IMMERGIS

USE OF **GEOSPATIAL DATA** IN LINEAR INFRASTRUCTURE MANAGEMENT

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Summary

- About Immergis
- GIS and linear infrastructures
- Action Plan's Definition
- Sample Projects

ABOUT IMMERGIS

- **Professional GIS services company**
- Founded in 2011
- Based in France (Montpellier), Cameroon (Yaounde) & Craiova (Romania)
- **Multi-disciplinary team**: 45 experts in mapping, GIS analytics, linear network's experts, IT and software developers, various consultants abroad
- More than **60,000km** surveyed in Europe and Africa
- Partners in many countries

Immergis focuses on:

- ✓ Data collection
- ✓ Asset inventories
- ✓ Assessment and visual condition
- ✓ Investment programs
- ✓ Work scheduling
- ✓ Monitoring tools

Our Services

- **We support infrastructure managers** in the management of networks under their supervision.
- **We provide** up-to-date databases and linear infrastructure assessment that help facilitate good decision-making.
- **We make available a GIS web platform** that helps to create a collaborative work between local authorities and their partners.
- **We enhance** visibility through images, cartography & linear representation of the actions carried out on the territory.

Our Services

Road and Rail survey

- Large-scale and highspeed surveys: 80° to 360°and HD
- Immersive views
- 3D LiDAR data
- UNI and IRI measures

Georeferenced database

- GIS, images, roads, 3D modelisation, treatment of pointcloud and colorisation
- Mapping and thematic cartography

Assets inventory

- Signs, lighting, safety equipment, pavement and shoulders, public space, vegetation (pruning), etc.

Condition assessment

- Visual assessment, road geometry, roughness measures (IRI), damaged surveyed.

Works scheduling

- Works scheduling, Rehabilitation and maintenance programme, Costs' estimation.

Asset Management System

- Range of tools for better asset management

Consultance services – Expertise

- Audits, feasability studies, building-capacity transfer
- Experts provision

GIS training

- Immergis offers trainings on GIS softwares (ArcGIS, QGIS, MapInfo, etc.).

Recent Projects & customers

MAIN PUBLIC AUTHORITIES

Ministries (Equipment and Transports Ministry – National Road Agency – Mali, Togo)

French counties and provinces (34, 73, 33, 13, 87, …)

Urban districts (Yaounde - Cameroon, Lille, Strasbourg – France, Casablanca – Morocco, …)

CONCESSIONARIES

PUBLIC WORKS COMPANIES

INTERNATIONAL FINANCIAL INSTITUTIONS

INTERNATIONAL PROJECTS

Madagascar, Mali, Cameroon, Ivory Coast, Senegal, Republic of Congo, Togo, Algeria, Turkey, Morocco, Mexico, Romania, Switzerland.

GIS FOR LINEAR INFRASTRUCTURE MANAGEMENT

Its importance in **inspection, assessment and management**

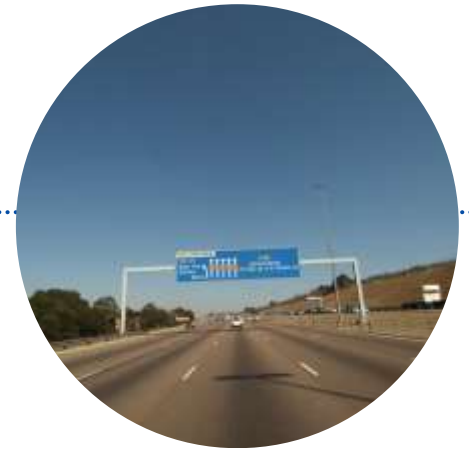
GIS

Its importance in **inspection, assessment and management**

When you know **what you have,** In **what state** you have it, **Its history** and Its **maintenance needs,** it will be easier to make accurate and budget efficient decisions in the future!

GIS | 1. Collect up-to-date data

- Portable Mobile Mapping System
- Large-scale data collection
- Efficient and quick region- or nationwide - road survey
- Simultaneous collection of all required information



GIS | 2. Build a GIS Database

- **GIS database model creation** according to project's features
  i.e. *road signs, pavement markings, lateral security equipment, public lighting, etc.*

- **Security and safety audit** from collected information, we go to detection and identification of non-compliance *i.e. Fire hydrant damaged, road sign or pavement marking lacking or non visible, etc.*

GIS | 3. Network assessment

- Identify assets (Attributes of signeage, vegetation and other assets)
- Visual condition assessment
- Rating according to damage severity
  (i.e. condition: very good, good, fair, bad, very bad)
- Compilation of all data by section
- Data integration into GIS system, Web-GIS, RAMS, PMS, HDM-4, etc.

