Sabesp´s SCOA Portal

How PI System is supporting one of the world's largest water and wastewater companies on integration of business process informations

sabesp

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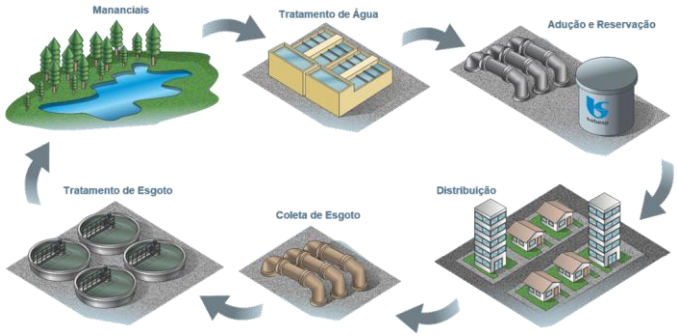
Agenda



SABESP

Who we are

SCOA Project

What is SCOA?

Project initiatives

Project assumptions

SCOA Infrastructure (Scada + PI System)

Construction of the environment

PI Asset Framework / PI Vision

Sabesp Expectations

Main needs of Sabesp

What kind of environment do we need?

Project goals

Applications

Indicator of water shortage

Decision Making Aid

Results

What we achieved so far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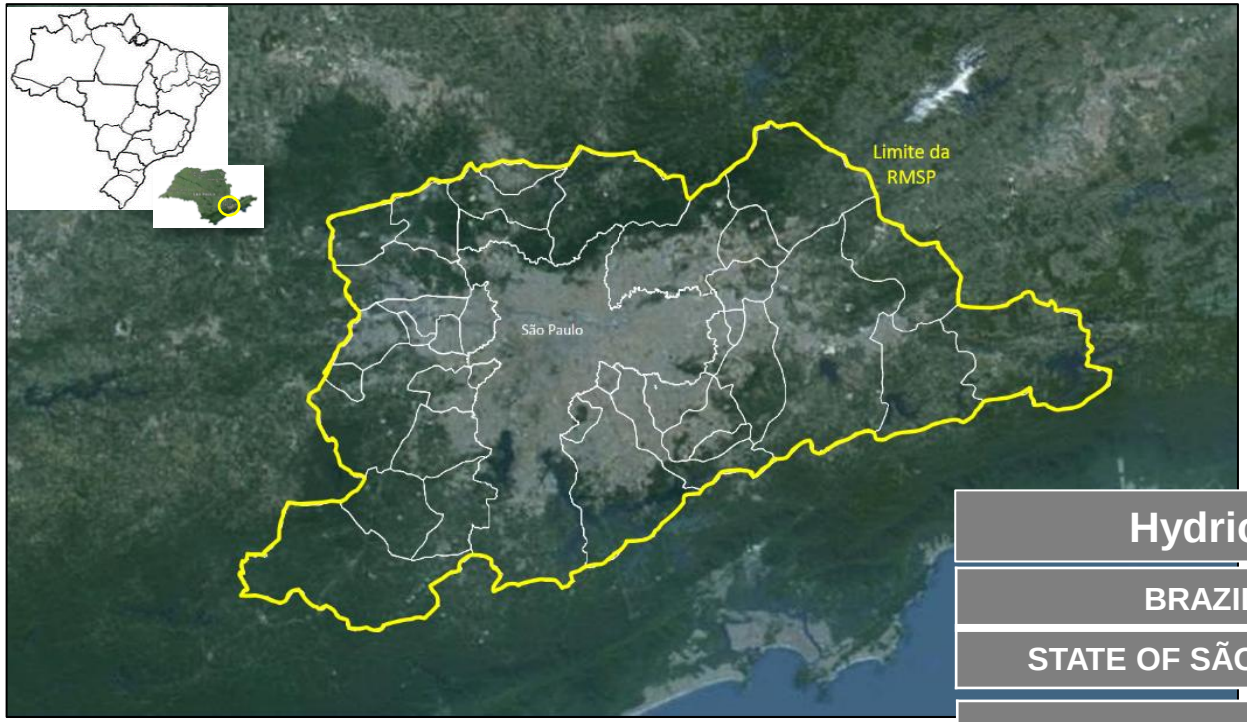
Sabesp

- Founded in 1973
- Attends 27,7 milions of citizens in 368 municipalities of São Paulo state
- Employees: 14.170
- First sanitation company listed in New York Stock Exchange
- Sabesp is the fourth largest sanitation company in the world in assisted population

Metropolitan Region of São Paulo State



The high concentration of population demands large infrastructure

20% Brazil´s Gross Domestic Product

7,9 km² territorial extension

21,2 million people (~77% Sabesp)

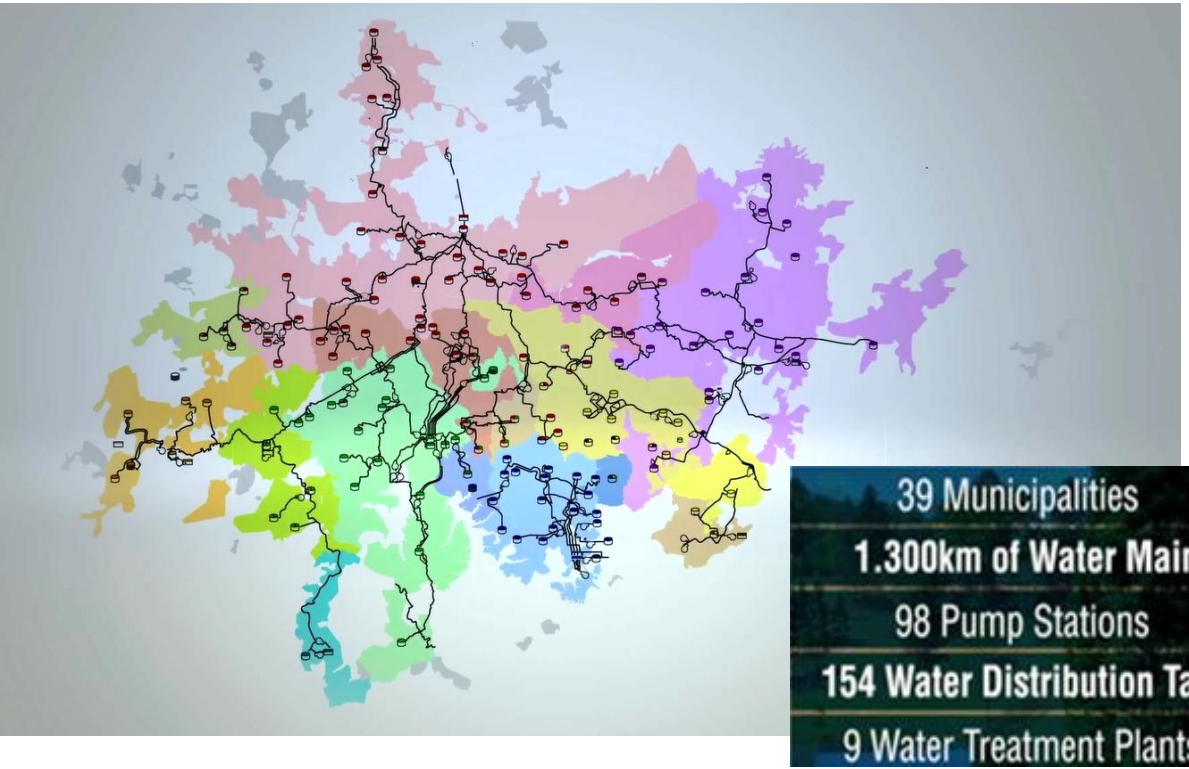
70% of Sabesp´s Gross Billing

Hydric Resources Availability		
BRAZIL		35.000 m³/hab.year
STATE OF SÃO PAULO		2.468 m³/hab.year
ONU CLASSIFICATION	SELF SUFFICIENT	> 2.500 m³/hab.year
	POOR	< 2.500 m³/hab.year
	CRITICAL	< 1.500 m³/hab.year

