Turning **insight** into **action**.

OSIsoft. USERS CONFERENCE 2011

A Unique Version of the Truth From a Single Place

Presented by **Michel Verinaud**

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Agenda

- Cetrel and Camaçari Industrial Complex
- Background
- Challenge
- Scenario before the PI System
- Required scenario with the PI System
- Solution
- Cybertécnica
- Development
- OSIsoft Products
- Results and Benfits
- Future Plans and Next Steps

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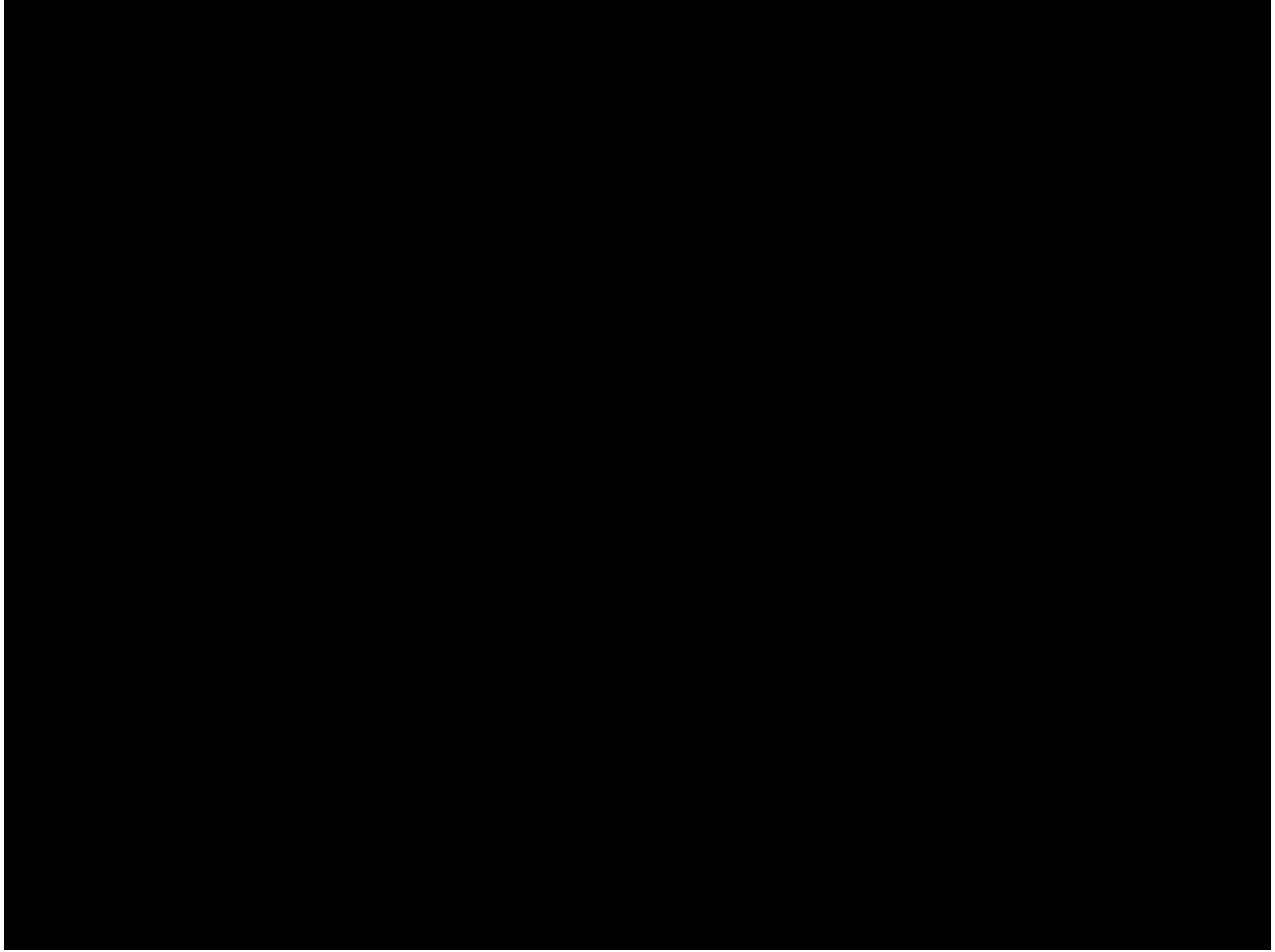

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Camaçari Industrial Complex

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Camaçari Industrial Complex

Location

- Camaçari municipality
- 45 km far from Salvador
- 27 km far from Petrobrás Refinery
- 24 km far from Aratu Port

Begin of operation: 1978

Area: 235 km^2

Industry sectors

- Chemical and Petrochemical
- Cellulose
- Copper metallurgy
- Beverages
- Automobiles
- Textiles
- Services