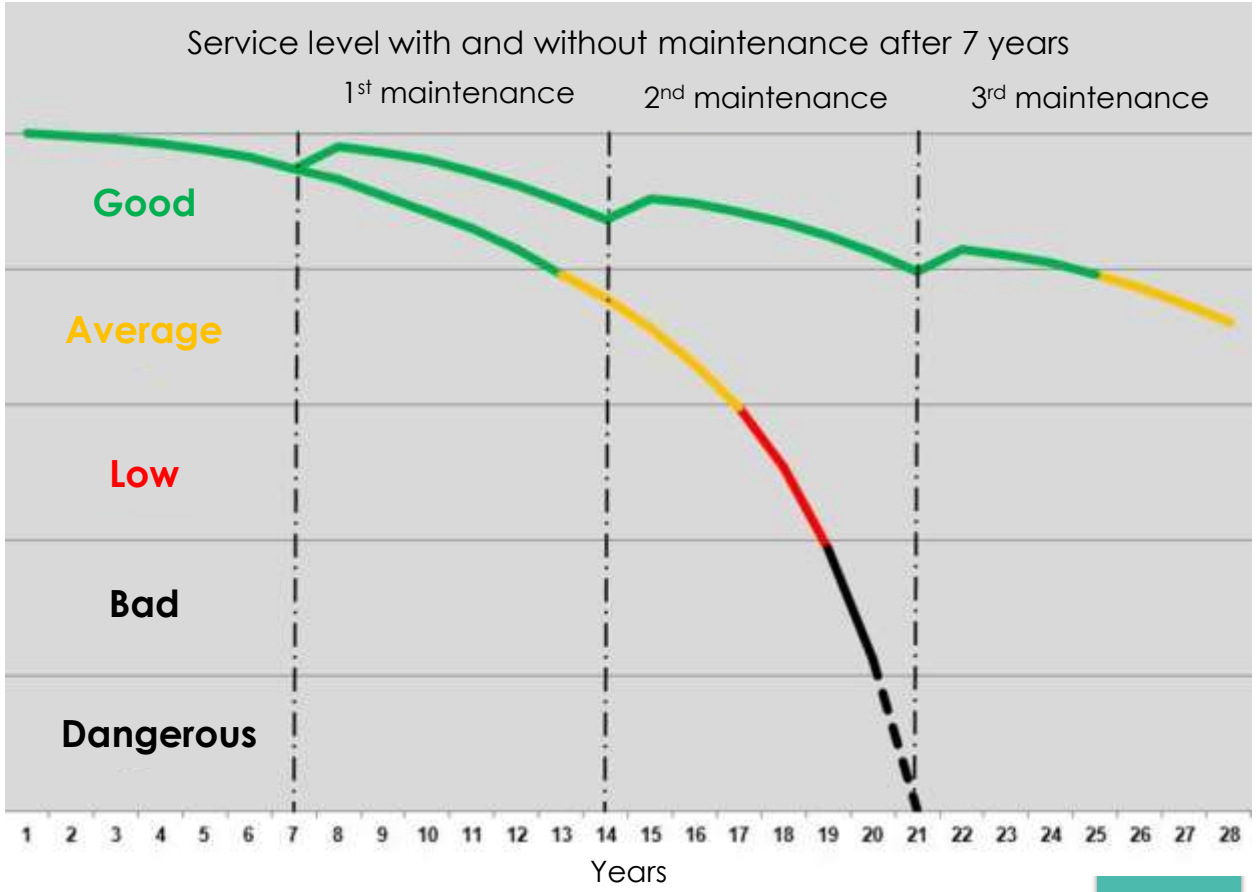
GIS IN **ASSET MANAGEMENT** AND ACTION PLAN'S DEFINITION

- Annual or pluri annual works programmes

RAM | General overview

Inventories, analysis, assessments and reports enable Immergis to define:

- Improvement & recommendations
- Works programs (maintenance, investment)
- Reparation and rehabilitation costs evaluation



RAM | Action plans

Maintenance and works planning and programmes

Depending on the results of our analysis we define priorities according to:

- Budget
- Resources (human, technical)

Budget constraints implementation

- Maintenance costs by section
- Annual budget setting
- Maintenance priorities

Results

- Roads master plan (5/15 years)
- Long-term plan (5 years)
- Annual plan (< 2 years)

SAMPLE **PROJECTS**

PROJECTS | Madagascar

Low volume roads/Rural roads

- World Bank Project
- + 1000 Rural roads
- **(RAI) Rural Access Index**
- Isolated communities
- At least 60 000 people

PROJECTS

Madagascar

Low volume roads/Rural roads

PROJECTS | SNCF Train stations

- **120 Train stations**
- Survey of train stations' assets to help in security, asset management and implement a maintenance plan
- Rail assets' **database**
- **Assesment** and visual condition

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PROJECTS | CNR

- **Photogrammetry** survey
- Rhone **River**
- **Portable mapping** system
- Dams' assesment and visual condition

PROJECTS | Metropolis Aix-Marseille-

- Road network: 4000 km
- Creation of **road asset's database**
- Define private and public space
- Visual condition and road assesment
- Transfer of the building capacity

PROJECTS

- Lidar Survey : 40km
- 3D point cloud data
- Help decision makers in the implementation of a new line of transportation

CONCLUSION

Geo spatial data can assist linear infrastructure managers, improve operational performance and investments **ONLY** if the information is used and displayed in ways that are understandable and usable by decision makers.

Gathering data is not sufficient, analysis, keeping an up-to-date GIS database and visual condition assessment followed by a maintenance plan are key to make accurate and informed decisions and improve the costs maintenance budgets.

THANK FOR YOUR ATTENTION

LET'S KEEP IN TOUCH!

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