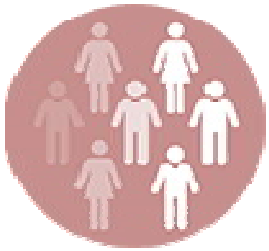


# Mobility as a Service: The concept and the business ecosystem

Maria Kamargianni

Lecturer/Assistant Professor in Transport & Energy, Head of MaaS Lab,  
Energy Institute, University College London

# The Challenges



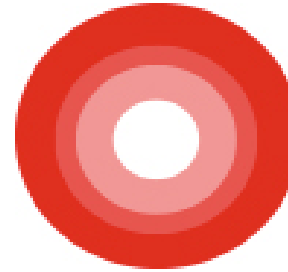
Demographic & Social change



Shift in economic power



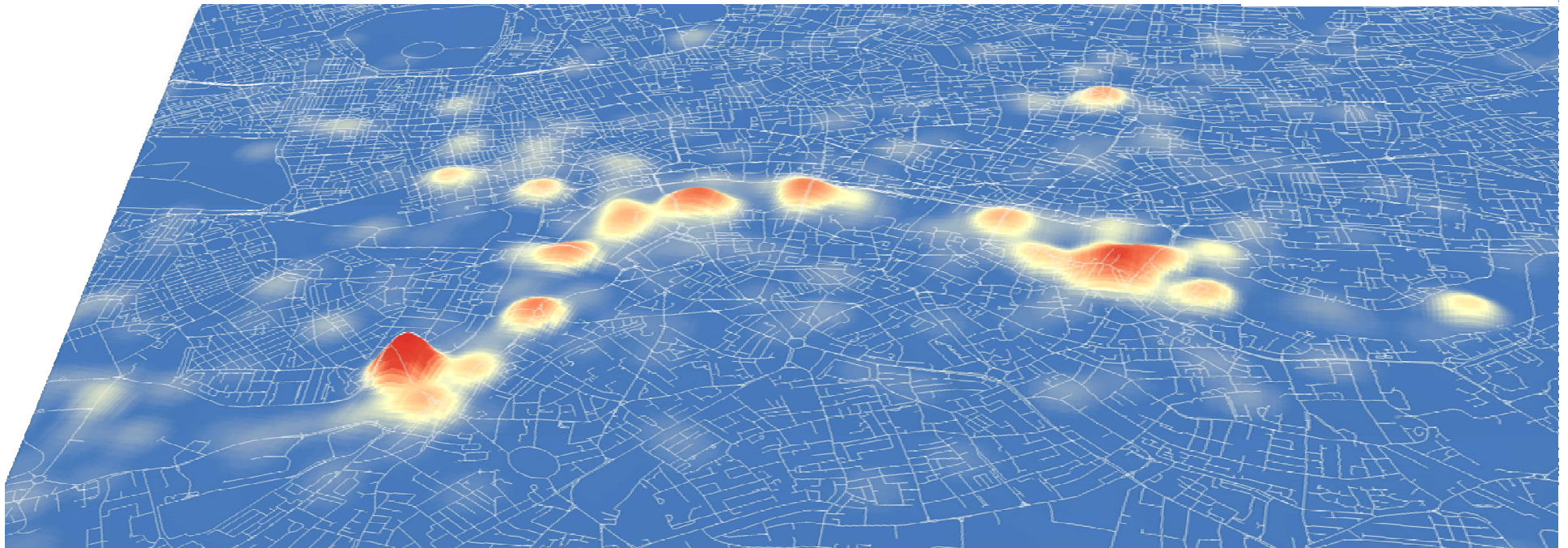
Rapid urbanisation



Climate change



Technological breakthroughs






Multi-directional communication between users & suppliers

Ability to process big data

Real-time, integrated & customized information

Apps allowing for one-stop-shop for planning, booking, payment, billing

Changing travel habits and transport mix

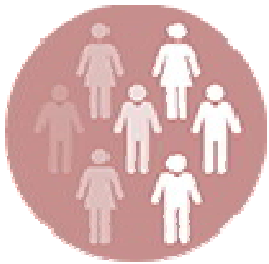


Generation Y has been “bathed in bits and bytes”  
since birth

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

Changing expectations toward  
individualization and sustainability

...from ownership to usership



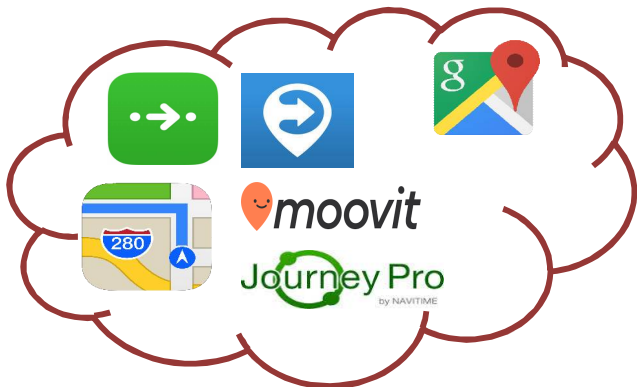
MIND THE GAP

*digital*

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

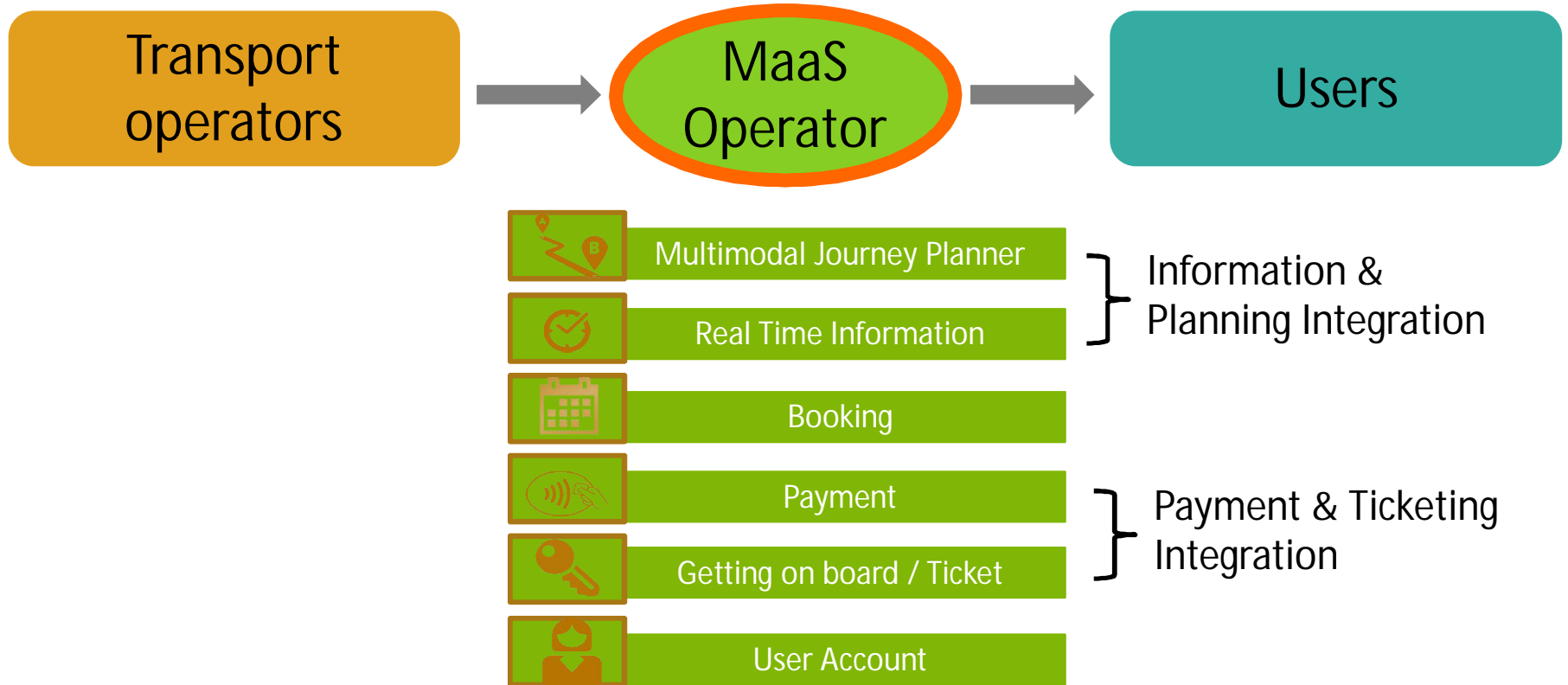
