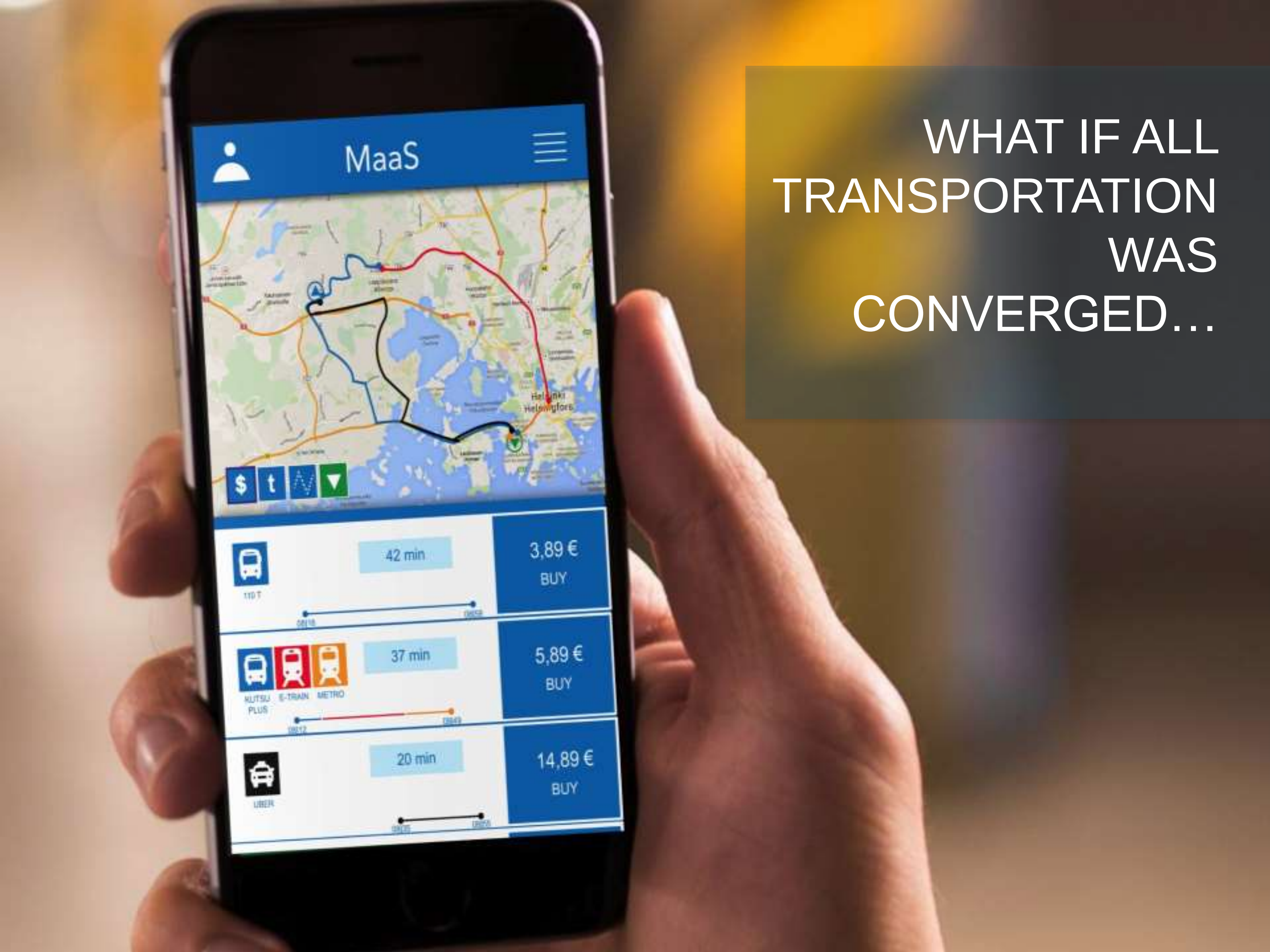
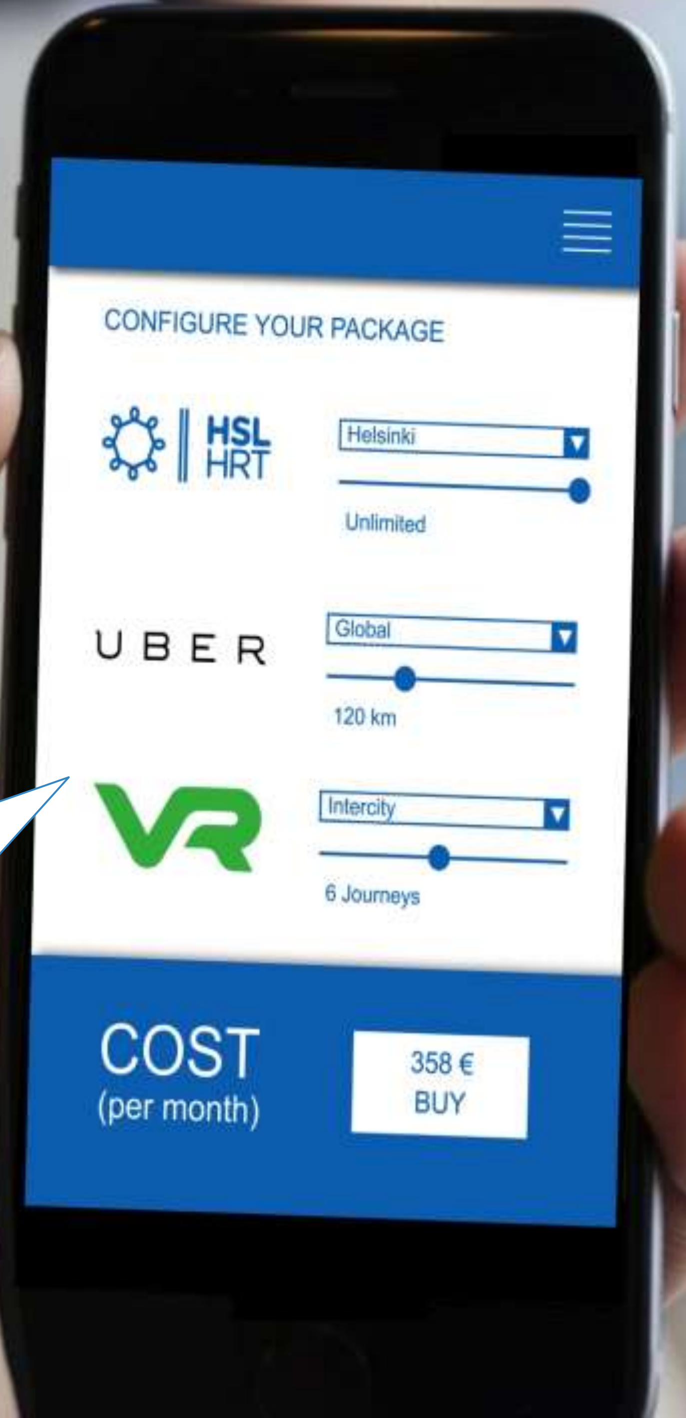
Mobility as a Service

Can it be even better than owning a car?

SAMPO HIETANEN
CEO MaaS Ltd
SAMI SAHALA
Forum Virium Helsinki


WHAT IF ALL TRANSPORTATION WAS CONVERGED…
MaaS
Helsinki
Helsingfors
42 min
3,89 €
BUY
37 min
KUTSU PLUS
E-TRAIN
METRO
5,89 €
BUY
20 min
UBER
14,89 €
BUY

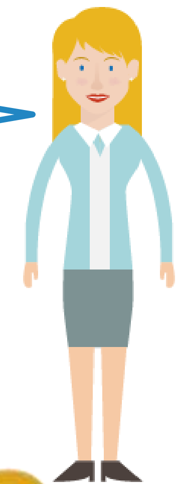
… AND TAILORED TO YOUR NEED AS MONTHLY PACKAGES



Mobility as a Service is the *Netflix* of transportation

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:

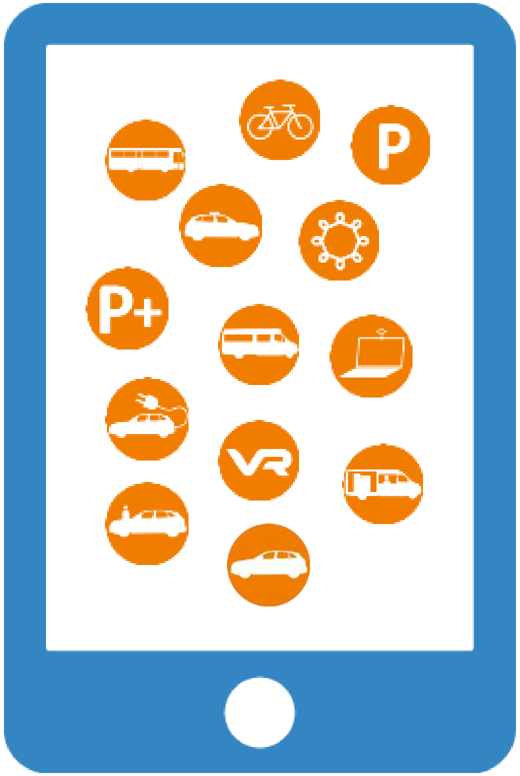
- Enough space and child seats guaranteed
- Always traceable and safe trips for kids
- Includes one long family trip every month
- Home delivery included

Cup of tea guarantee

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

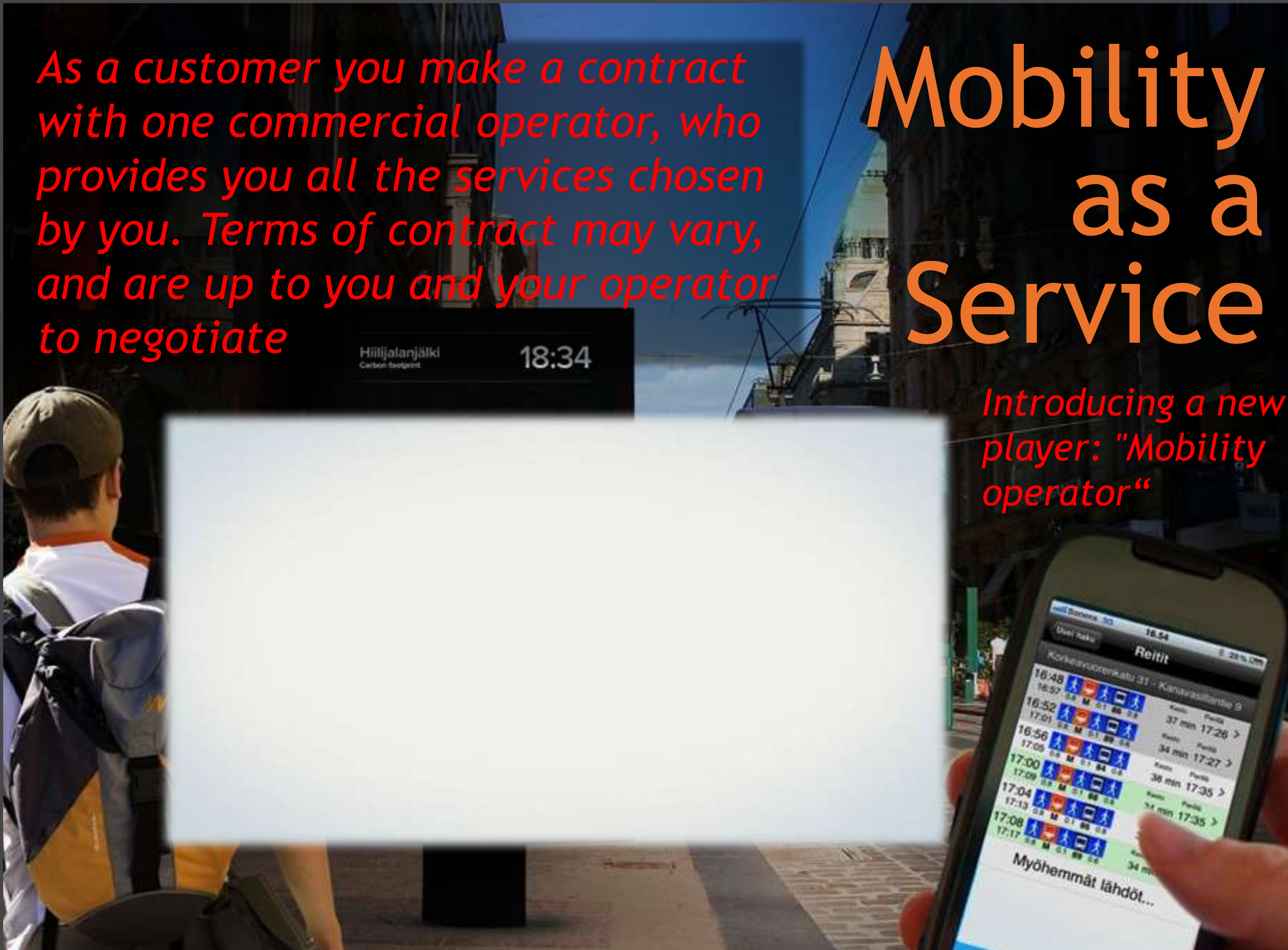
It’s all about Service Level Agreement (SLA)

It’s easy.



