OPTIMIZATION OF POWDER PROCESSES BASED ON PILOT TESTING & PROCESS ANALYTICAL TECHNOLOGY

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SPIRE
Sustainable Process Industry through Resource and Energy Efficiency

PROJECT IDEA

- Liquid & gas systems → good agreement between theory & practice
- Processes with particulate solids → difficult & challenging
- Narrowing gap between theory & practice → huge potential for improvements

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Combination of fundamental understanding, Pilot testing & Process Analytical Technology (PAT) to achieve:

- Improvement in fundamental understanding of particulate systems
- Transformation from lab to full scale
- Efficient pilot testing & scaling-up (with tracing of time dependence)

Referring to Call SPIRE 07/09-2017 and Key Actions 2.3 and 2.4

PROJECT IDEA (CONTD.):

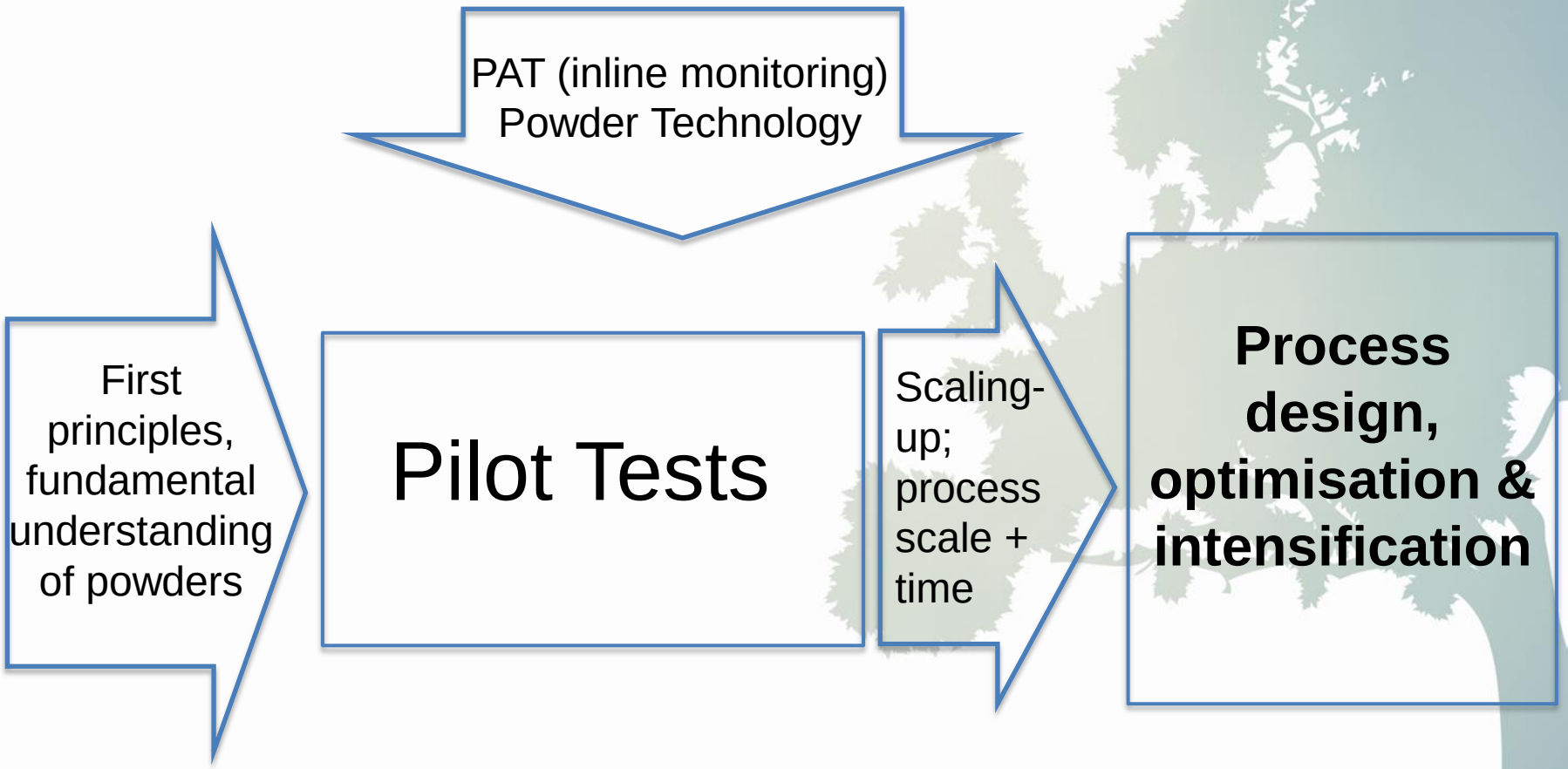
Important unit operations of particulate systems

- Conveying and handling
- Storage & retrieving
- Mixing & segregation
- Size enlargement (granulation, pelleting, tableting)
- Size reduction (milling, grinding)
- Sorting & classification
- Fluidization
- Feeding & metering
- Gas-solids separation
- Liquid solid systems (slurry)
- Process Analytical Technologies PAT

