

ELECTRONIC TOLLING Europe Study

**REPORT
LEAFLET**



*The latest reference
report on ETC and
Road Usage Charging
in Europe*

From road funding to green mobility pricing

The road charging industry is tasked to deliver sustainable mobility by 2030



Dear reader,

This is PTOLEMUS' 7th report on electronic tolling and the result of 8 months of work by a team of 8 consultants and researchers.

What has changed since our 2020 Global Study? While road infrastructure and tolling sometimes appear as a slow motion movie, the last 3 years have broken this pattern.

The Eurovignette Directive, incarnation of the Green Deal in road transport, delivers a lot:

- **A move towards distance-based charging** across Europe, phasing out vignettes by 2030-32;
- **Mandates for road charging on air and noise pollution and CO₂ emissions** for trucks but also light commercial vehicles by 2026;
- **Clear rules for congestion charging;**
- **The phasing out of DSRC-only devices,** etc.

Combined with the new EETS Directive and GDPR, it **gives Europe the most sophisticated system for a fairer and greener road charging.**

European countries and cities now have the **best toolbox in the world to make transport more sustainable and reduce CO₂ emissions.**

But the action is not only on the regulatory side, as this shows:

- **Germany** just decided to double its heavy vehicle toll;
- **Germany and Austria** will implement environmental charging in 2024;
- After many years of standstill, **MLFF** is being rolled out, from France to Italy;
- The first **smartphone-based RUC contract** was tendered;
- **ANPR** is making growing inroads in the tolling of small facilities, as seen at Dartford Crossing;
- Axxès and Continental partnered on **tachograph tolling;**

- Mercedes launched fingerprint authentication for **Mercedes Pay;**
- Many countries are looking to introduce **nationwide RUC schemes,** from Spain to the UK;
- Many countries are looking how to **recoup with RUC the lost fuel tax revenues from EVs,** starting with **Iceland** in 2024.
- **Low Emission Zones** are starting to include charging mechanisms, etc.

My conclusion: we won't recognise the European tolling landscape in 2030!

To make sure you can seize the short- and mid-term implications of these dramatic changes, we chose to publish this **550-page report focused on Europe.** We also built **10-year market forecasts for 28 countries.**

Thank you for your continued trust.

Sincerely,

Frederic Bruneteau

Managing Director

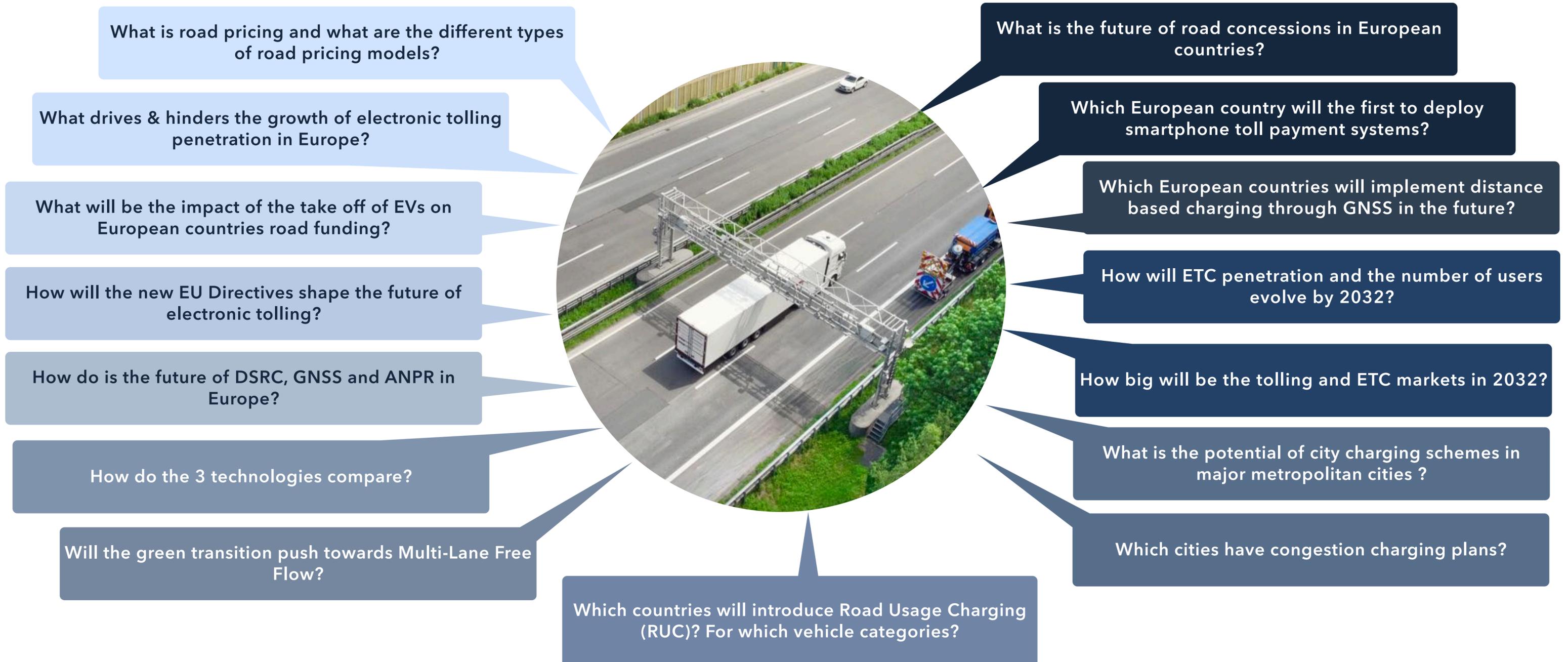
This report is a comprehensive analysis of the electronic tolling market in Europe covering 28 countries

