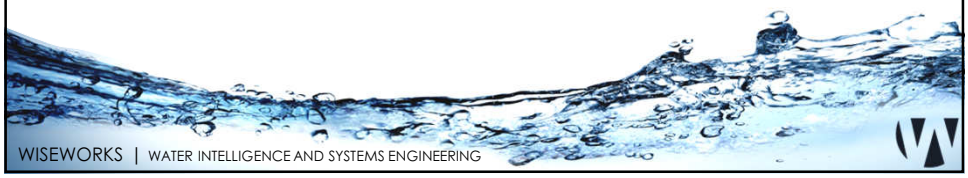
Integrated information tools for strategic asset management

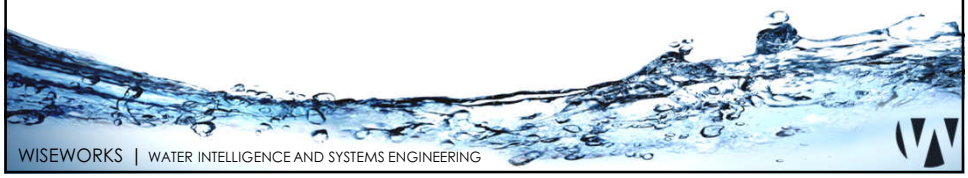
J. Beleza* | J. Feliciano | J. Maia | A. Ganhão | R. Almeida | A. Santos | J. Coelho

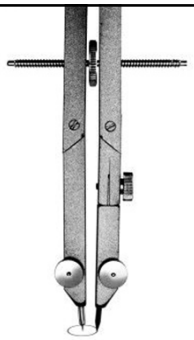
*jbeleza@wise-works.eu

LESAM 2011 – September 27-30 – Mülheim an der Ruhr, Germany



Index



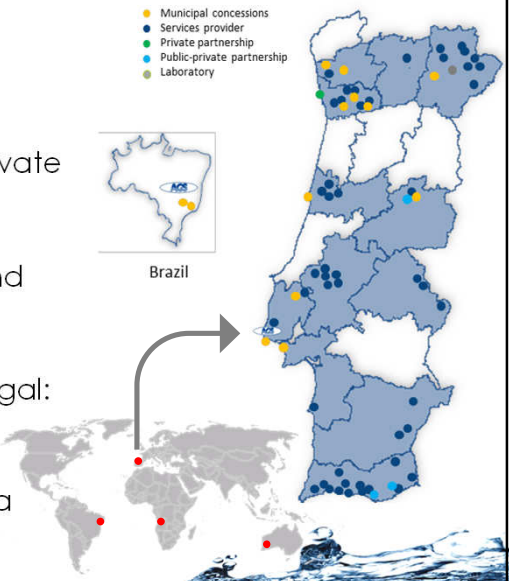


1. Introduction

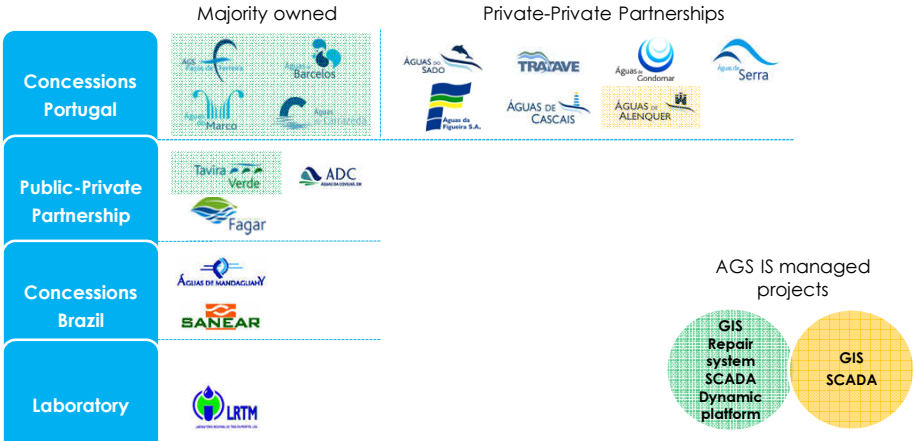
1. Introduction

AGS:

- Leading water services private operator in Portugal
- Manages 14 water utilities (Municipal concessions and PPP's) in Portugal and 2 in Brazil
- Population served in Portugal:
  - Water: 931'275
  - Wastewater: 1'188'013
- Services provider in Angola and Australia (Perth)



1. Introduction



1. Introduction

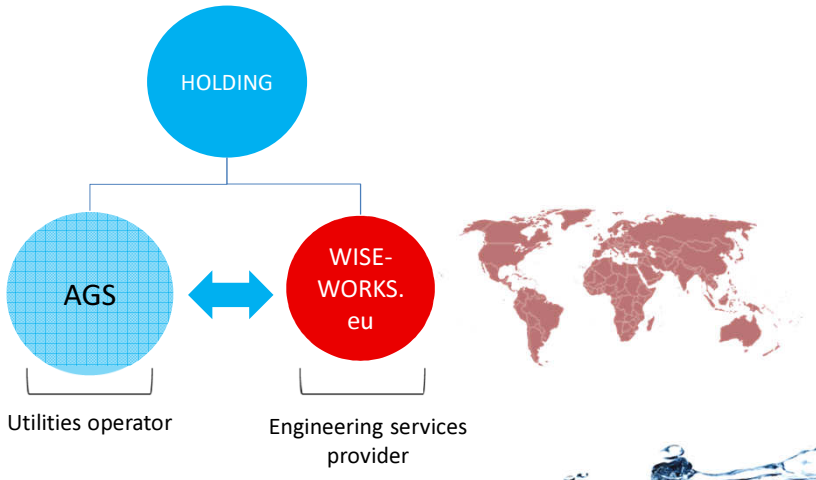
- AGS utilities role:
  - Responsibility to manage contracts
  - Provide engineering support
    - Optimize service quality, network performance and infrastructure life-time
  - Develop and manage technical and technological projects ensuring a clear approach to management

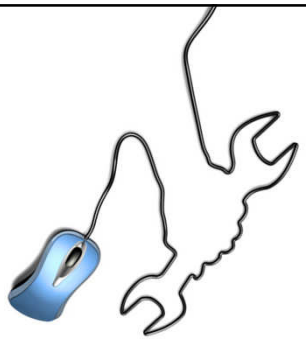
1. Introduction

- AGS utilities role:

Operational Management	Information Systems	R&D	Investment plans
• Water losses • Inflow and infiltration control • Hydraulic modeling • Network optimization • Energy efficiency • Client demands analysis and monitoring • Water quality	• GIS • SCADA • Repair system • Dynamic platform • Specific tools	• Infrastructure asset management (IAM) • Support Information Systems and Operational Management • AWARE-P	• Support design and network optimization • Analyze new investments and infrastructure development • Supervise construction

1. Introduction





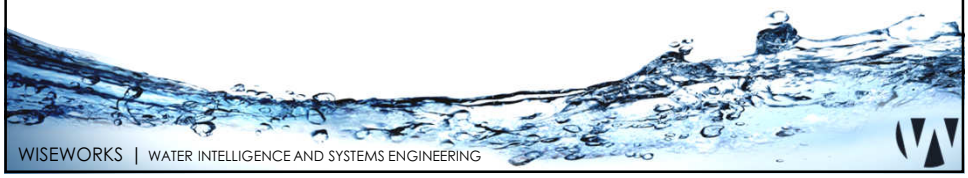
2. Dynamic platform

2. Dynamic platform

- Getting data is an easy task nowadays:
  - Billing
  - GIS
  - SCADA
  - Metering
  - …
- However, even in sophisticated utilities, the essential information is not always available or may fall short in quality or quantity

