

arkossa

CONNECTING ENERGY

Experience from Spanish Smart Metering
Rollout using PLC technologies

History

- ▶ 28 Millions Smart Meters
- ▶ Prime and Meters & More Protocols
- ▶ 96% Smart Meters Installed
- ▶ Masive Rollout since 2012
- ▶ + 400 Small Utilities (1 Million Metering Points)



Smart Meters in Spain

- Iberdrola leading the technical specifications
- 80% Smart Meters installed in 5 Years (2012-2016)
- Almost 98% Finished for 2018
- Ecosystem based on Price Level
- 10 Meters Vendors (Just 5 for Data Concentrators)
- 92 Meter Hardware Models
- 5 Companions Versions (1.4 to 1.8)
- +250 Firmware Versions for DLMS Layer
- +80 Firmware Versions for PLC (Prime 1.3.6)



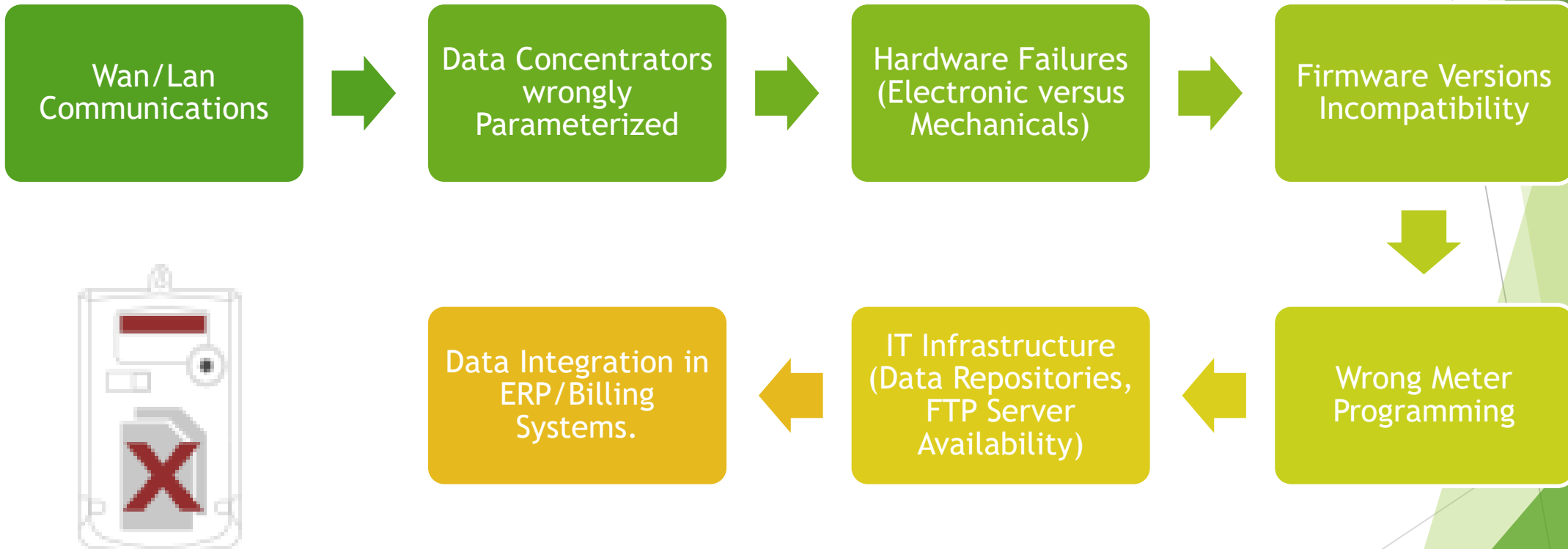
Customer Expectations

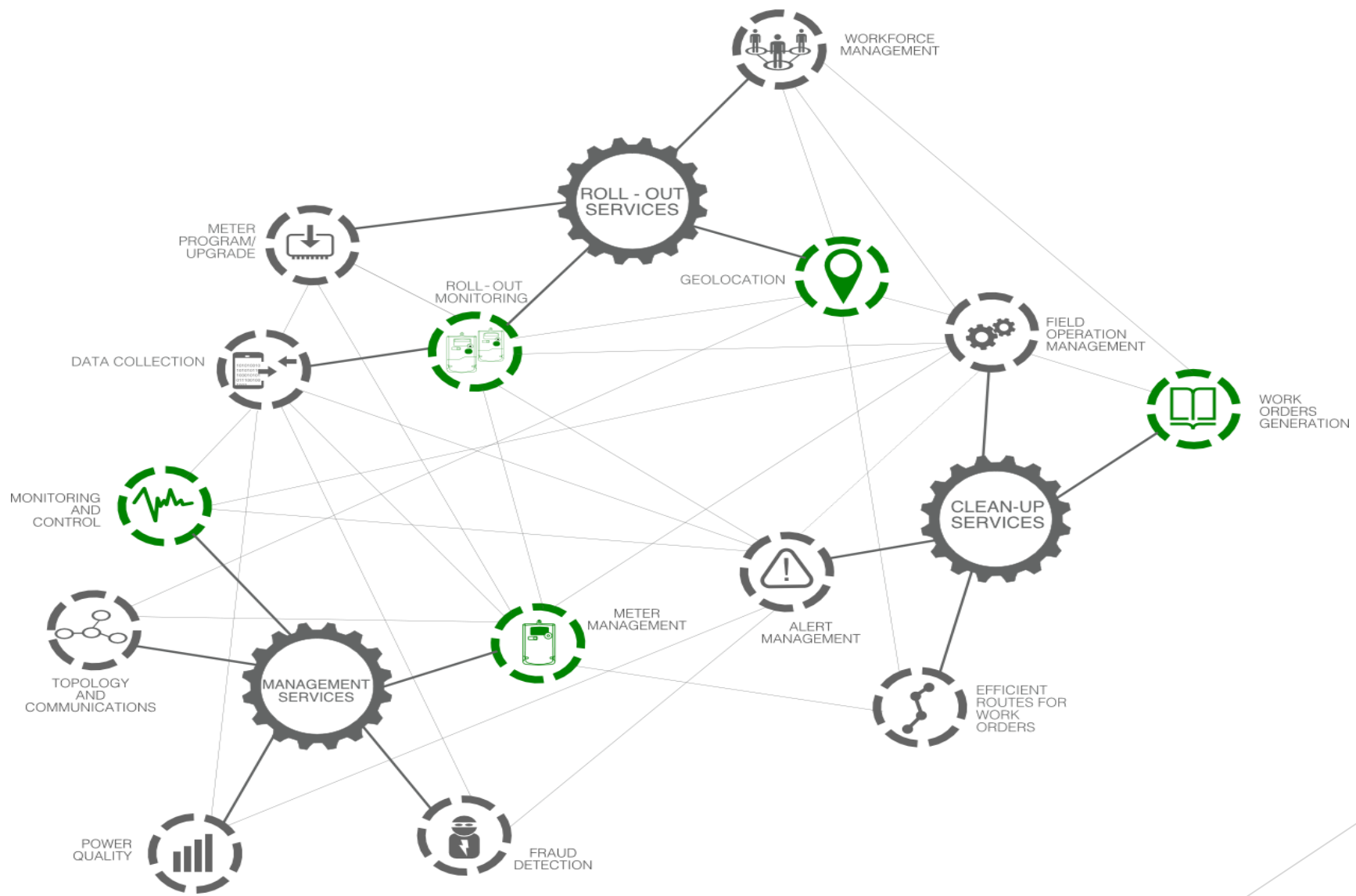
- ▶ Plug & Play Technology.
- ▶ Online System
- ▶ Multiple Vendors and Full Compatibility
- ▶ No Network Maintenance (Communication Level)
- ▶ Meter Replacement Project
- ▶ Use the Same Non Skilled Staff for Field Services
- ▶ IT Infrastructure will support the Project.

