Realizing the Power of Data using the PI System at Rompetrol

Presented by **Olimpia Manea**

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Agenda

- Rompetrol
- Ludan Engineering
- Rompetrol Refinery Information System and the OSIsoft products
  - OSIsoft products at Rompetrol Refinery
  - PI data sources
  - System Architecture
- Why PI
  - Excel DataLink – Reports
  - Online Reports
  - Rompetrol Refinery – PI Process Book
    - Crude unit
    - Crude oil – tanks
    - Operational KPI
- From Past to Future
- Conclusions

Rompetrol

- A leader in the regional oil field
- A multinational company
- Activities in 12 countries with over 7000 employees
- Strong operational base in:
  - The Black Sea region
  - The Mediteranean Sea region

Rompetrol

- With activities in each sector of the oil and gas, The Rompetrol Group has major operations in refining, petrochemical, retail, trading, exploration, production and industrial services, logistics in Romania, France, Spain, Republic of Moldova, Georgia.
- The group has a strong network of trade of oil products through subsidiary companies located in Spain and Switzerland (Dyneff and Vector Energy).
- In Romania, Rompetrol owns the most performant refinery in the country, Petromidia, located at Navodari.

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Rompetrol

– In 2007, the acquisition of The Rompetrol Group by the Kazakhstan national oil and gas company, KazMunayGaz, transformed Rompetrol into an energy bridge between the natural resources located in Central Asia and the markets all over Europe. Moreover, in Kazakhstan, Rompetrol provides exploration and production services, as well as industrial services, the company playing an important role in the reconstruction of the country's refineries.

Rompetrol Petromidia Refinery & Petrochemicals

- – Started activity in 1979
- – Romanian and foreign technology
- – Rompetrol Refinery can process a wide variety of crude.
- – Refinery capacity = 5.300.000 tones/year.
- – High quality control and information systems:
  - • DCS
  - • Information System =OSIsoft Plant Information

Rompetrol Vega Refinery

- The Vega Refinery, with 100 years experience in the field of crude oil refining, has evolved from a classical refinery to a producer and provider of special products (ecological solvents, bitumen with special destination, ecological fuel for heating or other specialized products).
- In synergy with Petromidia Refinery, raw materials integrally ensured by the Black Sea shore refinery allows development of special products with high additional value.

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Ludan Engineering

- A multidisciplinary service provider for process industry , member of international Ludan Group

- The Company was established in 1997 . Today has 80 specialists, acting in all countries from East European region

- Competences : Complete Engineering, Procurement , Construction and Construction Supervision , Project Management & Consultancy

- Special Competences: Turn Key, Turnaround Management, Independent Automation Services , Implemenattion of Management Support Tools (PI & MAXIMO)

Rompetrol PI system

- Implementation started in 2004

- By Ludan Engineering as part of Petromidia modernization project

- Further upgraded and extended to other data sources

Rompetrol PI system

- PI Enterprise Server (3.4.380.36) : 60000 tags
- PI Client Application:
- ComboPack Individual (PI ProcessBooK&PI Data Link) - 125 users
  - PI AF Explorer: 1.3.0.1434
  - AF Modeler Add-in: 1.1.1.1323a

