

ESTEP 2025 Annual Event

28-30 October 2025
Udine (ITALY)

How decarbonisation, digitisation
and circular solutions forge the
sustainable European steel future?

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TU Dortmund University
Member of Management Board
Social Research Centre

Skills4Energy Intensive Industries: Game Changer Profiles and Urgent Skills Demands for the Steel Industry



DIGIMET



DANIEMI AUTOMATION



UNIVERSITÀ
DEGLI STUDI
DI UDINE
HIC SUNT FUTURA



SKILLS@EII

Skills Alliance for the Green,
Digital and Social Transformation
of the Energy Intensive Industries

SKILLS@EII

Skills Alliance for the Green,
Digital and Social Transformation
of the Energy Intensive Industries



An initiative of the European Commission

2



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LSP Energy Intensive Industries of the Pact for Skills

Large Scale Partnership for



Find out more:



Energy-Intensive Industries (LSP EII)

The **Pact for Skills** is comprising 14 industrial ecosystems and more than 2,500 members

The **LSP EII** is one of the ecosystems and is focussing on Energy-Intensive Industries:

- ▶ it is based on and further developing two sectoral Alliances:



Composition of LSP EII

- ▶ sectors represented so far: Steel, Minerals, Water, Engineering, Logistics, Non-Ferrous Metals (Aluminium), Ceramics, Raw Materials, Welding, Chemicals, Cement
- ▶ Blueprint members and new members
- ▶ 41 signatories: 8 companies (also training providers), 12 industry associations, 1 union, 1 industry park, 6 training providers, 13 consultancies and research institutions (most of them are also training providers)



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LSP EII: Participating Organisations About 20 from the Steel Industry

A.SPIRE
APQuimica
ArcelorMittal
Asocaión de Investigación de las Industrias Cerámicas (ITC-AICE)
BASTAS BASKENT CIMENTO SAN. VE TIC. A.S.
Cardiff University
CELSA Group
CiaoTech Srl.
CIELFFA
CIRCE - Centro Tecnológico
EIT RawMaterials GmbH
ESTEP – European Steel Technology Platform
European Aluminium
European Chemical Employers Group ECEG
European Federation for Welding, Joining and Cutting
EYDE Cluster
Ferriere Nord
Fundacion Zaragoza Logistics Center
H2O-People
Höchst Industrie Park
IDENER
IMA-Europe
IndustriAll European Trade Union
INEGI - Institute of Science and Innovation in Mechanical and Industrial Engineering
InnoGlobal
Institute of Philosophy and Sociology, Bulgarian Academy of Sciences (IPS-BAS)
ISQ - Instituto de Soldadura e Qualidade
National Research&Development Institute for Non-ferrous and Rare Metals - IMNR
NEHEM BV
Pittini Group
RINA Consulting - Centro Sviluppo Materiali S.p.A.
SCUOLA SUPERIORE SANT'ANNA
Sidenor Aceros Especiales SLU
The European Steel Association, EUROFER
thyssenkrupp Steel Europe AG
Time Vision Cooperativa Italia
TU Dortmund University - Social Research Centre sfs
UNESID
Universidade Lisboa
University of Deusto
World Steel Association