We make it easier.

Mobility as a Service



As a customer you make a contract with one commercial operator, who provides you all the services chosen by you. Terms of contract may vary, and are up to you and your operator to negotiate

Introducing a new player: "Mobility operator“

Video courtesy of Ministry of Transport

Mobility as a Service

- I can use every mode of transportation depending which best suits my current need
- All fully accessible with one mobile tool
- And everything in one monthly bill

Personal mobility package 250€/month:

- Regional public transport
- Up to 100 km taxi services (incl. Uber, Lyft etc.), from where x €/km
- Up to 500 km car sharing
- Up to 1500 km long-haul public transport
- 20 h city bike

From 2006 fast forward to June 2014

10th ITS EUROPEAN CONGRESS
Helsinki, Finland | 16-19 June 2014


HS OSASTOT UUTISET HSTV SÄÄ PÄIVÄN LEHTI Tilaa Hesari

Tulevaisuuden Helsingissä ei omisteta autoa

KAUPUNKI 17.6.2014 2:00 Päivitetty 17.6.2014 6:01

Maija Aalto HELSINGIN SANOMAT


Aalto University
School of Engineering

Sonja Heikkilä

Mobility as a Service
– A Proposal for Action for the Public Administration

Case Helsinki

Thesis submitted for examination for the degree of Master of Science in Technology

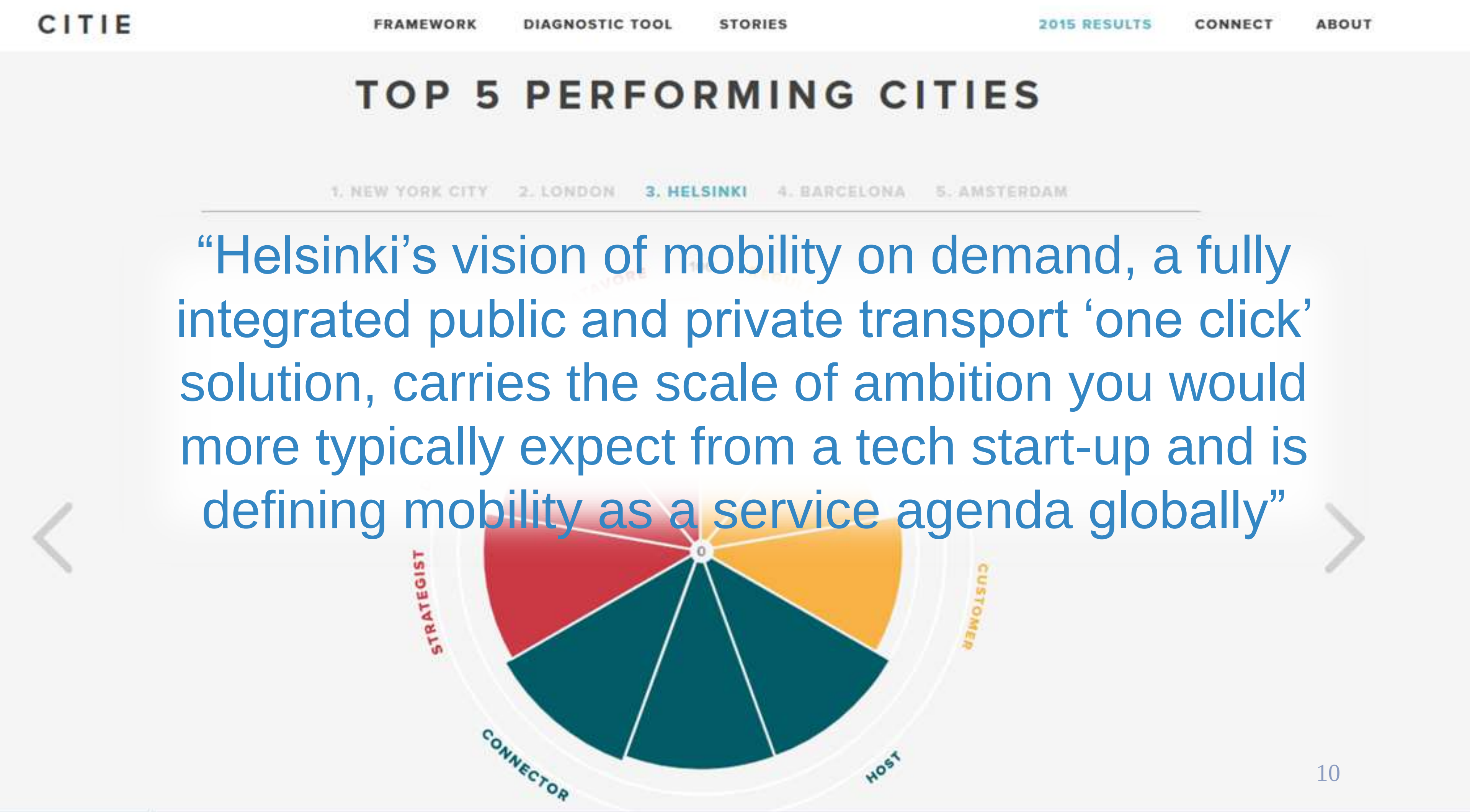
Espoo 28.04.2014
Supervisor: Professor Eric Bruun
Instructors: Ville Lehmuskoski, Sampo Hietanen

And within just a couple of months:

The 18 Most Innovative Cities On Earth

Helsinki makes the list for a super innovative transit system — one that will soon have "a real -time marketplace for customers to choose among transport providers and piece together the fastest or cheapest way of getting where they need to go."

Helsinki ranked #3 in innovation by citie.org

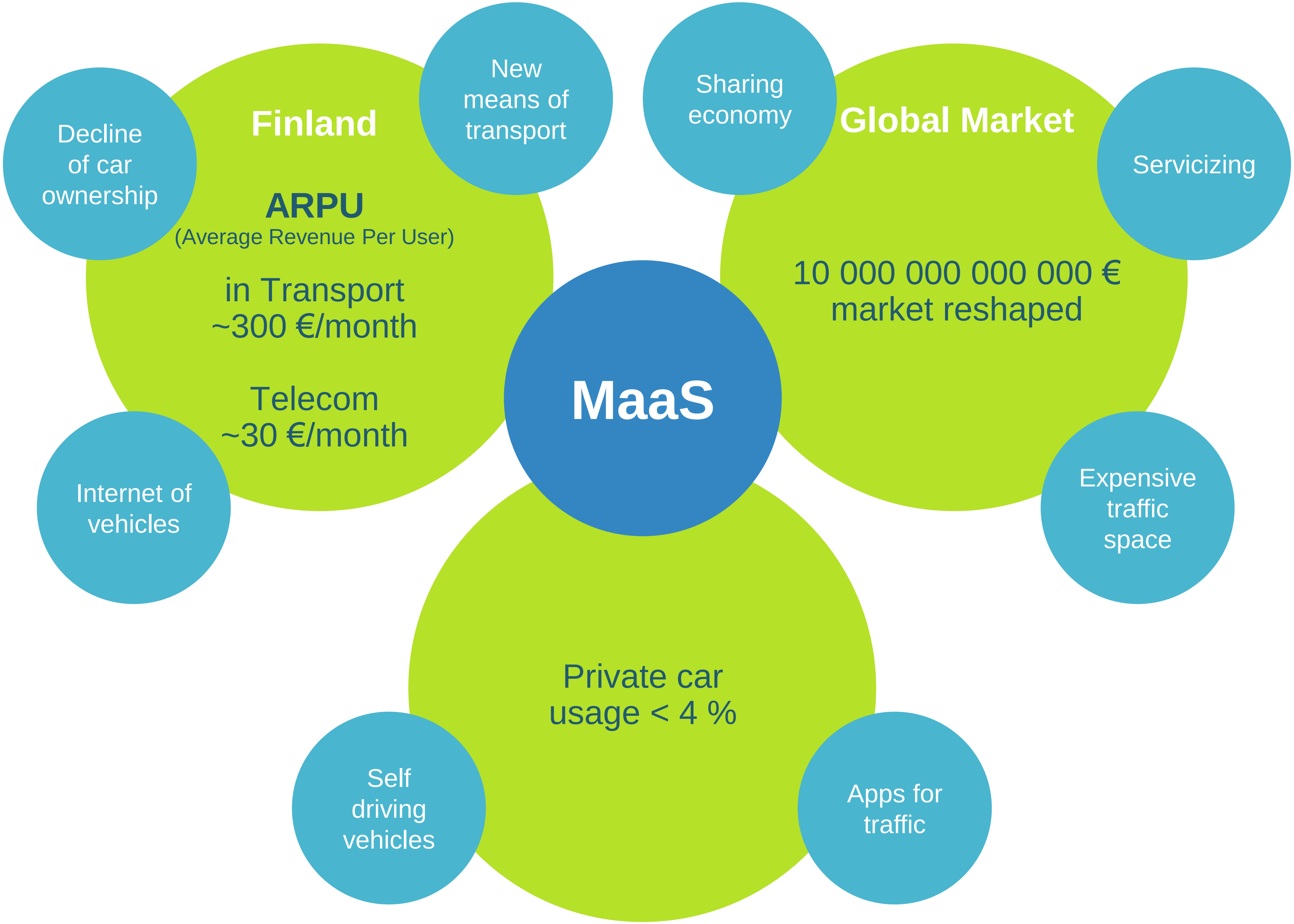


"Helsinki's vision of mobility on demand, a fully integrated public and private transport 'one click' solution, carries the scale of ambition you would more typically expect from a tech start-up and is defining mobility as a service agenda globally"


SOLD !
Understand, Restrict or Embrace ?
The Washington Post
Wonkblog
What it would take for cities to eliminate the need to own a car
TIME
Finland's Capital Plans on Making Private-Car Ownership Obsolete in 10 Years
BloombergView
theguardian
Helsinki's ambitious plan to make car ownership pointless in 10 years
Finland's capital hopes a 'mobility on demand' system that integrates all forms of shared and public transport in a single payment network could essentially render private cars obsolete
Should we ban cars in city centres?
Adam Greenfield
theguardian.com, Thursday 10 July 2014 15.20 BST
BUSINESS INSIDER
THE VERGE
Finland's largest city wants to replace cars with apps
It's mostly the vision of Sonja Heikkilä, a 24-year-old Helsinki transportation engineer.

