

# ROAD USAGE CHARGING

## United States Report

**LEAFLET**

*The first RUC diagnostics  
and simulation tool for road  
& transport decision makers*

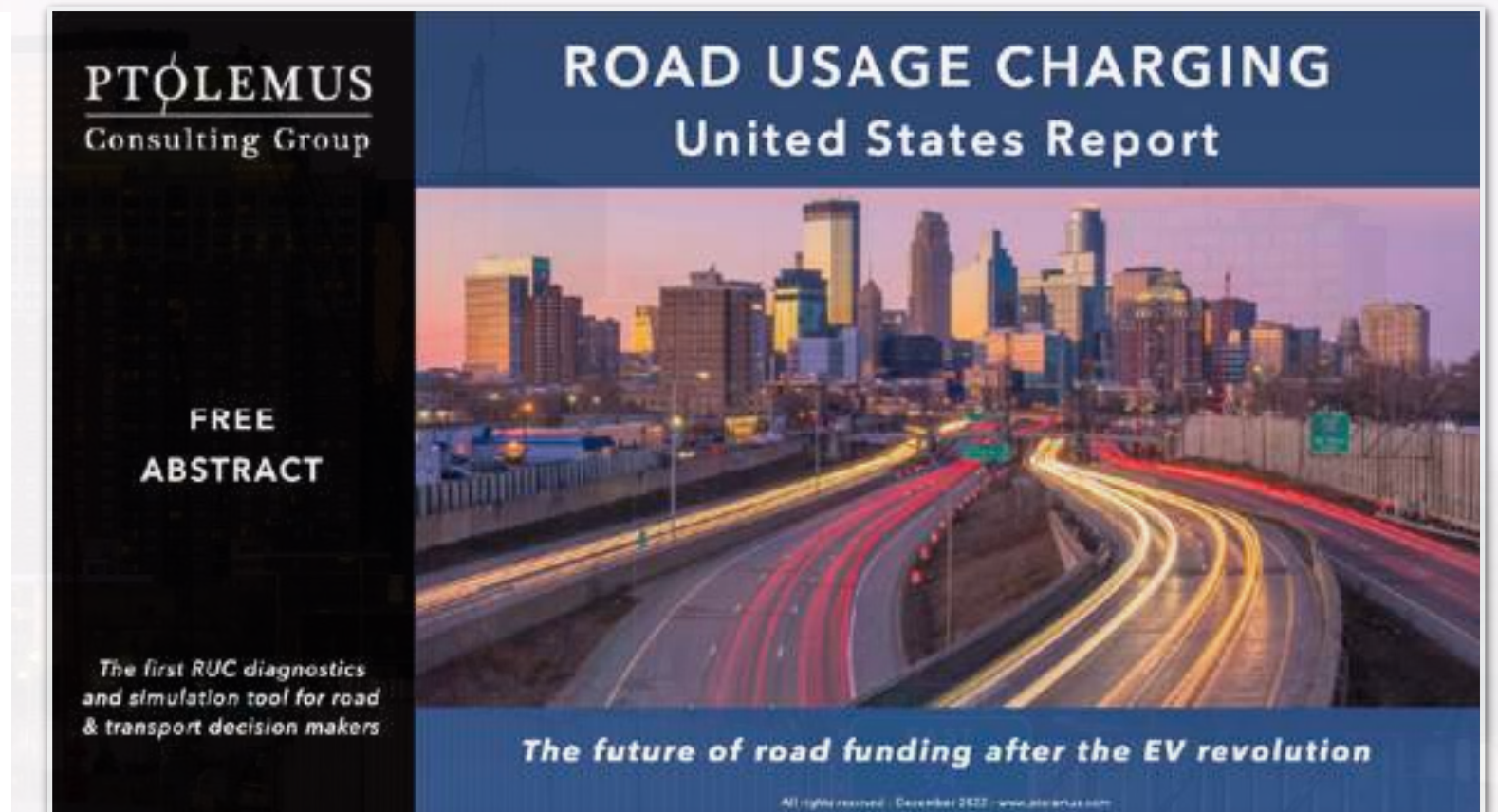


***The future of road funding after the EV revolution***



# This in-depth analysis and market forecast is the first decision-making tool for key stakeholders to design a successful RUC strategy

