



Space and data allowing the integration of the transport system and the personalisation of the transport products

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In the past, priority was allocated on building transport infrastructure and especially on increasing road capacity.

- Transport infrastructure is necessary.
- Resulting in an increase in car-ownership and vehicles on the road network.



More recently, one of the priorities is the expansion of the public transport system.

- Public transport systems should have an extensive coverage.
- However, sometimes, demand does not respond to the supply.
- Public transport system is highly subsidized by the public sector.
- Challenges with first and last mile trips.
- Inconsistent time tables, different tickets, different pricing.



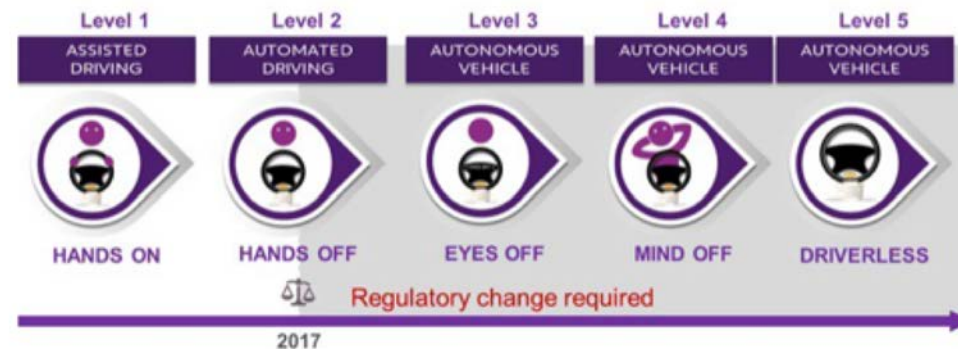
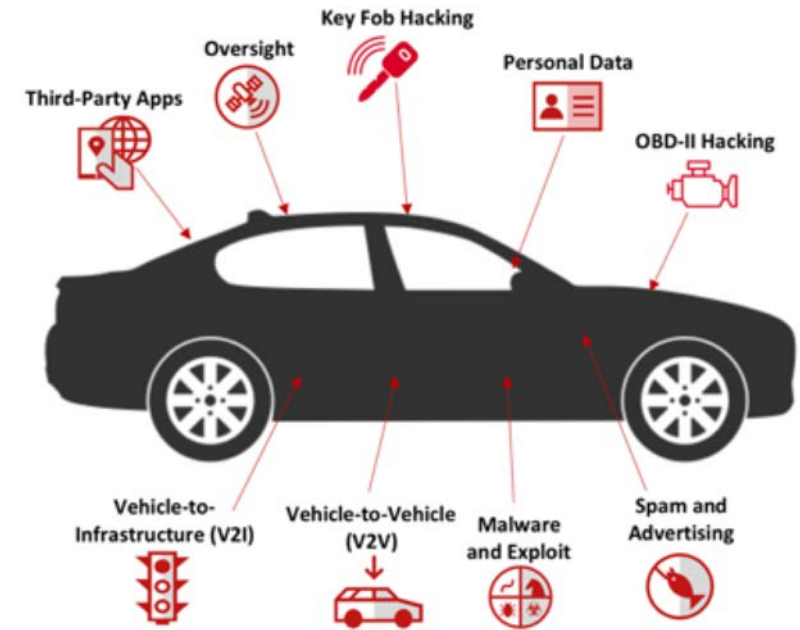
“Transport has been hit by a
DIGITAL TSUNAMI” (Sami Pipuri, 2016)

New Mobility Technologies

New Mobility Services

New Mobility Technologies

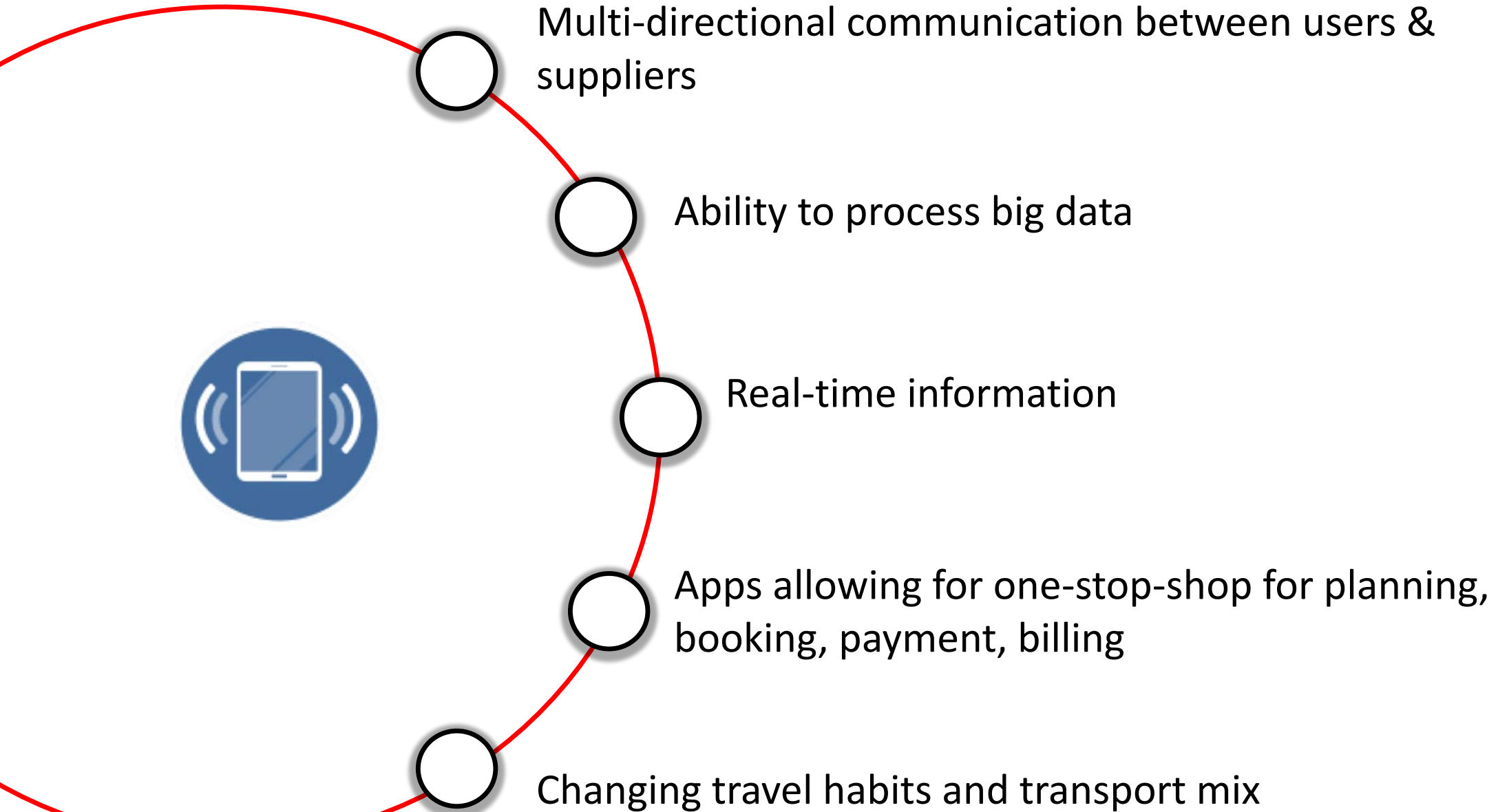
- Improved Internal Combustion Engines
- Electrification
- Vehicle to Grid (V2G)
- Connectedness
- Autonomous vehicles
- Flying vehicles
- Data processing

