Sabesp's Field Force Management with ESRI

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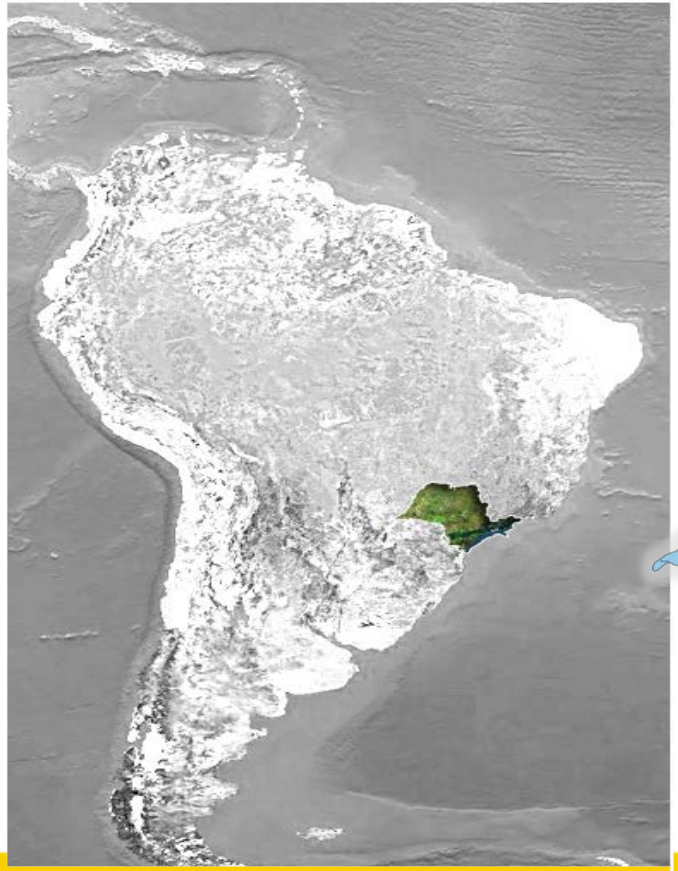
SABESP - BRAZIL

