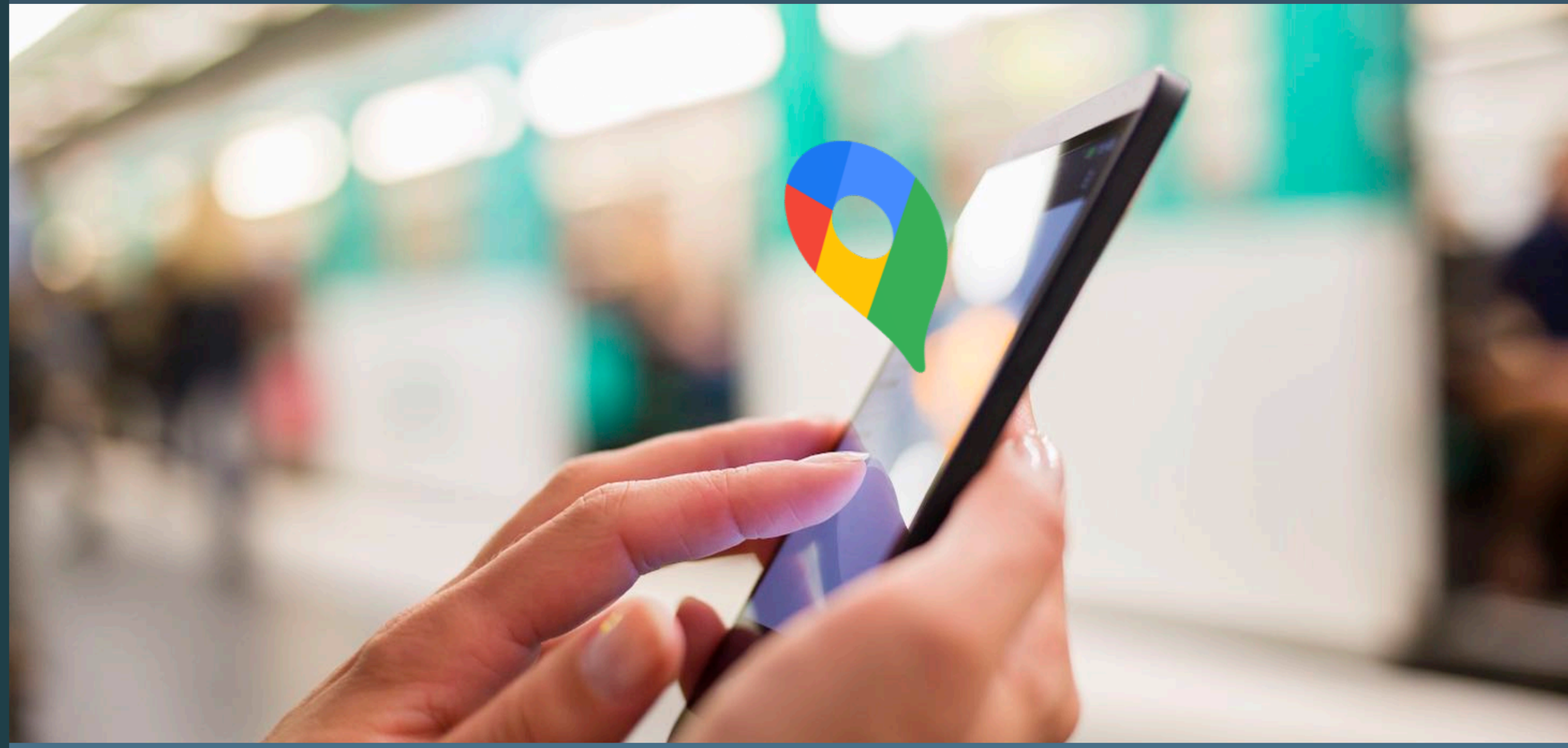
PTOLEMUS
Consulting Group

GOOGLE IN MOBILITY
Report



AT A GLANCE

The first analysis
of Google's
future urban
mobility strategy

From Google Maps to Google MaaS
Will Alphabet take over mobility?