PI system architecture
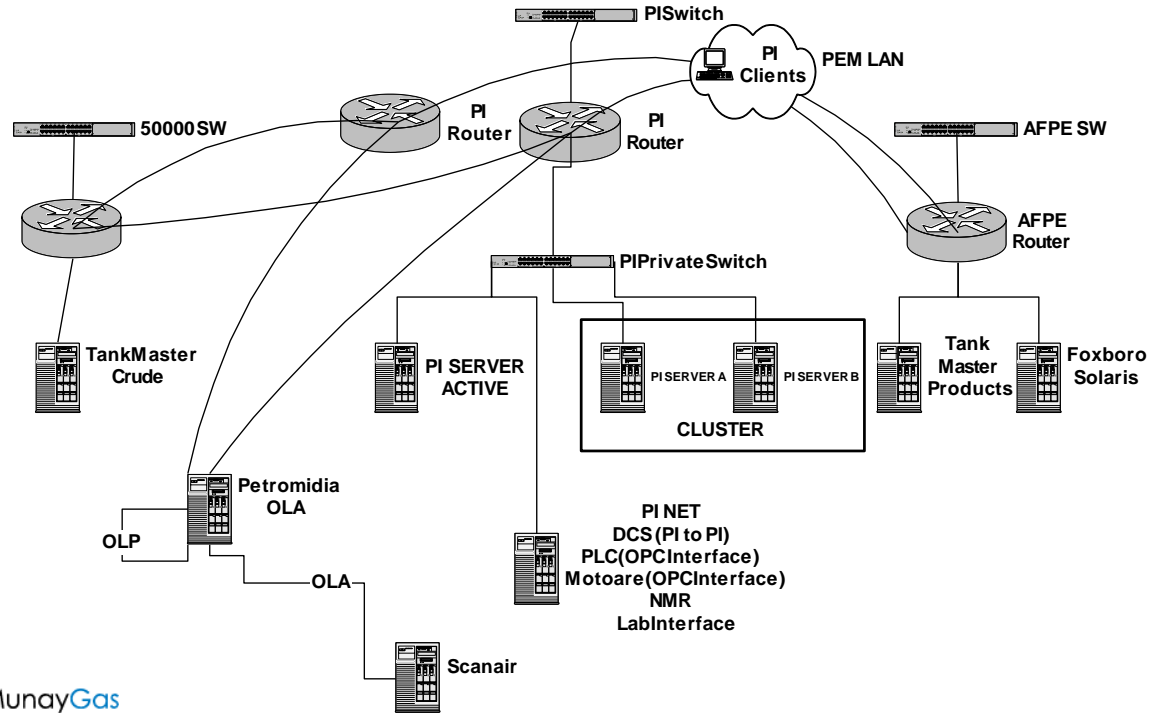
PI data sources and interfaces

- Field instrumentation
  - PLCs
  - DCS for Production Area
  - DCS for Utilities Area
  - Tank Master for Crude Tanks
  - Tank Master for Products Tanks
  - NMR- online analyzer
  - 9 Berth

- Manual Data Entry
  - Lab – OLA
  - Process Information - OLP
- Blending system