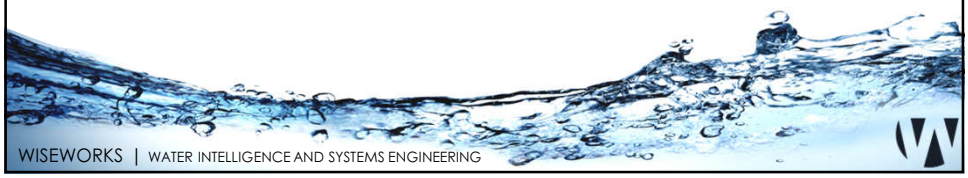
2. Dynamic platform

- Basic principles established:
  1. Development and maintenance of data to satisfy needs of decision support tools
  2. Development of quality metrics (IWA, Regulator, …) for evaluation of performance and condition
  3. Creating standards of data and information flow
  4. Continuous transfer of data amongst actors in the process



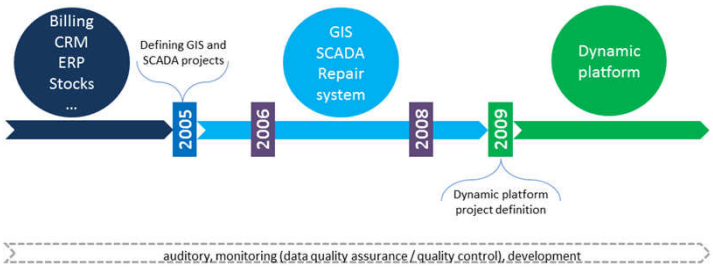
2. Dynamic platform

- Important steps:
  - Consider the need to link the different databases
  - Continuously validate data: monitoring and quality assurance / quality control is essential
  - Training the field staff and analyze the data (keep improving data collection)
  - Keeping it simple: too many data to capture may not be the best thing to start with



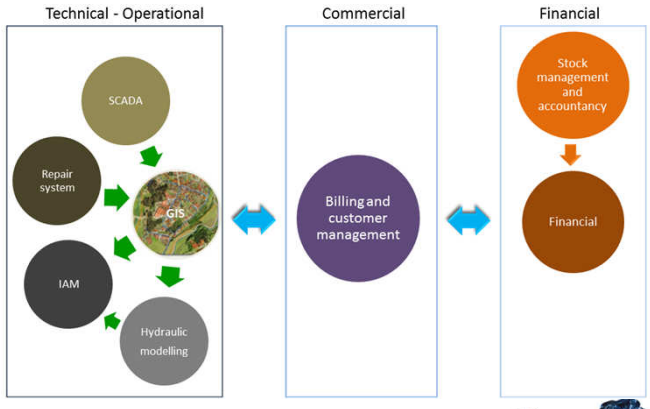
2. Dynamic platform

- What have we done?
  - Establish a path and defining basic data needs
  - Development of IS to support management



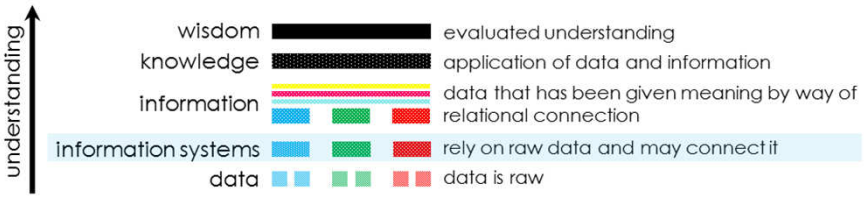
2. Dynamic platform

- What have we done?



2. Dynamic platform

- Having information systems does not mean you manage information.
  - Efficient information management is essential (even without advanced IS).



