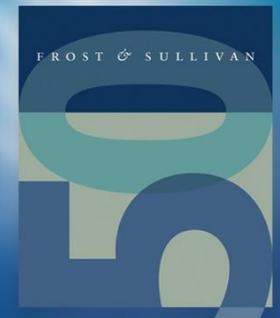


# Urban Mobility redefined: The mobility landscape today and a view towards the horizon

*Shwetha Surender,  
Industry Principal  
Frost & Sullivan*



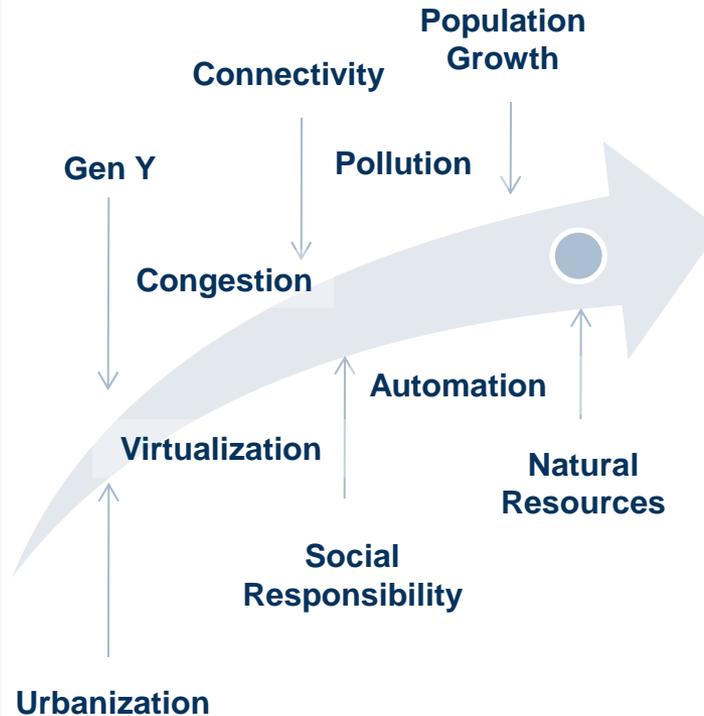
# Paradigm Shift from Vehicle Ownership to Vehicle Usage



