

## FIELD MOUS: A technical data repository for enabling JIT decision making

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### FIELD MOUS: A technical data repository for enabling JIT decision making



### **Business Challenge**

 To have a single, consistent source of technical data across the organization which may be used for multiple applications

### **Solution**

 Used the OSIsoft software components to create a technical data repository called "FIELD MOUS"

### **Results and Benefits**

- Single version of the truth
- Easy for the users to access, use and analyze the data
- Easy to interface the data to many different systems

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## **Our company**

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### Maynilad Water Services, Inc. (Maynilad)



- Largest water concessionaire in terms of customer base in the Philippines
- Serving a population of 9 million people
- Has exclusive rights to provide water and wastewater services in the West Zone of the greater Metro Manila area until year 2037
- Re-privatized on January 24, 2007
- Owned and operated by Metro Pacific Investments Corp., DMCI Holdings Inc. and Marubeni Corp



### **Operations Snapshot**

Service Area: 540 sq km

- Coverage: 17 cities and municipalities in Metro Manila and Cavite
- Key facilities: 3 water treatment plants (2500 MLD combined capacity)
  - 7 sewerage treatment plants1 septage treatment plant21 pumping stations23 reservoirs

Distribution: Around 500 km sewer line 7,125 km water pipeline

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### **Service Expansion**





From 4,575 km in 2006, our water distribution line has increased by 56% to 7,085 km by the end of March 2013.

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### Water source





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### **Service Improvements**





	2007	2008	2009	2010	2011	2012	2013 (Q1)
Coverage (%)	80.5	82	85.6	87.7	92.5	94.6	94.7
24-hour service (%)	46	58	65	71	84	96	96.7
Over 7 psi pressure (%)	53	67	79	86	96	99.8	99.8
Number of Connections in '00	703.5	762	815	904	1,005	1,073	1,088
Population Served	6.4	6.7	7.1	7.4	7.9	8.1	9

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### **Awards and Recognition**





- 47 ISO certifications
- 4 international awards
- 30 local awards

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## The project

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## The Challenge



- Management needs information in order to make decisions
- Data is usually "locked" in different systems
  - IT transactional systems (sales, billing, logistics,...)
  - Automation & Control systems
- These systems store "raw" data
  - Not in a format meaningful to management

## Our two-pronged approach

- 1. Extract data from transactional systems and place them into our Data Warehouse
  - Business Intelligence reports
  - Dashboards





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## Our two-pronged approach



2. Use the PI System as an extractor and repository of field data



## FIELD MOUS



- Field Monitoring User System
  - Coined name for the application
- The idea is for this to be a repository of ALL field data
  - Single version of the truth
  - Common repository for the whole company

# Sources Different devices

**Challenge: Heterogeneous** 

- PLCs (all brands)
- SCADA
- Data loggers
- Meters (many brands
- IT systems (many)





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## Challenge: Heterogeneous sources

- Different
   communications
  - SMS
  - Fibre
  - DSL
  - GPRS
  - Flat files
  - DBs





### But the real challenge is....



- People!
  - This is "my" data
  - Exposure of manual intervention
  - A feeling of irrelevance once things are done automatically
  - Exposes the "magic" of things
- "silo" mentality

### How to overcome?



- Start with a champion department
- Success generates recognition
- Other departments want "in"
- This has a snowball effect

# Ability to view water pressure and flow along our lines





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# See status of reservoirs, pumping stations



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Maynilad

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### Water treatment plant





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## Alarms based on conditions

- Production alarms
- Reliability Centered
   Maintenance
- Critical operational conditions

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### **Drive-by metering**





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### **Drive-by metering**





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### Non-revenue water (losses)





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### **Hydraulic Hierarchy**











DMA LEVEL

HYDRAULIC SYSTEM

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### **Flow and Pressure Analysis**





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### **Flow and Pressure Analysis**



Flow Increased and abnormal network occurrence



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### Water Losses





- 27.1 percentage point reduction since re-privatization
- Recovered 640 million liters of treated water

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## Evolution of the system's acceptance Maynilad

- From rejection to skepticism to acceptance to eagerness in being involved and using the system
- Many requests from different departments
- Success has its own challenges
  - governance



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## **Governance challenges**



- Different data comes from different sources maintaining it
  - Telemetry, Metering, Water Supply and networks, Sewerage, Automation
  - Someone must be "in charge"
- Different reports needed by different depts



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# Different roles and responsibilities



- Data owners responsible for maintaining the correct data in the PI System
- Report and application owners maintain reports/applications
- Information Technology QA, "officiates" reports/applications, in charge of governance
- Automation and Instrumentation –data owner, also in charge of interfacing FIELD MOUS with PLCs, SCADA

## **Next Steps**



- Connect, connect, connect....
- Integrate Business Intelligence Data with FIELD MOUS data
  - NRW can be automatically calculated
- Make it part of our Central Control Room's displays
- View on the field (mobility)

## Conclusions



- The PI System is the perfect system for keeping technical data
  - Robust, easy to use interface, fast, deep history
- Our aim is to make this the single source of all technical data within the company
- Single source of truth
- Success is all about people





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