ONTO COMMONS
ONTOLOGY-DRIVEN DATA DOCUMENTATION FOR INDUSTRY COMMONS

ElvalHalcor - Data integration and interoperability in Manufacturing

Use Case No 10

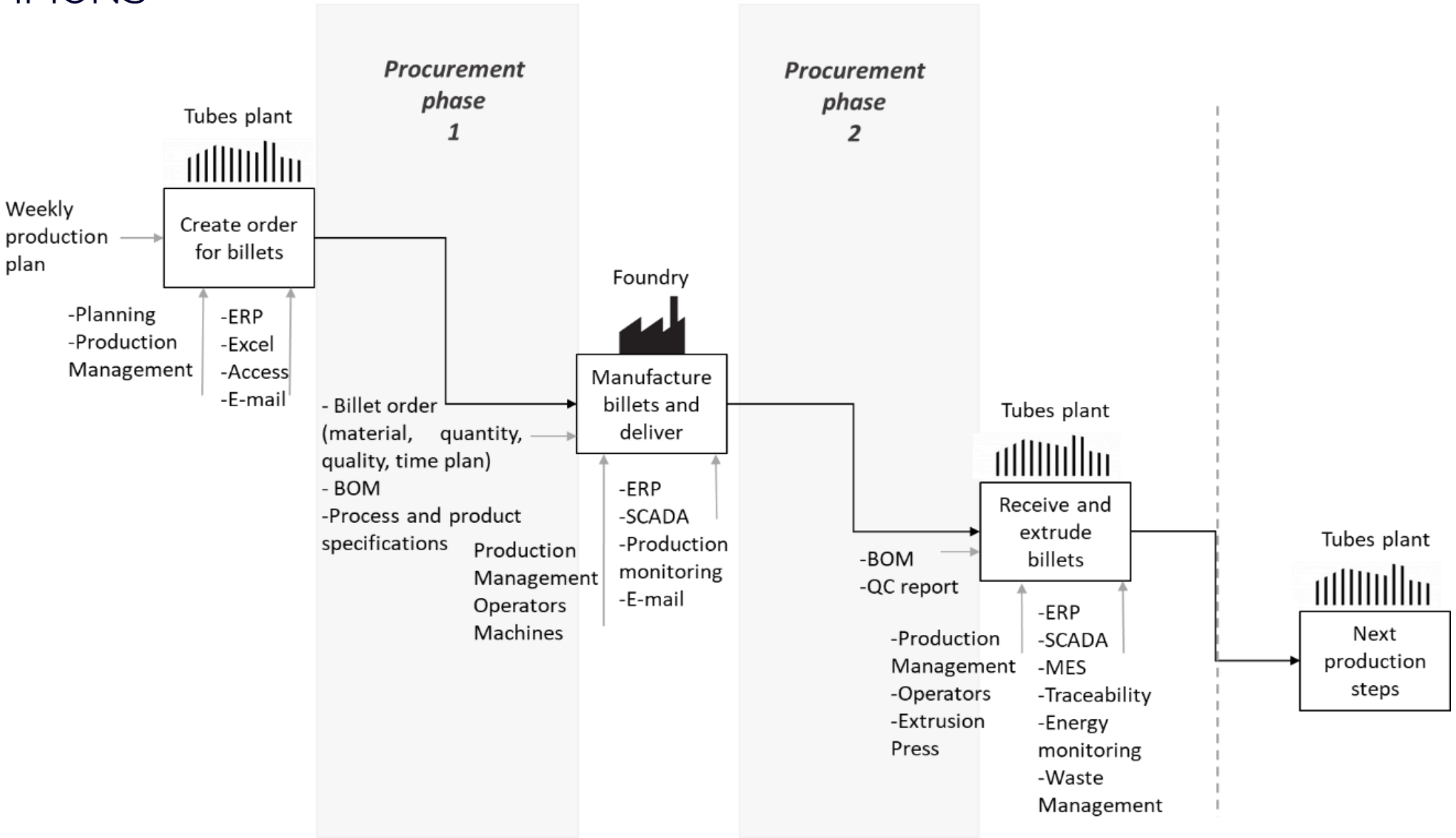
Materials Characterization / Cu/Al Data / ElvalHalcor

Project Partner : University of Oslo

- **Halcor** is the copper tubes division of **ElvalHalcor S.A.** and has a dynamic commercial presence across European and global markets with a tube production capacity of approximately 80,000 tons.
- Halcor has been offering innovative and added-value solutions that meet contemporary client demands in fields, such as plumbing, HVAC&R, renewable energy, architecture, engineering and industrial production.
- Project Partner – **University of Oslo**

Scope of this use case:

- Mainly the Design and Procurement processes for raw material (billets) to be produced in Halcor's Foundry, Manufacturing in Foundry and the Extrusion process in Tubes Plant.
- Modify or restructure the company's data models in a way that ensures data integration and interoperability, and contribute to the development of a Smart Decision System based on raw material and production process data and specifications.
- Main actors (departments) involved :
  - Tubes Plant Production Engineering
  - Product Design and Technical Specifications
  - Maintenance
  - Industrial Engineering and IT
  - Plant Management in Halcor's Foundry


Procurement phase 1
Procurement phase 2
Tubes plant
Weekly production plan
Create order for billets
-Planning
-Production Management
-ERP
-Excel
-Access
-E-mail
Foundry
- Billet order (material, quantity, quality, time plan)
- BOM
-Process and product specifications
Manufacture billets and deliver
Production Management
Operators
Machines
-ERP
-SCADA
-Production monitoring
-E-mail
Tubes plant
-BOM
-QC report
Receive and extrude billets
-Production Management
-Operators
-Extrusion Press
-ERP
-SCADA
-MES
-Traceability
-Energy monitoring
-Waste Management
Tubes plant
Next production steps

- Raw material (billet) and process ontologies are to be developed and will interact with various Information Systems such as SCADA, Manufacturing Execution, Energy Monitoring, Waste Management, Traceability systems and hardware.

- Some of the identified challenges in the use of ontologies :
  - Data format too diverse
  - Disconnected or poorly connected Information Systems
  - Semantic data relations missing

- The ontologies to be developed are expected to get integrated in the company's ERP system.

Main expected benefits

- The development of an ontology-based procurement system for billets interconnected with the process ontologies is expected to contribute in developing a Smart Decision System in order to optimize product quality, reduce manufacturing costs and environmental footprint.

- Primary purposes of ontology application :
  - Data model/ data structuring
  - Data sharing
  - Overview and visualization
  - Business planning/ communication
  - Data Integration
  - Interoperability

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Thank you for your attention

Questions?

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