- A **550-page** analysis of the current and future electronic tolling market in Europe based on:
 - **10** years of constant market surveillance
 - PTOLEMUS' consulting experience with **52** tolling / RUC client assignments
 - **8** months of research and analysis including interviews with key stakeholders
 - More than **310** figures presented in the report
 - More than **230** companies mentioned
- **An examination of the economic, financial, political and technological context behind ETC**
- **An analysis of the latest regulatory landscape for ETC in Europe and how it will impact the industry**
- **A detailed assessment of traditional and emerging toll collection technologies & models**
 - DSRC, ANPR, GNSS
 - AET, MLFF, RUC, CC, LEZ, AC
 - Smartphone tolling, video tolling, connected vehicle payments
- **An in-depth analysis of the tolling and ETC markets in 28 European countries**
 - Detailed road and ETC statistics, tolling history and value chain in each country
 - Major extensions and developments of toll domain
 - Outlook for ETC in each country and likelihood of new projects / schemes
 - Forecast ETC users and toll revenues until 2032
- **2020-2032 Excel forecasts, built bottom up**
 - With inputs from over 200 reputable sources and PTOLEMUS' own automotive and EV forecasts
 - Tolling revenues by vehicle type for 28 countries
 - ETC subscriptions by vehicle type for 28 countries
 - ETC revenues by vehicle type for 28 countries
 - All key outputs analysed in the slides
- **The future of ETC in Europe** based on regulatory, technology and demand trends incl. potential evolution scenarios
- **Strategic recommendations to key stakeholders incl. Ministries of Transport, concessionaires, toll service providers, toll solution providers**



The reference report for all industry stakeholders to understand and prepare the future of tolling

The study answers many critical questions on European tolling, ETC, RUC as well as urban schemes (AC, congestion charging, LEZ, etc.)



To know more about the report, you can contact our experts:



Frederic Bruneteau

Managing Director

Experience

27 years

The founder of PTOLEMUS, Frederic has accumulated 27 years of experience of the mobility and transport domains and 17 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 assignments 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, BP, Bridgestone, BRP, CNH Industrial, Danlaw, DKV, Egis, Emovis, the European Commission, Edenred / UTA, Ferrovial, Guardian Smart Infrastructure, Kapsch, the Netherlands' Ministry of Transport, Neology, OMV, MPTC, Neology, Q-Free, Scania, SkyToll, ST Engineering, Switzerland's Ministry of Transport, Telepass, Telit, TotalEnergies, Toyota, Transurban, T-Systems, and WEX.

Frederic has led 50 assignments related to tolling and RUC.

Frederic directed the research, contributed to and reviewed this report.



Alberto Lodieu

Senior Manager

15 years

Alberto has more than 15 years of experience in strategy consulting.

He has specialised in **mobility, location-based services and smart road infrastructure** in projects related to corporate and competitive strategy, operations excellence and business analytics.