## Transport = Private Vehicle

- Freedom
- Convenience
- Status
- Progress
- No Real Alternative

## Mobility Integration: Paradigm Shift from Vehicle Ownership to Vehicle Usage

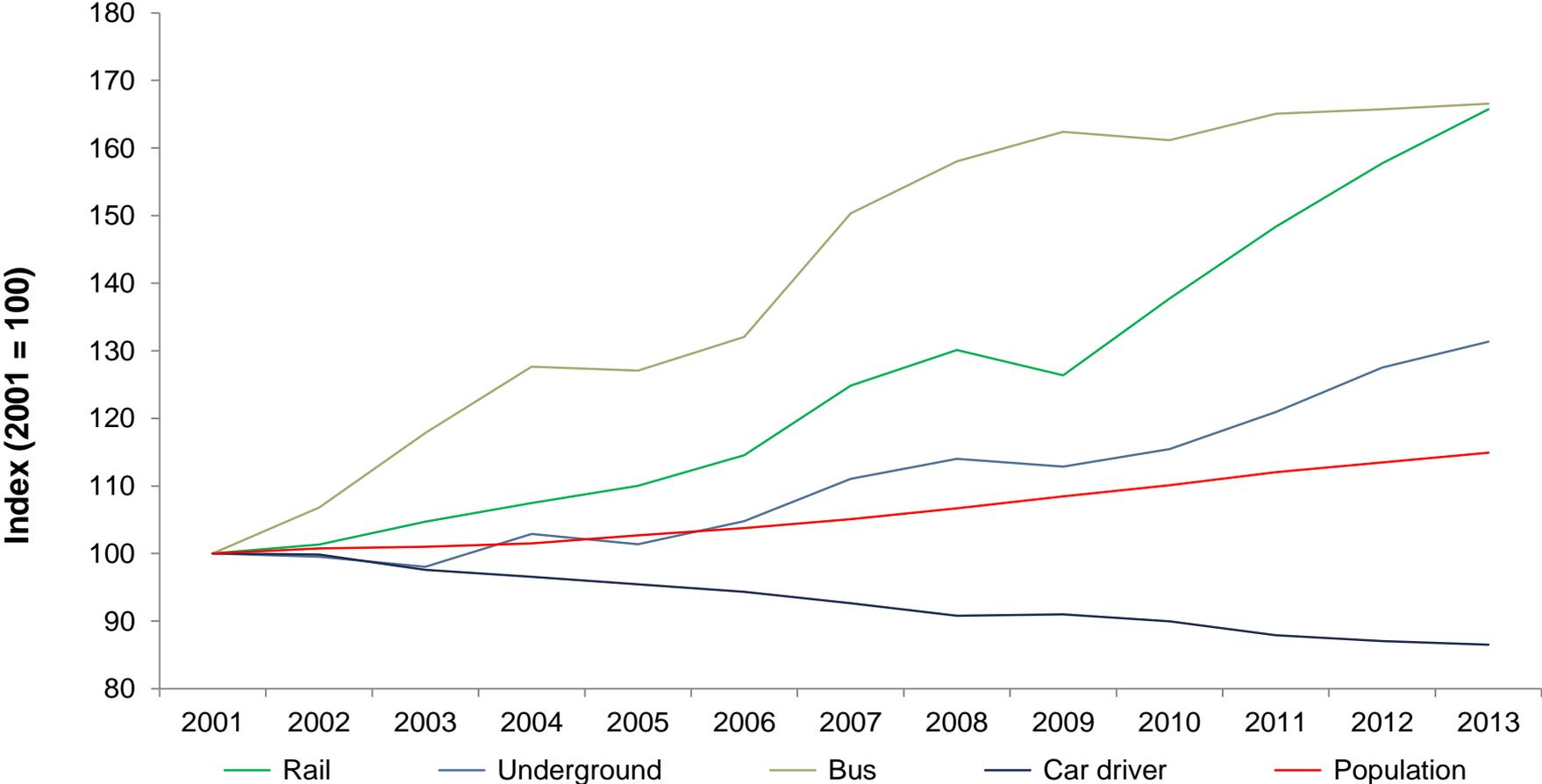


## Transport = Door-to-door Mobility

- **New Vehicles:** BRT, EV, High Speed Rail
- **New Business Models:** Vehicle Sharing, Car Pooling
- **Inter-Connectivity:** Inter-modality
- **Urban Planning:** Transport Integration
- **Integrated Mobility:** Mu, Multicity, NS Business Card, Mobility Mixx, Avego