# The MaaS concept

# Travelling ... not an easy issue

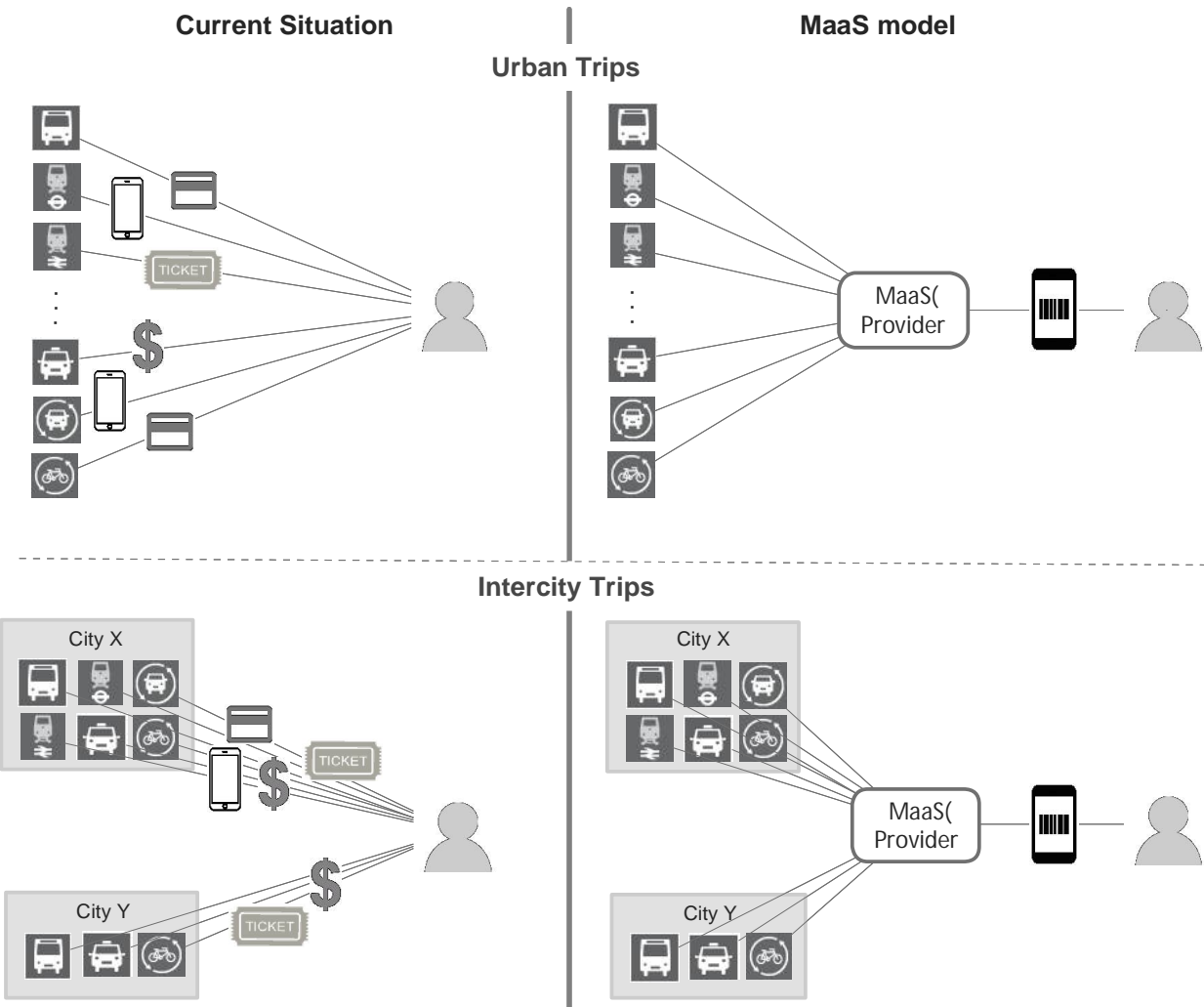


# MaaS Concept

Seamless mobility



- Pay-As-You-Go | Mobility Packages



Kamargianni, M., and M. Matyas 2017. The Mobility as a Service concept and the Business Ecosystem.

# BOB



- The MaaS model covers several concepts that have been extensively discussed in the transportation sector during last decades.
  - These are the integration, interconnectivity and optimization of the transport services, smart and seamless mobility, and sustainability.
- The model also includes concepts that have recently emerged via the Internet of Things and the shared economy, such as the term “as a service” and personalisation.

# The MaaS pillars

Business

Technology  
& Data

Policies

Customers

Impact

# MaaS Products - Examples

Light	Medium	Premium	Pay-as-you-go
<p><b>89€</b> /month</p> <p>Unlimited HSL Helsinki public transport + <b>1.000</b> Whim points</p>	<p><b>249€</b> /month</p> <p>Unlimited HSL Helsinki public transport + <b>5.500</b> Whim points</p>	<p><b>317€</b> /month</p> <p>Unlimited HSL Helsinki public transport + <b>8.000</b> Whim points</p>	<p>Try Whim without commitment and upgrade whenever you like.</p>
