

WE ARE INTELLIGENT TRANSPORT SYSTEMS

WE DEVELOP A NEW GENERATION OF INTELLIGENT SYSTEMS FOR THE TRANSPORT AREA. WE MAKE INTELLIGENT MOBILITY A REALITY



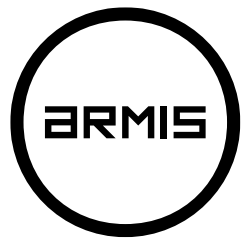


WHO WE ARE

ARMIS ITS

ARMIS ITS is committed to the digitalization and decarbonization of transport and Mobility, by bringing together IT knowledge and experience with research and deployment of advanced solutions to enhance mobility management in highly complex transport systems, and in accordance to European Commission ITS Regulations, in favour of safe, clean, efficient, inclusive, affordable and sustainable transport.

- Devotion to Traffic Management - DRIVE platform for Traffic Control Centers, enabling monitoring and network supervision; Incident Management and traffic management plans; roads works; Traffic Surveillance, operating and control of all types of road equipment and telematics.
- National road network operations with a coverage of over 17 thousand km of roads, over 6 Concessions +2 Ascendi Sub-Concessions, which include 800 traffic light crossings, 1000 CCTV's, 200 PMV's, 1700 CCV's, 30 weather stations, 100 C-ITS equipped RSU's , and supporting 7 Control Centres.
- Provide Public Authorities via NEXT, with the capacity to actively manage traffic and to support the development of a truly multimodal last generation network ,supported by artificial intelligence and neural networks applied to the analysis of traffic flow patterns, with the possibility of automated response to situations considered regular or planned.
- Support the city's transformation into a Smart City, - Way4Smart - An overarching management system developed to support the city's mobility managers with the implementation of its Strategic Urban Mobility Plans.
- Participation in European projects in support of ITS and C-ITS policies, involving Road Authorities and Operators, among other stakeholders of the Sector, with in the CEF framework.
- Actively participating in the definition of EU norms and standards, namely: DATEX2 which defines a standard for the exchange and support of traffic information in Europe and the National Access Points [NAPs]



Compliance with contractual obligations

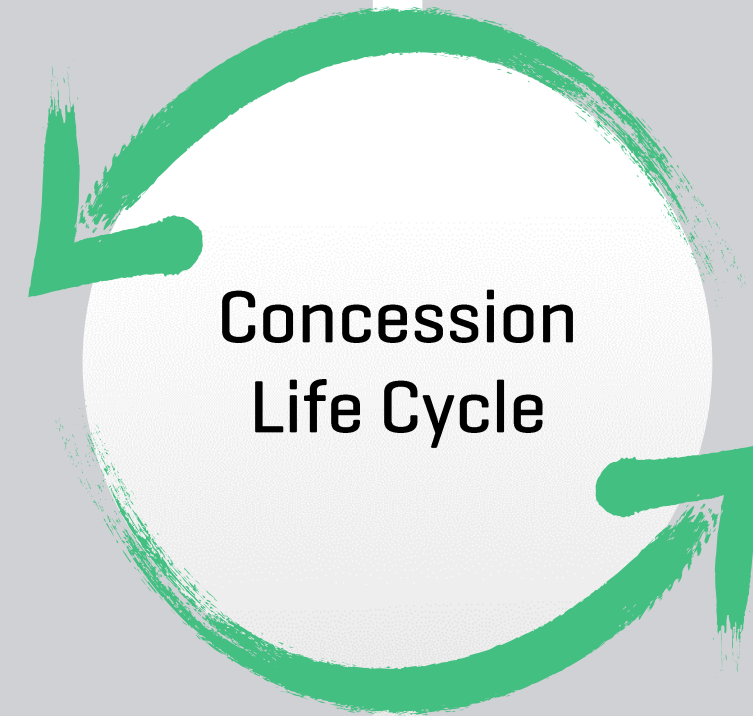
Effectiveness on Revenue Performance

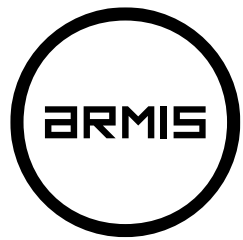
Operations and Maintenance Efficiency OPEX

Asset Management CAPEX

What are the

CHALLENGES?