- A **300**-page analysis of the current and future road financing in the US based on:
  - **10** years of constant market surveillance
  - PTOLEMUS tolling and RUC consulting experience with over **40** client assignments
  - **5** months of research and analysis including interviews with key stakeholders
  - More than **200** figures presented in the report
  - More than **90** companies mentioned
- An examination of the economic, financial, political and technological context behind RUC
- A detailed assessment of RUC vs. other major funding solutions across **9** key dimensions
- The status of road funding examined in the US including **4** in-depth profiles of US States that are at the forefront of RUC initiatives
- A comparison of RUC in the US and distance-based charging in Europe that identifies **5** key lessons and insights that the US can take away from the European experience
- The Excel output forecasts for **3** separate, connected models: i) motor fuel tax revenues ii) RUC fee rates and revenues and iii) RUC costs. The model has been developed
  - With inputs from over **20** reputable sources and includes PTOLEMUS own automotive and EV forecasts
  - To easily store and simulate hundreds of unique vehicle, travel, and pricing scenarios as defined by the user
  - To cover the US and all **50** states plus the District of Colombia. *The model allows the user to either select a specific state or the United States as a whole*
- Quantitative and qualitative analysis on which states would benefit the most from a RUC scheme



*More than just market research.*

*In-depth strategic analysis and a complete tool to help your organization make the right decision to launch a new road funding model*



# The report will answer the key strategic questions about RUC in the US and help your organization navigate the evolving market

## Where is RUC now?

What is Road Usage Charging (RUC) in the US context and how is it different from other road charging schemes?

What are the key factors and trends that are causing states to turn towards RUC?

What type of RUC activities have states performed and which states have been the most active?

What has been the US federal government involvement (i.e., regulatory, financial, etc.)?

Which stakeholders (public and private) have been involved and in what role?

Which technologies have been used in the and how do they compare with each other?

What other funding options exist and what are the key advantages of RUC versus other funding options?

How does RUC compare and rank versus the other funding options with regards to revenue robustness, efficiency, flexibility, equity, etc.?



Is RUC the future of road funding for the US, a complementary piece, or a short term fad?

## Where is RUC going?

What factors will be the most relevant in determining RUC's success?

Which states will be the most active (leading) and why?

Which stakeholders are more likely to take the lead in the market?

Which technologies are most likely to be deployed in short and longer term?

What are the key factors help lower overall costs and increase the profitability of the program?

What factors should be considered when setting RUC rates and how much revenue can a program generate in the rate setting scenario?

What will be the impact of EVs (and more fuel efficient vehicles overall) on road funding in the next 20 years, assuming the current funding status quo?

What can we learn from the European RUC (distance-based charging) experience?



# The report leverages PTOLEMUS' road charging experience and the expertise of a diverse team of mobility consultants (1/2)



**Frederic Bruneteau**

Managing Director

## Experience

**27 years**

The founder of PTOLEMUS, Frederic has accumulated 25 years of experience of the mobility and transport domains and 15 years of strategic and financial advisory.

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 also spoken at over 40 conferences on the subject.

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, AETIS, AGC Automotive, Allianz, Axxès, AXA, Baloise, BP, Bridgestone, BRP, CNH Industrial, Danlaw, DMP, Egis, the European Commission, Ferrovial, HERE, Hitachi, Kapsch, the Netherlands' Ministry of Transport, Mobile Devices, Neology, Octo Telematics, Michelin, OMV, MPTC, Pioneer, Q-Free, Qualcomm, Scania, Société Générale, Skytoll, ST Engineering, Telepass, Telit, TomTom, Toyota, Transurban, T-Systems, and WEX.

**Frederic has led over 30 assignments related to tolling and RUC.**

**Frederic fully reviewed this report.**



**Ashton Williams**

Manager

**15 years**

Mr. Williams has accumulated over 15 years of professional experience working for and alongside transportation and mobility companies **specialized in infrastructure operations, highway management, public private partnerships, road charging solutions and services, and mobility payments.** He has also co-founded an EV service start-up company.

Mr. Williams' responsibilities and achievements include:

Led commercial stream and development of commercial structuring for a multi-national infrastructure operator on \$3 billion express lane project in the US.

Served as Global Head of Business Development for both Abertis Mobility Services (AMS) and its toll-based mobility service provider Emovis.

**Oversaw implementation of the first non-pilot US RUC project.**

Led for the Abertis Group origination, diligence and execution efforts on infrastructure and mobility projects across Asia, Northern Europe, and North America.

**Participated in over 40 infrastructure M&A transactions** spanning 15 countries at \$78 billion (\$12 billion executed).

Ashton led the research and writing of this report.



**Paul Maupin**

Marketing Director

**15 years**

An American citizen, Paul has 15 years of experience in digital marketing in a range of responsibilities such as web site development, copywriting, CRM, analytics, project management, product development, social media management and content strategy.

Paul has worked with a broad range of international clients and brands, large and small, to develop relevant, consistent, and results-oriented digital communication and marketing strategies across channels.