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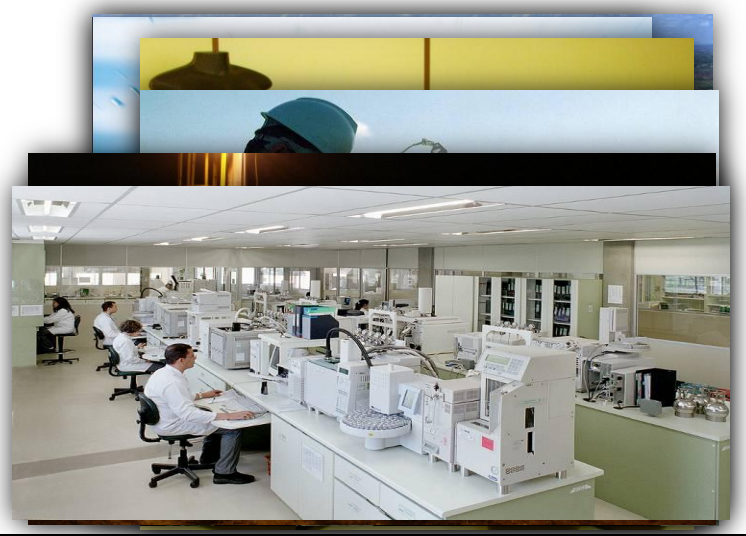
Cetrel

Commitment to the Future

- **With more than 30 year of experience, Cetrel offers many services of Environmental Engineering**

  - Industrial wastewater treatment
  - Water reuse solutions
  - Wastes management
  - Wastes valorization
  - Groundwater and surface water monitoring
  - Air monitoring
  - Laboratories



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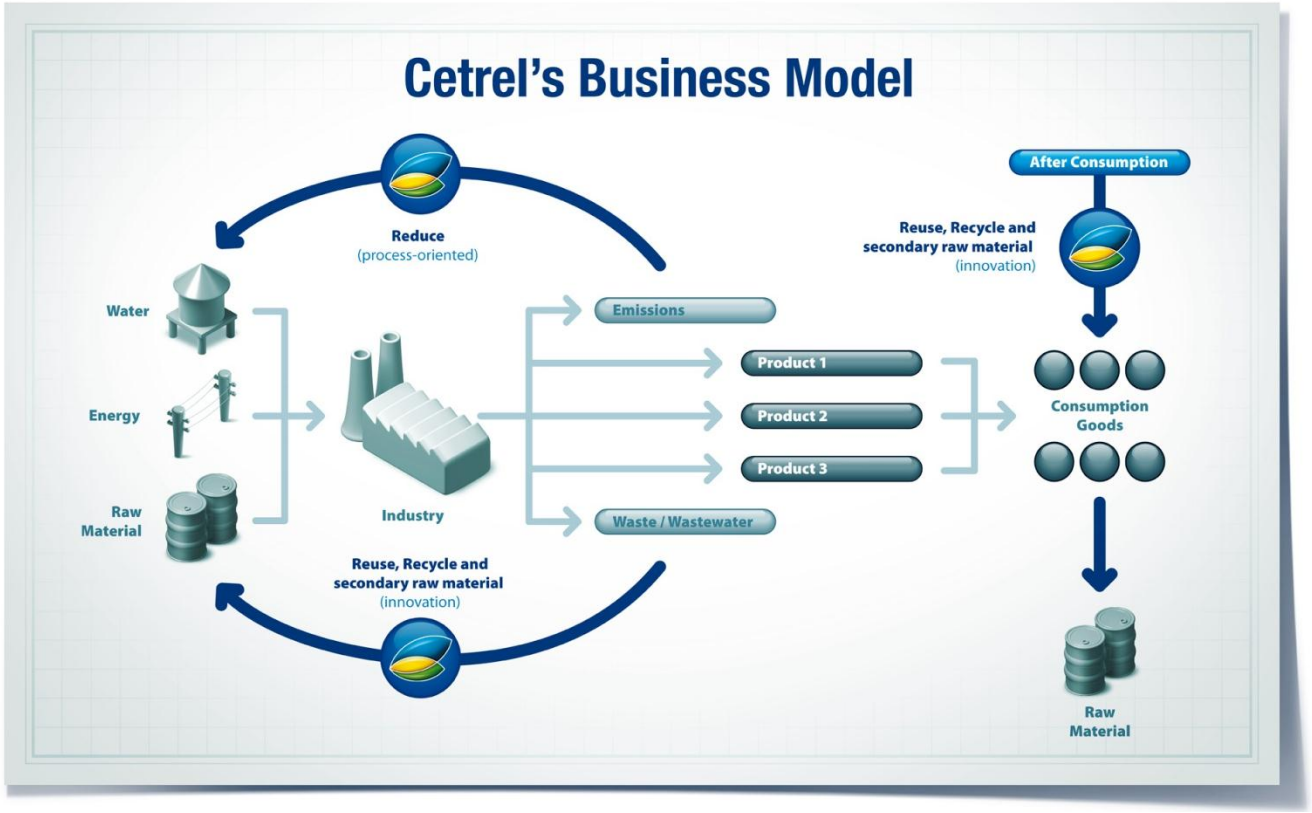
Cetrel



