



COCOP

Coordinating Optimisation of Complex Industrial Processes

Matti Vilkkö

Towards Industry 4.0:
Digital Technologies in
Process Industry
1.10.2018



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- COCOP intro
 - Pilot cases: Copper, Steel
- Optimisation and decomposition
 - Plant-wide approach
- Communication architecture
- COCOP Concept
 - Integration of optimisation, communication technologies and human factors

Consortium



- 12 partners
 - 5 research organisations and
 - 7 companies, 4 of which are SMEs
- Copper, steel, nutritional and materials products, automation technology providers, consultancy and software



Universities



Technological Research Centers



SMEs



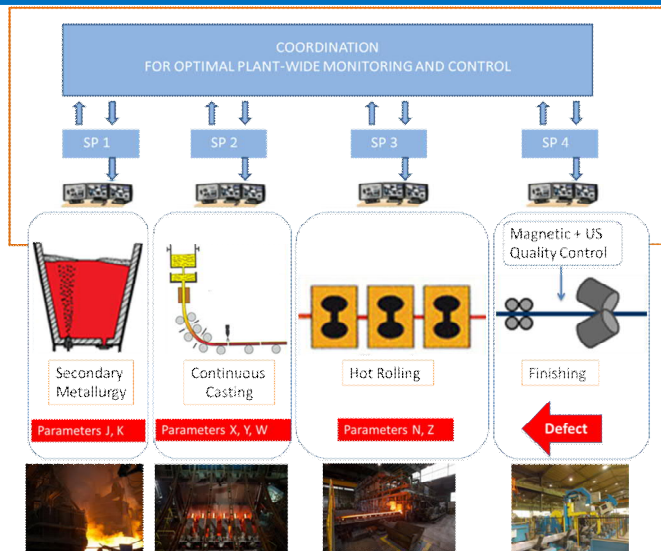
Large companies

Pilot Cases

- On-site application and validation at two plants

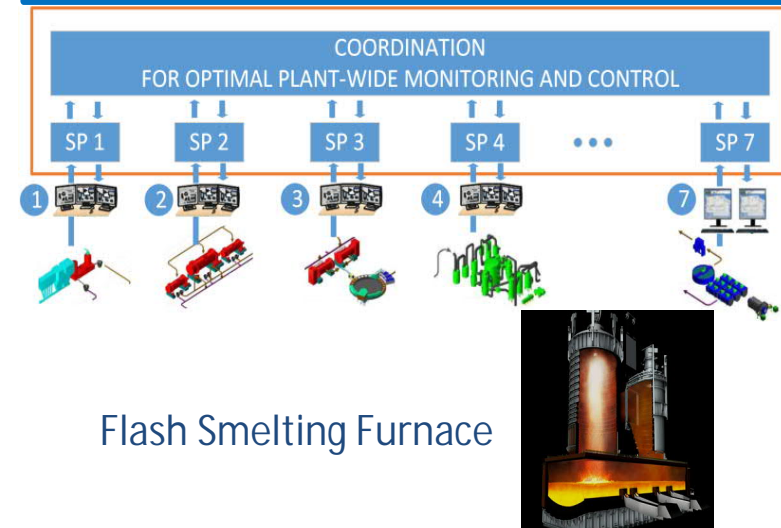
STEEL pilot case

- Development of a steel manufacturing plant-wide monitoring and control tool in order to reduce the surface and sub-surface defects in micro-alloyed steels in as-rolled state
- Addressed sub-processes: Secondary metallurgy, continuous casting and hot rolling



COPPER pilot case

- Development of advisory tools for controlling unit processes to improve factors such as temperature, slag chemistry and impurities
- The optimization will comprise of converter and anode-furnace scheduling & setting target matte grades and feed rates of flash-smelting furnaces



- Transferability analysis to other sectors: chemical & water treatment processing

