

COCOP in a Nutshell

Need

European Process industry faces a strong need to increase **product quality** and **reduce operating costs** and its **environmental footprint**. An industrial plant comprises continuous and/or batch unit processes, where the complexity stems from its dynamic properties, so a **plant-wide monitoring and control is needed**.

Vision

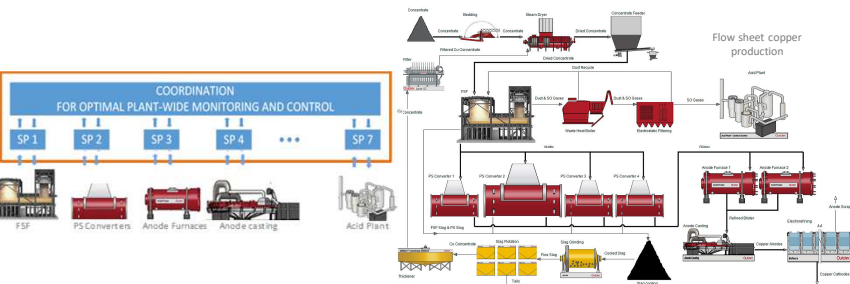
Complex process industry plants will be optimally run by the operators with the guidance of a coordinating, real-time optimisation system.

Goal

To enable plant-wide monitoring and control by using the model-based, predictive, coordinating optimisation concept in integration with plant's automation systems

The Approach

- COCOP concept integrates existing control systems with efficient data management and optimisation methods and provides means to monitor and control large industrial production processes
- COCOP is based on the **decomposition-coordination optimisation of the plant operations**: the overall problem is decomposed into unit-level sub-problems, and then, solutions of sub-problems are coordinated using high-level coordination to plant-wide optimal operation, enabling real-time optimisation of the plant



- COCOP also combines the technological development with a **social innovation process** of co-creation and co-development for improving effectiveness and impact of the innovations and operator acceptance

Impact and Exploitation

Main Beneficiaries:

- Process Industry:** COCOP concept can be applied to any industrial production site (steel, copper, chemical, cement, glass, etc) since it relies on general methods such as modelling, data analysis and optimization
- Automation solution suppliers**

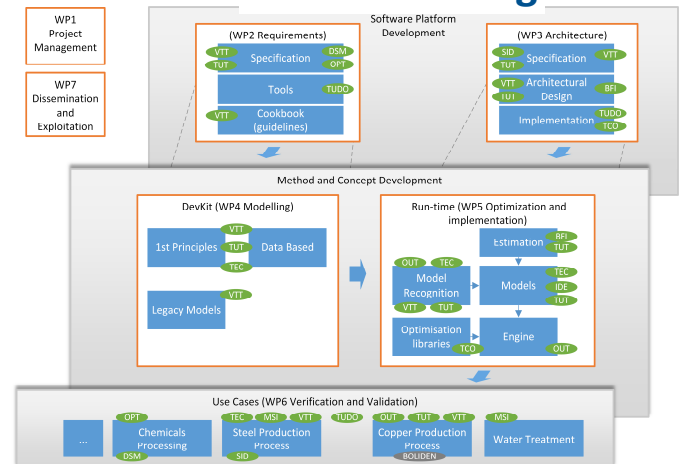
Main Benefits: COCOP solution will allow to approach optimal production and:

- Increased product quality**
- Reduced operation costs**
- Increased sustainability (reduced energy and resource consumption and decreased greenhouse gas emissions)**
- Improved working conditions** of plant operators by the new process control tools which support the operating work



Increased competitiveness of the European process & automation industry

Work Planning



From the 1st October 2016 to 31th March 2020

The Application

On-site application & validation on two pilot cases



Copper pilot case: to optimize scheduling of batch processes and develop advisory tools for main unit operations to **increase production, improve copper recovery and reduce emissions**



Steel pilot case: to develop a steel manufacturing plant-wide monitoring and advisory tool to **reduce the surface and sub-surface defects** in micro-alloyed steels in as-rolled state

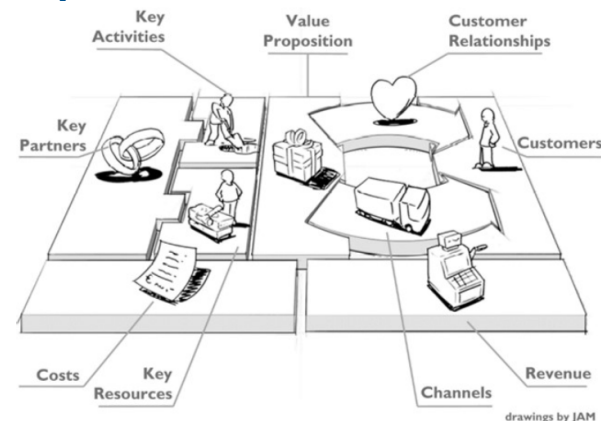
Transfer analysis to other two sectors



Chemical sector



Water treatment processing



COCOP involves the business perspective in the research and development work with the help of the Business Model Canvas framework as introduced by Österwalder