

PTOLEMUS Consulting Group

# **PTOLEMUS in a nutshell**

*Strategies for Mobile Companies*



2019 - Confidential

# The first strategy consulting & research firm entirely focused on augmented mobility & automation

## Strategy consulting services



## Market research services

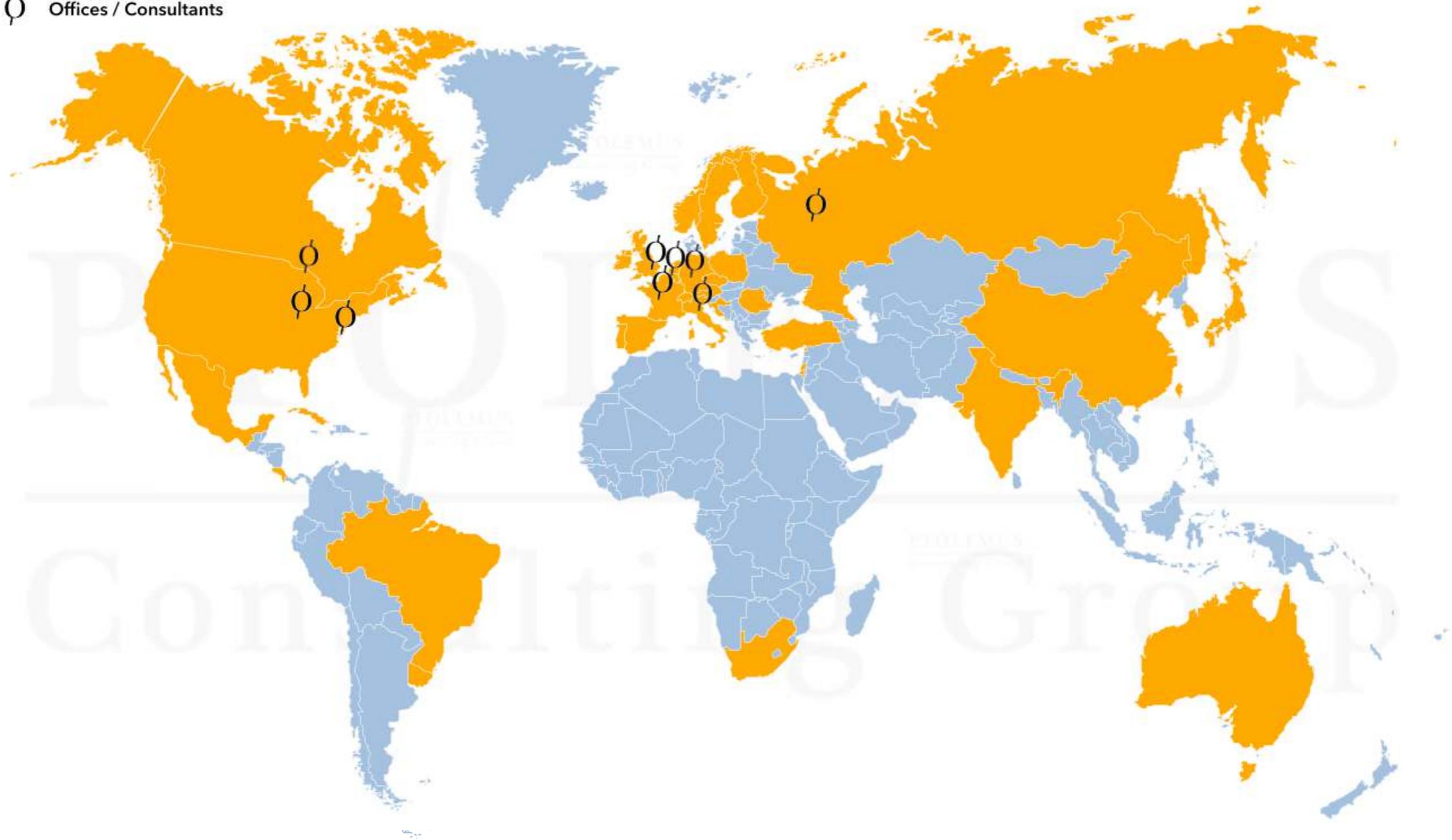


## Fields of expertise

<b>Mobility services</b>	Car pooling Car sharing Smart parking	Multimodal mobility Ride hailing	Road side assistance Tax refund
<b>Vehicle services &amp; telematics</b>	bCall eCall FMS SVT / SVR	Tracking VRM In-car Wi-Fi Fuel cards	Parking Navigation Speed cameras Traffic information
<b>Usage-based charging</b>	Car As A Service Electronic Toll Collection	Mobility-as-a-Service Road charging	UBI / PAYD Vehicle rental Vehicle leasing
<b>Vehicle data &amp; analytics</b>	AI CAN-bus Crowd-sourcing Data protection	Driving behaviour OBD Predictive analytics	Remote diagnostics xFCD
<b>Vehicle automation</b>	ADAS	Autonomous cars	Autonomous trucks
<b>Enabling technologies</b>	Positioning (GNSS / WiFi / cellular)	M2M / connectivity Smartphones	Telematics devices V2X