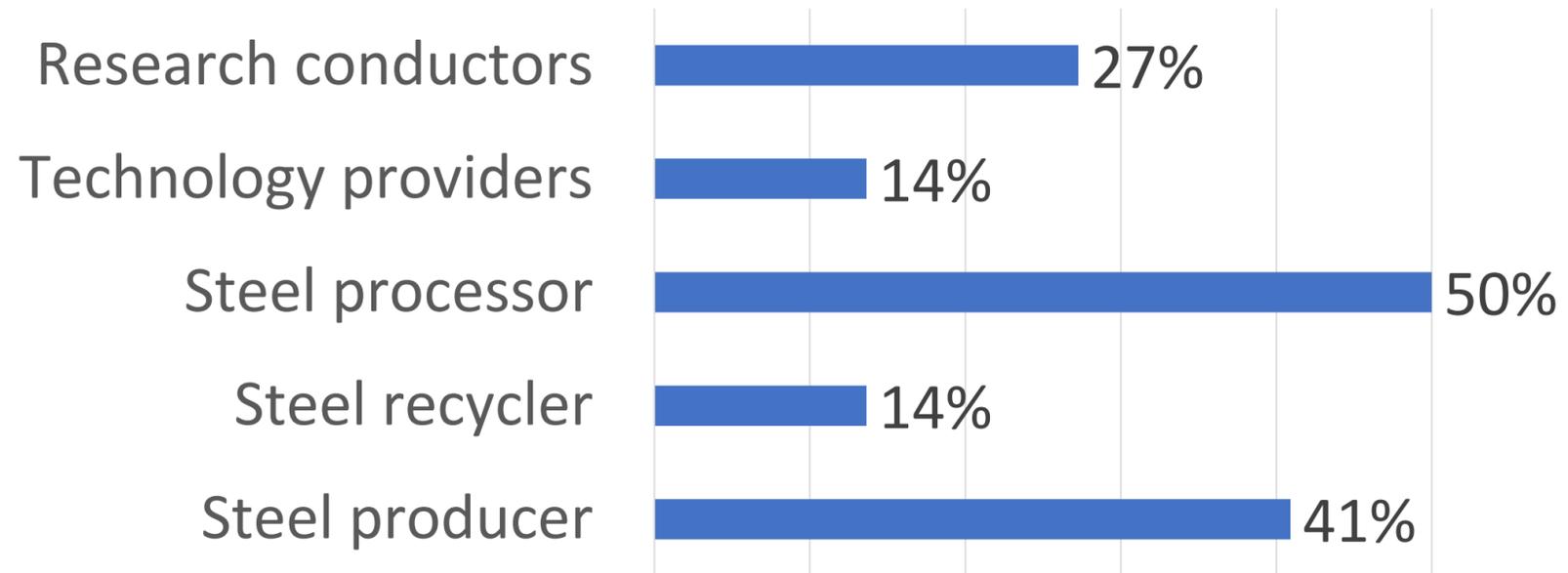
Energy Intensive Industries

The Energy-Intensive Industries ecosystem includes raw materials, chemicals, iron and steel, forest-based products, plastics, refining, cement, rubber, metals and fertilisers.