He has performed more than 30 consulting assignments for clients such as Abertis, Abertis Mobility Services, Advent International, AGC Automotive, Bain Capital, CNES, the French space agency, Edenred / UTA, Emovis, Ferrovial, Guardian Smart Infrastructure, Neology, SkyToll, Telepass, Telespazio, Transurban and UnipolSai.

One of the key projects in road infrastructure includes assisting a **major provider of RUC solutions in defining its international expansion strategy** in the Road Usage Charging, Congestion Charing and Low Emission Zones markets, including identifying & recommending business as well as acquisition and partnership opportunities.

Alberto holds an MBA from HEC Paris and a BSc in Industrial and Systems Engineering from the Tecnologico de Monterrey.

Alberto co-led the research and writing of this report alongside Frederic.



Vijay Govindaraju

Senior Research analyst

8 years

Vijay has an overall 8 years of experience in the global mobility and automotive landscape

Vijay has **worked on multiple consulting assignments on the ITS and road infrastructure** topics within PTOLEMUS.

His core specialities include electronic tolling, traffic management, connected vehicle data & services, fleet telematics and vehicle electrification.

Vijay contributed to the market due diligence for the acquisition of TransCore by ST Engineering.

Other organisations he has served include Abertis Mobility Services, Emovis, Guardian Smart Infrastructure, Michelin, Motability, Neology, Nestlé, Renault, Royal Enfield, and Telepass.

Vijay holds an MSc from Skema Business School, Paris.

Vijay participated in the research and writing of this report.

Biography

The study provides a fully updated analysis and forecast of the electronic tolling market of Europe

- We have structured The Electronic Tolling Europe Study into **8 sections**
- **In section 1, we introduce the fundamentals of ETC and RUC** by defining the key terms and providing an overview of tolling schemes in Europe
- **In section 2, we analyse the drivers of growth and challenges of the electronic tolling ecosystem in Europe**
 - The drivers we analysed are:
 1. Increase in road funding needs
 2. Tolling expanding at the city level
 3. Tolling as an instrument to reduce emissions and achieve green transition targets
 4. Expansion of interoperability
 5. Expansion of new ETC technologies and devices
 6. Use of AI and data analytics
 7. Integration of tolling with other mobility services
 - The inhibitors we analysed are:
 1. Public and political acceptance
 2. Fraud and violation
 3. Toll collection costs
 4. Interoperability
 5. Need for standardisation
 6. Security risks
- **In section 3, we explain in detail how new EU legislation is shaping the future of tolling in Europe**
 - We provide the objectives, timeline, implementation, and key provisions present in the EU legislations that impact tolling, such as the Eurovignette directive and the EETS directive
 - We also analyse the impact of GDPR on electronic tolling technologies, notably GNSS and ANPR
- **In section 4, we take an in-depth look at the technology landscape in Europe**
 - We explore the main configuration alternatives of ETC technologies in Europe
- **In section 5, we performed an in-depth country-by-country analysis of the evolution of the ETC ecosystem for 28 countries**
 - We provide an overview of the main building blocks in an ETC system, including roadside systems, back office systems and customer service centres
 - We explore their integration with external and allied agencies
 - We also analyse in detail the characteristics, implementation options, and performance of DSRC, GNSS, ANPR
 - We compare, using the SWOT methodology, DSRC, GNSS and ANPR in Europe,
 - We illustrate the current toll configurations in European countries for light and heavy vehicles and provide an expected timeline of its evolution
- **In section 6, we analyse, forecast and compare the European tolling market until 2032, notably:**
 - We provide a timeline of key tolling milestones and events
 - We review the current and future toll charging initiatives (RUC, MLFF, CC, etc.)
 - We forecast the number of ETC subscribers and toll revenues until 2032
 - Key drivers of ETC revenue evolution for both Light Vehicles and Heavy Vehicles
 - ETC penetration by country in 2032
 - Total number of ETC subscriptions by country and vehicle category
 - Total tolls collected
 - ETC revenues vs. other collected tolls
 - Total ETC revenues in 2032
- **In Section 7, we bring PTOLEMUS' vision on the future of ETC**
- **In section 8, we offer our conclusions and recommendations to stakeholders in the European ETC value chain and conclude our analysis**

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Our forecasts offer tolling and ETC market sizing and forecasts until 2032 for 28 European countries!