Compliance with contractual obligations

Effectiveness on Revenue Performance

Operations and Maintenance Efficiency OPEX

Asset Management CAPEX

Financial Results, Risk, Strategy and Planning

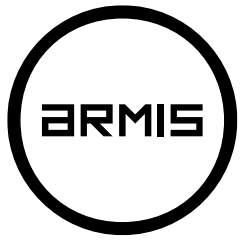
Data Analytics and Quality Assessment, Decision Support, Trend Identification, Simulation and Forecasting

Data Collection and Processing, Digitalisation of Management and Operation Processes

Integration of Support Systems, Equipment and Resources

What are the

OPPORTUNITIES?



Compliance with contractual obligations

Effectiveness on Revenue Performance

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Financial Results, Risk, Strategy and Planning

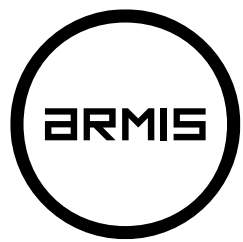
Data Analytics and Quality Assessment, Decision Support, Trend Identification, Simulation and Forecasting





Data Collection and Processing, Digitalisation of Management and Operation Processes

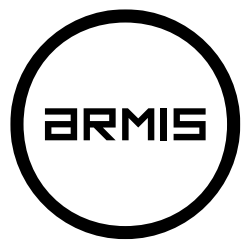
Integration of Support Systems, Equipment and Resources

What are the

OPPORTUNITIES?



		Compliance with contractual obligations	Effectiveness on Revenue Performance	Operations and Maintenance Efficiency OPEX	Asset Management CAPEX
 Results, Risk and Planning	Financial Performance Assessment	Digital toll and cashless transactions	Zero Waste	Cost Assessment and Planning	
	Integrated Supervision and Monitoring	Expansion of Portfolio services	Operation and Maintenance Cost Optimisation	Scenario Assessment and Risk Matrix	
 Data Analysis, Decision Support Systems	Simulation and Forecasting Capabilities	Fraud and evasion audit systems	Dashboard and Advanced Risk Analytics	Maintenance Cycle Optimisation	
	Standards and Metrics Definition, KPI's	Clearing house and revenue consolidation	Decision Support, Simulation and Forecasting	Criticality Level of the asset	
 Data Acquisition and Digital Transformation	Information Security	Transaction Platform and validation	Operations and Control Centres	Intervention History and Evolution	
	Road safety inspections, auditing and reporting	Vehicle classification and enforcement	Road Works and Teams Management	Audits, Inspections and Monitoring	
 Systems Integration and ITS Architecture	Supplier and support Management	Toll Collection Systems [electronic]	Equipment and Sub-Systems [SCADA]	Availability and condition status	
	Availability and Service Outages	Support, Energy and Comms Systems	Resource Inventory	Asset and Equipment Inventory	



Compliance with contractual obligations

Effectiveness on Revenue Performance

Operations and Maintenance Efficiency OPEX

Asset Management CAPEX



Results, Risk and Planning

Financial Performance Assessment

Integrated Supervision and Monitoring

Digital toll and cashless transactions

Expansion of Portfolio services

Zero Waste

Operation and Maintenance Cost Optimisation

Cost Assessment and Planning

Scenario Assessment and Risk Matrix



Data Analysis, Decision Support Systems

Simulation and Forecasting Capabilities

Standards and Metrics Definition, KPI's

Fraud and evasion audit systems

Clearing house and revenue consolidation

Dashboard and Advanced Risk Analytics

Decision Support, Simulation and Forecasting

Maintenance Cycle Optimisation

Criticality Level of the asset



Data Acquisition and Digital Transformation

Information Security

Road safety inspections, auditing and reporting

Transaction Platform and validation

Vehicle classification and enforcement

Operations and Control Centres

Road Works and Teams Management

Intervention History and Evolution

Audits, Inspections and Monitoring



Systems Integration and ITS Architecture

Supplier and support Management

Availability and Service Outages

Toll Collection Systems [electronic]