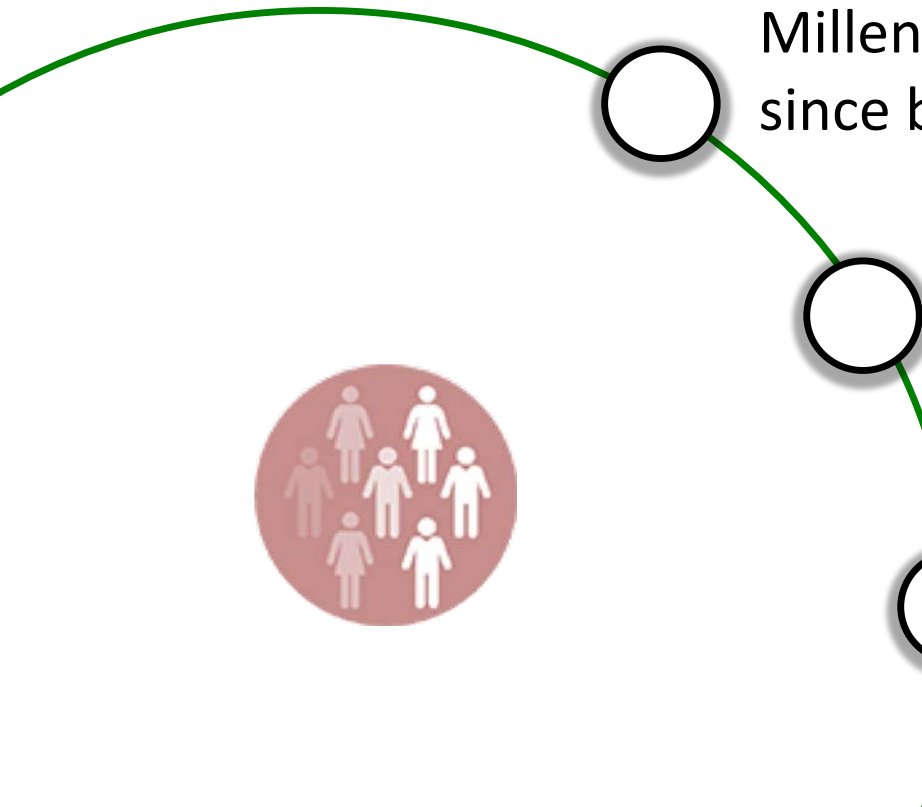


New Mobility Technologies

- Improved Internal Combustion Engines
- Electrification
- Vehicle to Grid (V2G)
- Connectedness
- Autonomous Vehicles
- Flying vehicles
- Data processing
- **Smartphones**







Millennials have been “bathed in bits and bytes” since birth

Consistent downward trend in the percentage of young people owning a driving license

Changing expectations toward individualization and sustainability

...from ownership to usership



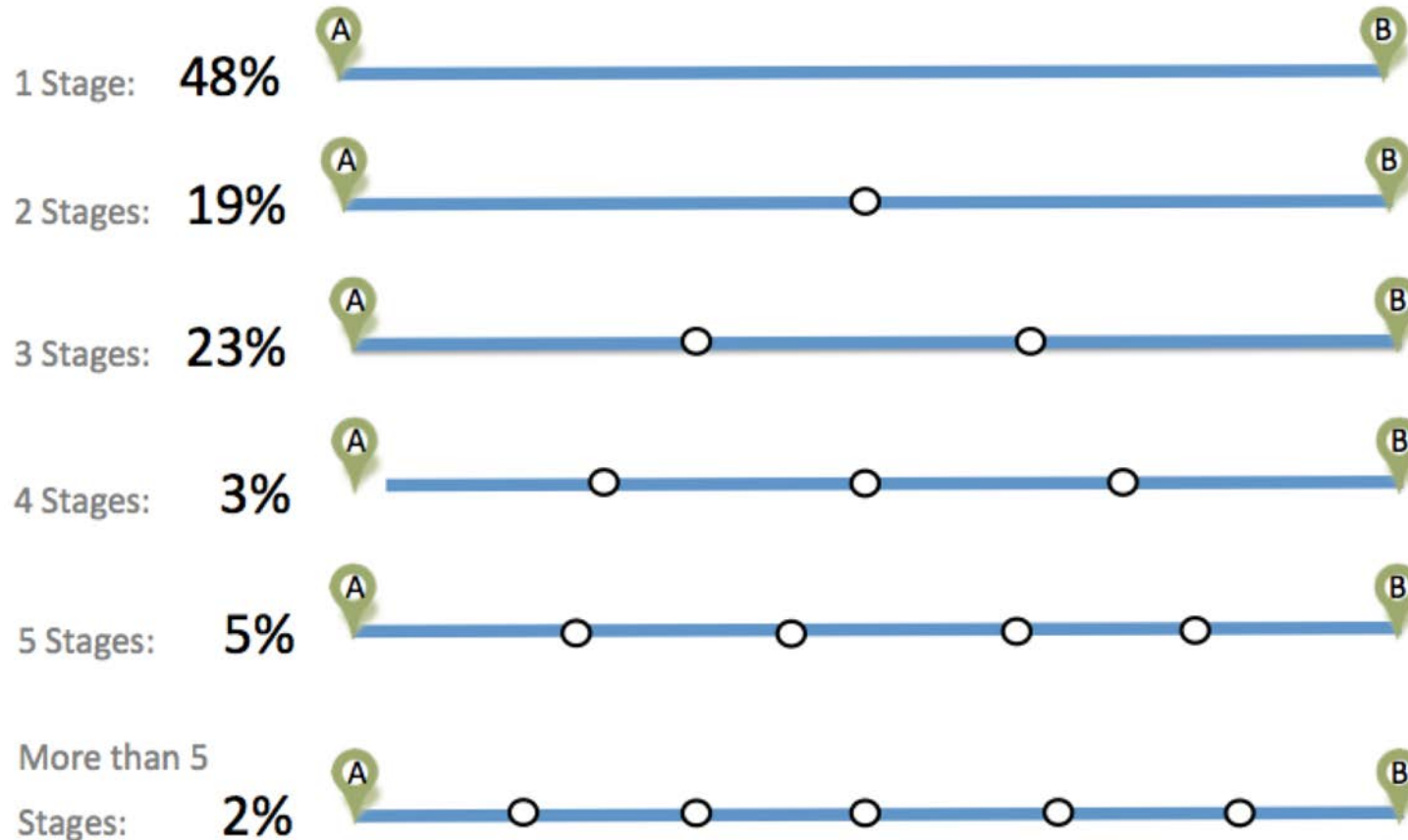
MIND THE GAP *digital*

Why are we still trying to solve our 21st century transport problems using 19th & 20th century inventions with a little help from IT and?

How do Londoners travel?



