



# Future of Mobility Mobility-as-a-Service



The better the question. The better the answer.  
The better the world works.



Building a better  
working world

# Key areas we will cover:

# 1

Drivers of MaaS

# 2

Key challenges to MaaS adoption

# 3

Enabling widespread MaaS adoption



\*Mobility-as-a-Service abbreviates to MaaS

Mobility-as-a-Service can be defined as...

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“The **integration** of multi-modal transport into a **single** mobility service accessible **on demand**”

# ... and has three key defining characteristics

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One platform combining multi-modal transport real time data



Single, integrated payments for entire journey



Customer preference based journey optimisation


Subscription Fee


Pay-per-Trip

What do you think?

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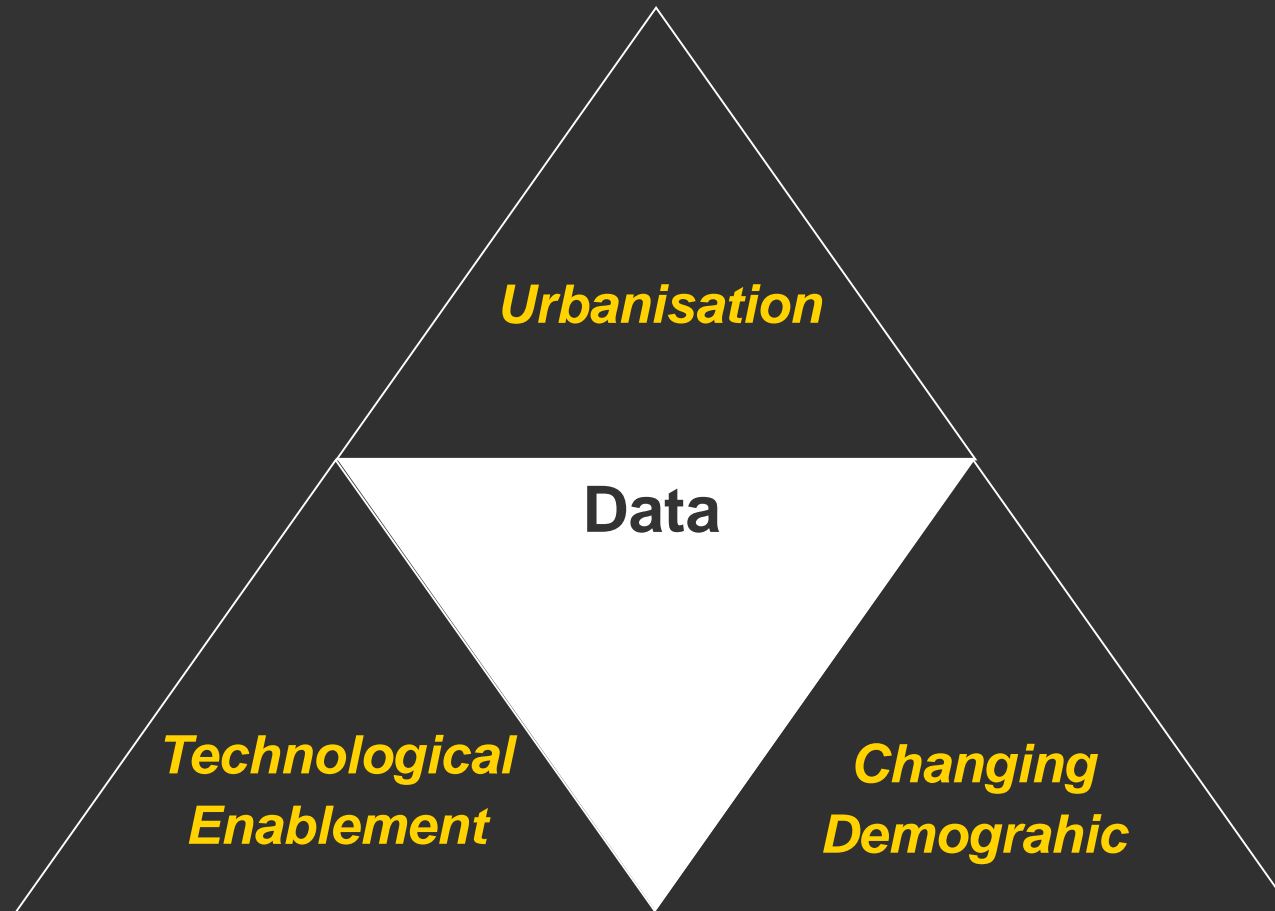
Do you believe **MaaS** will **change** your **mobility behaviour** in the **future**?

a)   
Yes

d)   
No

# A number of forces are driving the move to MAAS

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# Consequences of Urbanisation



## 1 Increased Urban population

The World Bank projects that by 2050, India's urban population **will nearly double** to 857 million—more than twice the population of the United States. Over the next 15 years alone, the country will have to build between **7.5 and 9.5 billion sq ft** of residential and commercial space each year to keep pace.

## 2 Resource Constraints

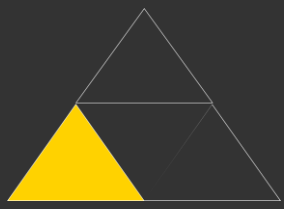
Limited resource and appetite to increase infrastructure Yet movement is a problem to solve

## 3 Increased Urban Sprawl

Australians travel time increases 15% between 2002 and 2011

Travel is the second largest household expenditure in Australia between 10-17% of household income

# Technology emerging rapidly across all dimensions - as an enabler of MaaS



Development and adoption of 5G Networks - speed and reliability of connections

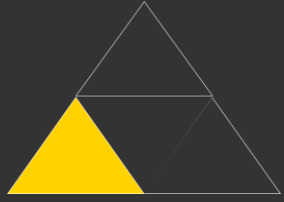
Smart city Sensors - exponentially increasing the amount and granularity of information

Blockchain and smart contracts - facilitating trust and payments. Tech agnostic, plug and play through API's

AI and Deep Learning facilitating real time and predictive analytics



# Technology enabling new forms of mobility - customers requiring MaaS



## On Demand Bus



## Autonomous vehicles



## Drones



## Bike Sharing

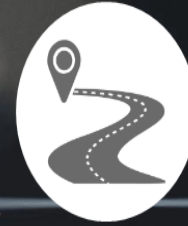




## 'Golden Map'

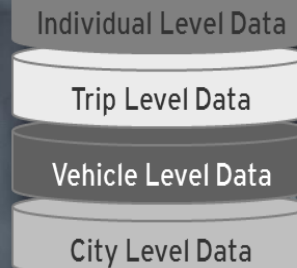
Individual Level Solutions

Trip Level Solutions



City Level Solutions

Vehicle Level Solutions



Aggregation of data from individual, trip, vehicle and city level solutions to **enable a complete mobility ecosystem.**

Data can also be applied using other applications, to enhance functionality but most of all user experience.