PI data sources and interfaces
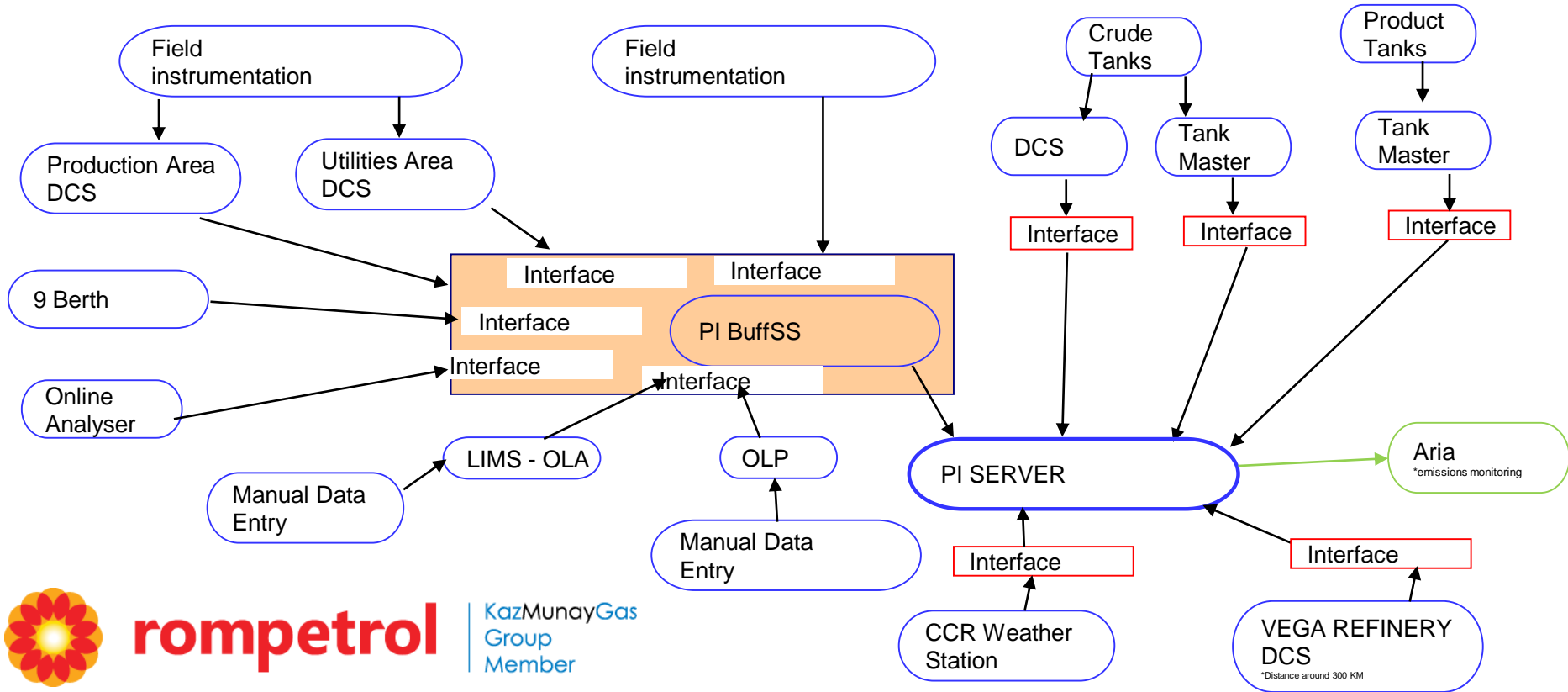
Why PI

–   Rompetrol need secure, efficient ways to communicate and collaborate across multiple plants and locations.

–   Rompetrol use the OSIsoft - PI System - to provide the real-time data infrastructure and collaboration tools they need to meet key challenges, including:

- Optimizing production
- Increasing energy efficiency

Why PI

- ONE DATA BASE for reports

- REAL TIME updates

- An overview of the entire refinery process data in real time:

- Production Parameters:
  - Temperature
  - Pressure
  - Flows
  - Level

- Equipment Health status and Period of On-line Operation

Why PI

Excel Reports before PI DataLink

- A huge number of reports delivered by e-mail
- Various data sources
- Inconsistencies between figures
- Large volume of calculations

Excel Reports – with PI Data Link

- Performance computing module
- One database for data process
- The information is updated in real time
- Formulas predefined