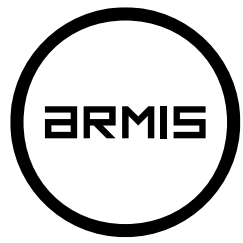
Support, Energy and Comms Systems

Equipment and Sub-Systems [SCADA]

Resource Inventory

Availability and condition status

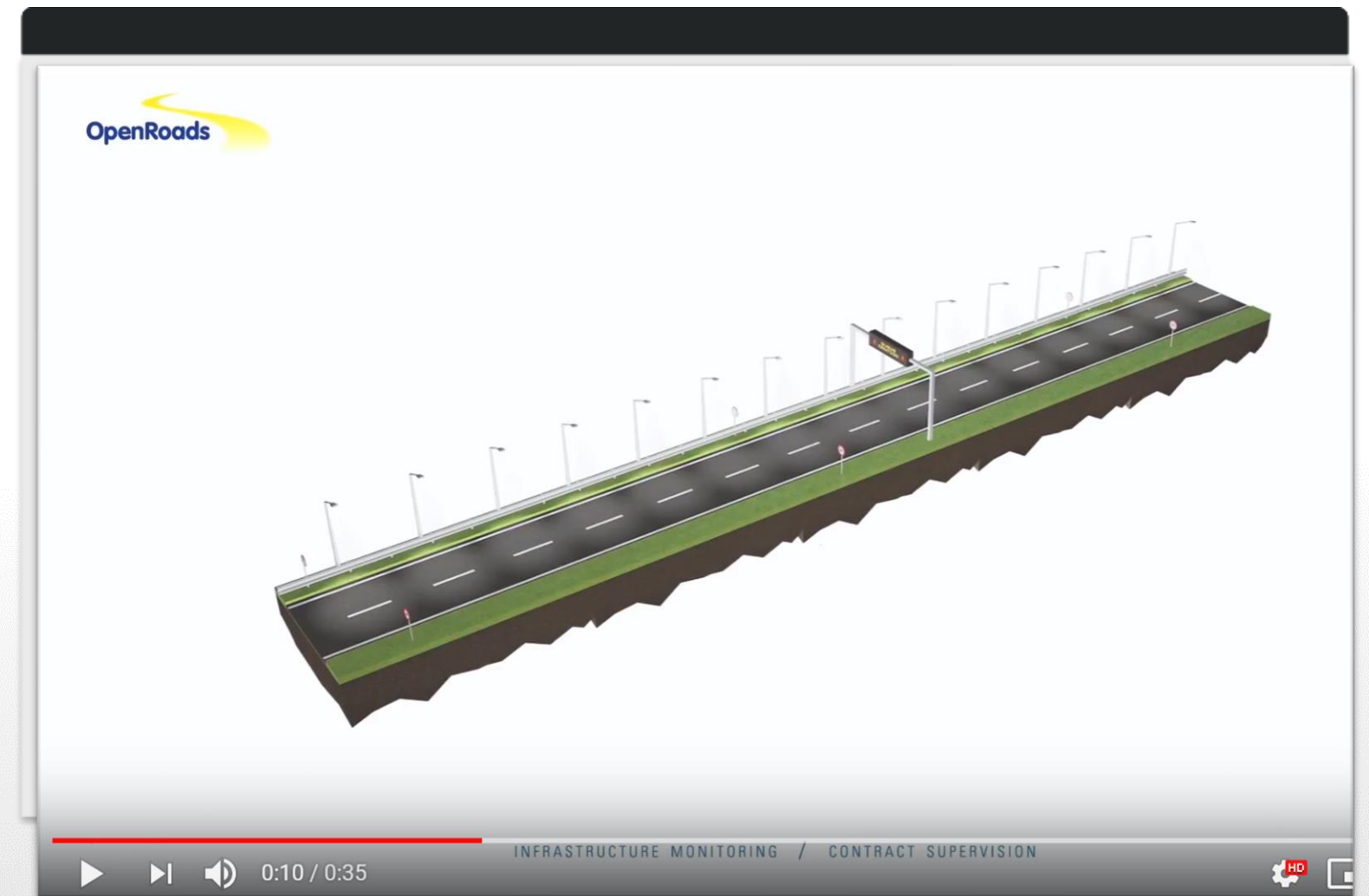
Asset and Equipment Inventory



ROAD ASSET MANAGEMENT

You can't manage without measuring! This simple statement, is dependent of a set of variables, dimensions, which are sometimes hard to define and understand and often relate to a specific context. When looking in deeper, we may find multiple levels of complexity that intersect and overlap one another, making the 'act of measuring' extremely difficult to quantify or qualify.

'Measuring' depends on a set of principles and assumptions that need to be defined, such as: How to measure? What to measure? When to measure? What conditions should be observed in the act of measuring? What are the measurement units? What is the benchmark against which to measure? What are the best practices to adopt in the act of measuring? How can we ensure that what we intend to measure is relevant and has a positive impact on what we intend to manage?