Stages per Trip

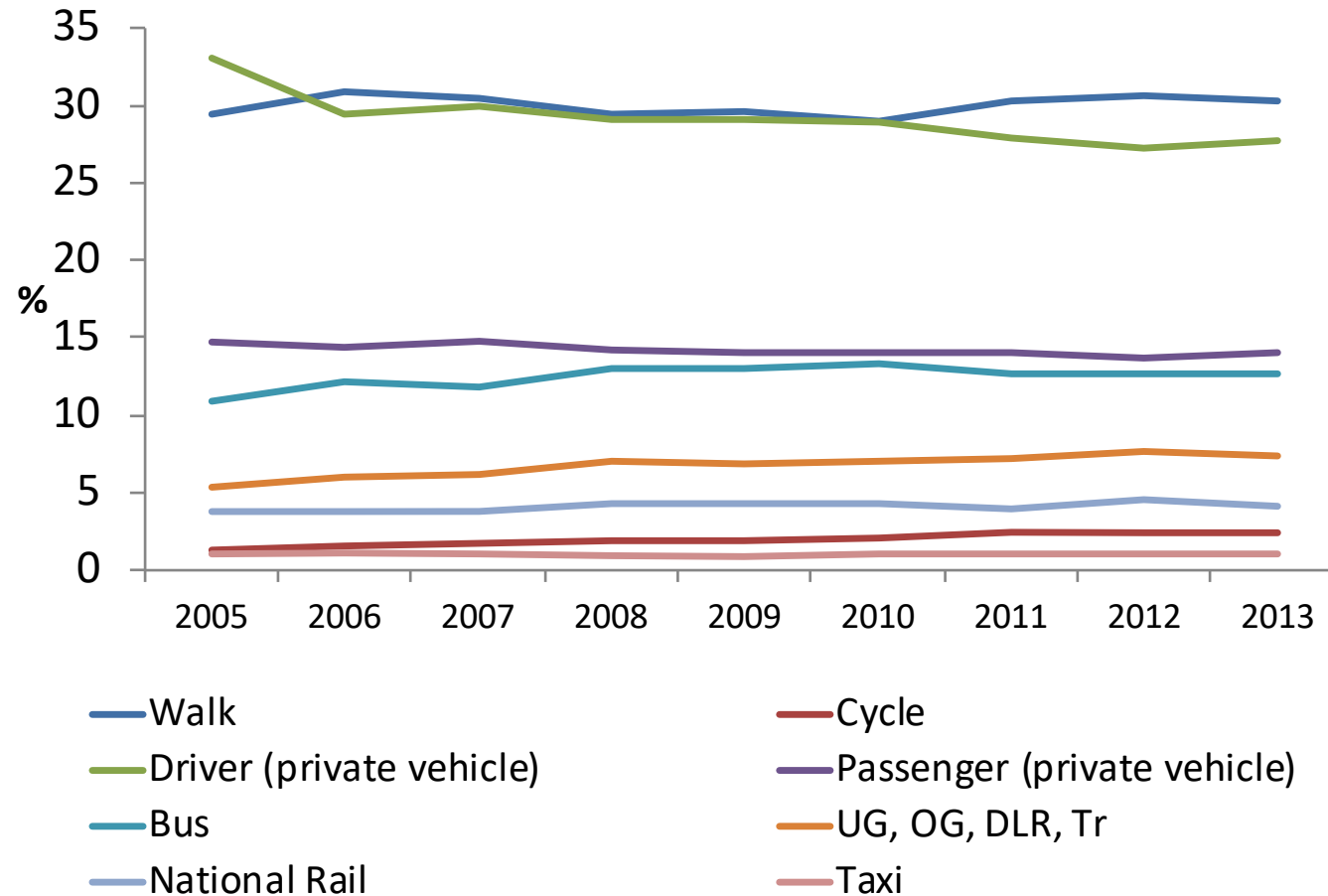


3.2 trips per day

48% of the trips consist of one stage

over 50% have more than one stage

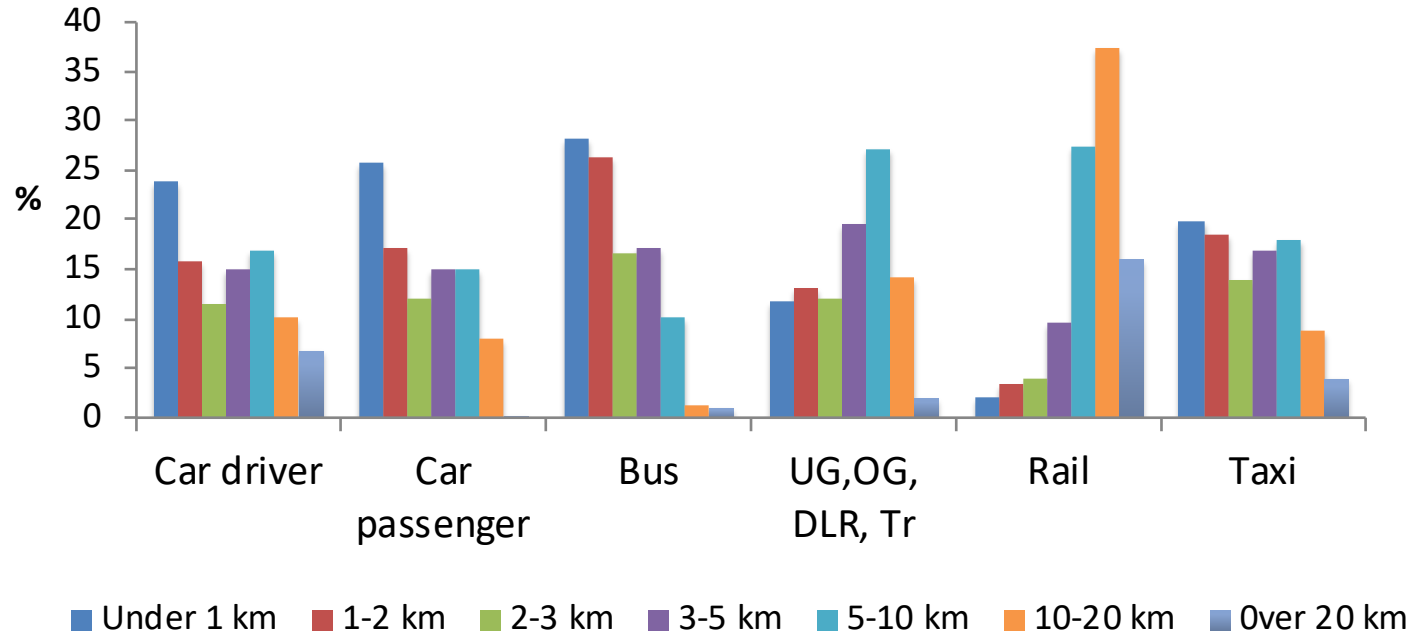
Transport Mode



Car is the most popular mode

... Shift away from cars

Distance of Stages by Mode



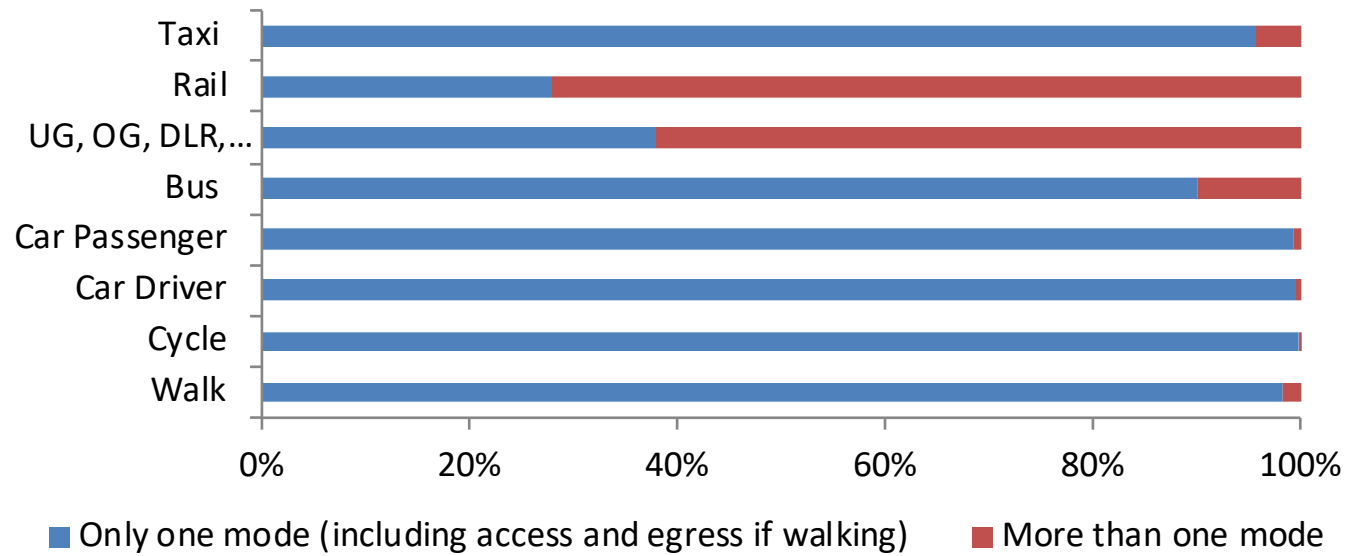
Car is the predominant mode for trips <1km mode