TRANSPORTATION IS CHANGING TO CONSUMER BUSINESS

Maas.fi


Finland
ARPU
(Average Revenue Per User)
in Transport
~300 €/month
Telecom
~30 €/month
Decline of car ownership
New means of transport
Internet of vehicles
MaaS
Sharing economy
Global Market
Servicizing
10 000 000 000 000 €
market reshaped
Expensive traffic space
Private car
usage < 4 %
Self driving vehicles
Apps for traffic

Helsinki♥MaaS

City’s perspective

Helsingin kaupunki
Kaupunginkanslia

25% growth of inhabitants & traffic in central city, in next 15 years
No room for new infrastructure to prevent major congestion

Decrease need to own a car

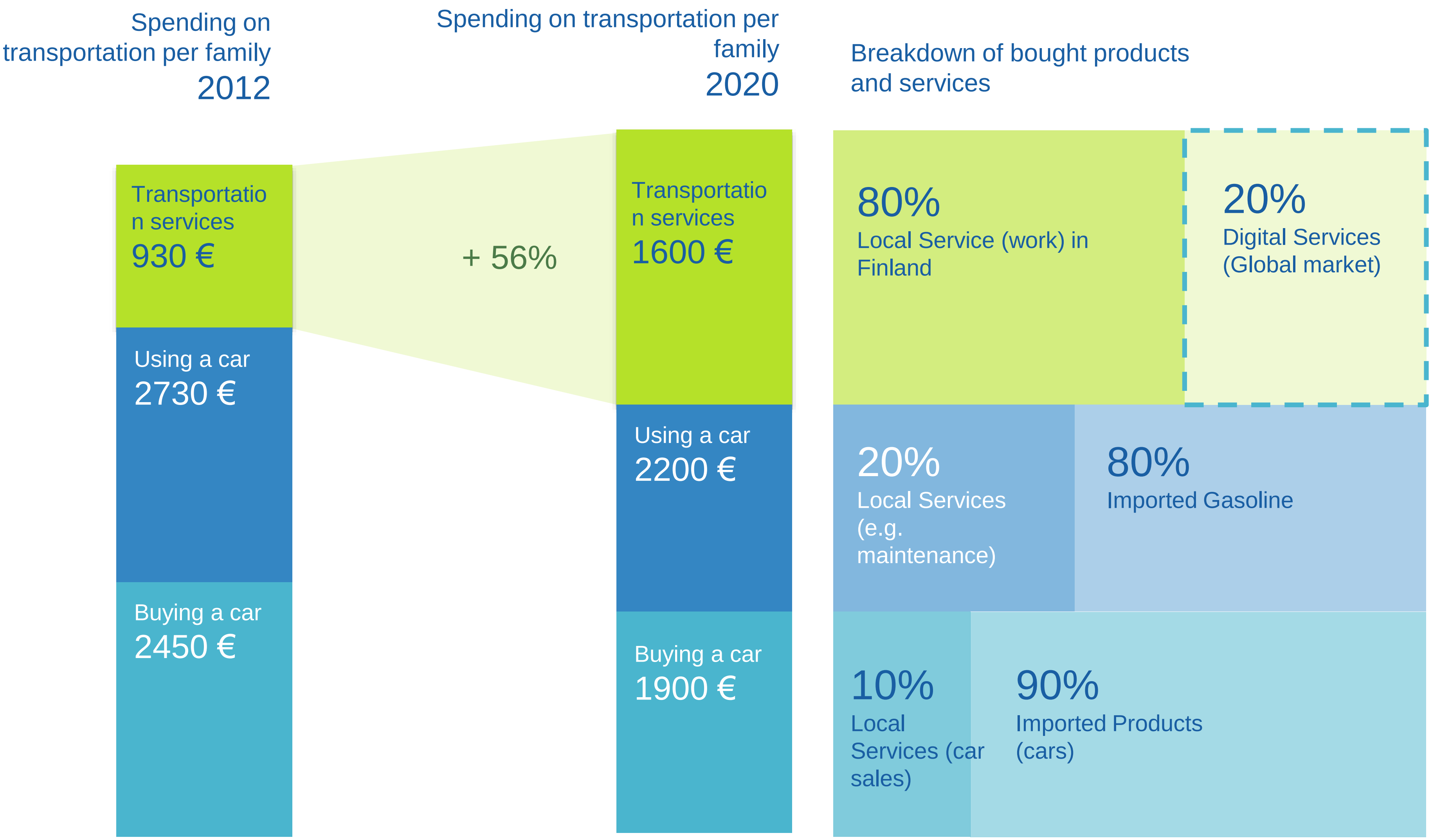
by ensuring plethora of alternatives

and making it as easy as possible to use them

MOBILITY AS A SERVICE FRAMEWORK

MaaS as a business

Market opportunity: Savings in car expenditure



Transport systems will become consumer business

ALL FUNDING DIRECTLY FROM END USERS

User

THE FOCUS IS HERE

SERVICE PROVIDERS
(INTERNATIONAL BRANDS)

- Combinations for target groups
- Different packages for targeted groups
- Clearing for transportation, networks and services

Mobility as a Service, MaaS

TRANSPORTATION PROVIDERS
(INTERNATIONAL BRANDS)

- Vehicles, public transport, rentals, parking, taxis, ride shares, car shares etc.

Transport as a Service, TaaS

NETWORK PROVIDERS
- Planning, investments, maintenance

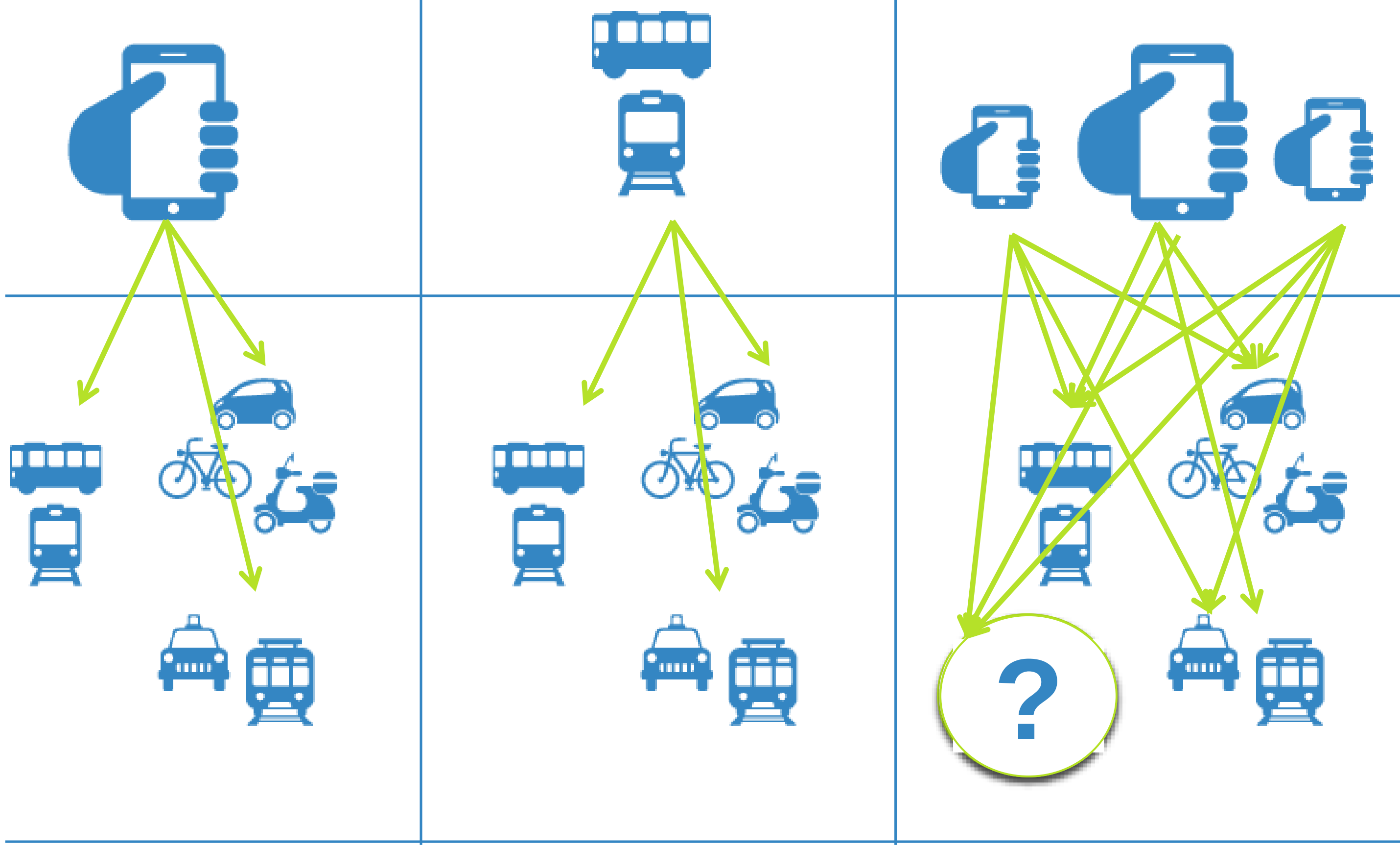
Infrastructure as a Service, IaaS

Three ways for markets to evolve

Winner takes all

Public transportation Takes it all

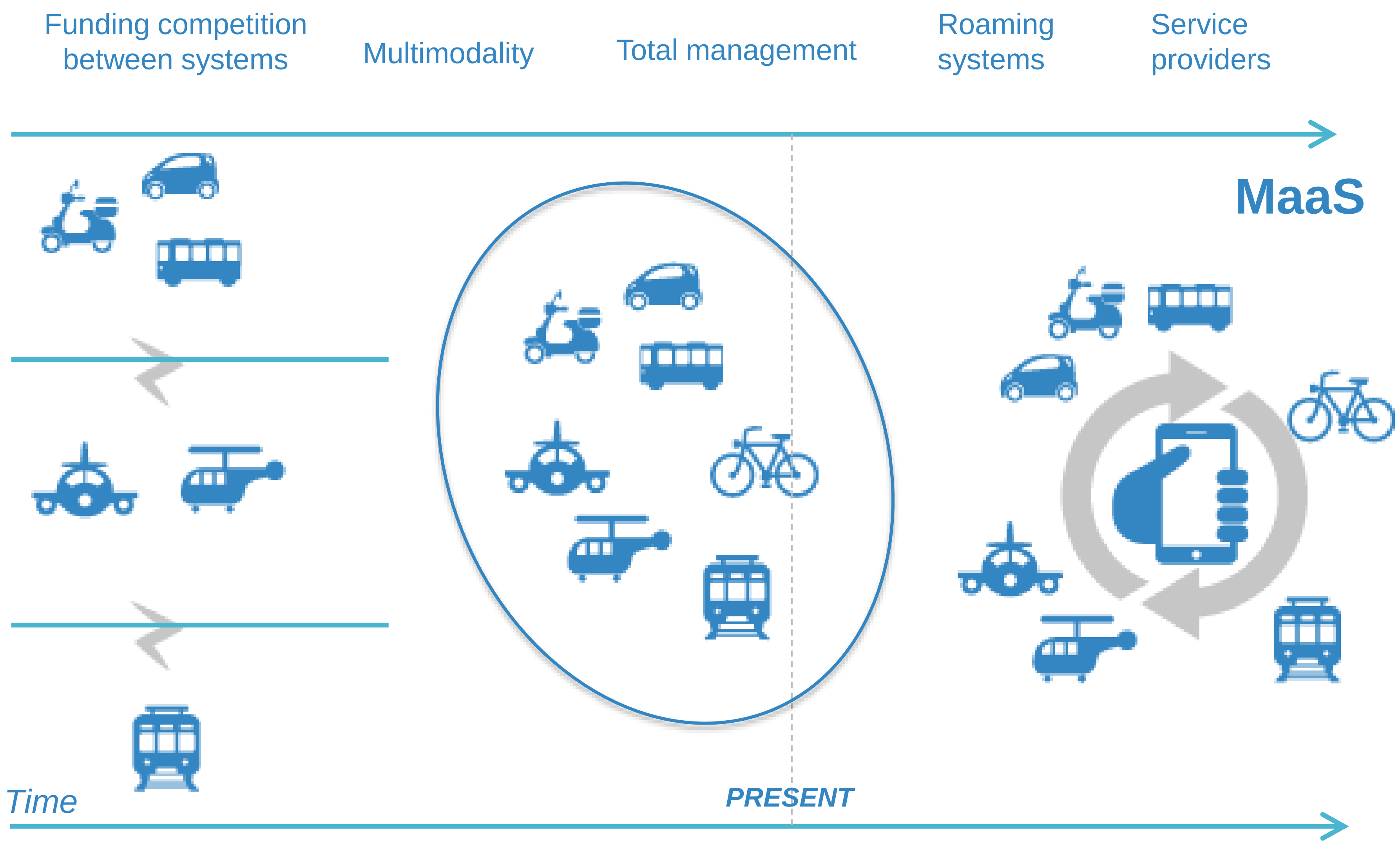
Roaming ecosystem



Mobility as a Service (aggregators)

Transportation providers

From silos to roaming



The European Mobility as a Service Alliance

Working to create a seamless, demand-based travel experience

Launched at the 2015 ITS World Congress in Bordeaux

Press Release

The European Mobility-as-a-Service Alliance has been launched

20 European organisations join forces to establish the first Mobility as a Service (MaaS) Alliance. This new initiative will work towards a truly European and common approach to MaaS through public and private stakeholder cooperation, providing the basis for the economy of scale needed for a successful implementation in Europe.

The key concept behind MaaS is to put the users, both travelers and goods, at the core of transport services, offering them tailor made mobility solutions based on their individual needs. This means that, for the first time, easy access to the most appropriate transport mode or service will be included in a bundle of flexible travel service options for end users.