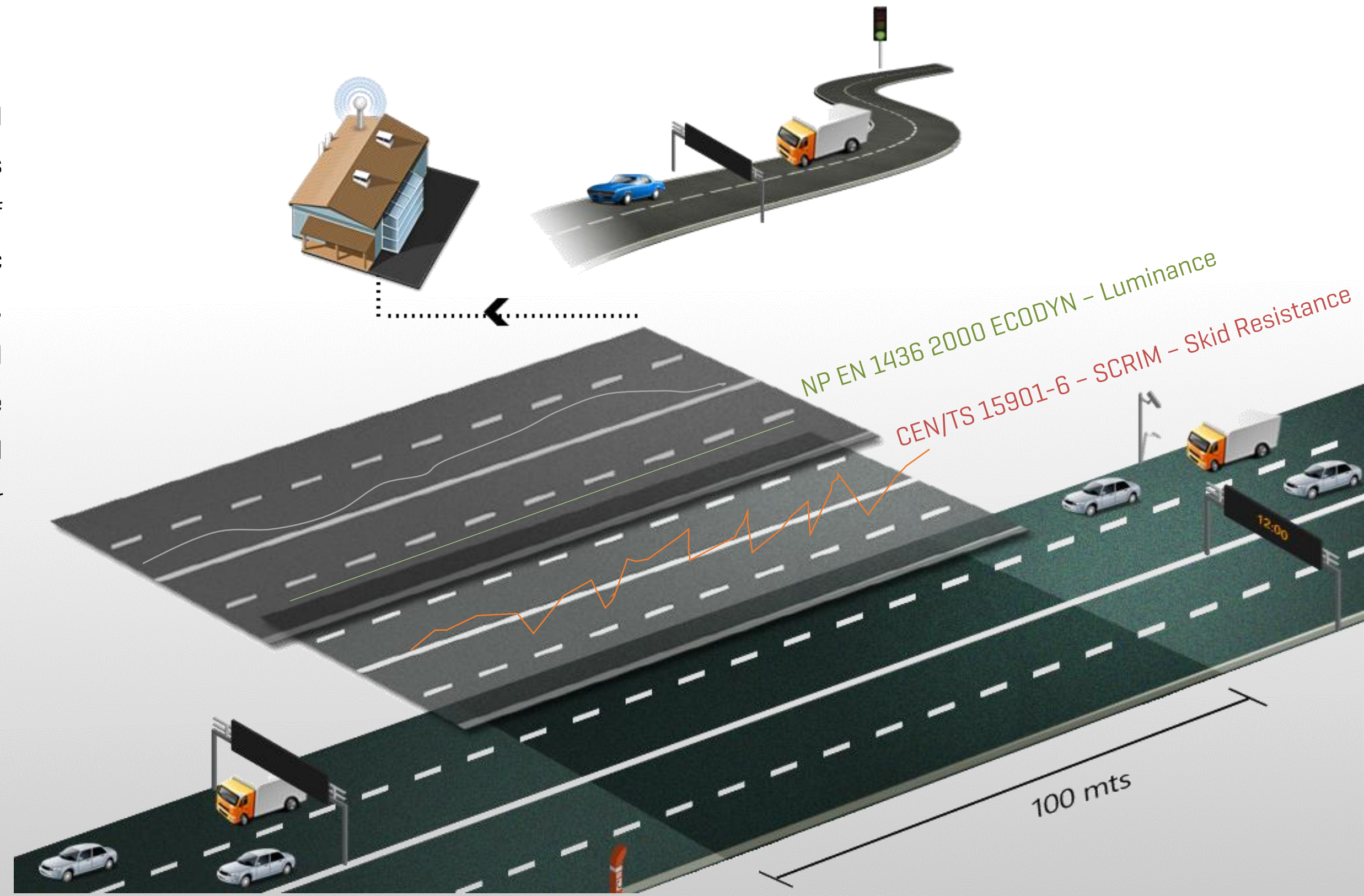


ROAD ASSET MANAGEMENT

In the field of road infrastructures Engineering and Asset Management, there are many variables, domains and dimensions that have an influence on the quality of the various systems in place [e.g. Pavements, Traffic Signs, Safety Systems, Drainage, Telematics, Tunnels, Bridges], whose operation contributes to the final quality of the service provided to the road user, to the fulfilment of contractual obligations and to the financial performance itself, with an impact on the shareholder revenue [whether public or private].