sabesp

GOVERNO DO ESTADO SÃO PAULO

State of São Paulo /Brazil

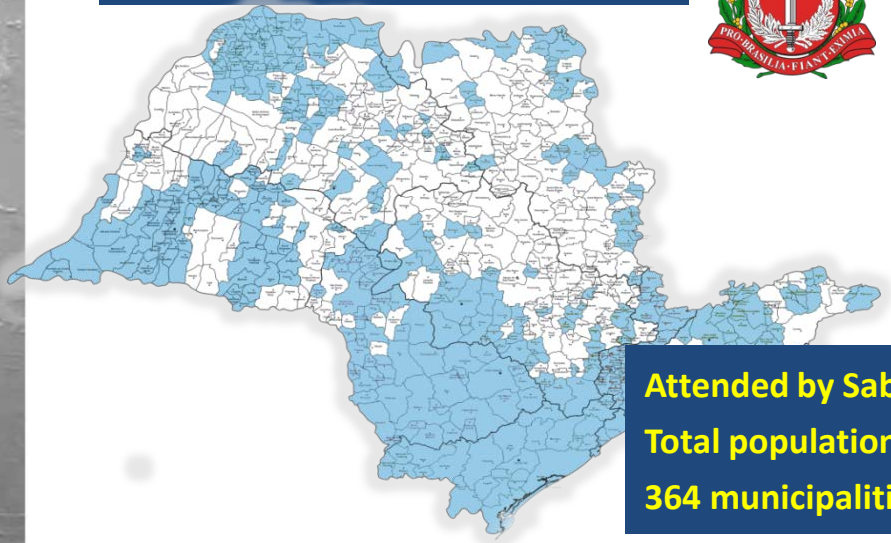


248,222,362 km²

Total population: 44,035,304

645 municipalities

40% of Brazil's GDP – US$ 960 billion



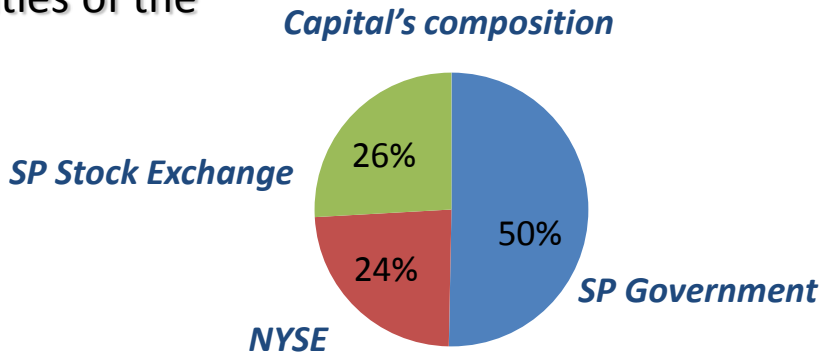
Attended by Sabesp:

Total population: 29,500,000

364 municipalities

Sabesp

Founded in 1973 as a private and public joint-stock company *(Government of the state of São Paulo, private shareholders and municipalities)* to provide water and wastewater services to the municipalities of the state



Sabesp: one of the largest companies in the world based on the number of customers

Million of customers

1º	2º	3º	4º	5º
Sabesp - Brazil 28.8	Beijing Enterprises Water Group - China 28.4	Veolia Environment - France 24.1	Shanghai Industrial Holdings - China 17.5	NWS Holdings - China 16.1
Veolia Environment - France 131.2	Suez Environment - France 117.3	FCC - Spain 29.9	Sabesp - Brazil 28.8	Beijing Enterprises Water Group - China 28.4

Domestic market

Domestic and international markets

Reference : 14rd Edition of Pinsent Masons – Water Yearbook

Operational numbers

Water

- Connections
  8,258,000
- Network
  70,800 km
- Population attended
  28,8 millon

Wastewater

- Connections
  6,705,000
- Network
  47,992 km
- Population attended
  22,5 million