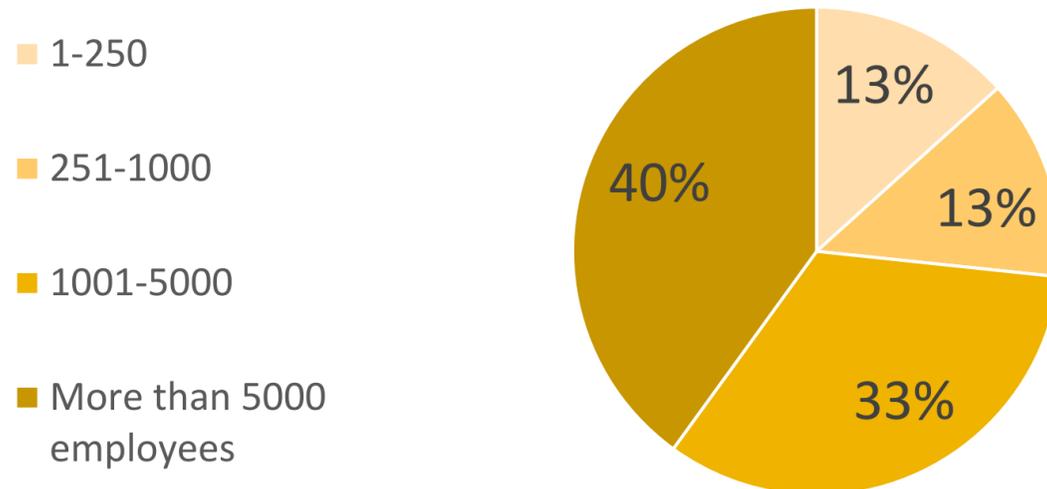


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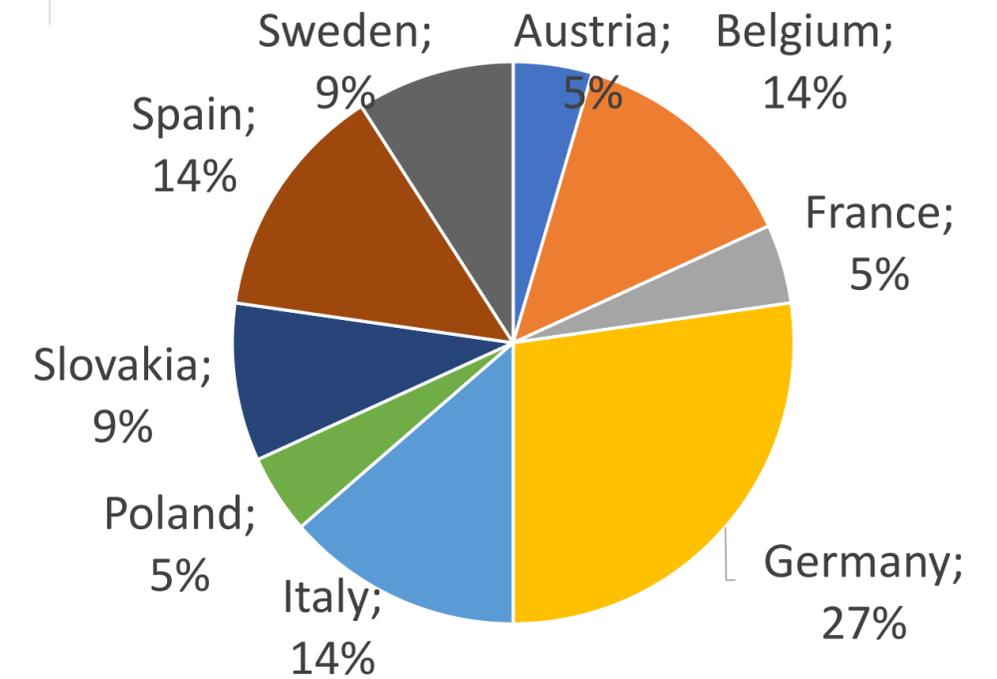
ESSA Technology and Skills Radar 2025 (22 Participants)