Responsibilities he endorsed over his career include:

Developed, implemented and supervised the global content marketing strategy for Radisson Hotel Group, including data-driven marketing, communication with key internal and external stakeholders;

Managed digital channels, social presence and marketing strategy for the Europe region at UPS, including implementation of paid campaigns alongside ad agencies and content creation for the pan-European central channels.

Paul reviewed the report and leads our marketing of the report.

## Biography

# The report leverages PTOLEMUS' road charging experience and the expertise of a diverse team of mobility consultants (2/2)



**Filippo Frezet**

Senior Business Analyst



**Saeeda Malik**

Senior Business Analyst



**Williams Demanou**

Business Analyst



**Fatima Essakhi**

Business Analyst

## Experience

**3 years**

An ESCP Business School alumnus, Filippo has started developing an expertise in emergency services, in Electronic Toll Collection (ETC) and Road Usage Charging (RUC), in Usage Based Insurance (UBI), in last-mile delivery, in vehicle data hubs and vehicle data monetisation.

In over 3 years at PTOLEMUS, Filippo has contributed as a core team member to 12 consulting assignments and 4 research reports.

Clients he has served include Abertis Mobility Services, Advent International, Bain Capital, European Commission, FairConnect, FSI, Hitachi, Intrado, Palamon Capital, Skytoll, Telepass, wejo, Zego Insurance

Before joining PTOLEMUS, he gained experience in consulting thanks to his internship as Junior Tax Consultant at KPMG Italy.

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

**5 years**

An HEC Paris MBA graduate, Saeeda has over 5 years of experience in strategy formulation, execution, and research.

She has been working on consulting and research assignments mainly in the fields of Electronic Toll Collection (ETC), Road User Charging and Usage-based Insurance.

Clients she has served include a private equity firm, a Toll Service Provider and a major road operator in Asia.

Saeeda led the financial feasibility analysis of Open Road Tolling for several road concessions in the Philippines

Saeeda has also contributed to our ETC and Commercial Fleet Telematics (CFT) reports.

Before PTOLEMUS, she was part of Schneider Electric's Global Automotive and eMobility team in France. Prior to that, she worked in the financial services industry.

Saeeda participated in the research and writing of the report.

**5 years**

An HEC Paris MBA graduate, Williams joined PTOLEMUS where he is developing an expertise in RUC, ETC, and UBI.

Since he joined PTOLEMUS, Williams: Took part in vendor and commercial due diligences on the UBI market.

Led a comparison of the New York City and Brussels congestion charging models.

Monitors the operational performance of 70+ telematics auto insurance programs in North America.

Prior to joining PTOLEMUS, Williams worked in Cameroon for 5 years in an engineering consulting firm focused on transport infrastructure.

During his tenure at SOL SOLUTION, he led over 20 assignments for the design of a total of 1,488 km of roads budgeted at 15 to 160 million euros for clients including development finance institutions and Cameroonian ministries.

Williams participated to the research and writing of the report.

**4 years**

An electronics and telecommunication engineer, she also holds a master degree in Smart Mobility from ENPC, Paris.

Fatima joined PTOLEMUS in 2021 and started to specialize in Electronic Toll Collection (ETC), Road Usage Charging (RUC), Intelligent Transportation Systems (ITS), Autonomous Vehicles (AV), Connected Vehicle Data (CVD).

Within PTOLEMUS, she participated in 4 consulting assignments, 2 research reports.

Clients she has served include private equity firms, Abertis Mobility Services, Neology and ST Engineering.

Before joining PTOLEMUS, Fatima started her career in the automotive industry. She was a software project leader for Renault for 3 years.

Fatima participated to the research and writing of the report.

## Biography



# The report serves as a diagnostics and simulation tool for road & transport decision makers

<p><b>1 Introduction</b></p> <ul style="list-style-type: none"> <li>1. Definitions</li> <li>2. Context</li> </ul>	<p><u>1</u></p>	<p><b>4 In-depth Case Studies</b></p> <ul style="list-style-type: none"> <li>1. Hawaii</li> <li>2. Minnesota</li> <li>3. Oregon</li> <li>4. Utah</li> </ul>	<p><u>146</u></p>
<p><b>2 Drivers</b></p> <ul style="list-style-type: none"> <li>1. Financial and Economic</li> <li>2. Mobility</li> <li>3. Infrastructure</li> <li>4. Political and Regulatory</li> </ul>	<p><u>25</u></p>	<p><b>5 Lessons and Insights from Europe</b></p> <ul style="list-style-type: none"> <li>1. Overview of European Road Charging</li> <li>2. Lessons Learned and Key Insights                             <ul style="list-style-type: none"> <li>2.1. Regional (nationwide) framework</li> <li>2.2. Location-based charging</li> <li>2.3. Interoperability</li> <li>2.4. Account Managers (EETS Providers)</li> <li>2.5. Public acceptance</li> </ul> </li> </ul>	<p><u>191</u></p>
<p><b>3 Overview of the Current Market</b></p> <ul style="list-style-type: none"> <li>1. Alternative Road Funding Options</li> <li>2. Studies, Pilots, and Programs</li> <li>3. Stakeholders and Value Chain</li> <li>4. Technologies</li> <li>5. Benefits and Considerations</li> </ul>	<p><u>79</u></p>	<p><b>6 Future of Funding and RUC</b></p> <ul style="list-style-type: none"> <li>1. Road Funding (Fuel Tax Decline)</li> <li>2. Funding Potential of RUC</li> <li>3. Cost Analysis of RUC</li> <li>4. Evolving Account Manager Role</li> <li>5. Leading States</li> <li>6. RUC in the Future (Conclusion)</li> </ul>	<p><u>232</u></p>