Billing Losses Index: 22.3%
Macromeasurement Losses Index: 29.1%

Financial numbers

Net worth: US$ 4,5 billion

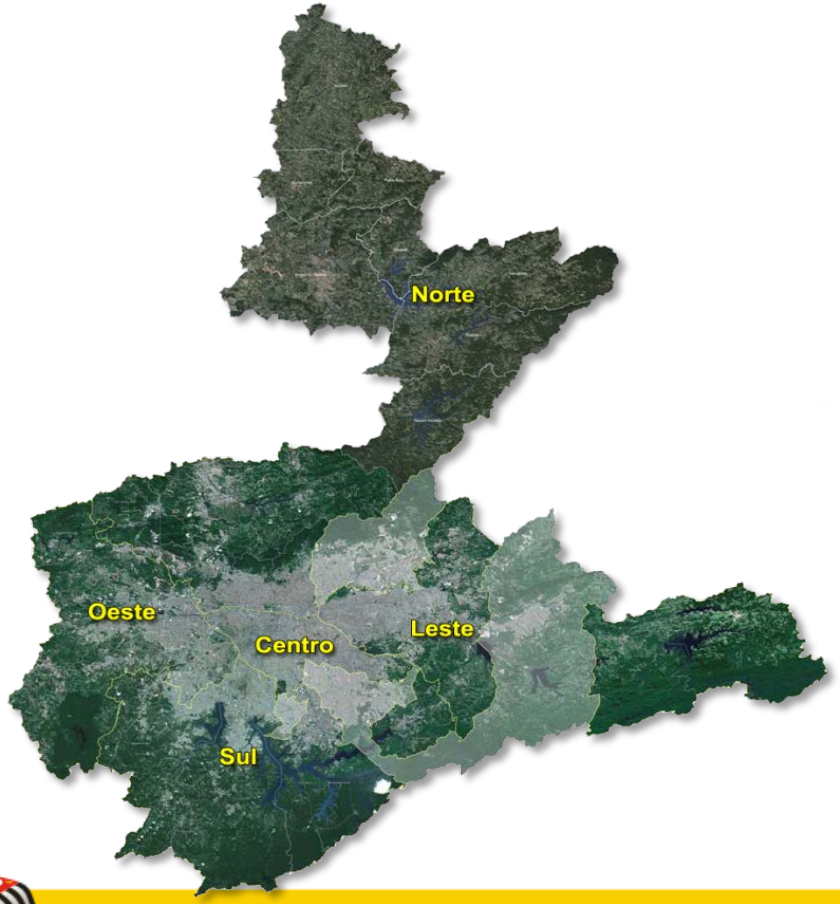
Capex: US$ 700 million/year

Net profit: US$ 700 million (2013)

In 2014: US$ 300 million – strongelly impacted by the hidrical crisis 2014/2015

Employees: 14,167

The project



The challenge:

How to use GIS for improve the process of network maintenance and operation of water distribution's network ?

10,000 services by day
2,3 million services/year
Capex & Opex: US$ 120 million/year
Teams: 90% outsourced

Area:
São Paulo Metropolitan Region
4,7 millon connections
18 million people

The scenario (2013)