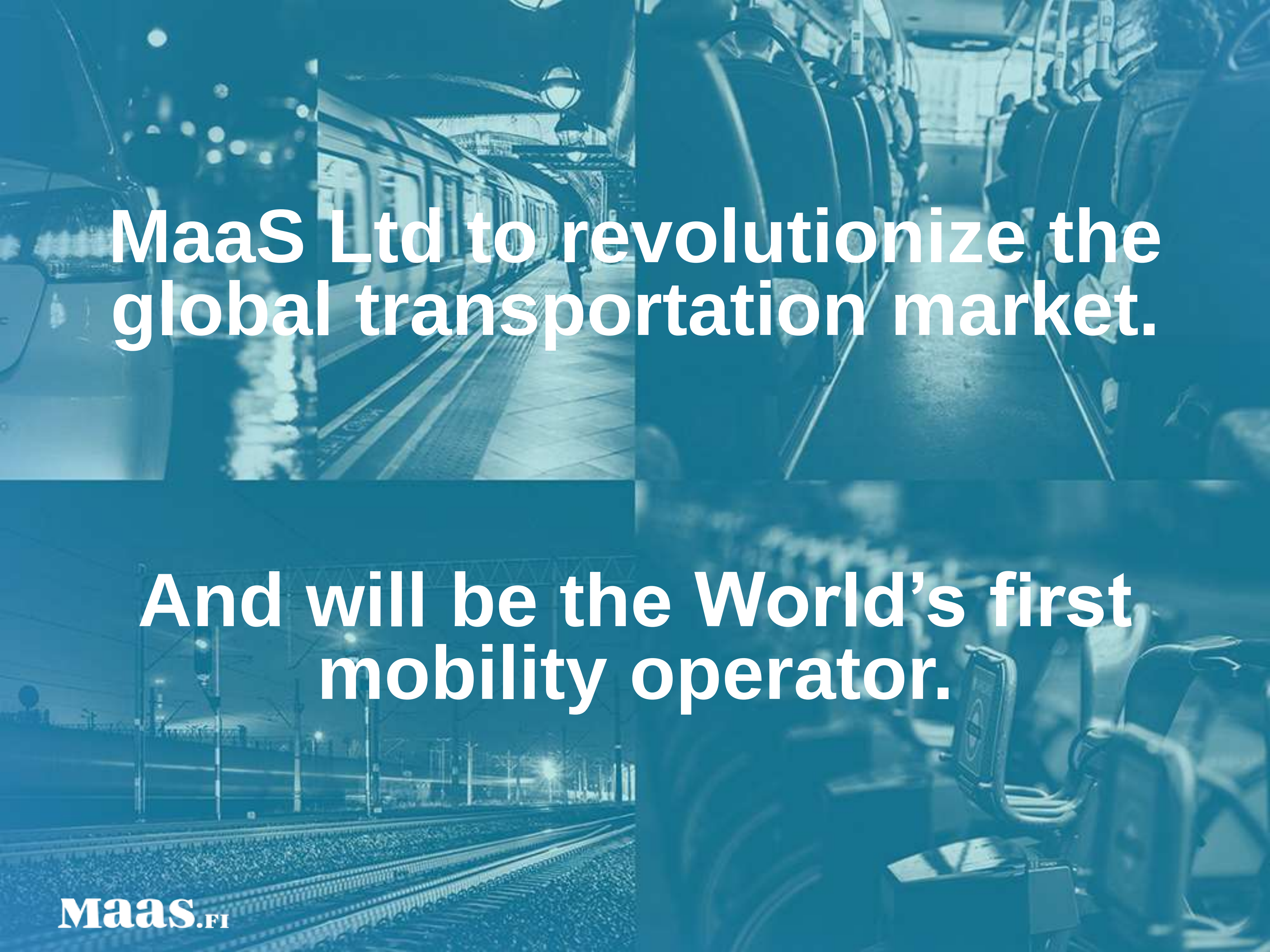
The MaaS Alliance builds upon the momentum and drive achieved during the last European I[illegible] Congress in [illegible]14 hosted by Helsinki, where MaaS received political support from the Finnish government. "MaaS is a new approach [illegible]anging mob[illegible]ty markets. It relies on existing and developing transport services and has huge chance for global scaling", says the father of the concep[illegible] Sam[illegible] H[illegible]tan[illegible] CEO of ITS Finland.

According to Rasmus Lindholm, ERTICO's Director of Communications and Par[illegible]sh[illegible] De[illegible]elo[illegible]ent: *"MaaS ha[illegible] potential to fundamentally change the behavior of people in and beyond cities, h[illegible] it is regard[illegible] as th[illegible] [illegible] change in transport since affordable cars came into the market"*.

ROAMING!

Founding Partners of the Mobility as [illegible]Ser[illegible] A[illegible] includ[illegible] Aa[illegible]org University, [illegible]striaTech, Ericsson, ERTICO – ITS Europe, Federation International de l'Automobile (FIA) Reg[illegible]n I, [illegible]h Mi[illegible] of Transp[illegible]d Communications, Helsinki Business Hub, IRU, Connekt, ITS Finland, ITS Sweden, ITS Ukraine, MOBiNET, National [illegible]obile Payment Plc. (Hungary), Swedish Ministry of Enterprise and Innovation, Finnish Funding Agency for Innovation (Tekes), Transport for Lond[illegible]n, Vinnova[illegible]versity of Tampere and Xerox.

"Bundling services to simplify access to mobility is a key step to ensure the best use of all modes of transport. FIA Region I call upon the transport community to develop and combine these services based on the public's concrete needs. In the FIA, we believe mobility must be safe, sustainable, accessible and affordable for all", says Jacob Bangsgaard Director General FIA Region I.


MaaS Ltd to revolutionize the global transportation market.
And will be the World's first mobility operator.
MaaS.FI

Maas Vision

We want to:

- Give you back **90 minutes** to your day
- Make sure you have **freedom of movement**
- Take away the pain of ‘how do I get there’
- Make sure you’re not a polluter

“Helsinki’s vision of mobility on demand, a fully integrated public and private transport ‘one click’ solution, carries the scale of ambition you would more typically expect from a tech start-up and is defining mobility as a service agenda globally”

Introducing the world's first mobility operator

By offering a choice of simple, **monthly mobility packages, including everything from public transport to taxis and rental cars**, we will transform the way people move for good.

User profile – segment sizes in Helsinki Region

THE TOURIST

	Daily	Yearly
Max Users	1000 - 4000	15m + (trips)
ARPU	10-20€	20-40€

THE URBAN SINGLE

	Daily	Yearly
Max Users	50 000	11m (trips)
ARPU	5-50€	500-100k€

THE LONG DISTANCE COMMUTER

	Daily	Yearly
Max Users	85 000	13m (trips)
ARPU	10-60e	1k-120k€

THE SUB URBAN FAMILY

	Daily	Yearly
Max Users	140 000 (families)	30m + (trips)
ARPU	15-70€	3k-150k€

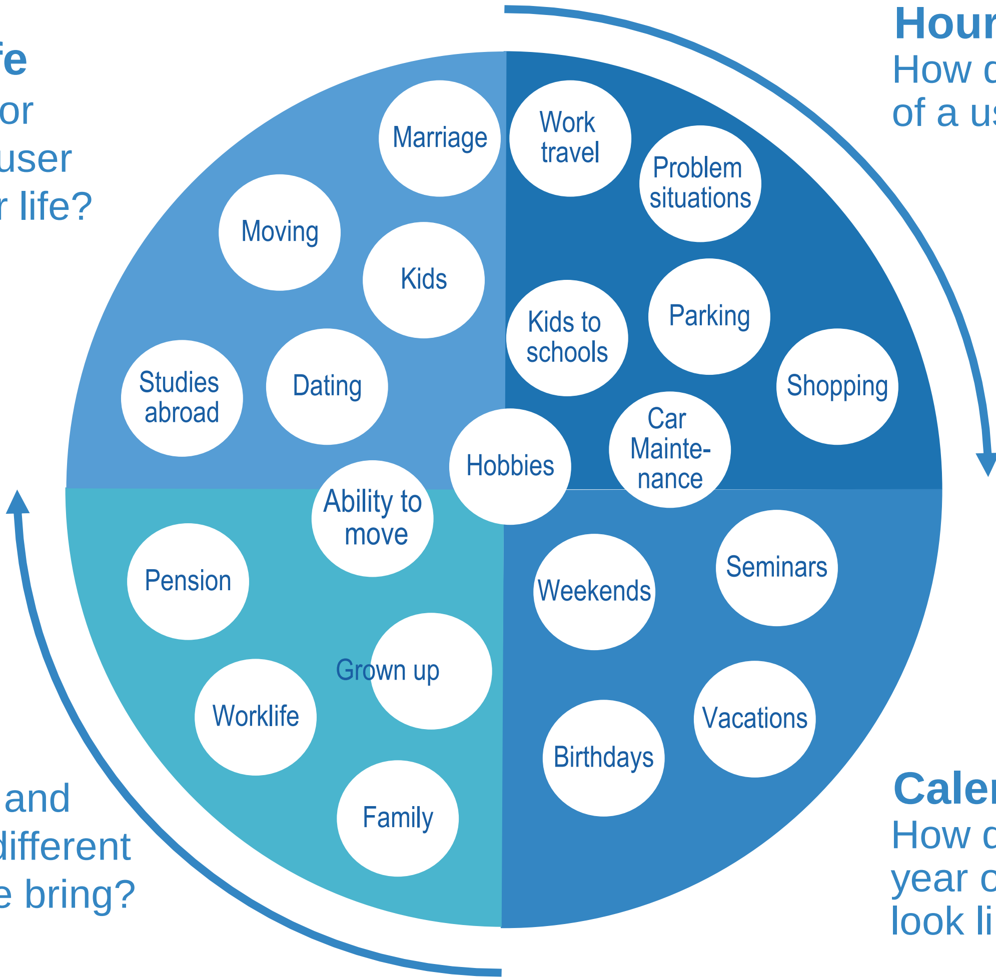
View to mobility and user experience in designing the future services

Situation of life
What kind of major events does the user experience in her life?

Hours
How does the day of a user look like?

INVESTMENT

”MONTHLY PACKAGE”



CONSUMPTION

”SINGLE JOURNEY”

Lifecycle
What needs and necessities different phases of life bring?

Calendar
How does the year of the user look like?

Determinants of travel needs are the basis for pricing, and service level agreements (sla)

Urgency

Speed

Wallet

Habits / Attitude / Skill

Weather

Route

Luggage / Co-riders / Gear

Physical Condition

Initial service descriptions

THREE TYPES OF PRODUCTS FOR CUSTOMERS

SINGLE JOURNEY CUSTOMERS

- Customer buys door-to-door transport with zero commitment
- Mobility app to combine all transport services - the fastest way to destination
- Customers receive journey through single window and payment
- Bonus program rewarding frequent use
- Reporting and separate accounts for private and company use
- Ease of use also in trips that are not ordered – Just start your journey with your account that is connected to credit card

