

OPTIMITIVE – Artificial Intelligence based  
Optimization of Energy and Efficiency

“Bringing Industry 4.0 to the Process Industries”



**SCI 2017**

**XIII Simposio CEA de Control Inteligente**  
**28, 29 y 30 de junio de 2017**

Javier A. García Sedano  
Founder & CEO

30/June/2017



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# About OPTIMITIVE

- Founded in 2008 in the Technology Park of Álava, Spain by Veterans from the Utilities and Industry Sectors.
- Incubated and backed by TECNALIA - 5th largest European Applied Sciences Research Institution with over 1400 Professionals.
- Strategic Partnership and investment from ENZEN - 2016: Energy Efficiency and Renewables – India, UK, USA, Turkey, Kazakhstan, Spain, ME, Africa, Australia.



# The challenge

Not all the energy in an Industrial Process is used for the purpose. There are energy losses.

Causes of energy/resource losses:

- Process Operation
- Practices
- Equipment
- Insulation

OPTIMITIVE works here: Making more efficient how the Process is operated in the Control Room

Energy losses

Energy/  
resource IN

Energy/Product  
OUT



# The challenge: bridging the human gap towards optimal efficiency

- Production conditions change all the time, but those parameters are only infrequently adjusted, typically using human experience or fixed recipes. This is not optimal.

Changing conditions



Process operators in the Control Room

Adjustable setpoints



Process Control screen (SCADA)



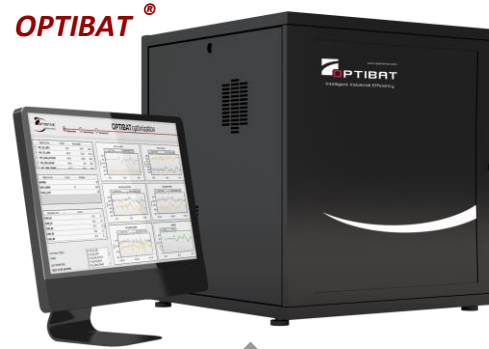
# OPTIBAT RTO The solution: 24x7 intelligent operation assistance

OPERATOR



OPTIBAT can work in "manual" mode

Setpoint Recommendations



GOALS :

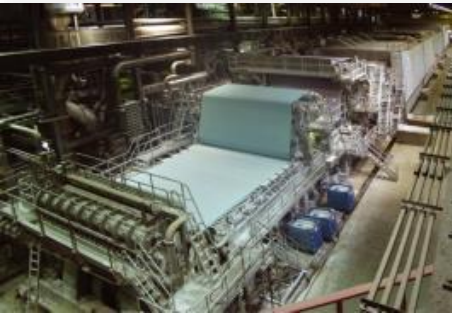
- Productivity
- Energy
- Quality
- Availability
- ...

Setpoint Adjustments

Process Data (changes)

Setpoint Adjustments

PROCESS



Control

.. It can also work in "auto-pilot" mode



SCADA (DCS)