- | | |
|--|--|
| Austria  | Italy  |
| Belgium  | Latvia  |
| Bosnia & Herzegovina  | Lithuania  |
| Bulgaria  | Netherlands  |
| Croatia  | Norway  |
| Czech Republic  | Poland  |
| Denmark  | Portugal  |
| Estonia  | Serbia  |
| Finland  | Slovakia  |
| France  | Slovenia  |
| Germany  | Spain  |
| Greece  | Sweden  |
| Hungary  | Switzerland  |
| Ireland  | United Kingdom  |



The forecasts provide detailed ETC volumes for 28 countries until 2032

Market forecast contents (Excel file)

ETC MARKET FORECASTS	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
PTOLEMUS													
Consulting Group													
ETC subscriptions at EoY													
Cumulative subscriptions at EoY (excluding e-vignettes)													
All vehicles	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Cumulative number of ETC subscriptions on all vehicles at EoY													
Penetration in all vehicles (EoY)													
By vehicle category	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Cumulative number of ETC subscriptions on company cars at EoY													
Cumulative number of ETC subscriptions on private passenger cars at EoY													
Cumulative number of ETC subscriptions on LCVs at EoY													
Cumulative number of ETC subscriptions on Light Vehicles at EoY													
Cumulative number of ETC subscriptions on HGVs at EoY													
Cumulative number of ETC subscriptions on buses & coaches at EoY													
Cumulative number of ETC subscriptions on Heavy Vehicles at EoY													
Cumulative number of ETC subscriptions on all vehicles at EoY													
Cumulative number of ETC subscriptions on all vehicles at EoY													
Cumulative number of ETC subscriptions on Heavy Vehicles at EoY													

Source: PTOLEMUS - Note: *Only motor-powered vehicles are included, with the exception of two-wheelers

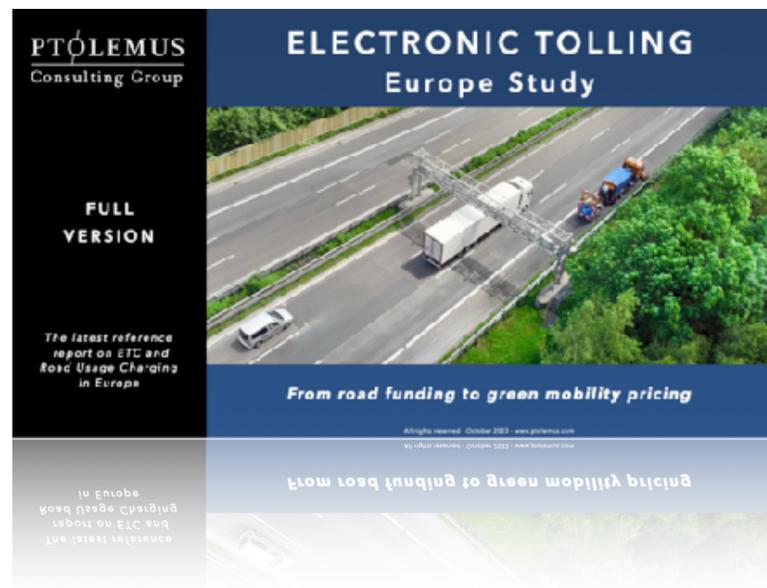
The forecasts include tolling & ETC revenues for 28 countries until 2032

Market forecast contents (Excel file)

Total collected tolls													
Total collected tolls (all cash and electronic tolls paid, excluding e-vignettes)													
Total collected tolls													
Total ETC revenues													
Total revenues generated from ETC													
Total ETC revenue by segment													
By type of vehicle	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Total revenue generated from ETC by company cars													
Total revenue generated from ETC by private passenger cars													
Total revenue generated from ETC by LCVs													
Total revenue generated from ETC by Light Vehicles													
Total revenues generated from ETC by HGVs													
Total revenues generated from ETC by buses & coaches													
Total revenues generated from ETC by all Heavy Vehicles													
By ownership type	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Total revenue generated from ETC by privately owned vehicles													
Total revenue generated from ETC by fleet vehicles													
Total revenue generated from ETC by fleet vehicles													
Total revenue generated from ETC by privately owned vehicles													

Source: PTOLEMUS - Note: *Only motor-powered vehicles are included, with the exception of two-wheelers

