Horizon2020 Information Days on Public-Private Partnerships

Brokerage event
16 October 2015

SOLUTION TO UTILIZE PROCESS DATA FOR SUSTAINABLE STEEL PROCESSING

SPIRE 02-2016: PLANT-WIDE MONITORING AND CONTROL OF DATA-INTENSIVE PROCESSES

DR. HELI HELAAKOSKI, DR. OLLI VENTÄ
HELI.HELAAKOSKI@VTT.FI

SPIRE
Sustainable Process Industry through Resource and Energy Efficiency

VTT – Technology for business

VTT Technical Research Centre of Finland Ltd is the leading research and technology company in the Nordic countries. We provide expert services for our domestic and international customers and partners, and for both private and public sectors. We use 4,000,000 hours of brainpower a year to develop new technological solutions.

We develop new smart technologies, profitable solutions and innovative services. We cooperate with our customers to produce technology for business and build success and well-being for the benefit of society.

VTT is a non-profit organisation and a crucial part of Finland's innovation eco-system. VTT operates under the mandate of the Ministry of Employment and the Economy.

- Turnover 277 M€ (VTT Group 2014), personnel 2,600 (VTT Group 1.1.2015)
- Unique research and testing infrastructure
- Wide national and international cooperation network

*) Source: Roles, effectiveness, and impact of VTT, VTT & Technopolis Group, 2013.

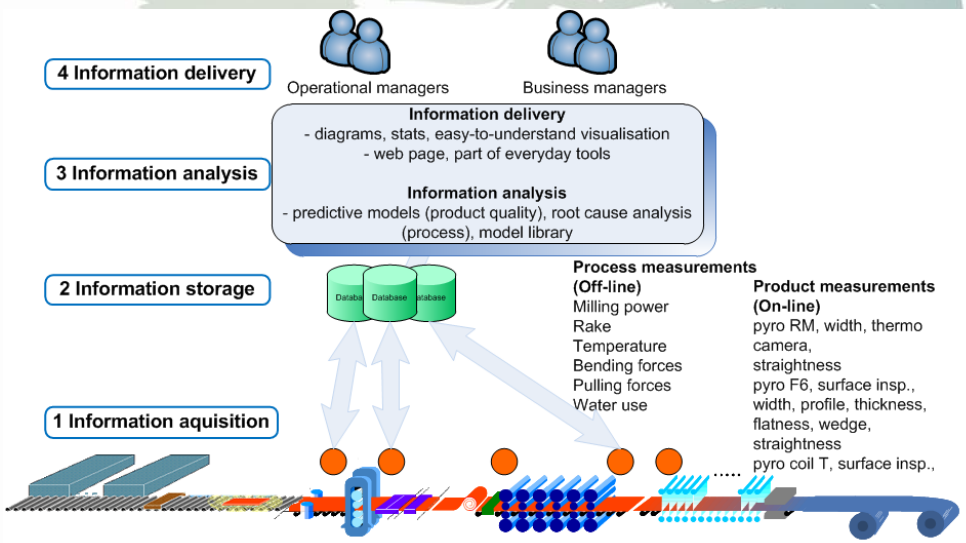
PROJECT IDEA

- *SPIRE 02-2016: Plant-wide monitoring and control of data-intensive processes*
- *Key component Process: Solutions for more efficient processing and resource and energy efficient systems for the process industry, including industrial symbiosis / Key Action 2.3: Process monitoring, control and optimization*
- *The process of steel manufacturing is complex - including a number of consecutive steps and different units (blast furnace, smeltery plant, rolling mill) - causing a severe risk of sub-optimising.*
- *Rigid existing legacy systems are not providing all the information required for integrated and optimized manufacturing process.*

PROJECT IDEA

- *This project is aiming to adapt new solutions to achieve better process integration, optimization and especially steel quality.*
- *The requirement is on-line monitoring quality system, that enables better process control and interaction and therefore support more sustainable processes.*
- *The system will benefit industrial internet technologies in development (sensors, data analytics, big data, information visualisation)*
- *Such system uses theoretical and mathematical models as a intelligent engine that provides basis for complete process understanding.*

- *The major result is to develop solutions for predictive utilization of process data for sustainable steel processing*
- *TRL level is 4-6*



EXPECTED IMPACT

- *A real-time and adaptive system that that automatically check, alarm and set new operational windows for production parameters in respect to targeted quality level.*
- *For example slab/coil width is monitored automatically and required corrections starting from slab width control up to re-allocation of material are automatically done.*
- *By predicting quality level of the material as early as possible* ***energy is not wasted for upstream production****. In heavy industry lot's of energy is utilized for a production that is finally evaluated as scrap or second-hand material.*
- *Solutions for more controlled processing can be utilized in any process industry*
- (Ref. *Key Action 2.3: Process monitoring, control and optimization*)

EXISTING PROJECT CONSORTIUM

We are looking for cross-sectoral consortium

VTT Technical Research Centre of Finland (Research work, development)
- Research work experienced in developing tools for monitoring and controlling steel quality processes

SSAB Europe (technical development, beneficiary of results)
- *Requirement definition*
- *Partner for industrial tests integrated quality management, verification of research results*
- *End-user of the results*

Outokumpu (technical development, beneficiary of results)
- *Requirement definition*
- *Partner for industrial tests for integrated quality management, verification of research results*
- *End-user of the results*

LOOKING FOR PARTNERS

Research partners

- *VDEh-Betriebsforschungsinstitut GmbH , (bfi.de), ongoing discussion*
- *Process modelling*
- *Big data management*

Industry partners

- *Research result commercialization (Service provider)*
- *Industrial test sites*

CONTACT DETAILS

Dr. Heli Helaakoski
Research Manager
VTT Technical Research Centre of Finland
heli.helaakoski@vtt.fi
GSM +358 40 5108 619

Save your presentation with the following title:
Organization_Title of your project idea _Name_Call topic