

Steel Square (S²) : a key test facility for Steel



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Steel Innovation Cluster

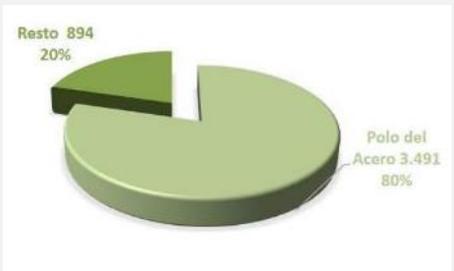
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MINECO

Steel Sector in Asturias



80% turnover of steelmaking and manufacturing sectors



50% of overall exports



17% Asturias GDP
3,5 billion € turnover

Key companies for Steel Production and **Wind Offshore Manufacturing** (piles, jackets, towers...)



Working Groups



STEELMAKING



**CONSUMER
GOODS/ OIL&GAS**



ENERGY



PACKAGING



RAIL



AUTOMOTIVE



NAVAL



CONSTRUCTION



Worldwide remarkable experience



One of the main European manufacturers for wind towers and offshore foundations

Reference Projects



JABACO, RFCS, Development of **Modular Jacket Foundation** with increased Prefabrication for the Upcoming Offshore Windfarms

HIPRWIND, FP7, High Power, High Reliability Offshore Wind Technology

REFOS, RFCS, LCA of multipurpose **floating** offshore system

SAFETOWER, RFCS. Developing tailored **manufacturing** safe methods for wind towers and optimal use of high strength steels.

MHAS: **Productivity Improvement** in wind tower manufacturing by using submerged arc welding processes

TESTASHORE: Manufacturing Improvement in **large diameter towers**

APERTURE: Manufacturing Improvement in **Doorframe**

ACERCOM: Structural **Hybrid Steel/Composites Laminates** for offshore

AVANSURF: Advanced **surfaces** for offshore environments

ROBOTOFFSHORE: Automatization and robotic welding solutions for production of offshore **turbine components**

MOU on new **Steelmaking processes, coatings and durability** for Offshore Wind



The Steel Square (S²)

Rolling facilities



Melting & continuous Casting.
VIM Furnace 150 kg.