Based on Ackoff and Bellinger

2. Dynamic platform

- The main difficulties lie in:
  1. Identifying the correct data
  2. Promoting data standards
  3. Analysing and integrating, providing insightful analysis when necessary
  4. Achieving reliable and valuable indicators for all management levels
  5. Reach all users and integrate information in a simple way

2. Dynamic platform

- We felt the need for an efficient tool that could incorporate all data from all available IS:
  - Without duplication
  - Without a complex structure
  - Fast enough to give us results and mix data and information
  - Allowing us to do benchmarking based on the same data, extracted and transformed exactly the same way
  - Providing new ways to visualize and understand our data

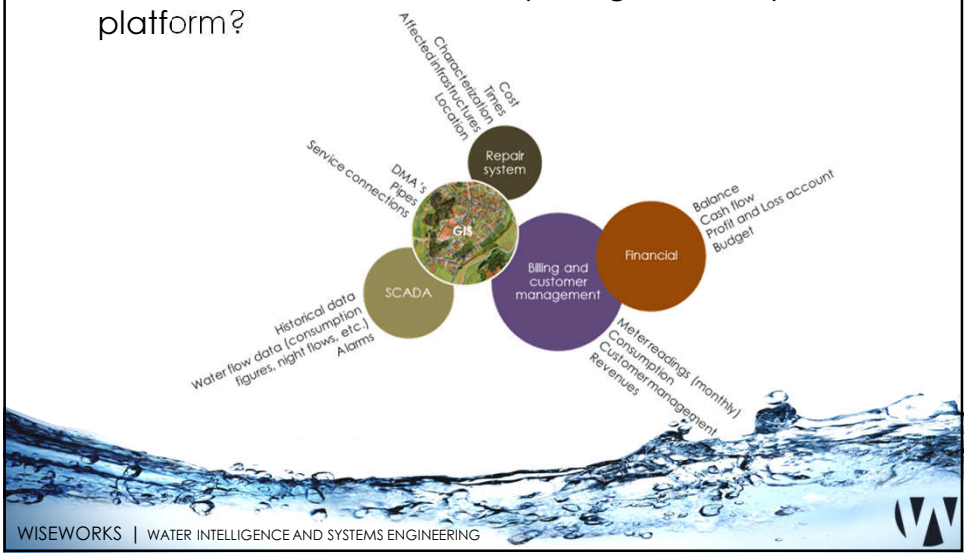
2. Dynamic platform

- What possibilities have we ended up with?

We believe that IAM is getting real knowledge based on liable and robust data and information of our networks, our clients and all our assets

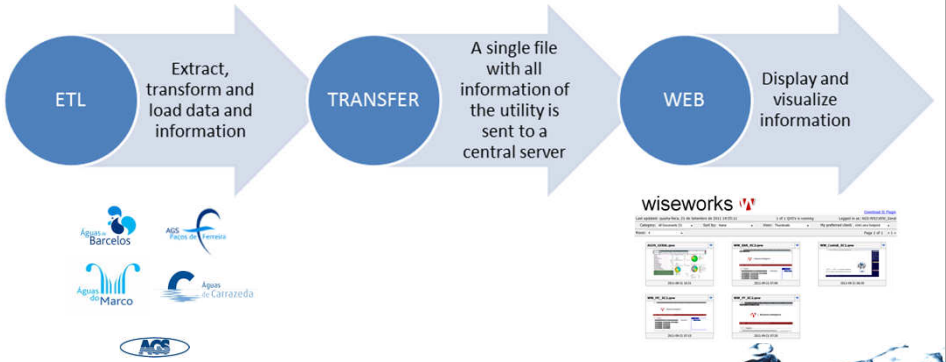
2. Dynamic platform

- Which data are we currently using on the dynamic platform?



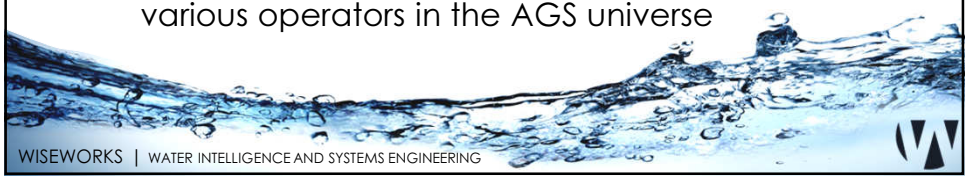
2. Dynamic platform

- How?



