PTOLEMUS Consulting Group

The Connected Mobility Global Forecast

Quantifying future connected car services

April 2016 - PTOLEMUS intellectual property

The consulting & research firm for the connected world

Our consulting services

Strategy definition
Vision creation, strategic positioning, business plan development, board coaching & support

Investment assistance
Strategic due diligence, market & technology assessment, M&A, post-acquisition plan

Procurement strategy
Specification of requirements & tender documents, launch of tenders, supplier negotiation & selection

Innovation management
Value proposition definition, product & services development, architecture design, assistance to launch

Business development
Partnership strategies, detection of opportunities, ecosystem-building, response to tenders

Implementation
Deployment plans, complex project & programme management, risk analysis & mitigation strategy

Our fields of expertise

Car infotainment & navigation
Connected services (Traffic information, fuel prices, speed cameras, weather, parking, points of interest, social networking), driver monitoring, maps, smartphone integration, smartphone-, PND- or embedded navigation,

Usage-based charging
Connected insurance, road charging / electronic tolling, fleet leasing & rental, car sharing, Car As A Service, etc.

Telematics & Intelligent Transport Systems
ADAS, connected vehicle, crowd-sourcing, fleet management, eCall, bCall, SVR, tracking, vehicle data analytics (OBD / CAN-bus), VRM, V2X, xFCD

Positioning / Location enablement

M2M & connectivity

We help clients across the mobility ecosystem…

Analytics providers

Google, Cognizant, here, LexisNexis, sas, Towers Watson, Verisk Analytics, RMS, Wunelli

Automotive manufacturers & suppliers

Agero, Airbiquity, cobra, Directed, Danlaw, intel, Ford, Harman, Meta System, Michelin, Qualcomm, Sierra Wireless, Telit, Toyota, Toyota Tsusho

Mobile telecom operators

SFR, Sprint, SK telecom, Telefonica, Telekom Austria Group, verizon

Applications providers

BMJ Group, censio, CCC Information Services Inc., Commedi, Coyote, TomTom, ESRI, tdf, RoadPilot, wejo

Telematics solution providers

Arkan, arvento, drivefactor, FleetComplete, Fleetmatics, Eliocity, Himex, IMS, Lysanda, LoJack, Mobile Devices, Octo, Sistema, Orion, Quartix, Queclink, SafeFleet, Scope Technologies, simobil, Watchstone

ITS operators, regulators & fleets

Arval, autostrade per l'italia, Brisa, CGI, DKV, Edenred, egis, Euromaster, European Commission, kapsch, Nomad Digital, Norbit, Sick, Sofico, Telepass, T-Systems, Toll Collect, Vitronic, Thales

Device / location suppliers

Andrew, cnes, gmv, Navizon, Location Smart, Samsung, Nokia Connecting People, Sysnav, ThalesAlenia Space, TruePosition, Vizio

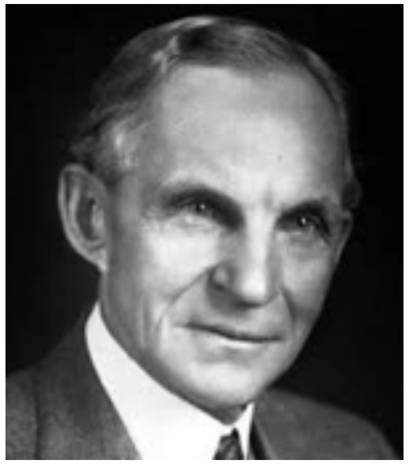
Insurers, aggregators & assistance providers

AAA, Admiral, Aioi Nissay Dowa Insurance, MS&AD Insurance Group, Allianz, AXA, Baloise, carrot, Crédit Agricole Assurances, Covea, Desjardins, europ assistance, Generali, The Hartford, HUK, Inter Mutuelles Assistance, Ingosstrakh, Menora Mivtachim, Mondial Assistance, Promutuel, Liberty Mutual, Macif, Matmut, Ooo Surance, RSA, Sompo Japan, Swiss Re, smile direct, telesure, Tokio Marine, youi, Zurich

Banks & private equity investors

Amadeus Capital, Bain Capital, Bank of America Merrill Lynch, The Baupost Group, Cinven, Barclays, Investcorp, citigroup, Disruptive, Goldman Sachs, J.P.Morgan, Leonardo & Co., Hutton Collins, New Amsterdam, Nomura, Renova Group, Hellman & Friedman, Montezemolo & Partners, Pamplona Capital Management, Intek Group

From the automotive world to the connected mobility world



"There is one rule for the industrialist and that is: make the best quality goods possible at the lowest cost possible"