Today, no mobility player offers Mobility-as-a-Service on a large scale but we believe Google will within the next 2 years

Why did we perform this research?

- Alternatives to the use of private vehicles in urban areas are rapidly gaining traction due to increased traffic congestion and the need to reduce emissions and pollution in general
- Because it unifies all other modes of transport, **MaaS is seen as one of the most prominent alternatives and almost every big city has launched an initiative to make it happen**
- **Still, the full benefits of MaaS have not been unleashed**
  - To date, no player offers a fully integrated solution* across multiple regions and transport modes
  - Efforts remain regional depending on the structure of the transportation sector in each country / region / city
- **With technology, mobility could become cleaner, safer & more accessible**
  - Smartphones are becoming ubiquitous for mobile access to online platforms and now for payments in the physical world
  - Digital platforms - leveraging cloud computing and AI - are integrating connected transport modes to offer real-time advice on the best route to reach a destination
  - Emerging battery-powered micro-vehicles are becoming the preferred mobility mode for first/last mile and short trips, notably in urban areas
  - Driverless cars are disrupting car-sharing, ride-hailing and taxi services

Why now?

- So far, **Public Transport Operators (PTOs)**, supported by MaaS platform suppliers such as Siemens, have created the most relevant initiatives regarding multi-modal integration, but **lack international scalability**
- Players like Moovit, Uber and FreeNow have been able to create scalable international solutions but still struggle to integrate public transport
- We identified many successful examples of mobility delivered as a service for a single transport mode
- However, **we have not yet seen scalable MaaS platforms integrating public transportation with shared mobility in multiple countries**
- While PTOs have successfully provided transportation in many cities, they lag far behind tech giants in creating mobile apps that are **user-friendly and can scale globally**
- **Based on its continuous progress in the last 20 years, Google appears as the best positioned player to deliver such a proposition**

This report is the first one to analyse whether Google will take over the urban mobility market by delivering a mobility service globally

Source: PTOLEMUS - Note: * Integrating public transportation, shared mobility, ride hailing, taxis and car services like tolling and parking in a single app

In this report, we respond to 12 questions that are absolutely crucial to understand the future of Google in urban mobility

- Why is MaaS so relevant?
- How is MaaS built and delivered?
- What has Google achieved in mobility so far?
- What's Google's formula to thrive in mobility?
- What is Google's competitive advantage in MaaS?
- What are the most likely evolution scenarios of MaaS?
- How players should react to Google's actions?
- What are the most likely scenarios for Google to move ahead in mobility?
- What are Google's risks and opportunities of each alternative?
- When will Google's roll out its MaaS service?
- What are Google's incremental profits under 3 MaaS positioning options?
- What are Google's regulatory challenges?

Source: PTOLEMUS

The first report analysing whether, how and when Google will take over the urban mobility market

- A **130-page analysis of the current and future Google's strategy in the urban mobility market**, based on:
  - **10** years of constant market surveillance
  - PTOLEMUS' mobility experience with nearly **200** consulting assignments across the transportation ecosystem
  - **8** months of research and analysis
  - Interviews with **22** mobility stakeholders
- **An in-depth analysis of Google's successes to date**
- **An analysis of Google's partnerships and actions in urban mobility**
- **An overview of Google's strategy and initiatives in the mobility field, including**
  - An analysis of its key mobility businesses: Google Maps, Google Wallet, Waze and Waymo
  - A review on how Google Maps has integrated payments
  - A review on Google Maps' key sources of revenues
  - An assessment of how companies integrate and what are the benefits of Google Maps' to the mobility partners programme
- **A detailed analysis of 4 strategy alternatives that Google could adopt in MaaS, including booking and ticketing & payment**
- **An evaluation of the future MaaS evolution scenarios, including customers' segments needs and future drivers of demand and supply**
- **An assessment of the future role, position and strategy of Google in the MaaS market based on**
  - The 3 main evolution options we identified and their respective likelihood to transpire
  - A forecast of Google's EBITDA generated by MaaS in Europe in the 3 main strategy alternatives

More than just market research.