OSIsoft. REGIONAL SEMINARS

PI ProcessBook

Refinery starting page in Process book

Easy access to detailed production units screens via links in the display

PI ProcessBook – Crude Unit
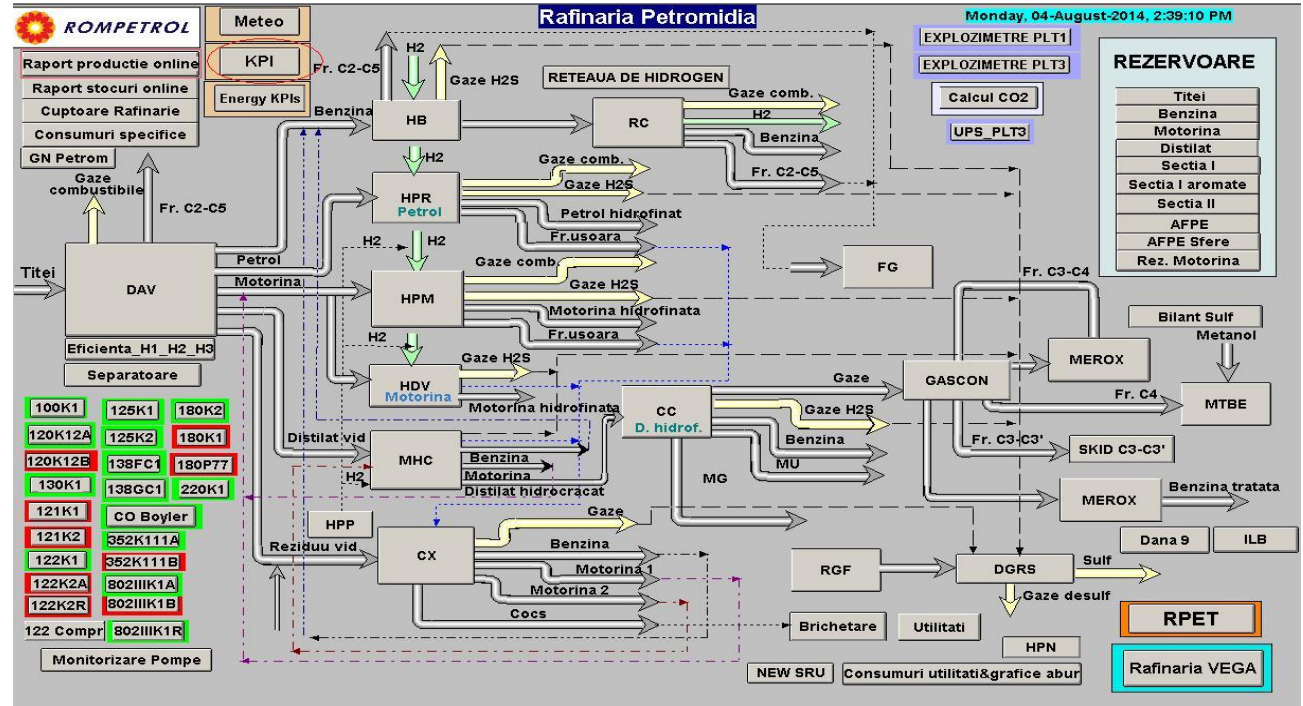
Detailed Crude Unit display with realtime parameter updates

Online Reports – PI Datalink

Production report in excel using PI Datalink

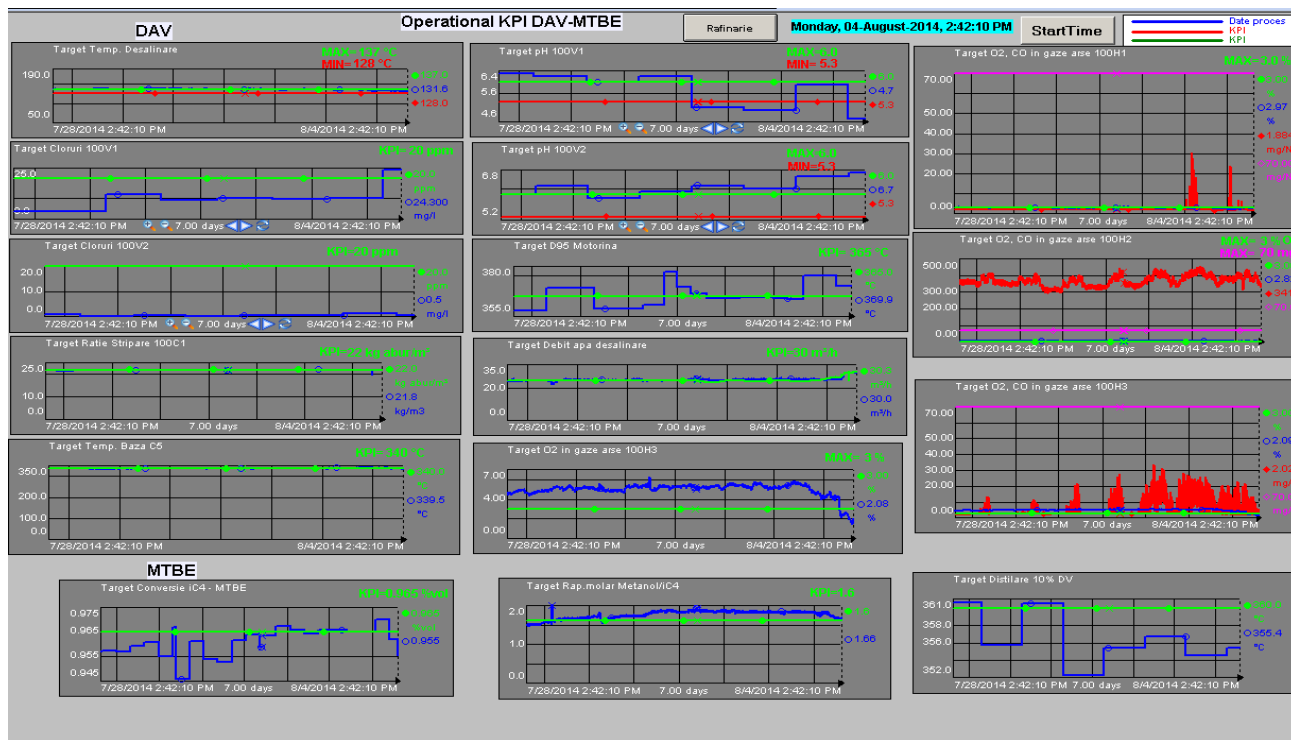- Automated calculations for specific intervals
- Multiple sources aggregated
- Basis for further analysis

