CoPro – Improved energy and resource efficiency by better coordination of production in the process industries

- **Call: SPIRE-02-2016**
- **November, 1st 2016 – April, 30th 2020**
- 17 partners from 8 countries

COORDINATED PRODUCTION FOR BETTER RESOURCE EFFICIENCY

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Contributions of the Project

1. The EU/ SPIRE needs

Improving energy and resource efficiency of production plants and chemical parks or clusters

2. The Project Solution

Methods and tools for

- process monitoring and optimal dynamic planning,
- scheduling and control of plants, industrial sites and clusters under dynamic market conditions

Decision support to operators and managers, heading for automated closed-loop solutions

3. Value to Customers

- Reduced environmental impact of production processes
- Reduced cost of energy & resources
- **By better coordination and control** (no investments into equipment)
- Improved transparency
- Coordination in chemical parks

4. How will this happen?

- Examples of use cases
- Algorithms and software
- Consultancy and engineering of solutions by SMEs
- Standardisation activities

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CoPro Industrial Use Cases

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- **Coordination of the operation of the plants in a petrochemical site (INEOS)**
  - Including shut-down and ramp-up of units or sub-units
  - Including demand side response
- **Optimal operation of the production and consumption of gases in an integrated site (Covestro)**
- **Coordination of production units in an industrial park (Worringen/Dormagen Chempark)**
  - By market-like distributed algorithms
- **Spin bath recovery in cellulose fibre production (Lenzing)**
  - Reducing energy demand by optimized operation and use of equipment
- **Production, formulation and packaging of detergents (P&G)**
  - Prediction of the need for and scheduling of maintenance
  - Optimized changeovers
- **Sterilization and packaging of food (FRINSA)**
  - Optimization of thermal processes
  - Coordination of the units and optimizing the flow of material

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What are the **key expected sustainability impacts** of *CoPro?*

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Estimated impacts for broad deployment by 2030 (relative to 2015)

Indicator	Expected Impact
Reduction in greenhouse gas (GHG) emissions	4%
Reduction of the use of energy from non-renewable sources	2-10%
Waste minimization (in specific cases)	25%
Reduction of fresh water consumption (where applicable)	10%
Heading towards industrial symbiosis	too early to quantify

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What are the **key expected innovations** of *CoPro?*

Innovations	Baseline TRL	Expected TRL
Tools for plant-wide optimization including DSM	3	6
Tools for coordination in industrial parks	2	5
Tools for more efficient modelling	2	5
Technology for optimizing changeovers	2	5
Reactive planning and scheduling technology, including scheduling of maintenance	3	6
Tools for online data analytics, detection of anomalies, prediction of time to failure	3	5
Novel forms of information presentation to operators and managers	4	7
Integration and deployment platform	4	6

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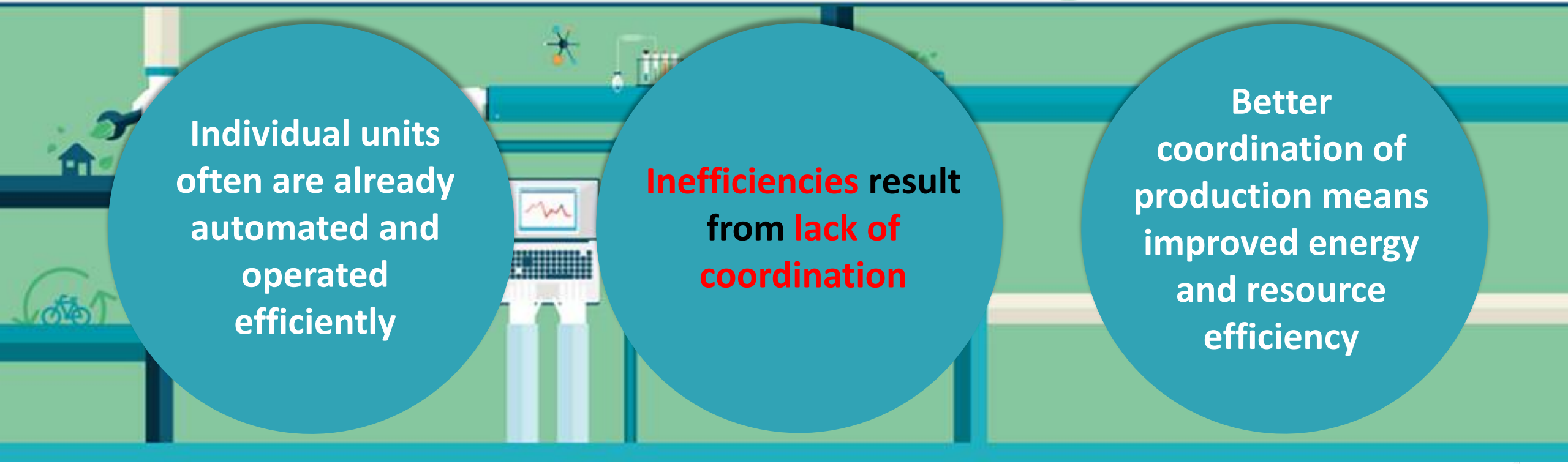

Individual units often are already automated and operated efficiently

Inefficiencies result from lack of coordination

Better coordination of production means improved energy and resource efficiency

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