In-depth strategic analysis and a complete tool to help your organisation make the right decision in the MaaS market

Source: PTOLEMUS

This report is divided into 6 sections

1 Introduction 17

1. Definitions
2. Context
3. The 5 levels of MaaS

2 Google's initiatives in mobility 34

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2. Alphabet and Google
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5. Google Wallet
6. Waze

3 Mapping Google's strategy in urban mobility 62

1. Cross-selling & synergies
2. Competition in the mobility market
3. EU regulations
4. Alignment with the corporate strategy

4 The future of the MaaS market 86

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1. Google’s current position
2. Return and risk assessment
   - 2.1. Potential revenues
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3. Google’s future alternatives
4. Google’s future position in the urban mobility ecosystem

6 Conclusion and recommendations to stakeholders 124

The report leverages PTOLEMUS' mobility experience and the expertise of 8 consultants and researchers (1/2)

Frederic Bruneteau

Managing Director

Alberto Lodieu

Senior Manager

Andrew Jackson

Research Director

Svetlana Tvorogova

Research Consultant

Experience

27 years

14 years

15 years

20 years

Biography

The founder of PTOLEMUS, Frederic has accumulated 25 years of experience of the mobility and transport domain.

He has become **one of the world's foremost experts of connected mobility** and is interviewed on the subject by publications such as the *Financial Times*, *Forbes*, the *Wall Street Journal* and *The Economist*.

He has **led over 180 consulting projects and helped many world leaders define their strategy and implement it.**

Clients he has served include A-to-Be, Abertis Mobility Services, AGC Automotive, Allianz, Axxès, AXA, Baloise, Bombardier, BP, Bridgestone, HERE, the European Commission, Hitachi, Octo Telematics, Orange, Société Générale, ST Engineering, Telepass, TomTom, Toyota, Transurban, wejo and WEX.

Frederic supervised the research of the Mobility Platform Suppliers Handbook in 2018 and fully reviewed this report.

Alberto has 14 years of experience in strategy consulting, and has participated to over 60 consulting assignments.

He has specialised in connected mobility, location-based services, electronic toll collection, road usage charging, autonomous vehicles, and usage-based insurance.

He has assisted 40+ organisations in defining their mobility strategies, launch new services, perform commercial due diligence

Alberto has been leading our work to build a global picture and forecast of mobility trends: new players, new vehicle types, new business models, smart city initiatives, etc.

Alberto is a regular speaker at mobility, location-based services and fleet conferences.

He led the research and writing of our landmark 750-page Global Mobility Roadbook (2019)

Alberto coordinated the research, writing and review of the report.

With a career in market research spanning 15 years, Andrew has over 11 years of experience working in the automotive and industrial sectors.

Andrew has led and participated in many automotive and telematics market research projects:

Provided forecasts for the growth of EVs in the UK, to a leading automotive media company;

Provided insights to a major telematics technology provider regarding the future of connected vehicles

Led the global research and created 5-year sales forecasts for a major geospatial data analysis company's go-to-market strategy;

Provided insight and analysis on the automotive aftermarket for some of Europe's key tier-1 suppliers.

As PTOLEMUS' Research Director, Andrew supervised and contributed to the research and writing of this report.

Svetlana has gained experience with a very large set of organisation such as Arthur D. Little, Bamberg University (Germany), Erasmus University Rotterdam, the Higher School of Economics of Moscow, EuroWejo and the World Bank.

For more than 10 years, Svetlana taught at the Research University - Higher School of Economics (Moscow, Russia), which nominated her for the Nation's best lecturer, and at Bamberg University, Germany.