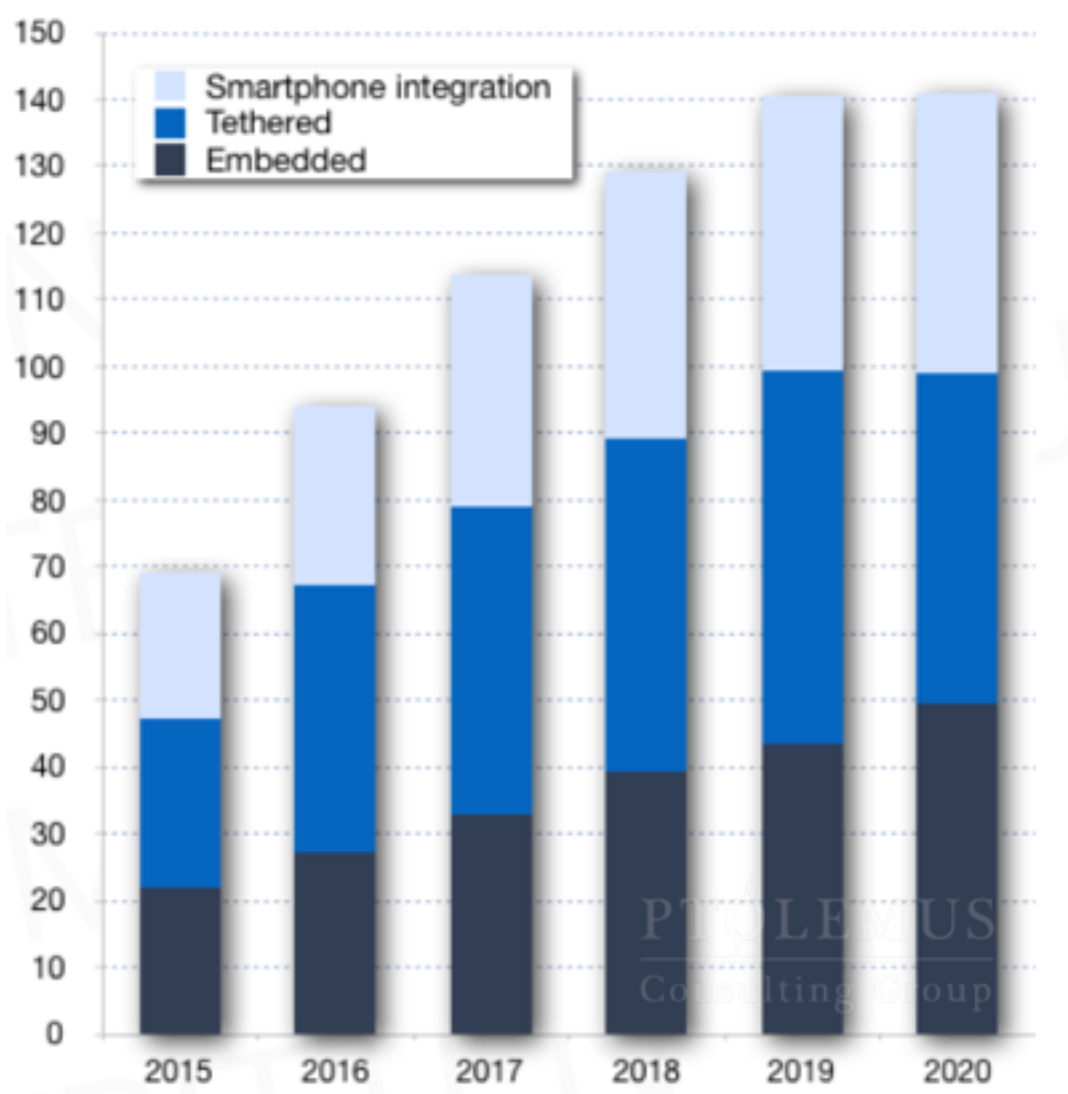
Henry Ford, Founder

"We are driving innovation in every part of our business to be both a product and mobility company"

Mark Fields, CEO

Cars are increasingly connected, making it easier to bring new services to drivers

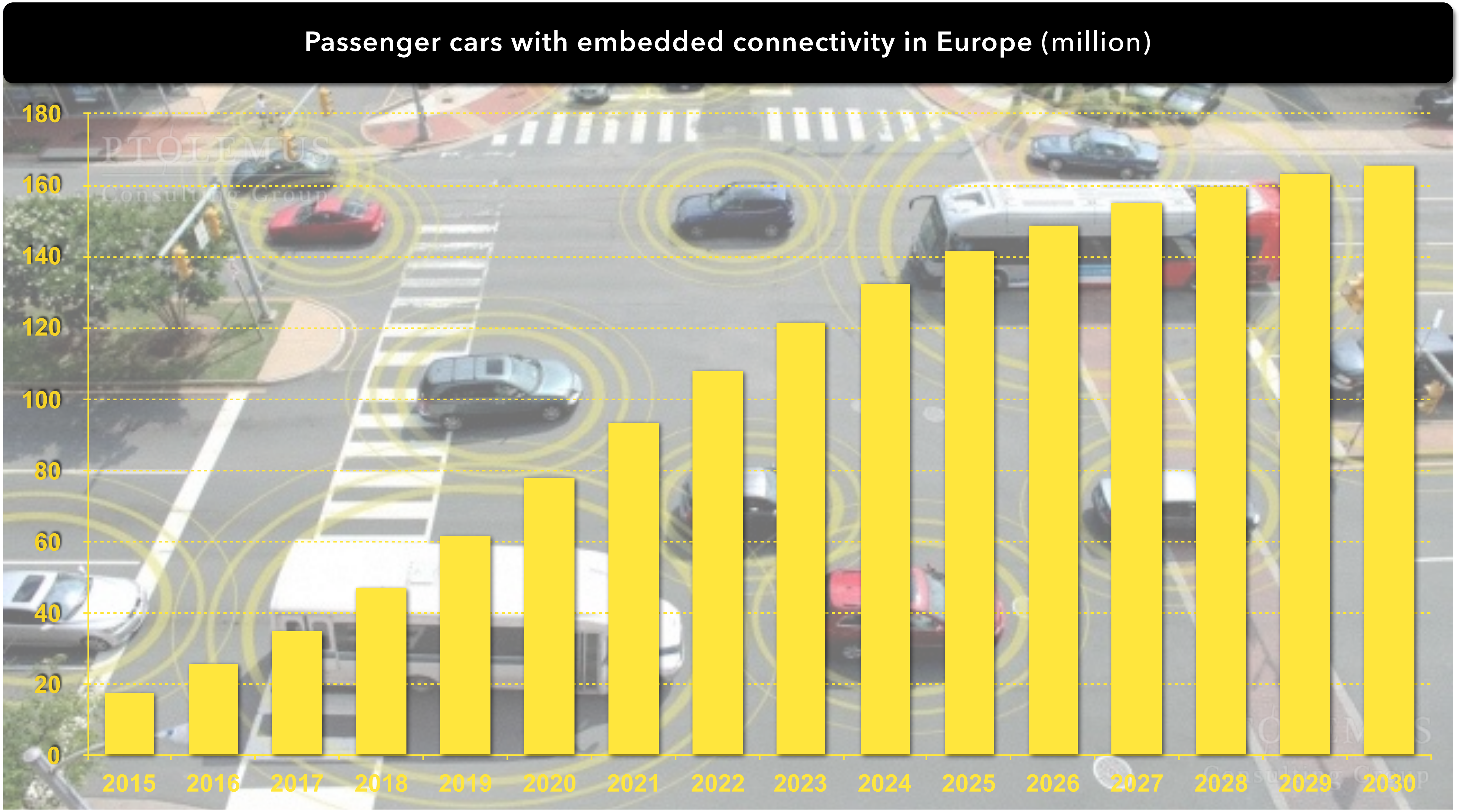
New connected vehicles sold globally (million)



