COCOP: Social innovation and co-creation process

Project:
Coordinating Optimisation of Complex Industrial Processes

Project website: *www.cocop-spire.eu*

A complex industrial plant comprises continuous and/or batch unit processes where the complexity stems from its dynamic properties. In order to achieve an economically and environmentally efficient operation of a plant, the objective of the COCOP project was to **enable plant-wide monitoring and control by using the model-based, predictive, coordinating optimisation concept in integration with local control systems.**

The project also combined technological and **social innovation within a common co-creation process** in order to improve effectiveness and impact of the innovations, their implementation process and user's acceptance.

The implemented solutions were tested in **two industrial scale tests**: in a **steel** and in a **copper plant**. The test cases validated the requirements and the developed solutions. The quantitative results provided good evidence that these approaches can enable to achieve the objectives and **provide considerable economic benefits** when the solutions have been developed to the TRL 9 level.

The COCOP general concept can be applied to any large industrial production site because it relies on general methods such as modelling of dynamics, data analysis and optimization. Thus, the project also analysed the transferability to other three sectors: Wastewater Treatment, Chemical and Glass Manufacturing sectors.

COCOP was a collaborative 42-months SPIRE project (October 2016-March 2020) and the consortium consisted of 12 partners (5 research organisations and 7 companies), from 6 European countries**.** This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 723661.

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Sector:

Chemicals

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Engineering

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Non-ferrous metails

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Steel

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Water

Summary:

Key for COCOP was a methodology integrating technological innovation within a social innovation process of co-creation and co-development by involving users of the future optimisation system and relevant stakeholders right from the beginning; thereby improving effectiveness and impact of the innovation and the implementation process.

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The methodology how to implement a social innovation process of co-creation and co-development within COCOP comprises:

- Site visits, interviews and desk research to describe the (social aspects of) use cases of the project (in a copper and a steel plant)
- A survey in the beginning of the project (questionnaires and interviews) with future users, developers and external experts to define a baseline by raising data on experiences with existing optimisation systems, with tasks and targets of future users, with attitudes towards and expectations for the future COCOP system
- Based on survey results, human factors requirements were derived. They were transferred to an action plan for monitoring these requirements during different stages of the project.
- In the end of the project, when a prototype of the COCOP system was implemented, another survey (questionnaire and interviews) was conducted to obtain feedback of users and developers of the COCOP system and compare the different perspectives and review it with the baseline expectations.

Against the backdrop of the social KPIs, the main results of the co-creation and development process are:

- High relevance and added value of plant-wide optimisation in general (from the point of view of experts, developers, and users).
- Overestimated expectations of the (future) users in the beginning of the project are becoming more realistic at the implementation phase.
- High user friendliness and functional stability is given.
- Functionality for the production process (speed, productivity, performance) could be improved, based on further suggestions of the users in an ongoing co-implementation process.
- While a mix of different training measures is demanded by the users, (process) simulation is the most preferred one.

Theme:
Plant-wide monitoring - SPIRE02-2016
Keywords:
social innovation, co-creation process
Type:
Video
Document
Poster
Presentation

Resources

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Link:
COCOP Social Innovation presentation video

- Social Innovation poster
- Social Innovation presentation
- Social Innovation presentation video
- *Report: Co-creation, combining technological and social innovation*
- Paper:
    - Kohlgrüber M., Schröder A., Bayón F. and Arteaga A. "*A new innovation paradigm: combining technological and social Innovation*". Materials & Techniques Journal. Vol. 107, No. 1, March 2019. Doi: 10.1051/mattech/2018065

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