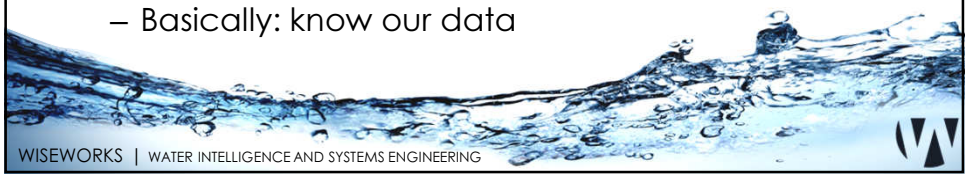
2. Dynamic platform

- Using the Dynamic Platform we are able to:
  - Analyse data from several different sources at the same time in a single, business intelligence, central platform
  - Provide dynamic analysis in real time – the ability to instantly analyse data from any system (or several at the same time), through any available parameter
  - Display a selection of key performance indicators to analyse current and past performance of the various operators in the AGS universe



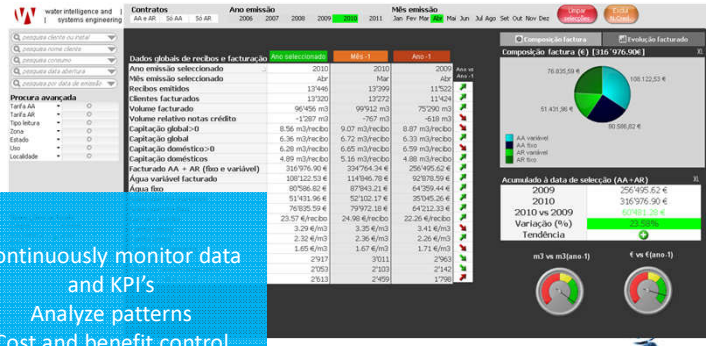
2. Dynamic platform

- Using the Dynamic Platform we are able to:
  - Create standards in analysis, reducing errors and time-consuming reports
  - Have a data dictionary for the users, providing definitions of the information and how the data is gathered and treated
  - Visualize all IS and data available allowing for a continuous monitoring of data (QA/QC), detecting errors and taking the needed measures to correct them
  - Basically: know our data



2. Dynamic platform

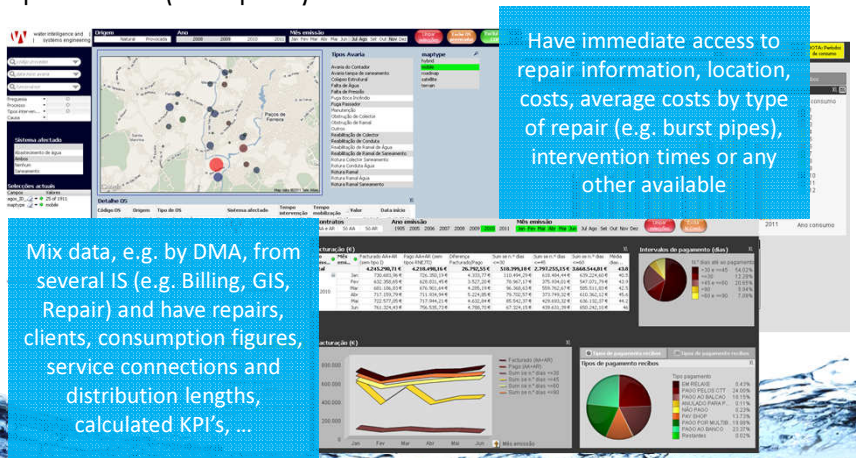
- Which data are we currently using on the dynamic platform (samples)?



Continuously monitor data and KPI's
Analyze patterns
Cost and benefit control

2. Dynamic platform

- Which data are we currently using on the dynamic platform (samples)?