The shortage of water resources demands efficiency on operation

Metropolitan Integrated System

Challenges: operate and manage complex infrastructure (present) to achieve goals (future)



4,6 million of water connections
3,8 million of sewage connections

61 m³/s water production
18 m³/s treated wastewater

100% water supply
81% sewage collection
75% treated wastewater

	2022
Water Supply	=~100%
Sewage Collection	93%
Sewage Treatment	83%

Source: Sustainability Report 2017 and Relações com Investidores Page

SCOA System on CCO: a legacy from the past

Cronology of our continuous evolution

- 1982 - start-up of telemetry data with hardware design developed especially for SABESP
- 1999 - Expansion of the system with new computers
- 2008 - SCADA system implementation (PowerCC 4.2)

From 2008 on: operating successfully using SCOA created new expectations...

- Reduce user dependency with support staff
- Fast integration of information from others business process for decision making
- Online monitoring of indicators affecting customers

New Project: Main Goals

- Deliver methodological and technological innovation, with positive impact for customers, working in challenges of present, visioning the future
- Develop an environment that provides an integrated analysis of the Sanitation Cycle processes, with a friendly interface
- Stable and reliable environment

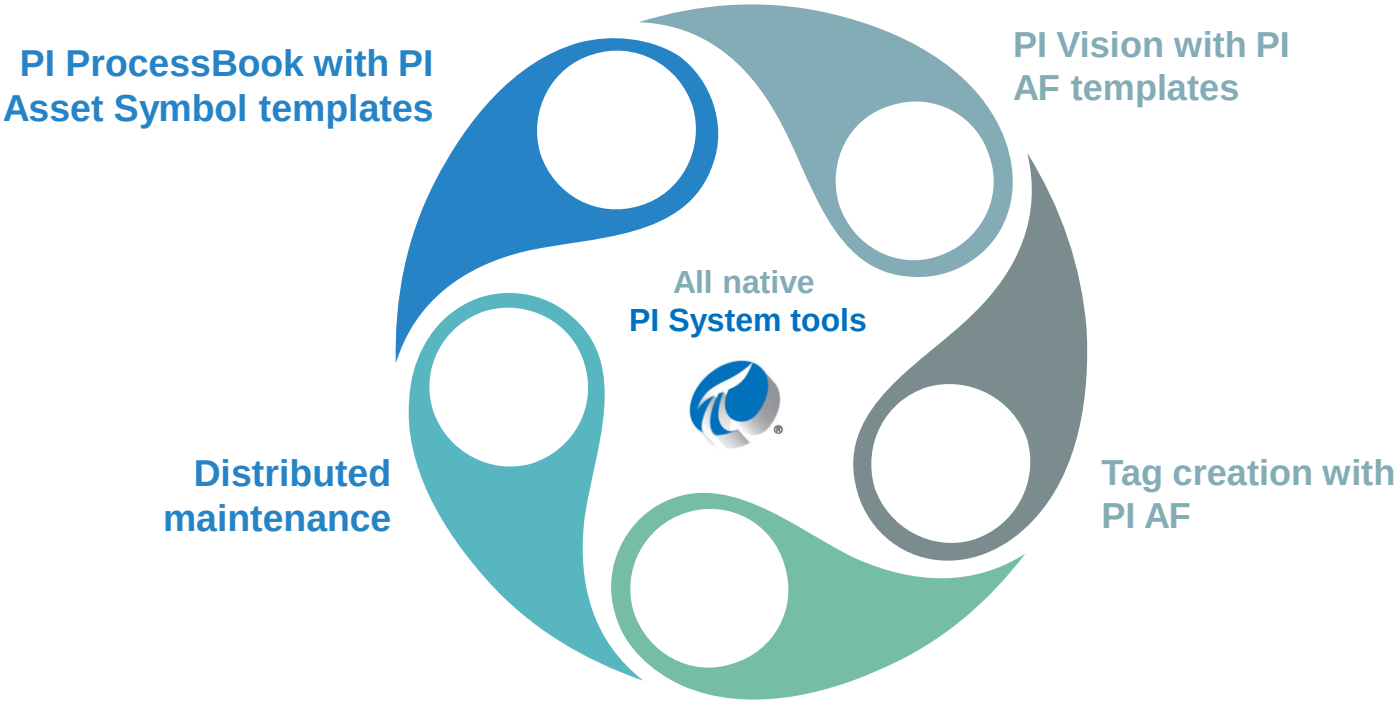
SCOA Project: modernization and business process integration