KPI's

KPI screen in PI Process Book

- Realtime monitoring of important indicators (yields, consumptions, energy efficiency)

From the past to the future

2004

BEFORE PI IMPLEMENTATION	AFTER PI IMPLEMENTATION
COLLECTING DATA = TIME CONSUMING ACTIVITIES	MORE TIME FOR ANALYSES
LIMITED HISTORY	LONG TIME DATA HISTORY
DELAY BETWEEN THE FACTS AND FEEDBACK	REAL TIME INFORMATION , REAL TIME ACTIONS
A HUGE MANUAL DATA INPUTS FOR REPORTS	HIGH QUALITY DATA INPUTS FOR REPORTS
ERRORS on NUMBERS	ACCURATE DATA
LIMITED DATA ACCESS	HIGH DATA AVAILABILITY

DATA from PI SYSTEM
=
QUALITY, AVAILABILITY, INTEGRITY
REAL TIME

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The Future of PI

- Upgrade to PI 2012
- Reduction of time to access the information by configuring the tags grouped by assets.
- Faster response time in case of parameter deviations by real time notifications to responsible people – PI Notifications
- Define and monitor of complex performance indicators
- Increased automation of reporting processes
- Provide the tools for deeper insight into plant operations with PI Analytics suite: PI Advanced Computing Engine (PI ACE), PI Statistical Quality Control (PI SQC).