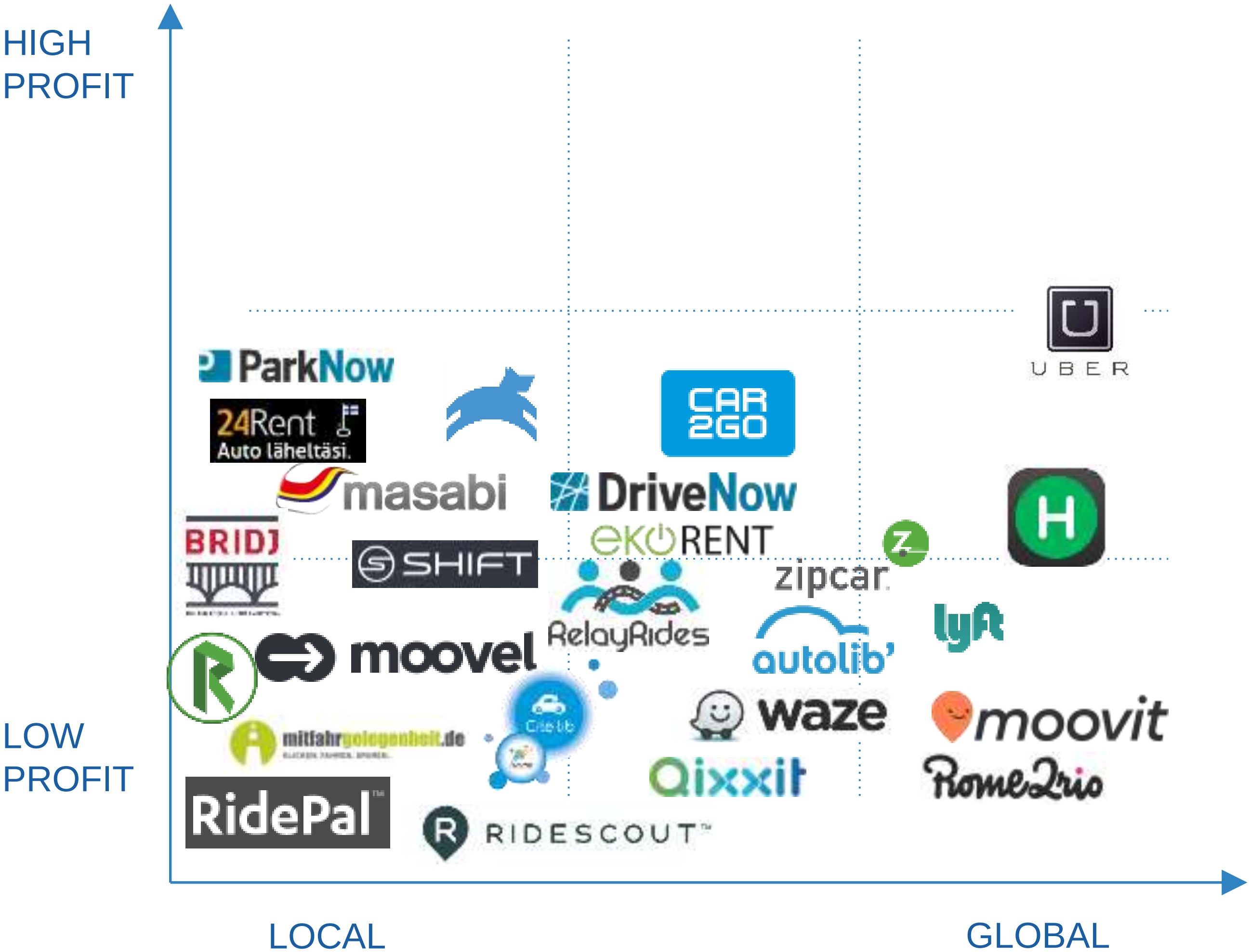
HYBRID CUSTOMERS

- Customers include their own car in the service
- Customers buy bonus packages to assist their transport needs
- Car may be bought and financed through operator or separately
- Packages can also be paid by sharing rides or car

MOBILITY PACKAGE CUSTOMERS

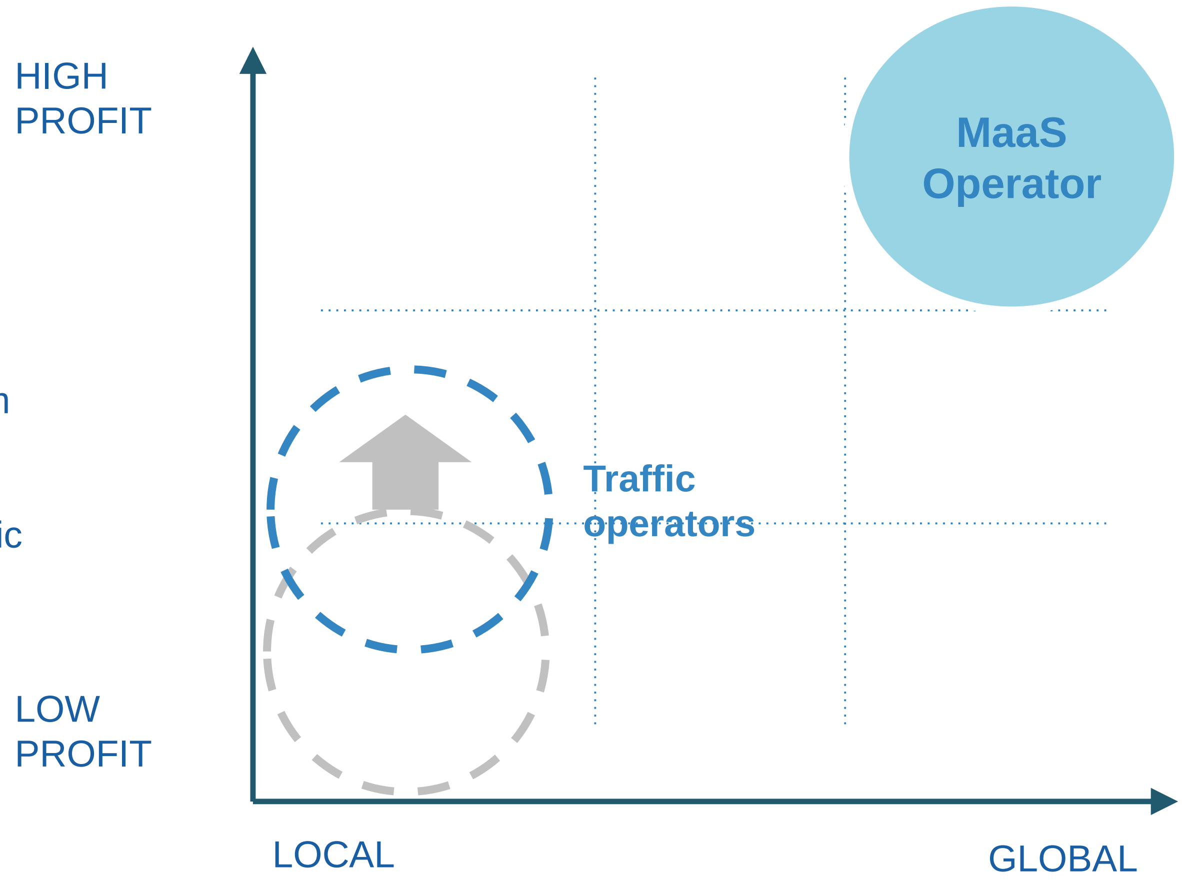
- Operator takes care of all transport needs as a service
- Packages contain enough of different transport services, enough journeys, kilometers or all inclusive
- Simple pricing scheme for journeys exceeding the package
- Packages contain bonus features like morning latte or Tesla weekend and are more affordable than when bought separately

Current market players



The operator business model strives for scalable digital global business

Best partner for traffic operators: MaaS operator creates a quantum leap in efficiency increasing the profitability of traffic operators



Benefits for different customer groups

CONSUMER
Tailored, situation-specific mobility for the user's needs

TRAFFIC OPERATORS
Increased profit through volume, efficiency and demand response

OTHER OPERATORS
Profit share and new business, ecosystem benefits

CITIES AND THE STATE
Better service-level for the citizen, budget savings, decrease of congestion, air quality, etc…

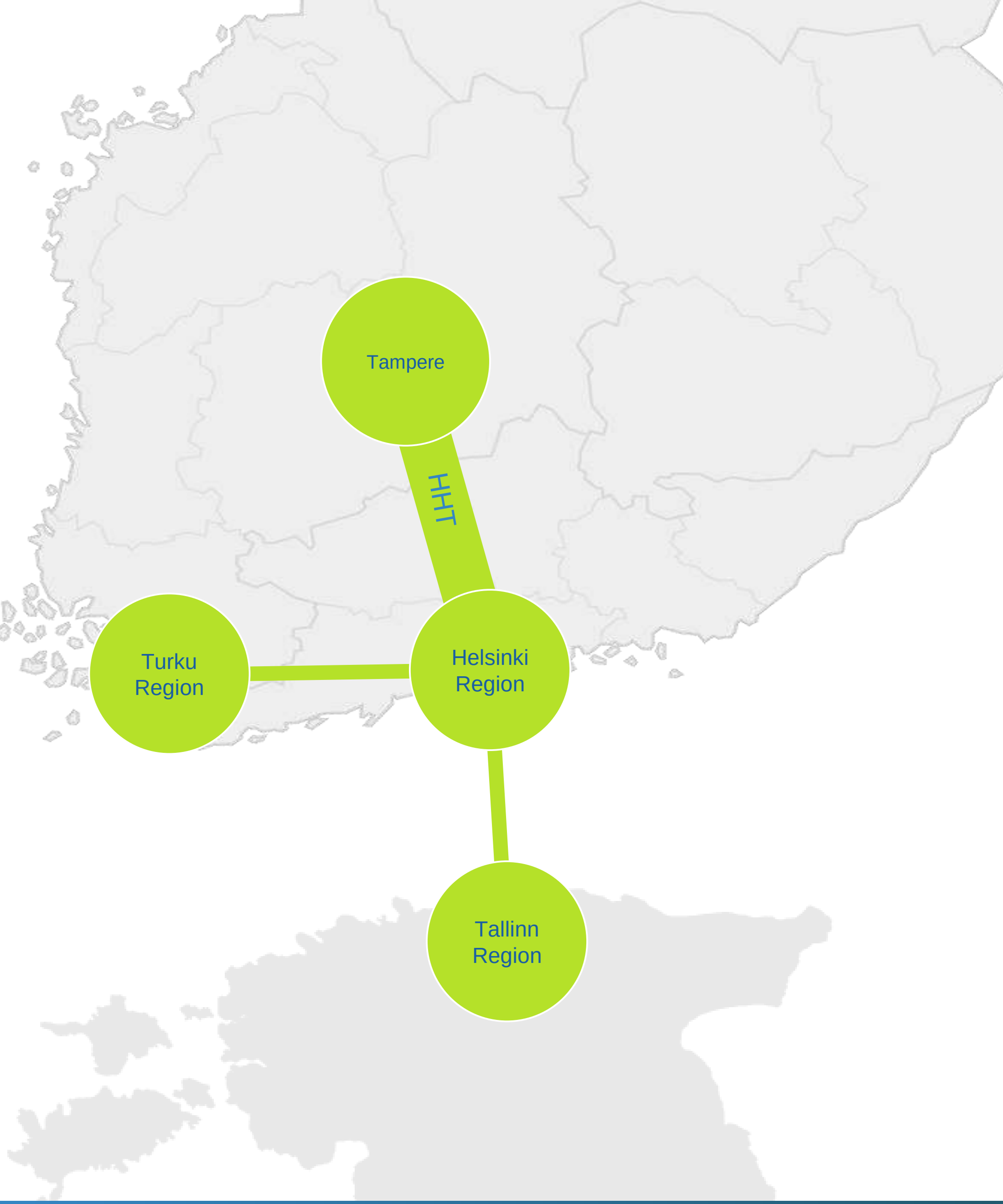
OTHER COMPANIES
Platform to integrate services, platform to innovate new services

First phase 2016

The intended test area for the MVP includes four key transport areas Helsinki, Turku, Tampere and Tallinn:

- HHT Growth Corridor
- Helsinki Region
  (HSL Traffic area)
- Turku and Turku region traffic area (9 municipalities)
- Tampere
- Tallinn

Looking for 2 other areas



MaaS Ltd. Plan for going global

- 12-2014 call for interested partners
- 2015 Q1-Q2 business plan with 24 organisations
- 2015 Q3-Q4 seed round for Minimum Viable Product (MVP)
- 2016 three areas with open MVP
- 2017 5-10 areas live
- 2018-2020 going global

FORUM VIRIUM HELSINKI

Helsinki♥MaaS

City’s enabling actions

Helsingin kaupunki
Kaupunginkanslia

Our train of thought

- New mindset
  - What is MaaS ? Public transport ? Private business similar to travel agency ? Or a taxi central ?
  - We don’t need to own and control everything !
  - Focus on results, what in the end actually needs to happen ?