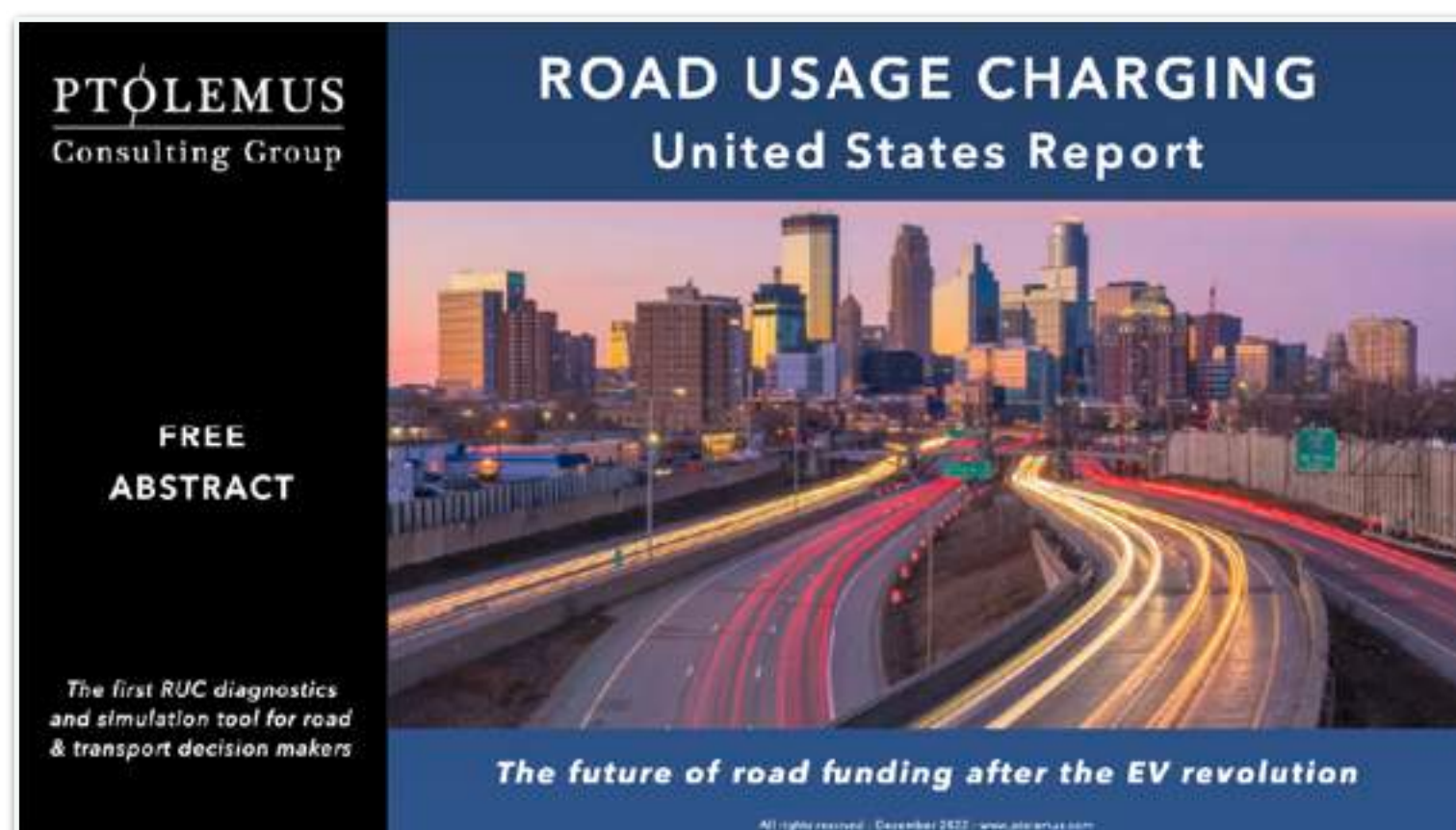


# The report mentions 90+ companies and organizations

Company	Region/Country	Type	Company	Region/Country	Type	Company	Region/Country	Type
Azuga	USA	<b>Account managers</b>	RUC America	USA	<b>Coalitions</b>	Hourcar	USA	<b>Other companies</b>
Emovis	USA		TET Coalition	USA		SFR	Europe	
Eroad	USA		CalTrans	USA	SNCF	Europe		
IMS	USA		Hawaii DOT	USA	Steria	Europe		
Verizon Connect	USA		Minnesota DOT	USA	Thales	Europe		
AECOM	USA	<b>Advisors</b>	Oregon DOT	USA	Via	USA	<b>Payment and Credit</b>	
ARUP	UK		Utah DOT	USA	VSI Labs	USA		
BERK	USA		Virginia DOT	USA	Zipcar	USA		
CDM Smith	USA		Vermont DOT	USA	Msts	Europe		
EBP	USA		Washington DOT	USA	Abertis	Europe	<b>Road Operators</b>	
Jacobs	USA		Aral	Europe	Autostrade per l'Italia	Europe		
WSP	USA		AS24	Europe	Bro Bizz	Europe		
Audi	Europe		<b>Car manufacturers</b>	BP	Europe	Transurban USA	USA	
BMW	Europe	PetroChina		Europe	AWS	USA	<b>Subcontractor/supplier</b>	
Ford	USA	Shell		Europe	Helpware	USA		
GM	USA	Sinopec		Europe	Oracle	USA		
Honda	Asia	Total		Europe	Otonomo	Asia		
Hyundai	Asia	Fleetcor		Europe	Smartcar	USA		
Kia	Asia	Wex		Europe	Wejo	Europe		
Lucid Motors	USA	Eurowag		Europe	A-to-Be	Europe	<b>Tolling service providers</b>	
Mazda	Asia	UTA		Europe	Axxès	Europe		
Mercedes	Europe	Department of Energy		USA	Conduent	USA		
Nissan	Asia	European Comission	Europe	DKV	Europe			
Rivian	USA	FHWA	USA	easytrip	Europe			
Stellantis	Europe	IBTTA	USA	eurotoll	Europe			
Subaru	Asia	IRF	USA	Kapch	Europe			
Tesla	USA	MBUFA	USA	Neology	USA			
Toyota	Asia	Fremtind	Europe	Telepass	Europe			
VW	Europe	UnipolSai	Europe	TollTickets	Europe			
				TransCore	USA			

DOT: Department Of Transportation

# The report comes with a single, worldwide company licence



For more information about the report, email [contact@ptolemus.com](mailto:contact@ptolemus.com)



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

	Full Report	Market Forecast Model	Full Report + Market Forecast Model	Additional workshop