2017 - SCADA system update and PI System Implementation

Main Expectations

1. Reduce user dependency with support staff

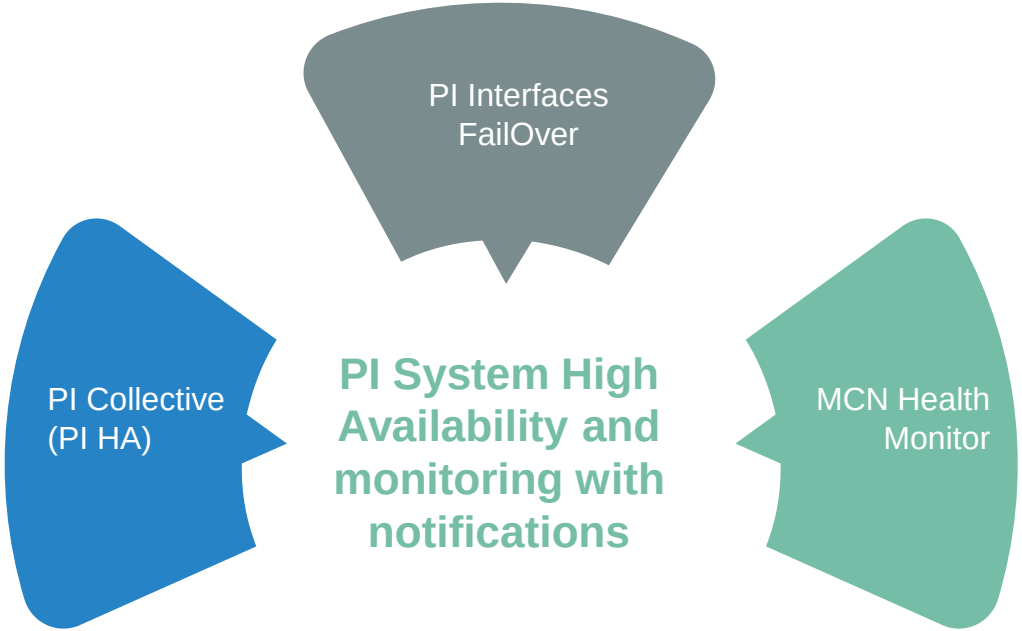
Environment development



Main Expectations

1. Reduce user dependency with support staff
2. Stable and reliable environment

Environment development



Main Expectations

1. Reduce user dependency with support staff
2. Stable and reliable environment
3. Fast information for decision making

Environment development

All applications in PI Vision

PI Analyses + PI Notifications

Online Availability and easy access