<p>Use your Whim points as you like, for example:</p> <p> + </p> <p><b>2</b> taxi trips (~10 km/trip) daytime + <b>∞</b> unlimited local public transport</p>	<p>Use your Whim points as you like, for example:</p> <p> +  + </p> <p><b>8</b> taxi trips (~10 km/trip) daytime + <b>∞</b> unlimited local public transport + <b>2</b> days of car rental</p>	<p>Use your Whim points as you like, for example:</p> <p> +  + </p> <p><b>8</b> taxi trips (~10 km/trip) daytime + <b>∞</b> unlimited local public transport + <b>5</b> days of car rental</p>	<p>Transport providers:</p> <p>   </p> <p>We get you to your destination using your preferred mode of transport, letting you pay as you go - all in one app!</p>

Source: whimapp.com

Business

**Plan A**  
**£ 320** /month

- Unlimited bus
- Unlimited access + 30 min
- 15 miles  
+ Pooled taxi an option
- 2 days

I'll Buy This

**Plan B**  
**£ 125** /month

- Unlimited public transport in your zones
- 15 miles  
+ Pooled taxi an option
- 1 hour

I'll Buy This

**Plan C**  
**£ 195** /month

- Unlimited bus
- 20 miles
- 1 day  
+ Floating car sharing anywhere in London
- Free grocery delivery for a month