Reality

- No Technology Transfer
- Utilities without Non Skilled Staff for Field Services
- Non Properly Tools for Network Maintenance & Operations
- Meter Vendors acting mainly as Meter Providers
- Lack of support for Field Services
- Penalties for Non Readings on Smart Meters.
- IT infrastructure not flexible and Scalable

Non PLC Problems





Arkossa's Solutions



- ▶ Solution Provider
 - ▶ Consultancy Services
 - ▶ Training Provider
 - ▶ Project Management
- ▶ Hardware Solutions
 - ▶ Design Tools for Non Skilled People (Spectrum Analyzers, Meter Software APPS)
 - ▶ Design of Filters, Repeaters and Signal Amplifiers.
- ▶ Software Solutions
 - ▶ Big Data for Analysis For Network Operations
 - ▶ Flexible Data Integration

Arkossa's Solutions

Using Arkossa's tools and Services, give to utilities enough capabilities for daily operations.

- With our Big Data Software tools:
 - PLC Readings Performance.
 - PLC Network Problems.
 - Detailed Analysis for Metering Points.
 - Work Orders Optimization.
- With our mobility tools:
 - Work Orders for field Services.
 - Software for Meter Management on Field.
- With our hardware tools:
 - PLC Signal Analyzer (NOISE)
 - Noise Localizator (Smart Box)
 - Filters & Repeaters
- With our Training Services:

Trained Staff with skills for Noise Detection, Signal Analysis using our different tools (Noise, SmartBox, Arkoworker).



SMART FINDER

Data Sources

Process

Advanced Analytics



MDC



ERP



GIS



OMS



CRM



HES



OTHERS



BILLING



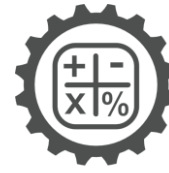
ETL



PROCESS



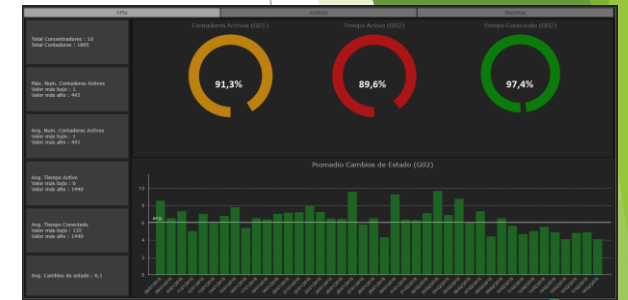
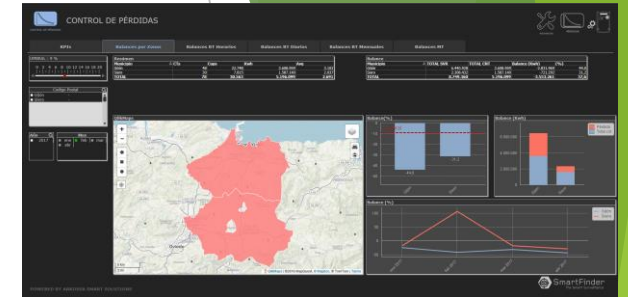
ALGORITHM