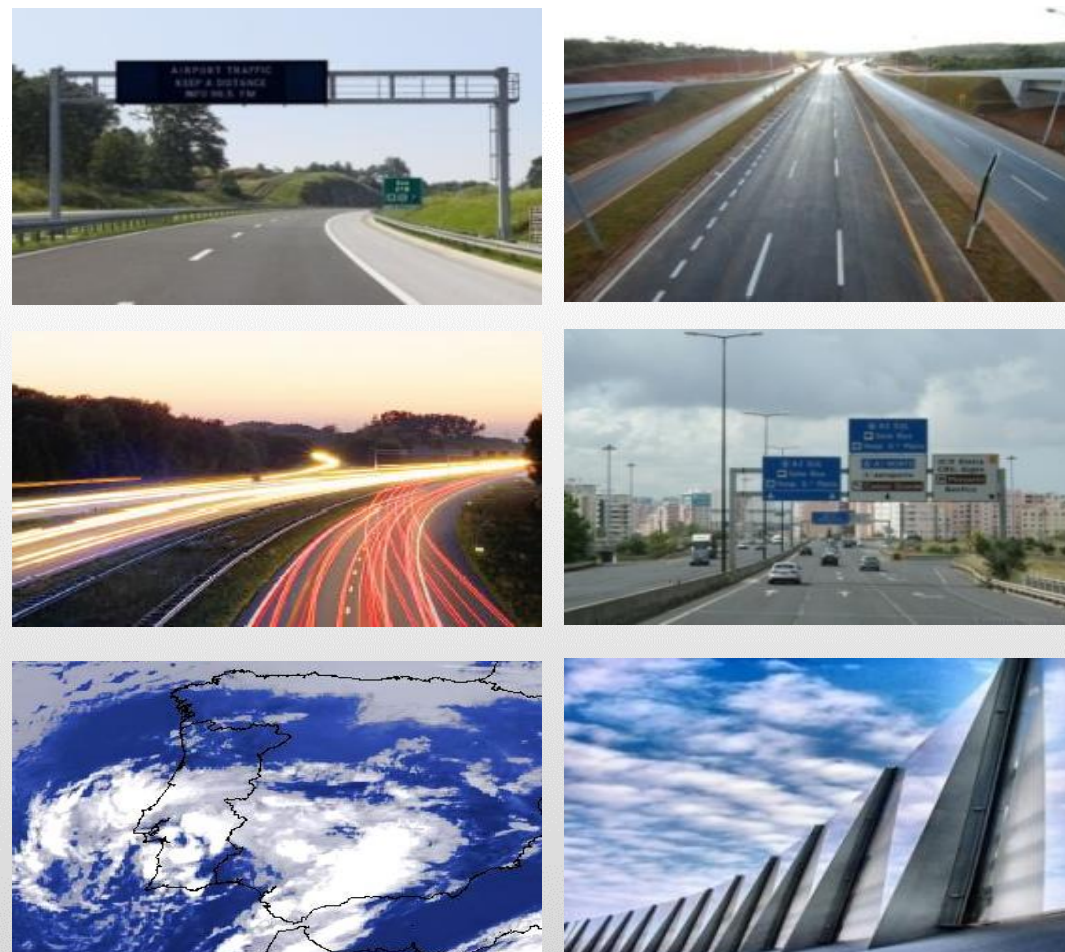
This lead to the definition of a Glossary describing:

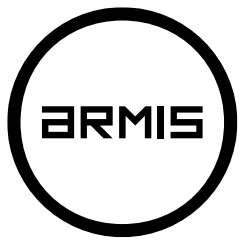
- Situations [DATEX II Profile]
- Measures [DATEX II Profile]
- Infrastructure Quality [DATEX II Extentions]



ROAD ASSET MANAGEMENT

A forma como a informação foi recolhida foi sistematizada de acordo com o tipo de informação rodoviária e contratual. A Autoridade Rodoviária Portuguesa produziu um Glossário descrevendo a metodologia, as definições e as categorias de dados relevantes [Perfis Datex II - Situações e Medidas e Extensões Datex II - Avaliação da qualidade da infra-estrutura]





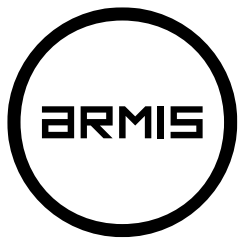
OpenRoads Data Control Center ▶ Home Page

DW - Open Roads ▾ Data Control Center ▾ Search... Update Data

Data Control Center

Parametrization | Data Management | **Monitoring**

2012 ▾		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
		Ascendi					Euroscut		AE's Marão				