Data underpinning the provision of MaaS

# Changing Demographic - Characteristics



## Millenials

On demand

**Flexible  
Experience**

Enviromentally Active

**Networked**

**Low need for  
possession**

## Gen Z

Technologically  
advanced

**Materially  
endowed**

**Practical**

Convenient

# Changing Demographic - Connected





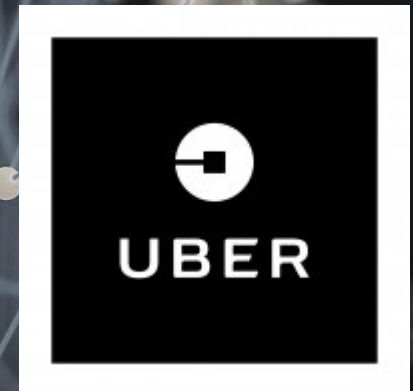
**NETFLIX**

**Changing Demographic  
- Rise of sharing**

**Combines need for  
flexibility, to be on  
demand and to be  
practical**



**The advent of the “do  
it for me” generation**





Drivers of MaaS

2

Key challenges to MaaS adoption

3

Enabling widespread MaaS adoption

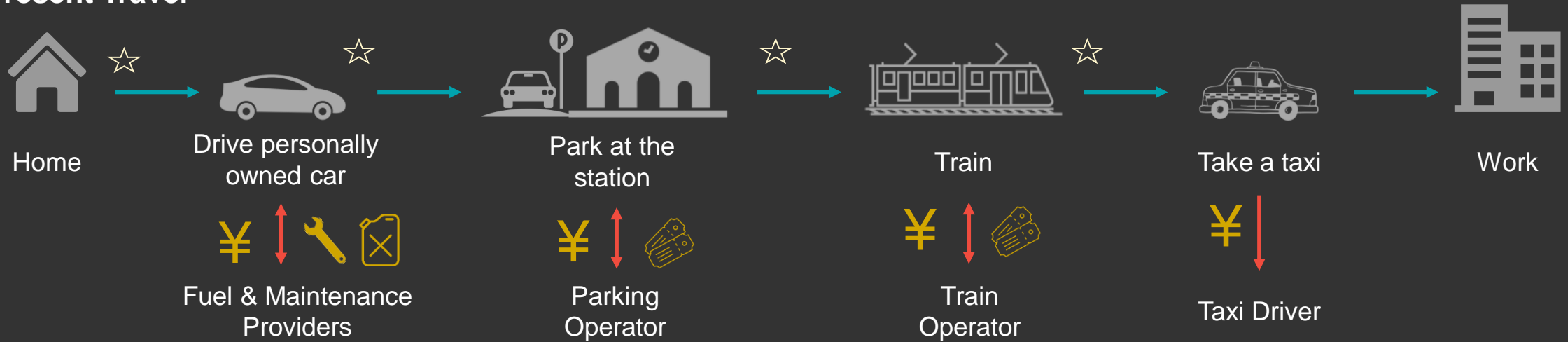


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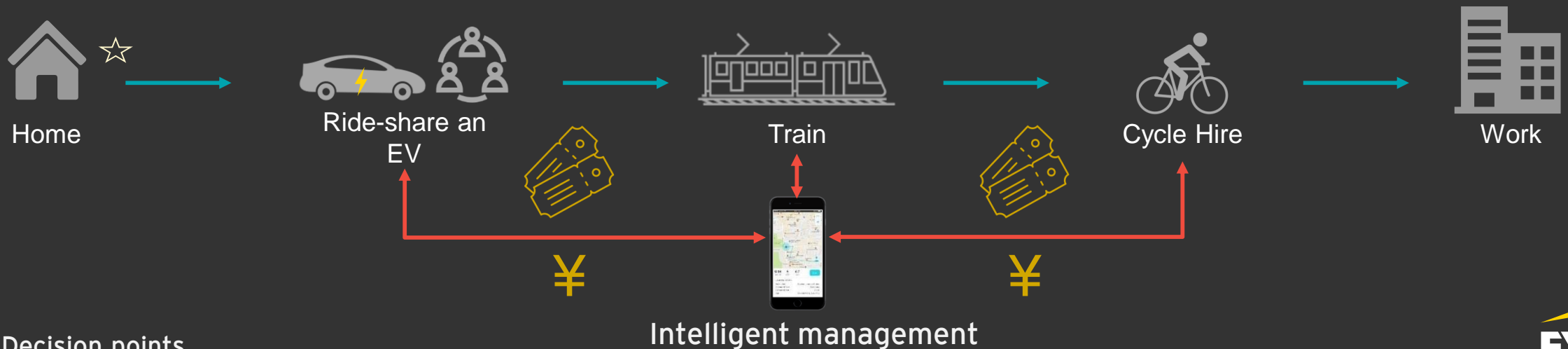


# MaaS potentially offers a far superior way of getting from A to B...

## Present Travel



## Mobility-as-a-Service



☆ Decision points

... with the ability to change necessity into experience....

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## Choice



Less complicated journey  
planning and travelling

## Convenience



Opportunity for greater  
connection

## Productivity



Using previously wasted  
time the way you want



## MaaS can achieve Effective resource allocation.....

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Today, most travellers do not think about their journey beyond the destination

88%

of travellers do not engage in transport modal choice

.....by redefining mobility as an experience...

71%

of SMILE pilot respondents  
tried new routes

Using technology to meet customer need

"Show me"

97%

of Ubigo pilot respondents  
wanted to keep using the  
service after the pilot ended

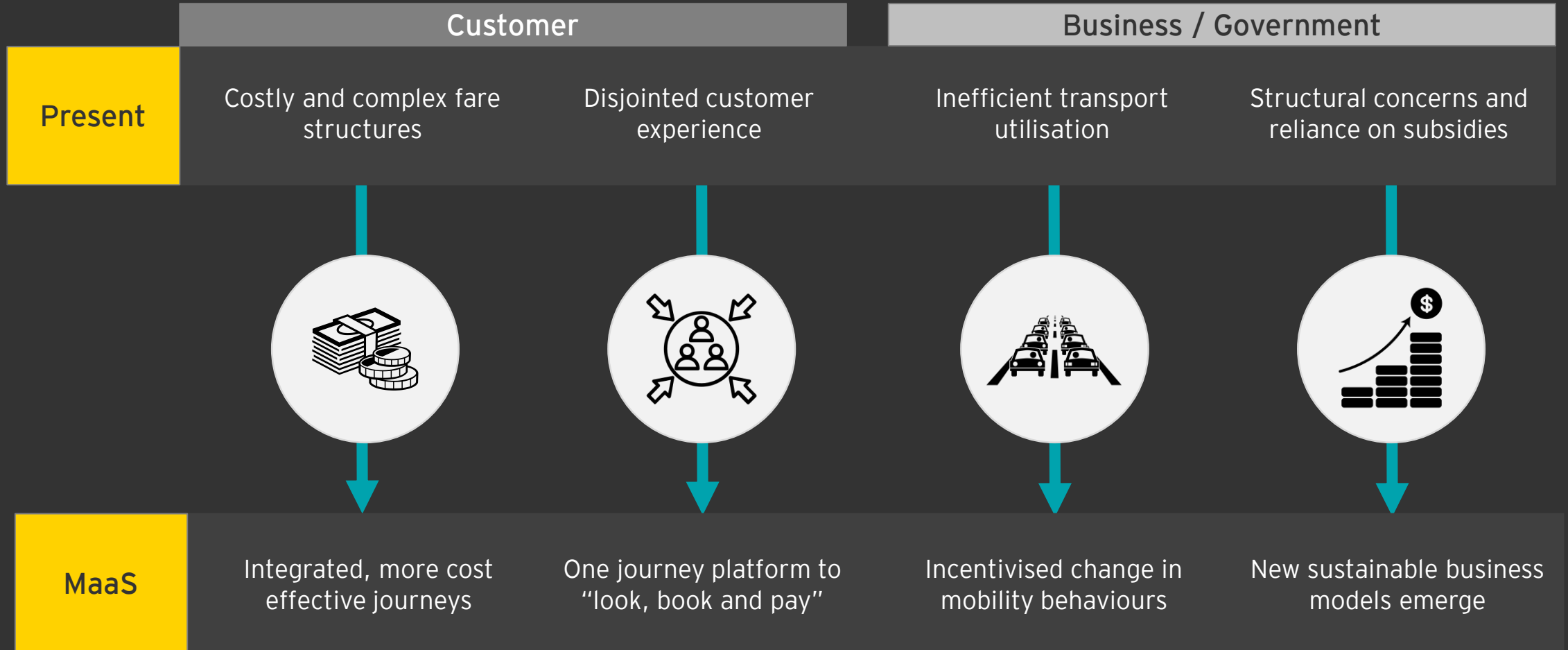
"Tell me"