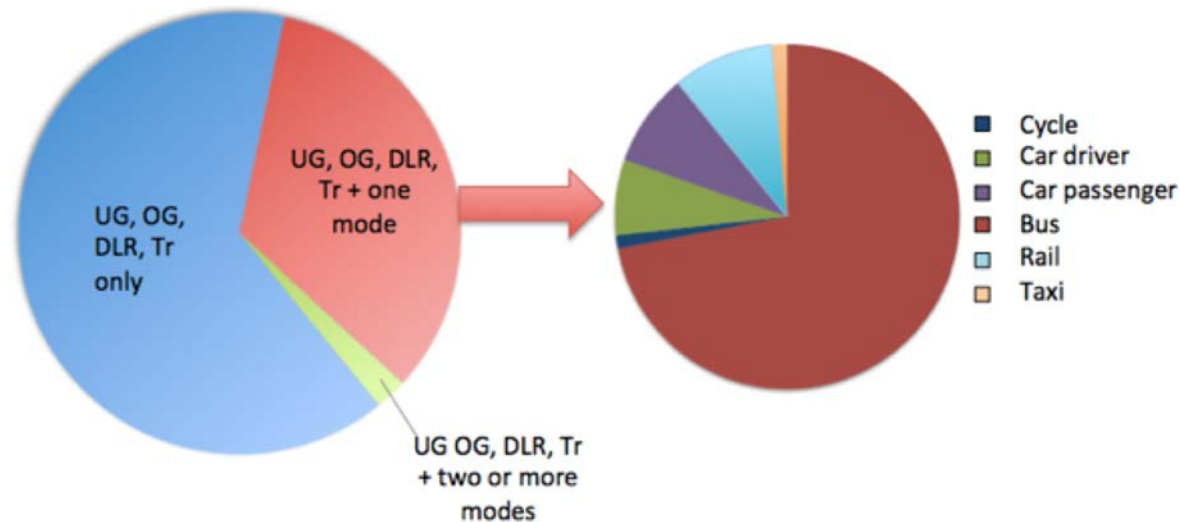
- ◆ Car driver
- ◆ Car passenger
- ◆ Van driver
- ◆ Bus
- ◆ Underground
- ◆ DLR
- ◆ Taxi
- ◆ Overground

North East & Central London: trips <2km

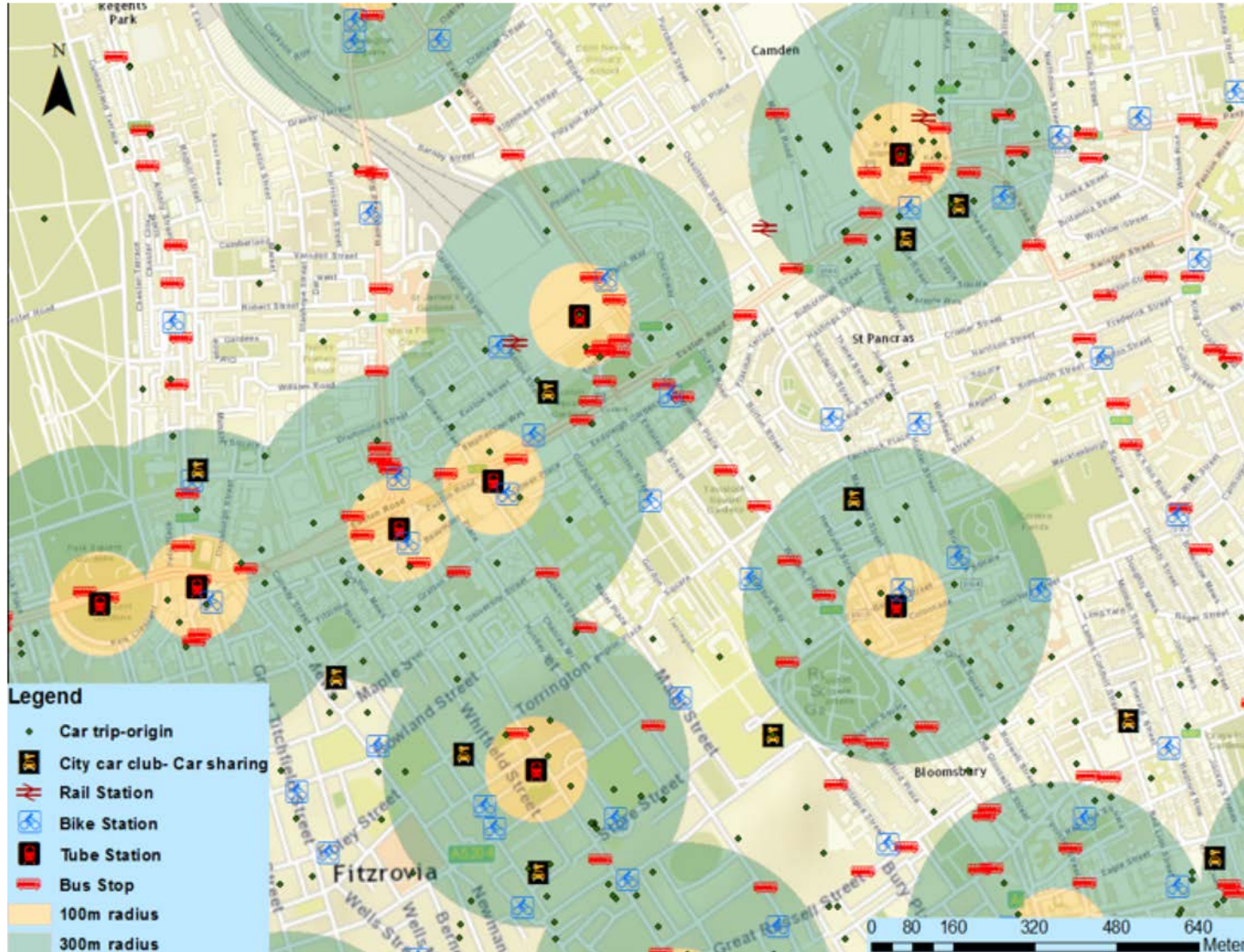
Intermodal Trips



Rail & Tube
=>
intermodal
trips



Integrated infrastructure



Central London: everything is there

Integrated infrastructure



Zone 2:
almost
everything
is there

Car Substitution

Main mode	Total cases	If alternative mode were:	% of cost saving cases	Average cost saving per trip (£)	% of time saving cases	Average time saving per trip (minutes)
Stages by car						
Car	14,784	Bus	24%	0.68	28%	6.32
		Tube	3%	2	81%	8.28
		Rail	3%	2.04	94%	10.2
		Taxi	2%	1.38	63%	7.16
Stages that either origin or destination are within Zone 1						
Car	556	Bus	38%	5.22	28%	15.07
		Tube	18%	8.16	79%	16.21
		Rail	18%	6.68	96%	18.41
		Taxi	12%	3.71	62%	14.6

Zone 1 -
Substitute car with =

Bus-
Savings:
£104.4, and
5h / month

Tube-
Savings:
£163.2, and
5h 24min /
month

Taxi-
Savings:
14.6/trips



we need a ...