		▲ Costa de Prata ascendi 16-02-2012	▲ Beiras Litoral e Alta ascendi 16-02-2012	▲ Grande Porto ascendi 16-02-2012	▲ Grande Lisboa ascendi 17-02-2012	▲ Concessão Norte ascendi 16-02-2012	▲ Norte Litoral 01-03-2012	▲ Túnel do Marão 28-02-2012					
Operation													
Situations		✘ ⚠	✘ ⚠	✘ ⚠	✘ ⚠	✘ ⚠	✘ ⚠	✘ ⚠	✘ ⚠	✘ ⚠	✘ ⚠	✘ ⚠	✘ ⚠
Infrastructure Quality													
Pavements	Wheel Path Route Depth	✘	✘	✘	✘	✘	✓	✘	✘	✘	✘	✘	✘
	Longitudinal Superficial Irregularity	✘	✘	✘	✘	✘	✓	✘	✘	✘	✘	✘	✘
	Friction Coefficient	✘	✘	✘	✘	✘	✓	✘	✘	✘	✘	✘	✘
	Superficial Fissuration	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘
	Superficial Texturr	✘	✘	✘	✘	✘	✓	✘	✘	✘	✘	✘	✘
Safety Guards	Conformity	✓	✘	✓	✓	✓	✓	✓	✓	✘	✘	✘	✘
Illumination	Availability Percentage	✘	✘	✘	✘	✘	✓	✘	✘	✘	✓	✘	✘
Road Markings	Retrofexion Coefficient												
	Daily Illuminattiom	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘	✘
	Skid Resistance												
	Cleaning												