- What kind of roadmap could lead there ?
- What can city do to make that happen OR **help** that happen

→ **City as an enabler !**

FORUM VIRIUM HELSINKI

FORUM
VIRIUM
HELSINKI

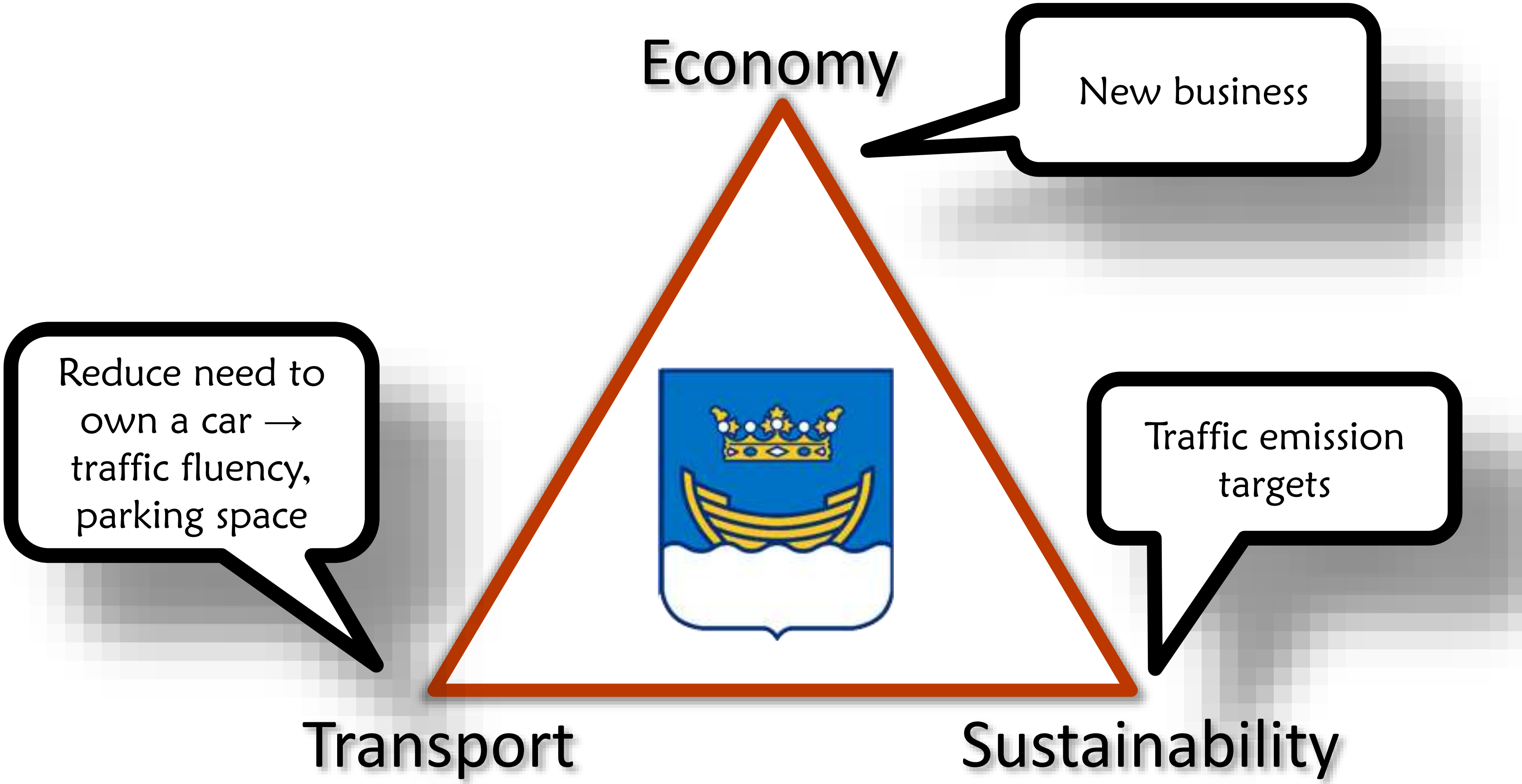
City as an enabler

- What does MaaS need to succeed and grow ?
  - Proofing the concept
  - Paying customers, a market
  - Reference cases

- Our options
  - Spend money, fund operators – NOT
  - Spend money, buy MaaS service – MAYBE
    - Current city provisioned transport via MaaS operators ?
    - Show an example by own personnel switching to MaaS ?
  - Focus on providing best possible environment for the business - YES

FORUM VIRIUM HELSINKI

For a city: intriguing opportunity and an organisatory challenge



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Ingredients for successful MaaS

FRAMEWORK
- Deregulation
- Legislation (eg planned finnish trial)
- Strategies, targets eg transport policy, climate
- Support for business development, investment

ENABLING CULTURE
- Fresh mindset, dare to try
- Embrace digitalization
- Innovative procurement
- Subsidies rethought
- Mobility management: Incentives for choosing alternative mode of transport

TOOLS
- Open Data
- Open interfaces & APIs

CUSTOMERS
- Able & open-minded citizens
- Switch from company cars to MaaS services

Service producers

Mobility operators

Users

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Any lessons learned ?

- Be more flexible, maintain pace
- Wide cooperation across public sector
- Involve stakeholders outside your own peer
- Organisations not able to grasp new things that fall outside /between departments’ comfort zones
- Traffic planning vs Smart Mobility = focus on infrastructure vs focus on the function

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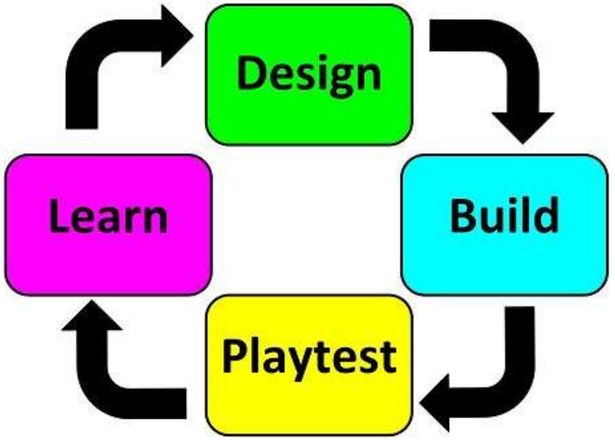
Helsinki City Actions

1. Discussion between stakeholders
2. Revision of legislation and regulation
3. Application of appropriate regulation
4. Deregulation of public transport ticket sales
5. Establishment of the mobility operator market
6. Revision of purchase and subsidization procedures
7. **Piloting**



Helsinki♥MaaS
Action plan *DRAFT*

Coordination

- Manage city's actions, cooperation, R&D and communication of all MaaS activities

Legislation, regulation

- Ensure that legislation, city's own regulation, transport purchase and other administrative mechanisms develop to benefit MaaS operator business

Business support

- KPI: new mobility related business and international investment to Helsinki region

City as a platform

- Support development of open interfaces and global interoperability
- Ensure necessary infrastructure for MaaS operation is in place

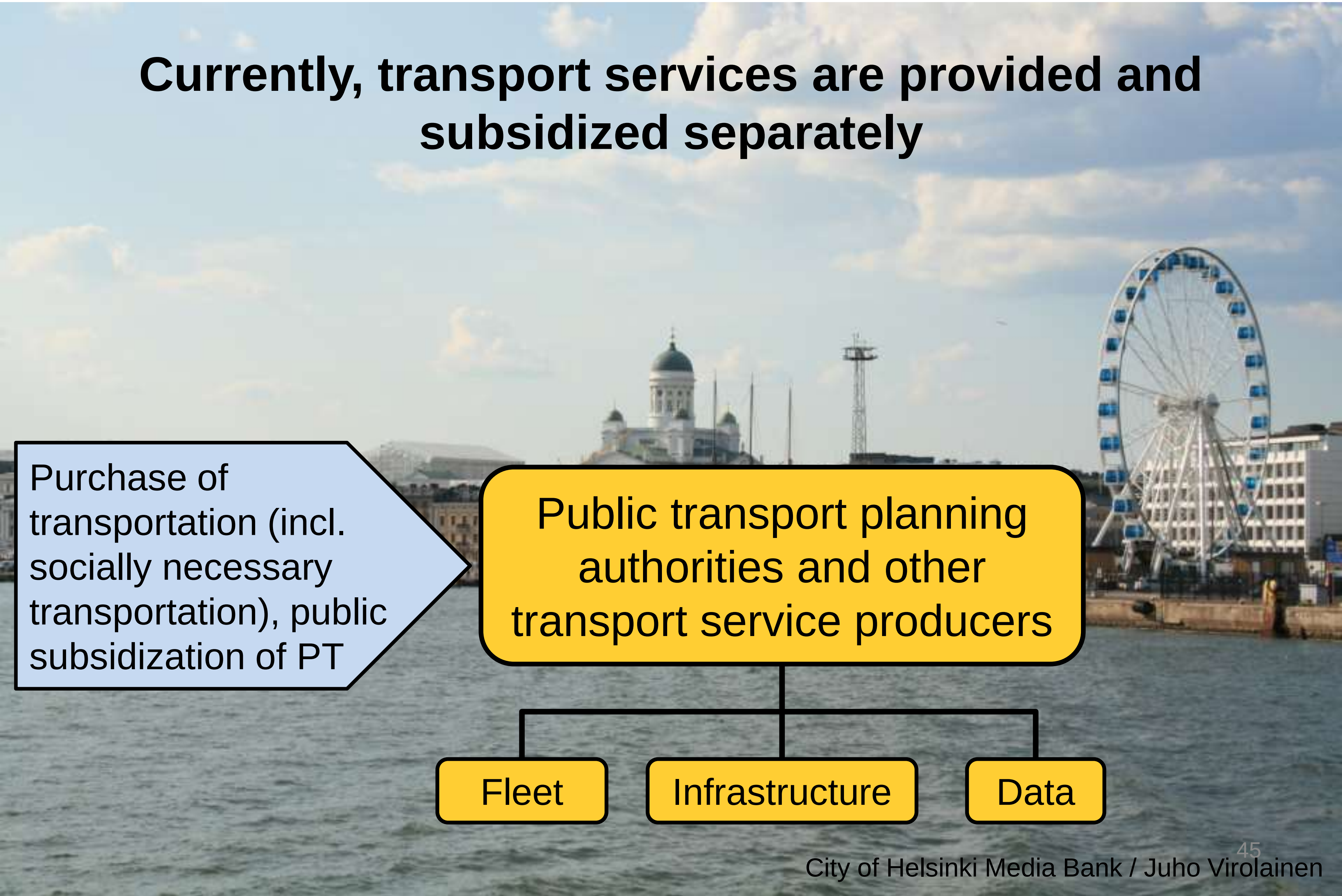
Users

- Collect feedback and needs from users, support piloting of new innovative mobility services and facilitate the actions directed to MaaS users, eg campaigns

FORUM VIRIUM HELSINKI

City of Helsinki
City Planning Department

Currently, transport services are provided and subsidized separately



Purchase of transportation (incl. socially necessary transportation), public subsidization of PT

Public transport planning authorities and other transport service producers

- Fleet
- Infrastructure
- Data

City of Helsinki Media Bank / Juho Virolainen

City of Helsinki
City Planning Department

In MaaS, all transport services are provided and subsidized jointly through mobility operators

Purchase of transportation (incl. socially necessary transportation), subsidization of PT

