Intensified by Design

• SPIRE-08 2015 *Solids handling for intensified process technology*
• Start/end date: 01/09/2015 – 31/08/2018
• Partners: 10 Research Organisations, 6 Engineering companies
  5 Industrial Case Studies and 1 Association
Project Case Study: Intensified by Design (IbD)

1. The EU/ SPIRE needs

EU & SPIRE back the European Roadmap for Process Intensification (PI) support for the need for faster and broader application of innovative PI-technologies, from energy, climate change and industrial competitiveness viewpoints across a range of sectors.

2. The Project Solution

By successfully introducing PI technologies into sectors and processes where SOLIDS are handled.

3. Value to Customers

PI can reduce plant volumes by up to 2 orders of magnitude, lead to reduced energy use, improved product quality, and a move from ‘batch’ to continuous processing.

4. How will this happen?

Industrial Case Studies, backed up by a comprehensive platform facilitating the selection of appropriate PI technologies for a range of solids-handling processes – made available to industry.
What are the **key expected sustainability impacts** of *IbD*?

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<tr>
<th>Indicator (Max 3-4 key indicators)</th>
<th>Baseline</th>
<th>Expected Impact</th>
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<tbody>
<tr>
<td>Recovery of valuable metals</td>
<td>Currently Ceramic Sector is negligible</td>
<td>Applying coarse flotation machine could reach total recovery 2-3 %</td>
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<tr>
<td>Product Cost</td>
<td>Pharma process normally use batch processing and no solvent recycling</td>
<td>20% Cost reduction using continuous processing with lower cost materials and integrated solvent recycling</td>
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<td>Energy Savings</td>
<td>Grinding Process represents 30-40% energy consumption mining plants</td>
<td>Expect to reach 5% reduction using predictive grinding control algorithms</td>
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<td>Cycle time</td>
<td>Non ferrous metals industries currently process the material in separated batches with a big manpower effort and loose time mainly due to lack of a continuous powder handling between the different process steps</td>
<td>Process intensification platform could achieve a reduction of the cycle time by 30-40%</td>
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What outputs or learning from IbD could have value for other SPIRE projects here?

- Addressing the IbD challenge vastly opens up the **Process Intensification market**
- Our challenge in IbD addresses: ‘Small’, ‘compact’ and ‘solids’ spell ‘**fouling**’ – this concern inhibits PI application in many sectors where it could lead to **much more efficient plant/processes**.
- A **sustainable business model** to ensure the commercial viability of the IbD platform will ensure the IbD project becomes synonymous with a step change in the industrial implementation of Process Intensification
- IbD has provided PI Solutions to **Ceramic, Chemical, Non ferrous metals and Mining**
Can you imagine all SMEs becoming digital?

SPIRE is enabling us to

ARTIFICIAL INTELLIGENCE TOOLS

INFORMATION FOR DECISIONS

INDUSTRY 4.0 PRODUCTION PROCESSES

DATA INFORMATION

PROCESS ANALYTICAL TECHNOLOGY

PROCESSES OPTIMISATION

ACTIONS FOR IMPACT

SHAREBOX
SECURE SHARING

iRIS
#technology4.0

PROPAT
INTEGRATED PROCESS CONTROL

ibD
Intensified by Design
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Thank you!
Workshop
TACKLING THE FUTURE OF PLANT OPERATION JOINTLY TOWARDS A DIGITAL PROCESS INDUSTRY

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