**We are a team of 25 consultants, experts & researchers including 14 nationalities to serve our clients worldwide**

- Clients
- Offices / Consultants



# Our clients come from across the mobility ecosystem

## Analytics, maps & applications providers



## Automotive manufacturers & suppliers



## Mobile telecom operators



## Telematics solution providers



## Fleet & fuel, ITS & regulators



## Device & location suppliers



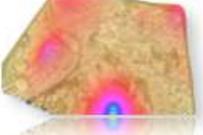
## Insurers, aggregators & assistance providers



## Banks & private equity investors



# 130 strategy consulting assignments to help our clients define their connected services & digital strategies...

 <p>Defined strategic positioning in insurance telematics value chain</p>		 <p>Built 5-year strategy &amp; go-to-market plan in EU mobility services market</p>	Global electronic tolling supplier
 <p>Defined strategy &amp; business plan of its telematics business</p>		 <p>Defined the company's fleet telematics strategy &amp; services dashboard specifications</p>	
 <p>Helped the company define its navigation strategy &amp; supplier</p>		 <p>Defined its future vehicle connected services global strategy</p>	Global roadside assistance group
 <p>Defined our client's strategic positioning in the field of connected vehicle services</p>		 <p>Developed 5-year insurance telematics device strategy &amp; roadmap</p>	Telematic Service Provider
 <p>Appraised future telematics technology &amp; market trends and their impacts</p>		 <p>Defined connected vehicle data strategy for innovative telematics services provision and monetisation</p>	Vehicle data aggregator
 <p>Define its 5-year US fleet services strategy &amp; go-to-market plan</p>	Global fuel card company	 <p>Helped define the insurance and fleet management specifications of its eCall on-board unit</p>	Global automotive OEM
 <p>Defined the company's strategy to leverage mass cellular positioning data</p>		 <p>Identify opportunities from connected &amp; autonomous vehicles for the space sector</p>	Space agency

# ... perform market sizing, due diligence & business planning projects...



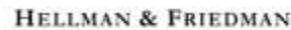
Conducted the commercial due diligence of Octo Telematics



Conducted the due diligence of VTraffic, a leading traffic information provider



Assisted in evaluating the opportunity of investing into Octo Telematics



Led a feasibility study of a telematics-enabled shadow tolling scheme



Helped evaluate the European fleet telematics market

\$40 billion investment fund



Assisted in merger of Tracker & Tantalum, two major UBI, SVR & FMS Telematic Service Providers



Evaluated the EU & US markets for smartphone-enabled UBI solutions



Assessed the global market trends and built forecasts of over 10 connected mobility services globally



Conducted the cost-benefit analysis of 7 emergency location solutions for smartphones



Built insurance telematics business plan in 5 EU countries



Conducted a global review and forecast of the UBI market



Performed the vendor due diligence of Cobra Automotive prior to its acquisition by Vodafone



Conducted the due diligence of Arvento, the leading Turkish fleet management service provider



Defined the European pricing & business case for FMS, fuel card services, tolling & tax refund



# ... and help them deliver their strategy



Evaluated UBI market opportunities in Europe, Asia and Latin America

Mid-sized insurance group



Assisted in sourcing a driving behaviour database across Europe

Global tier-1 automotive supplier



Defined & implemented its partnership strategy in the connected vehicle ecosystem



Assisted in developing its usage-based charging telematics business



Built & implemented the product strategy of a British Telematics Solution Provider



Helped the technical team identify valuable OBD data for its future telematics diagnostics offering

Roadside assistance operator



Evaluated the technical & safety characteristics of a telematics solution using an OBD dongle

Mid-sized insurance group



Evaluated the solution of an Irish fleet Telematics Service Provider

Strategic investor



For its fleet, evaluated the benefits of telematics and scheduling solutions



Conducted the sourcing of the end-to-end OBD solution for remote diagnostics & driving monitoring