QUANTUM leap in technology,

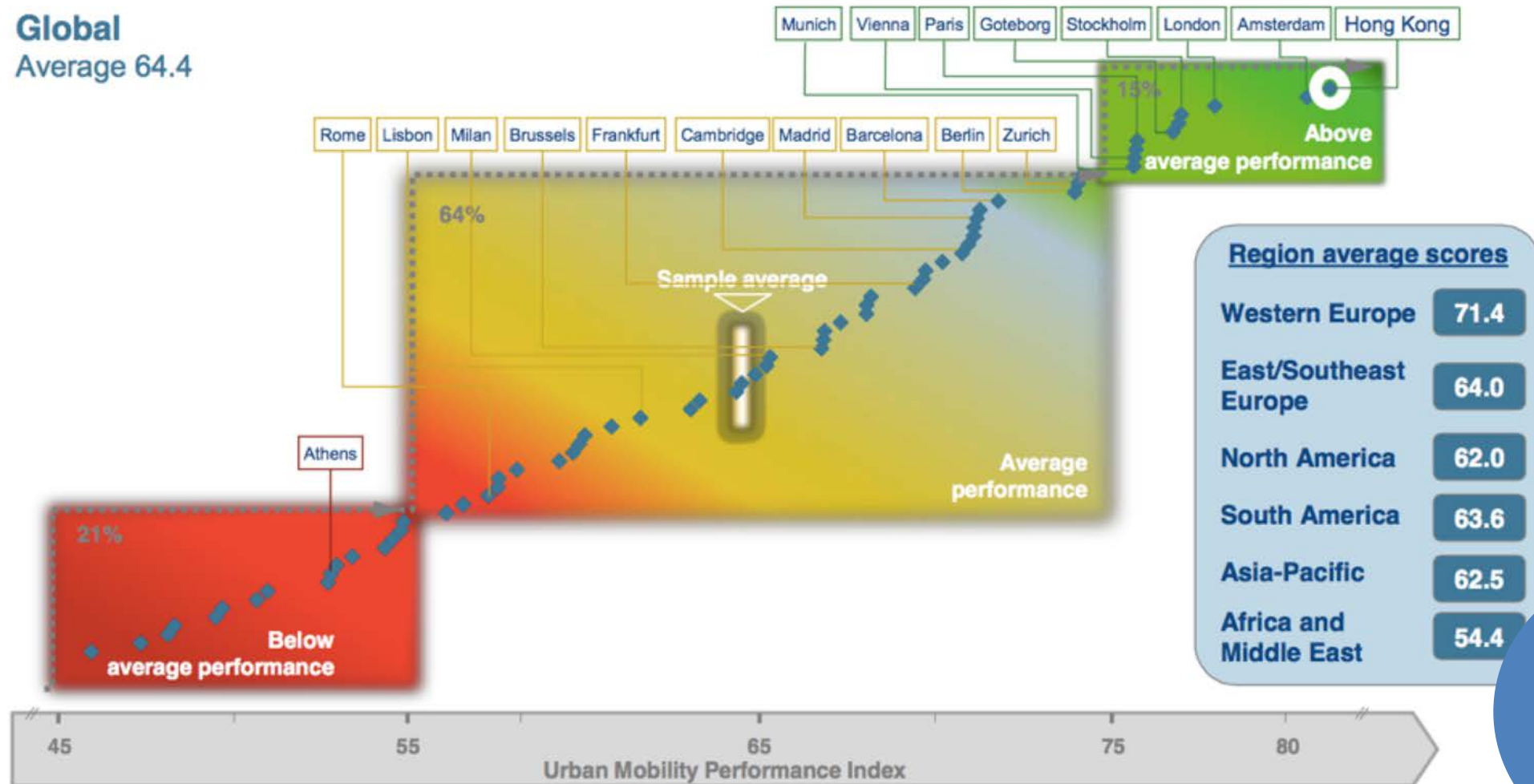
and

a paradigm shift in thinking



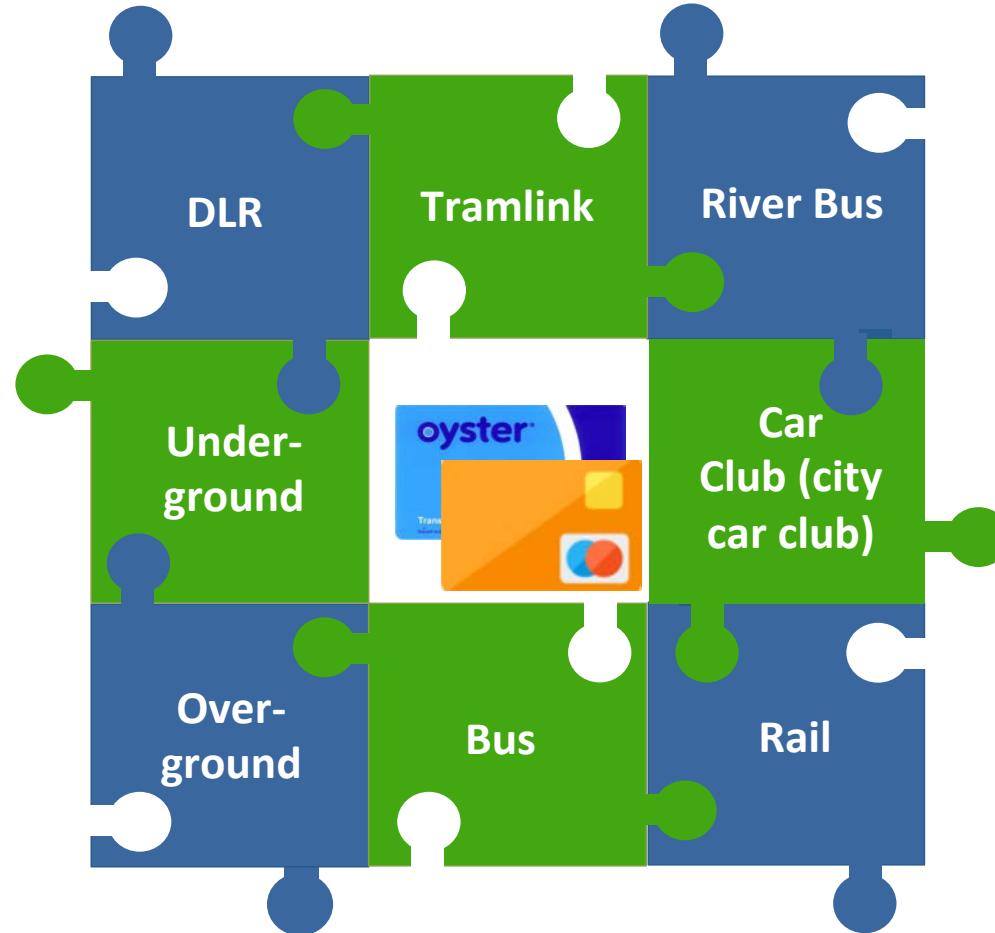
Quantum Leap in Technology ...

Global Average 64.4



London is there

A Paradigm Shift in Thinking ...



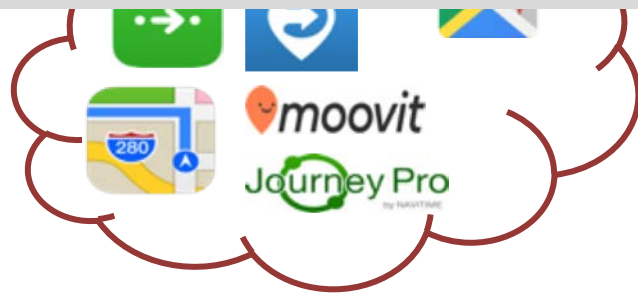
London is almost there



Travelling without using a private car...