- The number of newly produced connected vehicles will double between 2015 and 2020
- Broadband is reaching the car, encouraged by mobile network operators
- 4G / LTE networks are now commercially available in **143 countries**
- The eCall and ERA Glonass mandates in Europe and Russia will **accelerate embedded connectivity in new vehicles**

Source: PTOLEMUS Consulting Group

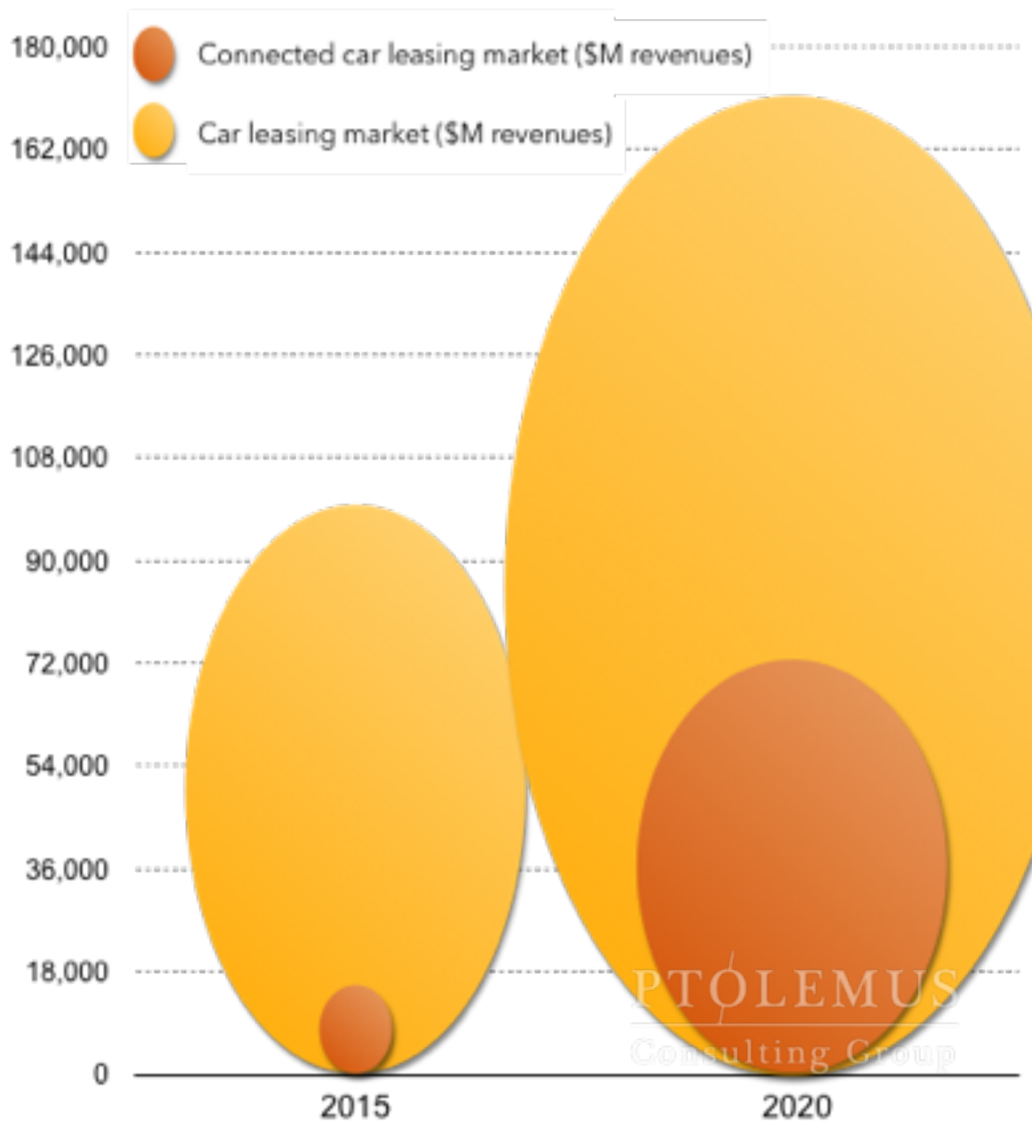
By 2030, connected cars will have become the norm



Source: PTOLEMUS Consulting Group - Note: This chart only presents connected passenger cars with embedded technology