Roadside assistance operator



Designed a digital roadside assistant solution using OBD dongles & car data

Global roadside assistance group



Defined the telematics platform specifications on analytics & driver coaching

Consumer electronics player



Assisted in sourcing an OBD dongle for mass deployment in China

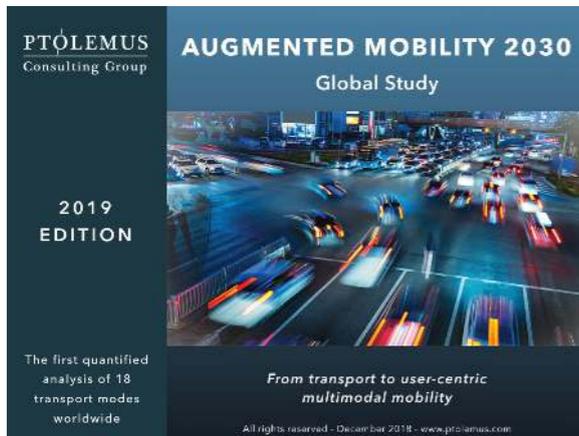
Major connected platform provider



For the leading Russian TSP, performed the technical audit of its IT platform



# This study is the first research to analyse the global shift from transportation to mobility



*The first quantified analysis of 18 transport modes worldwide*

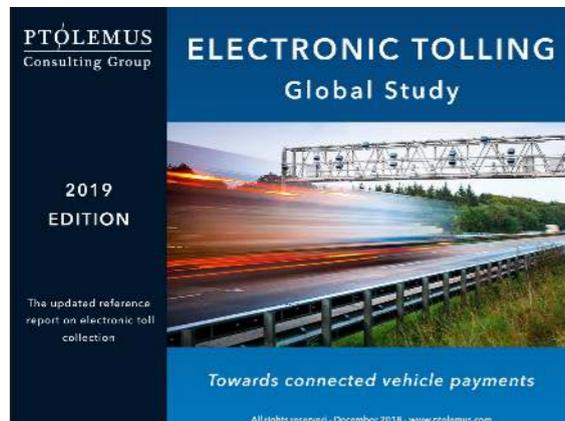
## A rigorous, in-depth analysis...

- **Over 500+ pages**, the report measures the **combined impact of mega-trends on the mobility ecosystem**
  - Assesses the **underlying driving factors** defining the importance of each trend on mobility
  - Analyses the key trends' impact on **market volumes**
  - The result is a **demand forecast** for 18 different land transport modes and the evolution of their market shares
- **Based on 10 years of experience in strategy consulting in mobility**, it leverages:
  - **Over 40 interviews** with OEMs, cities, mobility service providers, infrastructure providers and big data service providers
  - Desk and primary research by a team of 8 consultants and analysts
  - **Insights from 120 consulting assignments** on mobility markets, technology and strategy
- For each market, the report provides:
  - **Driving factors**
  - Triggers and inhibitors
  - Value chain
  - Case studies from **best practice** demonstrators

## ... that combines many firsts:

- The **combined impact of 12 mega-trends** on
  - 16 stakeholder categories
  - 18 transport modes
  - 18 regions
- **A true user-centric, multimodal approach**, combining a qualitative and quantitative methodology
- **18 real world case studies** demonstrating best practices in each mobility markets
- A deep-dive assessment of the evolution of core **mobility markets** and their effect on the demand
- **Strategic guidelines** on withstanding the upcoming trends
- **2018-2030 global mobility demand forecasts**
  - Excel forecast outputs
  - 11 transport modes forecast
  - Global volume forecasts in passenger/km
  - 18 countries / regions
  - AVs and EVs volume projections

# The most comprehensive report on electronic tolling and road user charging

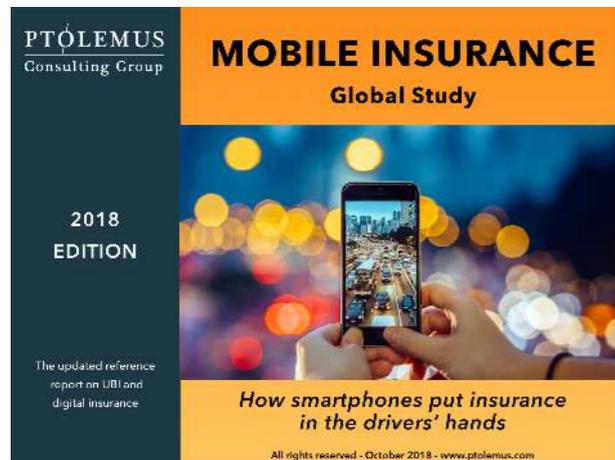


*More than just market research.*

*A strategic analysis on the future of ETC as a connected mobility service*

- An **update to our 2015 Electronic Toll Collection Global Study** providing an all-encompassing overview and outlook on the electronic tolling market
- A **750-page analysis of the global electronic tolling landscape** based on:
  - 7 years of constant market surveillance
  - 50 interviews with key stakeholders
  - 6 months of desk research by a team of 7 consultants
  - 20 strategy consulting assignments
- An **in-depth review of the 40 biggest toll domains worldwide** with traffic volumes, technology, model, size and revenues projections
- A **comparative assessment of all tolling technologies:**
  - Deployment models and impacting trends for ANPR, DSRC, Infrared, GNSS and RFID
  - Forecast of the technology mix
- An **impact analysis of interoperability in tolling:**
  - Forces and models shaping interoperability
  - Review of current projects in Europe, US and Colombia
  - Impact of the different models on toll chargers and service providers
- **12 EETS service providers profiled, analysing:**
  - Strategic position
  - Service breakdown
- **The study is a strategic tool for service providers and toll chargers worldwide**
  - Effectively promote tolling as a funding mechanism
    - Defining and outlining a sound communication strategy
    - Lessons learned from best practices around the world
  - Learn how the competition for toll service provision will transform the ecosystem
    - The role of vehicle manufacturers, technology giants, fleet telematics providers and mobile wallets
- **Strategic recommendations to service providers**
  - Best practices for winning market share in future tolling markets
  - How to ensure control of the future toll payment interface
- **2015 - 2025 bottom-up market forecast**
  - Global scope: **40 countries investigated in details**
  - **Regional and global projections** of the toll and electronic toll market: toll revenues, subscription volumes, share of ETC, key influencing factors
  - 1,100-line Excel file with **subscription volumes by technology** and vehicle type, devices sold, total revenues collected and ETC-only revenues collected