Each Transport or Mobility Service provider operates in SILO



Rethinking mobility ...

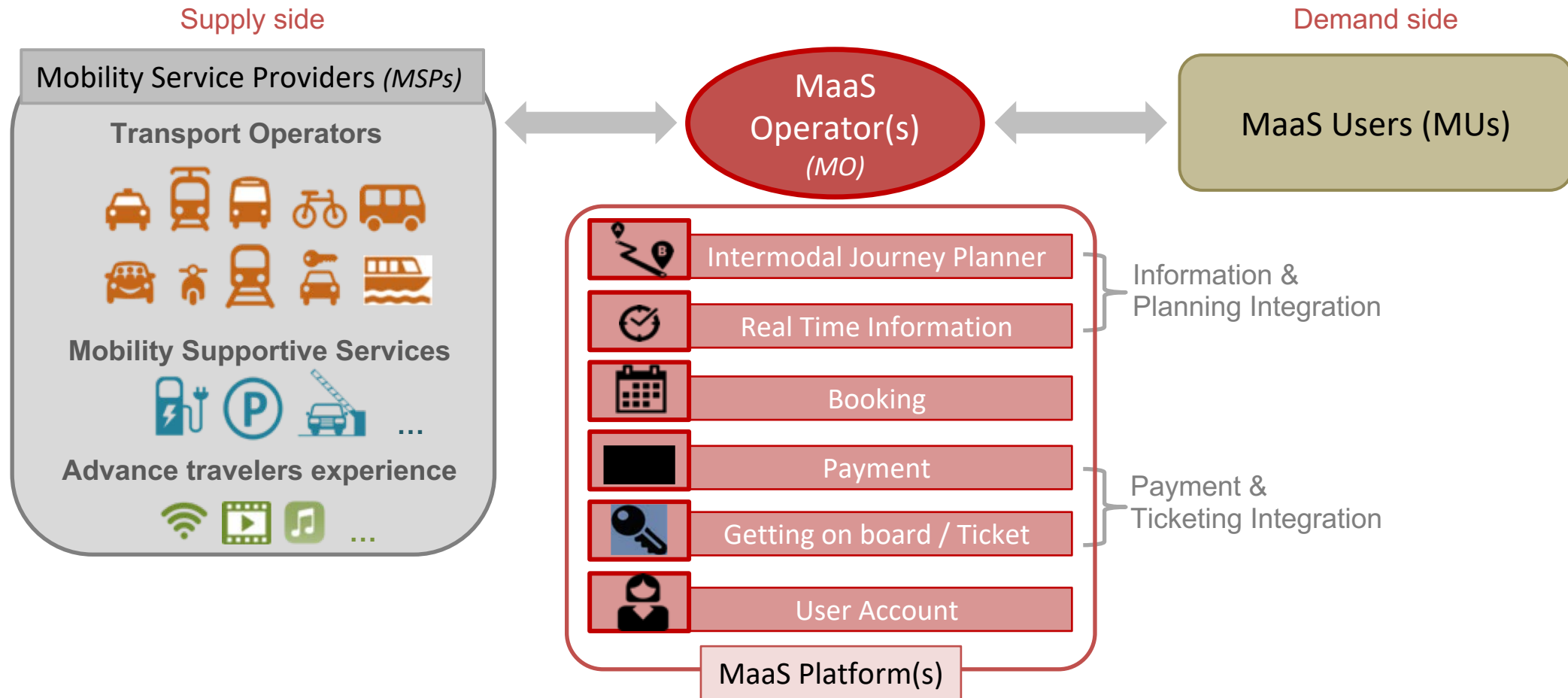


“Mobility as a Service”

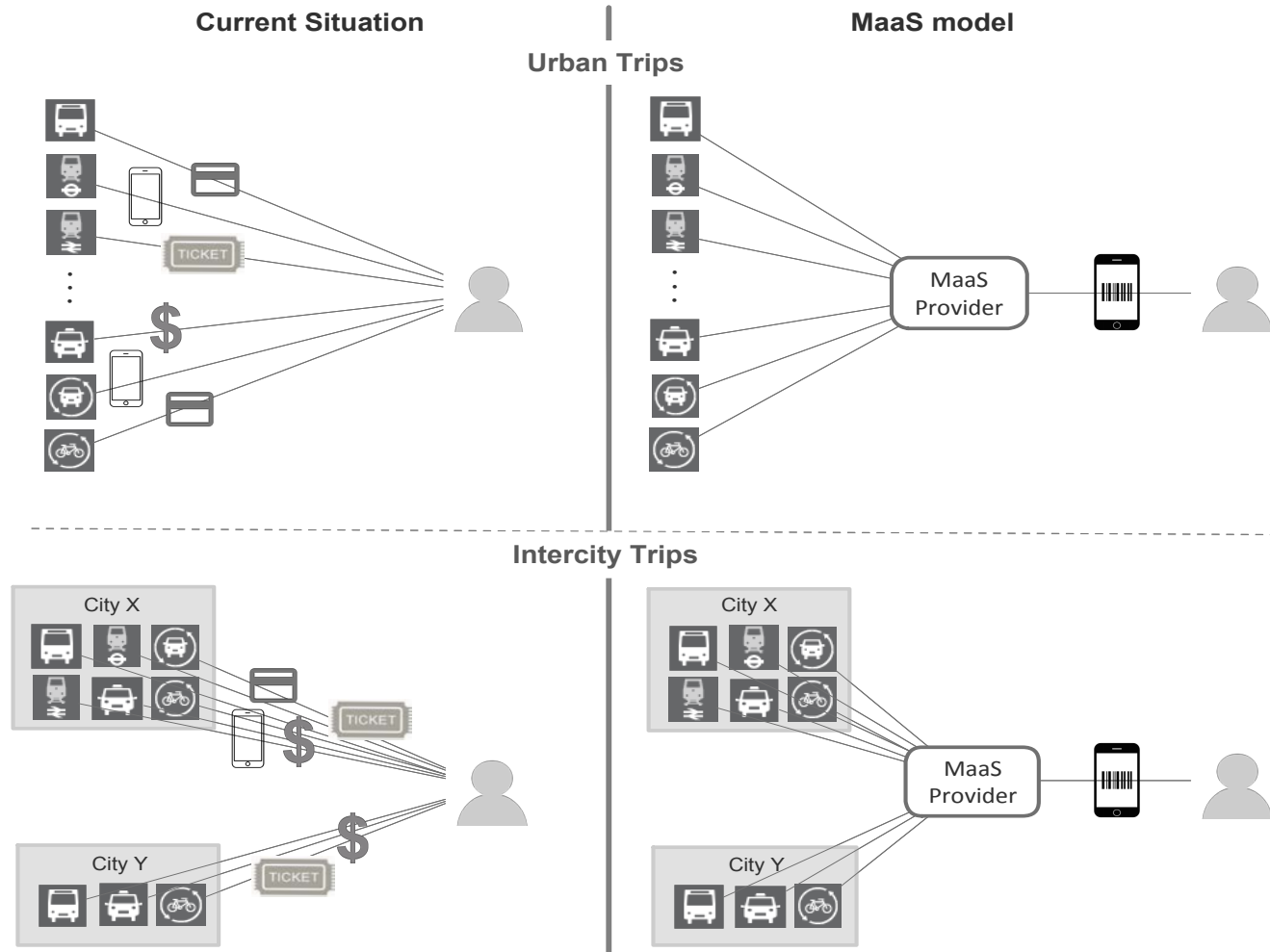


The MaaS Concept

The MaaS Concept



The MaaS Concept



Source: Kamargianni, M., and M. Matyas 2017. The Business Ecosystem of Mobility as a Service. 96th Transportation Research Board (TRB) Annual Meeting, Washington DC, 8-12 January 2017.