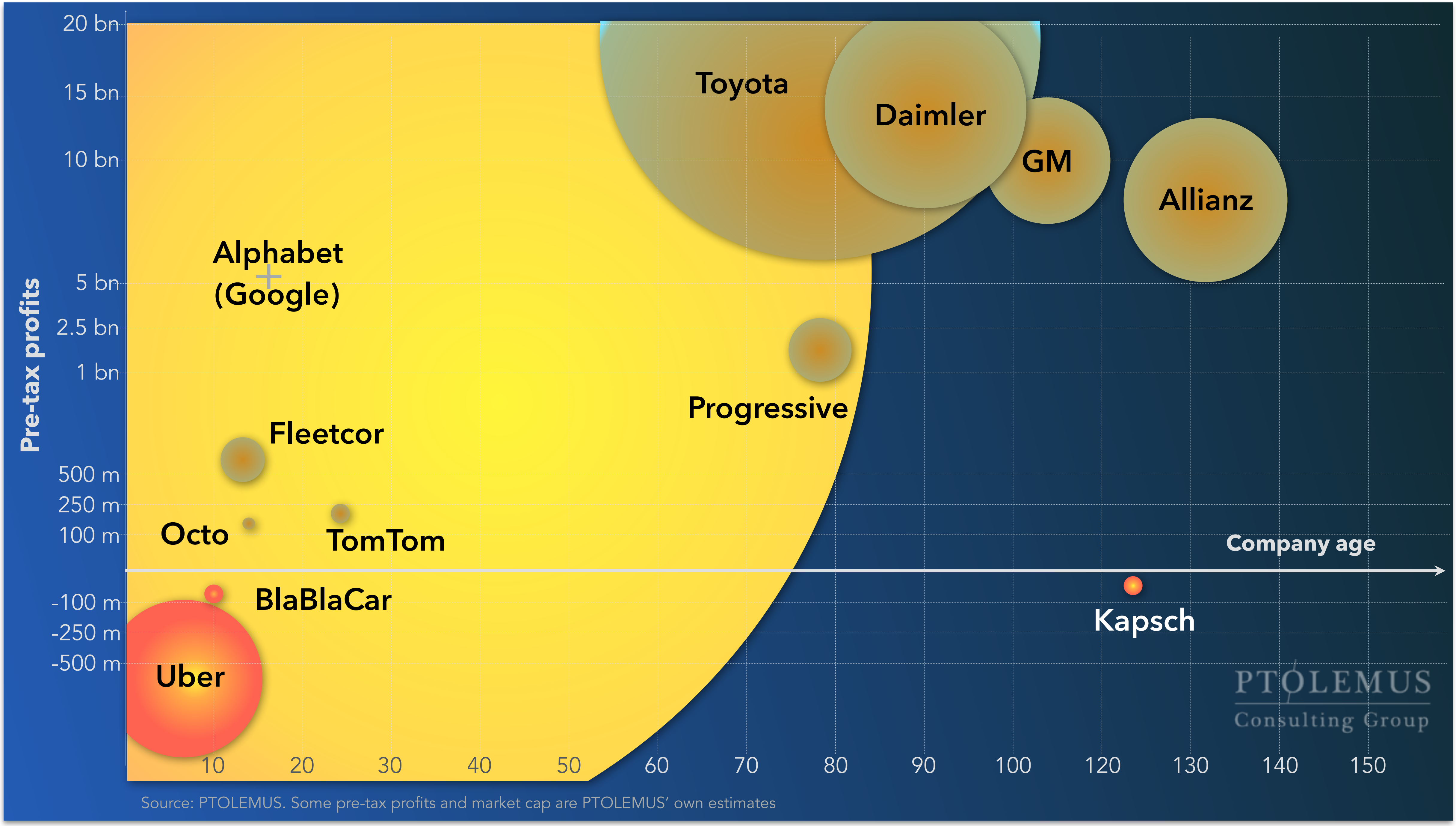
The connected share of mobility services is growing rapidly

Revenue forecasts for the leasing industry



- By 2020, connected car mobility services will equip **650 million cars** (400 million in the aftermarket) and generate **$350 billion** in revenues
- As exemplified with the leasing sector, the growth of the connected services will **accelerate the whole sector**
- While most OEMs have mobility offerings, their share of the connected mobility services market will decrease
- In 2020, **aftermarket providers** will generate 84% of all service revenues
- None of the 14 services we assess will be **provided individually**
- At the centre of this growth is the **ability to access driver and car data**