<b>Contents</b>	<ul style="list-style-type: none"> <li>• A <b>300-page analysis</b> of the current and future road financing in the US</li> <li>• An examination of the <b>economic, financial, political and technological context behind RUC</b></li> <li>• A detailed assessment of <b>RUC vs. other major funding solutions</b> across 9 key dimensions</li> <li>• The status of road funding examined in the US including <b>4 in-depth profiles of US States</b> that are at the forefront of RUC initiatives</li> </ul>	<ul style="list-style-type: none"> <li>• <b>One single excel file, 3 separate, connected models:</b> i) motor fuel tax revenues, ii) RUC fee rates and revenues, and iii) RUC costs</li> <li>- Has inputs from over 20 reputable sources and includes PTOLEMUS own automotive and EV forecasts</li> <li>- Stores and simulates hundreds of unique vehicle, travel, and pricing scenarios as defined by the user</li> <li>- Covers the US and all 50 states plus the District of Colombia</li> </ul>	Includes both the report and market forecast content as described	<p>The full report and a market forecast demo presented to your board or strategy team</p> <p>Half-day workshop*</p>
<b>Company-wide licence</b>	<b>\$2,995</b>	<b>\$1,995</b>	<b>\$3,995</b>	<b>\$4,995</b>

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



# PTOLEMUS Consulting Group

*Strategies for Mobile Companies*

To download the full 52-page  
abstract or purchase the report  
visit:

[PTOLEMUS.com/RUC](https://www.ptolemus.com/RUC)



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# PTOLEMUS is the first strategy consulting and research firm entirely focused on geo-connected mobility and automation

## Strategy consulting services

Strategy definition	M&A advisory	Procurement strategy
Partnership strategy	Business development	Market forecasting

## Market research services

Off-the-shelf reports	Subscription services	Custom market research
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## Fields of expertise