In maintenance:

- Workorders in a legacy system (not integrated with GIS)
- Manual itineraries – low efficience and productivy
- Complex and old infrastucture- 50% of pipes with more than 50 years old
- Complexity of São Paulo's downtown – traffic, interferences of other utilities, municipal laws

In valves operation:

- Drawings in papers,
- No information of operational conditions – 150,000 valves
- Water shutdown's bigger than necessary
- Customer's satisfaction problems
- Conflict with regulatory demands

The solution

The Sabesp's WFM

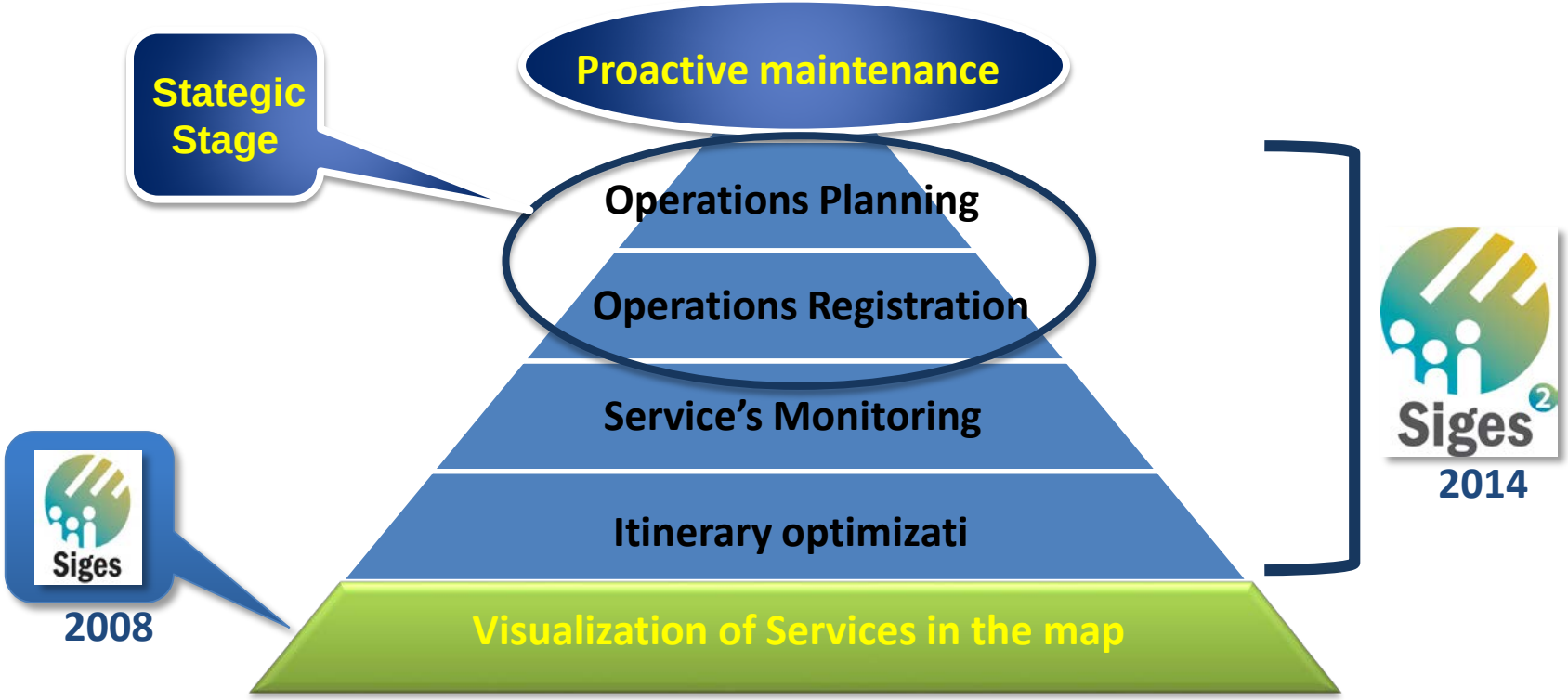
A GIS application of **dispatch** with 4 modules, integrated with the existing WFM ("SIGES")