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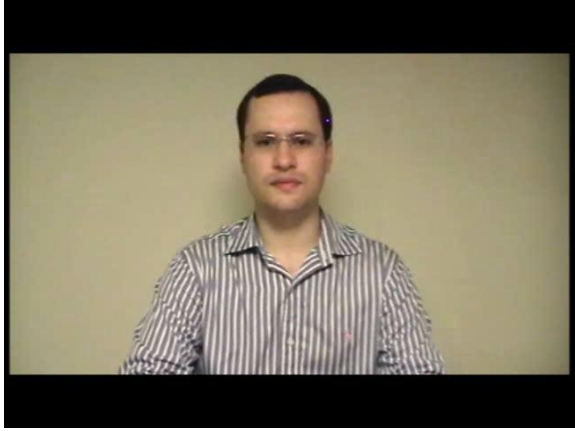
Background



- Operational complexity on the treatment of petrochemical wastewater
  - "Raw material" variability
  - Biological process
  - Operational availability > 99.8%
  - Remote operation of pumping stations (15 km)
- Increasing instrumentation and automation investments
- Several data sources
- Information islands – no communication between the systems
- Delay in KPI's generation and visualization
- Lack of access to KPIs
- Duplication of information in the systems

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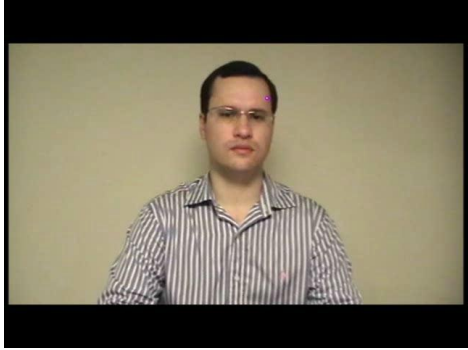
Challenge



- Group several data sources and deliver quality information
- 2008 World Financial Crisis
- Increase clients' competitiveness
  - Plant availability
  - Higher treatment quality
  - Lower cost
- Unify the access to the information through an easy and friendly platform
- Allow the wastewater treatment business expansion – consolidation of the **Operational Intelligence Center**

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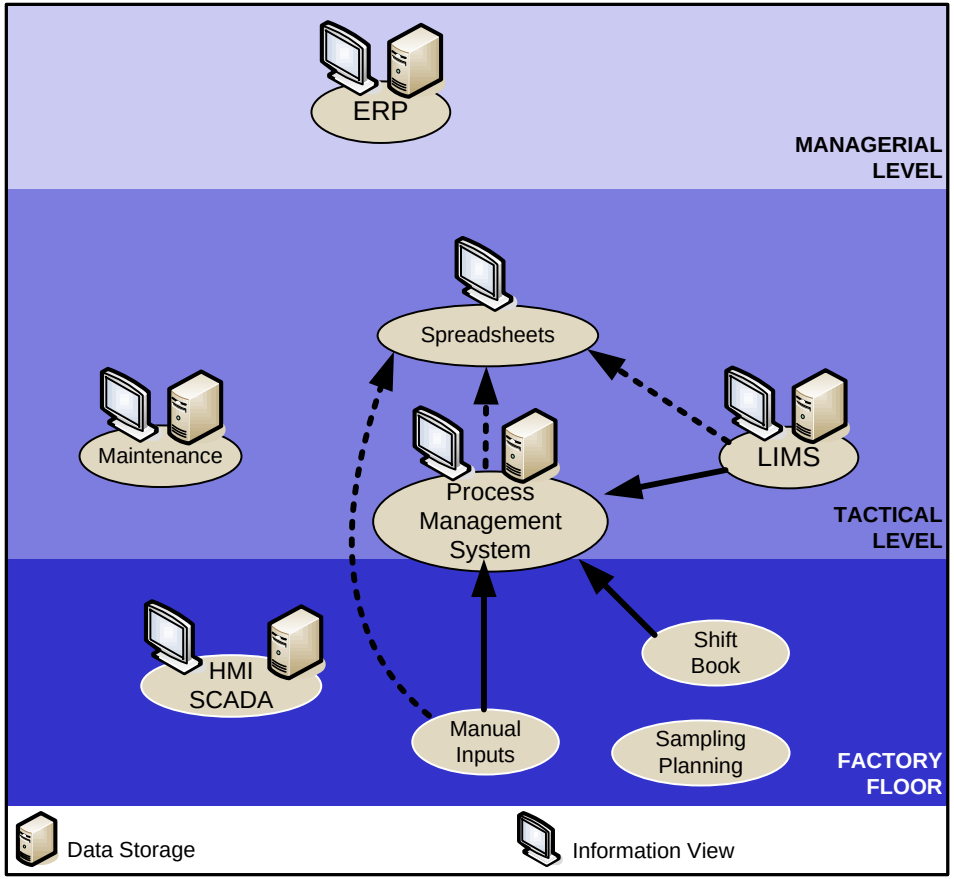