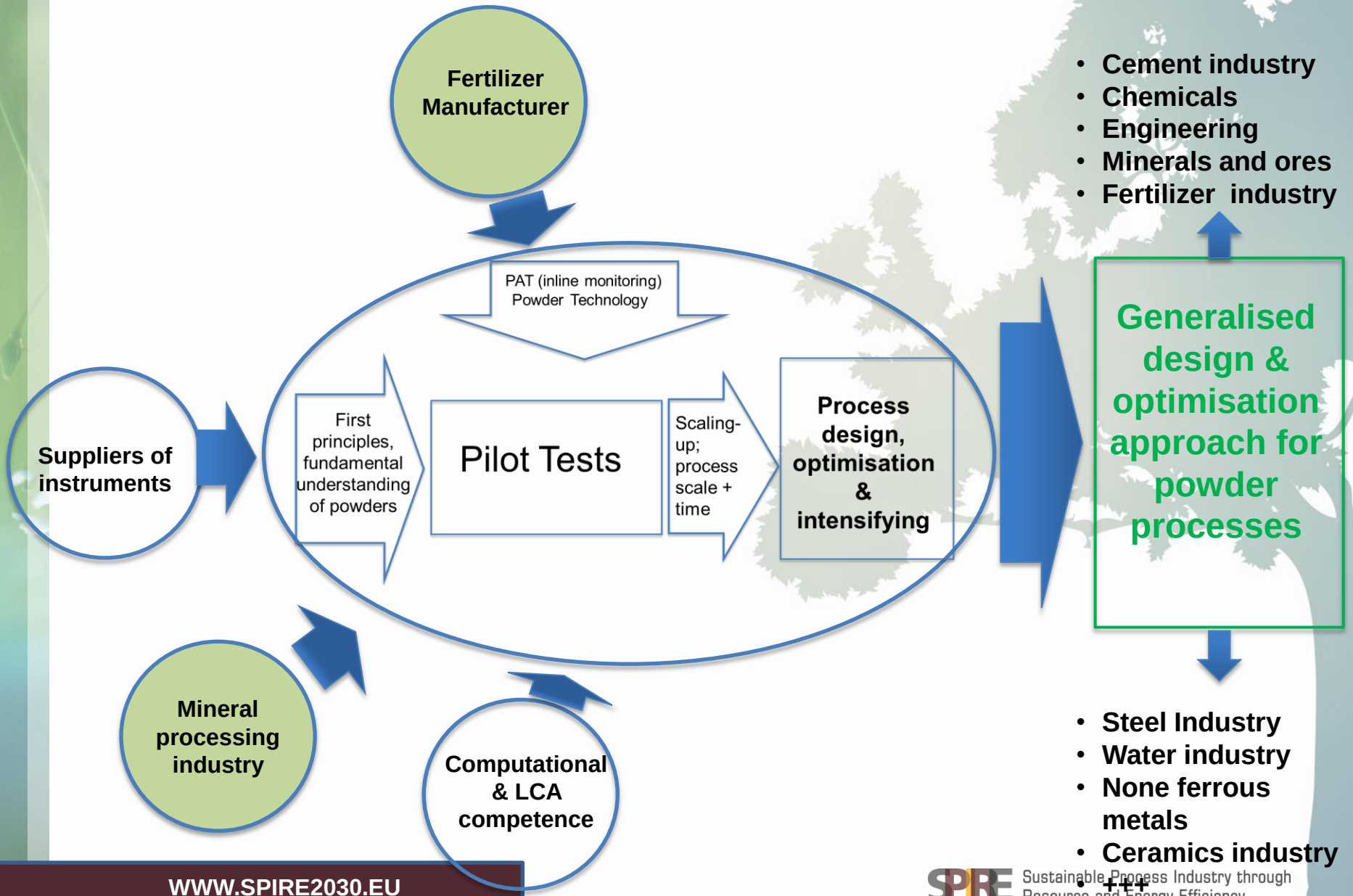
Impact

Stable process, high product quality and yield, reduced raw material consumption using minimal energy

PROPOSED APPROACH..



Multi disciplinary characteristics..



- Cement industry
- Chemicals
- Engineering
- Minerals and ores
- Fertilizer industry

- Steel Industry
- Water industry
- None ferrous metals
- Ceramics industry
- +++

Approach

- Pilot testing
- On-line instrumentations
- Soft sensors??
- Process modelling (deterministic & empirical)
- BIG Data & LCA analysis

Fact & figures…

- EU Innovation Action with expected TRL 6-7
- Total budget: app. 6- 8 MEuro
- Project duration: 3-5 years
- Ultimate goal: 20% improvement (OPEX, CAPEX, etc.) after implementation
- Industrial contribution: app. 30% (100kEuro/yr/partner in case of 3 industrial partners, still an open issue)
- Industrial contribution can be “in-kind” and human resources
- Consortium: 3 large industries + 2-3 R&D institutes + SMEs (equipment + instrument providers)

LOOKING FOR PARTNERS

More industrial partners

- Chemicals
- Cement
- Metallurgical
- Mineral
- Ceramics

Vendors

- In-/online instrumentation
- Simulation Software

R&D and Academic institutions

- Process technology
- Liquid-solids system

CONTACT DETAILS

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