74%

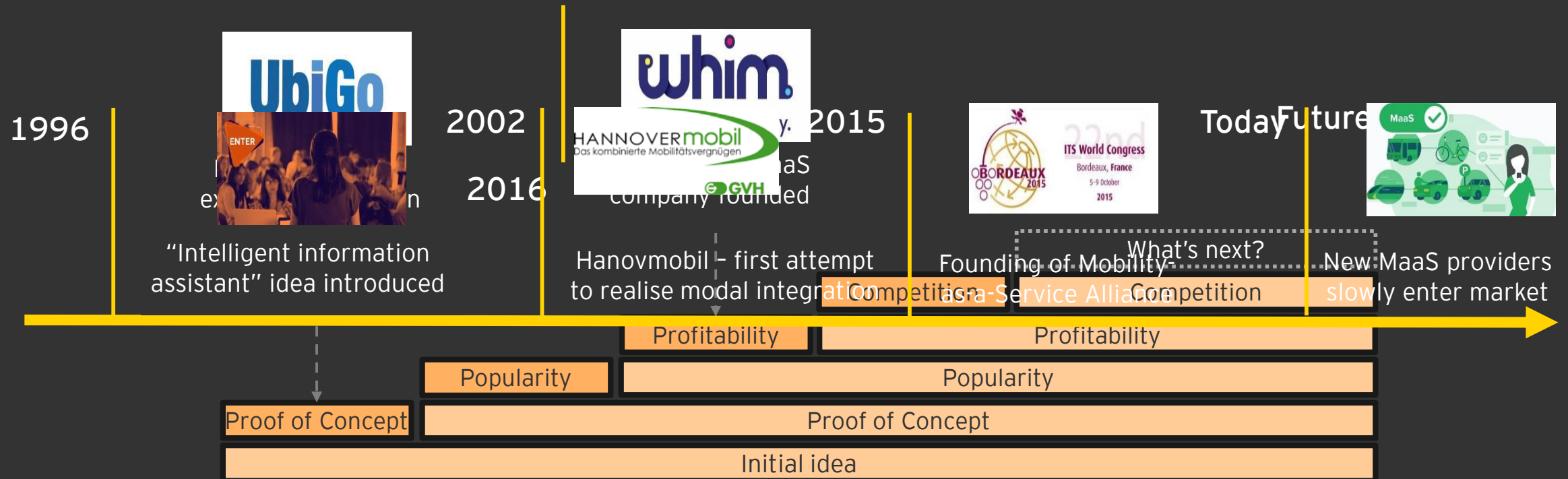
of trips by Helsinki Whim  
respondents involved public  
transport (previously 48%)

"Do it for me"

# ... if it fulfils customer, business and government needs across four areas



..... however incorporation of the first MaaS company has taken over a decade



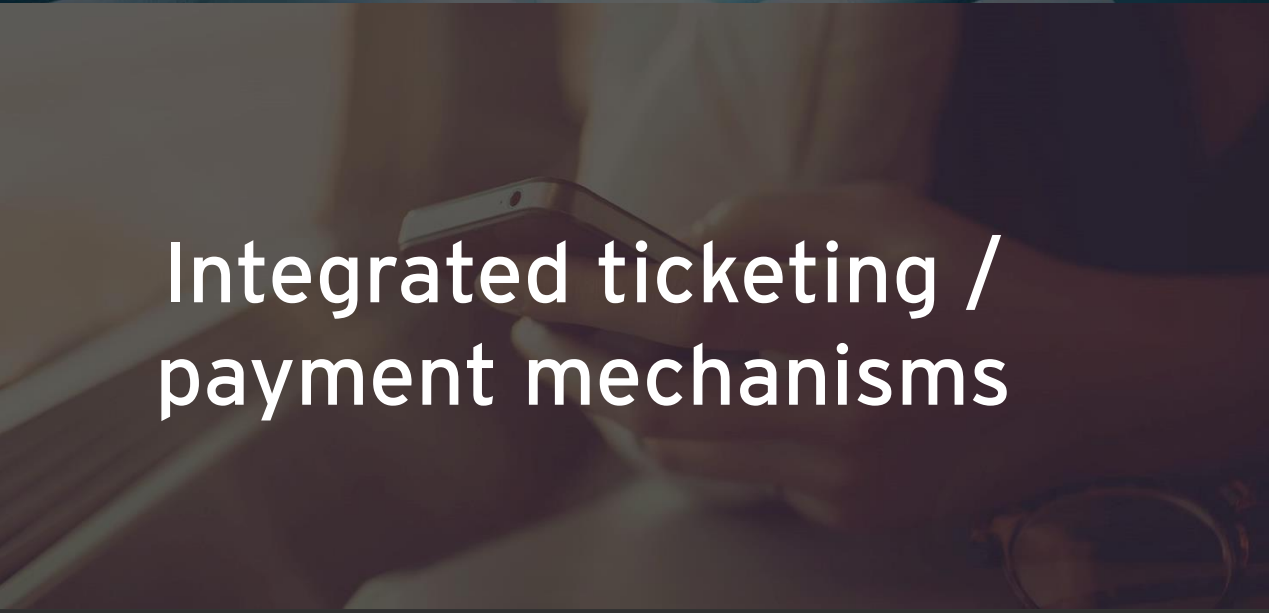
...as each element required by MaaS has the potential to inhibit widespread adoption and development.....



