is growing. With a current population of 7 million, the area adds approximately 1 million people every decade. By 2040, the region will be home to nearly 10.7 million people and will provide 6.7 million jobs.

CURRENT POPULATION:
7.0 MILLION



1 million people 
1 million jobs 

2040 POPULATION:
10.7 MILLION



CURRENT EMPLOYMENT:
4.6 MILLION



2040 EMPLOYMENT:
6.7 MILLION

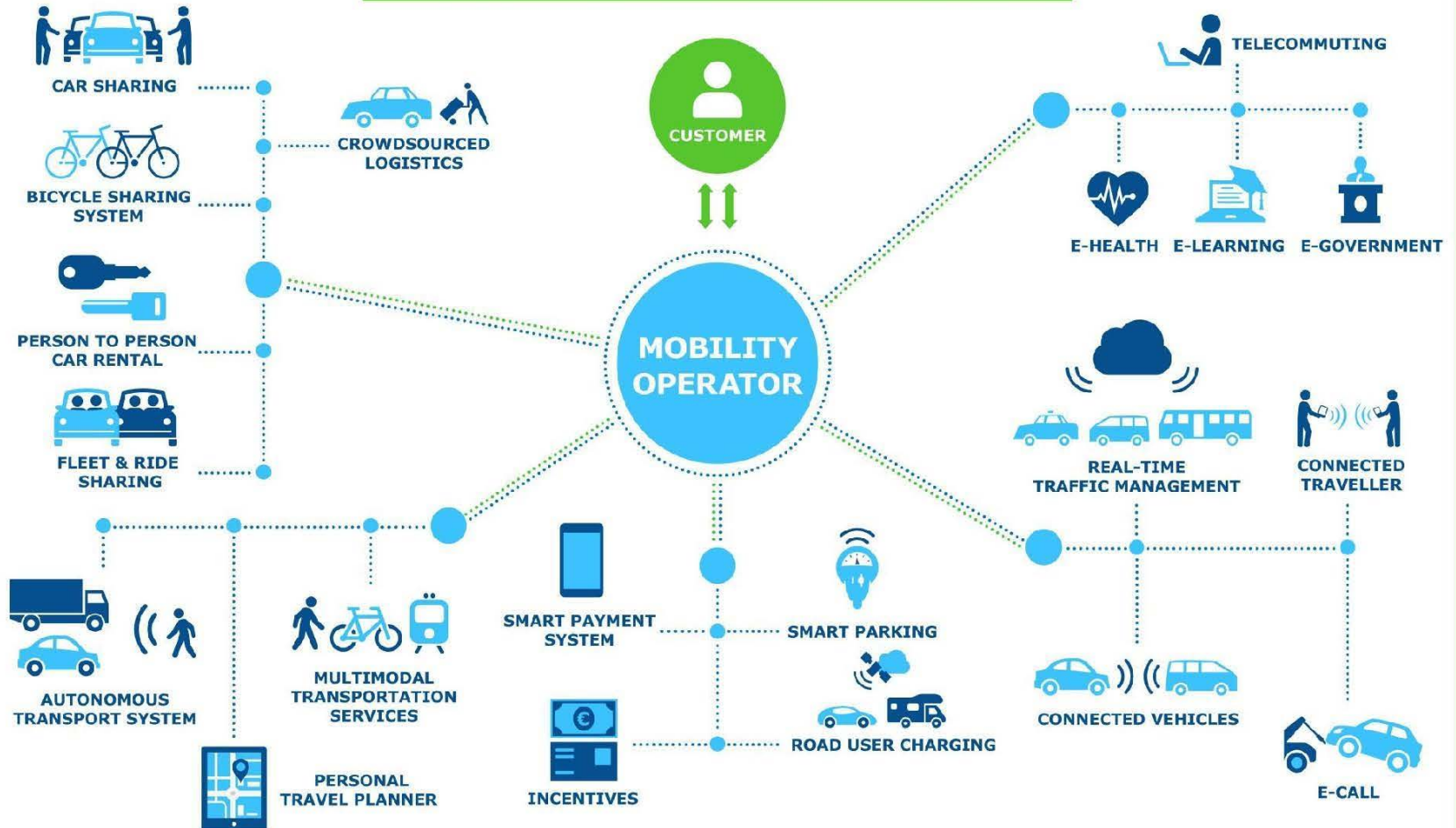


The region's population and employment are expected to grow by 53 percent and 47 percent, respectively. This growth will increase demand on the region's already congested transportation system.

Why MaaS matters to transit

- *Introduces seamless multimodal travel*
- *Strategy for helping urban density as it continues to grow*
- *Plan for managing rapid changes in the ecosystem of transportation infrastructure, services, information and payment acceptance*
- *Vehicle for matching demand with supply*
- *Response to expected real-time needs and wants of customers*
- *Approach for reducing traffic congestion*
- *Increases job access for low income riders*

MOBILITY AS A SERVICE FRAMEWORK



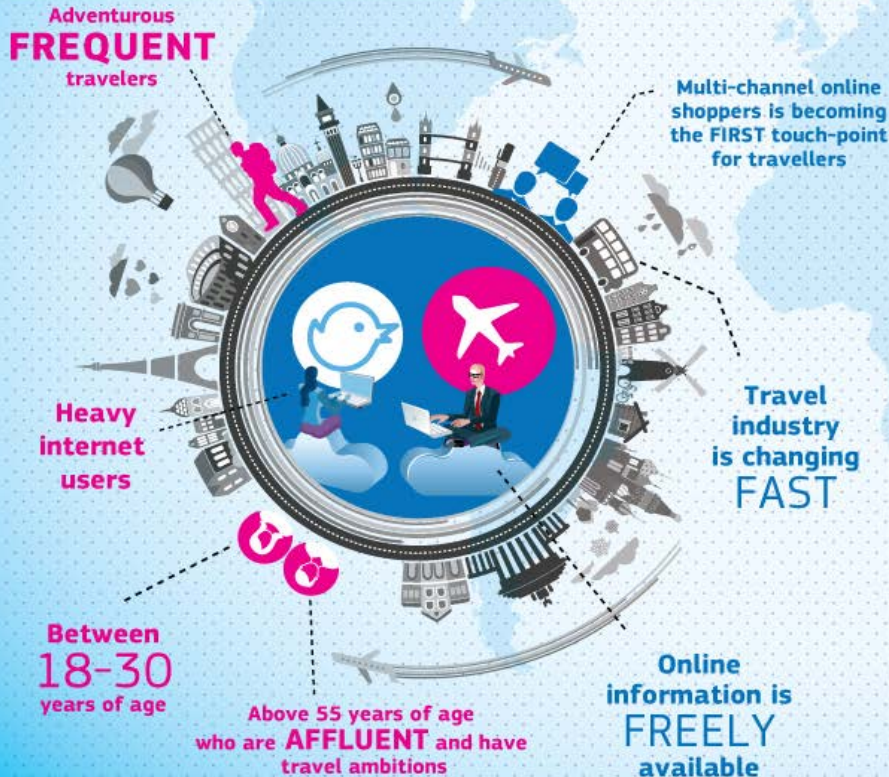
MY MOBILITY SERVICES



Driving Force Shaping MaaS

NextGen Traveler

Why the NextGen Traveler?