Some key projects Svetlana completed include:

Helped a vehicle data hub understand fleets' use of telematics and interest for vehicle data services in Europe and North America;

Helped a private equity firm evaluate the future demand from insurance companies for UBI solutions in Europe and North America;

Svetlana led the primary research, and participated to the writing and review of the report.

The report leverages PTOLEMUS' mobility experience and the expertise of 8 consultants and researchers (2/2)

Laura Pájaro

Research Analyst

Damien Orsoni

Business Analyst

Nan Chu

Research Analyst

Claudia Lozano

Senior Business Analyst

Experience

4 years

3 years

3 years

6 years

Biography

An architecture, transportation and mobility technologies enthusiast, Laura holds a master degree in Urbanism from the VUB and ULB, Brussels.

Since Laura joined PTOLEMUS she conducted first and secondary research on Mobility-as-a-Service and User-Based Insurance.

She participated fragmenting regional research reports and creating case studies.

Key projects she completed include:

Suggested possible functionalities and case uses for a master mobility centre operating in Flanders and Brussels, Belgium

Helped to understand the likelihood to choose specific tracking technologies for the implementation of RUC in Brussels

Revised business plan to consider opportunities to expand architectural services to the middle east market

Laura participated in the research, writing and review of the report.

A passionate of strategy consulting and new technologies, Damien Orsoni has studied in France, the Netherlands and Italy. Within PTOLEMUS he has developed an expertise on Usage-Based Insurance (UBI), Telematics and Connected Mobility.

Damien's most important consulting assignments include:

For a major US telecommunication operator, he helped defining its entry strategy into European and Asian emergency services markets,

For a major European assistance group, he designed their connected vehicles strategy, value proposition, MVP and implementation roadmap,

He participated in the research and writing of PTOLEMUS' Connected Auto Insurance Global Study, an in-depth analysis of the connected auto insurance industry, and contributed to the design of the 2020-2030 market forecast.

Damien participated in the research, writing and review of the report.

Before joining PTOLEMUS, Nan has worked in marketing research covering China & Europe, enabling stakeholders in industries such as ICT, logistics and biopharmaceutical, to identify, explore and leverage business opportunities.

Nan's recent projects include:

For a European telecoms company, he helped identify the top Chinese companies in the mobility business that require cellular connectivity.

For a human resources consulting firm in Europe, he helped organising a major advertising campaign targeted for Chinese speaking clients.

Within PTOLEMUS, Nan has contributed to our new Commercial Fleet Telematics Global Study.

Nan participated in the research and writing of the report.

A Toulouse Business School alumnus, Claudia worked at Accenture on strategy consulting assignments for the mobility sector:

For a multinational car manufacturer, she helped determining the User Recognition technologies to implement on the connected vehicle.

For several User Recognition technologies, Claudia performed benchmarking analysis including OEMs and OESs, identified relevant use-cases.

For a leading railway company, she supported the definition of a governance structure for the infrastructure projects.

Claudia has also worked on business transformation out of the mobility sector.

Claudia also acquired experience during her internship at IBM as a Junior Consultant on a business transformation project.

Claudia participated in the research and writing of the report.

The report comes with a single, worldwide company licence

For more information about the report, email contact@ptolemus.com

*You can purchase the report by requesting an invoice or buy online** (Visa or MasterCard) on our website*

	Report ONLY
Contents	• A **130+ page analysis of the current and future Google's strategy in the MaaS market** • **An overview of Google's strategy and initiatives in the mobility field, including Google Maps, Google Wallet, Waze and Waymo** • **A detailed analysis of 4 strategy alternatives that Google could adopt in MaaS, including booking and ticketing & payment** • **An evaluation of the future MaaS evolution scenarios, including customers' segments needs and future drivers of demand and supply** • **An assessment of the future role, position and strategy of Google in the MaaS market based on** - The 3 main scenarios we identified and their respective likelihood - A forecast of Google's revenues and EBITDA generated by MaaS in Europe in the 3 main strategy alternatives
Company-wide licence	**995 €**