- Otimization
- Monitoring
- Distribution Network Operation
- Dashboard/Indicators

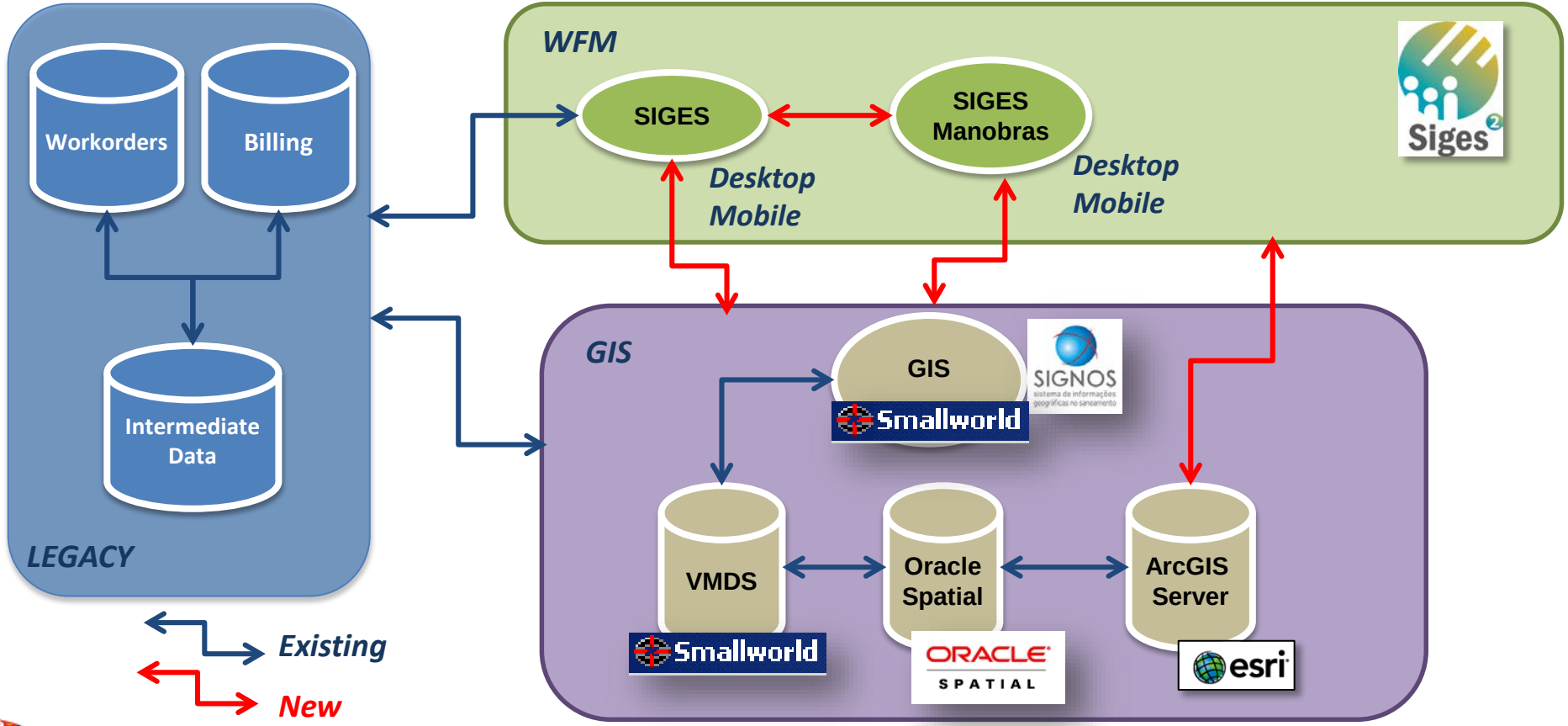
Technologies:

The partner:

The solution



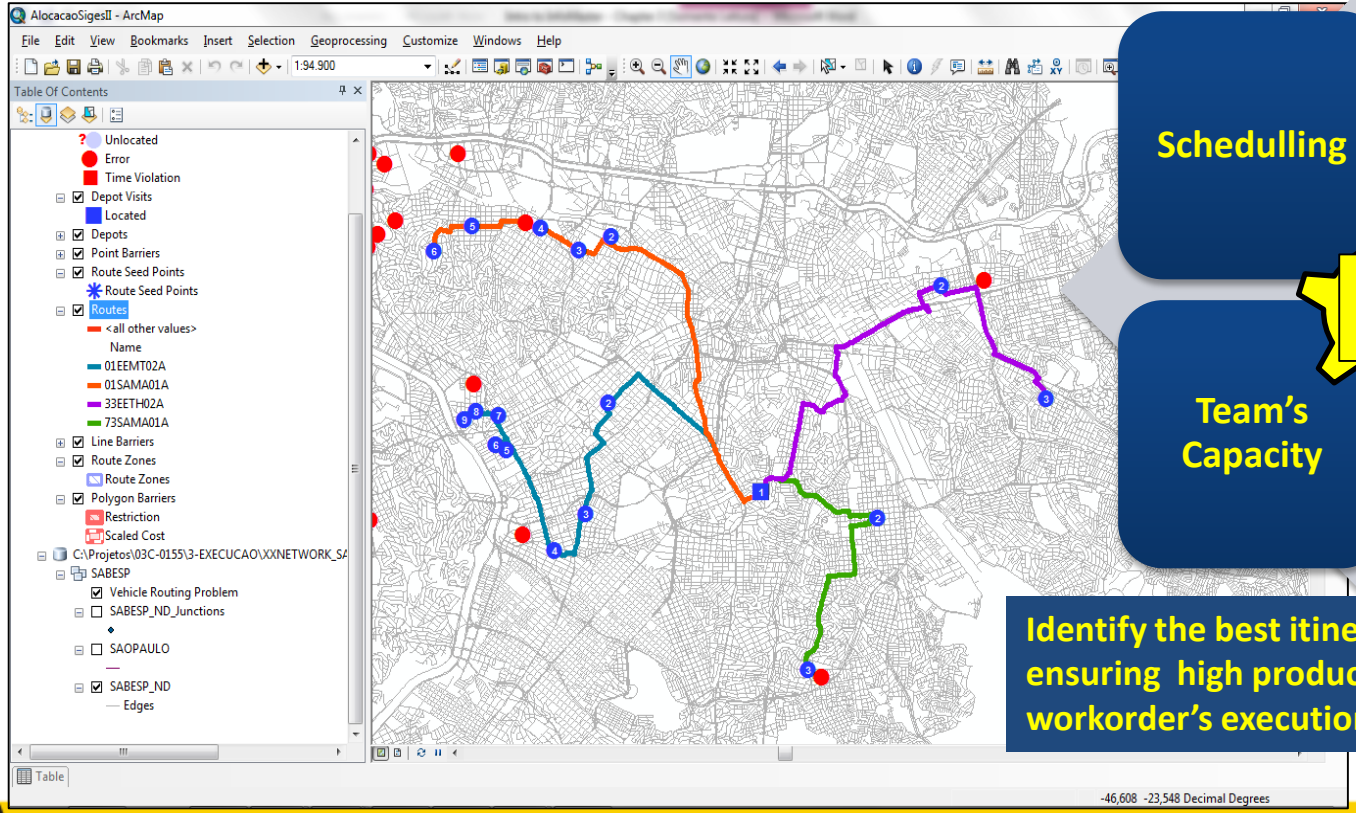
Architecture



The process


ENTRADA de SERVIÇO com SIGES
Vazamento
Plano A
CENTRAL de ATENDIMENTO
POLO de MANUTENÇÃO
Equipe do Polo
Solicitar fechamento
COD
MANOBRISTA
COD
COD
Solicitar abertura
COD
fotos
materiais
entulho

Otimization



Schedulling

Geographic Otimization (Street basemap)

GIS

Team's Capacity

Priorization

Identify the best itinerary for the teams, ensuring high productivivy of workorder's execution

