How to integrate the PI system in in an overall architectural approach - The Metallo HMI CASE

Presented by Luc Verhelst, CIO, Metallo Group

METALLO
THE FURNACE OF INNOVATION

Agenda

- Metallo introduction
- The new Zinc Fumer as next step in recycling & metal valorisation
- The Metallo industry 4.0 vision towards the future
- The HMI project as a new interface for our operators
- The use of the PI System in trending analysis
- IT’s all about the data at Metallo: Architecture and Applications
- Lessons learned & best practices when implementing the OSIsoft PI System
- Wrap-up / Q&A

BIO: Luc Verhelst

Luc Verhelst is an experienced CIO, digital consultant and IT Risk adviser.

Luc is currently holding the position as CIO for Metallo group.

Before that he was CIO of the EMA, the European Medicines Agency, based in London, responsible for the supervision of medicines inside Europe.

Previously Luc held different leading CIO roles in leading companies in finance, media, healthcare and logistics.

Luc is also the honorary chairman of MIT-Club, leading Belgian CIO community exchanging valuable CIO knowledge and experiences.

Luc is ISACA certified (CGEIT) and specialised in digital strategies with focus on IT governance, architecture and specifically the IT Risk domain.

Metallo: Strategic Vision – The global recycler of choice

- Be the global recycler of choice …
  - Preferred partner to process **complex materials**
    (complex = complex composition and impurities)
  - Caring for the **environment** and minimizing waste
  - No raw material mines – “urban mining” recycler of waste metals
- Maximising the value of a variety of metals,
  this as an answer to increasing metal scarcity
  - We valorize non-ferrous metals and bring them back in the value chain
  - Our refining processes are unique, **innovative** and sustainable
  - We actively contribute to preserve natural resources

Metallo: Key Statistics & Features

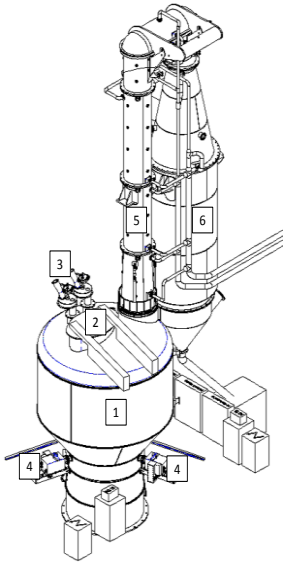
- Private company, founded in 1919
  - Still privately owned (Private equity partner)
- 100% secondary feed (recycled materials) since 1975
- “Metallo: The Furnace of Innovation”
- 2 sites, acting as 1 company:
  - Metallo Belgium in Beerse near Antwerp
  - Metallo Spain in Berango near Bilbao
- 500 employees
- Treatment capacity of 400 000 tpa of Cu, Sn, Pb, Ni and Zn scrap
- World’s largest producer of secondary tin

Catalyst for Digital Change: New FUMER installation (2015)

Business Case: Further treatment of fayalitic slag

Further treatment of fayalitic slag

Metamix ®
5% Zn
95% minerals



Slag Treatment Unit (STU)

Zinc concentrate
> 65% Zn

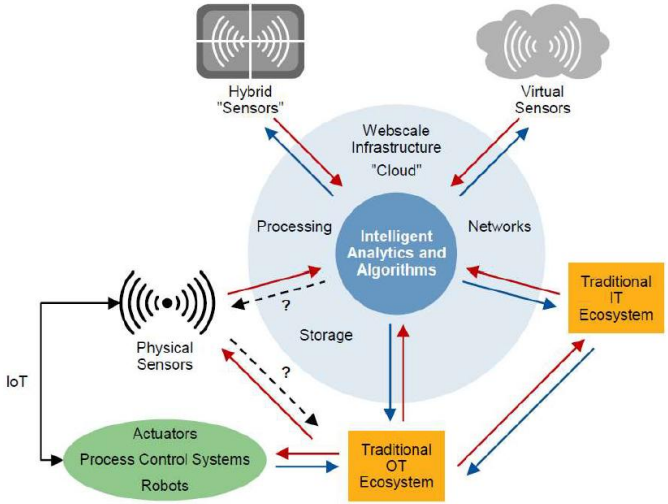
Clean Slag Koranel ®
< 1.5% Zn)

Metallo zero-waste flow sheet

The Metallo interpretation of *Industry 4.0*.