Note: Prices in Euros, excluding VAT (VAT only applicable to clients located in Belgium); *Conditions apply; **Online pricing might differ due to exchange rates

Google in Mobility

About PTOLEMUS

PTOLEMUS Consulting Group

PTOLEMUS is the first strategy consulting and research firm entirely focused on connected mobility and smart infrastructure

Strategy consulting services

Strategy definition	M&A advisory	Growth strategy
Innovation management	Partnership strategy	Procurement strategy

Market research services

Off-the-shelf reports	Subscription services	Custom market research

Fields of expertise

Autonomous Vehicles	Connected Vehicles	Connected Motor Insurance
Electric Vehicles	Electronic Toll Collection	Emergency Services
Fleet Telematics	Intelligent Transportation Systems	Location-based Services
Mobility Payments	Mobility-as-a-Service	Road Usage Charging

PTOLEMUS has completed nearly 200 consulting assignments, serving over 350 clients across the mobility ecosystem

DATA & ANALYTICS

AUTOMOTIVE

FINANCE

POSITIONING

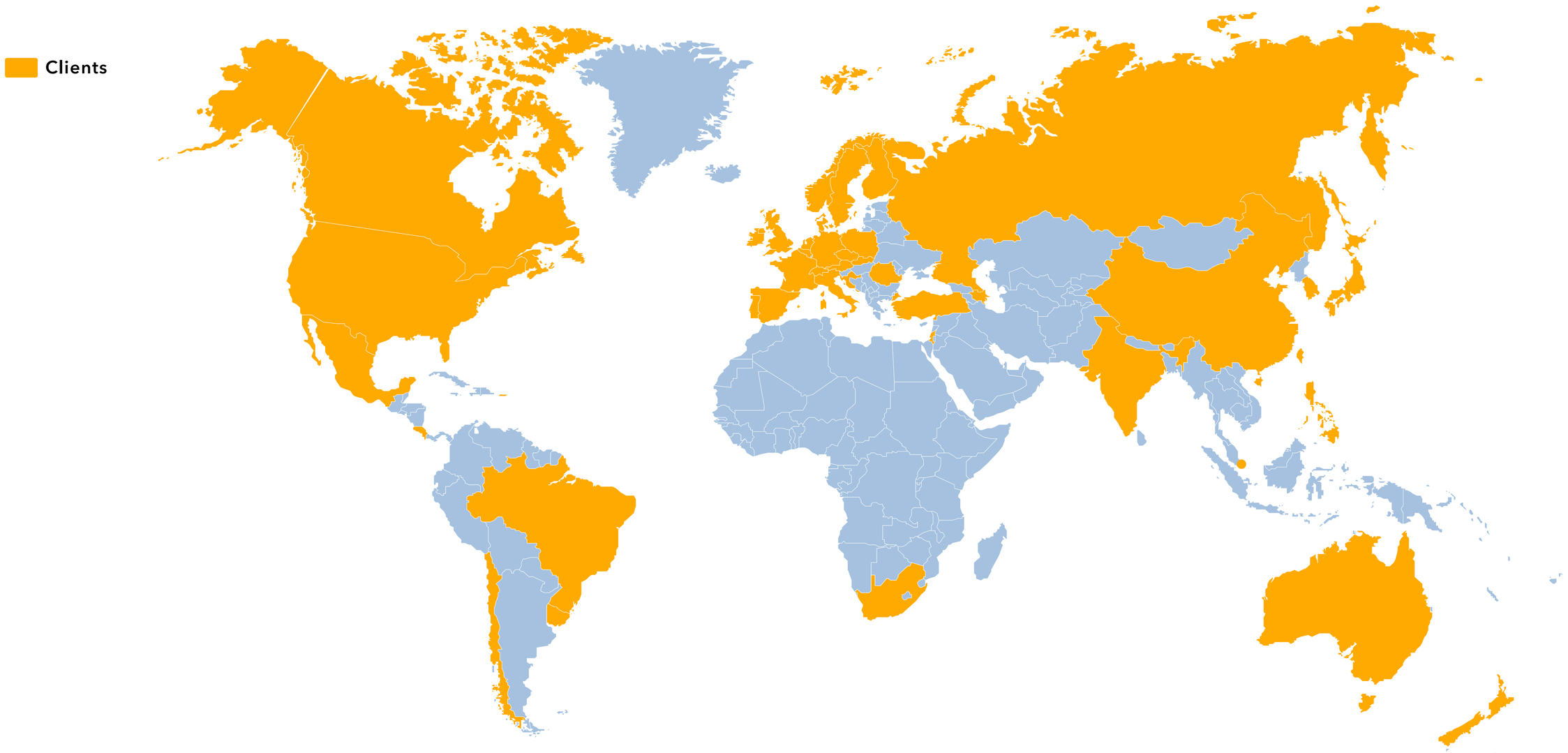
MOBILE TELECOMS

INSURANCE & ASSISTANCE

SMART CITY, ITS & FLEETS

TELEMATICS

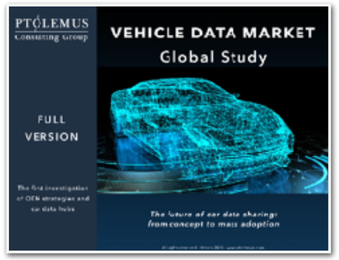
Our team of consultants, experts and analysts with 12 nationalities, serve our clients in 41 countries



PTOLEMUS has published nearly 30 landmark reports and market forecasts on mobility markets

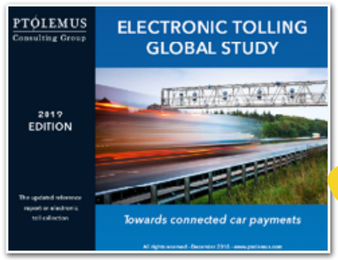
AUTONOMOUS DRIVING

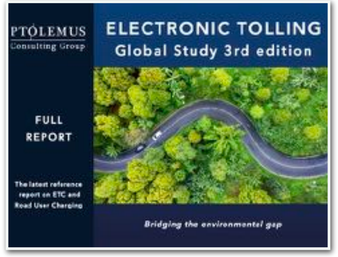
CONNECTED VEHICLE



ELECTRIFICATION

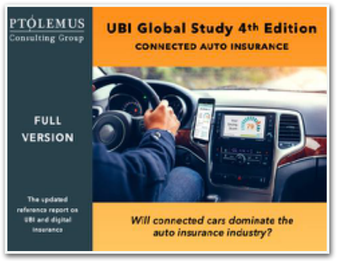
SMART INFRASTRUCTURE



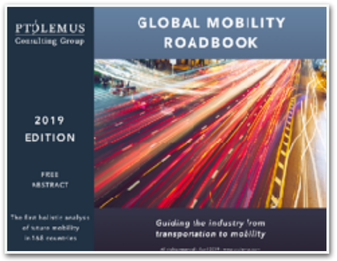


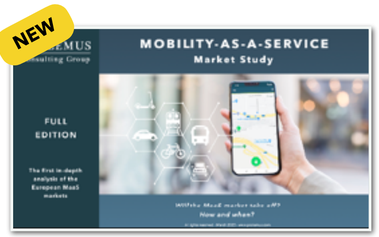
FLEET MANAGEMENT

INSURANCE



MOBILITY





Notes: 1. Most of our reports come with bottom-up market forecasts for 18 regions for 10-year timeframe,
2. To receive all our reports & other research, a subscription model exists

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Strategies for Mobile Companies

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