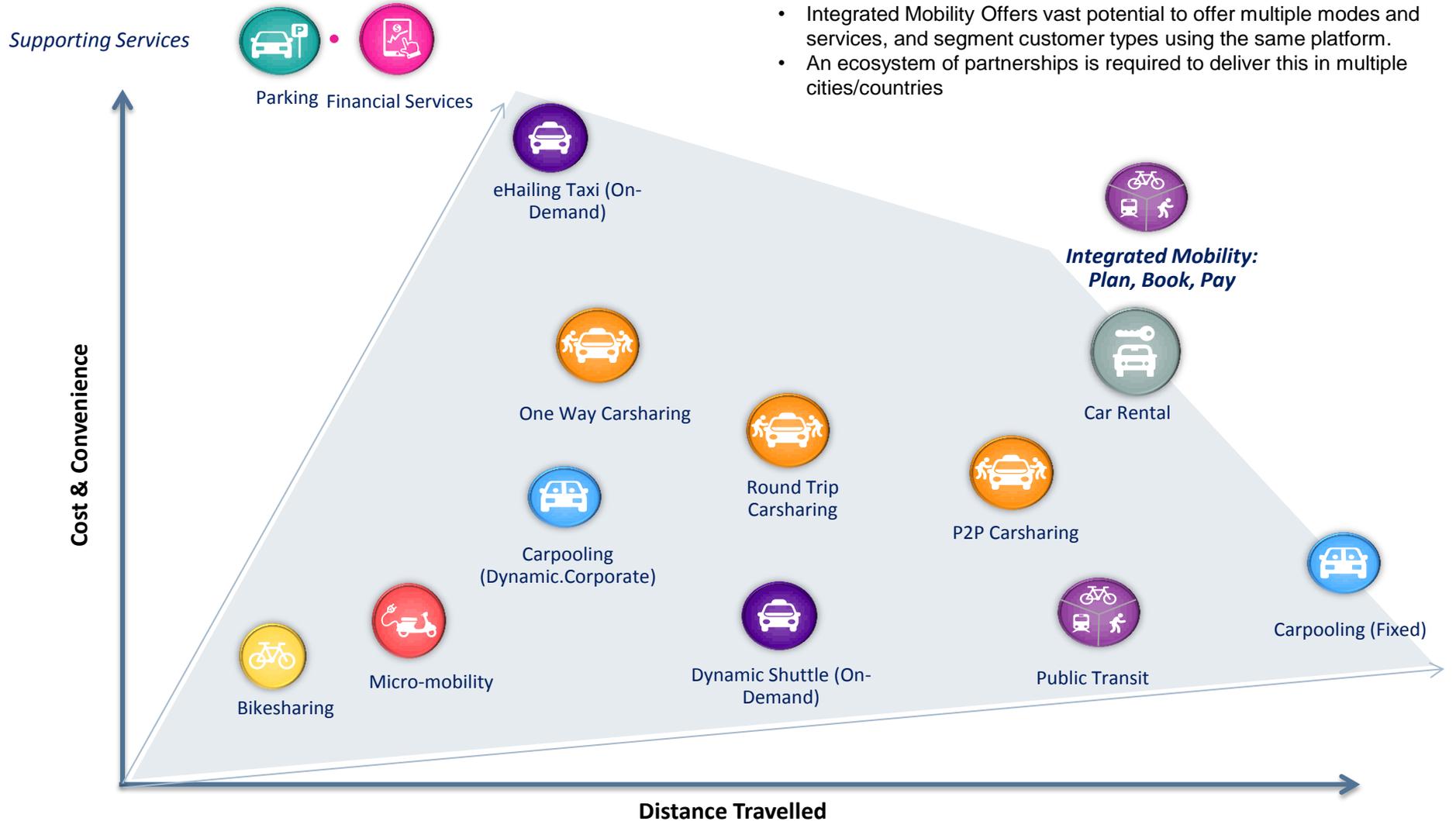
# Decrease in use of Private Transport

London, 2001 to 2013



Source: TfL Travel in London Report 7, 2014

# The Emerging Urban Mobility Landscape



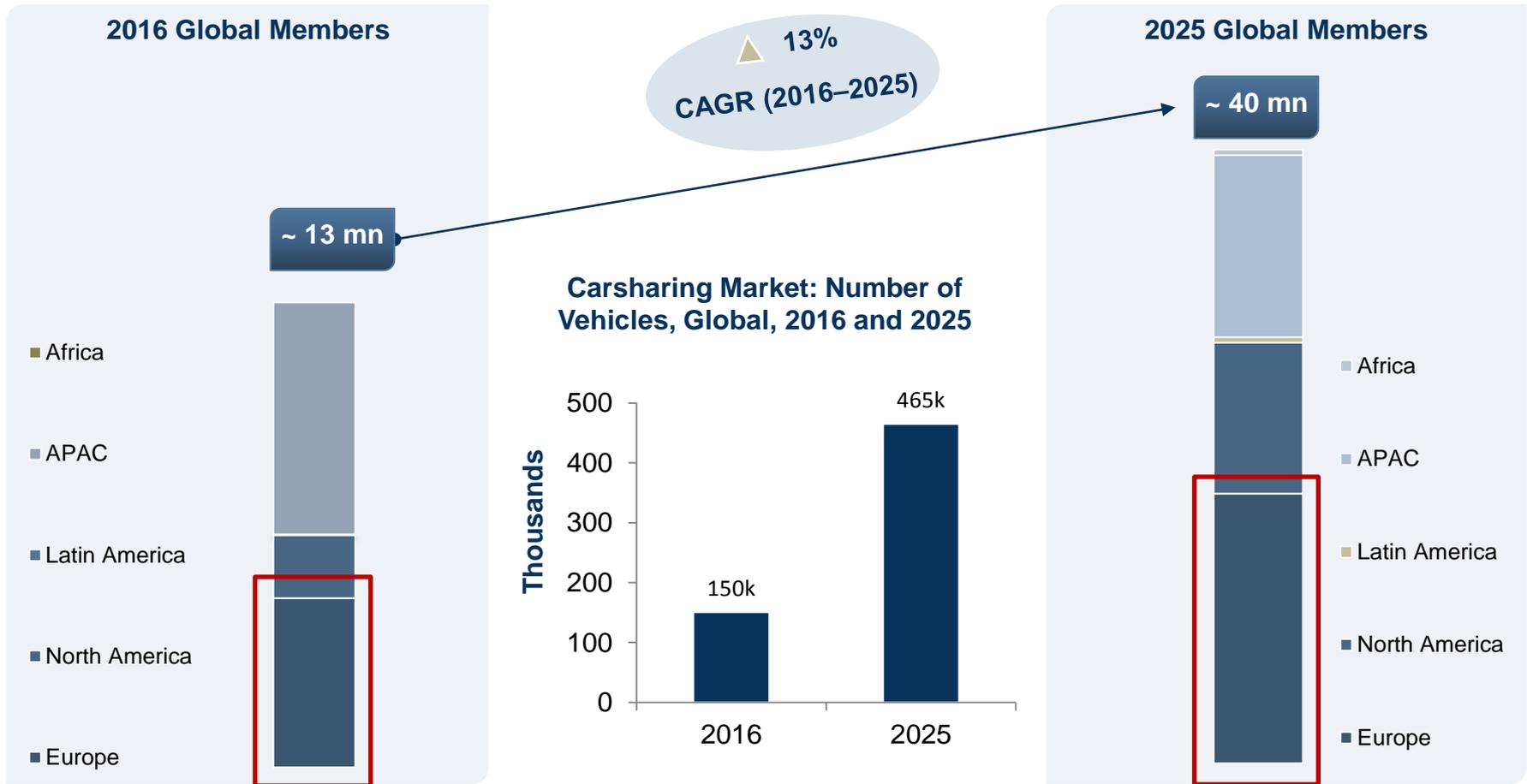
- Integrated Mobility Offers vast potential to offer multiple modes and services, and segment customer types using the same platform.
- An ecosystem of partnerships is required to deliver this in multiple cities/countries

Source: Frost & Sullivan

# Carsharing Members & Vehicles - Global Forecast

Revenue from the global carsharing market is expected to grow at a CAGR of 17%.to around \$9 bn in 2025 from the current \$2 bn in 2016.

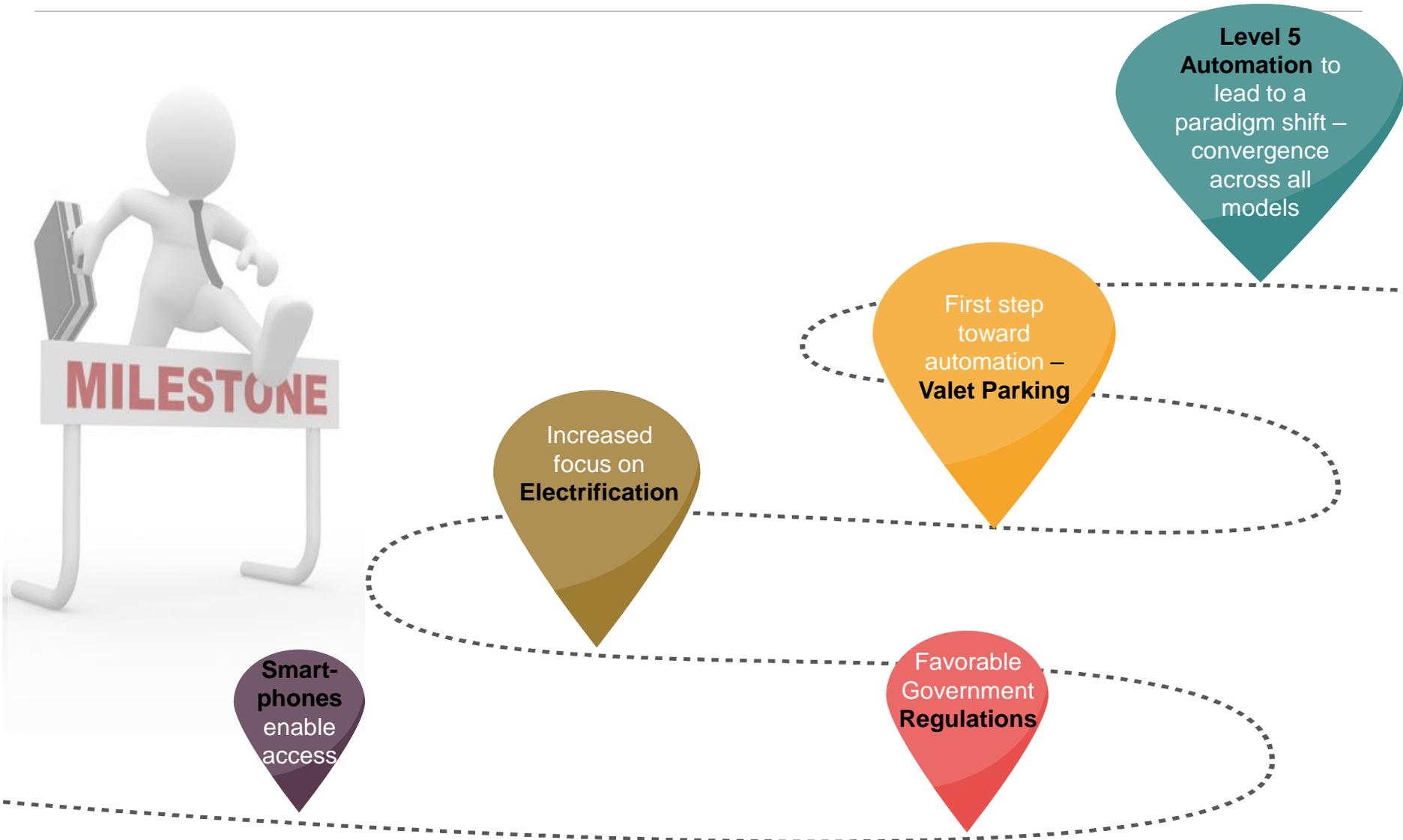
## Carsharing Market: Members and Vehicles, Global, 2016 and 2025