USER

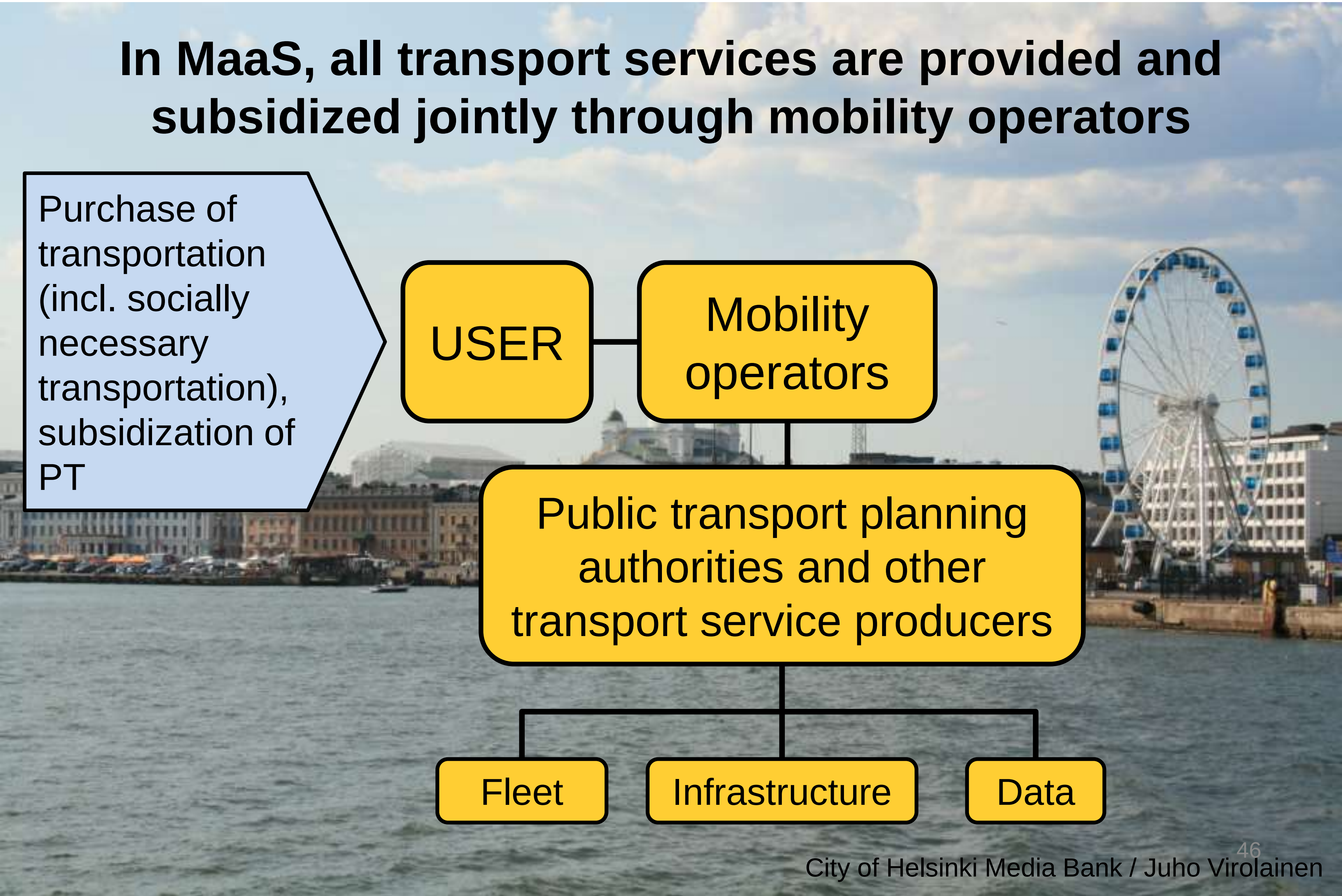
Mobility operators

Public transport planning authorities and other transport service producers

Fleet

Infrastructure

Data



City of Helsinki Media Bank / Juho Virolainen

Why Cities and MaaS?

- **Transport policy goals achieved**
  - Without public spending
  - Without banning cars
- **New tools for managing transport**
  - Incentives
  - Game rules
  - Customer rights
- **But it won’t happen without strong policy leadership**
- **What is needed**
  - Roaming of transport (operators accessing all transport modes)
  - Game rules (Market description, Data transfer and ownership, customer rights etc)
  - Possible incentives to end users to kick-start markets and to cover low-density areas
  - Mindhift from provider to enabler

SEE MAAS LIVE IN 2016

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Offering a Service Level of Privately Owned Car Using ”Omnimodality”

Buying a car
120 €

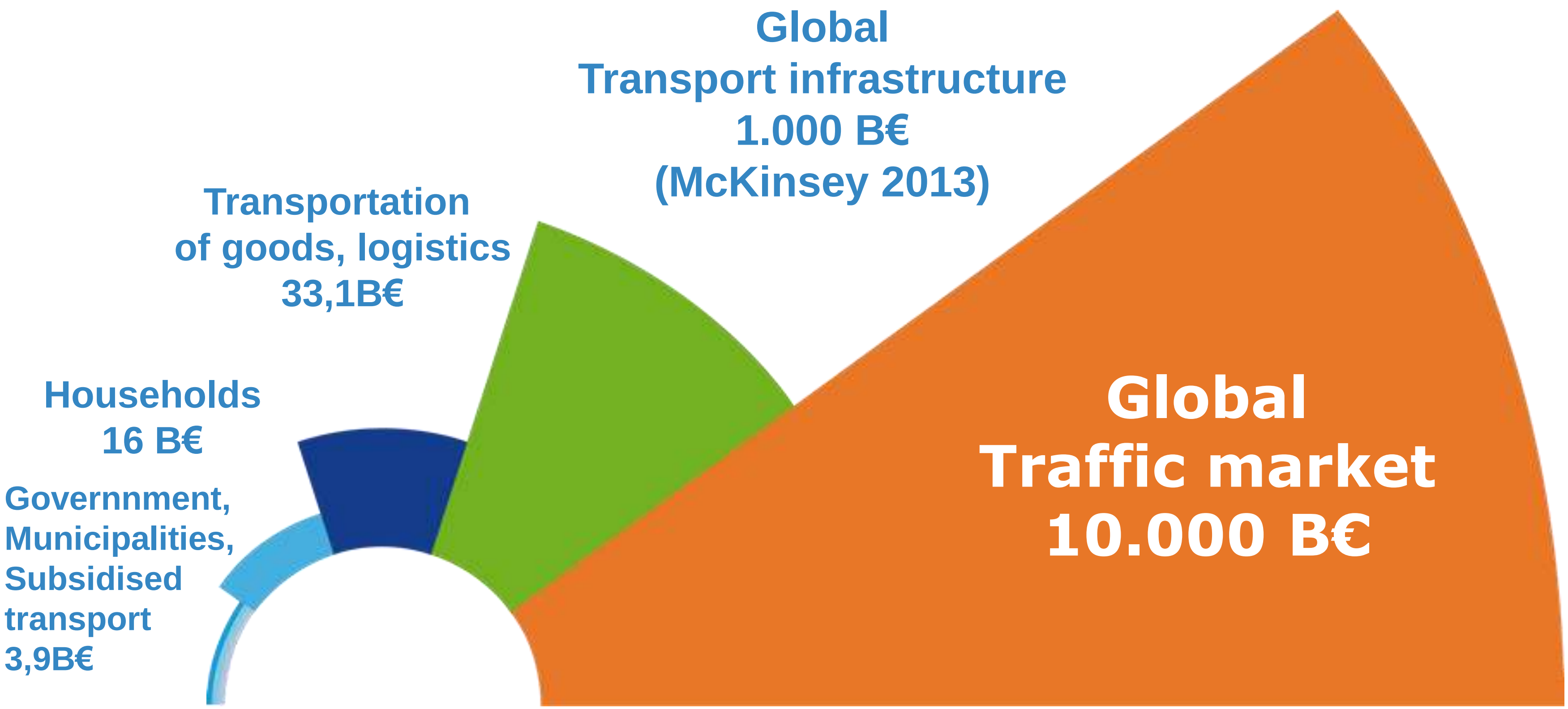
Using a car
120 €

Transportation
services 60 €

Same promise of
mobility by using
more effective tools

MaaS engine

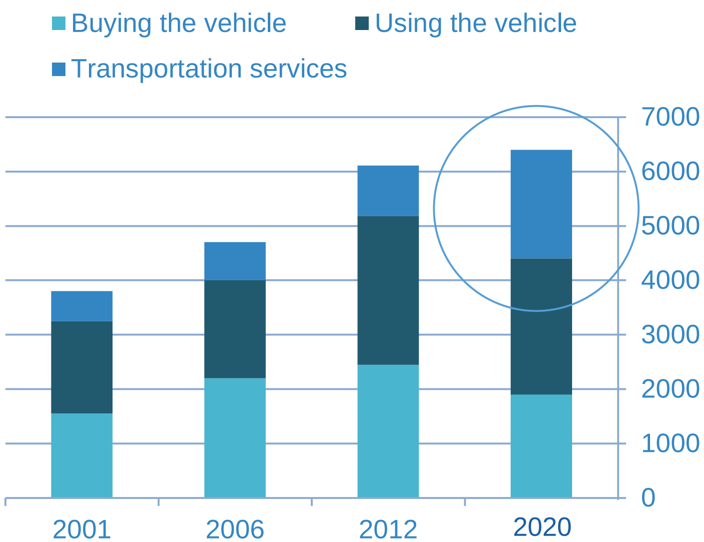
The Market Opportunity:
Traffic is a 10 000 B€ market globally



http://impulssi.lvm.fi/2015/02/02/liikenne-ja-viestinta-kuuluvat-yhteen/

Market Size and growth based on average household

HOUSEHOLD EXPENDITURE ON TRANSPORTATION (€/household)

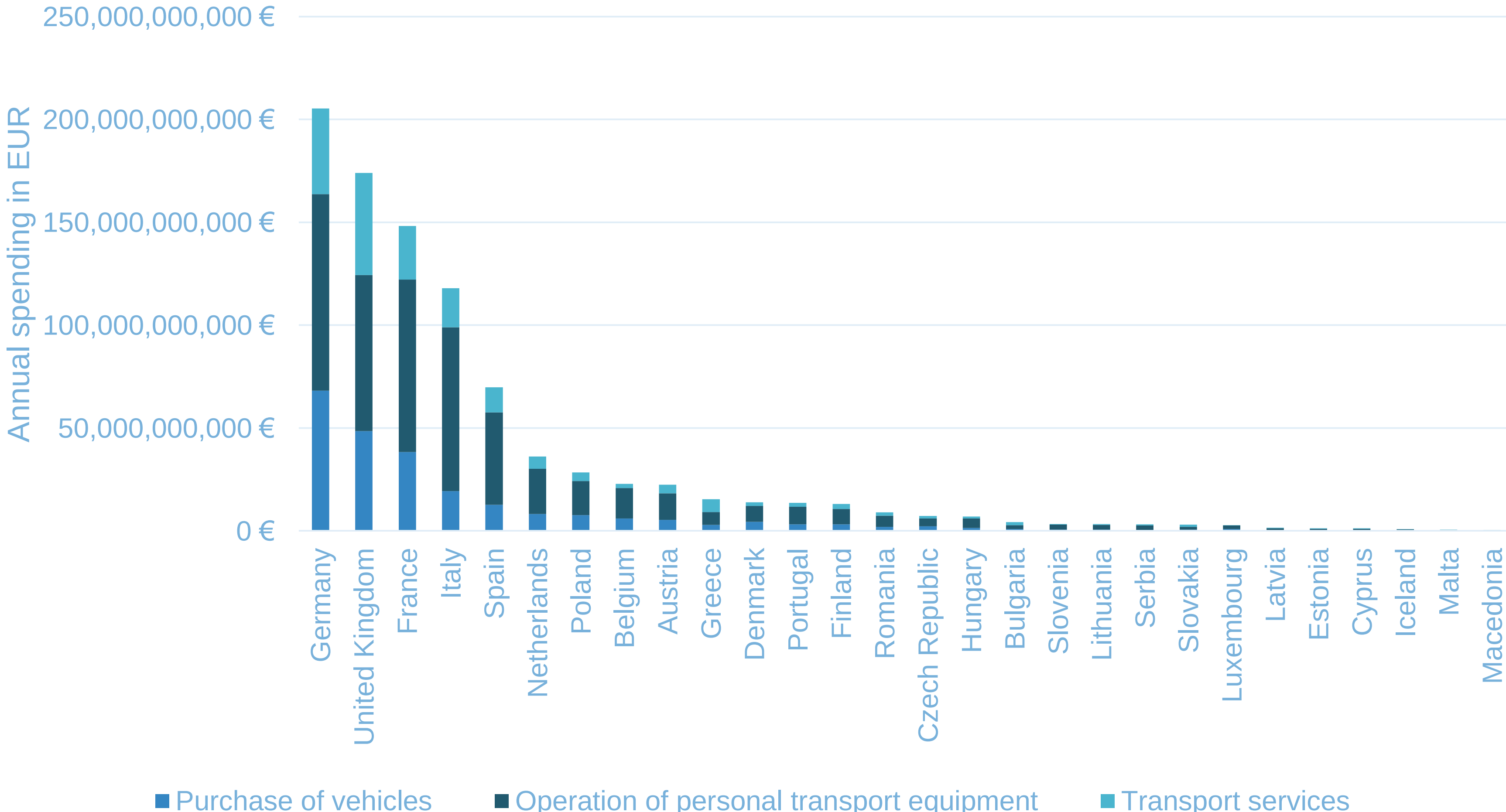


Finnish household yearly spending on average is 930 € for transportation services, 2450 € for buying vehicles and 2730 € for using the vehicles. The total spending was 15.3 bn€ of which for transportation services 2.4 bn€. We project that the use of transportation services will increase while the spending on privately owned cars will diminish. (Source: Tilastokeskus)

The creation of MaaS operator(s) will increase household spending on transportation services and lessen the need to own a car for households. Hence while the total spending of households to transportation increases with inflation, the spending for services may even two-fold.