Scenario before the PI System

- Several data sources not connected ("Islands of Information")
- Duplicated information in multiple systems.
- Difficulty to acquire data and generate KPIs

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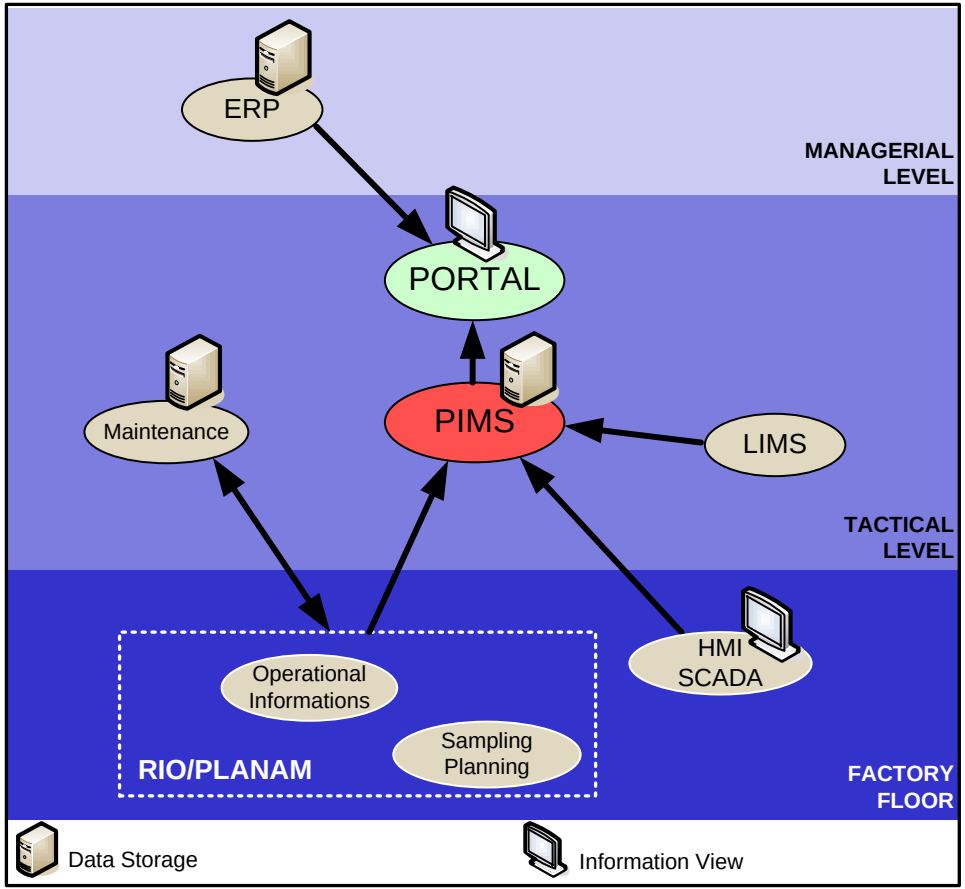

Required scenario with the PI System

- Group several data sources
- Unify way to access information
- Assurance of an unique version of the truth

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Solution

- **Develop the application using a web portal platform**
  - Scalability , Replicability, and Interactivity

SharePoint + PI WebParts	Customized System
Fast development	Slower development
Marketing Tool	Entirely appropriate tool to business needs
Lower TCO	Greater TCO
Native communication with Microsoft Systems (Office, SQL) and PI System	Development of specific communication interfaces
Internal maintenance	Contract maintenance

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Cybertécnica

- Development was done by "Cybertecnica Instrumentação e Tecnologia", a Brazilian partner of OSIsoft
- Cybertécnica is a technology company aimed at the improvement of productive processes. Since the beginning of our operations, in 1987, we have invested in continuous learning, knowledge creation and formal training. Through our unique orientation, we have become the industry standard for quality and innovation in the implementation of market-leader solutions.

cybertécnica

knowledgeware for value

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Cybertécnica

300 PROJECTS

MORE THAN 200 SITES

17 COUNTRIES

Business Technology Optimization

BTO

Otimização da Tecnologia para o Negócio

Enterprise Manufacturing Intelligence

EMI

Inteligência Industrial Corporativa

Laboratory and Analytics Automation

LAA

Automação Analítica e Laboratorial

Business Partner

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Challenge

- Large number of screens, generating hundreds of features
- Develop solutions focused on minimizing the customization (programming)
- Connect different systems data sources beyond the PI System.