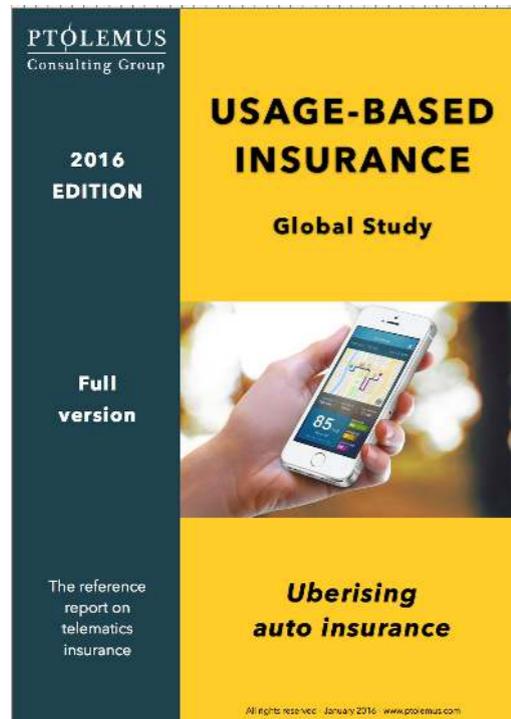
# This study analyses the mobile insurance market, defines best practices and quantifies each use case



The long-awaited update of the reference report on digital insurance and UBI

- An update to the UBI Global Study 2016, this report analyses the transformational impact of smartphone apps on motor insurance
- **600+ pages of investigation, analysis and forecast including:**
  - Quantified assessment of the insurance app market based on the review of 245 apps
  - Best practices derived from successful real-world programmes
  - Key insurance features and services evolution
- A **global scope** focused on the US and Europe and with case studies on 2 spearheading markets: Italy and China
- **Based on 6 years of quarterly assessment of the UBI market** and leveraging:
  - Over 100 interviews with insurers, service and technology providers
  - Desk and primary research by a team of 8 consultants and analysts across Europe, North America and China over a period of 6 months
  - Insights from over 60 consulting projects on future insurance strategy and UBI
- **Impact assessment of the key trends in mobile insurance:**
  - Changing value propositions
  - Reward mechanisms
  - On-demand and parametric insurance
  - Mobile fleet insurance
  - Mobile crash and claims management
  - Risk-scoring of distracted driving
- In-depth analysis of the **insurance app strategy** today by models, functions and geographies
- **Step-by-step guide to developing your mobile strategy**
- **A global competitive analysis**
  - 26 insurance companies worldwide profiled
  - 30 insurance apps assessed and ranked
  - 15 Telematics Service Providers profiled and ranked
- **2018 - 2025 global UBI market projections**
  - Volumes and revenues
  - UBI and Mobile UBI
  - Device mix forecast

# PTOLEMUS UBI Global Study is still the industry reference



**The reference report on the subject, quoted by *The Economist*, the *Financial Times* and the *Wall Street Journal***

- **1,300 pages of analysis using:**
  - 286 interviews in 28 countries
  - 5 years of research performed by 6 consultants in 4 countries
  - Insights from 30 consulting projects
  - 350+ figures (charts, tables, etc.)
- **42 case studies** including Allianz, AllState, Carrot Insurance, Vodafone Auto, Ingenie, OnStar- Progressive, Discovery Insure, Liberty Mutual, Octo Telematics, Renault-Amaguiz, State Farm, Unipol, Zurich
- **A handbook of 60 suppliers' solutions** including our own evaluation and rankings of TSPs, TTPs and analytics providers
- **30 insurance markets profiled**
- **2020 & 2030 market forecasts**
  - Canada, US, Latin America, Europe, Russia, South Africa, India, Chinese and Japan
  - Personal line / commercial line
  - Aftermarket / OEM
- **Analyses of the disruptive forces at play**
  - ADAS and autonomous vehicles
  - eCall & ERA Glonass mandates
  - The rise of smartphone apps
  - Big Data & analytics
- Targeted **recommendations** to insurers, regulators, TSP, OEMs and operators