All of your credits can be transferred to the next month

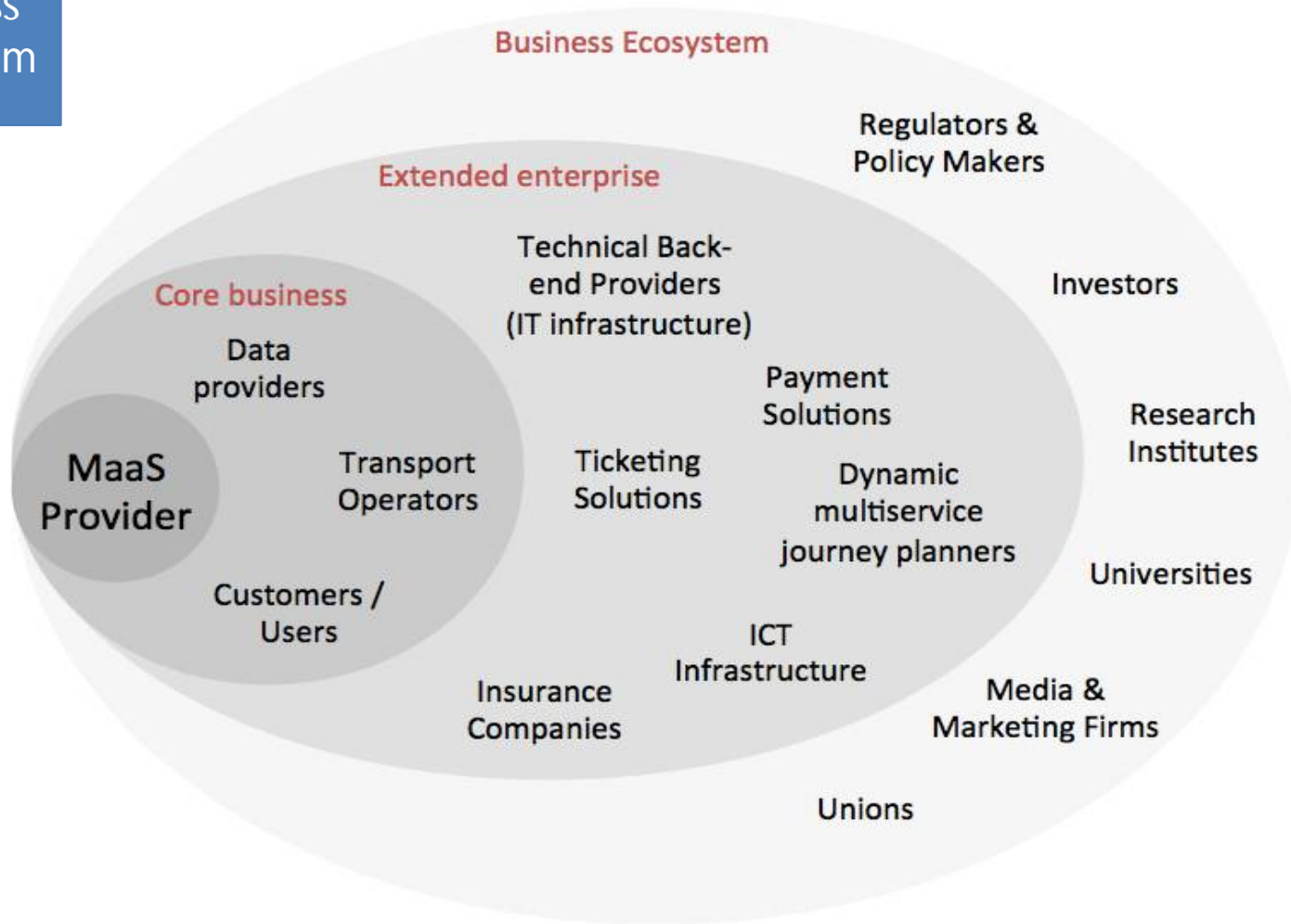
I'll Buy This

**Create Your Own Plan**  
**£ TBD** /month

- None  Unlimited public transport in your zones  Unlimited bus
- 0 miles  100 miles  0 miles
- 0 hours  10 hours  0 days  7 days  0 days  0 hours
- None  Unlimited up to 30 minutes

I'll Buy This

Business Ecosystem



Business

MaaS  
Operator

### PTA

- + already responsible for all public transit modes/operators
- + the authority regulating and authorizing MSPs
- + might be able to cultivate the trust needed
- organisational change
- Connectivity/roaming
- Poor incentives
- Fair competition
- Resources

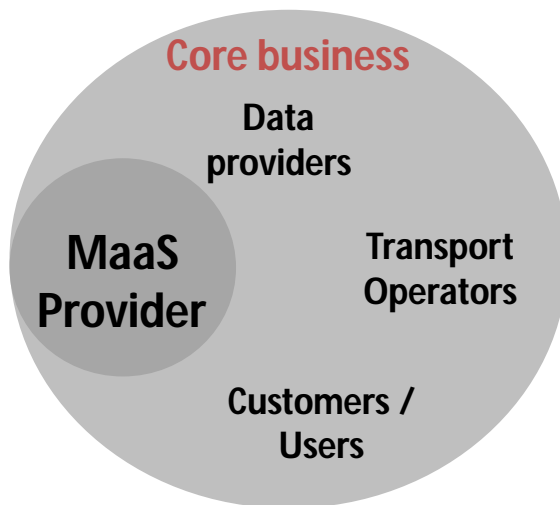
### Transport Operator

- coopetition (collaboration between competing actors)
- + may support cost savings in operation and co-investments
- trust

### Trailblazer MaaS company

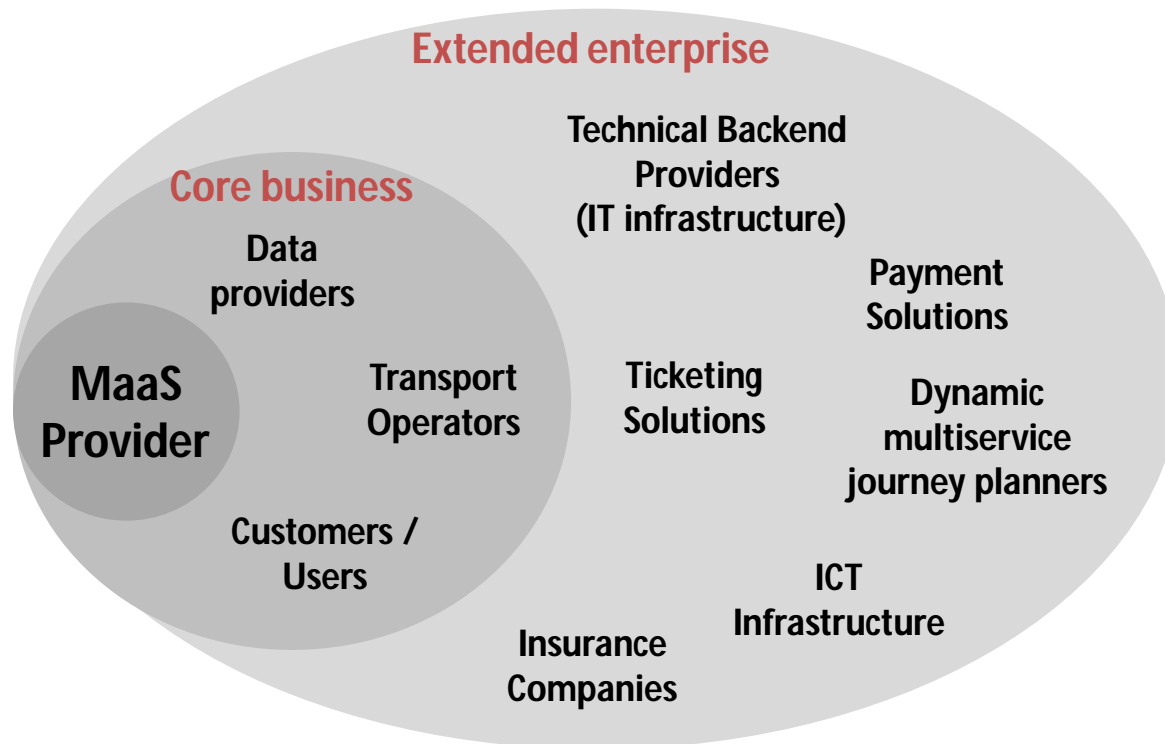
- + new ways to address fundamental user needs
- + drive new collaborations
- + harness creativity and innovation
- + transverse existing boundaries and silos in the mobility sector
- inertia and lock-in effects from previous efforts