How this is reflected in our HMI project

In the Industry 4.0 era the world of OT and IT are coming together



Traditional IT

ERP, supply chain, business processes, databases, customer, end users, etc.

Traditional OT

Technologies that manage industrial plant, processes, buildings, etc.

Physical Sensors

Pressure, temperature, flow, etc.

Hybrid Sensors

Mobile phones, tablets, laptops, etc.

Virtual Sensors

External data, social networks, search engines, e-commerce sites, etc.

3 Inputs influencing the Metallo Digital Strategy

IN THE INDUSTRY 4.0 ERA THE WORLD OF OT AND IT ARE COMING TOGETHER

MATERIAL FLOW AUTOMATION VISION

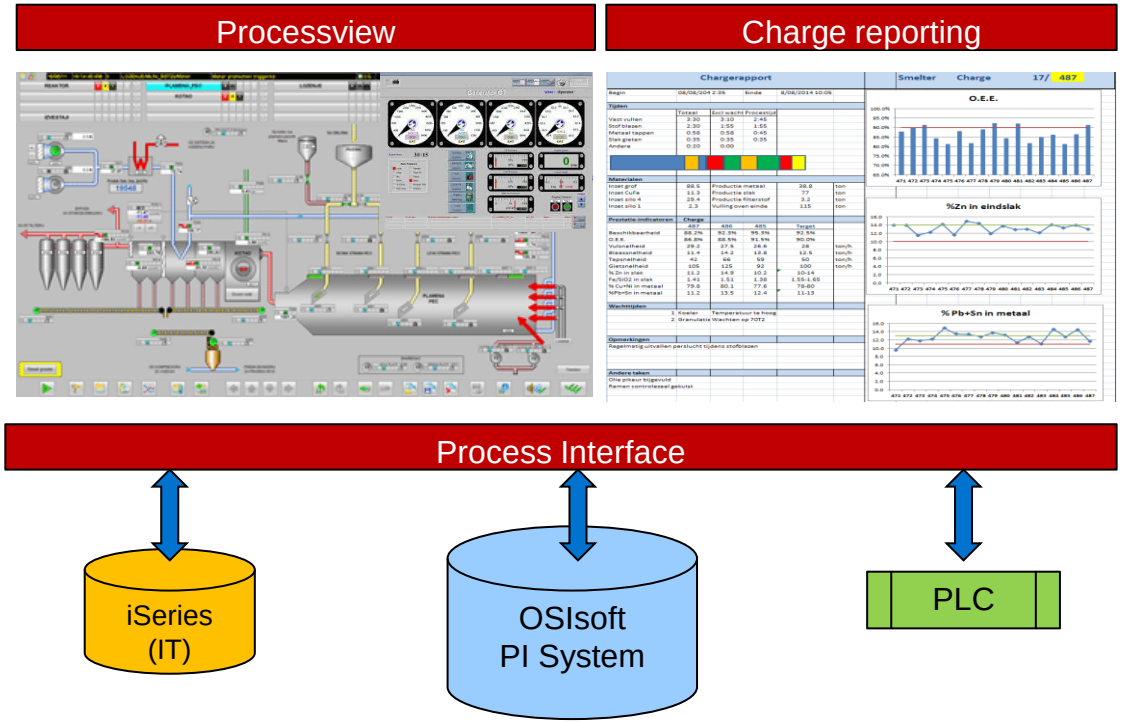
NEW HMI INTERFACE INSIDE PRODUCTION

METALLO 4.0 INTERPRETATION AIMS IMPLEMENTING SOME OF THESE IDEAS IN A **PRAGMATIC WAY**

"THE METALLO WAY"