for all information

Main Expectations

1. Reduce user dependency with support staff
2. Stable and reliable environment

3. Fast information for decision making
4. Online monitoring of indicators

Environment development

Online calculation of indicators with

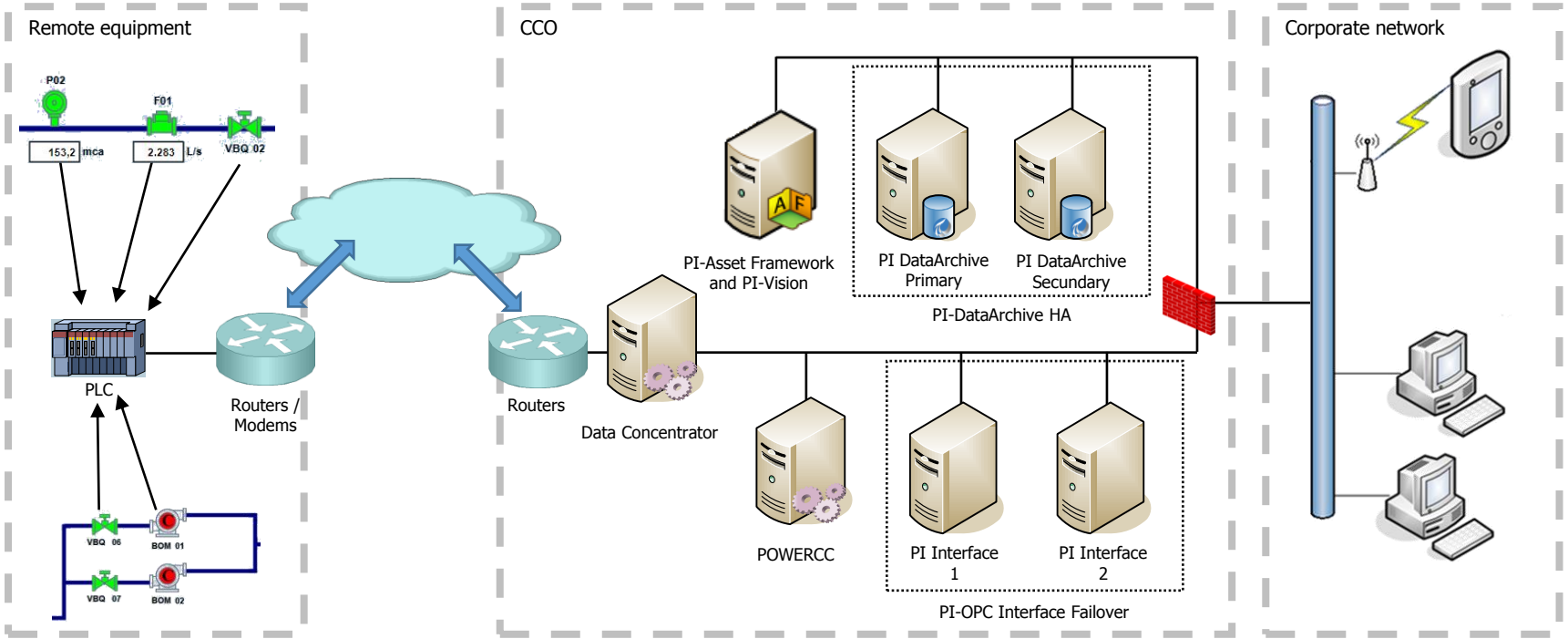
PI Analyses

78%

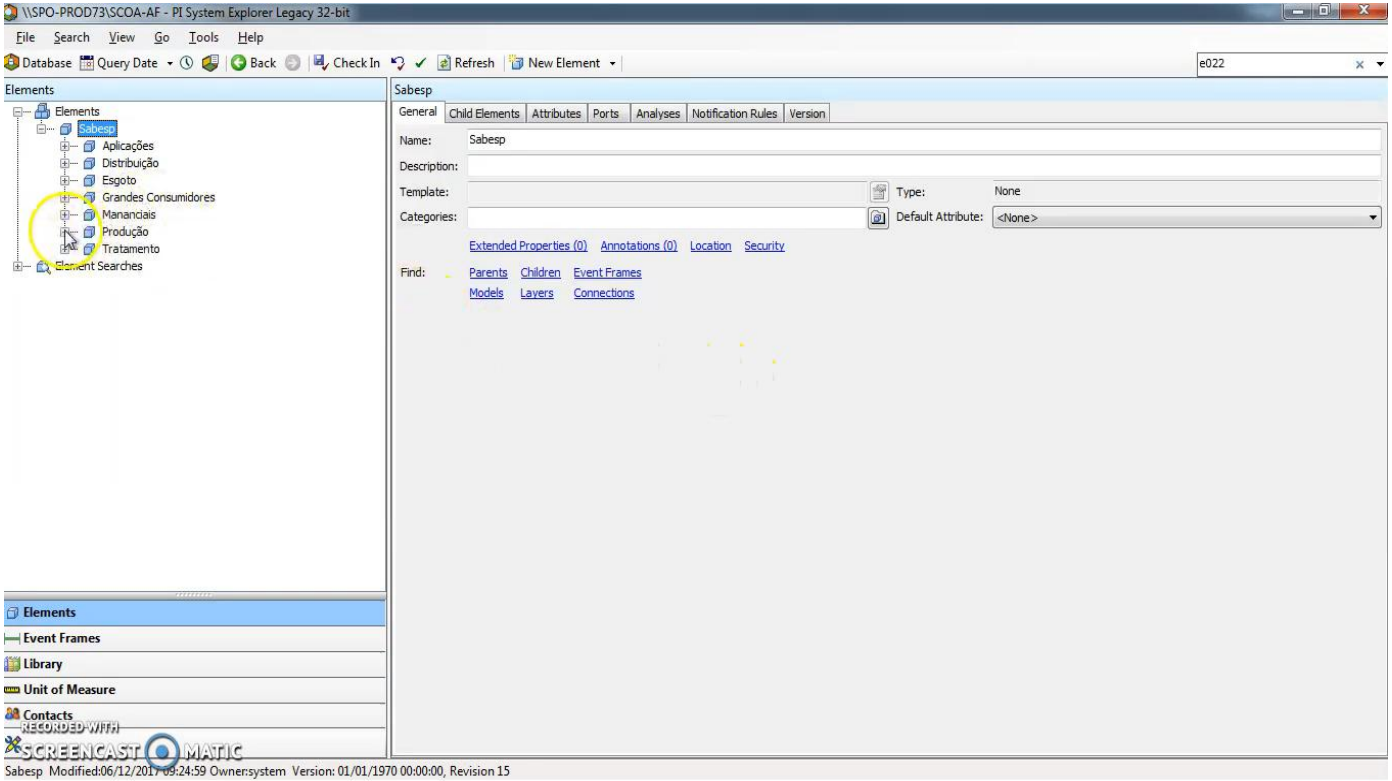
PI Notifications

PI Vision

SCOA Infrastructure



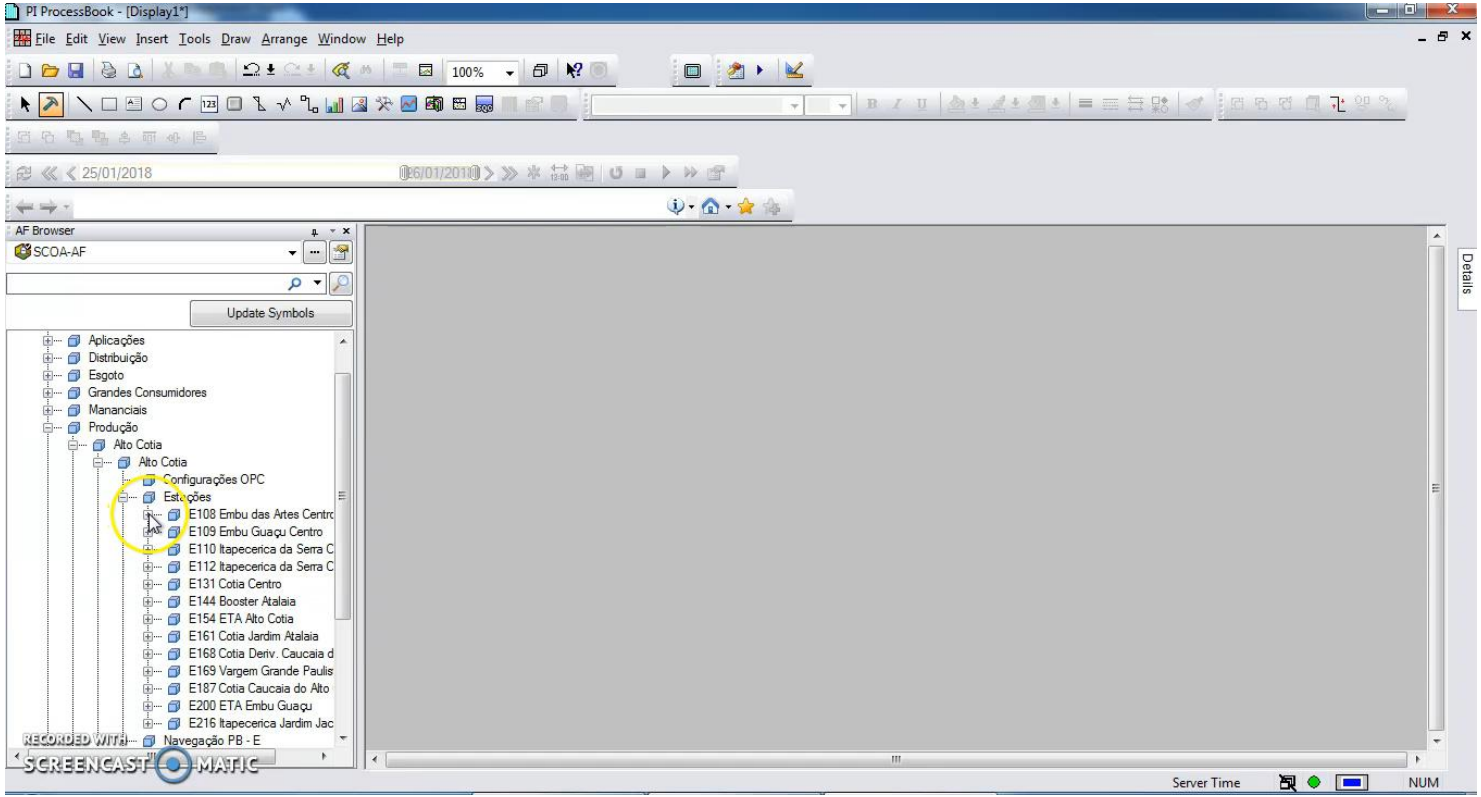
PI Asset Framework



PI DataLink Reports

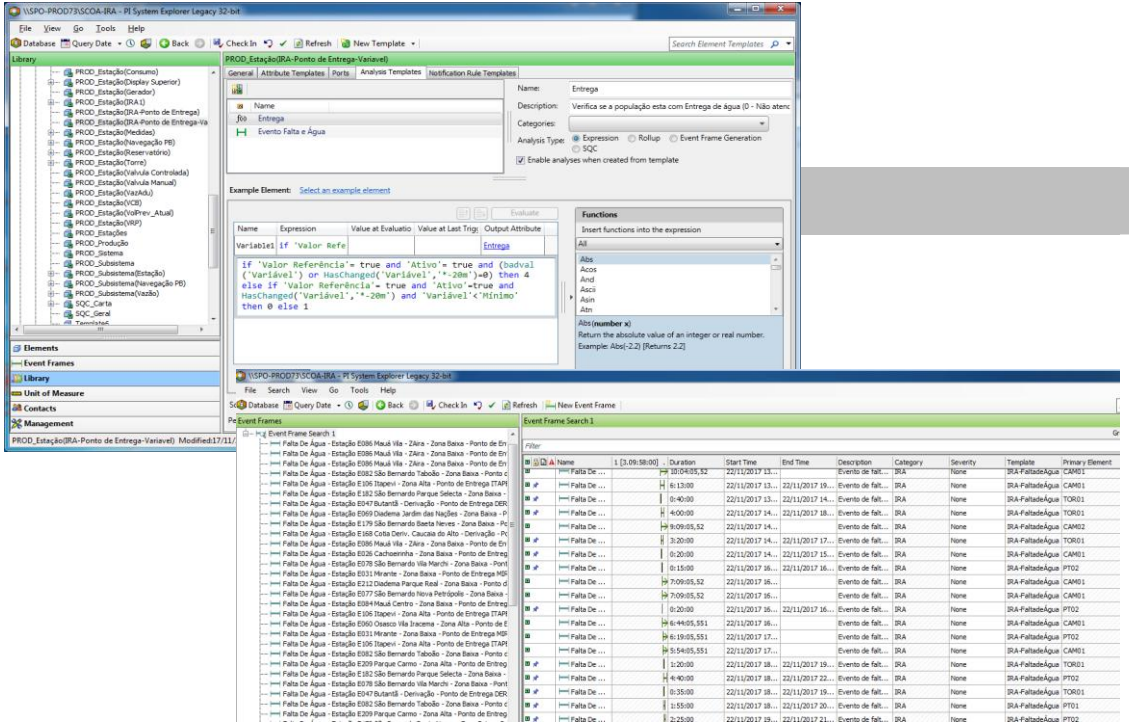
PI DataLink reports are available for download at PI Vision