# We also issue a quarterly dashboard of the global UBI market

**The metrics to shape your UBI commercial strategy**

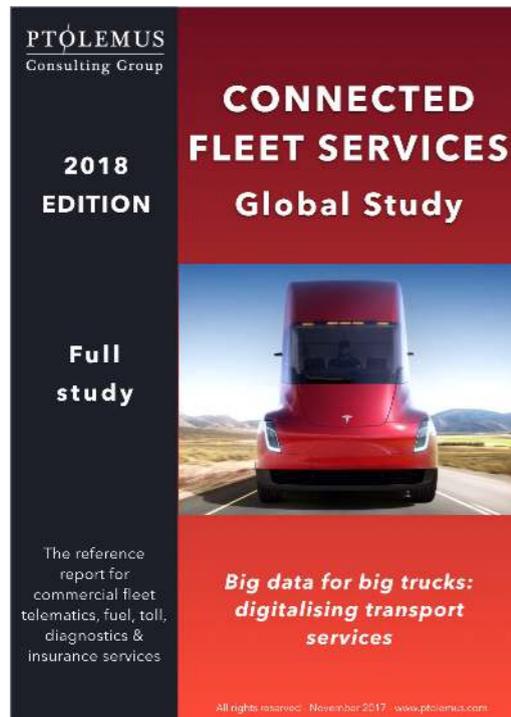
- **110-page barometer of the global UBI industry**
  - Covers 360 companies
  - Issued on a quarterly basis
  - 300+ charts, tables & figures
- **A global dashboard covering**
  - Mature markets: US, Canada, France, Germany, Italy, Spain, UK
  - Emerging markets: APAC, Australia, Benelux, China, Latin America, other European markets
- **Leverages both public information and primary research**
  - A large set of public information collected from conferences, desk research, etc.
  - Supplemented and validated by primary research & data (Interviews, supplier questionnaires, own market forecasts, etc.)
- **Brings all key market news**
- **Estimates UBI volumes and sales for all main players**
  - Insurance companies
  - TSPs
  - Technology providers
- **Deciphers the key market trends**
  - UBI penetration
  - Number of programmes
  - Mix by business model (PAYD, PHYD, TBYB, etc.)
  - Market share of all main insurers, TSPs and device makers
  - Technology mix (Black boxes, OBD, apps, etc.)
  - Business line mix
  - Segment mix (Young drivers, mature drivers, etc.)
  - Channel mix aftermarket / OEM

# We also published the most comprehensive analysis of the connected insurance analytics market & solutions



- **Analysis of the pricing and data management policies of the 27 largest UBI programmes** including :
  - Admiral, Allianz, Allstate, American Family, AXA, Generali, Desjardins, Direct Line Group, State Farm, The Hartford, UnipolSai, Uniqa and Zurich
- **Based on 40 in-depth interviews** with Telematics Service Providers (TSPs), analytics providers and insurers
- **5 interviews transcribed:** Nationwide, Insurethebox, LexisNexis Wunelli, Octo Telematics and The Floow
- Illustrated by case studies from companies using advance analytics such as: Progressive, Generali, Insure the box and many more
- **Profile and review of 10 advanced analytics suppliers** active in UBI
  - Accenture, Cambridge Mobile Telematics, Cognizant, HERE, IBM, IMS, SAS, Verisk Analytics and Willis Towers Watson
- Findings and recommendations **validated by 150 academic papers** and journals
- All that in a **340+ page document with over 150 graphs and tables**
- Resulting in **20 best practices** including recommendations on how to record and process driving data, score drivers and interact with them.

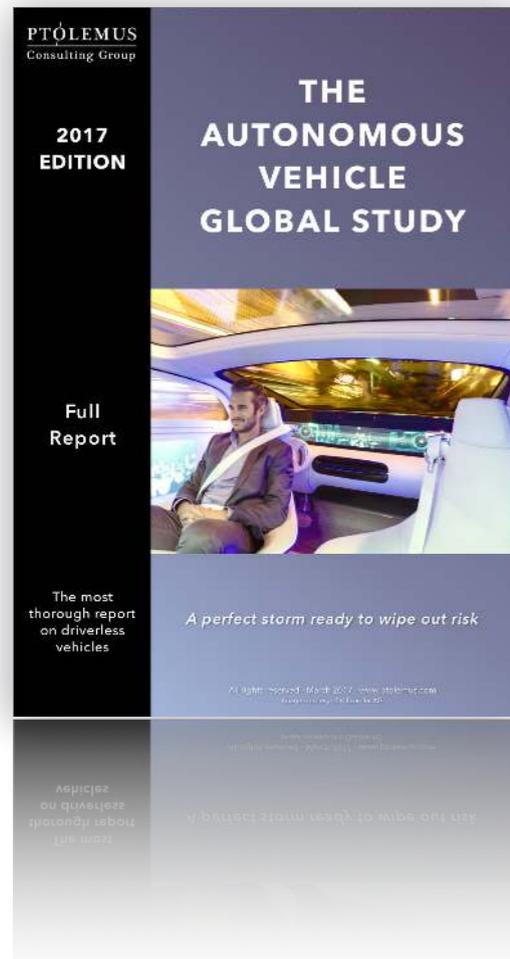
# The first study to analyse how the 5 largest fleet TCO components will become integrated in a single market