The study comes with a worldwide company license



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	Report (1)	Market forecasts (2)	(1) + (2)
Contents	<ul style="list-style-type: none"> • 550-page pdf report of the current and future electronic tolling market in Europe including: <ul style="list-style-type: none"> - An analysis of key market drivers and challenges - The evolution of European regulation and its implications - The evolution of the ETC technology landscape (AET, MLFF, RUC, AC, CC, LEZ, etc.) - In-depth analysis of 27 countries in Europe with forecast slides and rationale for their growth - The future of ETC in Europe - Conclusions and recommendations for multiple stakeholders in the tolling value chain 	<ul style="list-style-type: none"> • 2020-2032 Excel forecast outputs (650 lines) <ul style="list-style-type: none"> - Based on a bottom-up model - With inputs from over 200 reputable sources and PTOLEMUS' own automotive and EV forecasts - Tolling revenues by vehicle category for 28 countries - ETC penetration for 28 countries - ETC subscriptions by vehicle category for 28 countries - ETC revenues by vehicle category for 28 countries - ETC revenues by ownership category for 28 countries - Key outputs analysed in the slides 	<ul style="list-style-type: none"> • 550-page analysis of the current and future electronic tolling market in Europe • 2020-2032 Excel forecast outputs (650 lines)
Company-wide license	4,995 €	1,995 €	5,995 €

The report mentions over 230 companies and organisations (1/3)

Company	Country	Type	Company	Country	Type	Company	Country	Type
Øresundsbron	Sweden	Road operator	Autostrada pedemontana	Italy	Motorway concession	Czech Toll	Czech	Toll technology solutions
A-to-Be	Portugal	Toll technology solutions	Autostrade per l'Italia (ASPI)	Italy	Motorway concession	Daimler	Germany	OEM
Storebælt	Denmark	Road operator	AutoTicket	Germany	Toll technology solutions	Daimler financial services	Germany	Financial services
Abertis	Spain	Motorway concession	Aventi	Norway	Toll technology solutions	Dalekovod	Slovenia	Toll technology solutions
Abertis Mobility Services	Spain	ITS technology solutions	Axxes	France	Toll service provider	DARS	Slovenia	Road operator
Adaptive Recognition	Spain	ANPR solution provider	BEMobile	Belgium	Smartphone toll solution	DARSGO	Slovenia	Toll service provider
Aegean Motorway	Greece	Motorway Concession	Berlio	Belarus	Fuel card issuer	Dart Charge	UK	Toll service provider
AGES	Germany	Toll service provider	BGToll	Bulgaria	Toll service provider	Denmark Technical University	Denmark	Educational institution
AKA M5 Motorway	Hungary	Motorway Concession	Bina-Istra d.d. and	Croatia	Road operator	Department of Transportation	UK	Government agency
Aktor	Greece	Motorway concession	BIP & Go	France	Toll service provider	Digitoll	Bulgaria	Toll service provider
APRR	France	Motorway concession	BlaBlaCar	France	MSP	Direct route	UK	Toll service provider
ARAL	Germany	Fuel card issuer	Bompengeselskap Nord AS	Norway	Road operator	Directorate of Highways and Motorways	Czech	Government agency
ARH	Croatia	Toll technology solutions	Bosch	Germany	Technology solutions	DKV	Germany	Toll service provider
Ascendi	Portugal	Motorway concession	BP	UK	Fuel card issuer	Durham city council	UK	Government agency
ASECAP	Belgium	Consortium	Brisa	Portugal	Motorway concession	Driver & Vehicle Licensing Agency	UK	Toll service provider
ASF	France	Motorway concession	Bro Bizz	Denmark	Toll service provider	E100	Poland	Fuel card issuer
ASFINAG, Austria	Austria	Road operator/ GA	Capita	UK	Toll technology solutions	easytrip	Ireland	Toll service provider
ASTM Group	Italy	Motorway concession	Celtic Roads Group	Ireland	Motorway concession	eDalnice	Czech	Toll service provider
ATMB	France	Toll service provider	CEPSA	Spain	Toll service provider	edc	UK	Fuel card issuer
ATOS	France	IT solutions provider	Cintra	Spain	Motorway concession	Efkon	Austria	Toll service provider
ATOSCA	France	Motorway concession	Conduent	USA	Toll technology solutions	Eflow	Ireland	Toll service provider
Attiki Odos	Greece	Motorway concession	Confiroute	France	Motorway concession	egis	France	Toll technology solutions
Autocesta Zagreb-Macelj d.o.o	Croatia	Road operator	Continental	Germany	Technology solutions	Egnatia Oase	Greece	Toll service provider
Autopay S.A	Poland	Financial services	Cornwall Council & Plymouth	UK	Road operator	Egnatia Odos	Greece	Motorway Concession
Autopistas	Spain	Motorway concession	CTS Eventim	Germany	Toll technology solutions	Eiffage	France	Motorway concession