PI Asset Framework



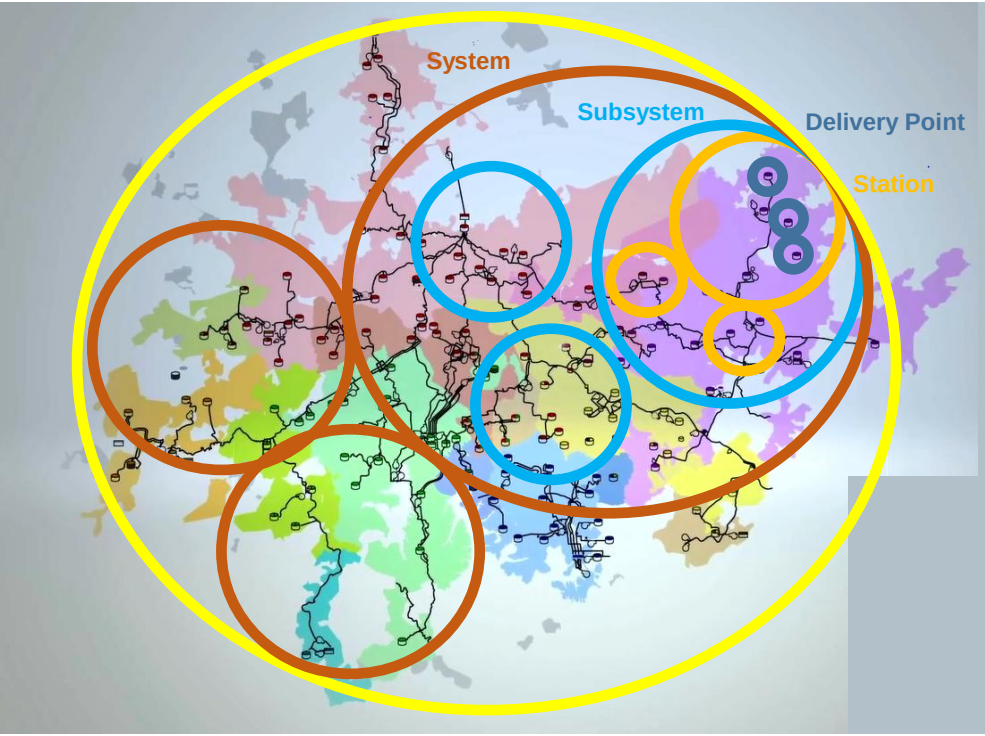
All screen symbols were associated with PI Asset Framework templates

PI Event Frame - Water shortage event



Notification of a lack of water

Main KPI - Supply regularity

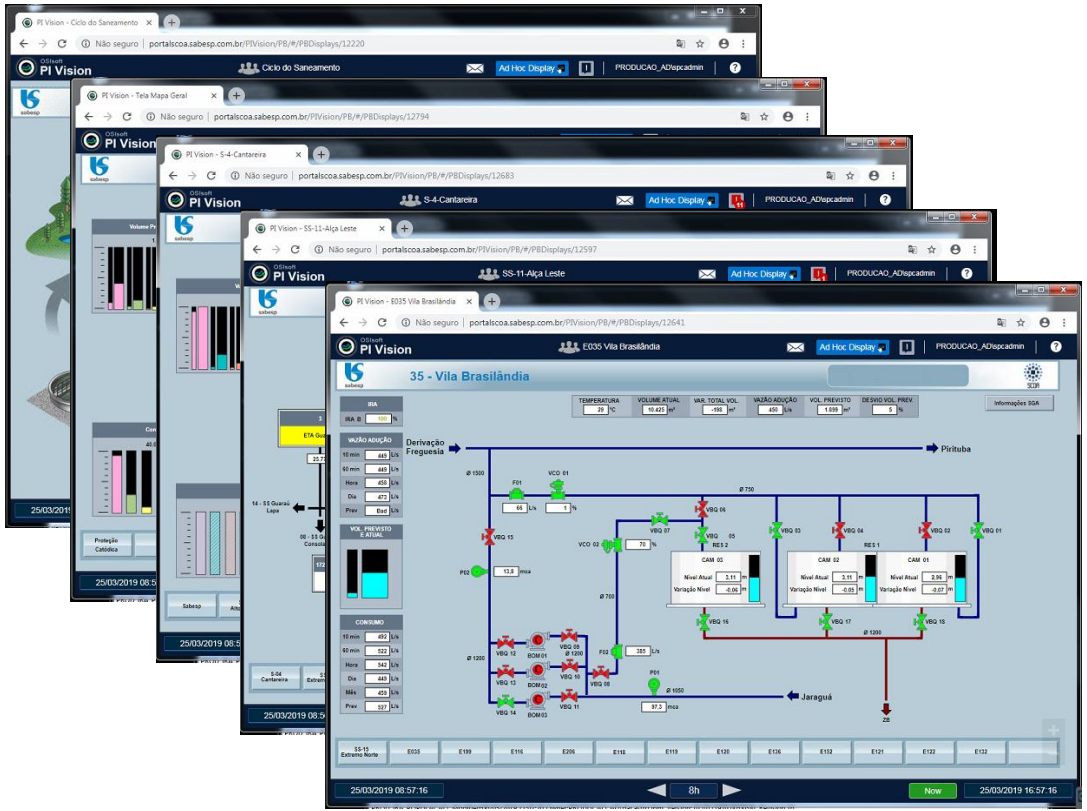


The regularity of water supply is measured accordingly to the **percentage of daily time with water delivery** weighted by:

- Delivery Point
- Population of Delivery Points (Station)
- Population of Stations (Subsystem)
- Population of Subsystems (System)
- Population of Systems (Global)

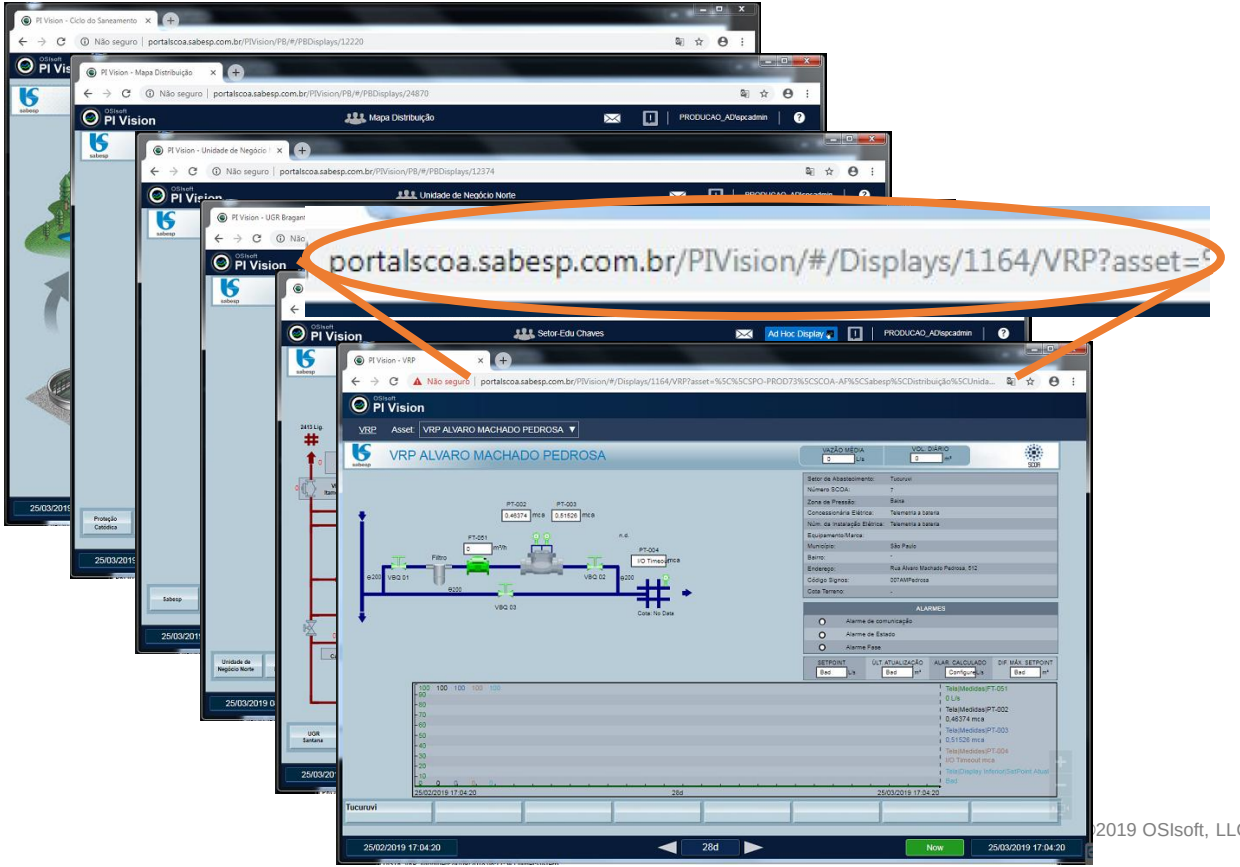
PI Vision Navigation (Water Production)