OpenRoads Quality Control ▶ Home Page

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Quality Control

Situations | Pavements | Safety guard | Illumination | Road Markings | Vertical Signs | Telecommunications | Telematic

2011 | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | **DEC**

Beiras Litoral e Alta

- ▶ A25
- ▶ Concessão Norte
 - ▶ A11
 - ▶ A42
 - ▶ A7
- ▶ Costa de Prata
 - ▶ A17
 - ▶ A25
 - ▶ A29
 - ▶ A44
- ▶ Grande Lisboa
 - ▶ A16
- ▶ Grande Porto
 - ▶ A4
 - ▶ A41
 - ▶ A42
 - ▶ VRI
- ▶ Norte Litoral
 - ▶ A27
 - ▶ A28

Situations

	Dec 2010	Dec 2011	Var.	%
Accidents	37	18	-19	-51,35
Force Majeure	2	2	0	0
General obstruction	-	-	-	-
Animal presence obstruction	-	-	-	-
Environmental Obstruction	-	-	-	-
Equipment damage obstruction	5	-	-	-
Vehicle obstruction	43	47	+4	+9,3
Construction works	-	-	-	-
Maintenance works	23	118	+95	+413,04
Situations	110	185	+75	+68,18

Situation Evolution

Month	Dec 2011	Dec 2010
Jan	95	95
Feb	185	95
Mar	190	95
Apr	170	95
May	150	95
Jun	125	95
Jul	120	40
Aug	130	80
Sep	130	110
Oct	170	90
Nov	245	120
Dec	185	110

Friction Coefficient by Lane Type

	2011-03-01	2012-03-01	Var.	%
Non present	-	-	-	-
Right	0,57	-	-	-
Central Right	-	-	-	-
Central	-	-	-	-
Central Left	-	-	-	-
Left	0,53	-	-	-
Slow	-	-	-	-
Friction Coefficient	0,55	-	-	-

Friction Coefficient

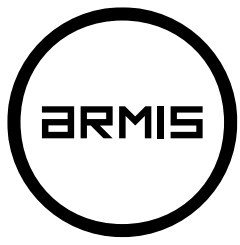
Search... | Update Data

Vertical Signs | Telecommunications | Telematic

JUL | AUG | SEP | OCT | NOV | **DEC**

-- Direction -- | -- Lane --

Friction Coefficient



OpenRoads Mapa Interativo ▶ Home Page

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Procurar neste site... [Atualizar Dados](#)

Mapa Interativo [Filtros](#) [Matriz de Indicadores](#)

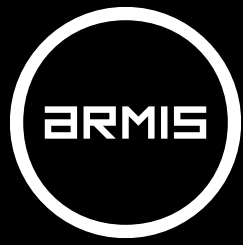
Mapa Interativo (Map showing road network and assets in the Lisbon region)

POWERED BY Google

Dados do mapa ©2012 Google, Tele Atlas

Pop-up Window:

- Marcas Rodovias
- IP7: Entrecampos - Radial de Benfica (km 8,6) (Sentido Decrescente, Eixo)
- Data Medição: 24-09-2010
- Coefficiente Retroreflexão**
- Valor: 146,00
- Valor Padrão: CoeficienteRetroreflexao >= 150



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