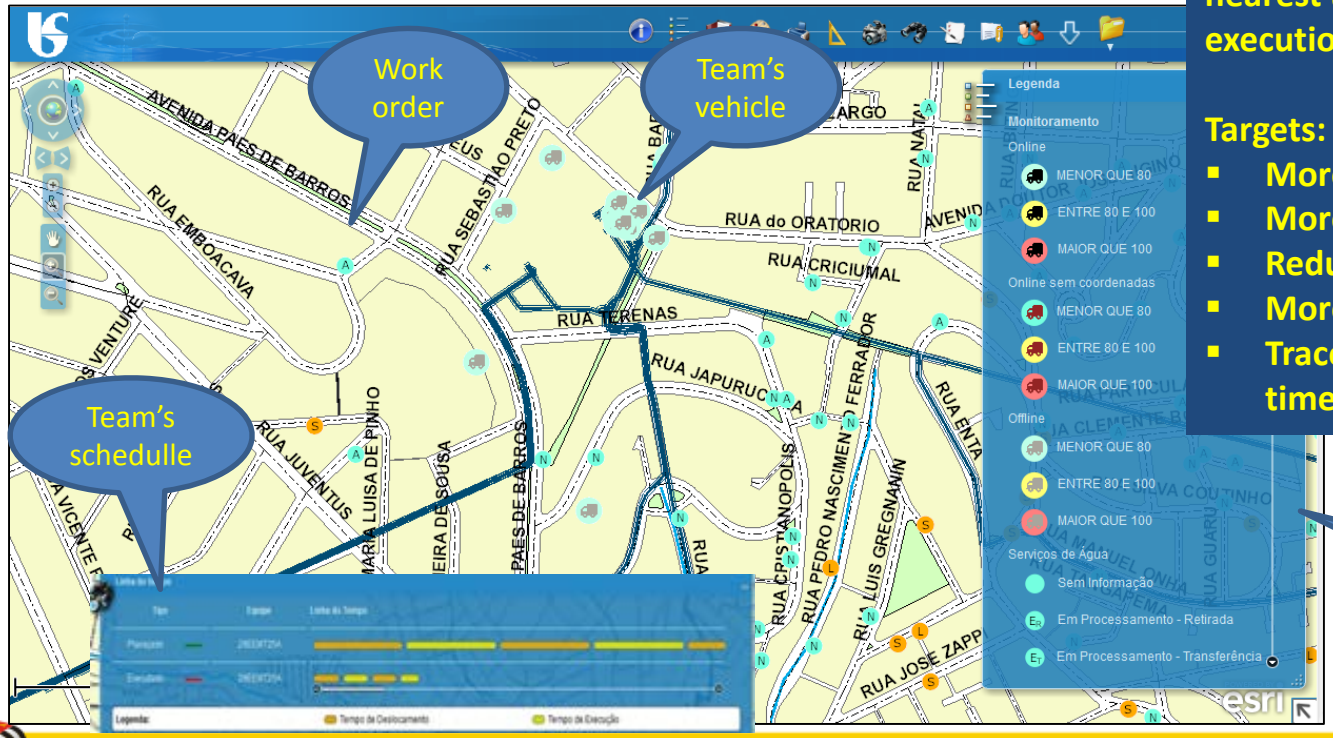
Monitoring

Application in GIS web to show the teams and the work orders in real time

The operator can assign services to the nearest team or with better conditions of execution

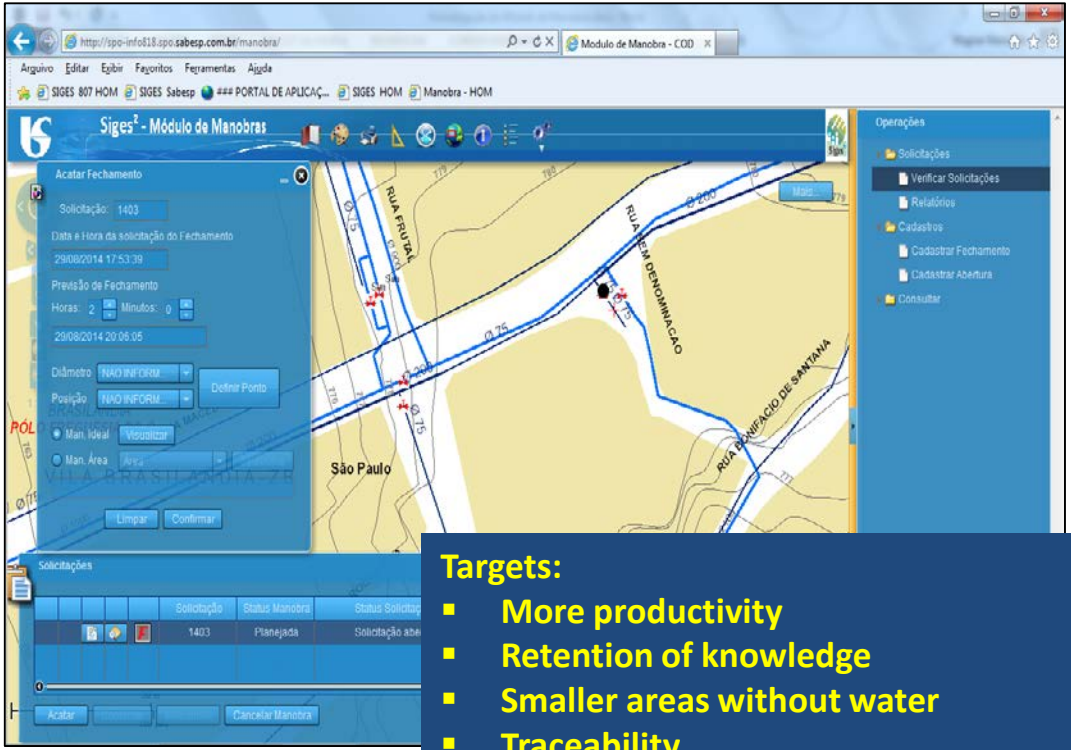
Targets:

- **More productivity**
- **More speed in decisions**
- **Reduce of costs (cheaper team's)**
- **More satisfaction of the consumer**
- **Traceability of the services in real time**



"Map-dashboard" of services

Distribution Network Operation



Targets:

- More productivity
- Retention of knowledge
- Smaller areas without water
- Traceability
- Less damage in the infrastructure
- Less complaints of customers