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Development

TABELA DE ANDAMENTO POR TELAS	
STATUS	QUANTIDADE
Total de Telas	
Total de Telas em Andamento	
Total de Telas Aguardando Cetrel	
Total de Telas Finalizadas	

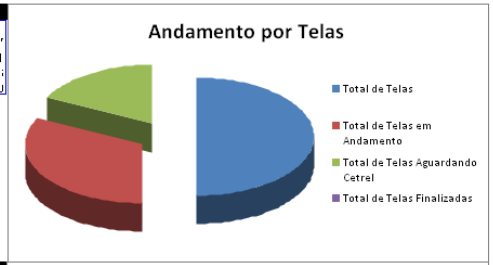
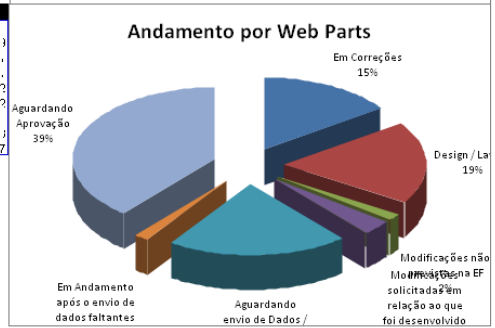


TABELA DE ANDAMENTO POR WEB PARTS	
STATUS	QUANTIDADE
Em Correções	
Design / Layout	
Modificações não previstas na EF	
Modificações solicitadas em relação ao que foi desenvolvido	
Aguardando envio de Dados / Informações	
Em Andamento após o envio de dados faltantes pelo Cetrel	
Aguardando Aprovação	
Finalizada	7



- Take care with customer expectation
- Weekly monitoring of the activities
- Alignment of the changes together

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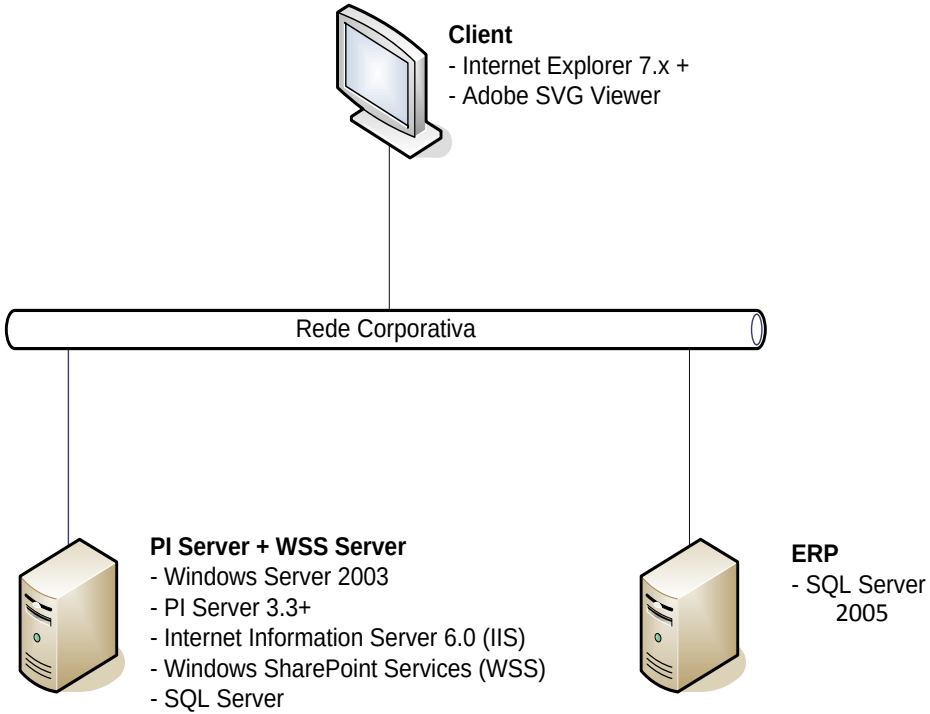
First Solution



- Portal (Windows SharePoint Services) in the same machine as the PI Server 3.4.375.80
- Challenges in this architecture:
  - Generate bar charts, histograms, and pie charts.
  - Search combined information of the PI Server and ERP
  - Reproduce page layouts in the Portal pages
  - Generate good pages to visualize the information

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Final Solution

- Strongly suggested to use Microsoft Office SharePoint Server (MOSS)
- Migrate the portal to another server and install MOSS on it.
- Challenges of the migration:
  - install and configure WSS
  - update links with absolute paths
  - implement MOSS in order to combine the PI System and ERP information
  - interact with WSS Web Parts, MOSS and PI WebParts
  - restrictions in the publication of Excel Services
  - problems with stability (MOSS)