# The Core Business



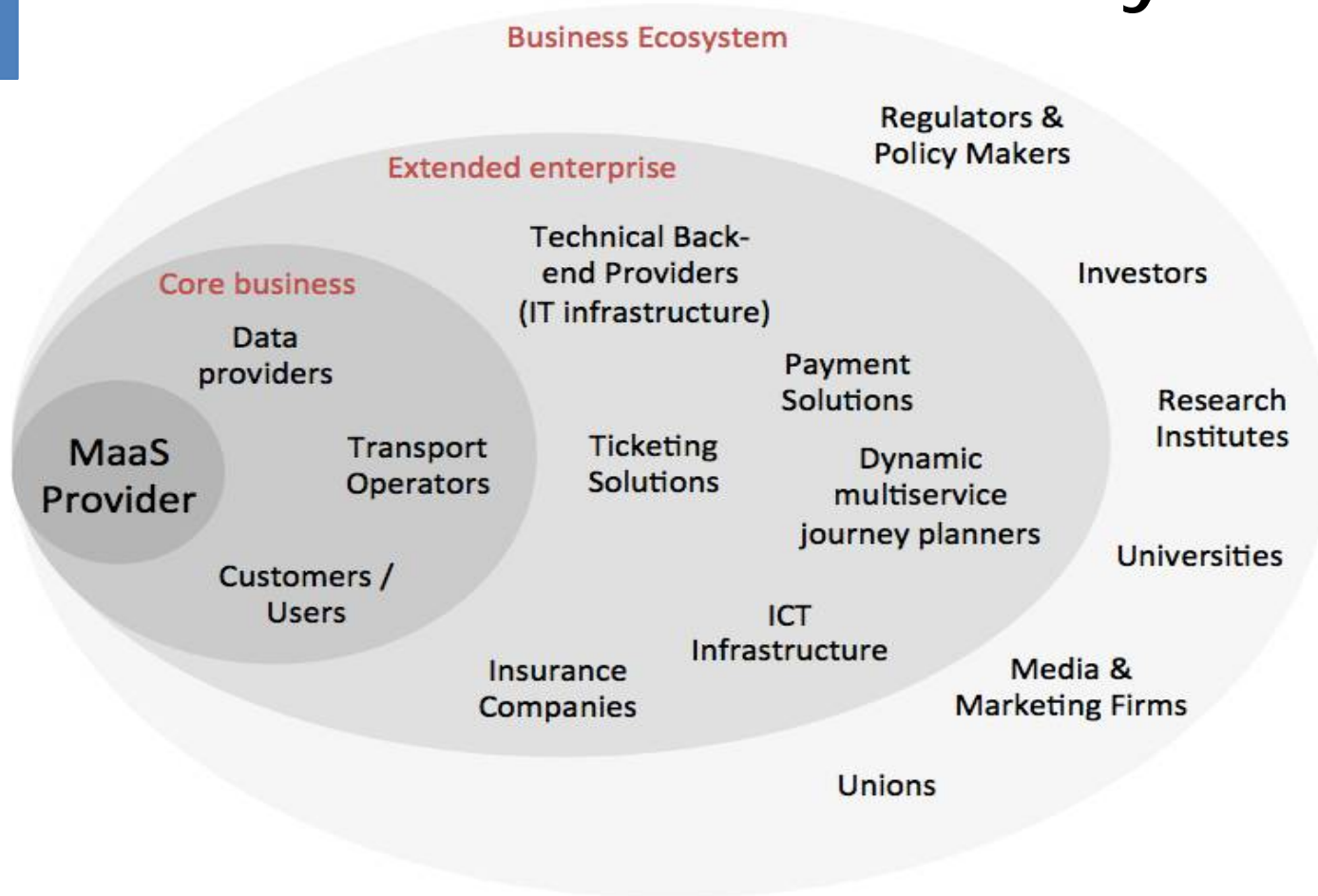
- **Transport operators:** sell their capacity to MaaS operators and provide access to their data via secure APIs.
- **Data providers:** offer data and analytics capabilities to MaaS providers. They process the data of the transport operators and collect data from a range of other sources
- **Customers:** could be individuals, companies or both (B2C, B2B, B2C&B2B)

# The Extended Enterprise



- Technology-specific actors offering support to the MaaS provider.
- Backend providers: on-demand cloud computing services
- Internet connectivity is also critical to any MaaS provider.