RUC and tolling	Motor insurance	Vehicle data and analytics
IoT & connectivity	Emergency services	Vehicle services
Mobility services	Vehicle automation	Electrification



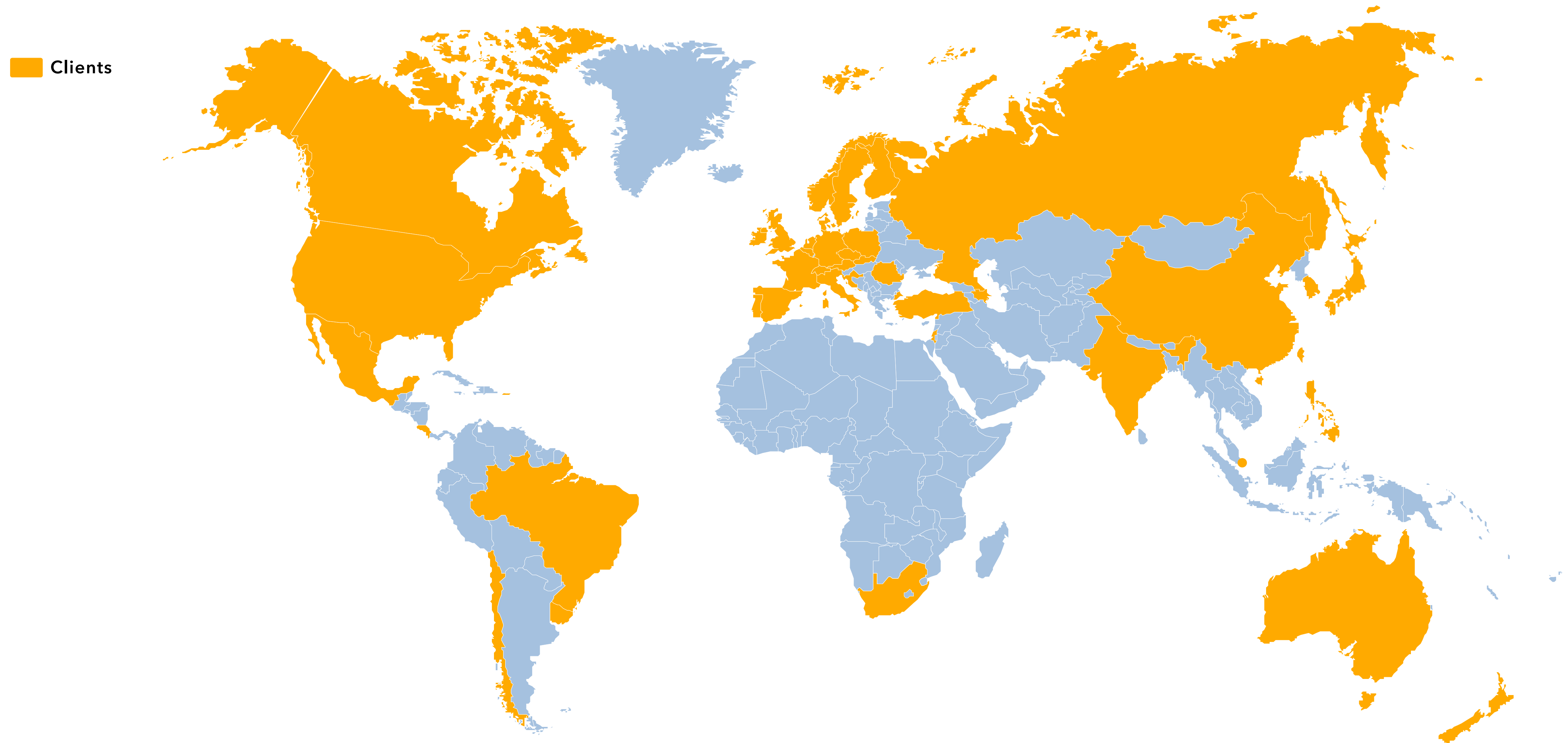
# We serve over 350 clients across the mobility ecosystem