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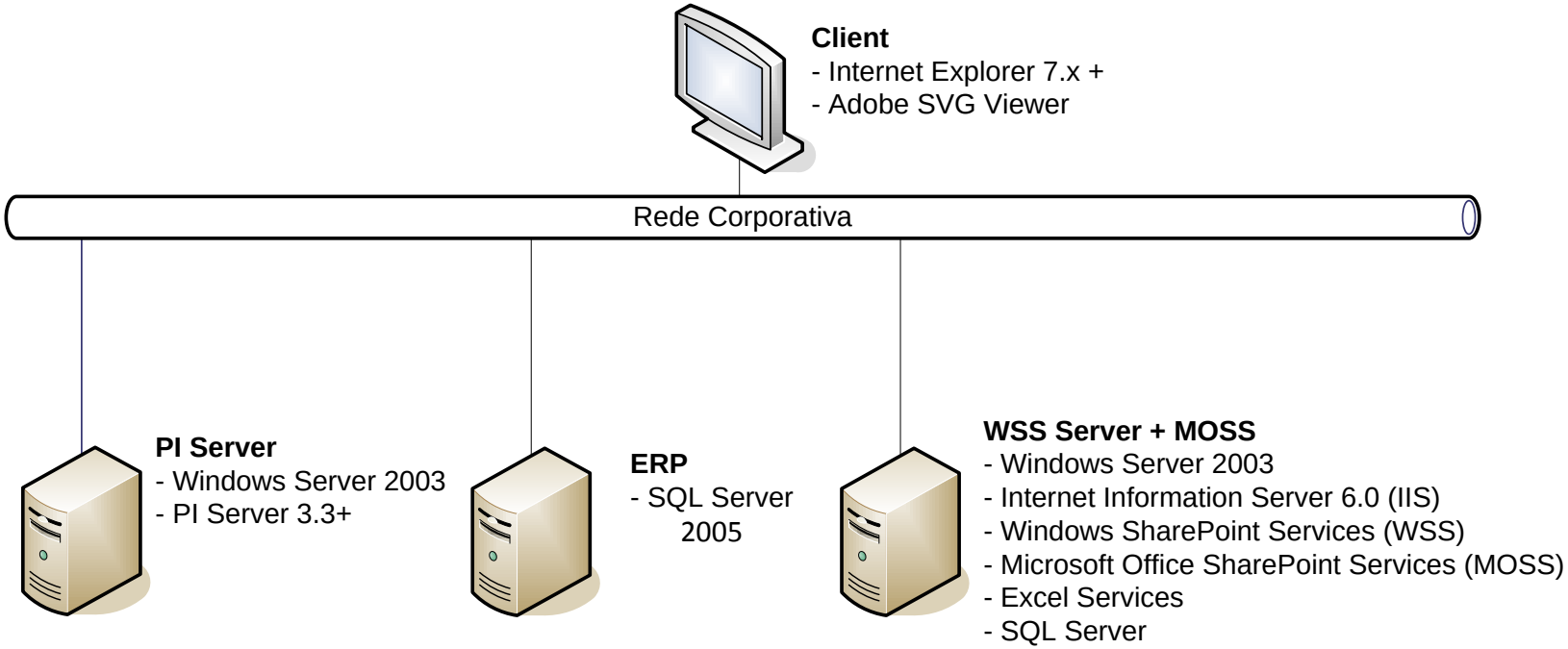
Final Architecture



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OSIsoft Products

- PI Server 3.4.375.80
- PI ProcessBook
- PI DataLink
- PI DataLink Server
- PI WebParts (formerly RtWebParts)
- PI OLEDB Provider

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Results

- Corporate platform to access process and business data.
- Single version of the truth.
- Information agility.
- Several sources of data integration.
- Flexible and scalable according to business requirements.
- Highly reliable operational data.

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Portal Integra

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General Dashboard of Process