The definition of MaaS

“Mobility-as-a-Service (MaaS) is a user-centric, intelligent mobility management and distribution system, in which an integrator brings together offerings of multiple mobility service providers, and provides end-users access to them through a digital interface, allowing them to seamlessly plan and pay for mobility.”

Just car-sharing is not MaaS

MaaS is not an app. The app is just the digital interface.

Just ride-hailing is not MaaS

An intermodal journey planner is not MaaS



Data & APIs

MSPs data & Data Providers

- Fixed routes
- Flexible routes
- Real-time vehicle positioning
- Real-time network conditions & disruptions
- Ticketing
- Journey booking
- Journey payment and ticketing

Extra data

- Land use & places data
- Weather
- ...

Personalised MaaS products

Mobility packages ...

Like mobile phone packages

NO ANNUAL CONTRACT

Hi Monthly Plans

7PM NIGHTS AND UNLIMITED TALK & TEXT VALUES

PRICE/MONTH	ANYTIME MINUTES	7PM NIGHTS & WEEKENDS
\$29 ⁹⁹	300	1000
\$39 ⁹⁹	400	Unlimited
\$49 ⁹⁹	Totally Unlimited Calling	

ADD Text, Pix, Email, & IM

PRICE/MONTH	TEXTS & MESSAGES
\$5	1000
\$10	Unlimited

ADD Mobile Web Access

PRICE/MONTH	WEB ACCESS
\$5	20MB
\$10	50MB

Hi Pay As You Go Plan

SIMPLE VALUE WITH ROLL FORWARD MINUTES AVAILABLE

PRICE	ANYTIME MINUTE PACKS	ROLL FORWARD MINUTES
\$20	200	Yes
\$30	400	Yes
\$50	1000	Yes

CHOOSE A 30-DAY MINUTE PACK OR GO WITH OUR 20¢/MINUTE BASIC RATE.

ADD Text, Pix, Email, & IM

PRICE/MONTH	TEXTS & MESSAGES
\$5	200
\$10	1000
\$20	Unlimited

ADD Mobile Web Access

PRICE/MONTH	WEB ACCESS
\$5	5MB
\$10	20MB
\$20	50MB

Texter's Delight Plans

MONTHLY TEXT & MESSAGING PLUS 10¢/MINUTE TALK

PRICE/MONTH	MESSAGES (TXT, PIX, IM, EMAIL, VIDEO)	ANYTIME MINUTES (NOT INCLUDED)
\$14 ⁹⁹	1000	Additional 10¢/min.
\$19 ⁹⁹	Unlimited	Additional 10¢/min.

ADD Mobile Web Access

PRICE/MONTH	WEB ACCESS
\$5	20MB
\$10	50MB

International Rates

CALLING TO OVER 200 COUNTRIES
 Puerto Rico and U.S. Virgin Islands – no extra charge
 Mexico landline (Mexico City, Guadalajara, Monterrey, Puebla) – 2¢/min.
 Mexico landline (other cities) – 5¢/min.
 Mexico mobile – 20¢/min.
 El Salvador and Guatemala – 10¢/min.

INTERNATIONAL TEXT MESSAGING
 20¢ each to send / 10¢ each to receive.

STANDARD AIRTIME CHARGES ALSO APPLY FOR THE LATEST INTERNATIONAL RATES. GO TO VIRGINMOBILEUSA.COM



Mobility packages ... *Like TV & broadband packages*

Starter Bundle TV, broadband & calls



Get this bundle

£21⁵⁰ a month
+ Sky Line Rental £14.50 a month

- Sky Entertainment
- Sky Broadband Lite
- Sky Talk Weekends
- Free Sky+ box, free standard set-up
- Free Sky wireless 'N' router

TV with Unlimited Broadband & Calls Great entertainment and unlimited broadband & calls

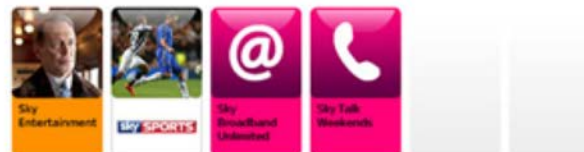


Get this bundle

£34 a month
+ Sky Line Rental £14.50 a month

- Sky Entertainment
- Sky Broadband Unlimited
- Sky Talk Anytime
- Free Sky+ box, free standard set-up
- Free Sky wireless 'N' router

Sports Unlimited Live sports and unlimited broadband



Get this bundle

£50 a month
+ Sky Line Rental £14.50 a month



MaaS Products – Mobility plans

Example	Pay as you Go	Whim Everyday	Whim Unlimited
Monthly payment	£0	£99	£349
Public transport	Pay as you Go	Unlimited	Unlimited
Taxi	Pay as you Go	Pay per ride	Unlimited
Car	Pay as you Go	Max £49/day	Unlimited
Bike share	Coming soon!	Coming soon!	Coming soon!
Cancel anytime	✓	✓	✓
Signup possible	Now	April 5th	April 5th
	Read more	Read more	Read more

Source: <https://whimapp.com/uk/>



Subscription - Core/Entry package:

- **Journey planner**
- Easy to use **booking system** for car sharing, ride sharing, taxi, car rental
- **Real time information** - proposing different modes while user is on way
- **Integrated payment** (Package: pay once per month; PAYG: Deposit anytime to the registered account, "Use now & pay later" could be allowed with no penalty for up to 48 hours after using the service)



Pay-as-you-Go

Student package for £180/month

- Unlimited public transport in pre-specified zones
- 10 km P2P taxi
- 20 km ride share
- Unlimited bike-sharing

Eco package for £350/month

- 6 return trips-national rail within Greater London
- Unlimited public transport
- Unlimited bike-sharing
- 30 hours car-sharing

Save-package for £300/month

- 40 one-way trips by bus
- 40 one-way trips by tube (metro)
- 20 hours bike-sharing
- 6 hours car-sharing