Spending(€)/person/month		
TOTAL for transportation	248 €	260 €
Transportation Services	78 €	166 €
Total Market for Transportation Services / month		
Finland in Total	210 m€	450 m€
Capital City Region	42 m€	89 m€
Total Market for Transportation Services / year		
Finland in Total	2,4 bn€	5,4 bn€
Capital City Region	0,5 bn€	1,1 bn€
	2012	2020 (projected)

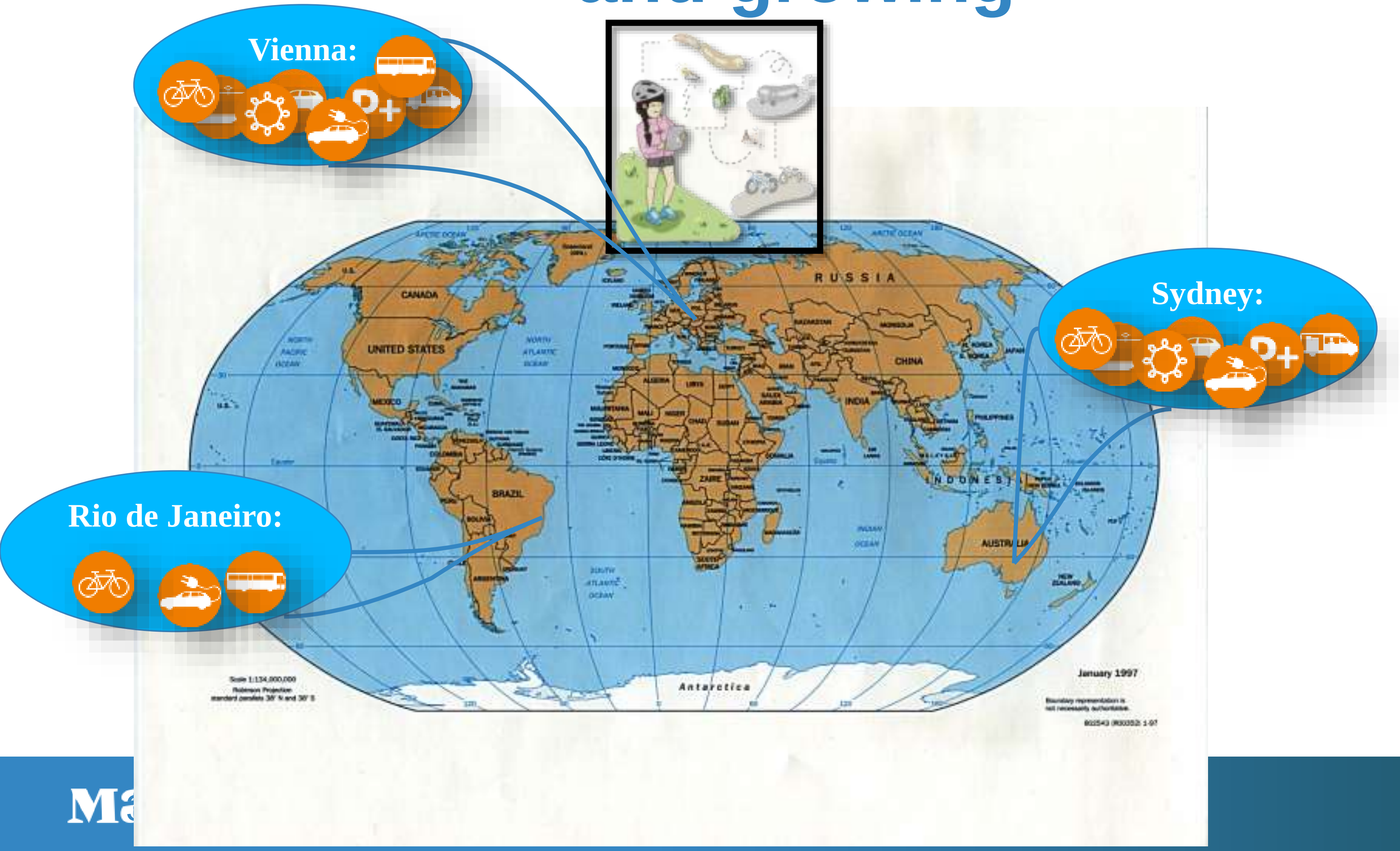
Market opportunity: Household expenditure on transport in Europe



Source: Eurostat

* Current prices. All statistics for 2013 except Spain and Romania 2012

It scales because the components are already there -- and growing



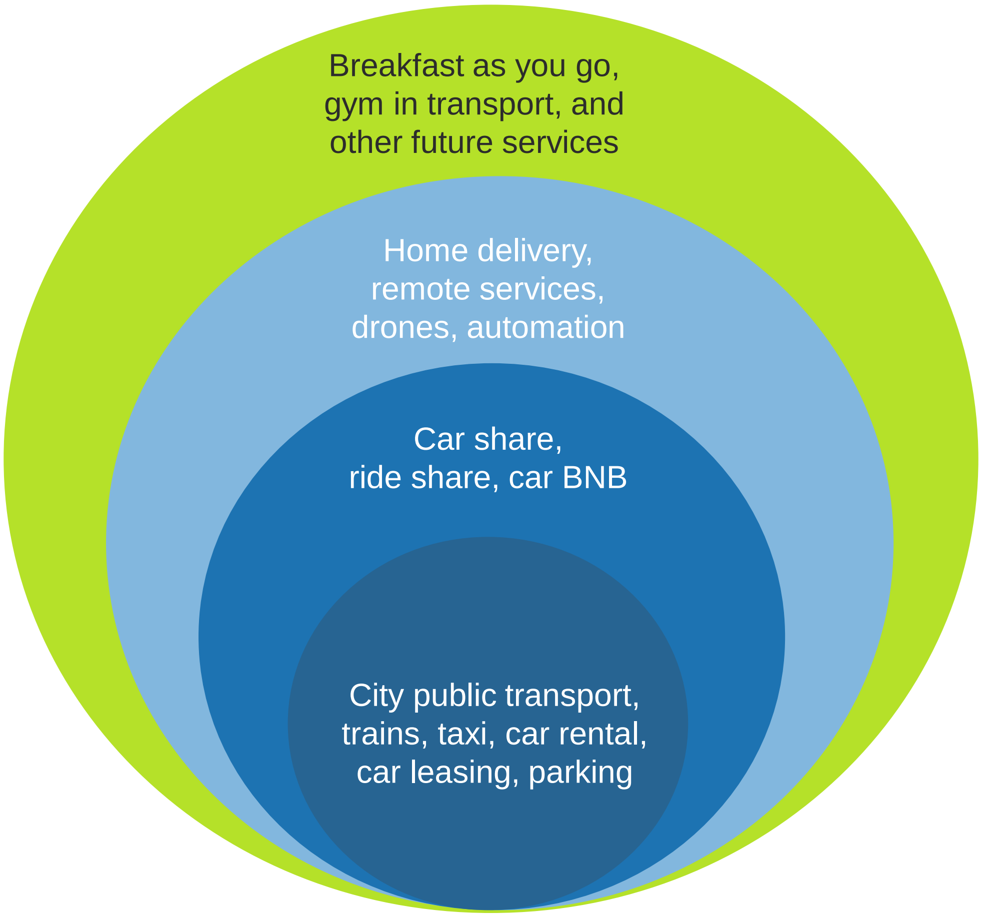
It also scales towards other services. There is 90 new minutes to a day.

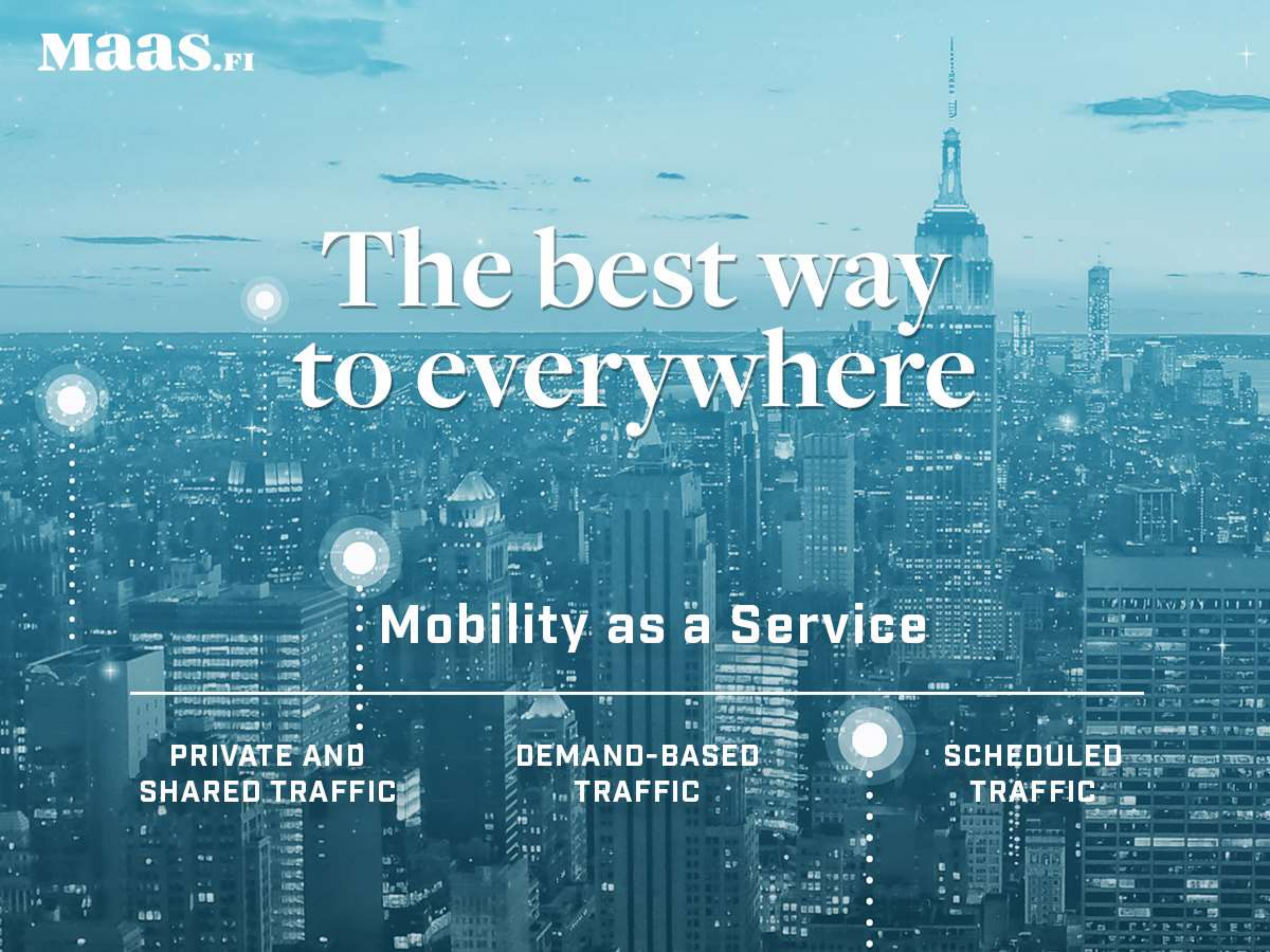
The long term aim of the MaaS ecosystem is to enable the innovation of novel services linked to its core business. The first mobility service is created by combining the existing services that are essential to deliver seamless mobility.

Second, the objective is to connect sharing services to the ecosystem. This requires some legislatory issues to be resolved at least in Finland.

The third cycle of service innovation is to enable the creation of new services realted to moving packages, goods and cargo in a tailorable manner.

Finally the MaaS ecosystem fosters the innvoation of entirely new complementary services that challenge the existing norms.




Maas.fi
The best way
to everywhere
Mobility as a Service
PRIVATE AND
SHARED TRAFFIC
DEMAND-BASED
TRAFFIC
SCHEDULED
TRAFFIC

Seed investors and funding

- Over 2,2 M€ in funding for Minimum viable product
- Finnish Funding Agency for Technology and Innovation Tekes
- Transdev, a French transportation giant offering land, rail and passenger transport services
- Karsan Otomotiv Sanayii and Ticaret AS, a leading car-industry family of Turkey
- Sampo Hietanen CEO and founder
- Kaj Pyyhtiä CXO and co-founder
- InMob Holdings
- Korsisaari
- Neocard
- GoSwift
- MaaS Australia
- Goodsign
- IQ Payments
- Delta Capital Force.