Open data



Effective customer sharing

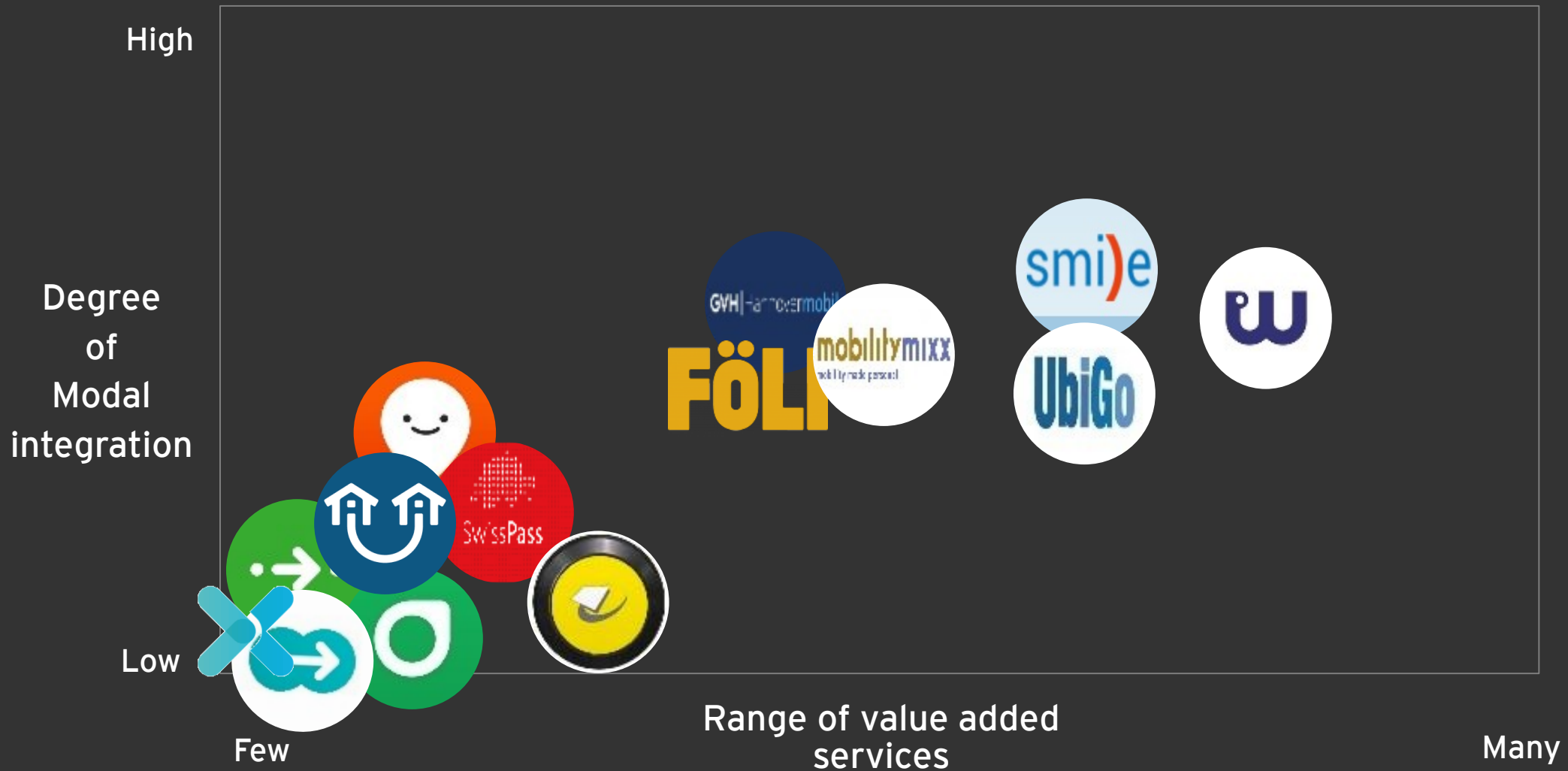


Integrated ticketing / payment mechanisms

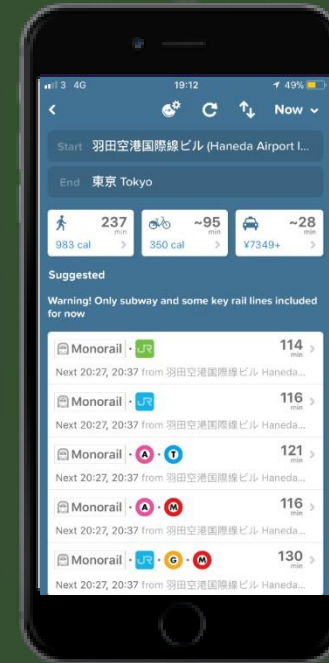
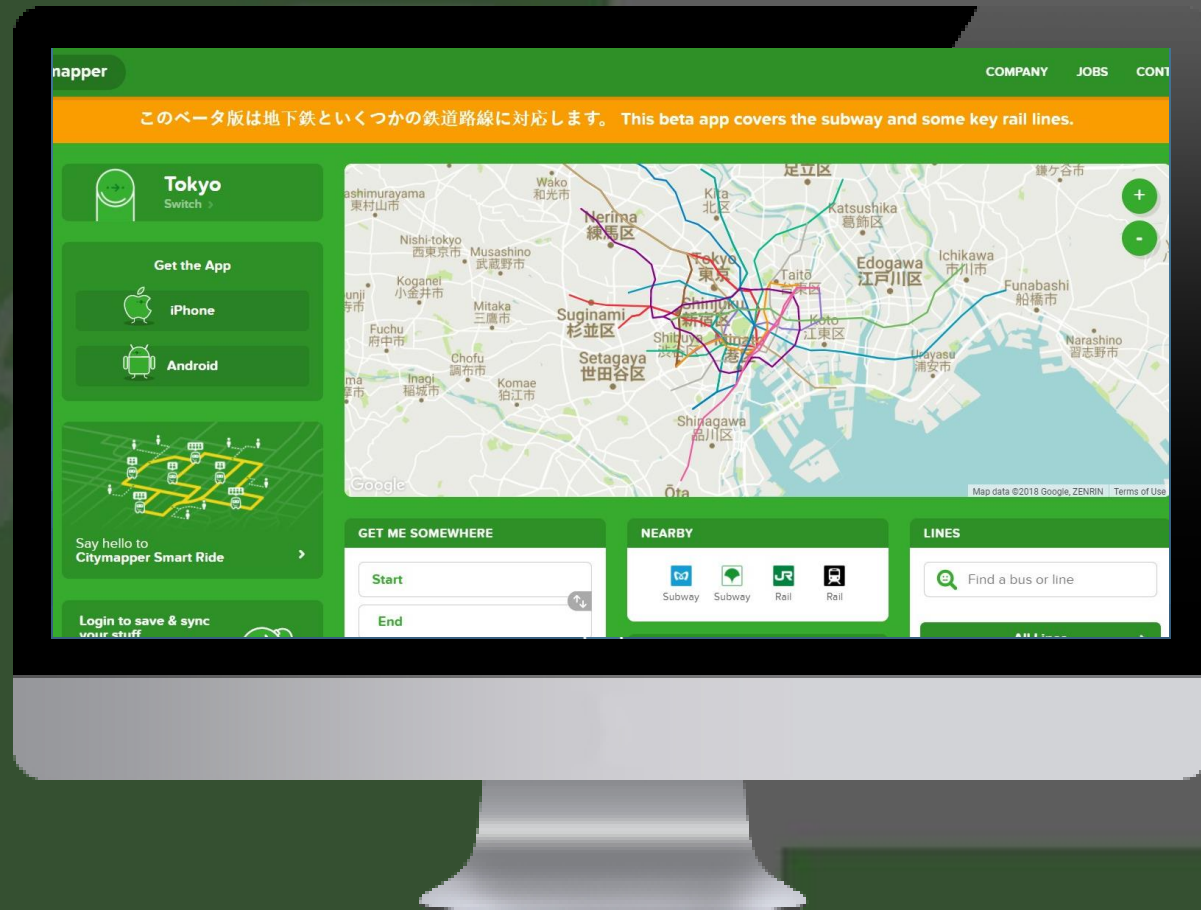


Cross-stakeholder collaboration

.....so a development pattern is beginning to emerge

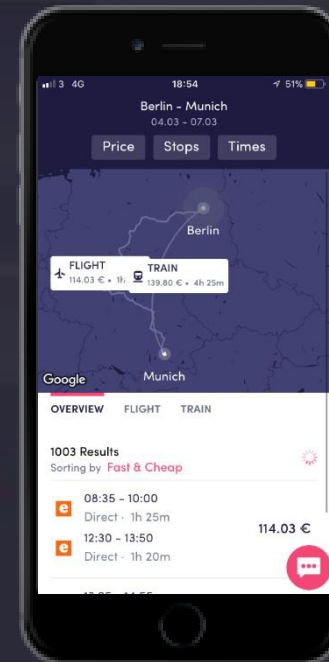
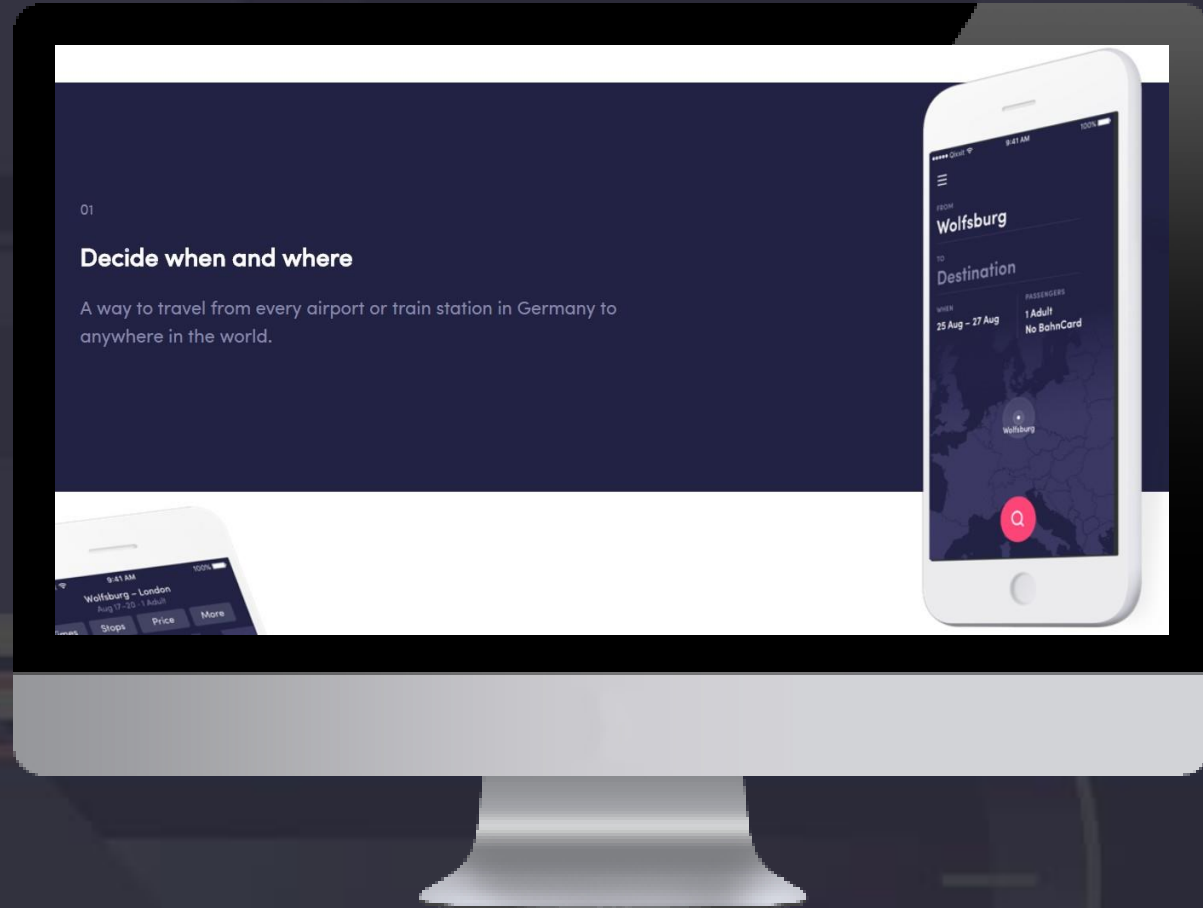


# Citymapper an early entrant demonstrates the intelligent use of today's available data but as yet has not addressed the payments and stakeholder issues



Qixxit is an emerging MaaS offering optimisation booking and payment, but still lacks cross sector collaboration hence ticket integration.....