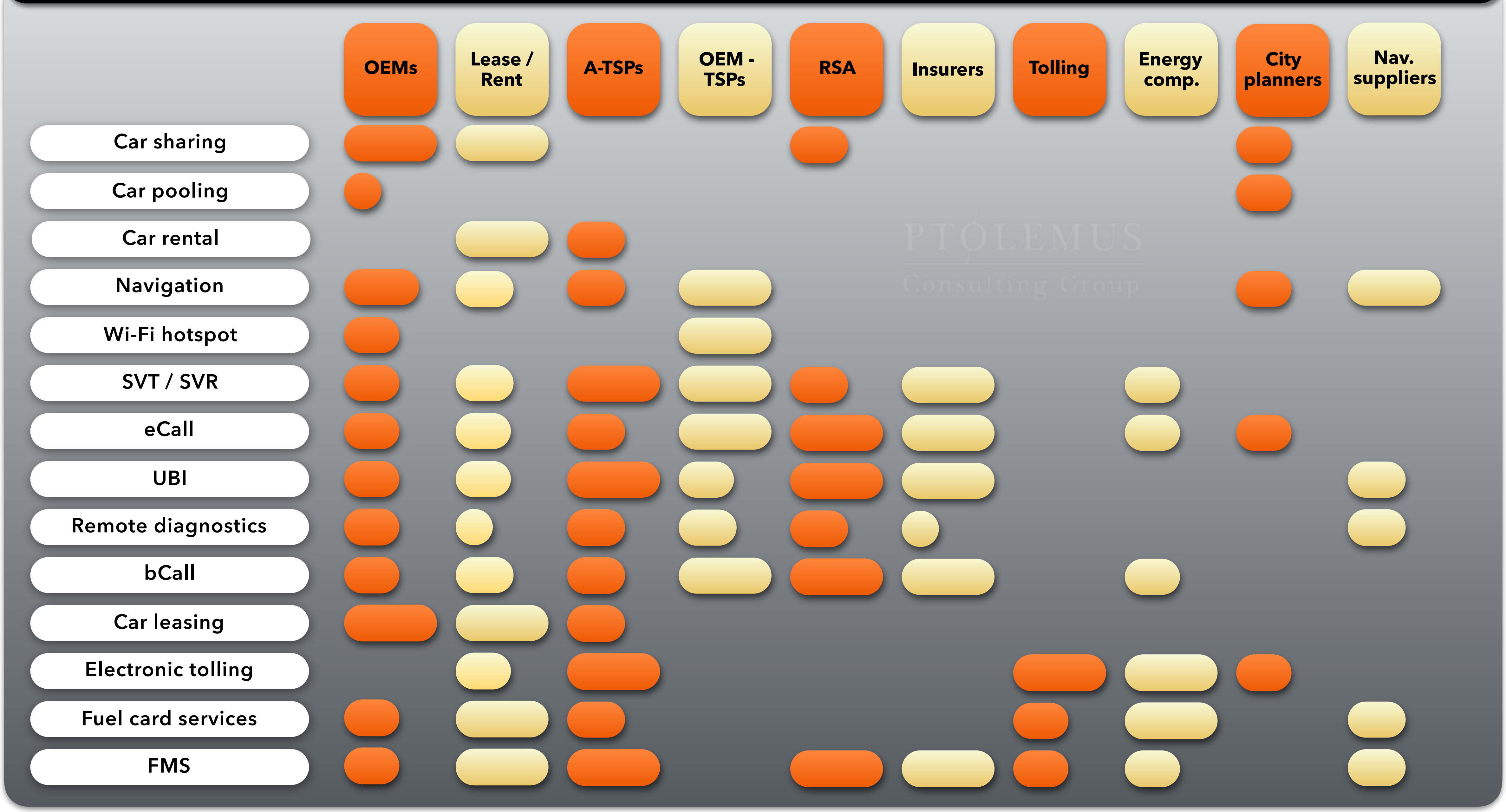
In a few years, mobility start-ups have become more valuable than traditional players



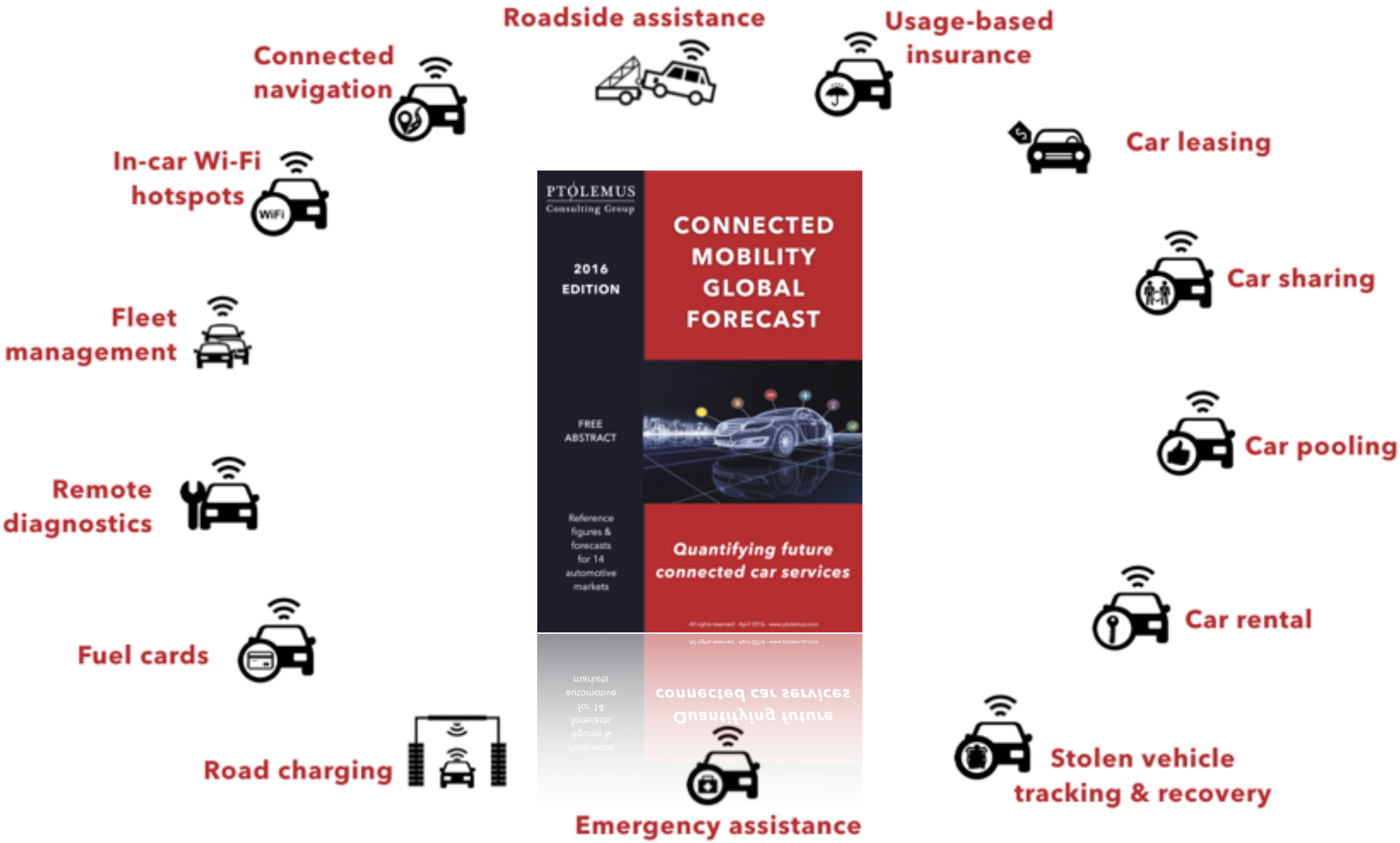
Size of bubble denotes market capitalisation. Source: PTOLEMUS Consulting Group