# The MaaS Business Ecosystem



# MaaS-alike systems around the world

# MaaS-alike systems review

- 18 MaaS-alike systems have been identified
- Criteria for the review:
  - Public and private mode integration
  - Integration of planning, booking, payment, ticketing
- Most of the systems are offered in Europe
- Very limited information about demand/usage of these systems

# MaaS-alike systems

Initiative Name	TransitApp	Optymod'Lyon	Mobility2.0 services	SHIFT-Project100	UbiGo	MobilityShop
MaaS Maturity	Medium	Medium	Medium	High (envisaged as the project failed)	High	High
Short description	Multimodal journey planner without integrated payments except for bike sharing.	Multimodal journey planner without integrated payments	Transit and multimodal journey planner without integrated payments	Integrated payments for car and bike sharing, PT and on demand drivers	Small scale pilot	Integrated ticketing and payment services for train, taxi and car sharing
Area	143 cities in USA, UK, Canada, Europe, Australia	Lyon, France	Palma, Spain	Las Vegas, US	Gothenburg	Hannover, Germany
Website	<a href="https://transitapp.com/">https://transitapp.com/</a>	<a href="https://www.cityway.company/reference/optymodlyon/">https://www.cityway.company/reference/optymodlyon/</a>	<a href="http://www.mobipalma.mobi/">http://www.mobipalma.mobi/</a>	<a href="http://www.goproject100.com/">http://www.goproject100.com/</a>	<a href="http://ubigo.se/">http://ubigo.se/</a>	<a href="https://shop.gvh.de/">https://shop.gvh.de/</a>
Launch year	2012	2012	2015	2013	2013	2014
Status	Operational	Operational	Operational	Stopped	Paused (larger scale deployment pending)	Operational
Modes and Services	PT (inc. ferry) Bike sharing Car sharing Taxi Ride-hailing	PT Bike sharing Regional train Parking	PT Bike sharing Taxi	PT Bike sharing Car sharing Ride-hailing	PT Car sharing Rental car service Taxi Bike sharing	PT (train) Car sharing Taxi Regional trains
Tariff Option	Pay per use (bike sharing only)	-	Pay per use (parking spaces)	Monthly tariff	Monthly tariff	Monthly membership for discounted tariff
Platform	iOS and Android	Android	iOS and Android	-	iOS and Android	Web

Initiative Name	Smile	Tuup	MyCicero	Moovel	Whim	WienMobilLab
MaaS Maturity	High	High	Medium	Medium	High	
Short description	Small scale pilot to showcase the applicability of MaaS.	Commercial app that allows to plan a route, compare the various mobility options and pay from one application.	Commercial app that allows to plan a route, compare the various mobility options and pay from one application.	Commercial app that allows various transport modes	Commercial app that allows to plan a route, compare the various mobility options and pay from one application.	Pilot project to showcase transport modes integration in Vienna
Area	Vienna, Austria	Turku region, Finland	Italy	Germany (PT integration in Stuttgart and Hamburg)	Helsinki, Finland	Vienna, Austria
Website	<a href="http://smile-einfachmobil.at/">http://smile-einfachmobil.at/</a>	<a href="http://tuup.fi/en/">http://tuup.fi/en/</a>	<a href="http://www.mycicero.eu/">http://www.mycicero.eu/</a>	<a href="https://moovel-group.com/en/">https://moovel-group.com/en/</a>	<a href="http://whimapp.com/fi-en/">http://whimapp.com/fi-en/</a>	<a href="https://www.wienerlinien.at/eportal3/ep/channelView.do/pageTypeId/66526/channelId/-3600060">https://www.wienerlinien.at/eportal3/ep/channelView.do/pageTypeId/66526/channelId/-3600060</a>
Launch Year	2014	2015	2015	2016	2016	2015
Status	Stopped	Operational	Operational	Operational	Operational	Stopped
Modes and Services	PT Bike sharing Car sharing Taxi Parking Charging stations Regional trains and ferry	PT Bike sharing Car sharing Car rental P2P car rent Taxi Parking Freight service	PT Taxi Parking Permit for urban congestion parking zone Regional rail and bus	PT Bike sharing Car sharing Taxi Ferry Regional train	PT Rental car Taxi Regional rail Bike sharing Car sharing	PT Bike sharing Car sharing Taxi Parking
Tariff Option	Pay per use	Pay per use	Pay per use	Pay per use	Monthly subscriptions and pay per use	Pay per use
Platform	-	iOS and Android	iOS, Android, Windows	iOS and Android	iOS and Android	iOS and Android