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# Whim is perhaps the purest example of a MaaS provider today.....

	Whim To Go	Whim Urban	Whim Unlimited
Monthly payment	Free	49€	499€
Local public transport	Pay per ride	Unlimited Single Tickets	Unlimited Single Tickets
Taxi (5km radius)	Pay per ride	10€ per ride	Unlimited
Car	Pay per ride	49€ per day	Unlimited
City Bike	Coming spring 2018	Coming spring 2018	Coming spring 2018
Cancel anytime	✓	✓	✓
<b>Add-ons incl regional HSL</b> ▾			
<b>Add-on</b> Car subscription	✓	✓	✓

[? Help](#)

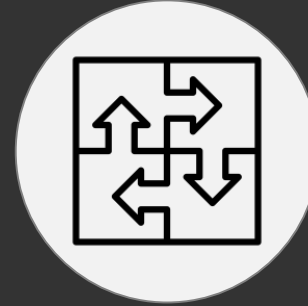
the further development of trends and technology could conspire to overcome today's challenges.....



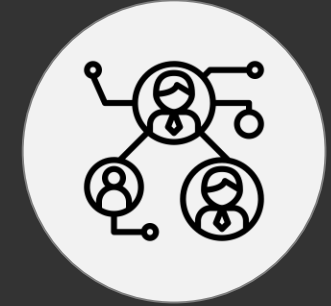
Open data



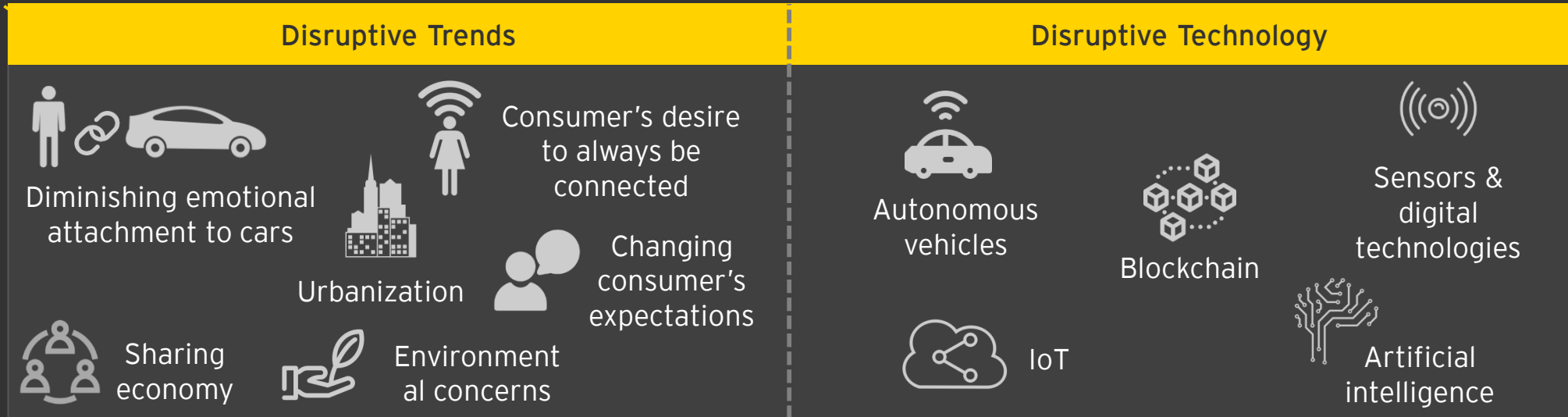
Effective customer sharing



Integrated ticketing /  
payment mechanisms



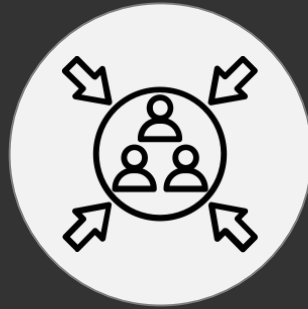
Cross-stakeholder  
collaboration



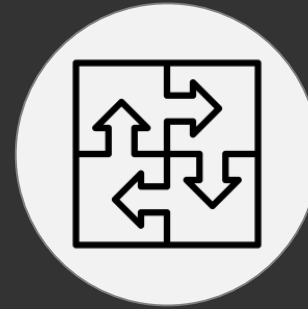
Of these blockchain has the potential to provide trust that can enable effective customer engagement and sharing and cross industry collaboration...