- Main Display
- General Map
- System
- Subystem
- Station

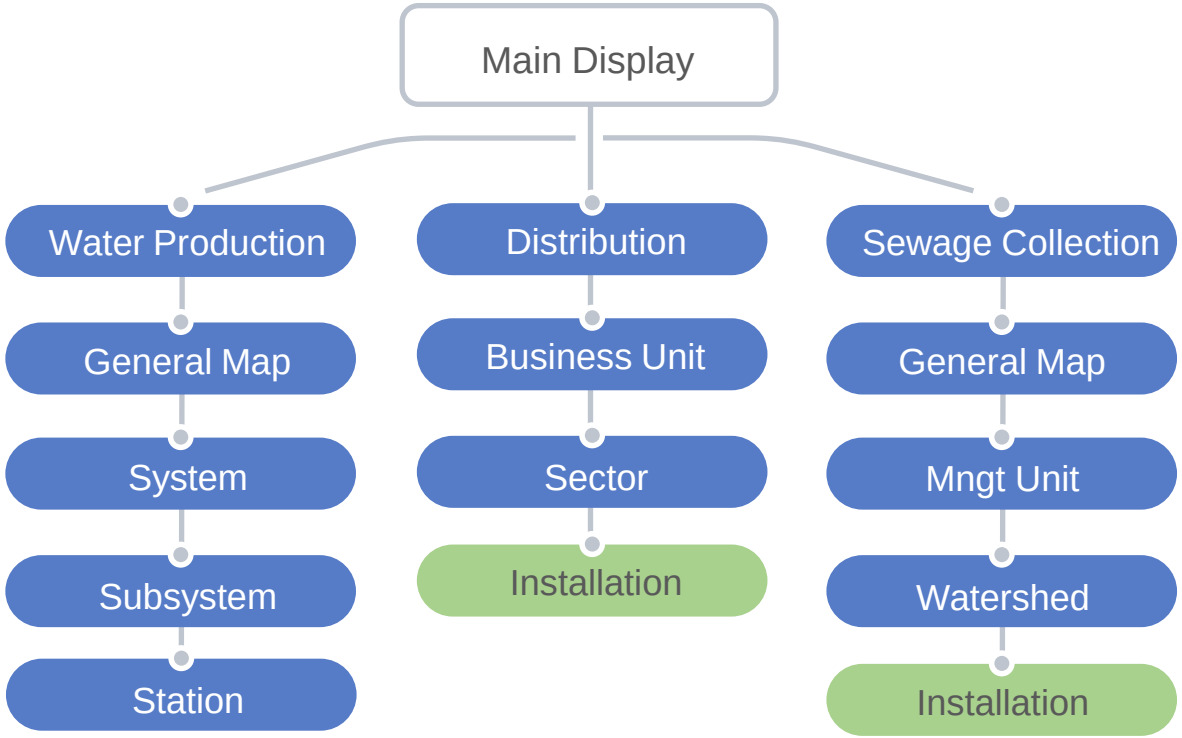


PI Vision Navigation (Water Distribution)

- Main Display
- General Map
- Business Unit
- Manager Unit
- Sector
- Installation



PI Vision Navigation (Main Streams)



Customized displays

PI ProcessBook

More than 700 displays developed (development accelerated by template functionality)

Similar displays

PI Vision

12 displays developed (representing **2400 assets**)

PI PB - Main Display: SCOA Portal

Where SCOA Implementation is more "visible"

Business Process Integration

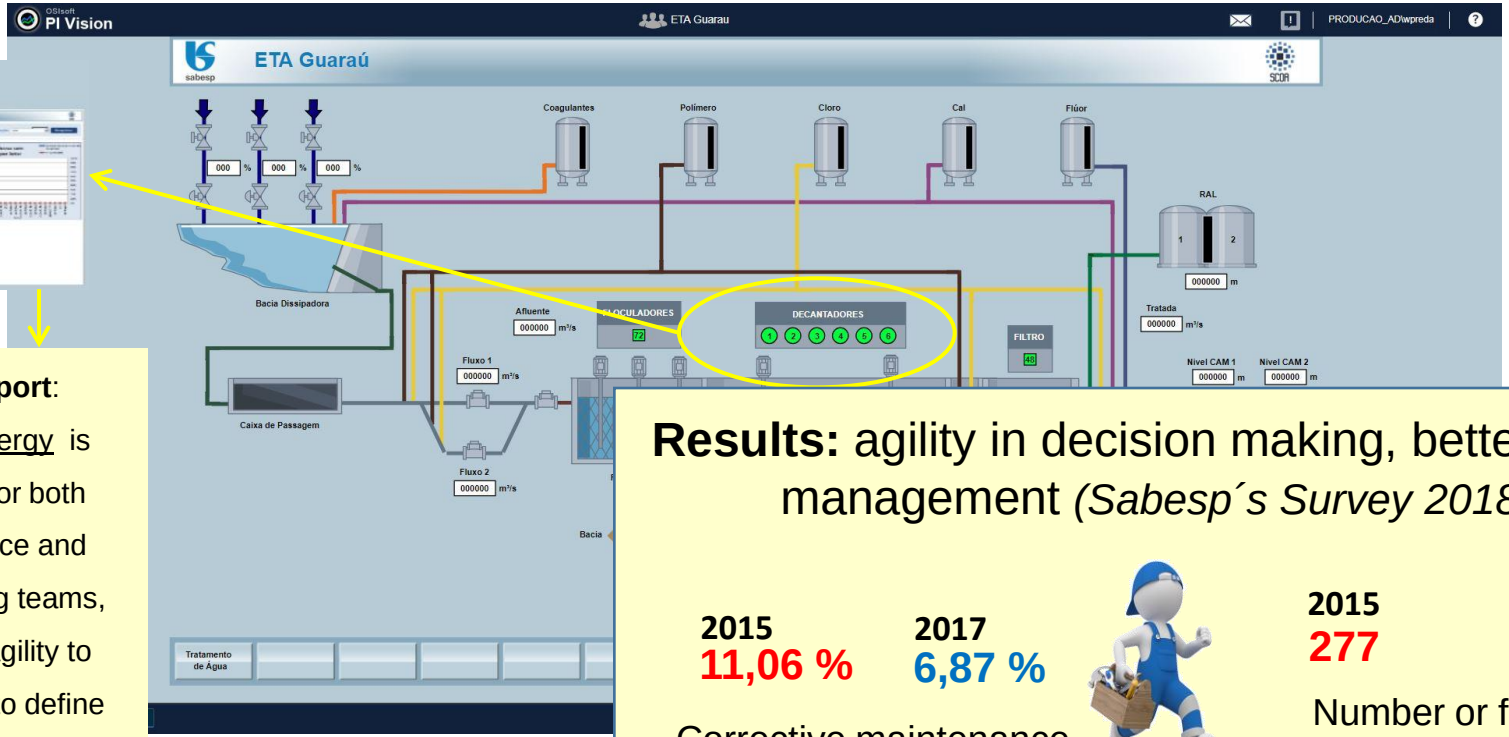
(Sabesp´s Intranet)