Note: All figures are rounded. The base year is 2016. Source: Frost & Sullivan

# Key Milestone in the Carsharing Market

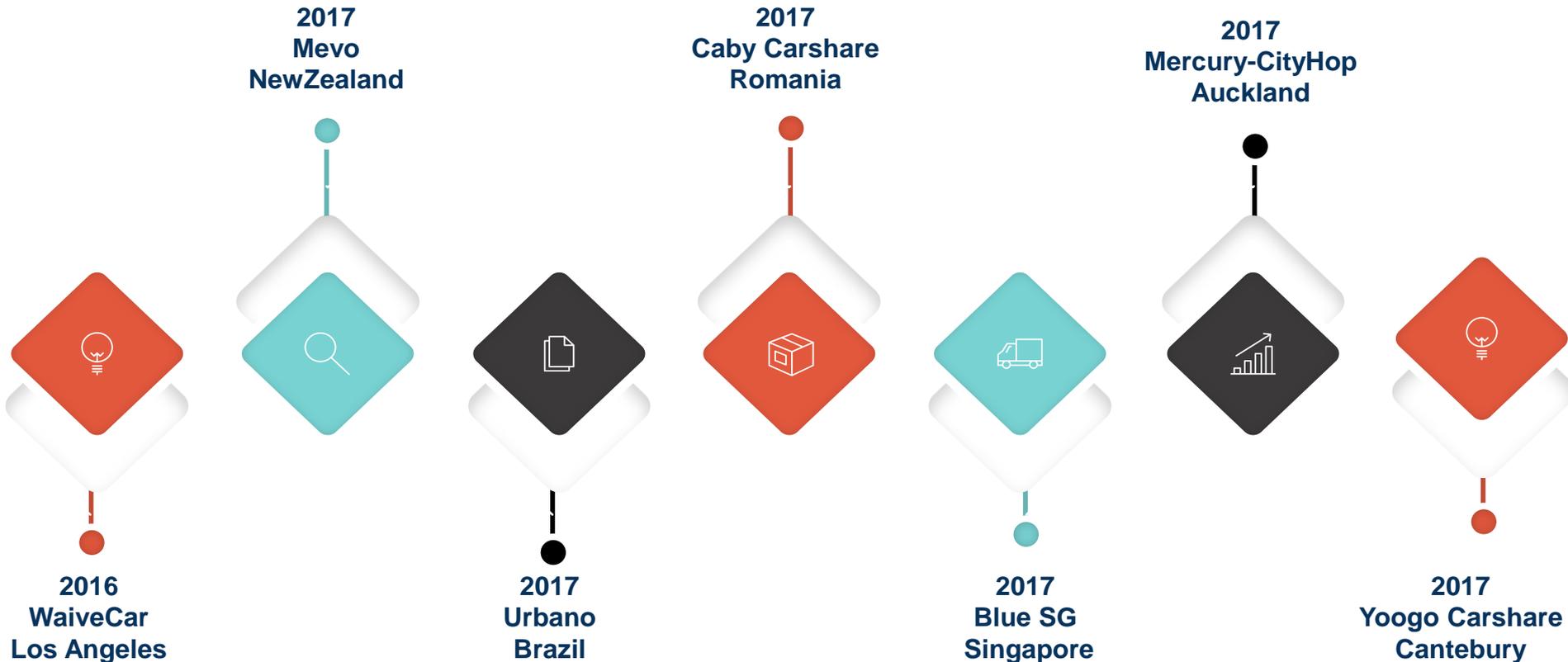
Favourable regulations, interest from OEM's, Investments and advanced technologies will be key drivers for the carsharing market



# Proliferation of Electric Vehicles in Carsharing

Electric vehicles costs decrease and increase driving range will show a growing number of CSOs to see the benefits in terms of profit, and the adoption of ideal mix of EVs into their fleet

Close to 7 EV carshare programs have launched in the past one year globally. Technology players like Vulog, RideCell are facilitating quick launch of carsharing programs



Over 1.4 million charging stations to be installed across Europe by 2020, with Germany, France, and UK expected to have over 50% of the installations. Establishment of charging infrastructure to enhance the range of travel and ease of EV usage

# Ridesharing – The Next hot Social Trend

Tax benefits, HOV lanes, and partnerships with transit agencies could all stand to encourage more Americans to carpool.