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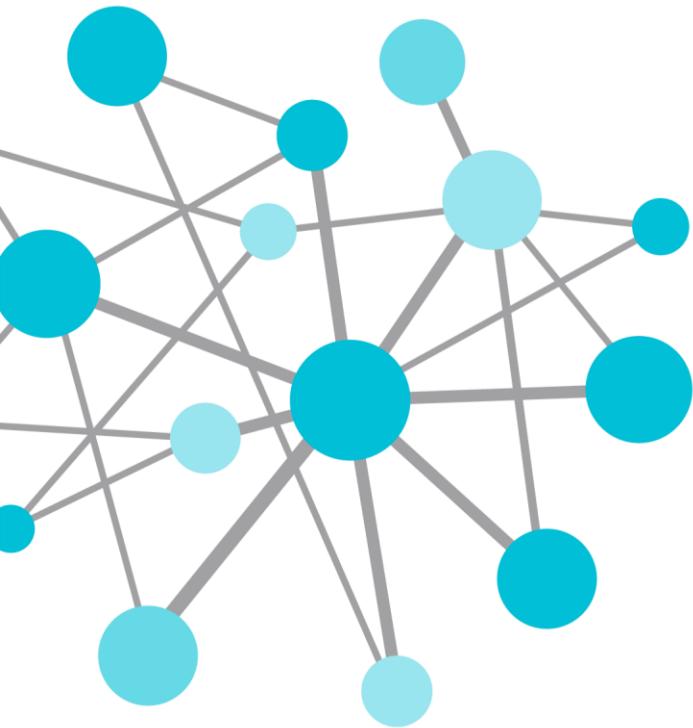KazMunayGas
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Conclusions
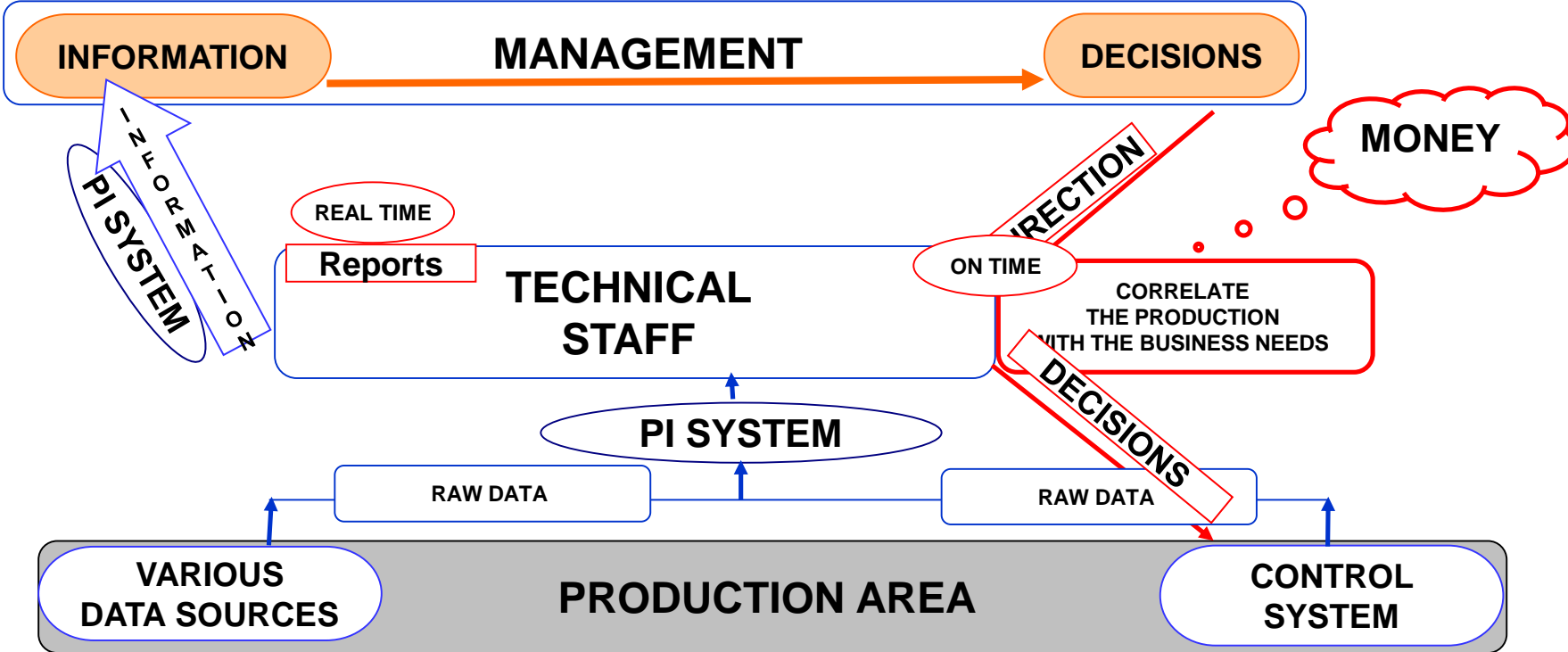
Olimpia Manea

- Olimpia.manea@rompetrol.com
- Process Engineer
- Rompetrol Rafinare SA

Radu Iscovici

- Radu.Iscovici@Ludan.ro
- Senior consultant
- Ludan Engineering

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