Friendly interface, providing quick and reliable access to all information from infrastructure

Alarms and Reports supporting Engineers and maintenance team, minimizing problems **(Predictives and Preventives actions)**

PI PB - Water Treatment Plant

Challenge: maximize water production



New Report:

Lack of Energy is available for both Maintenence and Engeenering teams, providing agility to repair and to define preventive actions

Results: agility in decision making, better asset management *(Sabesp´s Survey 2018)*

2015	2017
11,06 %	6,87 %

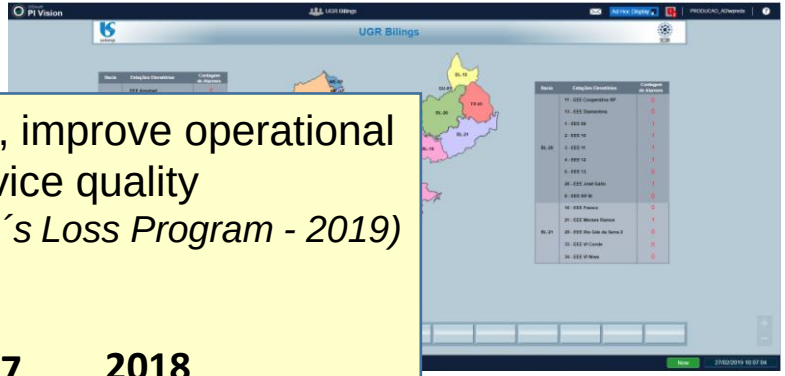
Corrective maintenance

2015	2017
277	2681

Number or field equipment monitored

PI PB - Water Transportation and Distribution

IRA KPI Report, GIS Integration => support Loss Program continuously

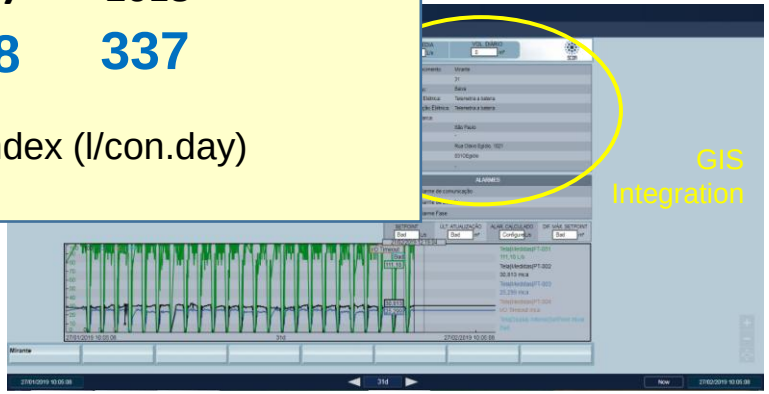


Results: Increase in billing, improve operational process and service quality

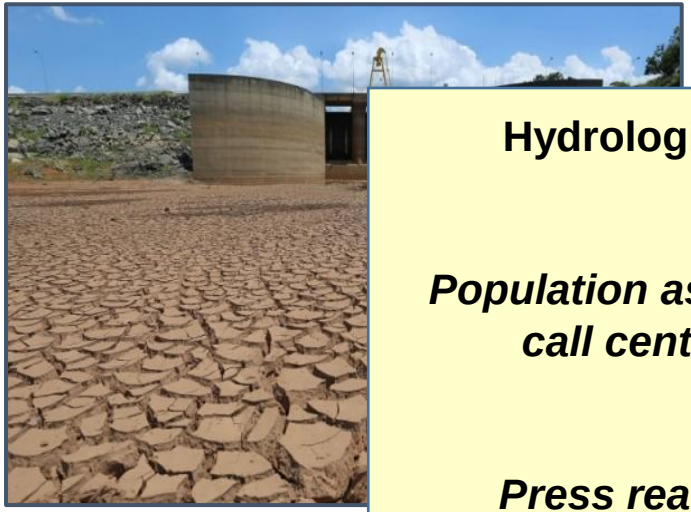
(Sabesp´s Loss Program - 2019)

2017	2018
348	337

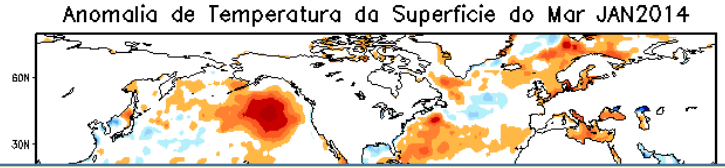
Loss Index (l/con.day)



Facing challenges, continuous learning



Water Crisis



Hydrological information was updated daily
(Sabesp´s Site - Internet)

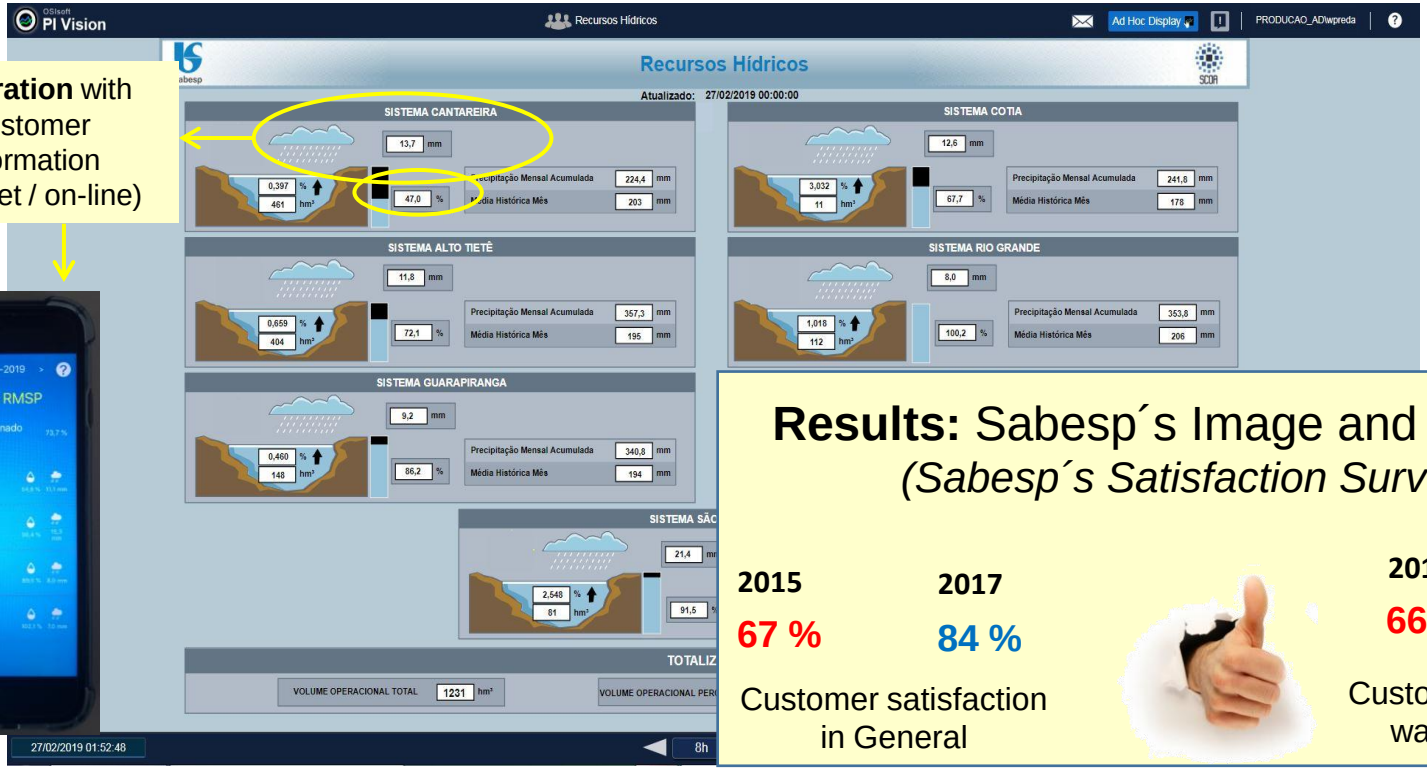
Population asked for hydrological topics using our call center, competing with comercial and operational topics