Old situation: Many Screens, OT & IT separate

The HMI concept: A new interface for the operators

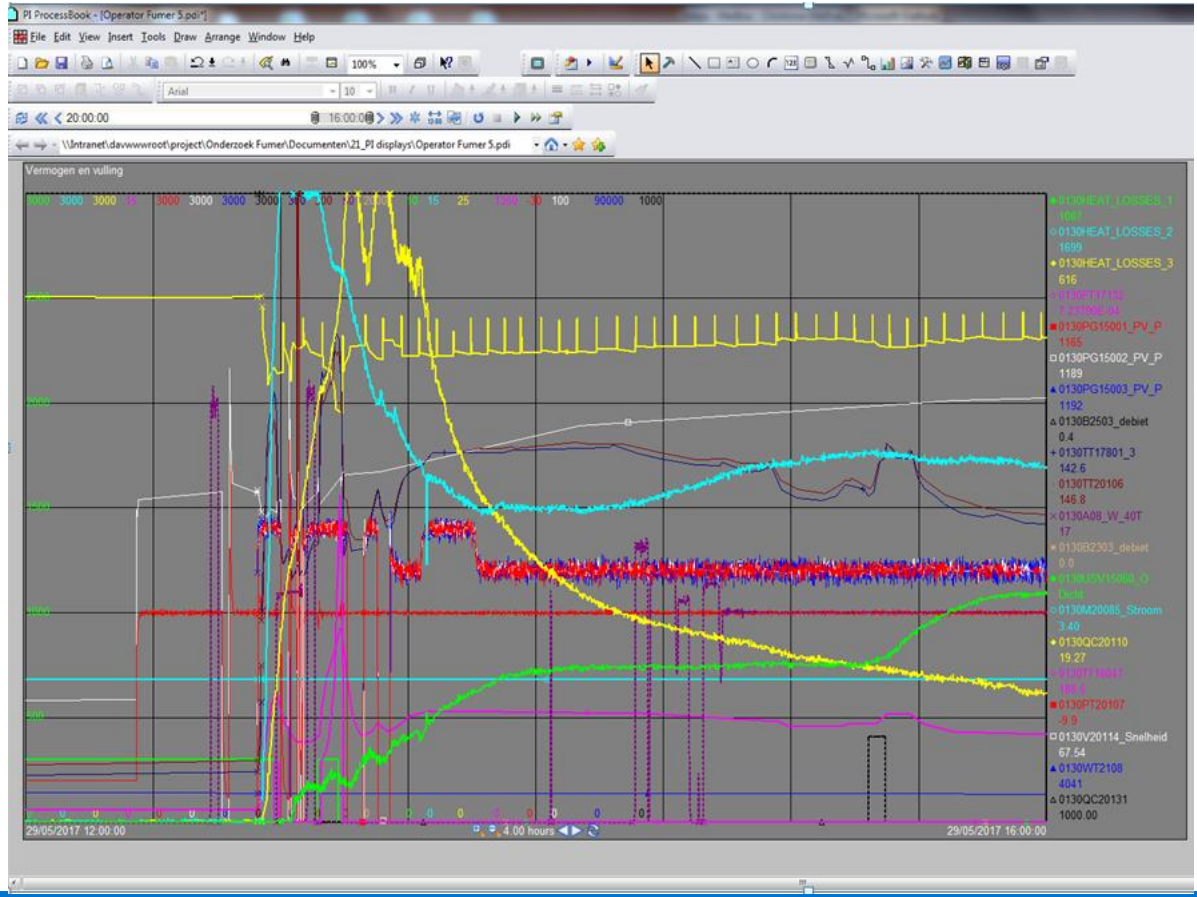


The New Situation

Metallo usage of trending analysis

PI System for trend analysis

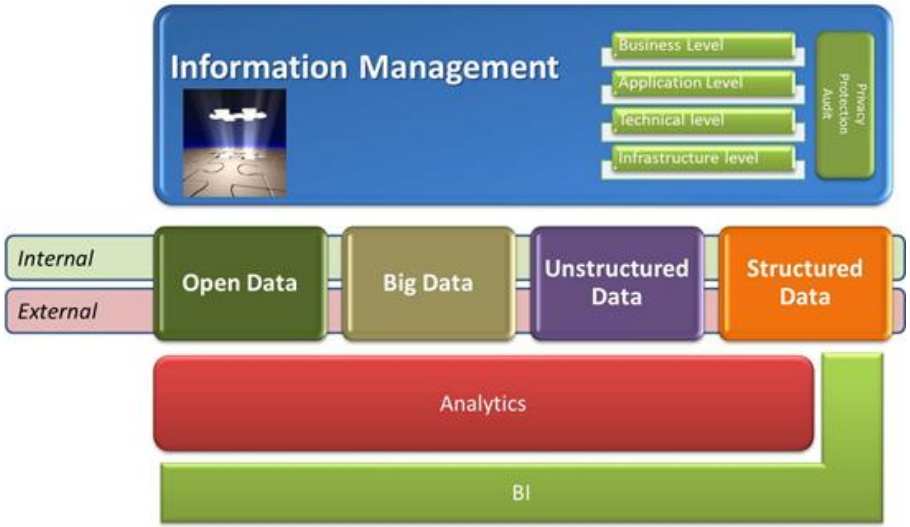
- PI is very user friendly and very intuitive, showing trends over time
- *PI Gives us the opportunity to visualize many different observations: heat losses, plasma power, electricity usage, oxygen in process gasses, CO, weight…*
- *Valuable info for (re) training the operators*