**Not only a market research and a competitive overview, the report is a complete strategic analysis**

- **The 1<sup>st</sup> analysis of the convergence of commercial fleet services:**
  - Fleet telematics
  - Remote diagnostics
  - Connected insurance
  - Electronic toll collection
  - Fuel payment services
- **650+ pages of analysis leveraging:**
  - **Over 70 interviews with fleets, OEMs and service providers**
  - 18 months of research conducted by 7 consultants & analysts across Europe, North America and Asia
  - Insights from 30 consulting projects
- **Over 50 case studies** including BP, DKV, Fleetcor, Ford, Kapsch, GM, Mix Telematics, Navistar, TomTom, Shell, Total, Verizon, etc.
- **Analysing disruptive forces at play:**
  - Service integration by OEMs
  - Growth of fleet data aggregators
  - Data commoditisation
  - New providers entering the market
- **Over 45 supplier profiles** covering the leading players in fleet telematics, fuel card services and electronic tolling
- **Global scope** with an emphasis on Europe, North America and China
- **4 bottom-up market forecasts (2016-2025):**
  - **Fleet telematics:** Global
  - **Electronic tolling:** Global
  - **Connected fleet insurance:** Global
  - **Fuel card services:** Europe and North America

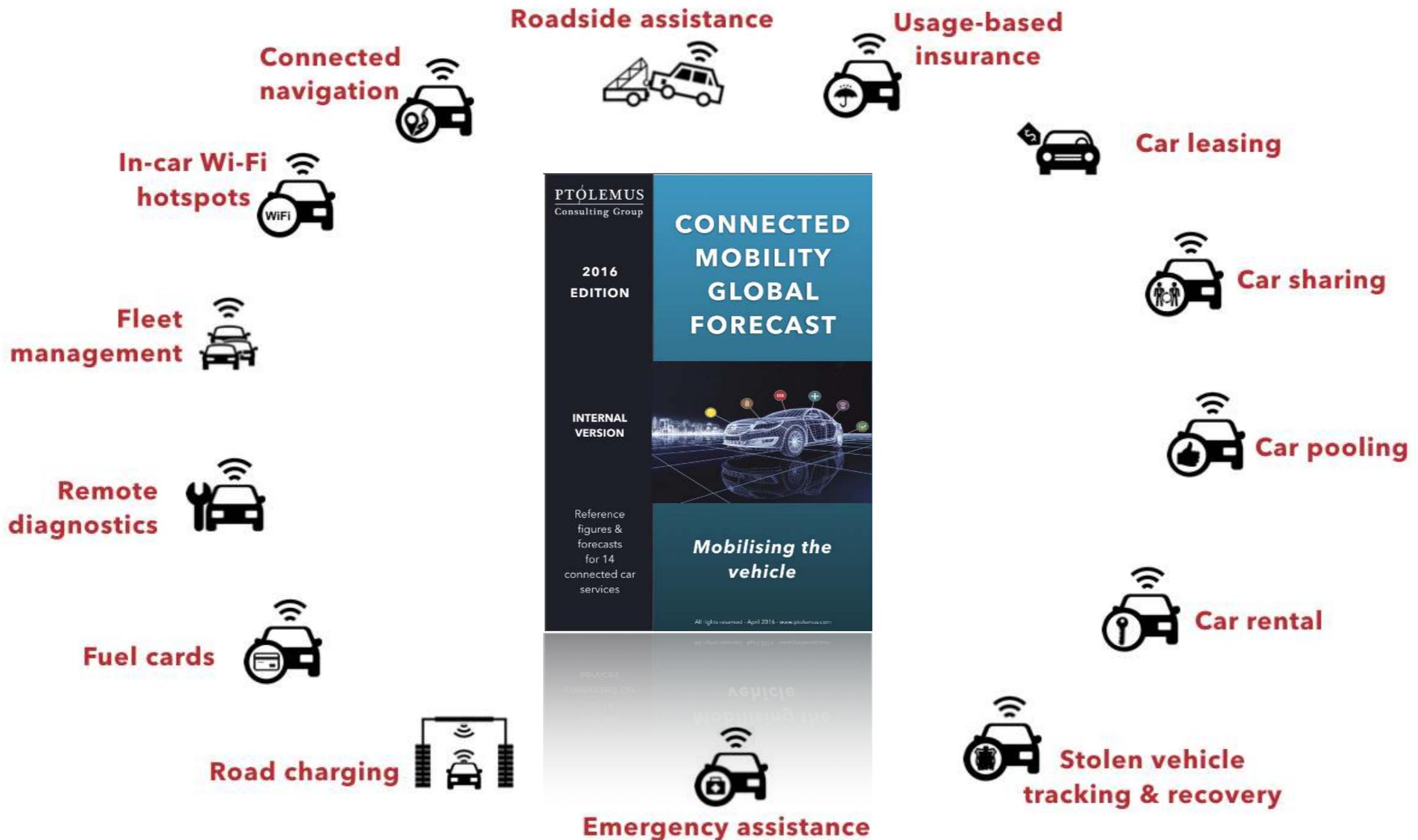
# The Autonomous Vehicle Global Study quantifies the impact of ADAS & AVs on safety and on the ecosystem