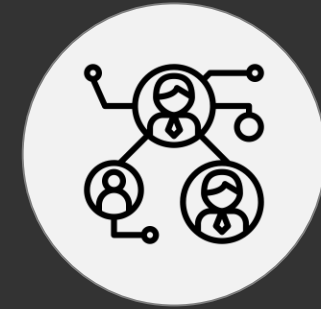
Open data



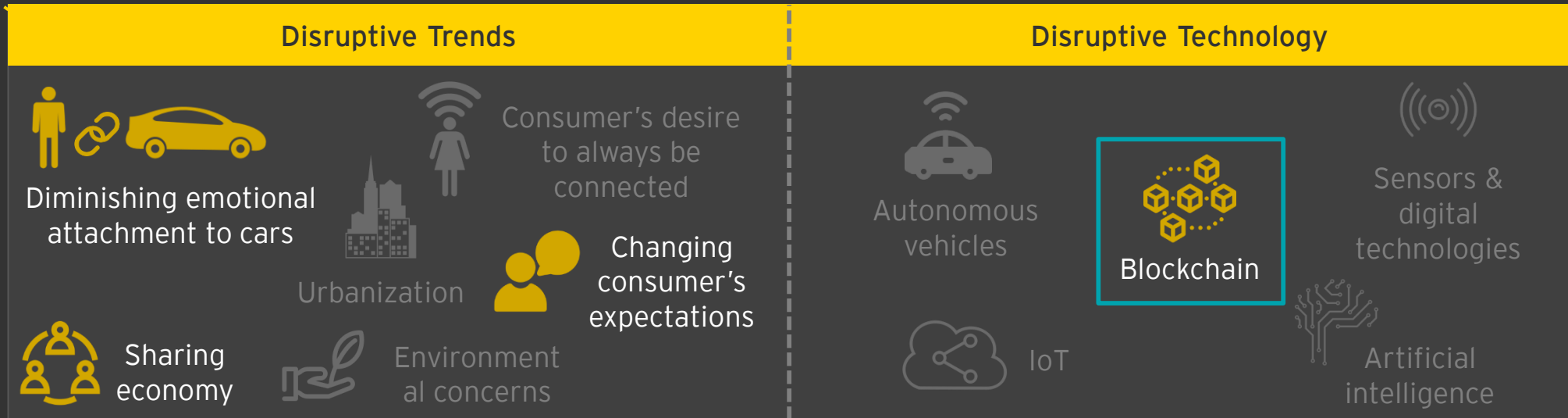
Effective customer sharing



Integrated ticketing /  
payment mechanisms



Cross-stakeholder  
collaboration



# Four key features underpin Blockchain...



Distributed  
ledger



Open Source  
design



Cryptocurrency  
capability

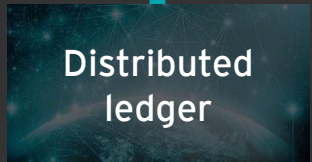


Smart  
Contracts

... it therefore presents unique value in solving MaaS' biggest challenges



Open data



Distributed ledger

Secure, validated data eases sharing concerns

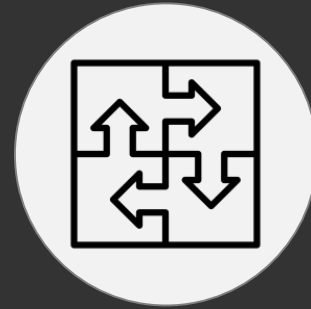


Effective customer sharing



Open source design

Enables brand customisation on white label platforms

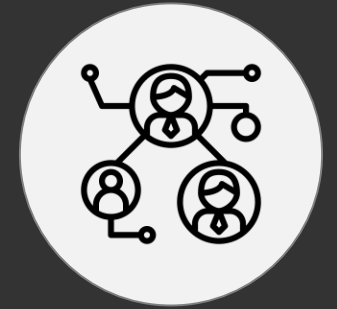


Integrated ticketing / payment mechanisms

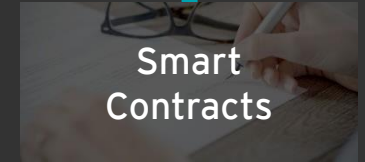


Cryptocurrency capability

Automated payments to cross border / modal transport operators



Cross-stakeholder collaboration



Smart Contracts

Defines and tracks liability points across journeys

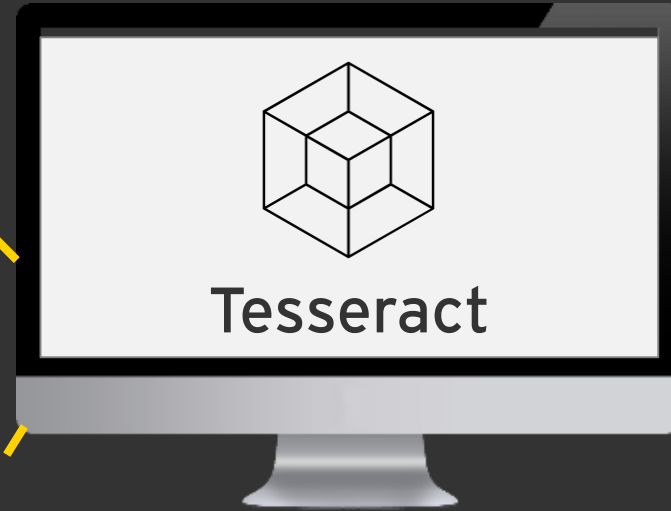
.....Tesseract is an example of a blockchain based MaaS solution which we are exploring to develop the MaaS promise, however this is purely a technology solution....



Ethereum based Smart Contracts have been compiled



White label platform for client customisation

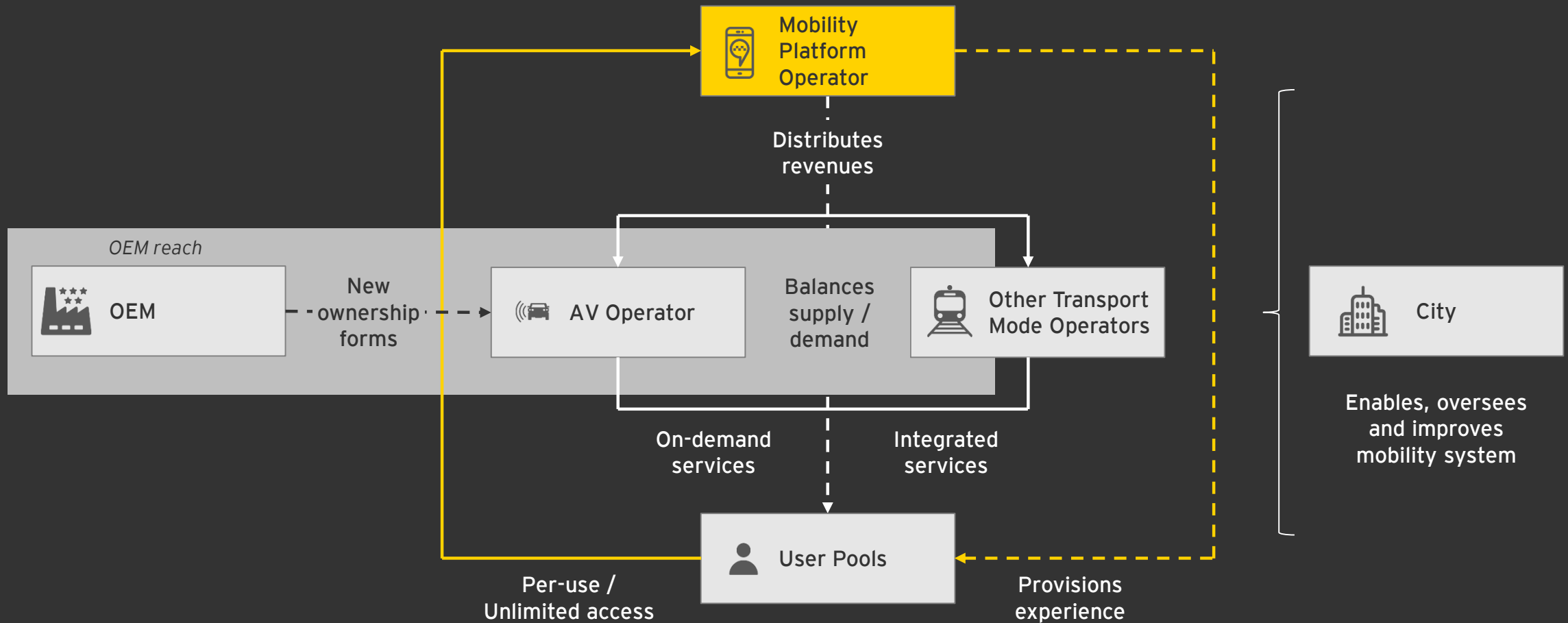


In experimentation, supporting 500 users

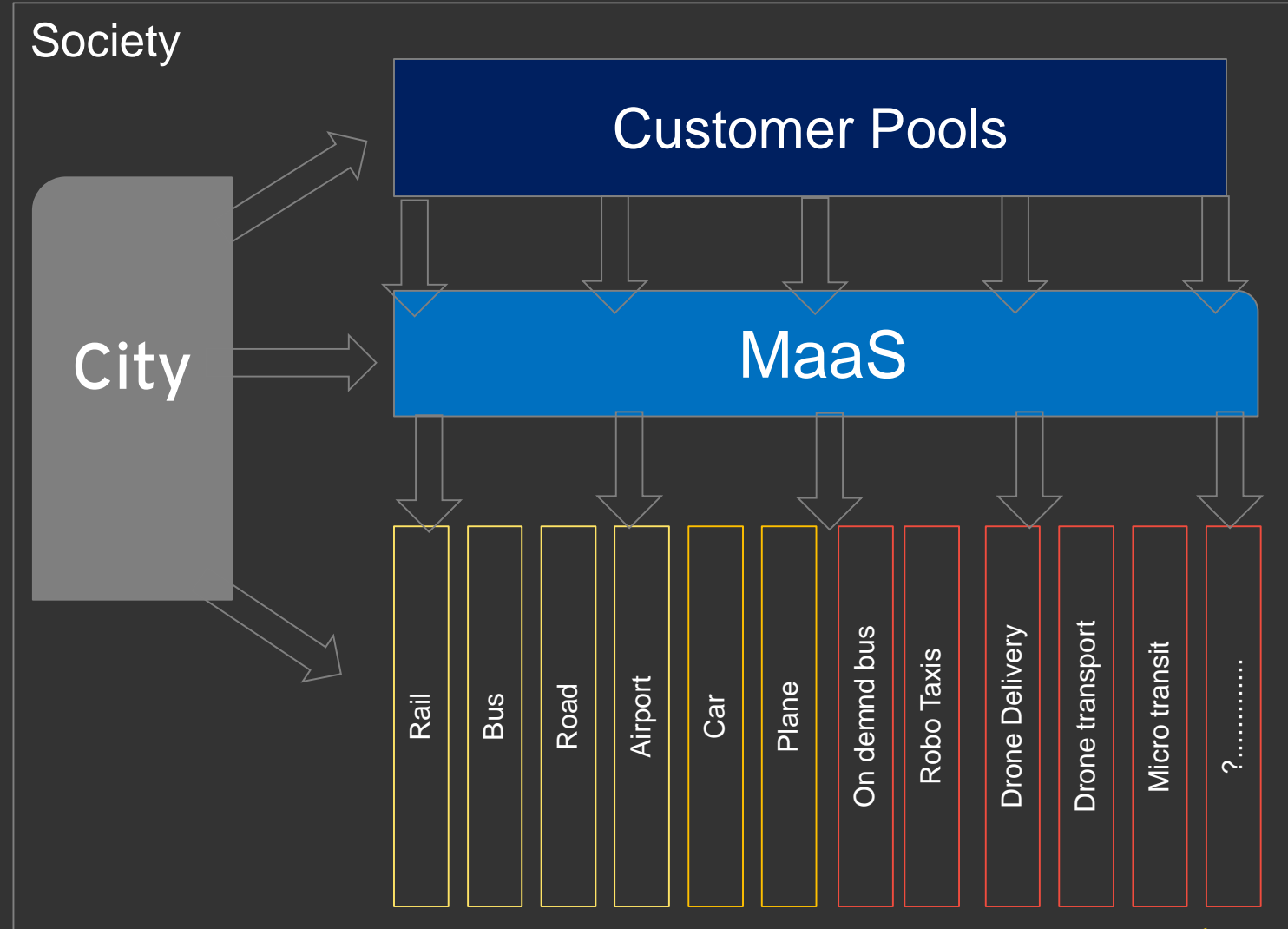
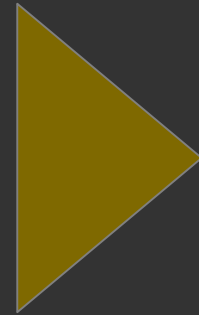
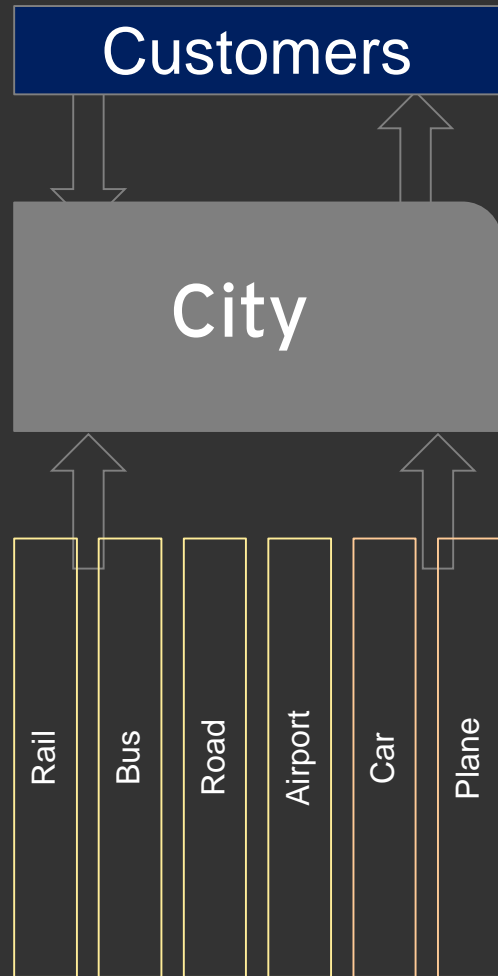