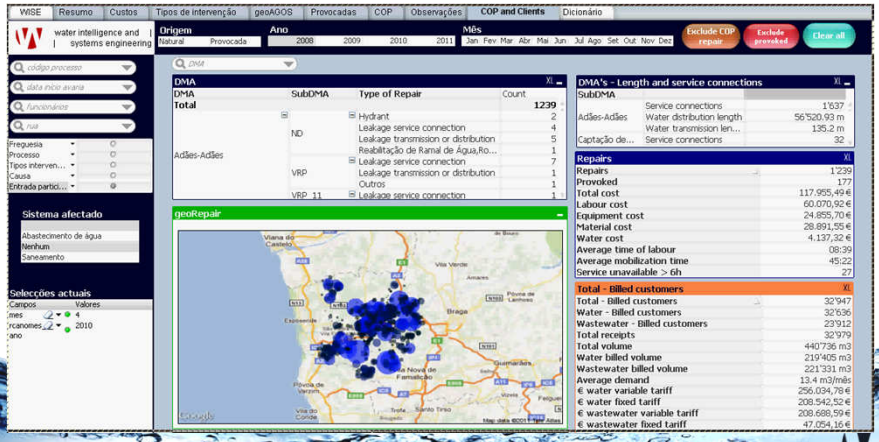


Have immediate access to repair information, location, costs, average costs by type of repair (e.g. burst pipes), intervention times or any other available

Mix data, e.g. by DMA, from several IS (e.g. Billing, GIS, Repair) and have repairs, clients, consumption figures, service connections and distribution lengths, calculated KPI's, …

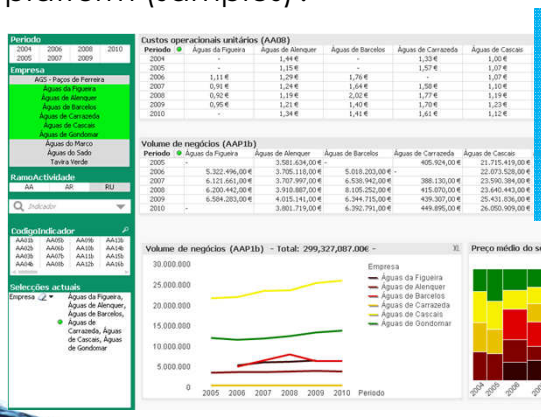
2. Dynamic platform

- Which data are we currently using on the dynamic platform (samples)?



2. Dynamic platform

- Which data are we currently using on the dynamic platform (samples)?



Select several entities – or areas – and do benchmarking (by year, entity, type of service, …, - e.g. operational costs, cash-flow, NRW, …)

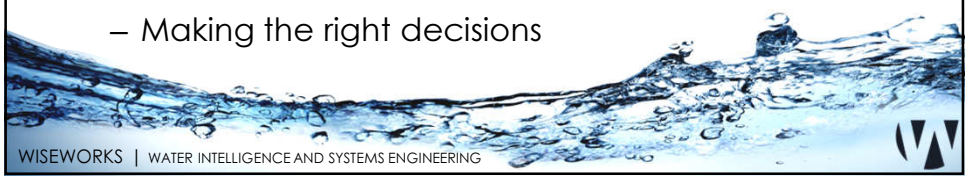
3. Final remarks

3. Final remarks

- Today we have all the technology easily available to create and develop our analysis, creating robust tools to support decision-making
  - Still, information systems do not solve our problems by themselves
  - It is essential to create an integrated path and give it way to evolve
  - Knowing our data and our information is key: decisions must be based on reliable and structured information

3. Final remarks

- With the Dynamic Platform, AGS has now the means to keep
  - Promoting solid methodologies for a sustainable and clear approach to progressive asset management policies
  - Developing new sets of analysis, useful to all intended users
  - Improving business processes
  - Standardising and simplifying, while delivering efficient services
  - Making the right decisions



Integrated information tools for strategic asset management

J. Beleza* | J. Feliciano | J. Maia | A. Ganhão | R. Almeida | A. Santos | J. Coelho

*jbeleza@wise-works.eu

LESAM 2011 – September 27-30 – Mülheim an der Ruhr, Germany