Car makers, leasers and telematics service providers offer the largest range of mobility services

Presence of different stakeholders in mobility services



The Connected Mobility Forecast examines how connectivity is revolutionising 14 car services



* The definition of Mobility Service Providers (MSP) and Connectivity Service Providers (CSP) varies per sector

It brings the most comprehensive analysis of connected mobility markets ever published

220-page analysis of 14 mobility markets

- The future evolution of the complete connected mobility sector analysed
- 75 charts encapsulating the essence of the mobility market evolution
- 18 countries and areas covered

14 analyses of mobility services worldwide including

- Delivery, service and business models
- Devices & technologies used
- The value chain for each service
- Regulatory and competitive environment
- All major current and future market trends in each market
- 650 stakeholders mentioned
- All key mergers & acquisitions
- Connectivity uptake in each region
- Key volume & revenue drivers

Global, regional and country-wide volume & revenue forecasts

- Bottom-up forecasts of 14 connected services and their underlying markets
- Revenues generated for both Mobility Service Providers (MSPs) and their Connected Solutions Providers (CSPs)
- Number of connected cars by service measured and forecast across 18 global markets along with service penetration rates

4,200-line market forecast output data sheet including:

- The total addressable market in volume and value seen from the MSP and the CSP perspective
- The total underlying volumes and revenues by country
- The volume and revenue bottom-up forecasts for MSPs and CSPs
- The split between OEM and aftermarket volumes & revenues

A report written by an international team of recognised experts

Frederic Bruneteau, Managing Director, Brussels

- 20 years of experience including 17 years of experience of the mobility domain
- 12 years of strategic advisory with **Arthur D. Little**, **BNP Paribas, SFR Vodafone and TomTom**
- One of the world's foremost experts in the field of telematics, quoted by numerous publications such as *The Economist* and *Reuters*.
- Spoke at 35 international conferences on the subject.

Matthieu Noël, Senior Consultant, Paris

- 6 years of experience in the automotive industry covering technical, strategy, marketing and business development, including 4 years in consulting.
- Performed more than 20 assignments in the automotive, insurance and assistance industries.
- Expert in the fields of vehicle data, fleet management and UBI

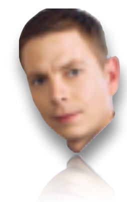
Alberto Lodieu, Senior Consultant, Paris

- 6 years of experience in strategic and operations consulting in Europe and Latin America
- Performed more than 20 assignments in the banking, insurance & transportation industries.
- Led our recent Autonomous Vehicle analysis

Thomas Hallauer, Director of Research, London

- 12 years of marketing & research experience in the domain of telematics and location-based services.
- Expert in new products and services in the telematics, motor insurance, electronic tolling and positioning industries.
- Held management responsibilities with **Mobile Devices**, a telematics platform provider and with **TU Automotive.**

Denis Gavrilov, Associate Partner, Moscow



- 10 years of strategic and operational experience in insurance within international and local companies in Russia
- Expert at designing digital and telematics products for insurance companies such as Allianz and Vazhno

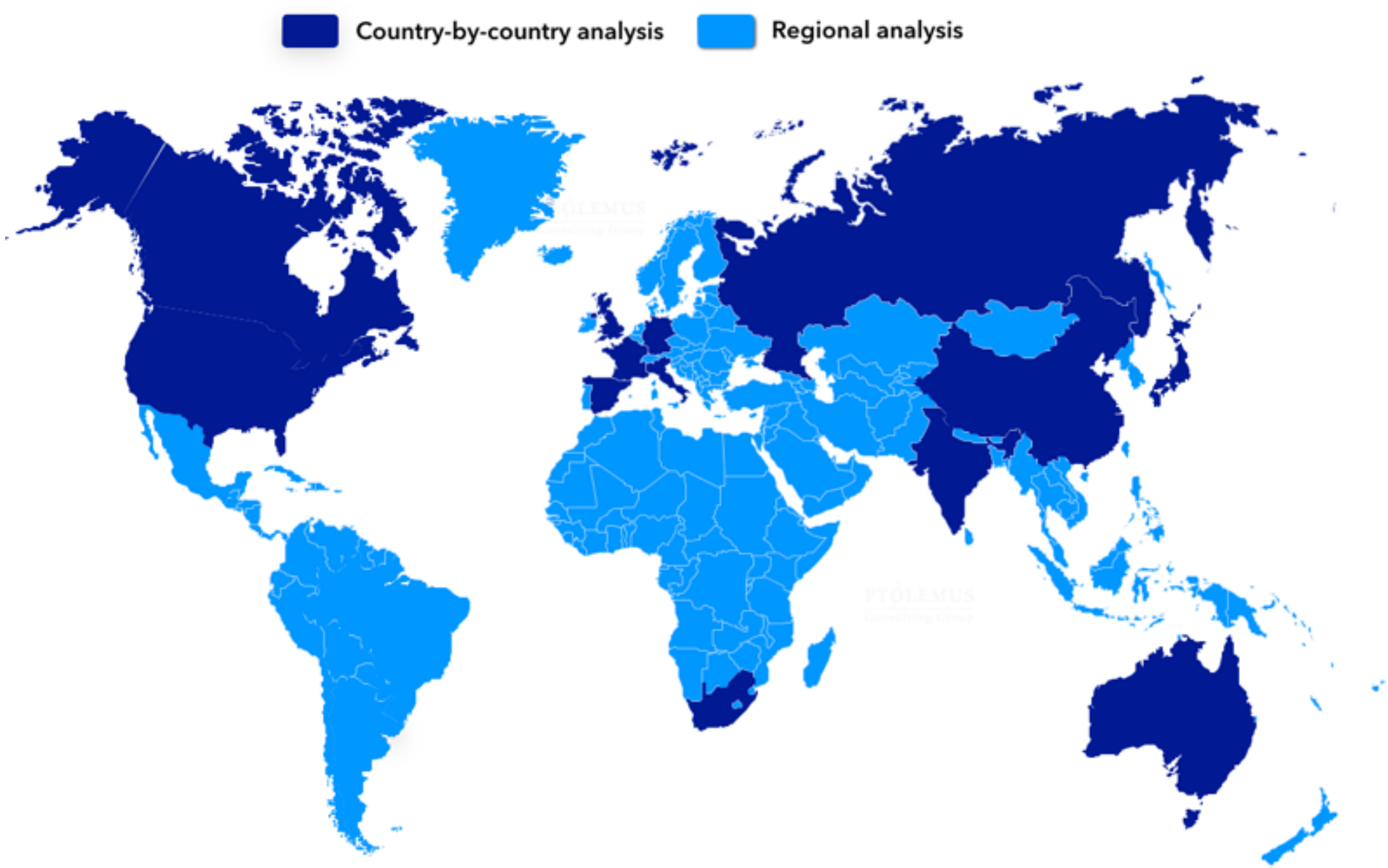
Philippe Brousse, Business Analyst, Brussels