Being developed using our cross sector network and experience

...if the future of mobility will develop as a market in this way...



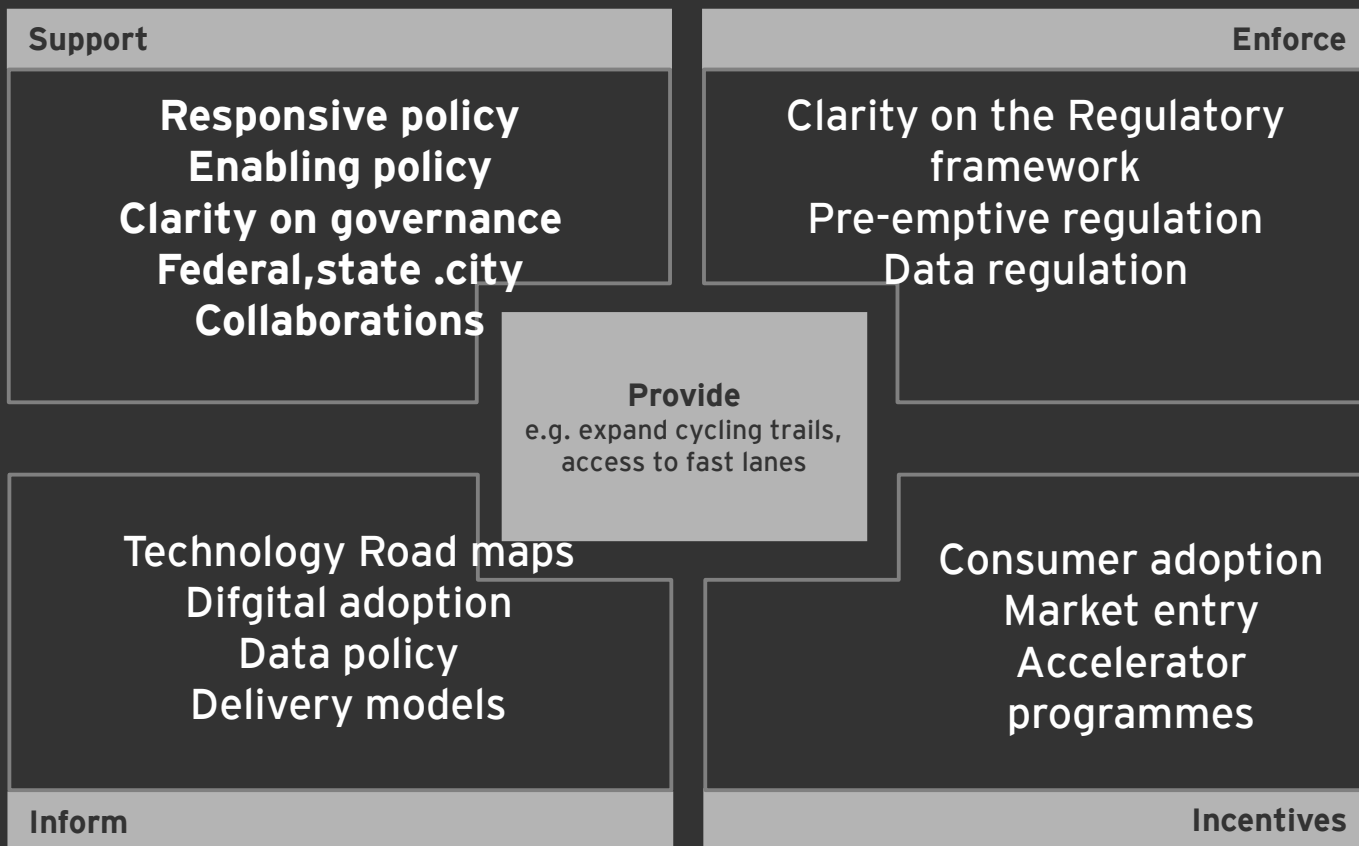
.... this represents a fundamental change from a command and control transport system to fully activate this market for mobility



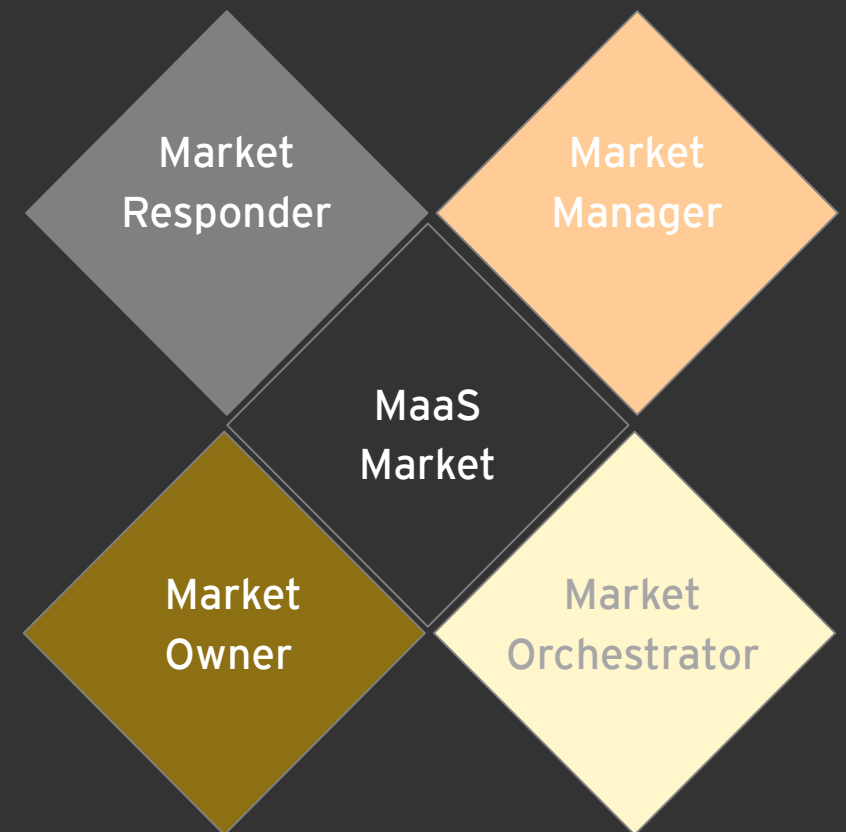


....to achieve this cities, their planners and policy makers will need to manage the opportunity and to choose the role or roles they want to play