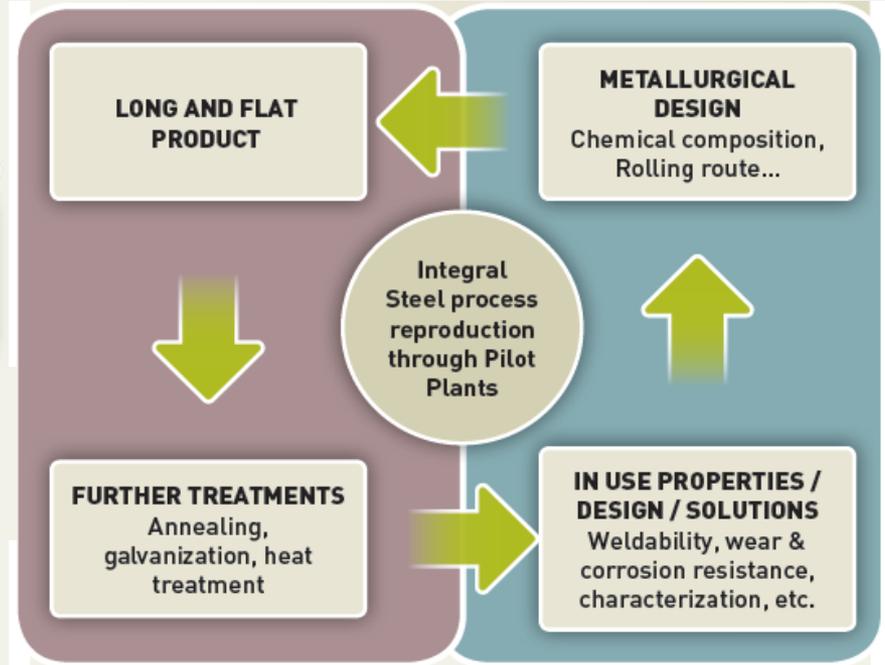
In use properties



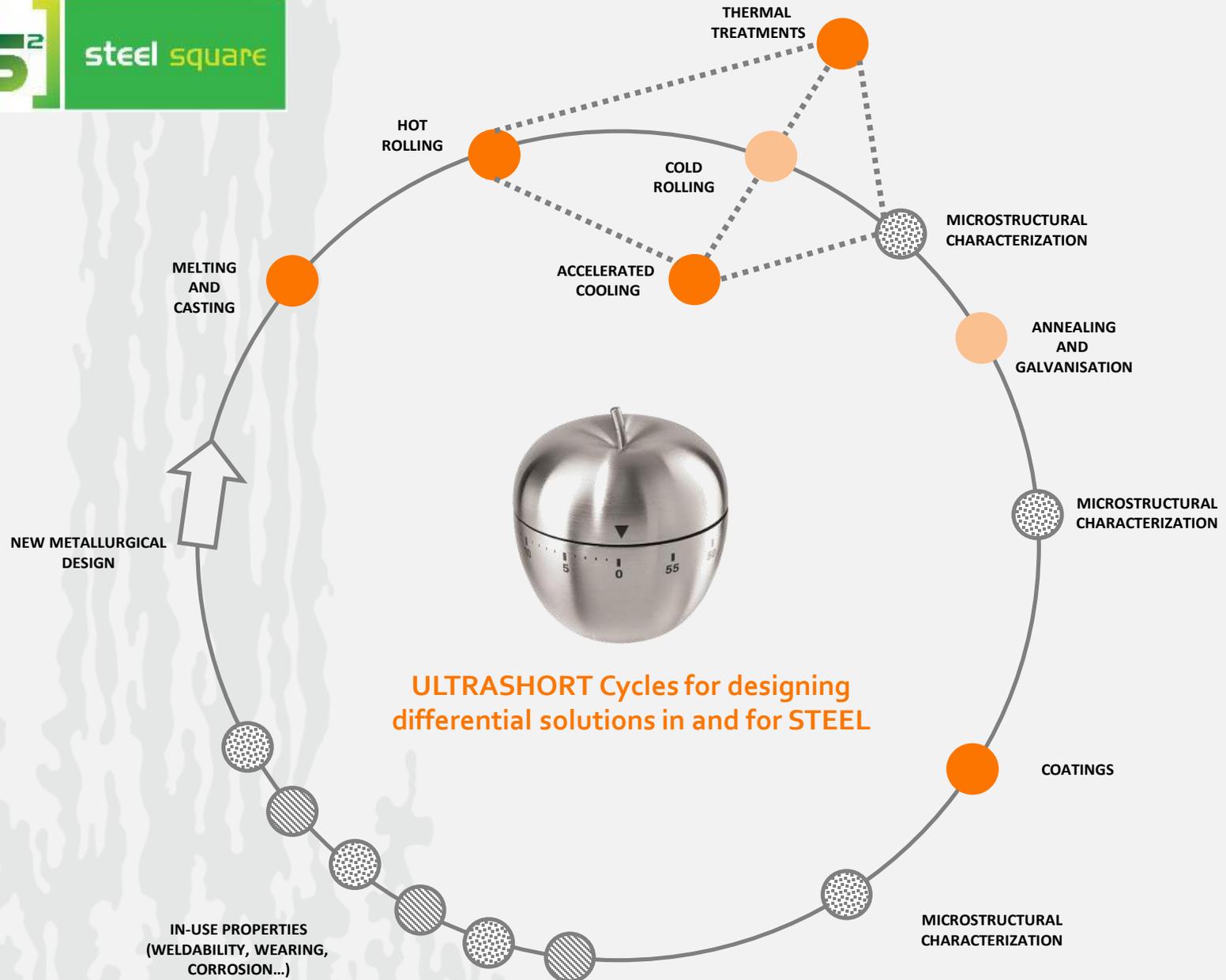
Multipurpose facilities

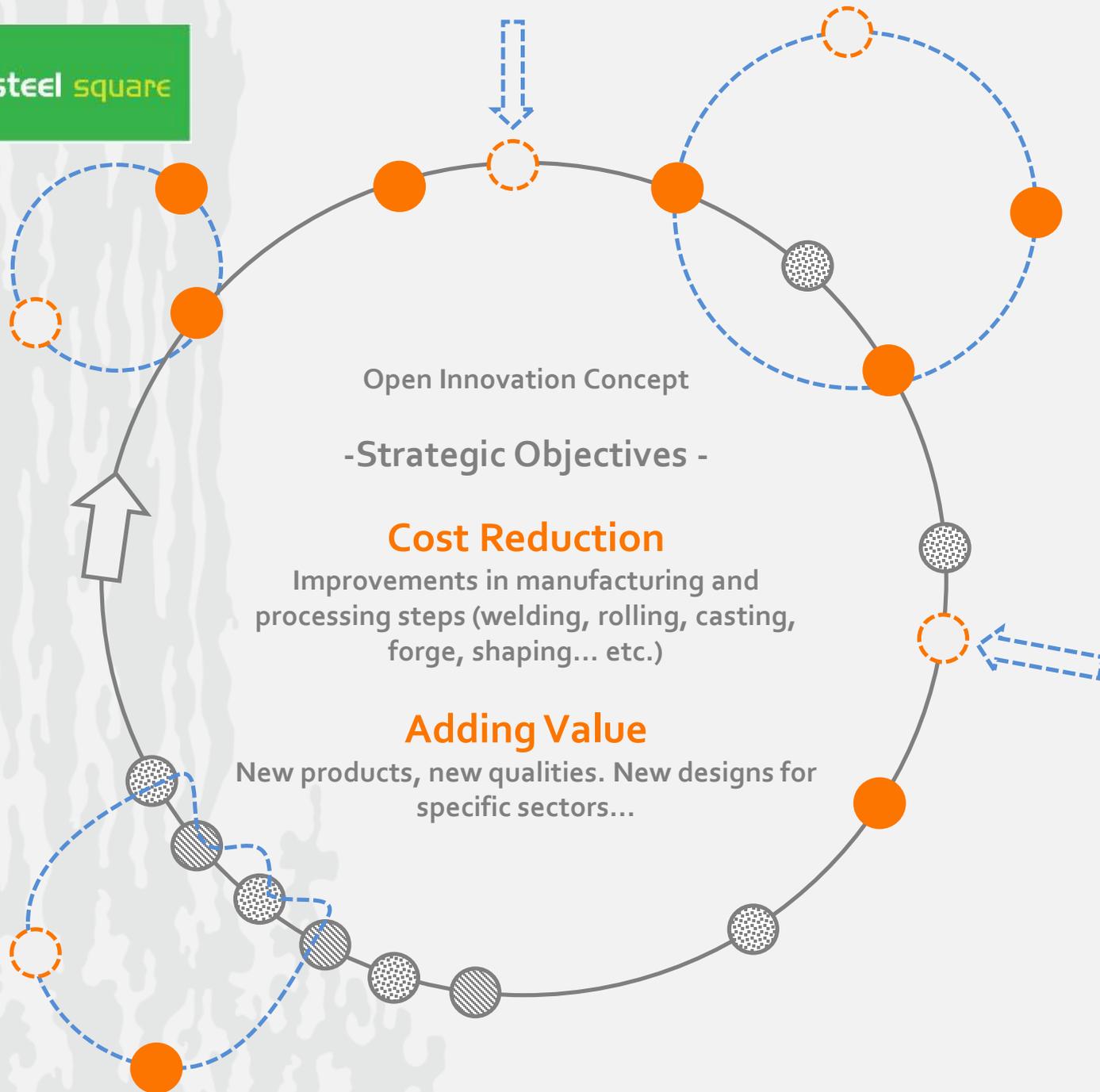


Simulator
Annealing &
Galvanization



Integral **Steel** Process through **Pilot Plants**
 Innovation Driven
 Promoting **Regional** Strengths
 Improving **Productivity & Competitiveness**
 Fully Aligned with **RIS3** for Asturias
 2 **Strategies**: Cost Reduction & Adding Value