IT’s all about data and architecture

A global vision on Information Management

- The global vision drives our enterprise architecture, which processes touch which data?
- In our vision OT data (eg PLC) and IT data (MES, ERP) are both to be considered as information, preferably combined

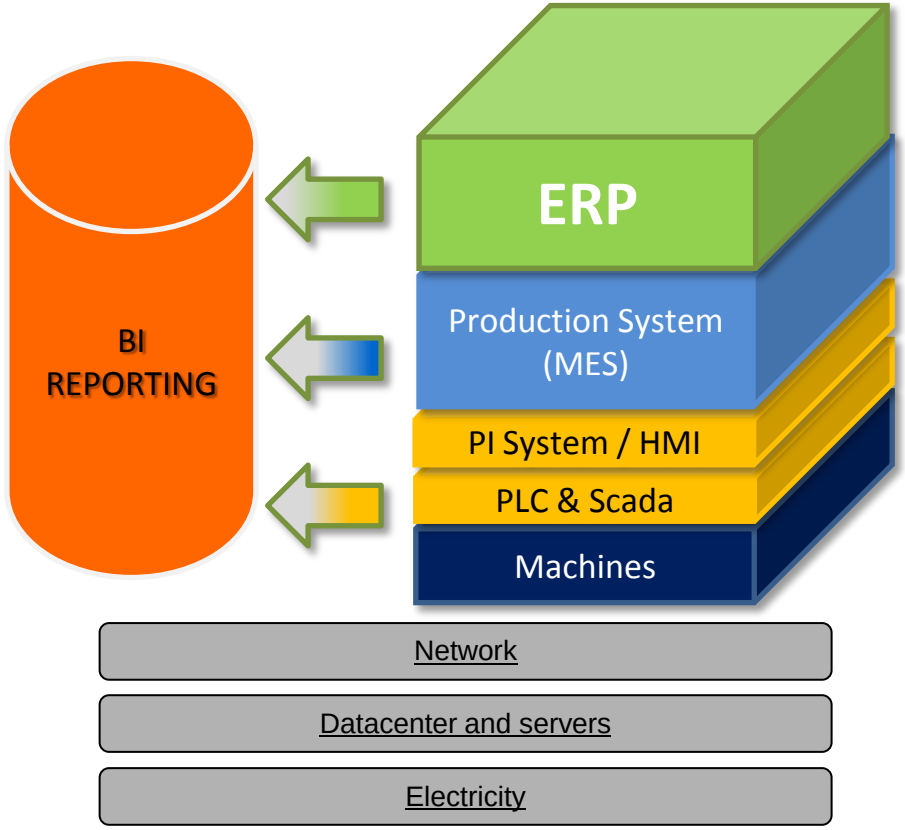


How do we manage, manipulate & secure the data in our applications and on our servers?

What type of data can/should we have or provide/publish?

How can we get maximal value out of this data?

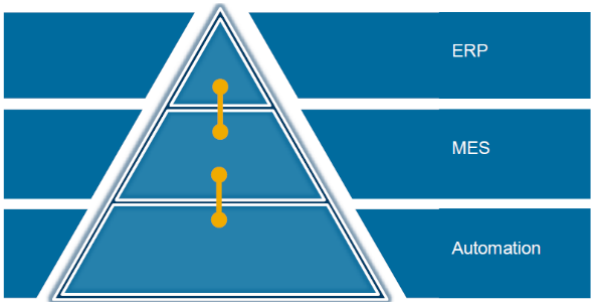
Metallo Digital Architecture based on ISA95