3 KEY TRENDS

1



SMART
CONSUMER

- WANT HONEST, TRANSPARENT OFFERS
- EMPOWERED TO BUILD PERSONALIZED TRAVEL PACKAGES
- OFFERS SHOULD BE DIFFERENT AND CREATIVE
- ONLINE & OFFLINE CONTENT SHOULD BE SEAMLESS
- CREATE OWN UNIQUE PATH IN BETWEEN

2



UNIQUENESS
SEARCH

- CONSIDER THEMSELVES "EXPLORERS" VS. TOURISTS
- COLLABORATION BETWEEN TRAVELER AND BRAND
- WANT CUSTOMIZED TRAVEL PLANS
- EXPECT AUTHENTIC OVERSEAS EXPERIENCE

3



SOCIAL
INTERACTION

- TRAVELERS WANT TO FEEL VALUED
- STAY CONNECTED 24/7
- DESIRE TO ENGAGE WITH BRANDS
- SOCIAL MEDIA IS THEIR PLAYGROUND

How DART is integrating MaaS

Driving Factors

- *Provide single interface solution*
- *Deliver a “one-touch”, single payment transaction*
- *Develop a clearinghouse portal*
- *Integrate equitable MOD options to DART’s portfolio of public transit options*
- *Lower the cost and expand the reach of public transportation*

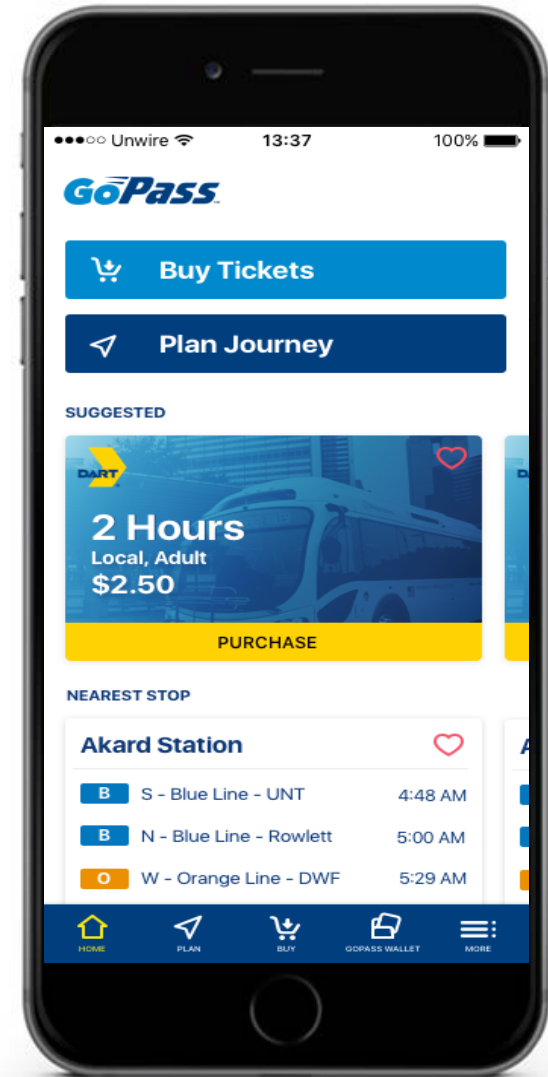
The Last Mile

Increasing transit accessibility

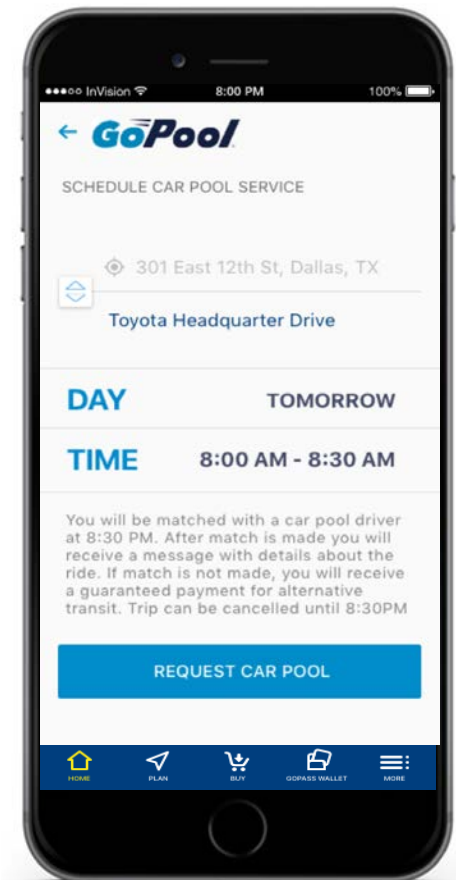
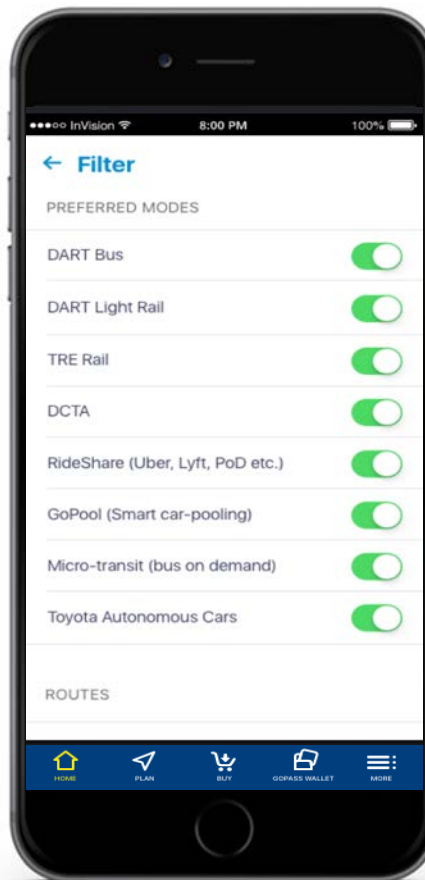
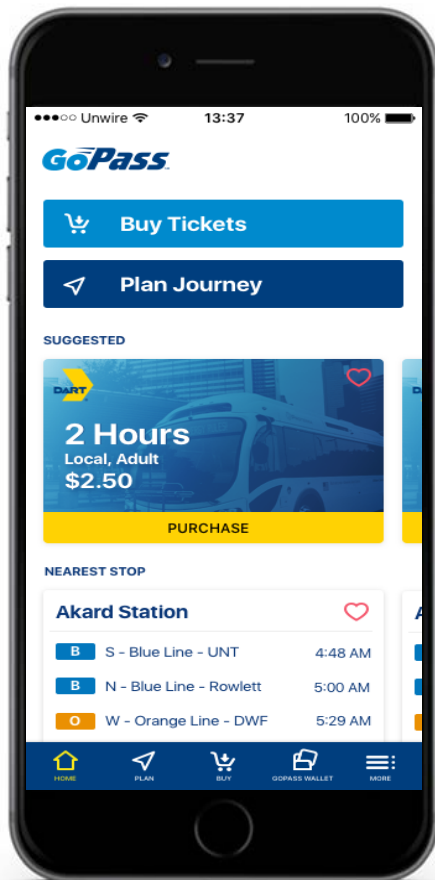