Note: GA: Government Agency, MSP: Mobility service provider

The report mentions over 230 companies and organisations (2/3)

Company	Country	Type	Company	Country	Type	Company	Country	Type
emovis	Spain	Toll technology solutions	GEA	Germany	Toll technology solutions	itrack	Hungary	Toll declaration data
eni	Italy	Fuel card issuer	Gefyra ePass	Greece	Toll service provider	Jenoptik	Germany	ANPR solution provider
ePass	Netherlands	Toll service provider	Gefyra Rion-Antirion	Greece	Motorway Concession	JP Autoceste	Bosnia &	Government agency
ESCOTA	France	Motorway concession	General Estates Company	UK	Road operator	Kapsch	Austria	Toll technology solution
Esso	UK	Fuel card issuer	Globalvia	Spain	Motorway concession	Kentriki Odos	Greece	Motorway Concession
eToll	Ireland	Toll service provider	Google maps	USA	Navigation providers	Klaxit	France	Mobility service providers
Euro Toll	France	Toll service provider	Großglockner	Austria	Motorway concession	Lease plan	Netherlands	Fleet management solutions
EuroWag	Czech	Toll service provider	Hochalpenstraßen AG			Lithuanian Road Administration	Lithuania	Road operator/GA
Eway	Greece	Toll service provider	Grundig	Germany	Technology solutions	Logpay	Germany	Fuel card issuer
Fast pass new Odos	Greece	Toll service provider	GSP Bulgaria	Bulgaria	Toll DDP	M6 Duna Autópálya Koncessziós Zrt	Hungary	Motorway Concession
Fastpass Kentriki Odos	Greece	Toll service provider	Head of the National Revenue Administration	Poland	Government agency	M6 toll	Hungary	Road operator
Federal Logistics and Mobility Office	Germany	Government agency	Hrvatske Autoceste d.o.o.	Croatia	Road operator	M6 Tolna Autópálya Koncessziós Zrt	Hungary	Motorway Concession
Federal Ministry of Transport	Germany	Government agency	Humber bridge board	UK	Road operator	Magyar Közút Nonprofit Zrt	Hungary	Motorway Concession
Federal public service mobility & transport	Belgium	Government agency	IBI Group	Canada	Toll technology solutions	Merseyflow	UK	Road operator
FEIG Electronic	Germany	Toll technology solutions	IBM	USA	IT solutions provider	MerseyTravel	UK	Road operator
Felbertauernstraßen AG	Austria	Motorway concession	Icell	Hungary	Toll DDP	Midland Motorways Group	UK	Road operator
Femern A/S	Denmark	Road operator	IDOM	Spain	Technology solutions	Midlink M7/M8	Ireland	Motorway concession
Ferde	Norway	Road operator	Indra	Spain	Toll technology solutions	Ministry of Environment	France	Government agency
Ferrovial	Spain	Motorway concession	Infraestruturas de Portugal	Portugal	Road operator/GA	Ministry of infrastructure and Water Management	Netherlands	Government agency
Fjellinjen	Norway	Road operator	Institute Mihailo Pupin	Serbia		Ministry of regional development & public works	Bulgaria	Government agency
Flyt	Norway	Toll service provider	Instituto Da Mobilidade e dos Transportes)	Portugal	Road operator/GA	Ministry of transportation	France	Government agency
Fremtind Service	Norway	Toll service provider	Intertoll	UK	Road operator	Mobiliz	Turkey	Toll DDP
Fulli	France	Toll service provider	Intertoll Polska	Poland	Road operator	mooney go	Italy	Toll service provider
Gdansk Transport Company	Poland	Road operator	Intrakat	Greece	Toll technology solutions	Moreas	Greece	Motorway Concession
GDDKiA	Poland	Road operator	Intrasoft	Belgium	Toll technology solutions	Movenience	Netherlands	Toll technology solutions
			ITIS Holding	Czech	Toll service provider			