## Ridesharing Members, EU & NA



## Ridesharing Revenue, EU & NA



## Acquisitions & Investments



Investment through BMW iVentures



Acquired Fling

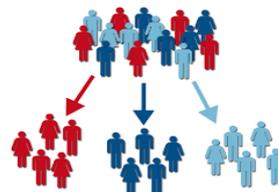


Investment through InMotion Ventures

## Market Trends & Key Players



### Carpooling for Specific Segments



### Pre-paid Commuter Programs



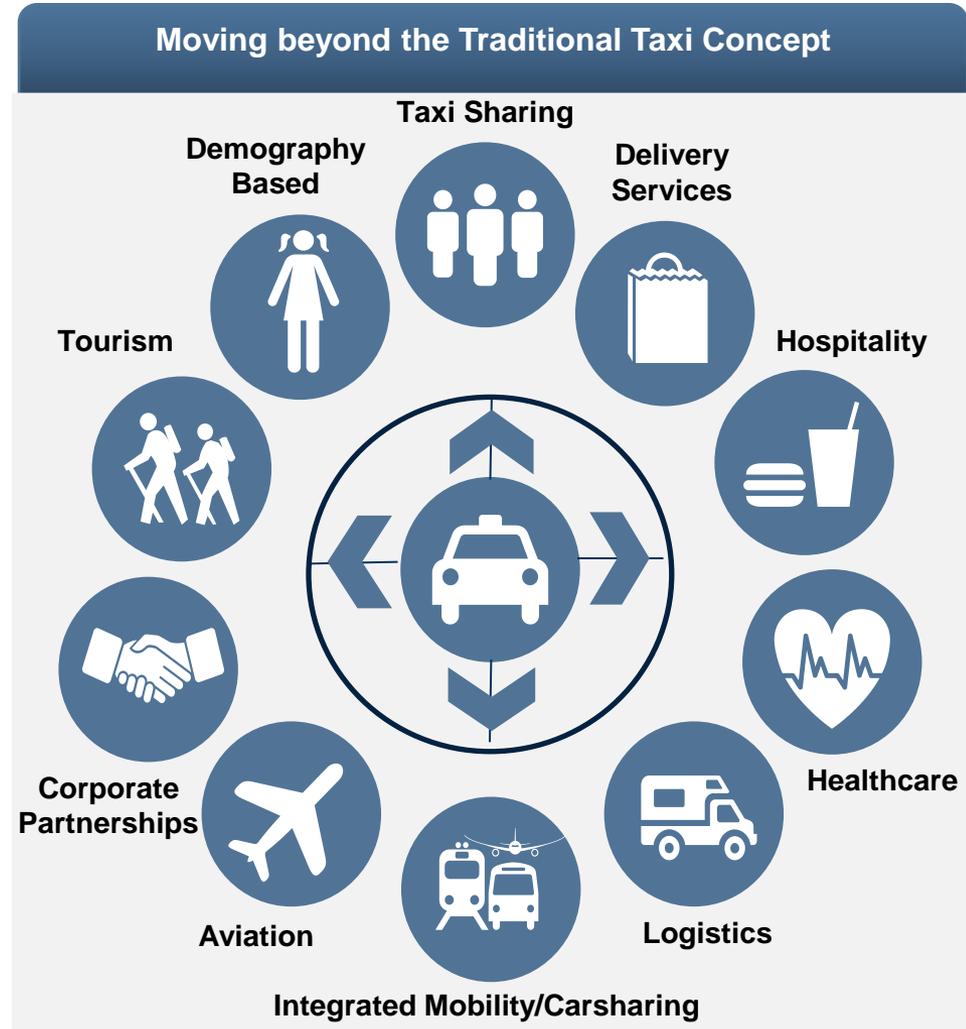
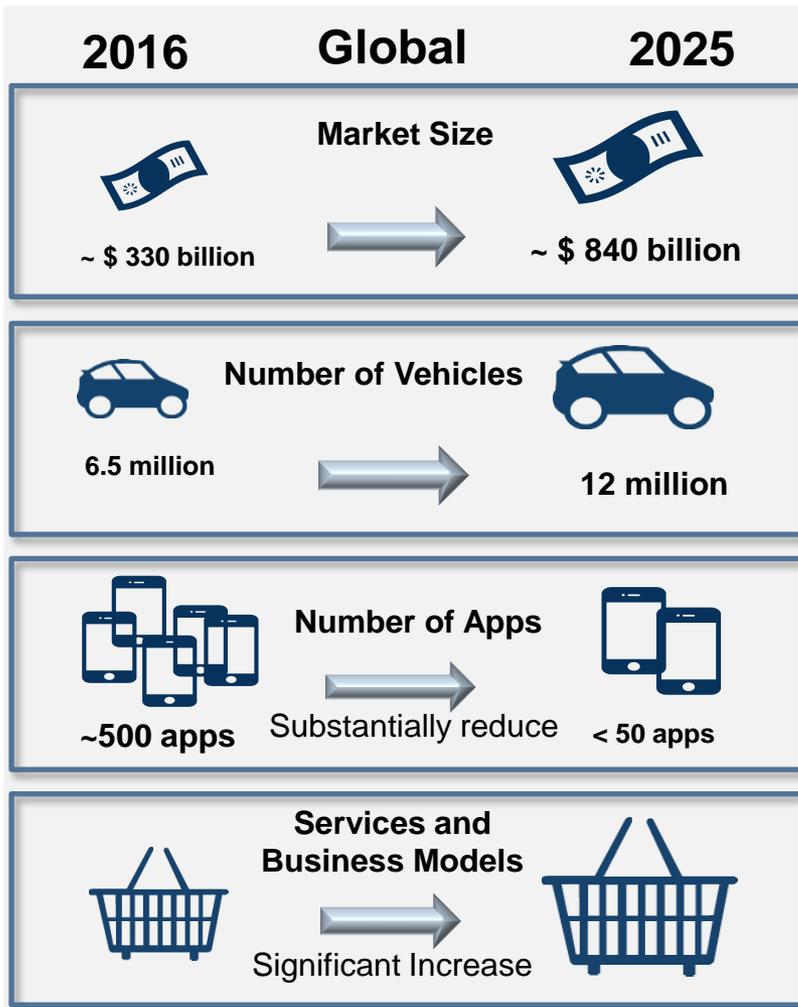
### Government Rewards/Incentives