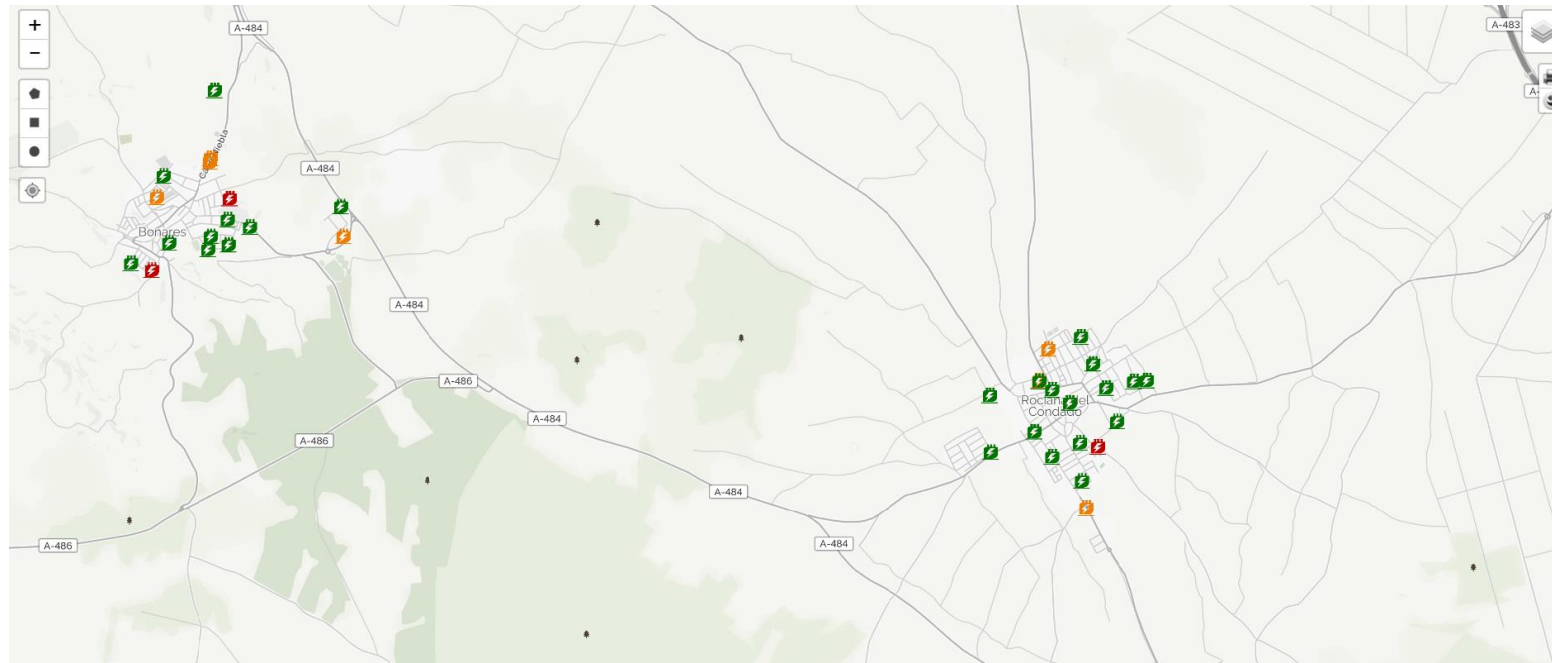
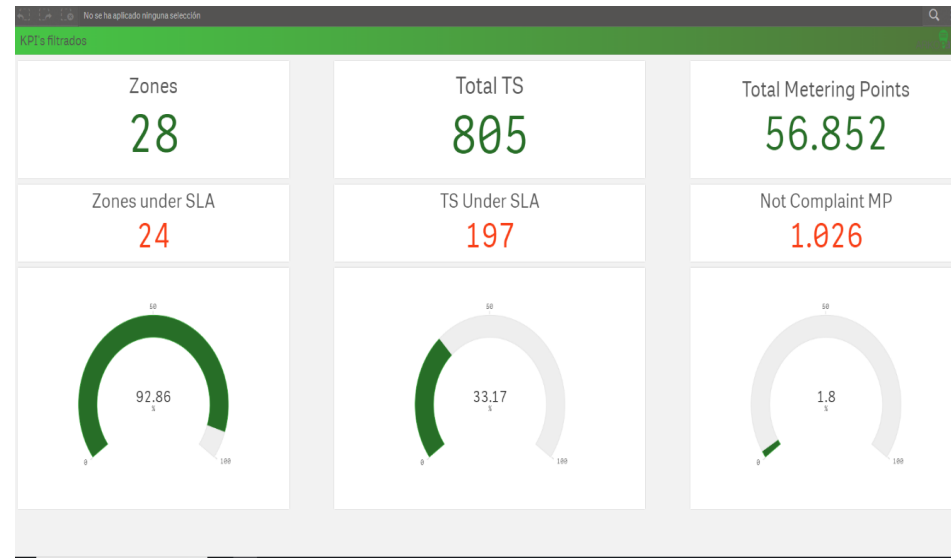
CALCULATION