The report mentions over 230 companies and organisations (3/3)

Company	Country	Type	Company	Country	Type	Company	Country	Type
Movyon	Italy	Toll technology solutions	Roads of Serbia	Serbia	Road operator/GA	Tecsidel	Spain	Toll technology solutions
msts	Netherlands	Toll service provider	Sanef	France	Motorway concession	Telekom Slovenia	Slovenia	Toll technology solutions
Mundys	Italy	Motorway concession	SAPN	France	Motorway concession	Telepass	Italy	Toll service provider
MYTO-CZ	Czech	Toll service provider	Satelise	Spain	Financial services	Thales	France	IT solutions provider
National Highways	UK	Road operator/GA	Satellix	Belgium	Toll technology solutions	Toll 4 Europe	Germany	Toll service provider
National Motorway	Slovakia	Road operator/GA	Scania	Sweden	OEM	Toll Collect GmbH	Germany	Toll service provider
Nea Odos	Greece	Motorway Concession	SEITT	Spain	Road operator/GA	Toll Tickets	Germany	Toll service provider
Netcompany	Denmark	Toll technology solutions	SICE	Spain	Toll technology solutions	Tollnet	Czech	Device and equipment
Norbit	Norway	Toll technology solutions	Siemens	Germany	Technology solutions	TollPass	Bulgaria	Toll service provider
Northgate	UK	IT solutions provider	Siemens mobility	Germany	Toll technology solutions	Total Energies	France	Toll service provider
Norwegian Institute of Transport Economics	Norway	Government agency	Sinelec	Italy	Toll technology solutions	Trafikverket	Sweden	Road operator/
Norwegian Public Roads Administration	Norway	Road operator/GA	Skycash	Poland	Financial services	Transport for London	United	Road operator/
NSL	United	Toll technology solutions	Skytoll	Slovakia	Toll technology solutions	Transurban	Australia	Road operator
Núsz	Hungary	Motorway Concession	Skyttel Pass	Norway	Toll service provider	TT2 Limited	UK	Road operator
Olympia Odos	Greece	Motorway Concession	Smartcar	United States	Technology solutions	Turas Mobility services	Ireland	Toll technology solutions
Olympia pass	Greece	Toll service provider	Sopra Steria	France	IT solutions provider	Ulys	France	Toll service provider
OMV	Austria	Fuel card issuer	Stalexport Autostrada Malopolska	Poland	Road operator	Unipol Move	Italy	Toll service provider
Oresund pay	Denmark	Toll service provider	Statens Vegvesen	Norway	Road operator/GA	UTA	Germany	Fuel card issuer
Øresundsbro Konsortiet I/S	Denmark	Road operator	Strabag	Austria	Technology solutions	Vegamot	Norway	Road operator
Pagatelia	Spain	Toll service provider	Sund & Bælt Holding A/S	Denmark	Road operator/GA	Vegfinans	Norway	Road operator
PPF Group	Czech	Private equity	Survision	France	ANPR solution provider	Via Plus	USA	Toll technology solutions
Q-Free	Norway	Toll technology solutions	Swedish Transport	Sweden	Road operator/GA	Via Verde	Portugal	MSP
Republic of Estonia Road	Estonia	Government agency	Swiss Confederation	Switzerland	Road operator/GA	Vialtis	France	Fuel card issuer
Republic of Slovenia Ministry of Infrastructure	Slovenia	Government agency	T-Systems	Germany	Toll technology solutions	Vinci Autoroutes	France	Motorway concession
Ressa	Spain	Fuel card issuer	Tattile	Italy	ANPR solution provider	Vitronic	Germany	ANPR solution provider
						W.A.G Payment solutions	UK	Toll service provider
						Waze	Israel	Navigation providers
						Westerschelde Tunnel	Netherlands	Road operator
						Wex	USA	Fuel card issuer
						Yunex traffic	Germany	ITS technology solution

We provide a glossary of the abbreviations used in this report (1/2)