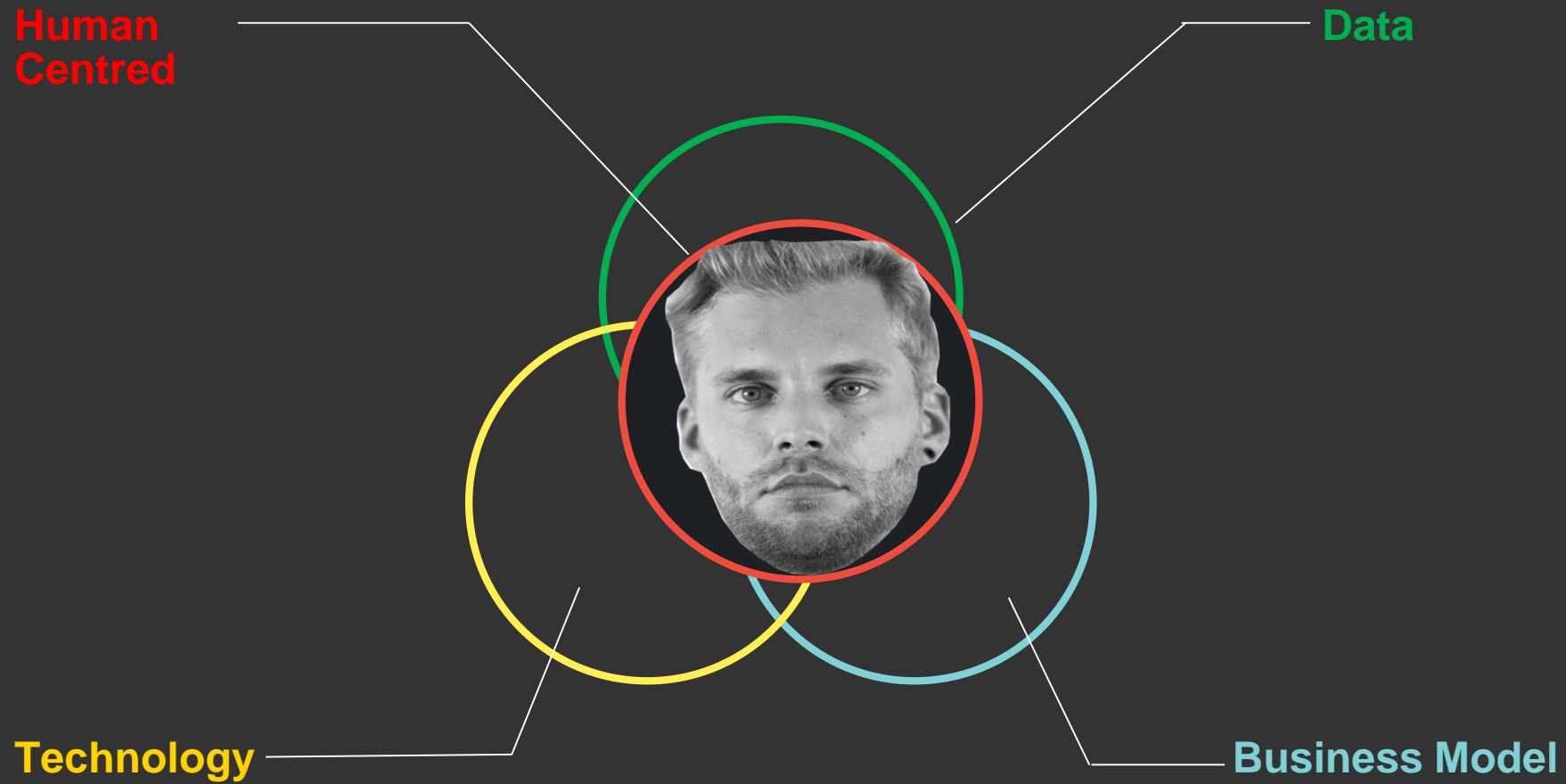
### Five areas of opportunity for Cities and Transport Planners



### Four Potential Roles



...but most importantly don't forget the human in all of this.....



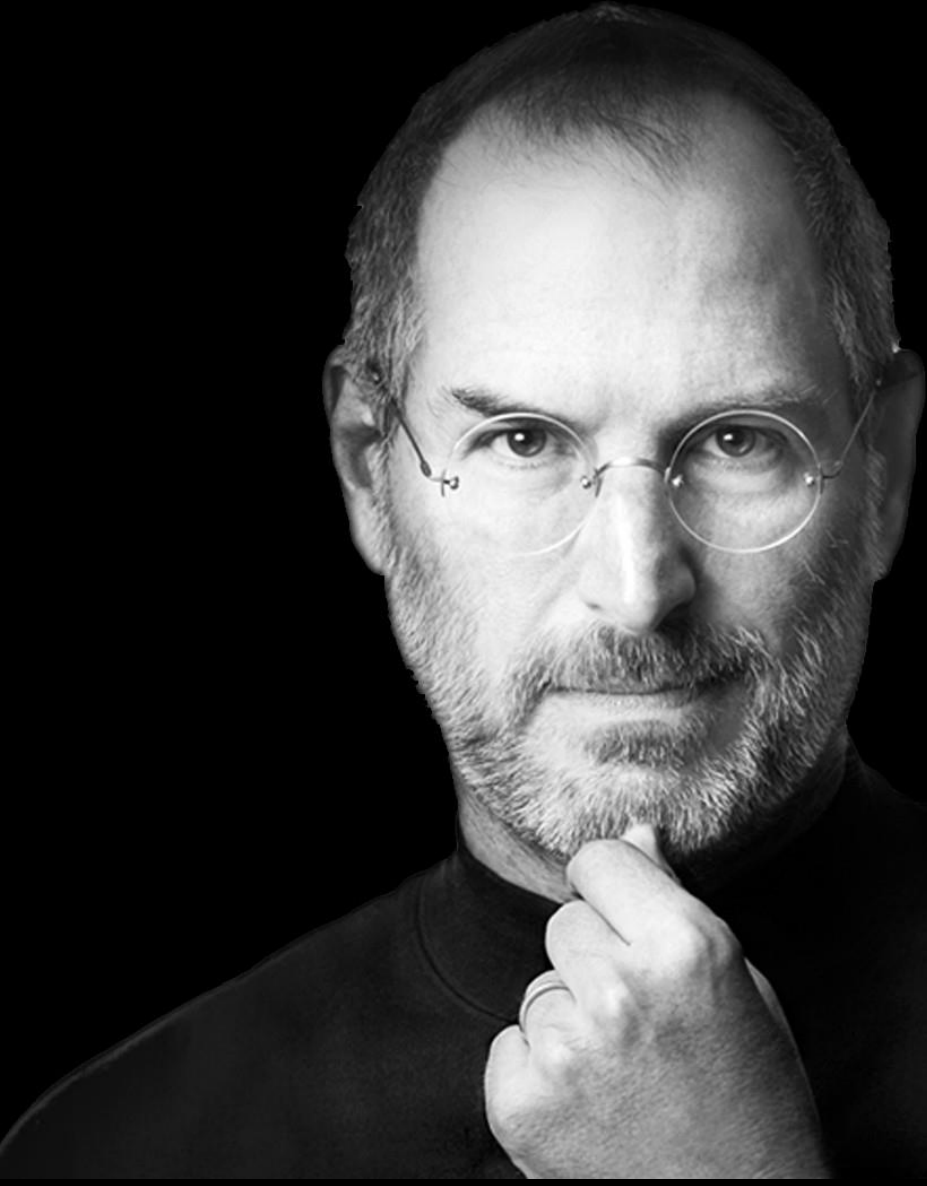
.....just cast your mind back to 2001...

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Apple did not **revolutionise** the music industry through **technology** alone, they **reinvented** the **customer experience**

The bottom line is...

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“Technology **alone** is **not**  
**enough**”

- Steve Jobs, 2010



# Thank you

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