Business area	Clients
Analytics, maps & apps providers	AAA, arity, BEMOBILE, BMJ, CarPay, CCC, COYOTE, DYNAMIC MAP PLATFORM, ESRI, Increment P, here, LexisNexis, otonomo, RMS, SAS, sentiance, TOMTOM, TOWERS WATSON, TrueMotion, Verisk Analytics, wejo, ZENRIN
Automotive OEMs & suppliers	AGC, ALPINE, Audi, BOSCH, BRIDGESTONE, CNH, Continental, DAIMLER, DELPHI, Ford, GM, HARMAN, HITACHI, HONDA, intel, ISUZU, MAZDA, MICHELIN, nOVO, MITSUBISHI MOTORS, NISSAN, Pioneer, QUALCOMM, QOROS, RENAULT, SCANIA, SUZUKI, Telit, TOYOTA, ZE
Banks & private equity investors	Advent International, Amadeus Capital, Amundi, BainCapital, Bank of America Merrill Lynch, BARCLAYS, THE BAUPOST GROUP, capvis, Cinven, citigroup, CVC, DISRUPTIVE, Goldman Sachs, HELLMAN & FRIEDMAN, INVESTCORP, J.P.Morgan, HUTTON COLLINS, Leonardo & Co., MONTEZEMOLO & PARTNERS, NOMURA, RENOVA GROUP, PAMPIONA CAPITAL MANAGEMENT, SILVERLAKE
Device & location suppliers	ANDREW, cnes, gmv, HUAWEI, LOCATION SMART, NAVIZON, NOKIA, SAMSUNG, SYSNAV, ThalesAlenia Space, Telespazio, TruePosition, VERIZON
Mobile telecom players	AT&T, ERICSSON, orange, proximUS, SFR, SK telecom, Sprint, TELEKOM AUSTRIA GROUP, Telefonica, verizon, vodafone

Business area	Clients
Insurers, aggregators & assistance providers	AAA Insurance, ADMIRAL, Agero, Aiol Nissay Dowa Insurance, Allianz, Allstate, AMERICAN FAMILY INSURANCE, ARC Europe, AVIVA, AXA, Baloise, CA, carref, CO vea, Desjardins, FIA, europ assistance, FARMERS, GENERALI, THE HARTFORD, UIAG, CICICI Lombard, intact, NEW ALPINES ASSISTANCE, ИИТООСТРАХ Ингосстрах, HUK, Liberty Mutual, MACIF, MAPFRE, Matmut, MENORA, MONDIAL ASSISTANCE, Munich RE, Nationwide, OUT SURANCE, PROMUTUEL, RAC, RSA, SOCIETE GENERALE, SOS INTERNATIONAL, SCOPE JAPAN, smije, State Farm, Swiss Re, telesure, TOKIOMARINE, youi, ZURICH
Tolling & ITS	abertis, ALD Automotive, ARAL, ARVAL, AVIS, autostrade, Axxès, bp, Brisa, Bro Bizz, DKV, ecoPISTAS, Ederred, EFKON, egis, eni, EURONASTER, EUROPEAN COMMISSION, ew, ferrovial, FLEETCOR, kapsch, OMV, ND Nomad Digital, NORBIT, Q FREE, Shell, SKYTOLL, SKEDGO, sorico, Telepass, THALES, T-Systems, TOLL COLLECT, UTA, VITRONIC, TOTAL, Transurban, wex, zipcar
Telematics solution providers	ARKAN, arvento, CAMBRIDGE MOBILE TELEMATICS, DigiCore, drivefactor, edriving, Eliocity, FleetComplete, Fleetmatics, GSGroup, LO/JACK, mcsternout, IMS, META SYSTEM, MVAIC, OCTO, Quartix, QuecLink, SafeFleet, Scope Technologies, smobil, SIRIUSXM, SISTEMA, Tantalum, VZASA, Xevo



# Our team of consultants, experts and analysts with 13 nationalities, serve our clients in 40 countries





# A member of the IBTTA and the IRF, PTOLEMUS has performed nearly 200 consulting assignments including 46 in tolling, RUC and ITS



Advised ST Engineering in the commercial due diligence for the acquisition of TransCore, the leading US toll solution provider



Performed the feasibility study of its move to All Electric Tolling (AET) and Open Road Tolling

Asian road concessionaire



Helped a US-based toll solution provider to identify project opportunities and build its sales pipeline in the US and 22 other markets

Major toll solution provider



Helped define its strategy for the future Australian RUC scheme

Road & infrastructure operator



Conducted an in-depth examination of the demand for tolling solutions in North America and helped identifying M&A target and partners

ETC / RUC solution provider



Assisted the board of its technology unit in its strategy definition

Global motorway operator



Defined the value proposition for RUC and selected optimal partners and M&A targets to enter the US market

Global RUC solution provider



Evaluated the technologies & business potential of the EU electronic tolling market



Evaluate global OEMs' connected vehicle payments strategies and partnership opportunities

Major road operator



Advised on the optimal structuring of the Netherlands' RUC scheme, notably regarding interoperability with other Member States





# PTOLEMUS can help your organisation define and achieve its strategy in fast moving times

- **Strategy definition**

- Road policy strategy assistance
- Market entry assistance
- Data strategy and analysis
- RUC strategy development
- RUC program design & planning
- Connected vehicle strategy
- Strategy orientation workshops

- **Innovation strategy**

- Vertical market assessments
- Product definition
- Consent management
- Data collection & analytics strategy