KPI's

- Treatment Efficiency
- Material balance

Connections

- PI System through PI WebParts
- PI System through PI ProcessBook and PI OLEDB

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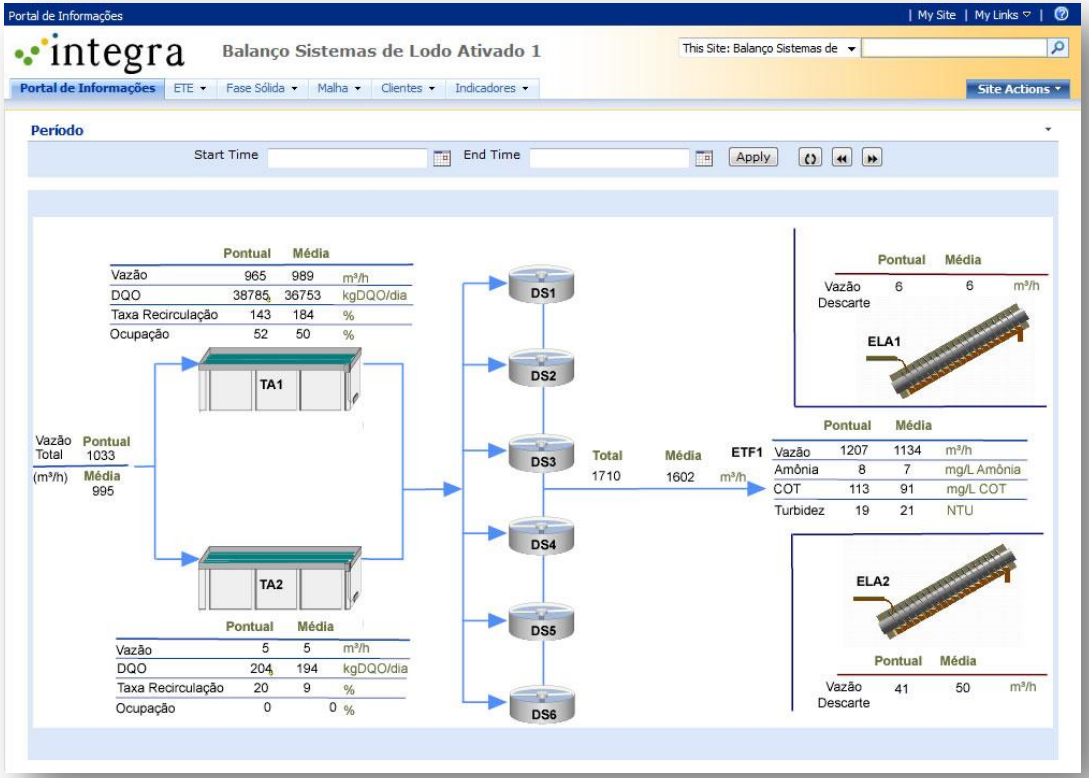
Material balance



Monitoring the prosecution history

Connections

- PI System through PI WebParts
- PI System through PI ProcessBook and PI OLEDB

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Quality KPI

Connections

- PI System through PI WebParts
- PI System through PI DataLink Server

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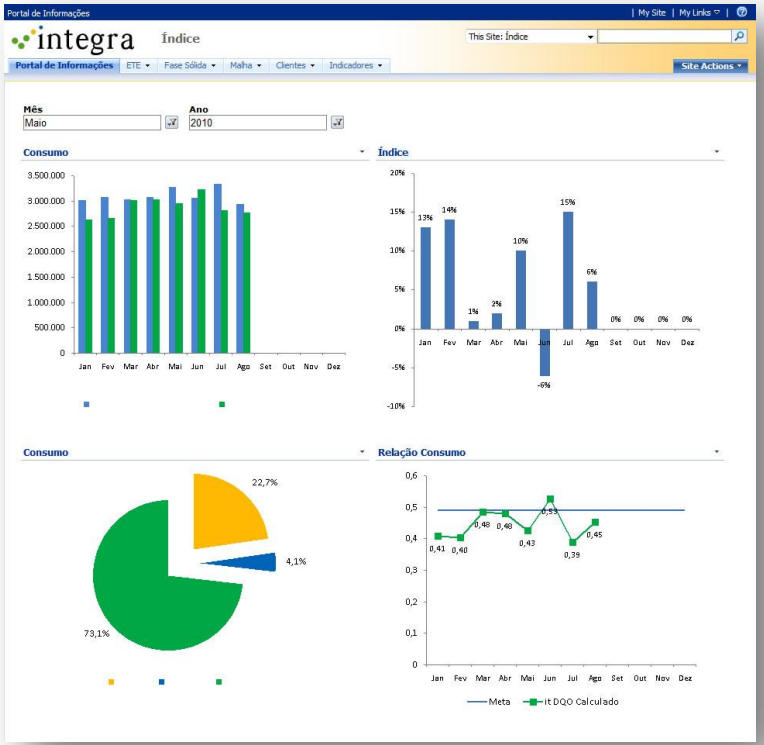
Energy Efficiency KPI



Connections

- PI System through PI DataLink Server

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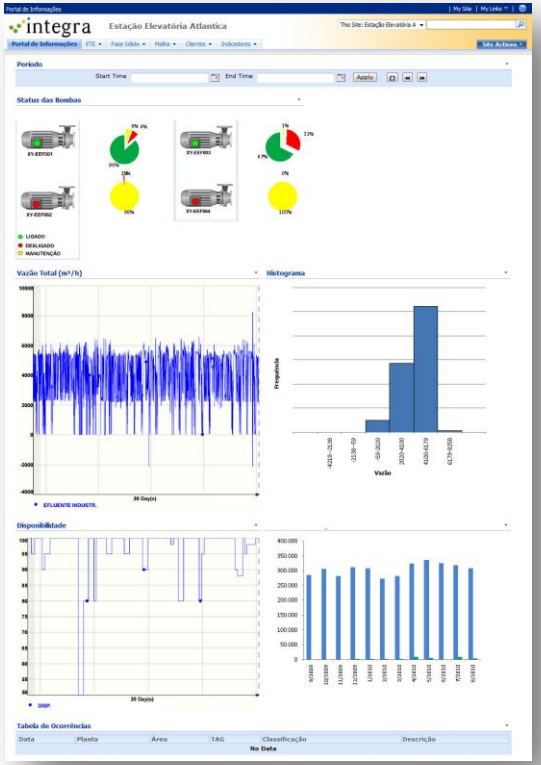
Pumping Stations