Steel Square

A key test facility for Steel

New developments

Fast & Adaptable

Correlation { Product/Process
Microstructure
In-use Properties



Integral Steel Process reproduction through Pilot Plants



Steel Square

A key test facility for Steel

Weldability Studies

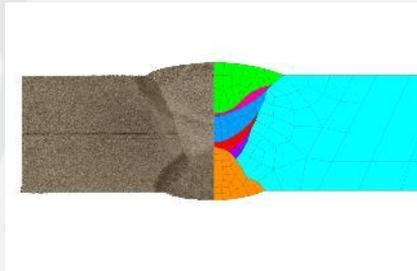
Metallurgical Analysis

Automated manufacturing Processes

Productivity Increase

Applying new welding technologies

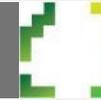
Supported by tests & modelling



Integral Steel Process reproduction through Pilot Plants



Opportunities for collaboration in Offshore Wind



steel innovation cluster

Solutions for Wind Offshore **manufacturing**

Firms (Large & SMEs) with relevant experience

Added Value and/or **Cost reduction** approaches

Experimental facility including **all steps in the same location**

Smart solutions based on **Steel**

Complementarity with other test sites

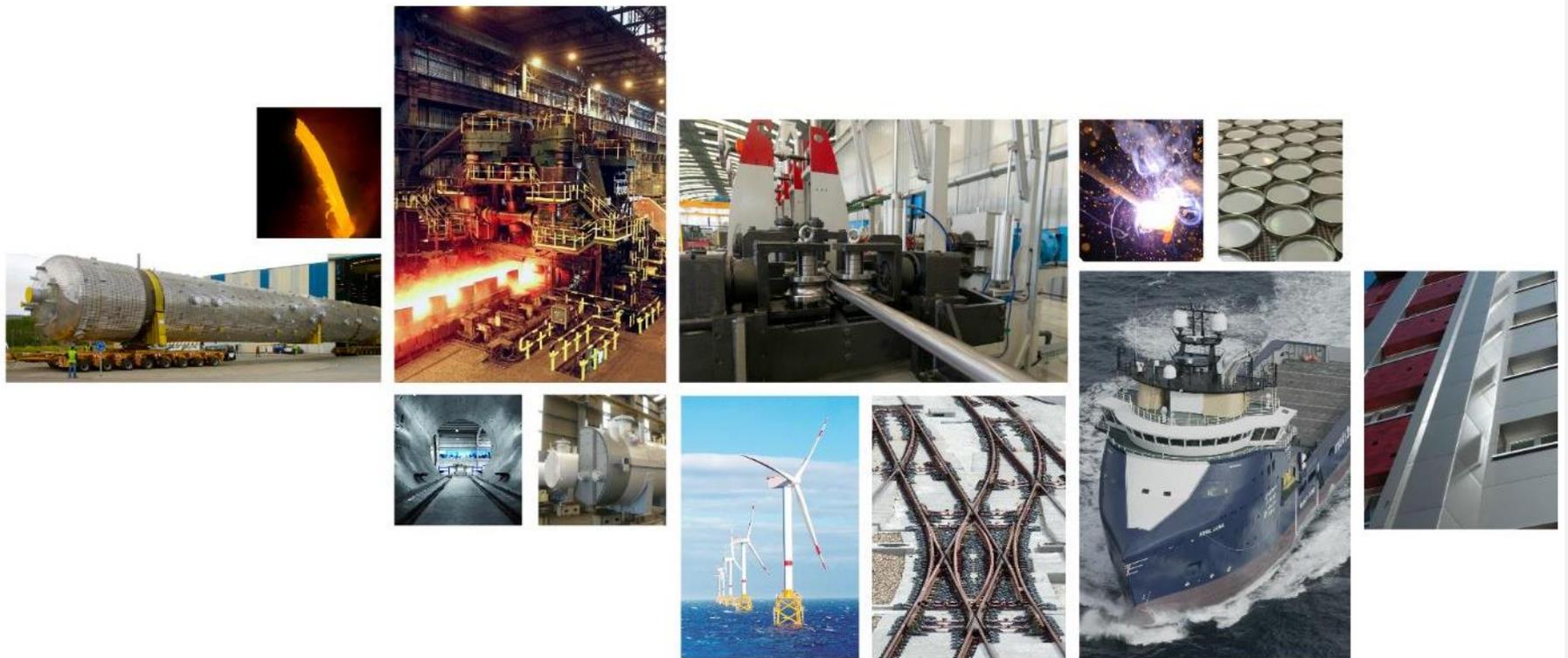
Key involved partners



Thank you for your attention!

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"Asturias Polo Industrial del Acero". IDE/2014/000685

"Polo del Acero. Plan de Actividades 2015-2016". IDE/2015/000534