Vision

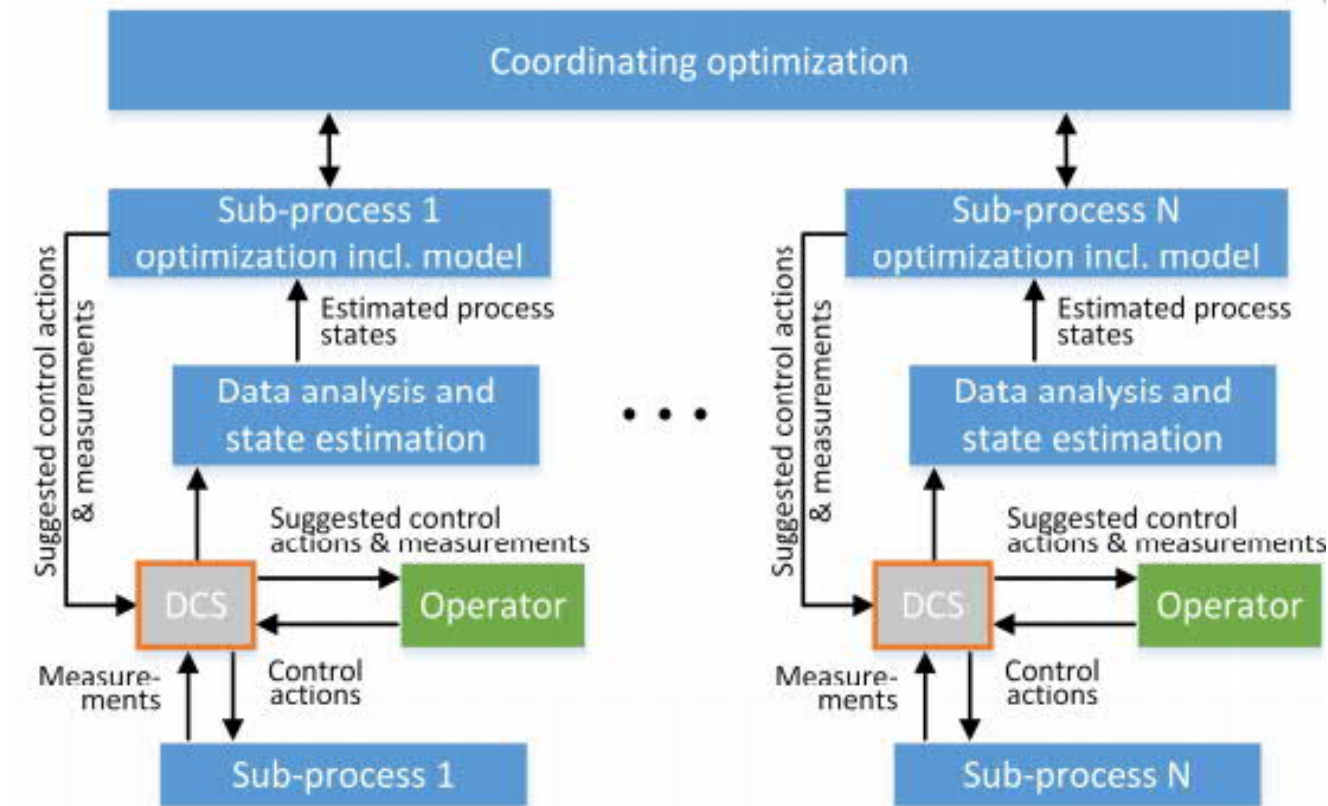
Complex process industry plants will be optimally run by the operators with the guidance of a coordinating, real-time optimisation system