Source: Frost & Sullivan

# Proliferation of the e-Hail Concept

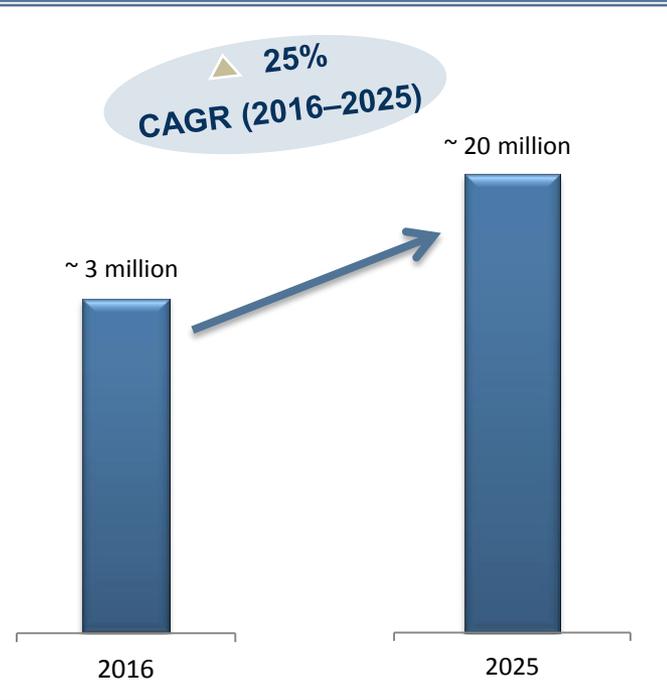
e-Hailing is expected to penetrate the taxi industry, catalyzed by a growing online population, government initiatives, evolving regulations, offering convenience, bundled services



# Market Trends in Bikesharing

Several city councils in Europe have awarded tenders for BSS to be implemented. The UK and Italy could have the highest addition to their existing BSS schemes by 2018.

## Bikesharing Carsharing Fleet Size, Global



## Market Revenues, Global

2016  
\$ 1 billion

2025  
\$ 12 billion

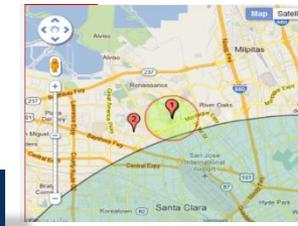
### eBikes



### Mobile Docking Stations



### Improved Distribution



### Common payment systems across transit modes



### Advanced Technologies



# Trends in Demand Responsive Shuttles Market

The demand responsive shuttle market is witnessing rapid transformations that is being accelerated by a wide range of stakeholders



# Potential Size of the Prize

Value of Mobility  
Services  
**€860 billion**  
2016

Value of Mobility  
Services  
**€2 trillion**  
2025

# OEM's Shift Towards CaaS - Future proof the business

Car companies are evolving from the business of manufacturing & selling just cars, to providing related services, and multi-modal mobility solutions to target new customers

OEM	Drive Yourself Business Models				Be-driven Business Models				Integrated Mobility	Smart Parking		eMobility	Delivery Services
	One-way CS	Two-way CS	P2P CS	Corp. CS/Flexible Leasing/Rental	Ride sharing	Taxi Hail	Bike sharing	Bus/Shuttle Transit		Parking Mgmt.	P2P Parking	Charging	
Daimler	✓		✓✓	✓	✓	✓✓		✓	✓	✓✓	✓✓	✓	✓✓
BMW	✓		✓	✓	✓✓	✓✓			✓	✓	✓	✓✓✓	
Audi		✓		✓✓									
Hyundai	✓	✓											
VW		✓		✓		✓		✓	✓	✓	✓	✓	
Ford		✓✓	✓✓	✓			✓	✓✓	✓	✓✓			
Groupe PSA	✓✓✓		✓	✓✓						✓			
Renault-Nissan		✓✓✓		✓							✓	✓	
Toyota	✓	✓	✓	✓		✓✓							
Honda	✓	✓											
GM	✓	✓	✓	✓	✓	✓✓	✓						
FCA	✓			✓									
Volvo		✓		✓									✓
JLR		*✓	*✓		*✓✓	*✓							*✓

✓ Own Initiative (either through subsidiary or by themselves)

✓ Investment through VC arm

✓ Strategic partnership with investment

✓ Collaboration without investment

✓ Supplier relationship

Source: Frost & Sullivan

# Roadmap towards Integrated Mobility



## Integrated Mobility

Source: Frost & Sullivan

### Journey Planning



Multi Modal Planning of journeys via smartphone or web platforms (business model: usually advertising or commissions)