Project Description

- **Update GoPass' Software Development Kit (SDK)** to leverage APIs of key mobility on demand providers including taxi, TNCs, bike and car share services
- **Utilize GoPass' new features** to allow customers to choose transportation modes based on time, cost and overall travel preference
- **Integrate on demand app technology** for pairing customers with DART and/or other public demand responsive providers
- **Integrate Dynamic Carpooling**
- **Leverage DART's account-based back office** to function as a clearinghouse portal facilitating revenue settlement for multiple third-party providers
- **Deploy Technology in DART Service Area** including micro transit supplemented by shared ride TNC services in both high and low income areas



Simple Idea: Integrated Ticketing, Payment and Mobility Options



Positive Impacts for Low Income Riders

- Provides cash-to-mobile options within the app
- Connects people to jobs throughout the region
- Creates tailor-made mobility solutions



MaaS integration at DART



3.0

Launching MaaS

- Introducing an integrated mobility solution is best done as a “rolling launch”
- Implementing a “simple” micro transit solution is challenging
- Cross-vendor collaboration is essential in both **scoping** and **execution** phases

TRANSIT

11.00 AM - 11:47 AM 47 min

 2 >  350 >  451 >  883 \$ 2.50


11.00 AM - 11:47 AM 47 min

 2 >  350 >  ORANGE >  362 \$ 2.50

11.00 AM - 11:18 AM 28 min

 2 >  ORANGE >  \$ 2.50

11.00 AM - 12:34 PM 34 min

 \$ 2.50

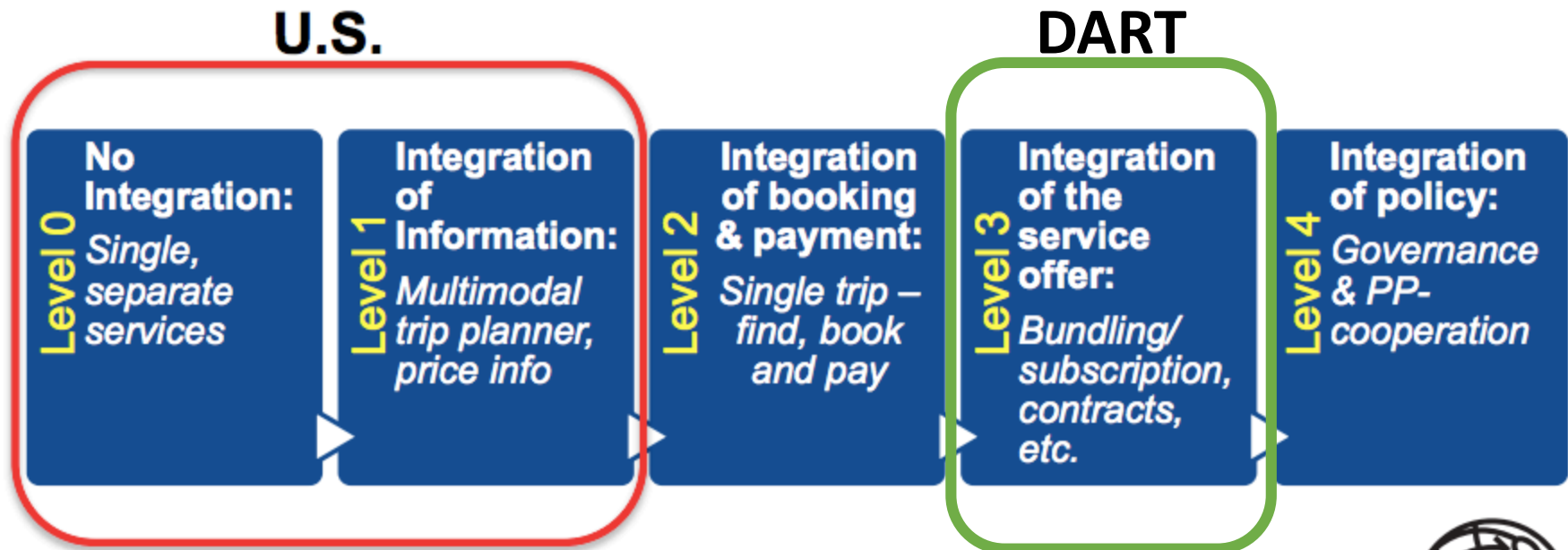
GOING CARPOOLS

Tomorrow Morning 15 min

Open app \$ 7.50



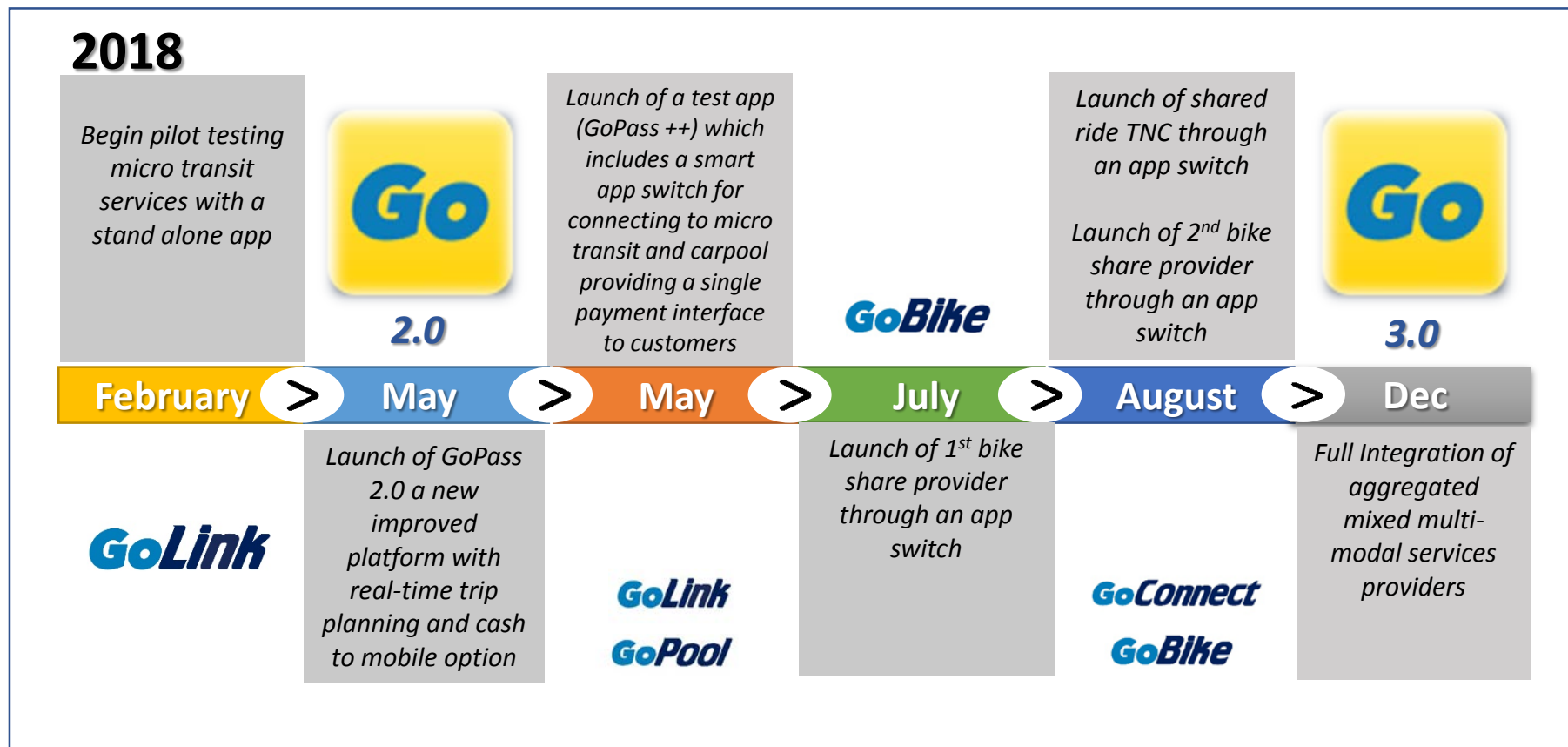
MaaS Topology



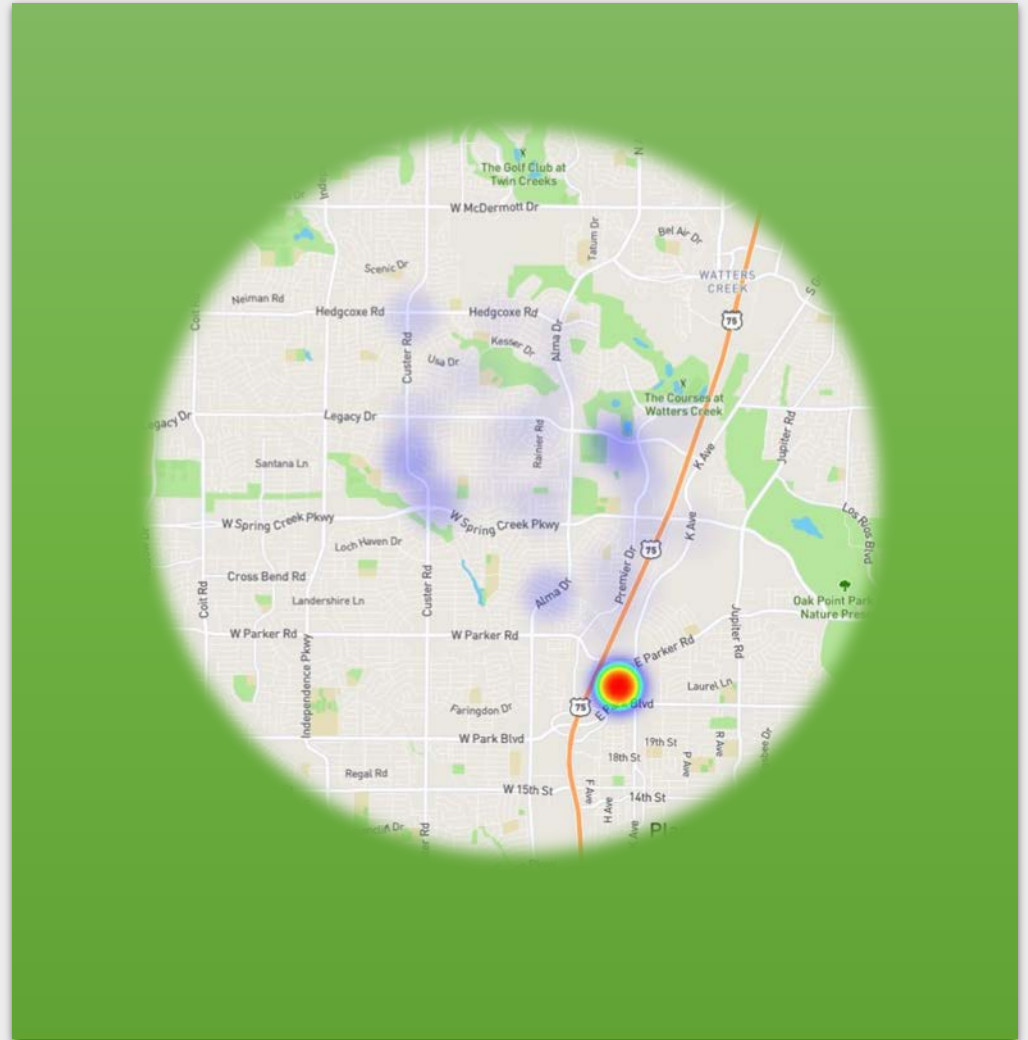
ITS WORLD CONGRESS 2017
Montréal | OCTOBER 29 - NOVEMBER 2