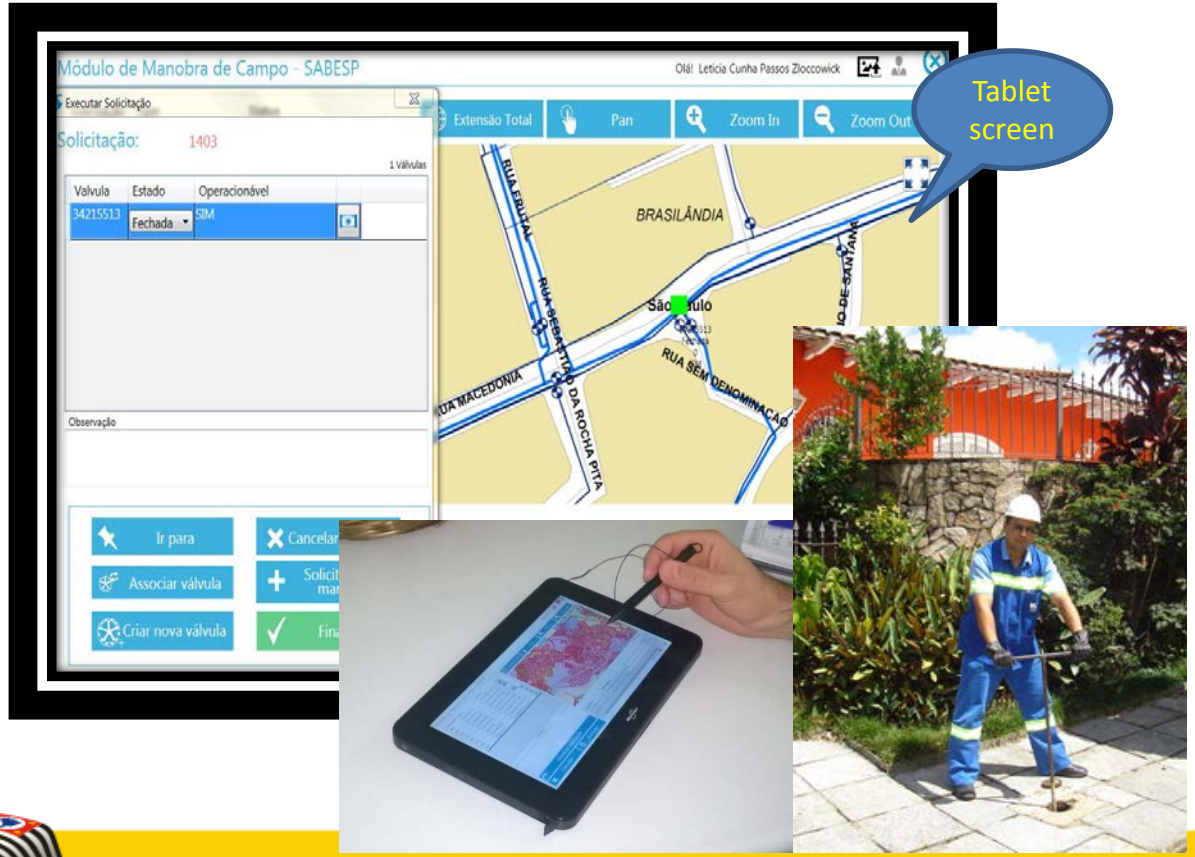
Application in GIS web to show the Water network distribution and their valves.

The operator set the leakage point and the GIS starts a trace to show what valves should be closed.

The teams in the field receive in a GIS Mobile the valves to close

The GIS provide the list os the customer's without water and send to the Contact Center

Distribution Network Operation



The challenge: what of the 150,000 valves are on ?

The GIS Mobile provide:

- **The map with the all the valves**
- **A functionality by the operator can set what valves are on/off**
- **The GPS captures the coordinates of the valve**
- **The camera take a photo of the valve**
- **If the valve are off , it's open a work order to fix it**
- **In some months we will have an inventary of the valves**

Dashboard / Indicators

Follow the targets of the process:

By service
By team
By area
By SLA
By company/contract
By the regulatory demands

The results

See you on ESRI UC 2016!

(The strong hydrical crisis of 2014/2015 in southeast of Brazil impacted significantly the operations of Sabesp in São Paulo , commiting the implantation of the project and the consolidation of its ROI and results)

Thank you!

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