Acronym	Definition	Acronym	Definition	Acronym	Definition
AET	All Electronic Tolling	CRM	Customer Relationship Management	GDPR	General Data Protection Regulation
ALPR	Automatic License Plate Recognition	CSC	Customer Service Center	GNSS	Global Navigation Satellite System
ANGA	Augmented Navigation For Africa	DSRC	Direct Short-Range Communication	GPS	Global Positioning System
ANPR	Automatic Number Plate Recognition	DTU	Denmark Technical University	HDR	High Data Rate
ASECAP	Association Européenne Des Concessionnaires D'Autoroutes Et D'Ouvrages À Péage	eCall	Emergency Call	HGV	Heavy Goods Vehicles
B&Cs	Buses & Coaches	ECJ	European Court Of Justice	HV	Heavy Vehicles
BALM	Federal Logistics And Mobility Office, Germany	EEA	European Economic Area	HVF	Heavy Vehicle Fee
bCall	Breakdown Call	EETS	European Electronic Toll Service	ICE	Internal Combustion Engine
BDSBAS	Beidou Satellite-Based Augmentation System	EFC	Electronic Fee Collection	IGF	Inspection Générale des Finances (France)
BEV	Battery Electric Vehicle	EGNOS	European Geostationary Navigation Overlay Service	IMP	Interoperability Management Platform
BOS	Back Office Systems	ENC	Elektronička Naplata Cestarine	ISO	International Standards Organisation
BRUCE	Better Road User Charging Evaluation	ETC	Electronic Toll Collection	ITS	Intelligent Transport Solutions
C-ITS	Cooperative-Intelligent Transport Solutions	ETSI	European Telecommunications Standards Institute	IVI	In-Vehicle Infotainment
C-V2X	Cellular-Vehicle To Everything	EU	European Union	LEVTI	Low Emission Vehicle Toll Incentives
Capex	Capital Expenditure	EUCARIS	European Car & Driving License Information System	LEZ	Low Emission Zones
CBO	Commercial Back Office	EV	Electric Vehicle	LV	Light Vehicles
CC	Congestion Charging	FCEV	Fuel Cell Electric Vehicles	MaaS	Mobility as a Service
CEN	European Comitte For Standardisation	FCI	Fuel Card Issuers	MBUF	Mileage Based User Fee
CGEDD	Conseil Général De L'Environnement Et Du Développement Durable (France)	GAGAN	Gps-Aided Geo Augmented Navigation	MLFF	Multi-Lane Free Flow
CO2	Carbondioxide	GDP	Gross Domestic Product	MS	Member States

We provide a glossary of the abbreviations used in this report (2/2)

Acronym	Definition	Acronym	Definition	Acronym	Definition
NOK	Norwegian Krone	RSS	Roadside Systems	TSP	Toll Service Provider
NOx	Nitrogen Oxide	RUC	Road Usage Charging	UK	United Kingdom
NSP	National Service Provider	SACCSA	Solución De Aumentación Para Caribe, Centro Y Sudamérica	ULEZ	Ultra Low Emission Zones
NSP	National Service Provider	SBAS	Satellite-Based Augmentation Systems	US	Unites States of America
NTPS	National Toll Payment Services	SDCM	System For Differential Corrections And Monitoring	US ATI	United States Alliance for Toll Interoperability
OBD	On-Board Device	SEITT	State Society Of Land Transport Infrastructures	V2X	Vehicle To Everything
OBE	On-Board Equipment	SEOPAN	Asociación De Empresas Constructoras Y Concesionarias De Infraestructuras	VAS	Value Added Service
OBU	On-Board Unit	SES	Satellite Earth Stations And Systems	VED	Vehicle Excise Duty
OCR	Optical Character Recognition	SP	Service Providers	VMT	Vehicle Miles Travelled
OEM	Original Equipment Manufacturer	SVR	Stolen Vehicle Recovery	WAAS	Wide Area Augmentation System
Opex	Operational Expenditure	SVT	Stolen Vehicle Tracking	ZEV	Zero Emission Vehicles
ORT	Open Road Tolling	TAG	Transfer Automatic Gadget		
OTA	Over the Air	TDM	Traffic Demand Management		
PHEV	Plug-In Hybrid Electric Vehicle	TDO	Toll Declaration Operator		
PM	Particulate Matter	TEN-T	Trans European Transport Network		
PPP	Public Private Partnership	TII	Transport Infrastructure Ireland		
PSD	Payment Service Directive	TSC	Transport Select Committee		
RFiD	Radio Frequency Identification				
RIA	Road Infrastructure Agency Bulgaria				
RSA	Roadside Assistance				

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