### Booking



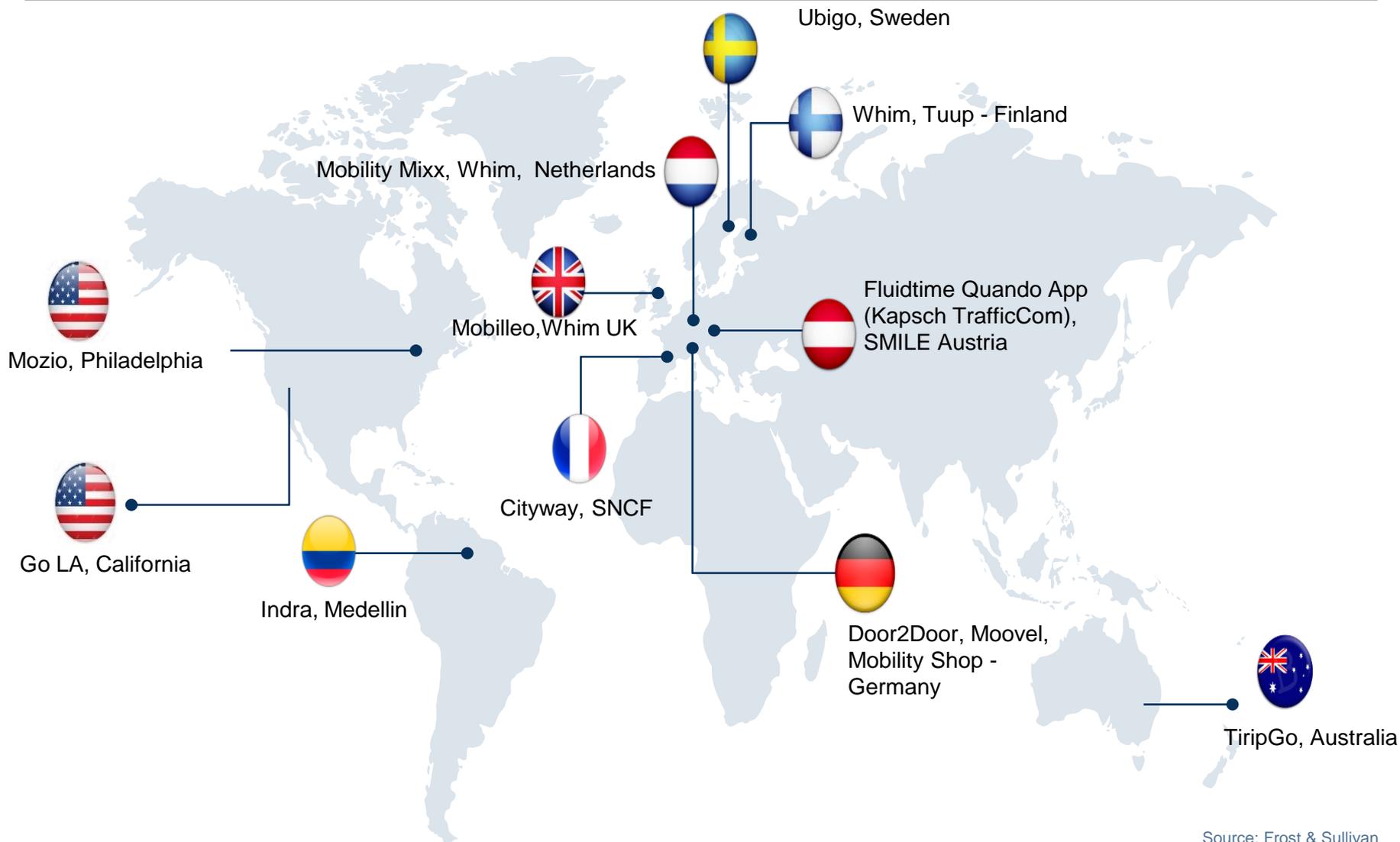
Booking of transportation modes via technology platforms, including referrals from third parties (business model: direct revenue or commission)

### Payment & Reconciliation



Facilitating payment for transportation services and clearing / expense management (business model either commission or service fees)

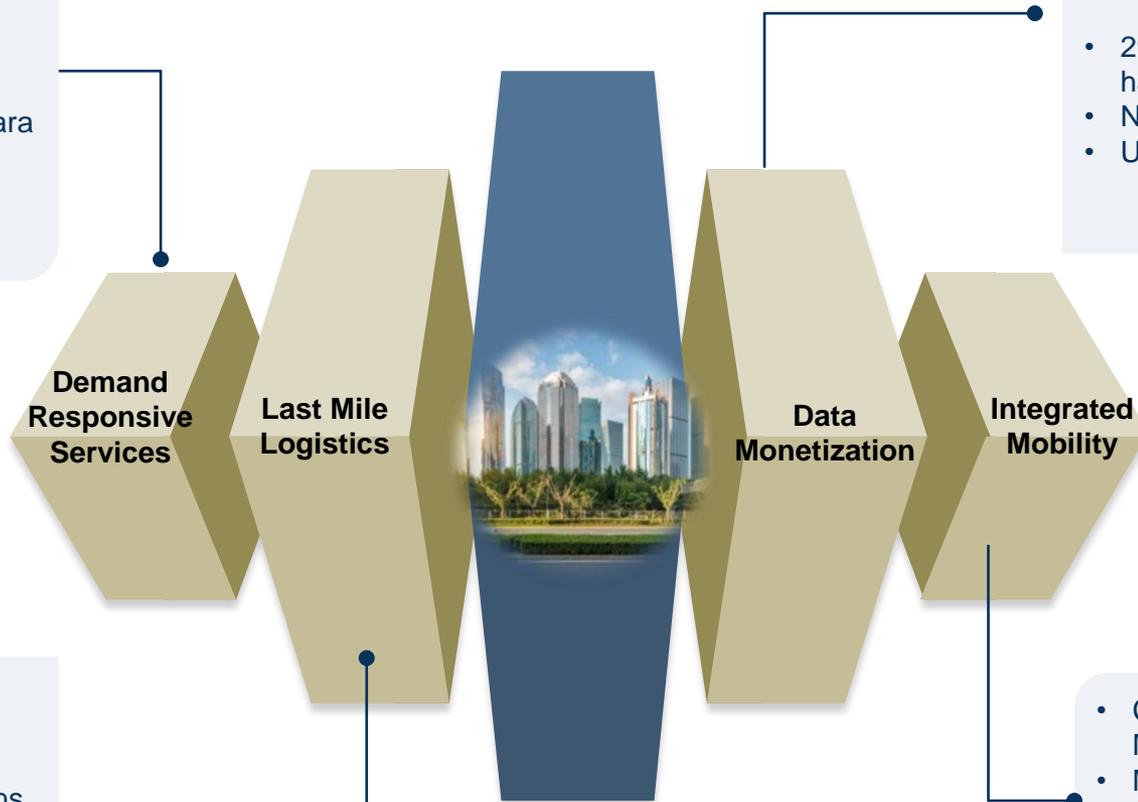
# Over 26 Smart Cities globally all with a plan to offer MaaS solutions by 2025