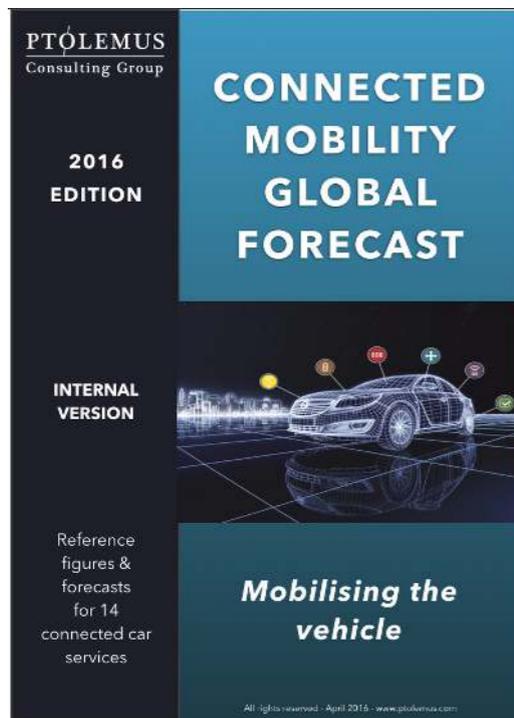
**The most thorough investigation of the driverless future**

- **600+ pages of research using:**
  - 60 interviews in 8 countries
  - 12 months of research performed by 10 consultants
  - A uniquely precise and complete methodology
  - over 200 figures (charts, tables, etc.)
- Assessment of the **key factors affecting the start, the acceleration speed and the penetration** of the different level of automation from today to 2030
  - Overview of the regulatory background, applicable regulation, evolution and trends globally
  - Complete analysis of the technology building blocks including suppliers and cost analysis
  - A global quantitative analysis of the mobility market and its role in delivering driverless cars
- **27 ADAS explained** and their impact on claims analysed
- **21 OEMs and technology providers** analysed and their AV strategy compared
- **A qualitative & quantitative evaluation of the impacts of automation on**
  - Safety
  - Personal data protection
  - Connected services
  - The automotive industry
  - The risk sector
- **2015-2030 bottom-up ADAS & AV market forecasts**
  - Global forecast over 18 markets
  - ADAS and AV **penetration forecast by level and car segment**
  - Forecast on crash volumes and severity, claims costs and insurance premiums

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



# The most comprehensive analysis of connected mobility markets ever published



**Referenced figures and forecasts for 14 connected car services**

## 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

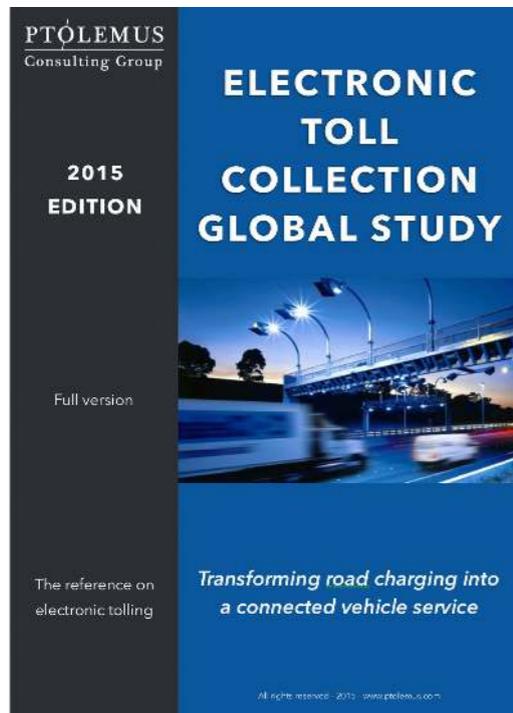
## Global, regional and country-wide volume & revenue forecasts

- 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

# PTOLEMUS has published the most comprehensive report on road user charging / electronic tolling

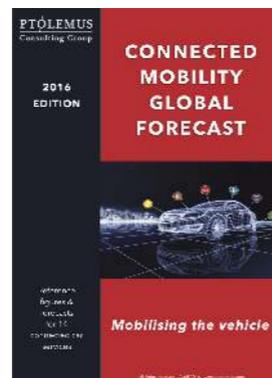
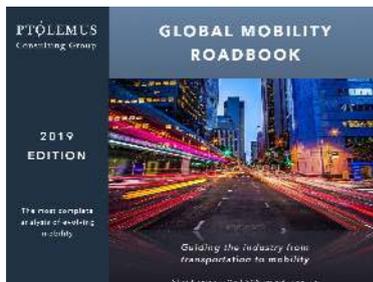