Source: Jana Sochor, Hans Arby and MariAnne Karlsson, "The topology of Mobility as a Service: A tool for understanding effects on business and society, user behavior, and technical requirements," Paper No. EU-SP1013, 2017 ITS World Congress, Montreal

DART's Path to Level 3



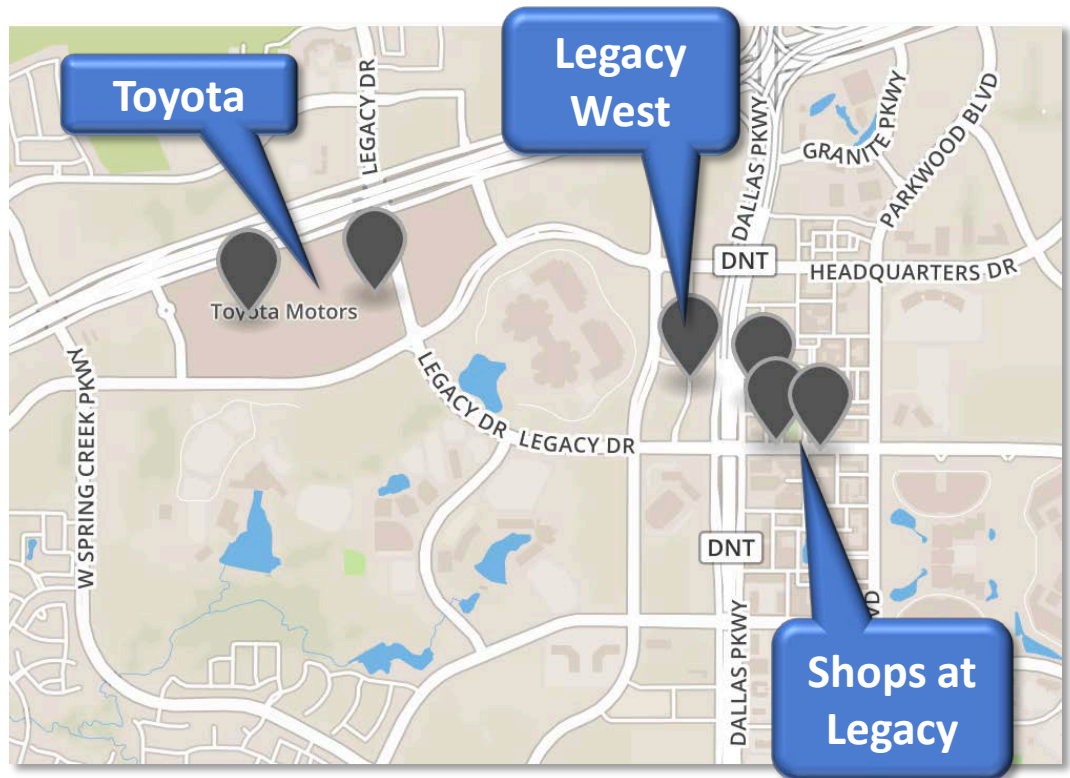
DART deploys MaaS



Case Study:

Legacy Lunch Pilot

- Offers microtransit shuttles in an area with gaps in public transportation services
- Pilot service includes Toyota North American headquarters, various retail, dining, residential, hotels and office spaces
- Weekdays 11am-2pm
- 3 vehicles 15-passenger size vehicles in operation