Source: Frost & Sullivan

# City-as-a-Customer: Moving Towards a City Centric Approach to Address Urban Issues

- Demand responsive transit
- OEM investment – Volkswagen: MOIA; Ford: Chariot
- Cities - London, Santa Clara Valley, NSW



- 292 transit agencies have opened up data
- Nexar CityStream
- Uber

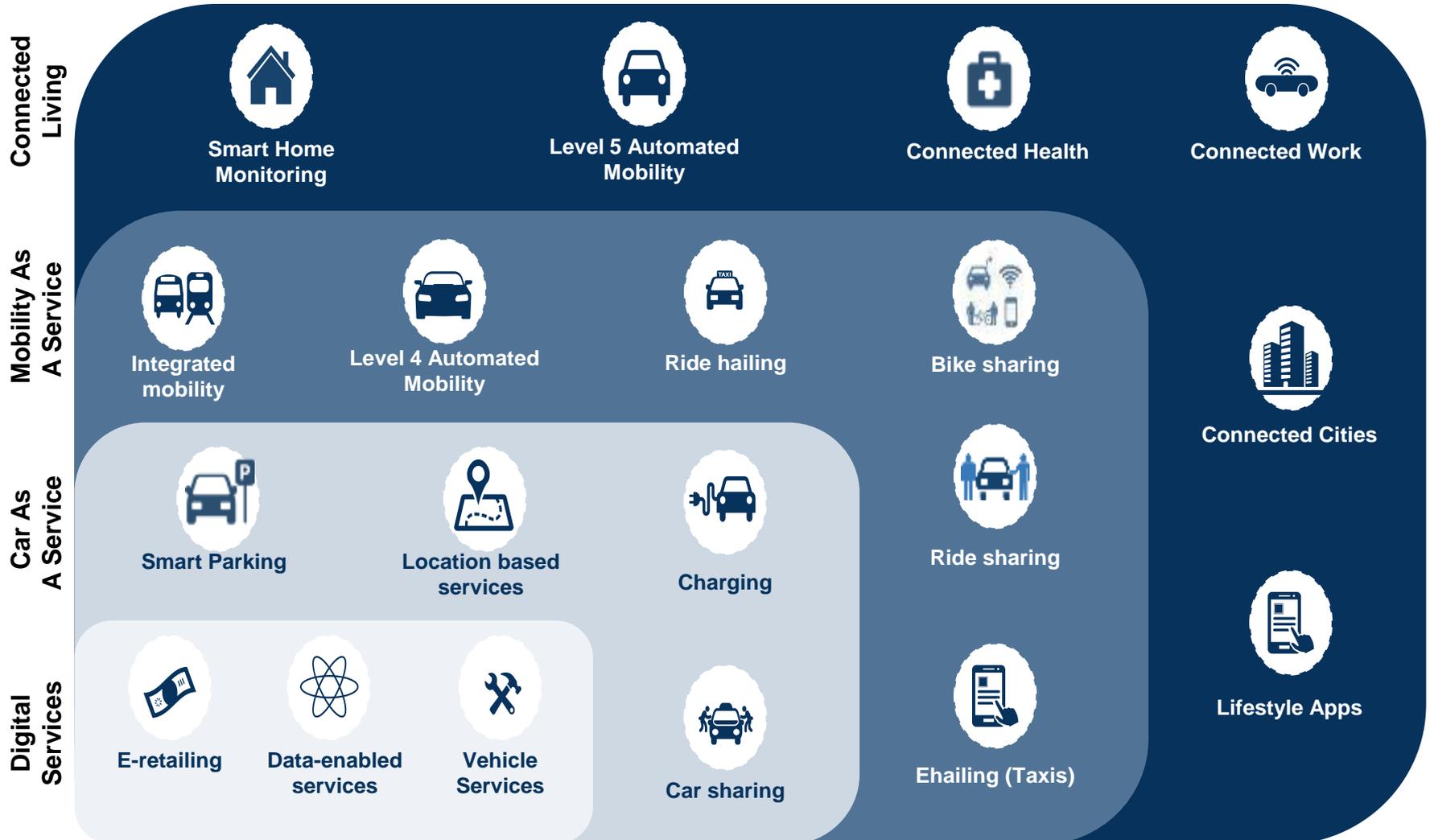
- New Mobility partnerships
- Last “15” meters – kerb to door
- Drones & electric robovans

- City specific Integrated Mobility Plans
- Market size to exceed \$1 trillion by 2020

Source: Frost & Sullivan

# Automotive Services Landscape In 2030

As value shifts from product to service, the market is expected to evolve from the car as a product to the car as an enabler of a connected living ecosystem



Source: Frost & Sullivan

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