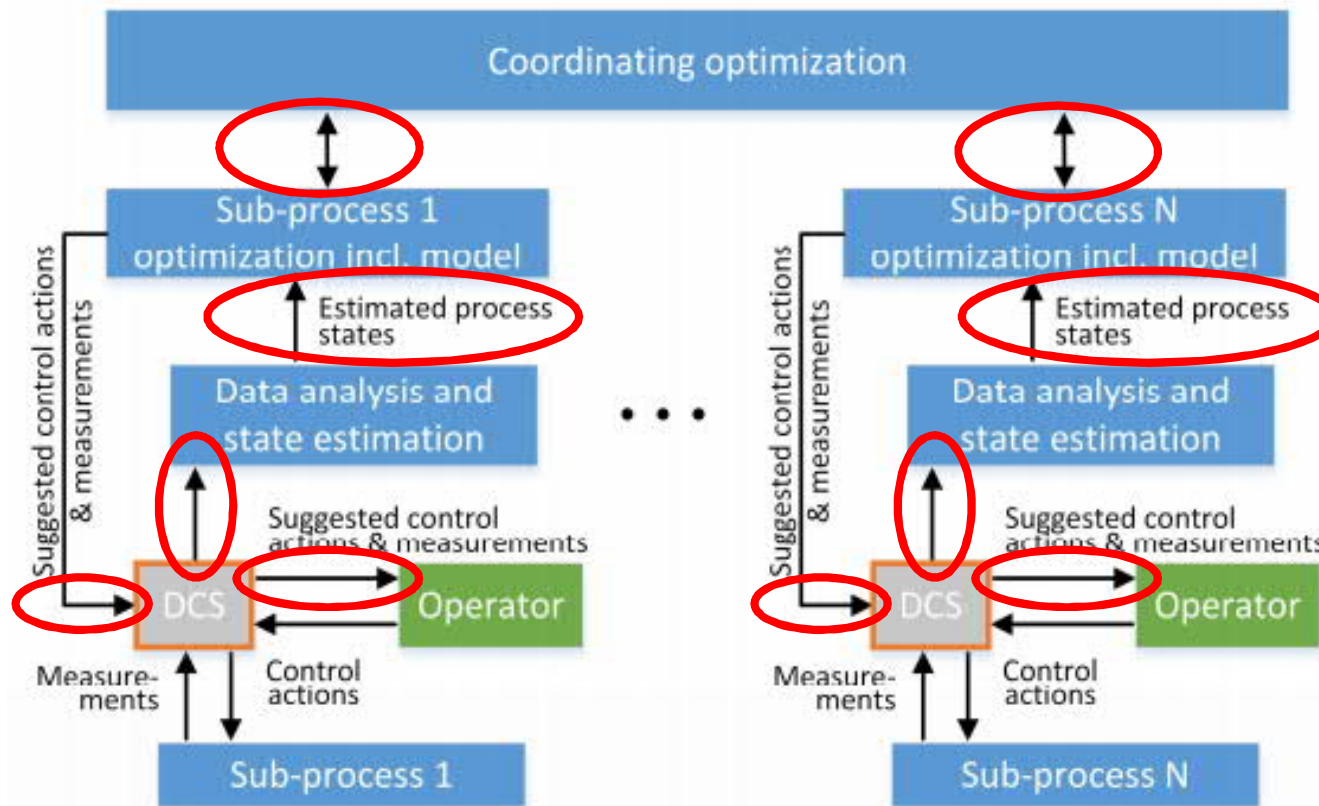
Objectives

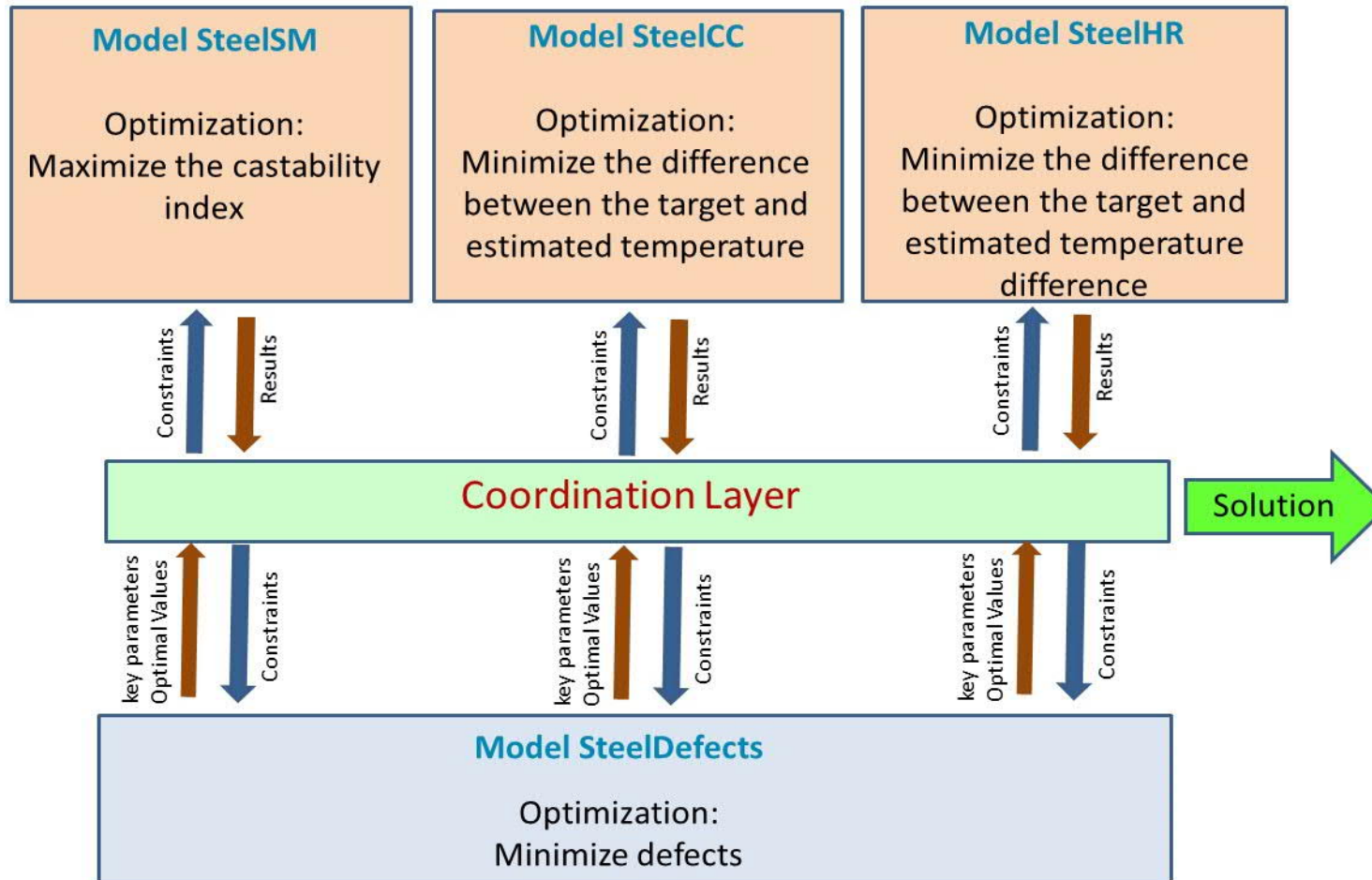
To enable plant-wide monitoring and control by using the model-based, predictive, coordinating optimisation concept in integration with local control systems