Press reachs population more easily (many communication resources)

PI PB - Water Resources (Reservoirs)

Hydrological Information

Integration with Customer Information (Internet / on-line)



Results: Sabesp´s Image and Transparency

(Sabesp´s Satisfaction Survey 2018)

2015	2017
67 %	84 %

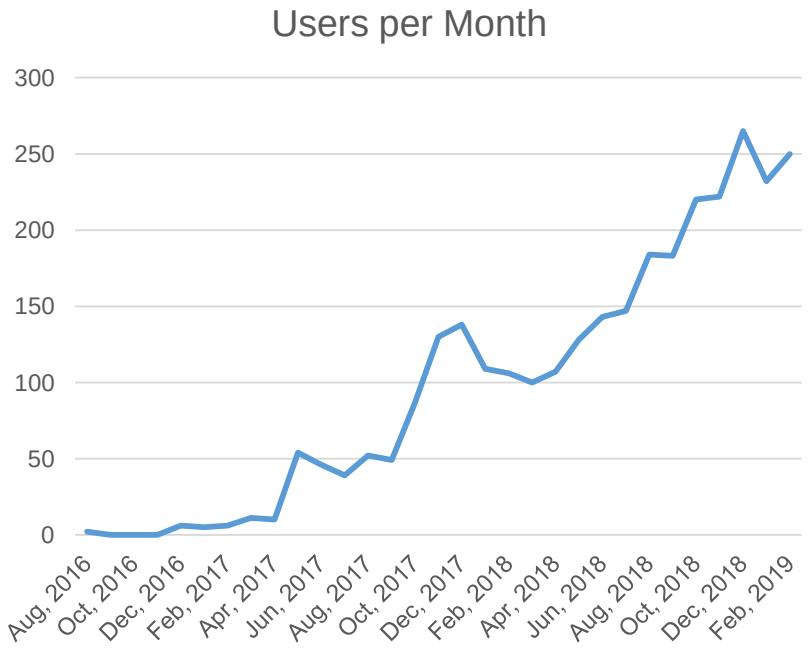
Customer satisfaction in General

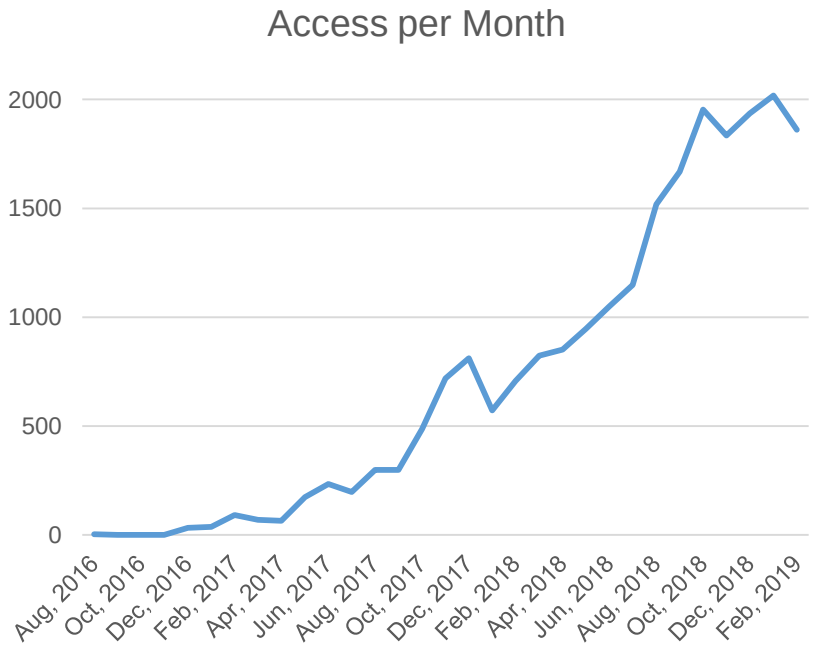
2015	2017
66 %	88 %

Customer satisfaction for water consumption

PI Vision - Usage per Month is growing up

SCOA Implementation demonstrated its usability



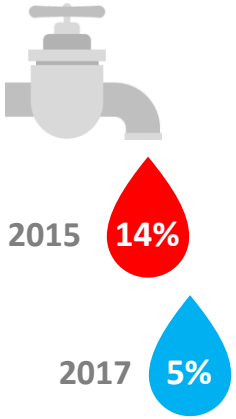


SCOA Project Numbers

- More than 100,000 tags
- 3,100 displays (700 customized + 12 templates)
- 60 reports (Represents more than 2,400 assets)
- 2 years of ~2 PI Consultants working in this project full time
- More than 250 trained users (50 in administration)
- 440 Users registered in the Active Directory

More Results

The lower the better



Claims about water shortage

2015
0,58 kWh/m³

2017
0,53 kWh/m³

Energy efficiency

Intangible benefits

Shareholders	Valuing and strengthening the **brand of Sabesp**
Society	Compliance with **regulatory requirements**
Employees	Greater **assertiveness in solving problems** (the first team that will provide service is specialized) Easy and continuous access to field information enables **proactivity and preventive action** New working procedures gave more **synergy between the teams**

SABESP

SCOA Portal

How PI System is suporting one of the world's largest water and wastewater companies on integration of business process informations

CHALLENGE	SOLUTION	RESULTS
Integrate diverse systems and build an environment where the user has quick and reliable access to all information in a friendly interface.	Use the PI Asset Framework's native tools integrated with PI System's client tools. Training of key users for knowledge replication and learning culture.	Improvement in the Sabesp´s image (awarded as the second most reliable public company in São Paulo - 2018 - IBOPE)

Contact Information

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Questions?

Please wait for the **microphone**

State your **name & company**

Please remember