

## 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

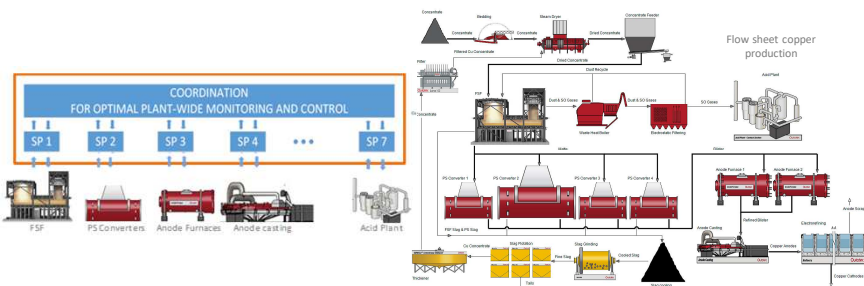
Complex process industry plants will be optimally run by the operators with the guidance of a coordinating, real-time optimisation system.

### 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**

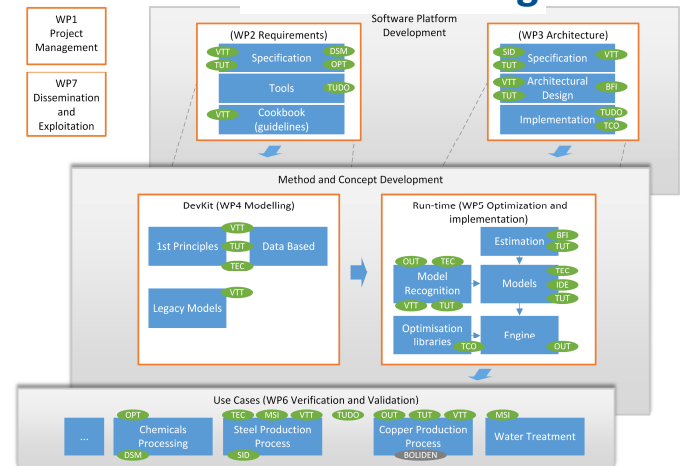
### Main Benefits: COCOP solution will allow to approach optimal production and:

- **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 31st 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

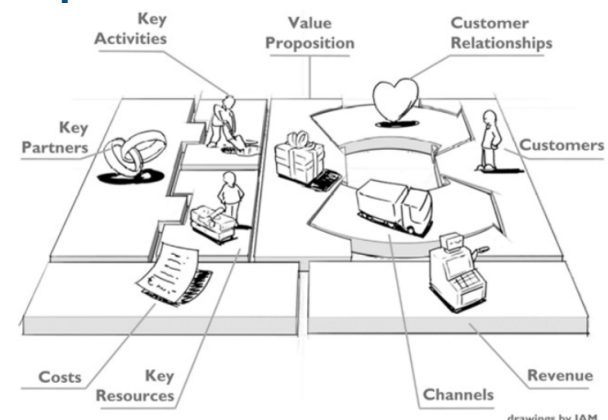
Transfer analysis to other sectors



**Glass manufacturing**

**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