Plano Mobility on Demand Zones



FAR NORTH PLANO
Full Service August

LEGACY
Lunch Service Available Now
Full Service March 26

NORTH CENTRAL PLANO
Full Service March 12

Far North Plano

Chase Oaks Extension

North Central Plano

Legacy

LEGACY DR

HEDGCOXE RD

SPRING CREEK PKWY

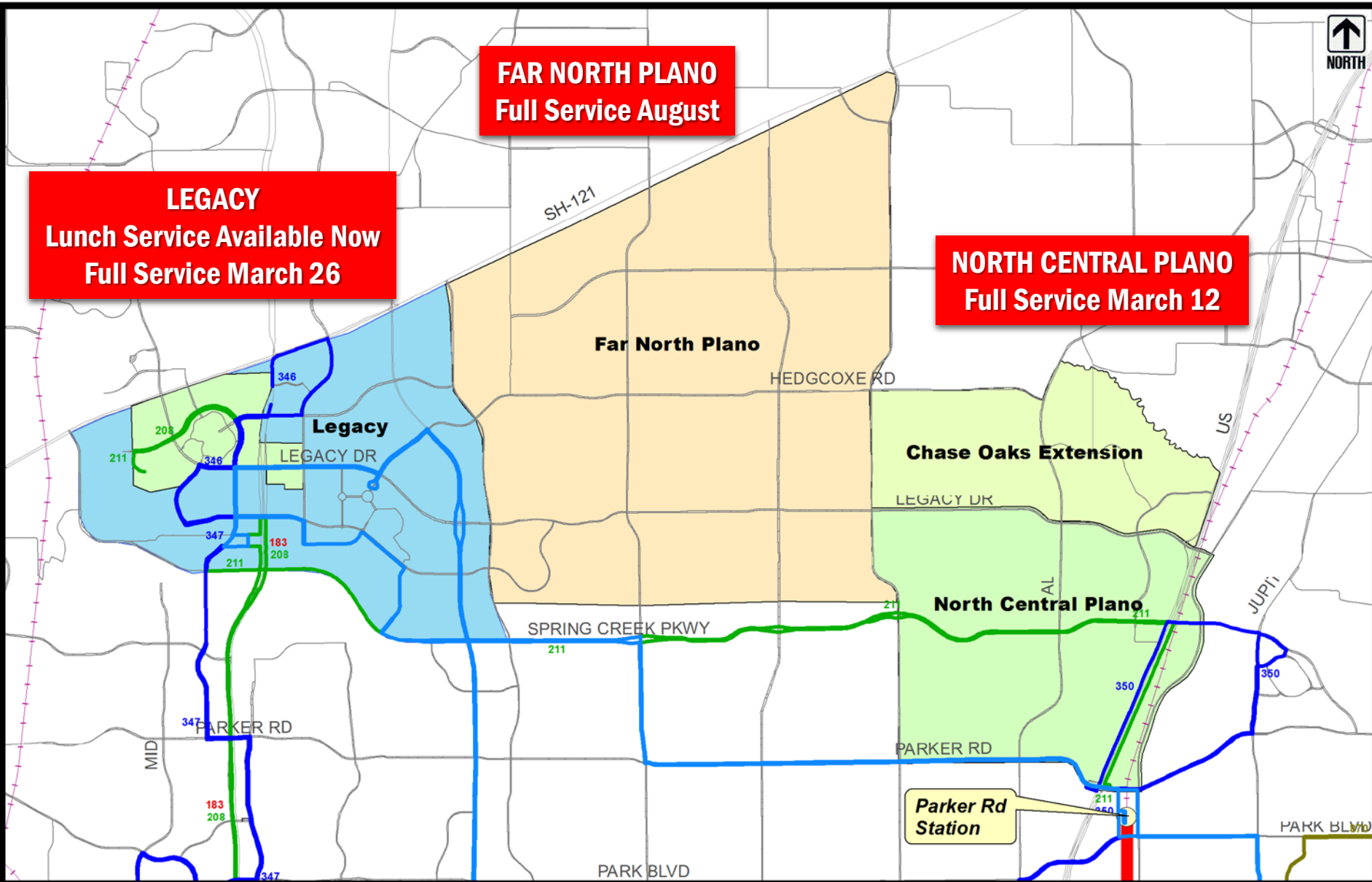
PARKER RD

PARKER RD

PARK BLVD

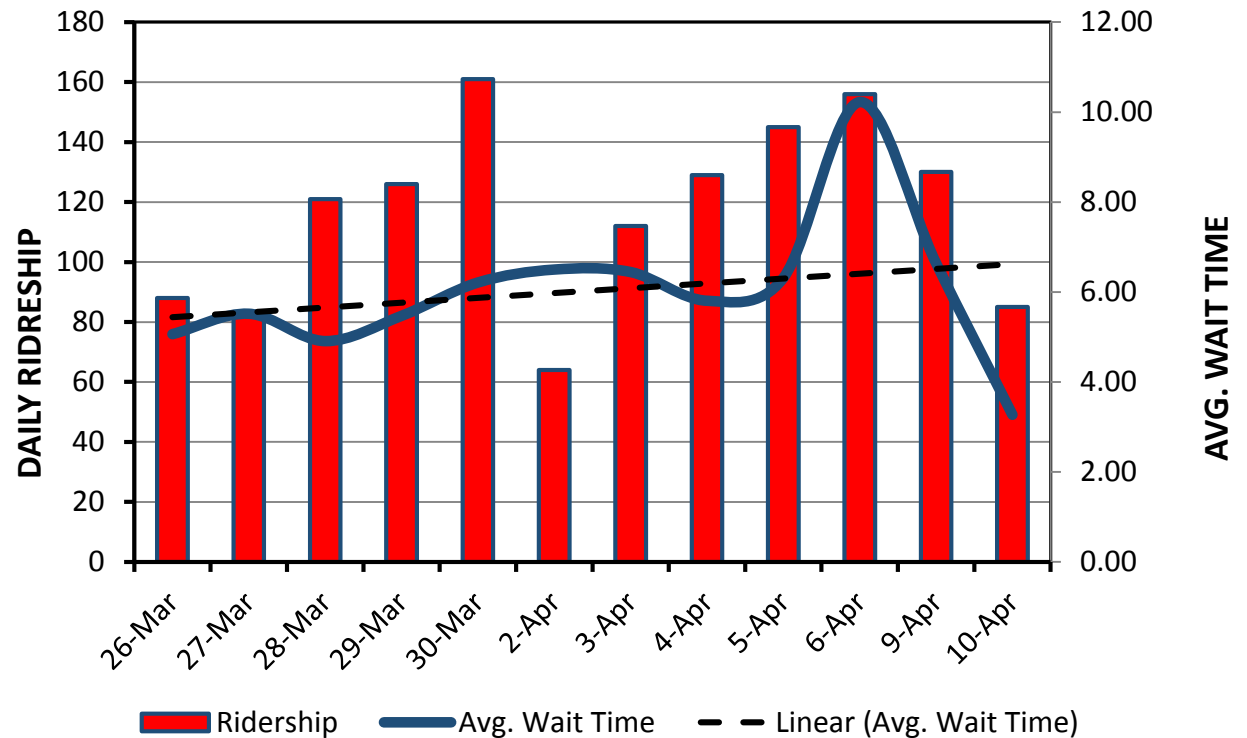
**Parker Rd
Station**

PARK BLVD



Legacy Zone

Daily
Ridership
and Avg
Wait
Times



***Average wait times are less than 8 mins,
comparable to TNCs***

Pilot Results

- Significant ridership increases in areas with service gaps
- Decrease in call volumes due to app usage
- Substantial decline in dispatch activity – creating a “hands off operation”

Results

Month	Service Days	Total Trips	Total Riders
17-Oct	22	262	682
17-Nov	20	225	625
17-Dec	20	331	1,165
18-Jan	21	365	1,055
18-Feb	20	418	1,013
18-Mar	22	2,769	3,847
18-Apr	22	5,726	6,924

Key Takeaways

High level of interest in MaaS has sparked rampant software development activity and various P3 agreements



Although there are many pieces to an integrated journey planning and payment “ecosystem”, a mastery solution has not been developed



Determining who “owns and controls” integrated mobility solutions is open for debate



Negotiating acceptable agreements with the TNCs for shared ride service and access to data to evaluate the program has proven more difficult than anticipated



“Everything-As-a-Service thinking” to provide activity planning for a complete life-cycle solution



Mobility on Demand

Timothy Haile

Deputy Executive Director, Projects
Contra Costa Transportation Authority

June 18, 2018

Who We Are

- CCTA is a public agency formed by voters in 1988 to manage the county's transportation sales tax program and to lead transportation planning efforts.
- We are responsible for maintaining and improving the county's transportation system by delivering critical transportation infrastructure projects to safely and efficiently get people where they need to go.
- Managing entity of autonomous vehicle (AV) testing site: GoMentum Station.



Contra Costa County, California

Location

Eastern suburb
of the
San
Francisco
Bay Area



Population

1 Million+



Thriving Commerce

Businesses headquartered in
Contra Costa County include:



BevMo!