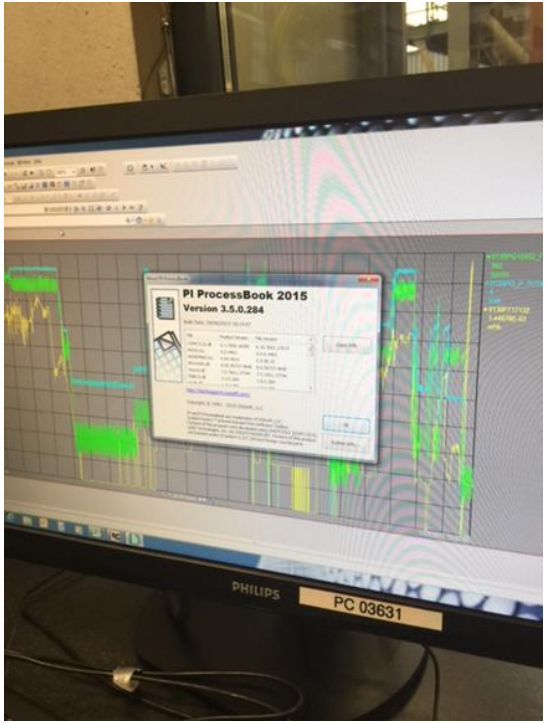
One Enterprise Architecture:

- Application architecture
- Data architecture (common definitions, all aligned)
- Security architecture
- Infrastracture architecture (common network, datacenter, servers)

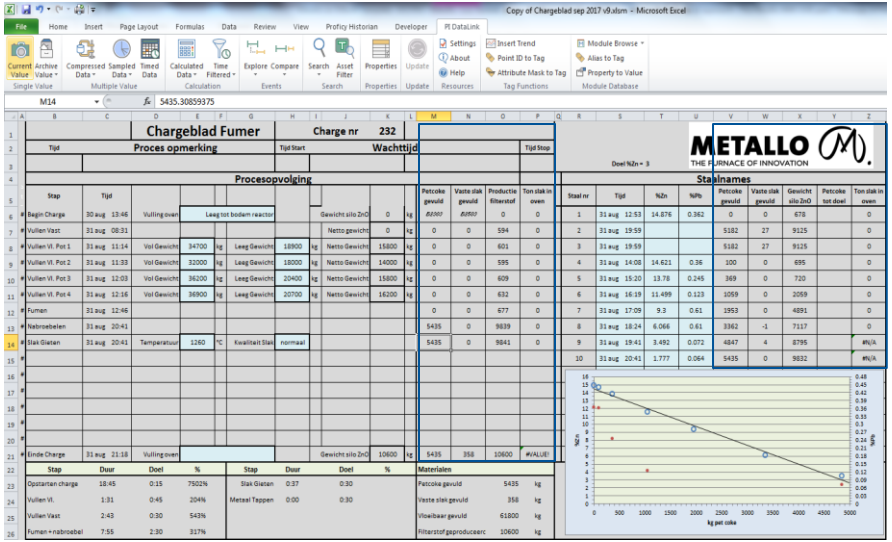
Application architecture based on ISA95



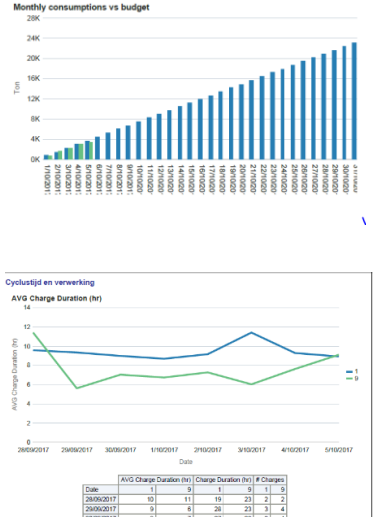
PI System & IT BI reports



PI ProcessBook



PI Datalink add-in for excel (for analysis and reporting)



IT BI reports

Lessons learned

- Before starting you need a well thought through architecture:
  - Decide what goes on layer 4, layer 3, layer 2 & layer 1
  - Determine responsibilities and teams
  - Scoping of products: MES, PI System, SCADA, PLC
- Ensure yourself in regards to internal commitment and technical support
- The PI System is not a MES replacement
- Neither a SCADA replacement

- The PI System compliments and supports other systems

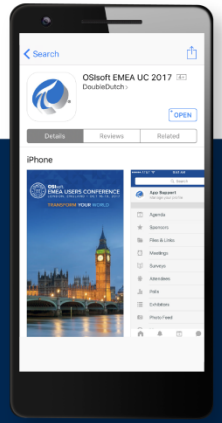
Questions

Please wait for the **microphone** before asking your questions

State your **name & company**

Please remember to…

Complete the Online Survey for this session



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Danke

谢谢

Merci

Gracias

Thank You

ありがとう

Спасибо

Obrigado