Connections

- PI System through PI WebParts
- PI System through PI DataLink Server
- PI System through PI ProcessBook and PI OLEDB
- RDB through ODBC

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Management Information

Connections

- ERP through ODBC and PI DataLink Server

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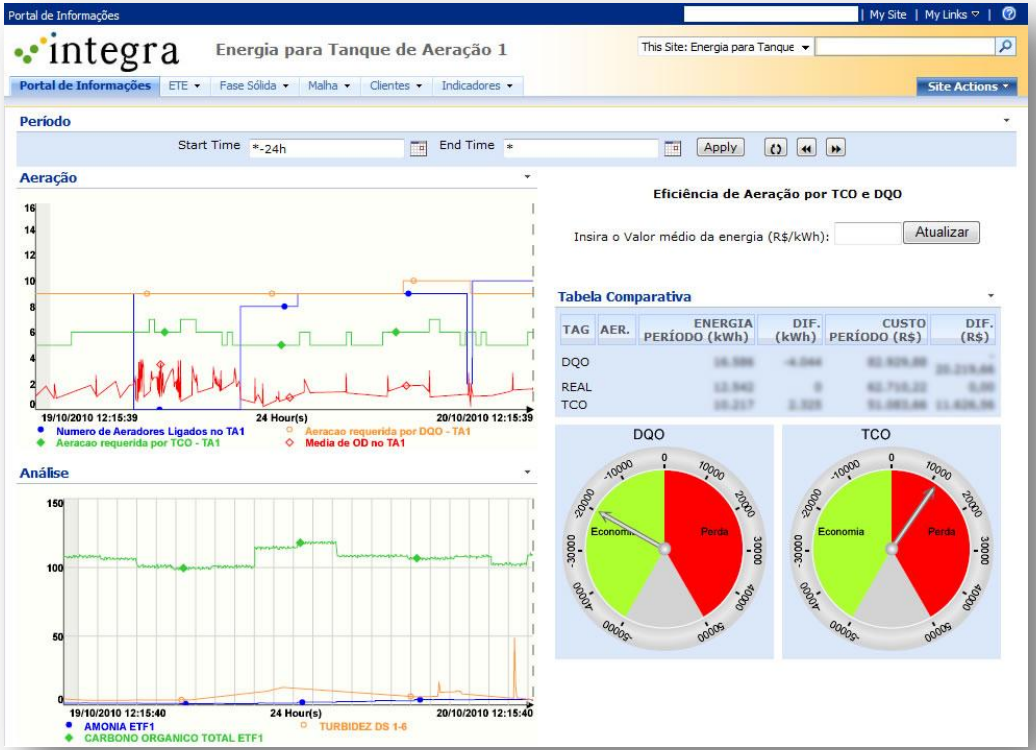
Energy Control



Connections

- PI System through PI WebParts
- PI System through PI DataLink Server
- PI System through PI ProcessBook and PI OLEDB

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Tangible Benefits

- Better tracking of the treatment process indexes with the PI System allows faster decision making, and helped Cetrel achieve energy savings upwards of US $ 250k per year.

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Intangible Benefits

- Improve predictive maintenance based on history of occurrence.
- Show process gains that could not be previously quantified, and display KPI's in order to find solutions faster and make better decisions.
- Preservation of the environment stemming from reduced power consumption and assurance of water treatment quality.

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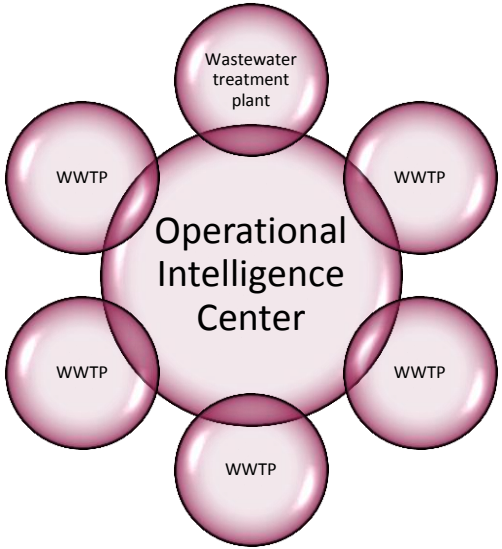
Future Plans and Next Steps

- Consolidation of **Operational Intelligence Center** for remote engineering of wastewater treatment plants as a differential of services.



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Future Plans and Next Steps

- Upgrade of systems:
  - PI Server 2010
  - PI WebParts 2010
  - PI Notifications 2010
  - PI Asset Framework 2010
  - PI Web Services
  - SharePoint Server 2010 will be installed this year
- New features will be created
- Due to its scalability, the PI System the solution is being considered by other departments within the company.

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Questions

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Thank you

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