Diverse

Demographically, economically
and geographically



What We Do



PEDESTRIAN

Make improvements to sidewalks, crosswalks, trails, and paths



LOCAL STREETS

Smooth traffic flow on major roads and invest in improvements such as repairing potholes and road surfaces



BUSES

Invest in a reliable, comfortable and convenient bus network



SAFE ROUTES TO SCHOOLS

Focus on programs and projects aimed at bicycle and pedestrian safety for K-12 students



FERRIES

Expand the Bay Area ferry system by looking to ferries as an alternate commute method between West County and San Francisco



BICYCLE

Invest in safe routes and infrastructure improvements for bicyclists



BART

Improve BART service and stations, extend routes and increase parking at stations



HIGHWAYS

Complete Contra Costa's highway system, and improve air quality and noise protection along these corridors



CARPOOL/RIDESHARE

Implement programs to reduce traffic congestion by encouraging carpooling and ridesharing



PROGRAMS FOR SENIORS AND PEOPLE WITH DISABILITIES

Enhance transit options to improve mobility for seniors and people with disabilities



innovate 

Innovate 680



TECHNOLOGY

*transit
reliability*

autonomous vehicles

mode shift

gap
closure

shared mobility

connected vehicles

express bus

PERSON THROUGHPUT

commuter parking

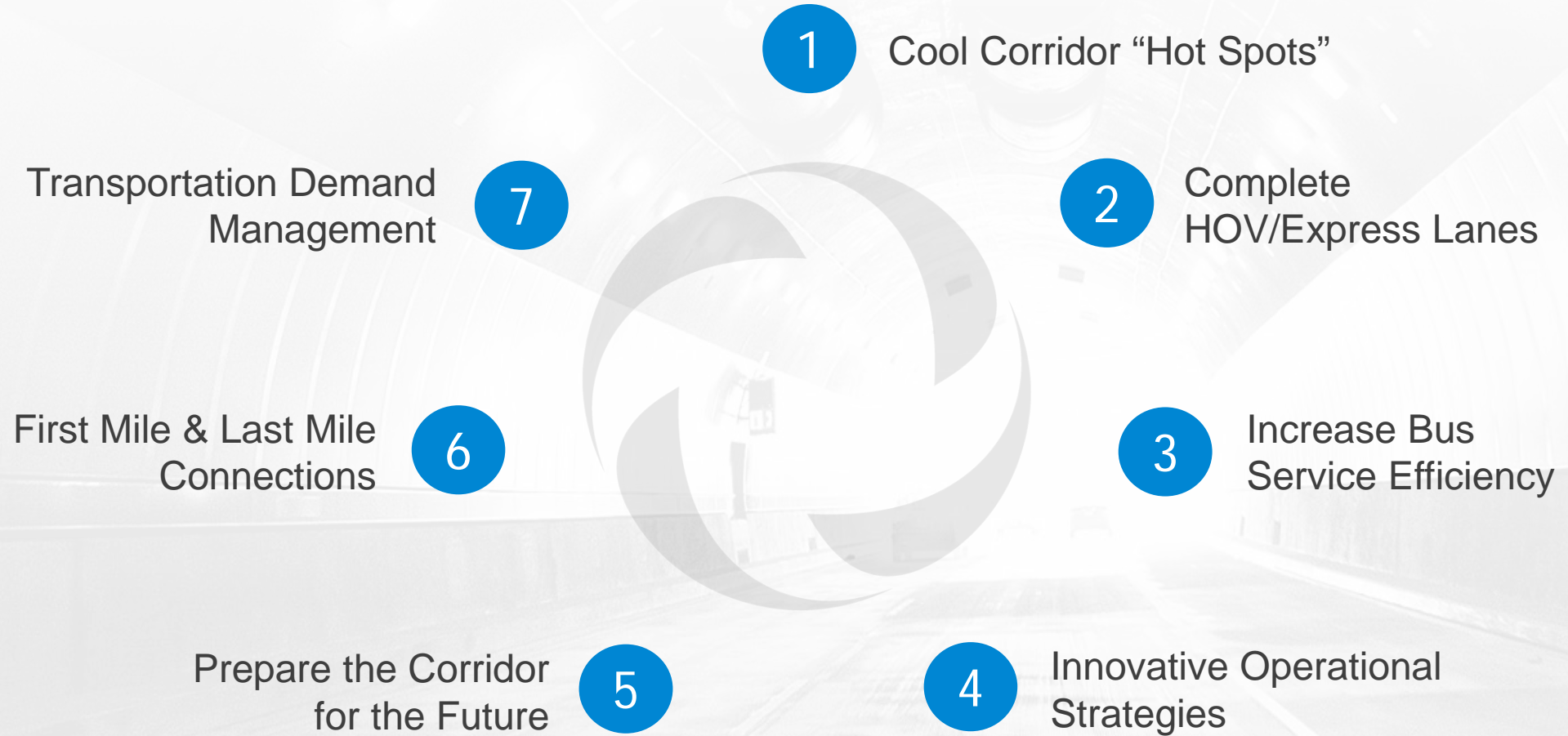
Contraflow lane

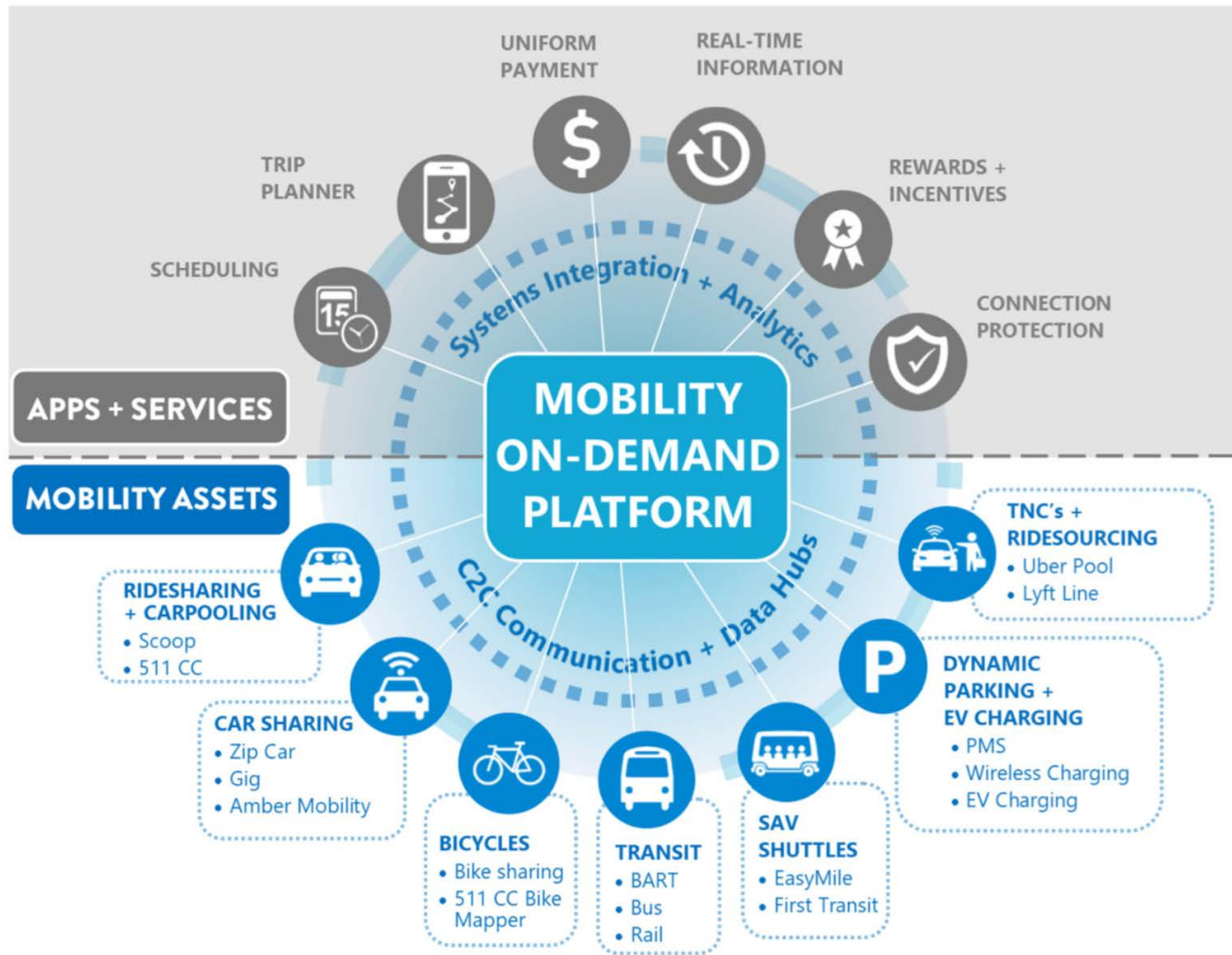
managed lanes

first and last mile

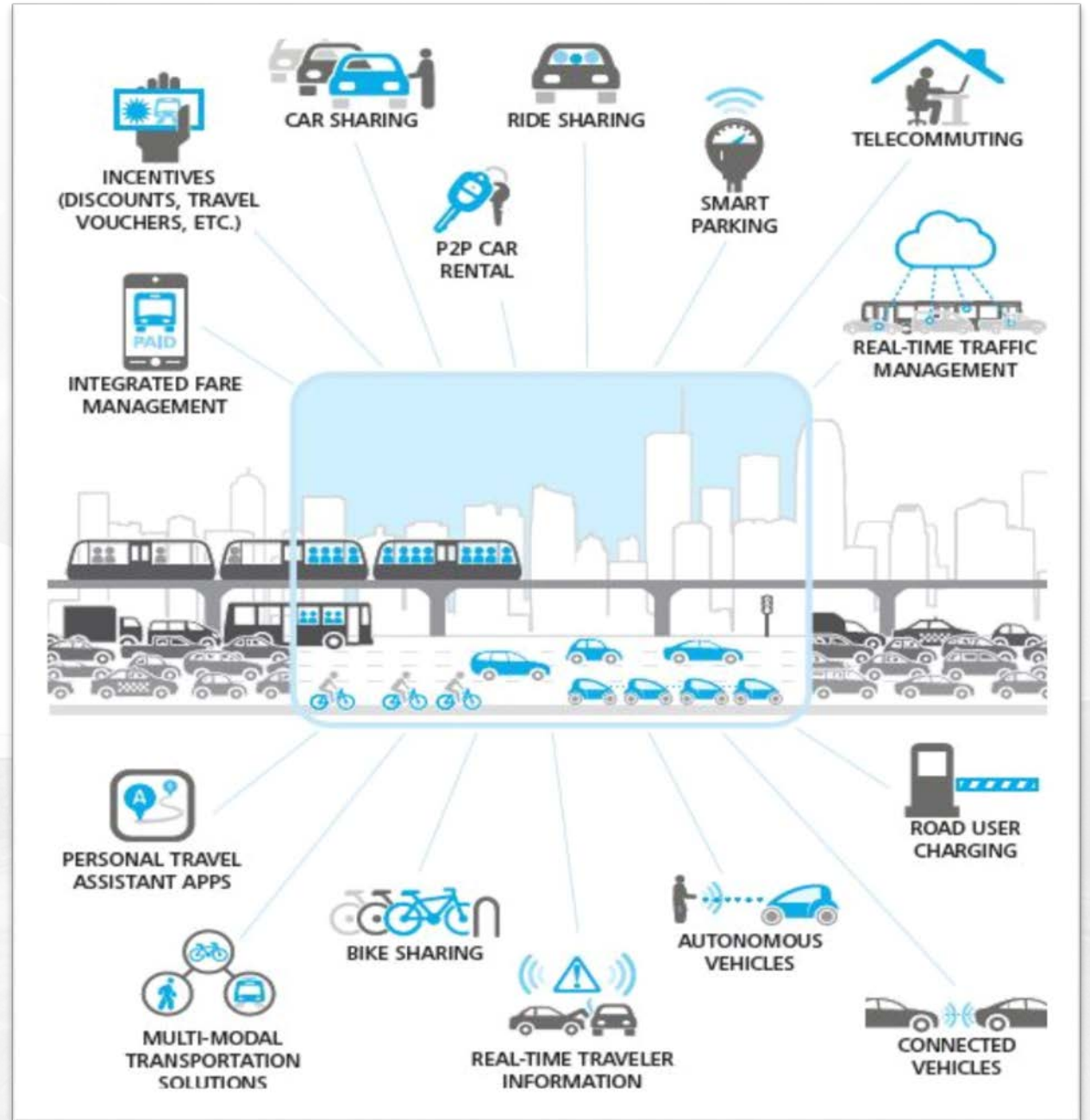
**on-demand
transit**

Seven Strategies





Data Management



Timothy Haile

Deputy Executive Director, Projects
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Thank You

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 - Gary Thomas, *Dallas Area Rapid Transit (DART)*, gthomas@dart.org
 - Tim Haile, thaile@ccta.net, *Contra Costa Transportation Authority*
- 

Get Involved with TRB

- Getting involved is free!
- Join a Standing Committee (<http://bit.ly/2jYRrF6>)
- Become a Friend of a Committee (<http://bit.ly/TRBcommittees>)
 - Networking opportunities
 - May provide a path to become a Standing Committee member
- For more information: www.mytrb.org
 - Create your account
 - Update your profile

Receiving PDH credits

- Must register as an individual to receive credits (no group credits)
- Credits will be reported two to three business days after the webinar
- You will be able to retrieve your certificate from RCEP within one week of the webinar