**More than a report, a real strategic market analysis**

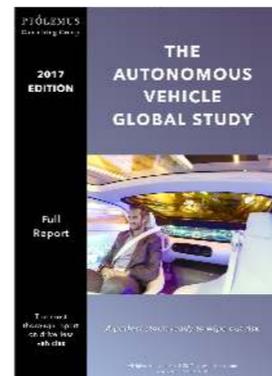
- **650-page analysis of the global electronic tolling landscape based on:**
  - 120 interviews in 12 countries
  - 230 figures and charts
  - 3 years of hands-on experience advising key players in the ecosystem
- **A comparative assessment of all tolling technologies, models and trends**
  - ANPR, DSRC, Infrared, GNSS, RFID & WAVE technologies & business models compared
  - Evolution path from toll gates, ETC to MLFF
  - The new trends: big car data, mobile tolling, mobility pricing and sustainable mobility
- **An in-depth review of ETC markets worldwide**
  - 35 countries in Europe, America, Asia & Africa profiled and analysed
  - 14 case studies including ATI, AutoPass, BroBizz, Ecotaxe, e-way, Hu-Go, LKW Maut, PrePass, Via Verde, etc.
- **A decryption of regulatory evolutions**
  - Bill 810, eCall, EETS, ERA Glonass, REETS, Resolution 005 AGEPAR
  - 43 standards & all major patents listed: 6C, ARTEFATO, CEN, ETSI, ISO, etc.
- **A detailed analysis of all major players' strategies & solutions**
  - Their development strategies in the new value chain compared
- 23 company profiles, from Atlantia to Xerox
- 35 tolling markets compared
- **Toll operator market models**
  - Toll connected services opportunity analysis
  - Markets' readiness for connected services
  - Integration with 11 VAS and 5 connected services
- **2010-25 bottom-up market forecasts**
  - Estimates of the number of devices sold, vehicles subscribed by technology & vehicle type
  - **36 countries covered** in Europe, North America, South Africa, India, China, Japan, Korea and South East Asia

# PTOLEMUS brings unparalleled depth of knowledge in mobility and automation

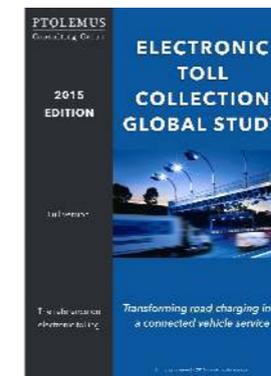
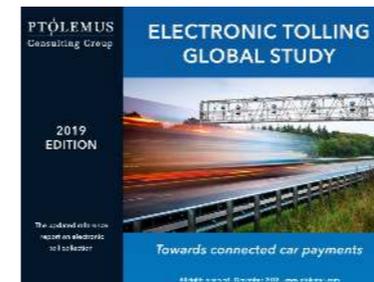
## MOBILITY



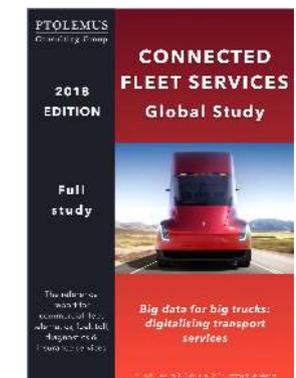
## AUTOMATION



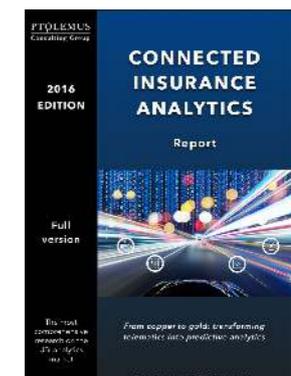
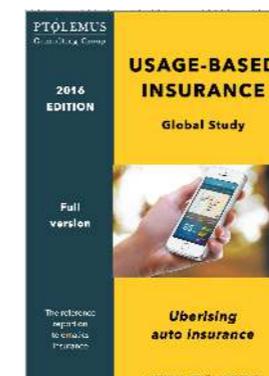
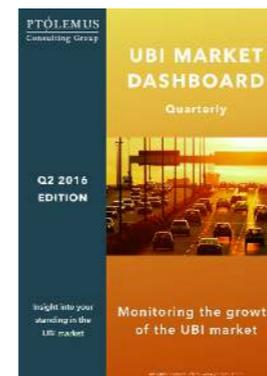
## ROAD USER CHARGING



## FLEET MANAGEMENT



## DIGITAL INSURANCE



# A growing recognition

## They mention PTOLEMUS



# The Autonomous Club (TAC) has become a successful platform to shape the future of autonomy in Europe

## THE AUTONOMOUS CLUB

### Status

An international, non-profit association jointly created by PTOLEMUS and Lysios Public Affairs

### Scope

- Connected & autonomous vehicles
- All topics at the crossing of technology, business, & regulatory domains

### Key objectives

Think tank

Networking

Research consortium creation

Contribution to the debate

Insights

Vision



### Recent speakers



### Recent subjects

- Who will control & access connected autonomous vehicle data?
- Status of the Autonomous Vehicle market and key implications
- Fostering a European-wide liability framework for AVs
- Is V2X required to make AVs a success?

### Members



PTOLEMUS Consulting Group  
**Strategies for Mobile Companies**



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