Improving Premium Steel Manufacturing through Automation

<u>Dr David Meehan</u> - TDL Sensors Ltd Scott Jackson - Tata Speciality Steels







Project Outline

Objective 1: Develop a modular, multiple gas monitoring system capable of measuring extreme gases in hostile environments.

- Exhaust gas temperature = 500-700 °C
- Very high dust load (orders of magnitude attenuation)
- Fluctuating pressures (vacuum to atmospheric)
- Varying gas composition

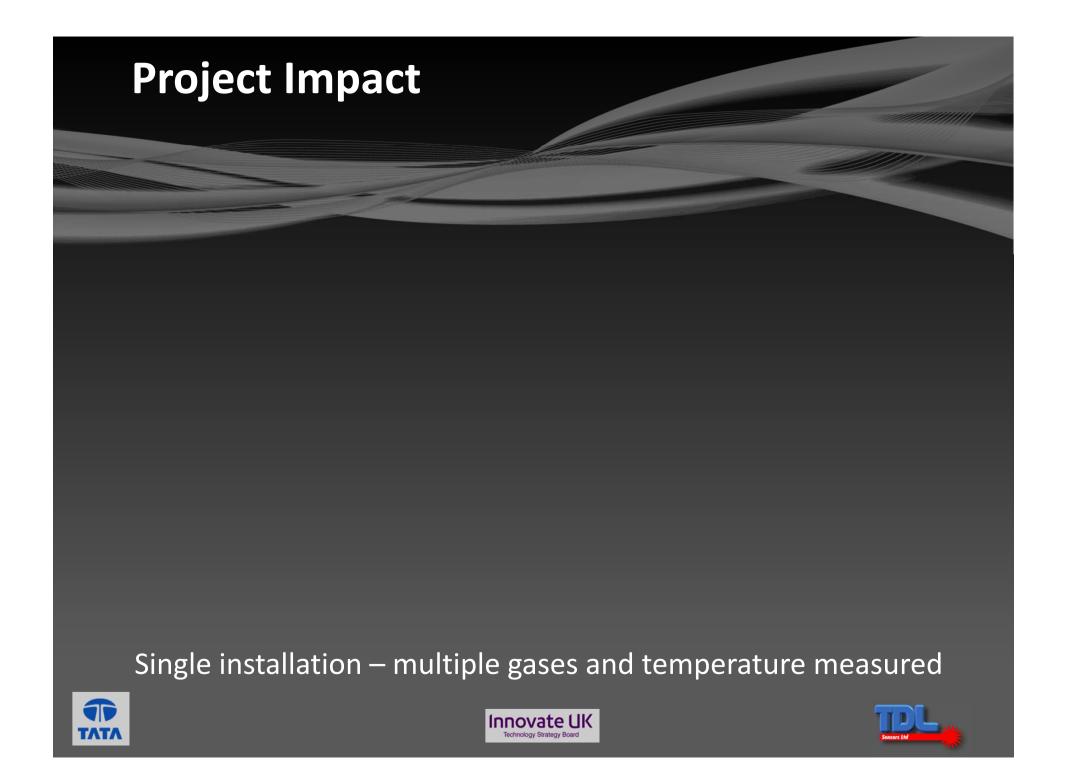
Objective 2: Use these real-time *in situ* measurements to gain better understanding of a secondary steel making process.

Objective 3: Investigate closed loop automation using these measurements, increase productivity, improve quality reduce costs and improve the sustainability of premium steel manufacture.









Project Impact – It Works!!

- Measured CO and CO2 during secondary steel process fluctuating pressure,
 high temperature and heavy and varying dust load
- Significant advantages over current analysers
- Added to the understanding of the production process







Project Impact - Manufacturing

Reduced batch time

= lower energy costs

= £x k / year saving

Increased throughput

= additional production capacity

= £y k / year saving

Improved quality

= less reprocessing

= £z k / year saving







Future Challenges and Opportunities

Steel making - Arc furnaces

- Operational optimisation and safety

Further integration secondary steel making:

Close the loop – full automation

Realise benefits for steel makers

Make UK steel more competitive

Increased unit sales for TDL

Increase staff numbers for sales and support







Contact TDL Sensors Ltd 48 Grafton Street Manchester M13 9XX United Kingdom Tel: +44 (0)161 606 7289 info@tdlsensors.co.uk www.tdlsensors.co.uk Accurate, precise and specific gas measurements.....