Optimisation architecture: decomposition and coordination

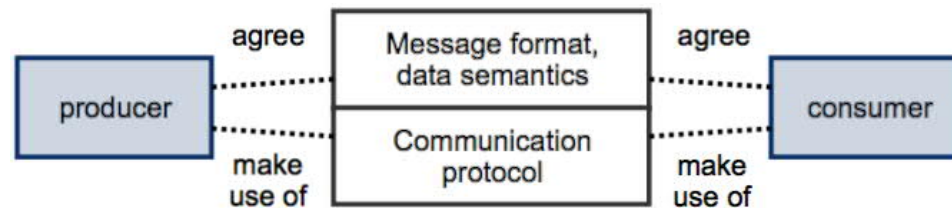
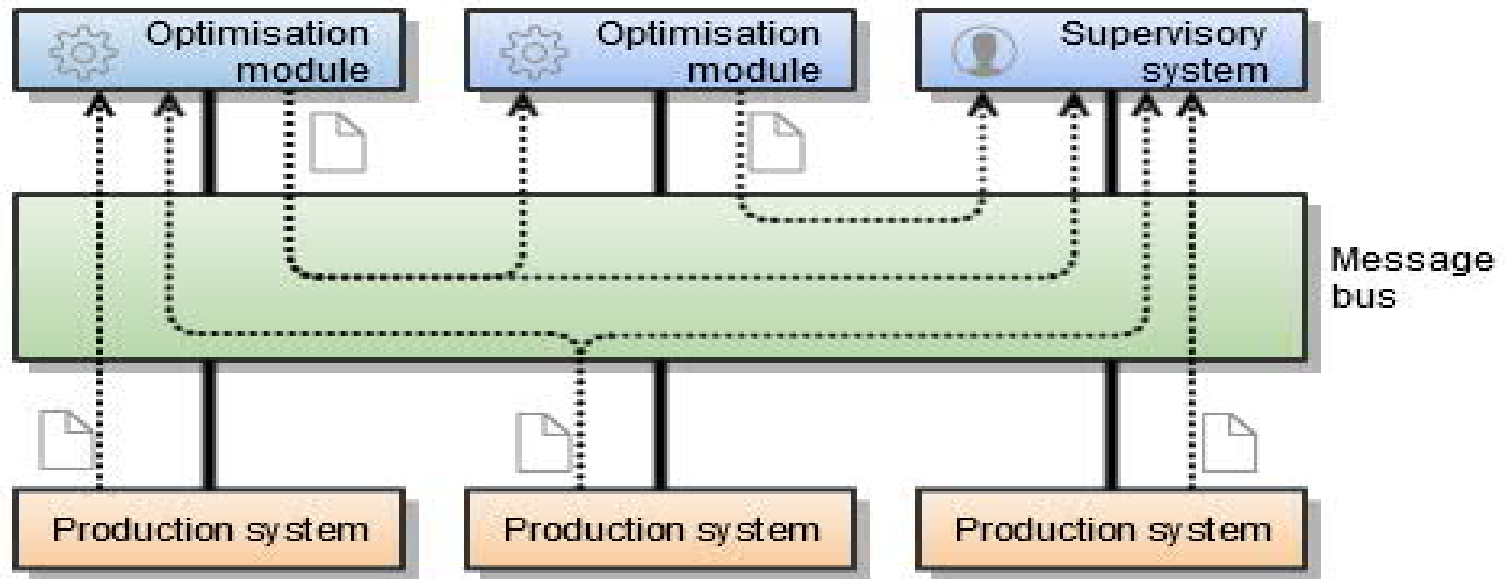


Information models and communication in COCOP

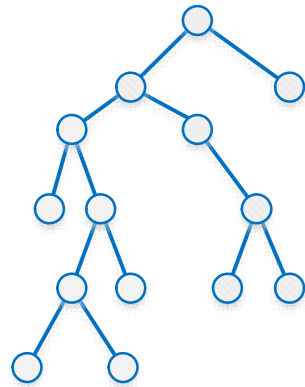




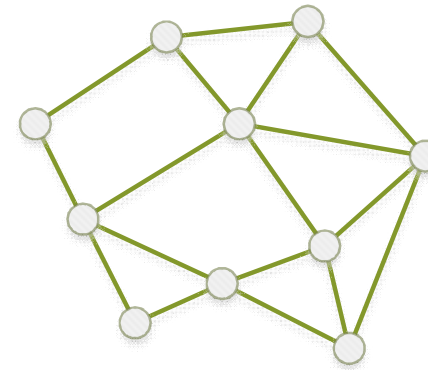
COCOP communication based on a message bus



- Automation Pyramid vs. Automation Pillar



<https://www.automationworld.com/automation-networks-pyramid-pillar>





Upcoming Workshop

DIGITIZED OPERATIONS for SUSTAINABLE PROCESS INDUSTRIES



FREE ATTENDANCE
REGISTRATION REQUIRED!!

DECHEMA - Frankfurt am Main, Germany

18 October 2018, 9:30 - 20:00

*Participation of A.SPIRE, EFFRA and
EC DG Research and Innovation*



Brussels, 01-10-2018

Digital Technologies in Process Industry

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General details



- Project Start Date: 1st October 2016
- Project End Date: 31st March 2020
- Project duration: 42 months
- Grant Agreement n.: 723661
- Sub-programme area: SPIRE-02-2016, H2020-IND-CE-2016-17
- Web page: www.cocop-spire.eu
- @CocopSpire

Contact Information

Project coordinator: Prof. Matti VILKKO (matti.vilkko@tut.fi)
Department of Automation Science and Engineering
Tampere University of Technology
KORKEAKOULUNKATU 3
Tampere 33720
Finland



Thank you for your attention!

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