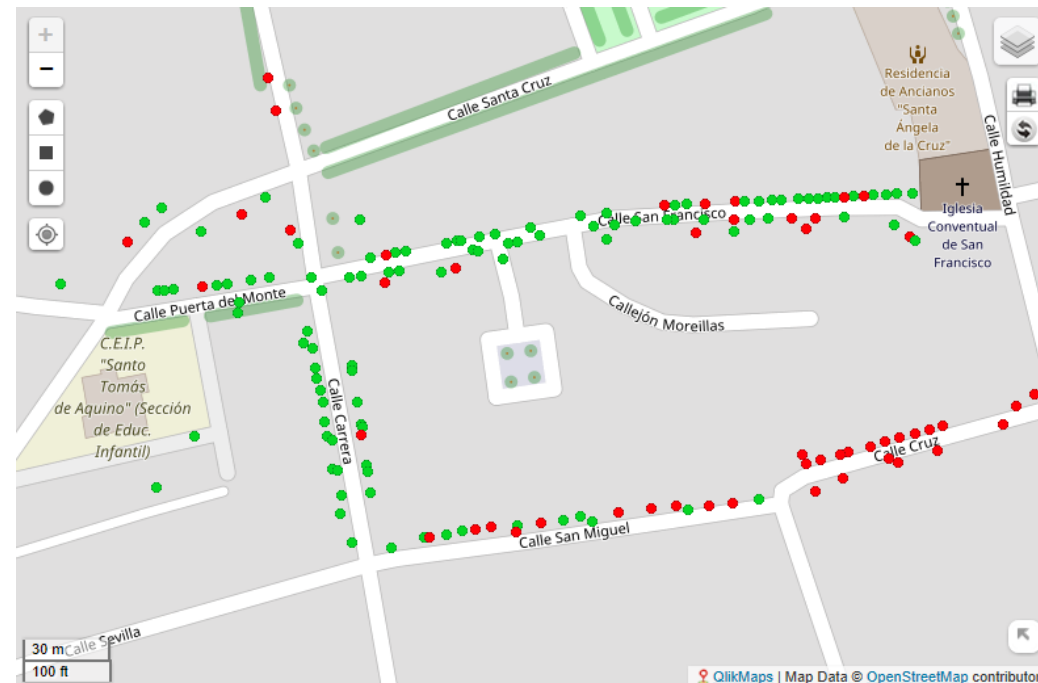
VEE



Analytics Tools



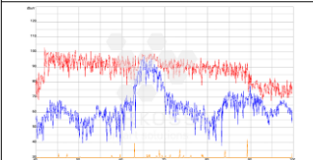


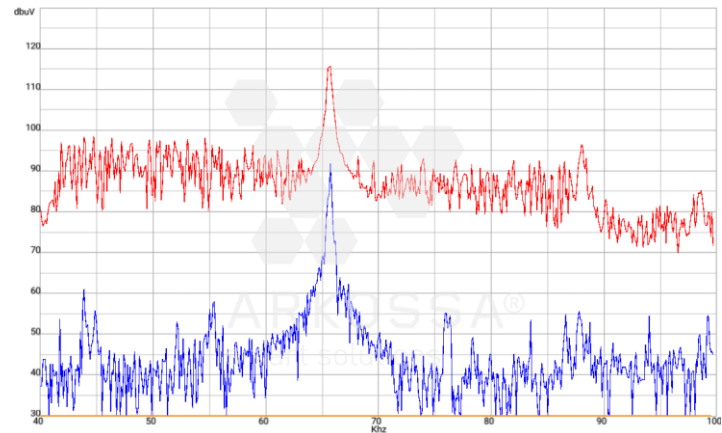
Analytics Tools



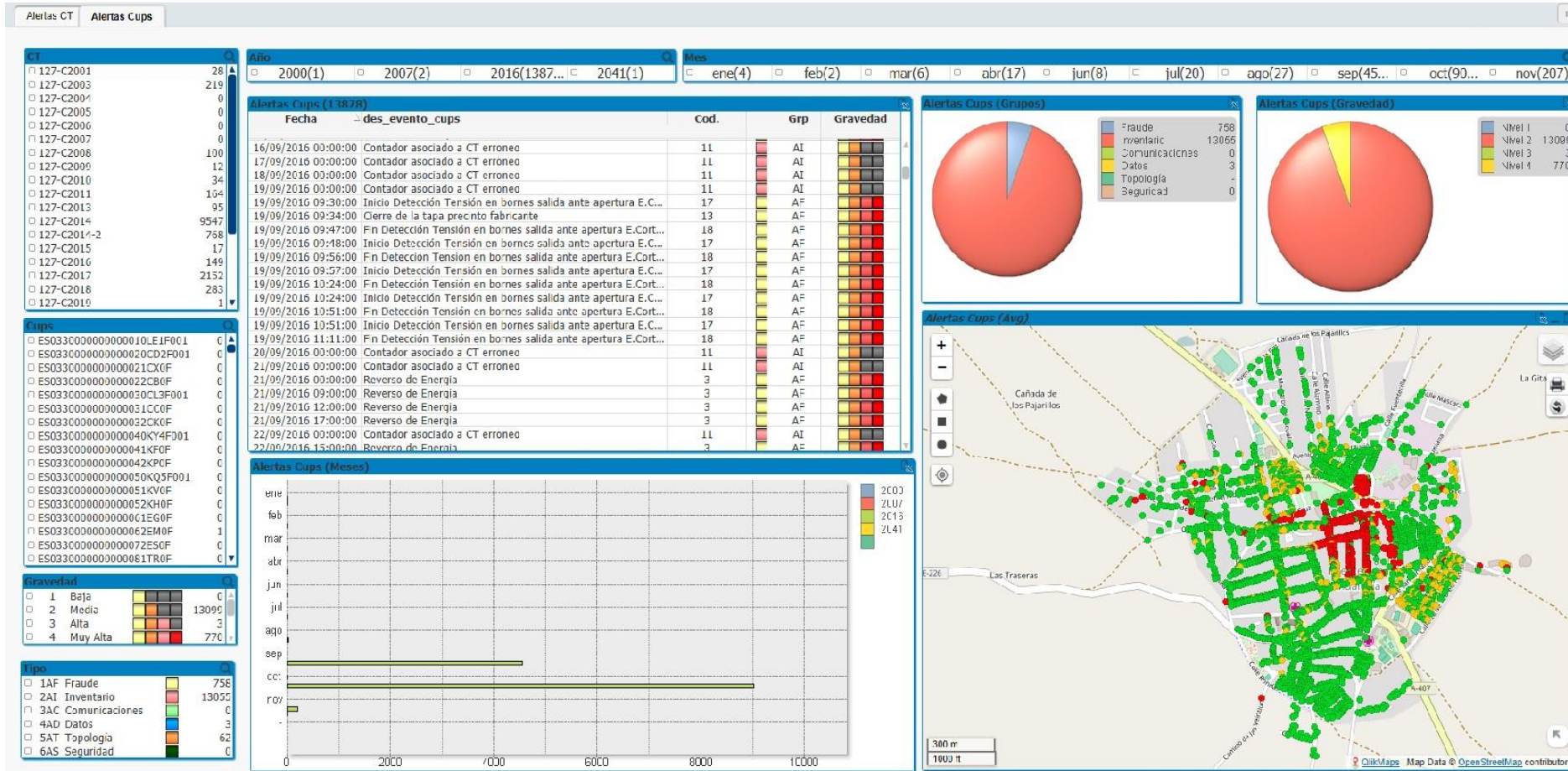
Field Services



Order Date				26/02/2018	
TS Pere el Gran			SubOrder: 4		
Address	Location	S.L.A.1	Order Type	Estado final	
C Corro.326		345	Clean-Up	Finished	
Metering Point	Meter Number	Meter Number Replaced	Not Match Metering Point		
ES0113000056283707VJ0F	LGZ0031833000				
Meter Seal	Module Seal	Cabinet Seal	Meter Seal New	Module Seal New	Cabinet Seal New
Observations					
3 Phase Meter with High Level of Noise affecting the PLC Band.					
Module Picture			Meter Picture		
					
PLC Signal Before Intervention			PLC Signal After Intervention		
					
Materials					
PLC Filter	Filter 1 Number	Filter 2 Number	Filter 3 Number	Installation Kit	
BF 40	381702494-A	381702495-A	381702496-A	No	
PLC Repeater	Repeater 1 Number	Repeater 2 Number	Repeater 3 Number	Location	



Back Office Services



Conclusions

- ▶ PLC Works!!!
- ▶ Well deployed Projects Got an Average 95% of Meter Readings without Field Services
- ▶ Readings Performance and PLC Availability are different concepts.
- ▶ Utilities needs a new organization structure for Smart Grid Operations and Maintenance.
- ▶ Innovation is mandatory

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. The shapes are primarily triangles and polygons, creating a dynamic, layered effect. The overall composition is clean and modern.

Questions ?

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