Luxury package for £600/month

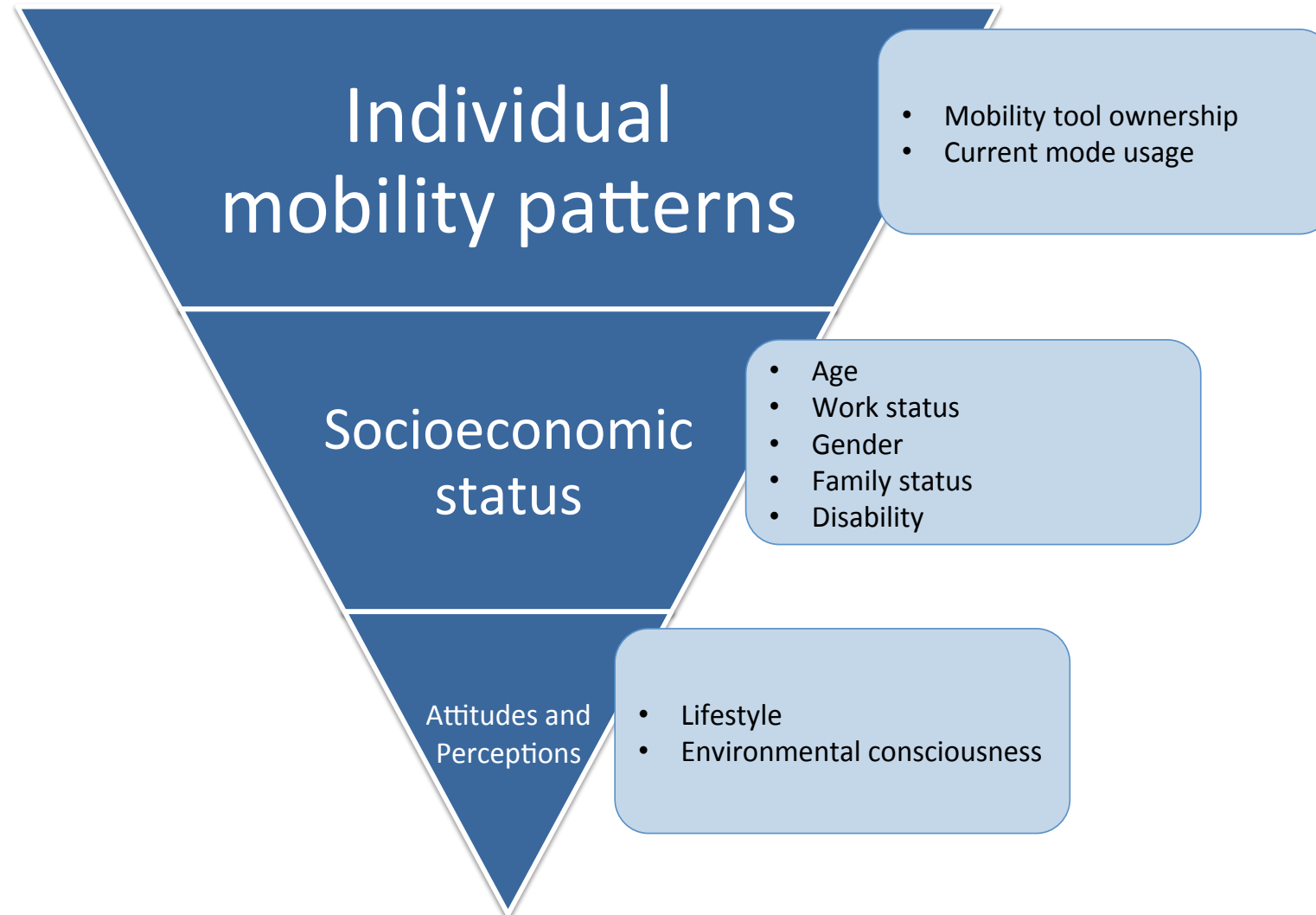
- 20 hours car-sharing (luxury car)
- 40 hours P2P taxi-luxury / or black cab
- 20 return trips national rail - First class
- Unlimited bike sharing

Family package for £1000 /month

- Unlimited public transport in pre-specified zone
- 5hours/day car sharing
- 4 days car rental
- 40 hours P2P taxi
- Unlimited bike sharing for whole family



Personalised MaaS plans



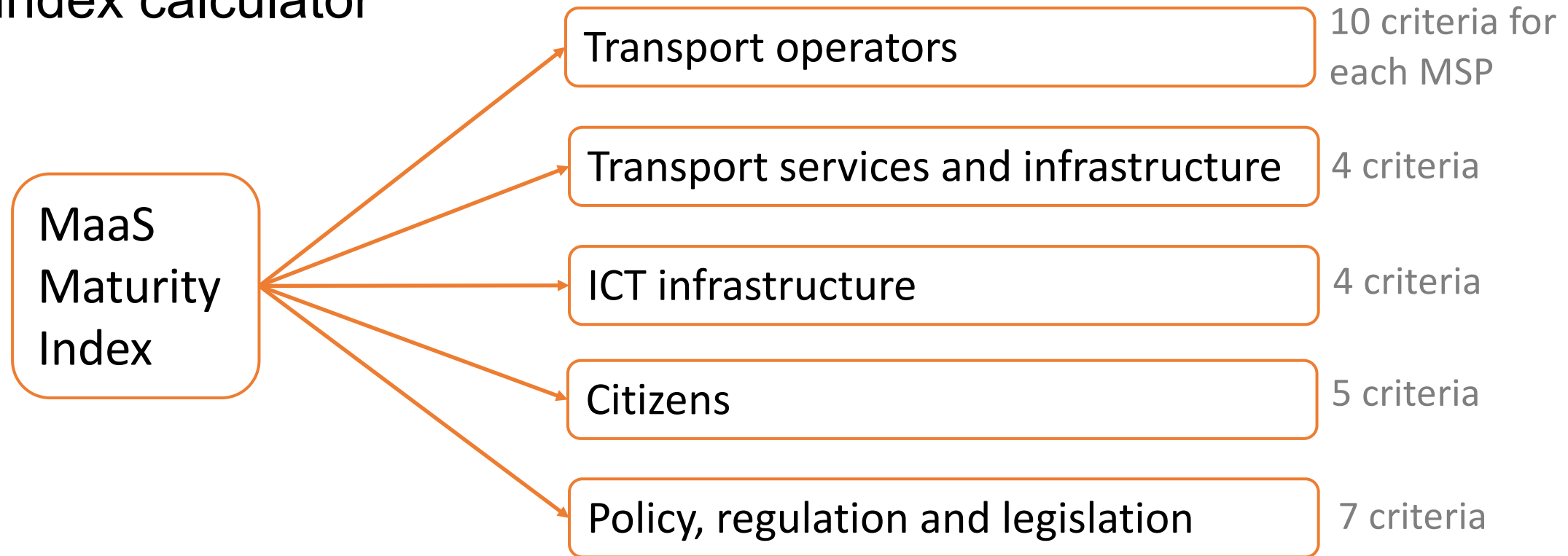
MaaS Impact Evaluation

	Level of Contribution
Contribution of MaaS-London	
Save costs	High impact
Reduce journey time	High impact
Improve dissemination and provide real time information	High impact
Improve service experience for the transport user	Medium impact
Provide better connectivity	Medium impact
Reduce traffic jams	Medium impact
Reduce transport pollution	Low impact
Contribution to MTS' proposal	
Improving interchanges	High impact
Better information	High impact
Improved access to transport system	Medium impact
Smoothing traffic flow	Medium impact
Better streets and environment	Medium impact

■ High impact
 ■ Medium impact
 ■ Low impact

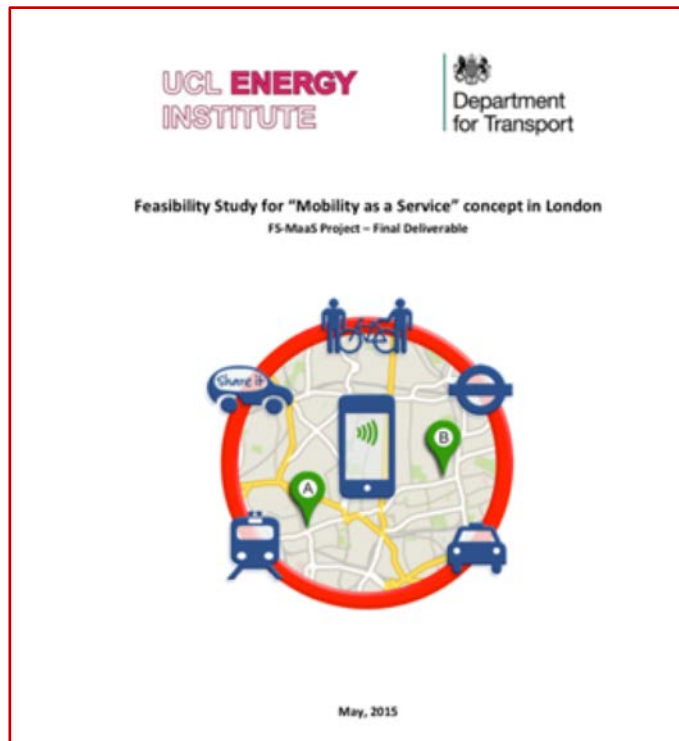
MaaS Maturity Index

- The index calculator



You can find more information at: <https://www.maaslab.org/maasindex>

Examples of work





You can find more information at: <https://www.maaslab.org/projects-2>



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Lab

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Thank You!

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