# The MaaS Lab UCL

# What we do about MaaS



Data & Technology



Business Models



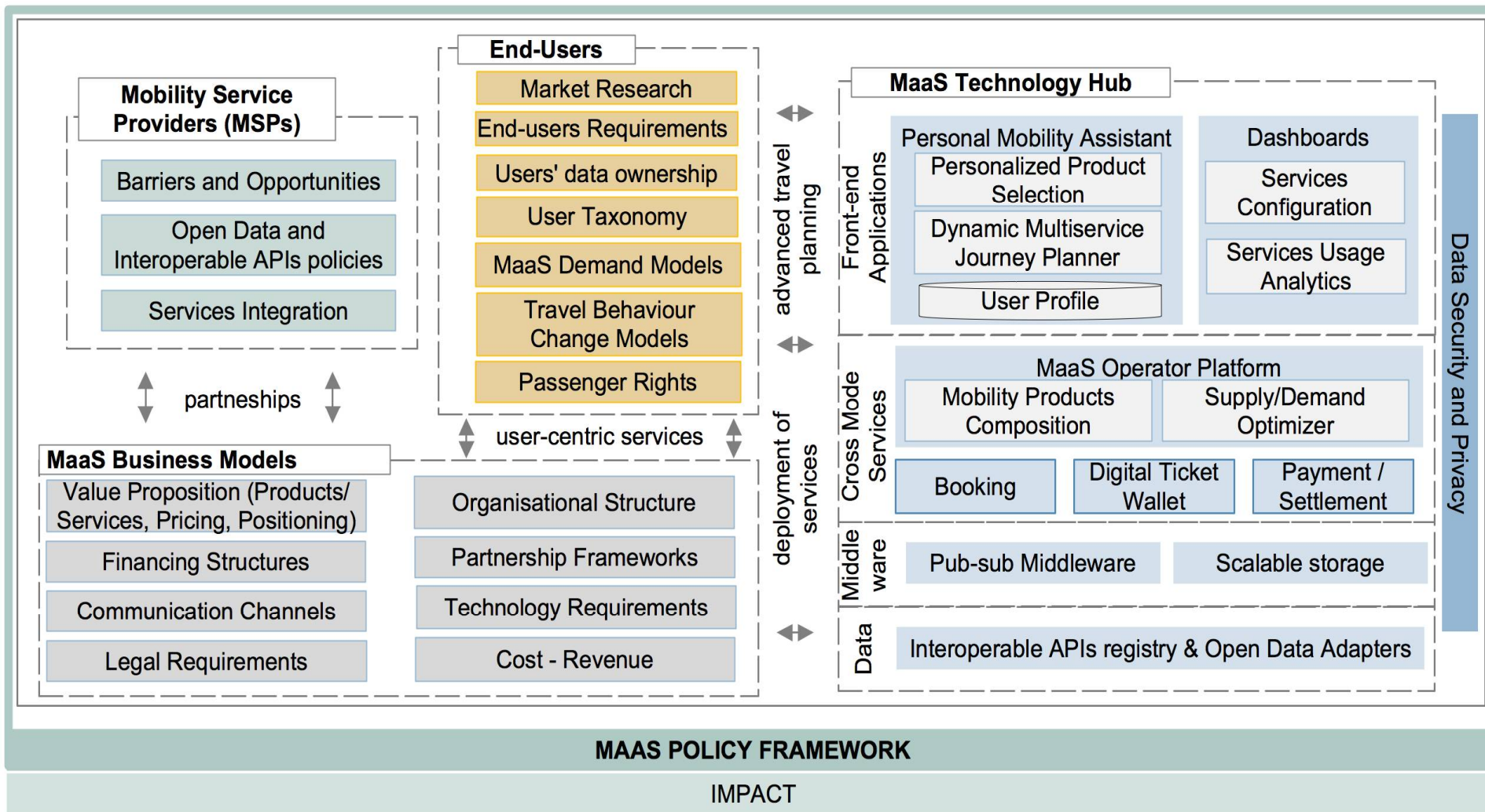
Customers





Policy Makers



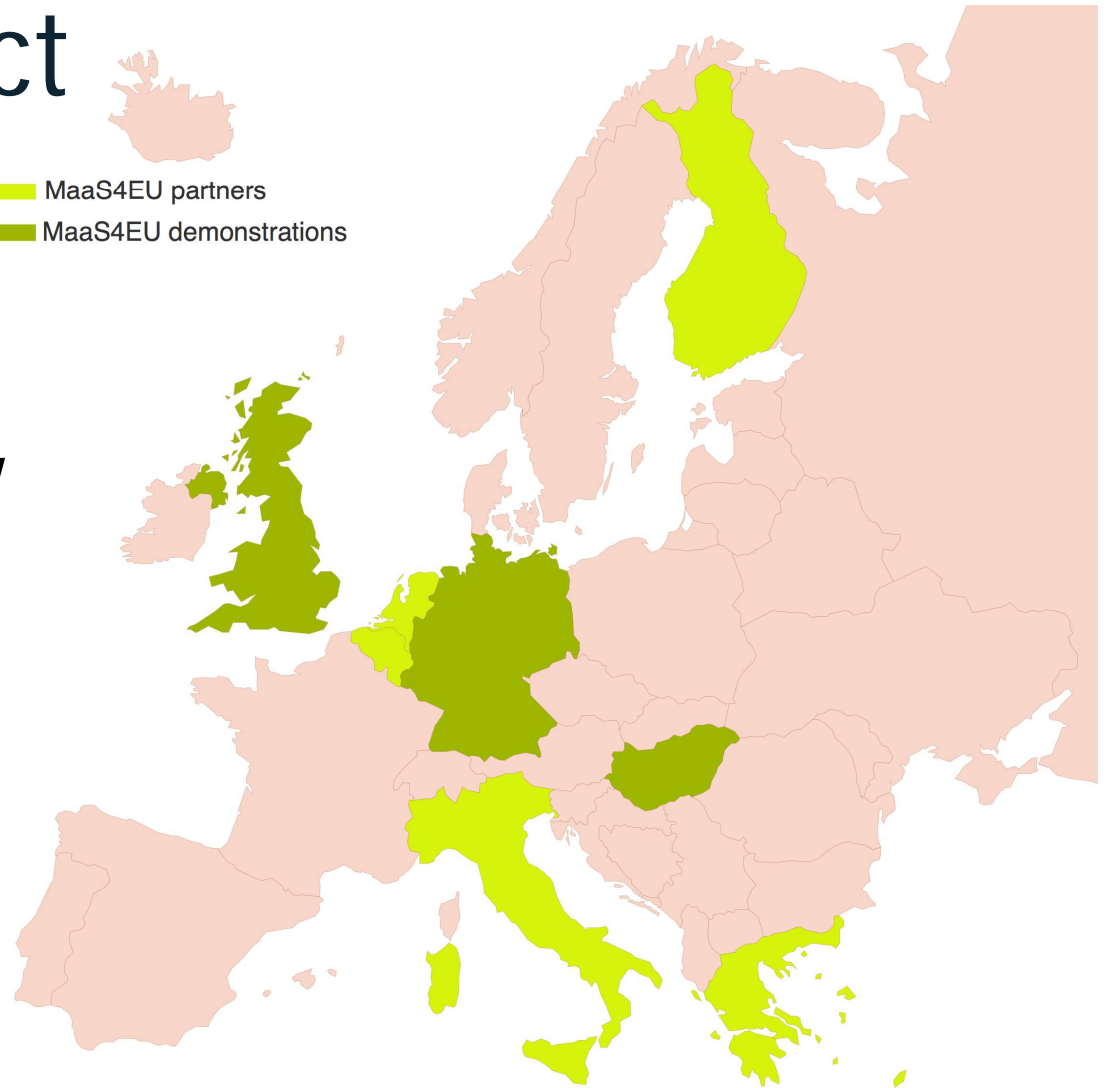
Developing Countries



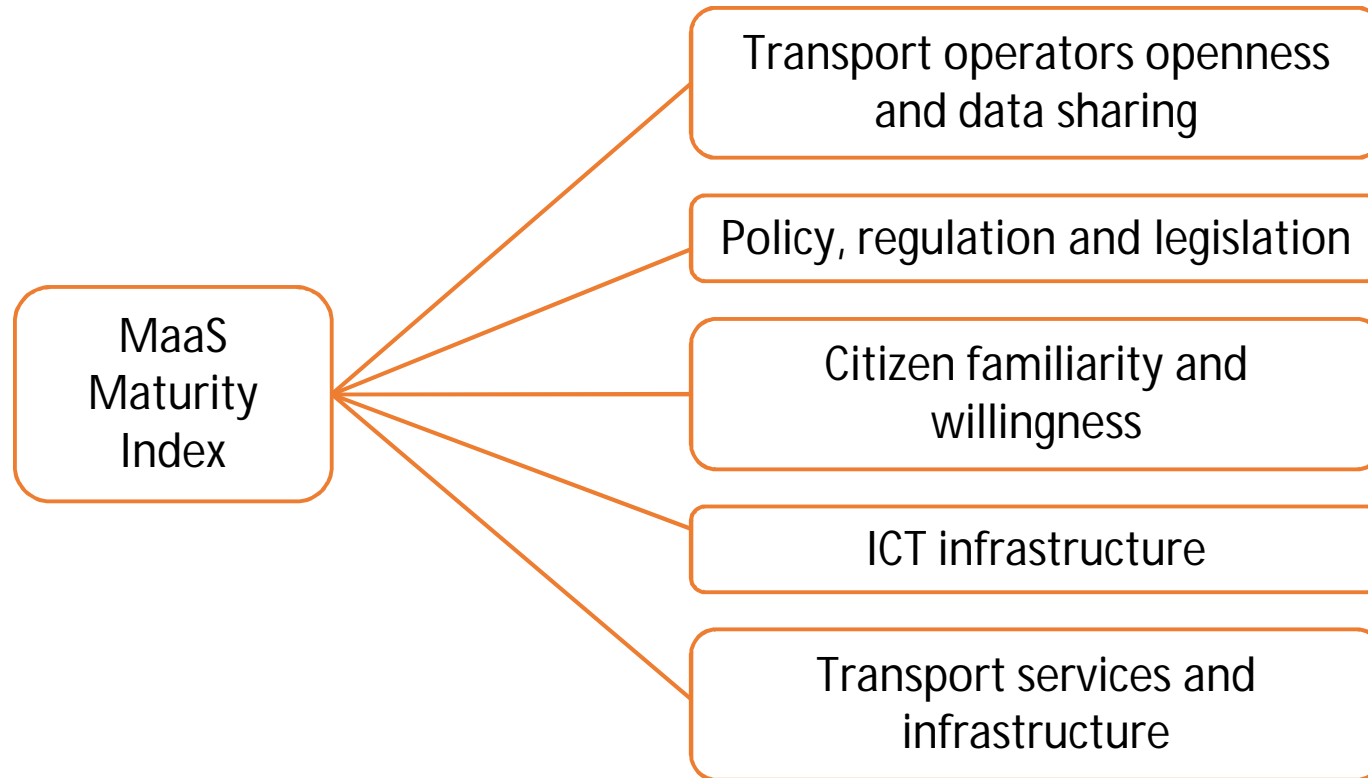
# MaaS4EU project

 MaaS4EU partners  
 MaaS4EU demonstrations

- Greater Manchester
- Luxembourg - Germany
- Budapest



# MaaS Maturity Index for Cities





[www.maaslab.org](http://www.maaslab.org)

# Thank you!

Maria Kamargianni  
[m.kamargianni@ucl.ac.uk](mailto:m.kamargianni@ucl.ac.uk)

# Literature

Kamargianni, M., M. Matyas, and W. Li 2017. Londoners' attitudes towards car-ownership and Mobility-as-a-Service: Impact assessment and opportunities that lie ahead. MaaS Lab - UCL Energy Institute Report, *Prepared for Transport for London*.

Kamargianni, M., and M. Matyas (2017). The Mobility as a Service concept and Business Ecosystem. *Transportation Part A: Policy & Practice*. Forthcoming.

Kamargianni, M., Matyas, M., Li, W., & Schafer, A. (2015). Feasibility Study for "Mobility as a Service" concept for London. MaaS Lab - UCL Energy Institute Report, Report prepared for the UK Department for Transport.

Matyas, M. and Kamargianni, M., 2017 Survey Design for Exploring Demand for Mobility as a Service Plans. Paper submitted to *Transportation*. Under review.

Matyas, M. and Kamargianni, M., 2017 Stated preference design for exploring demand for "Mobility as a Service" plans. Paper presented at the *5th International Choice Modelling Conference*, Cape Town, South Africa, 3-5 April, 2017.

Kamargianni, M., Matyas, M., Raman, S., Zhao, F., Pereira, F., & Ben-Akiva, M. Big Data Collection using Smartphone Based Surveys and Open APIs: the Future Mobility Sensing for London. *International Symposium on Emerging and Shared Transportation Modes and Mobility Services*. Tel-Aviv, December 2016.