- Experience of strategy consulting
- 7 assignments performed in fleet management, UBI, emergency services
- Recently built our UBI and Autonomous Vehicle forecasts

Justin Hamilton, Business Analyst, London

- 3 years of experience within the transportation, road user charging and connected mobility markets
- Assignments performed in roadside assistance, UBI and fleet management

The analysis and the forecasts cover the whole world and 18 specific countries

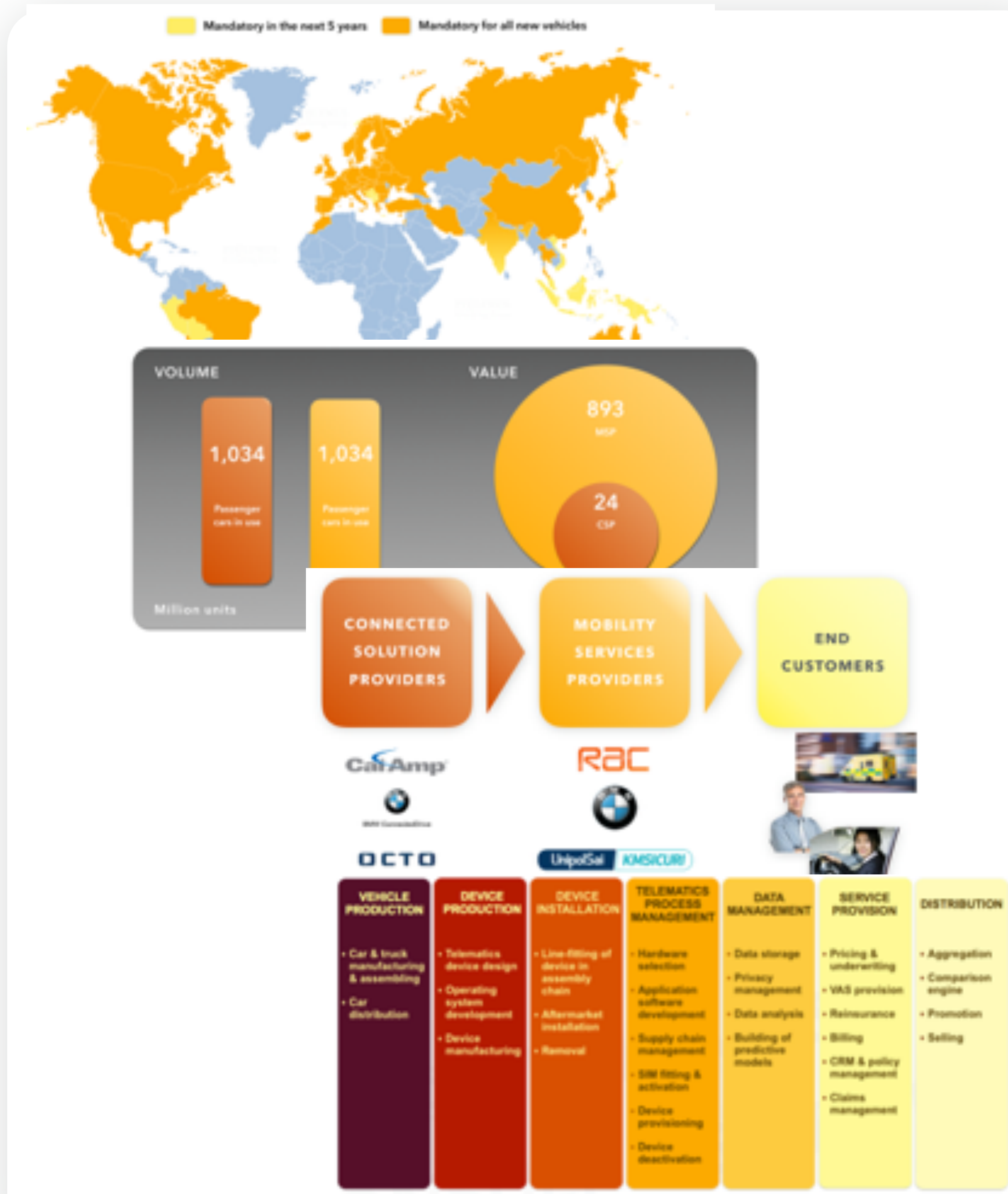


Source: PTOLEMUS

The report assesses the total addressable market and geographical spread of 14 services

The Connected Mobility Global Forecast 2016 includes for each service:

- World maps identifying the **location and penetration of services**
- The **total addressable market** in volume and value seen from the Mobility Service Provider (MSP) and the Connectivity Service Provider's (CSP) perspective
- **Main players** for each service identified and listed
- **Complete value chain** for each service
- Comprehensive list of **relevant mergers and acquisitions** over the past 5 years



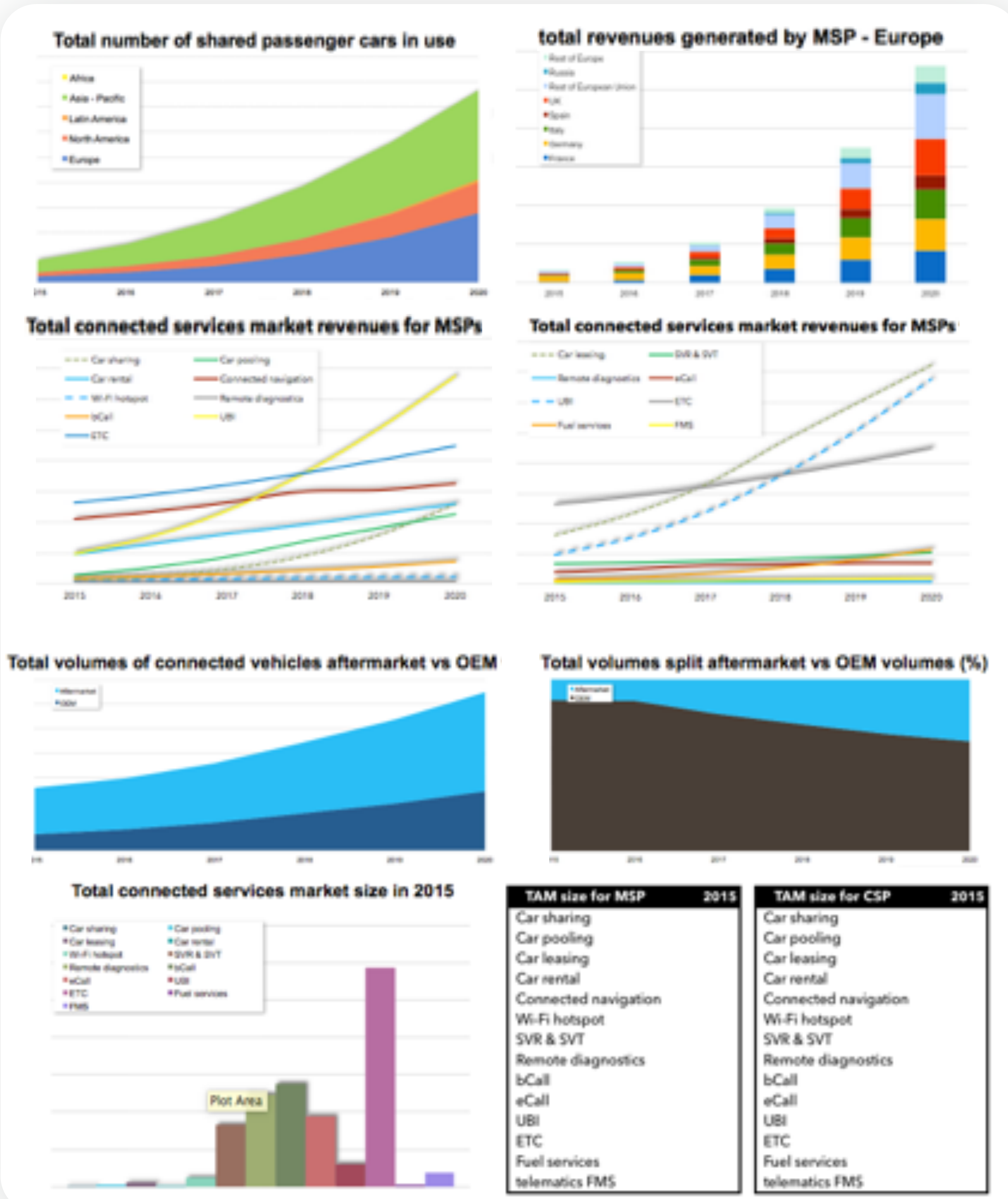
Each service is analysed in a qualitative handbook with detailed market trends and conclusions

For each of the 14 mobility services, the Forecast provides:

- Definitions, typical applications & devices in use
- High level **technical architecture**
- Current **market trends and major market movers**
- **Future trends** based on a close analysis of each market
- Regulatory evolutions
- Level of **service adoption by region**
- Case studies

Source: PTOLEMUS Consulting Group

The Forecast also comprises an Excel file containing over 200 graphs, 5,000 calculations and 4,200 lines of outputs



The Connected Mobility Global Forecast 2016 is provided with the underlying data sheet.

The Excel document includes **the output of the 14 forecasts for 18 geographical markets.**

The **4,200 line workbook** includes (for each service):

- The total underlying **volumes and revenues per country**
- The **volume and revenue forecasts** for the MSPs and the CSPs
- The **split between OEM and aftermarket** volumes and revenues

The Forecast gives you a decisive edge when making decisions on the emerging mobility services market

Reference volumes and forecasts for the emerging mobility market

	Complete document with 2015-2020 market forecasts
Contents	• 225-page market forecast (PDF format, password-protected) • 14 mobility services analysed, including 100+ charts and graphs • Total addressable market - volume & value for each service • 5 year bottom-up forecasts of market units & revenues • 4,200+ lines of outputs & 200+ graphs
Company-wide licence	**€ 4,995** *Approx. $5,646*

For more information and to order the forecast, contact thomas@ptolemus.com

Notes: Prices in Euros excluding VAT (VAT applicable to clients located in Belgium); Price different for consultancies & research firms

Understand the revolution of 14 car services in 18 countries

PTOLEMUS Consulting Group

Strategies for Mobile Companies

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