- **Innovation delivery**

- Proof of concept design & launch
- Architecture definition
- Project management

- **Investment assistance**

- RUC revenue business planning & simulation
- M&A strategy
- Commercial due diligence
- Technology due diligence
- Feasibility studies
- Vehicle data market sizing
- Business case development
- Cost benefit analyses

- **Procurement**

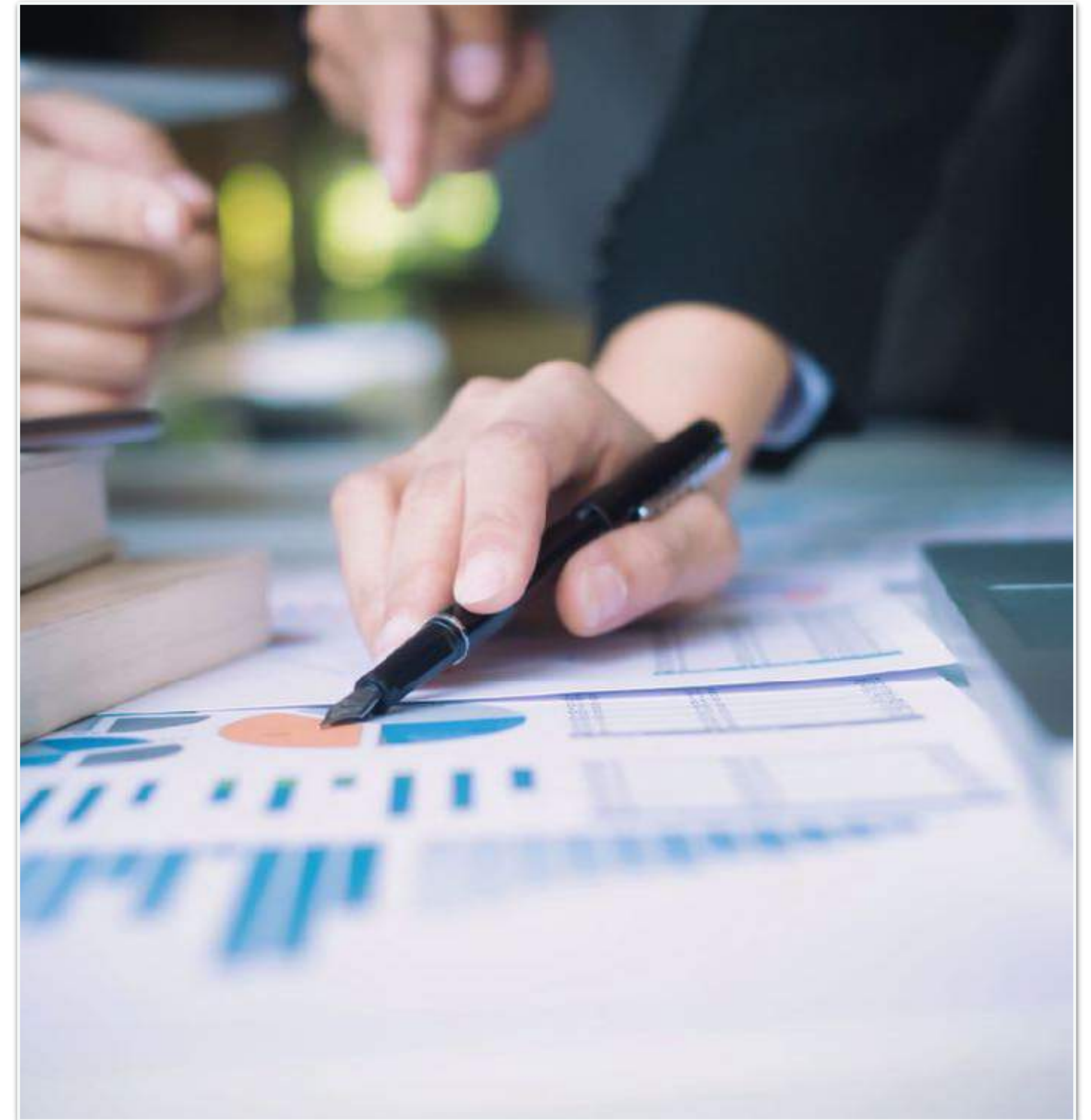
- Definition of road charging schemes
- Assistance to tenders
- Selection and sourcing of RUC technology

- **Business development**

- Partnership strategy definition
- Assistance to tender response

- **Project management**

- Assistance in management of road pricing projects
- Congestion charge project management





# PTOLEMUS Consulting Group

## *Strategies for Mobile Companies*

For any assistance in your RUC and mobility strategy, please contact:

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