CONTROL SYSTEM



# Customers



Cement Production



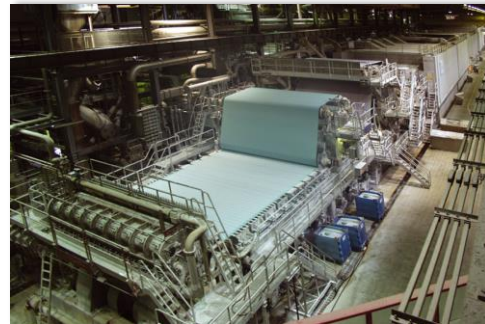
Chemical



Oil refining



Metals Processing



Paper Production

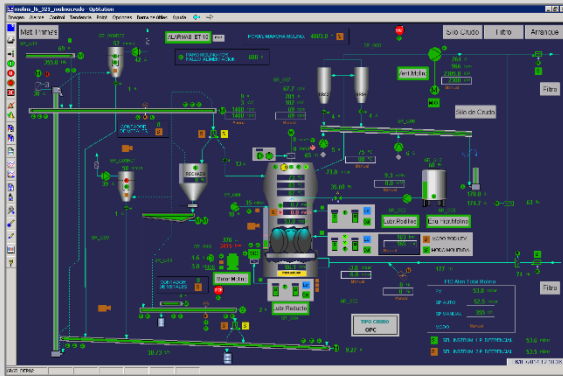


Power Generation

# Case Study: Cement Vertical Raw Mill



The Process:  
Vertical Raw Mill



Receives As-Is  
process data

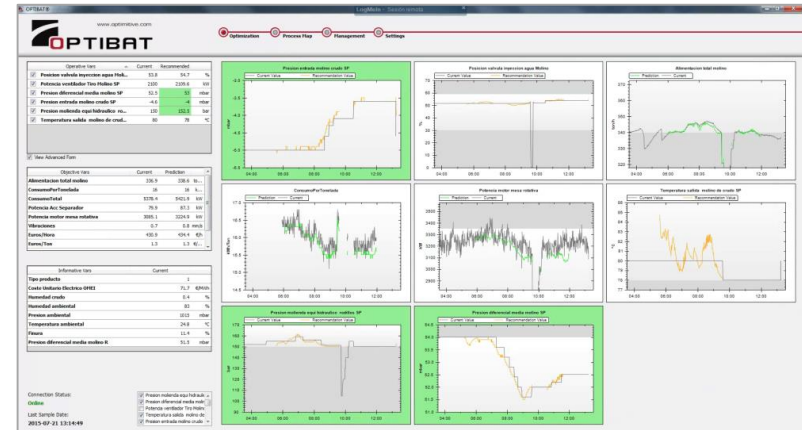
Constantly  
monitors,  
analyses,  
improves



OPTIBAT®

Standards:  
TCP/IP, OPC, SQL,  
OCR, XML, ODBC,

...



Sends back improved  
set-point data

# Cement Vertical Raw Mill Results reports certified by customer

- Results obtained in one year of service show sustained improvement of:

- Energy Consumption

5% to 10% energy savings

- Throughput (feeding)

2% to 9% increased productivity

- Quality (fineness)

3% to 6% better quality



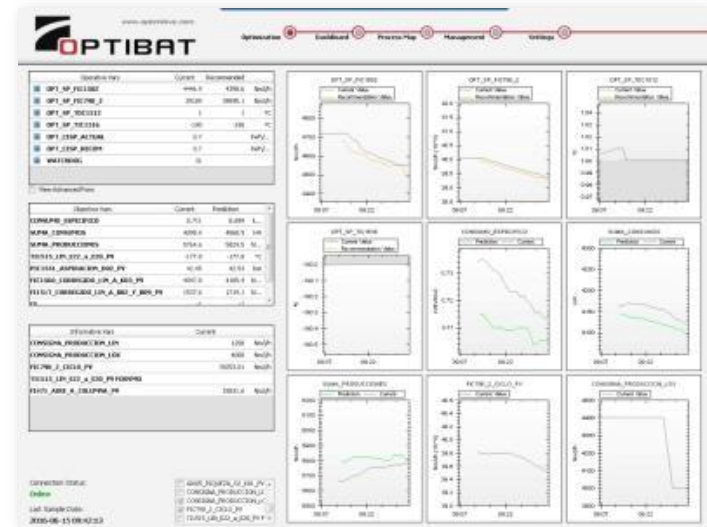
# Awards

- May 2016: IBERQUIMIA'16 Award to Innovation in Energy Efficiency.
- April 2017: Factories of the Future Awards Award to Best Industry in the use of digital technologies for its production.

Air Liquide Ibérica de Gases, S.L.U, has won in two consecutive years awards for the OPTIBAT implementation of an adaptive intelligence system for the dynamic optimization of the liquefaction cycle in the air separation plant.



Air Liquide receiving the award for OPTIBAT project



OPTIBAT running in closed loop in Sagunto air gases Plant

# Challenges for Advanced Control in current industry scenario

Innovation resistance

Broad APC deployment

## Mass Customization

# Gracias!

Javier A. García  
[javierg@optimitive.com](mailto:javierg@optimitive.com)

OPTIMITIVE S.L.U.  
+34 628 10 55 11  
Avenida Los Huetos, 79,  
Edificio Azucarera.  
01010 Vitoria-Gasteiz. Spain.  
[www.optimitive.com](http://www.optimitive.com)



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