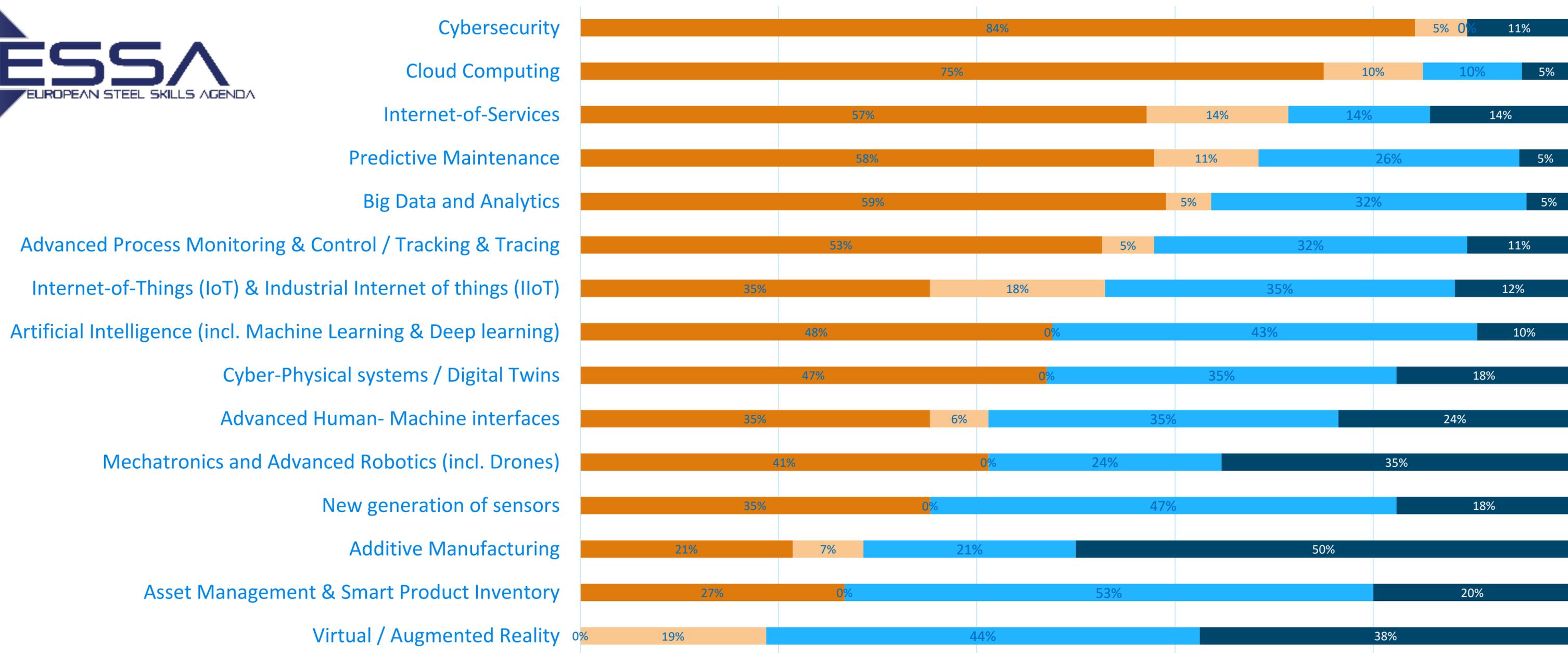
Employees



Countries

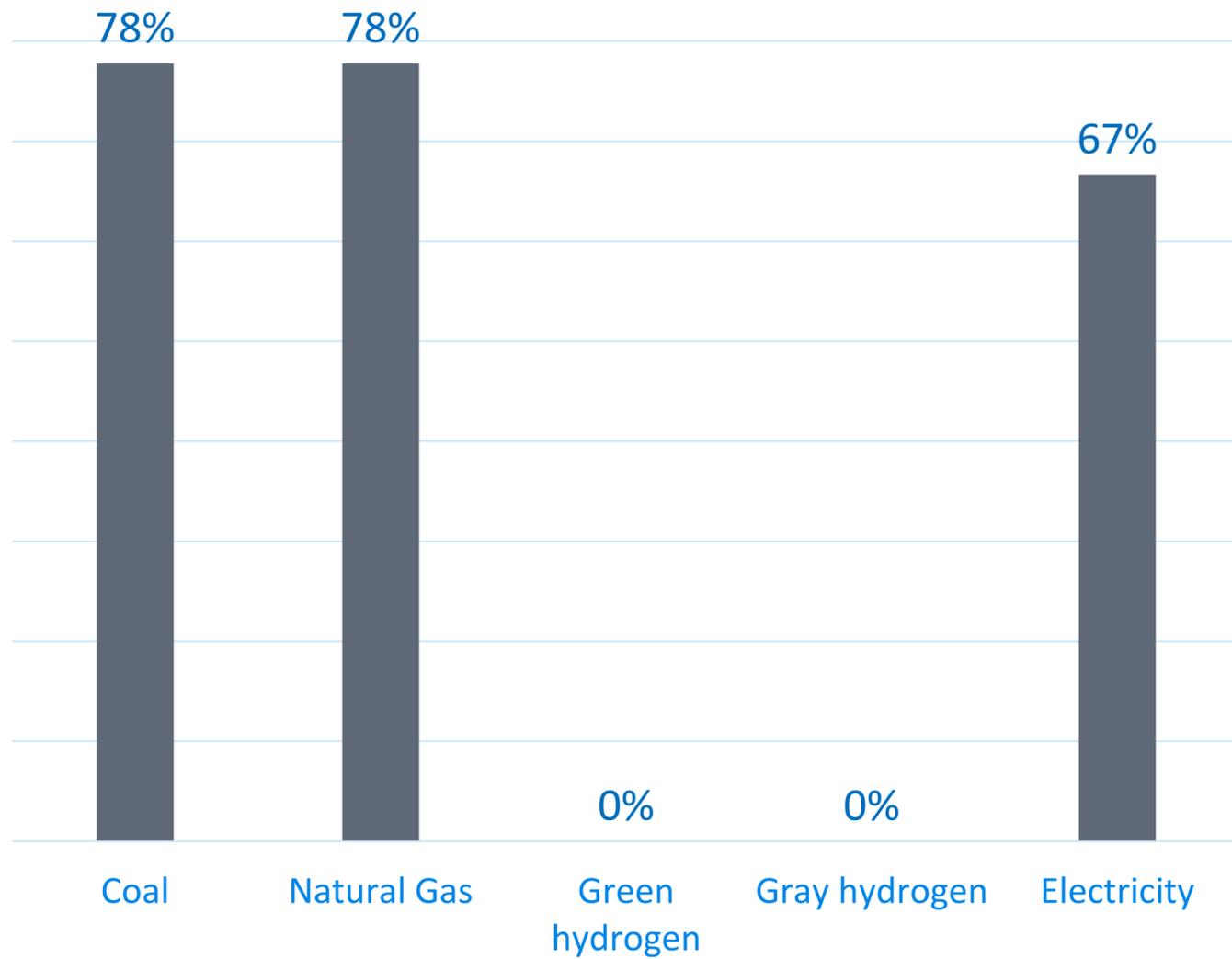


ESSA Radar: Technology Usage (supplied, high importance)

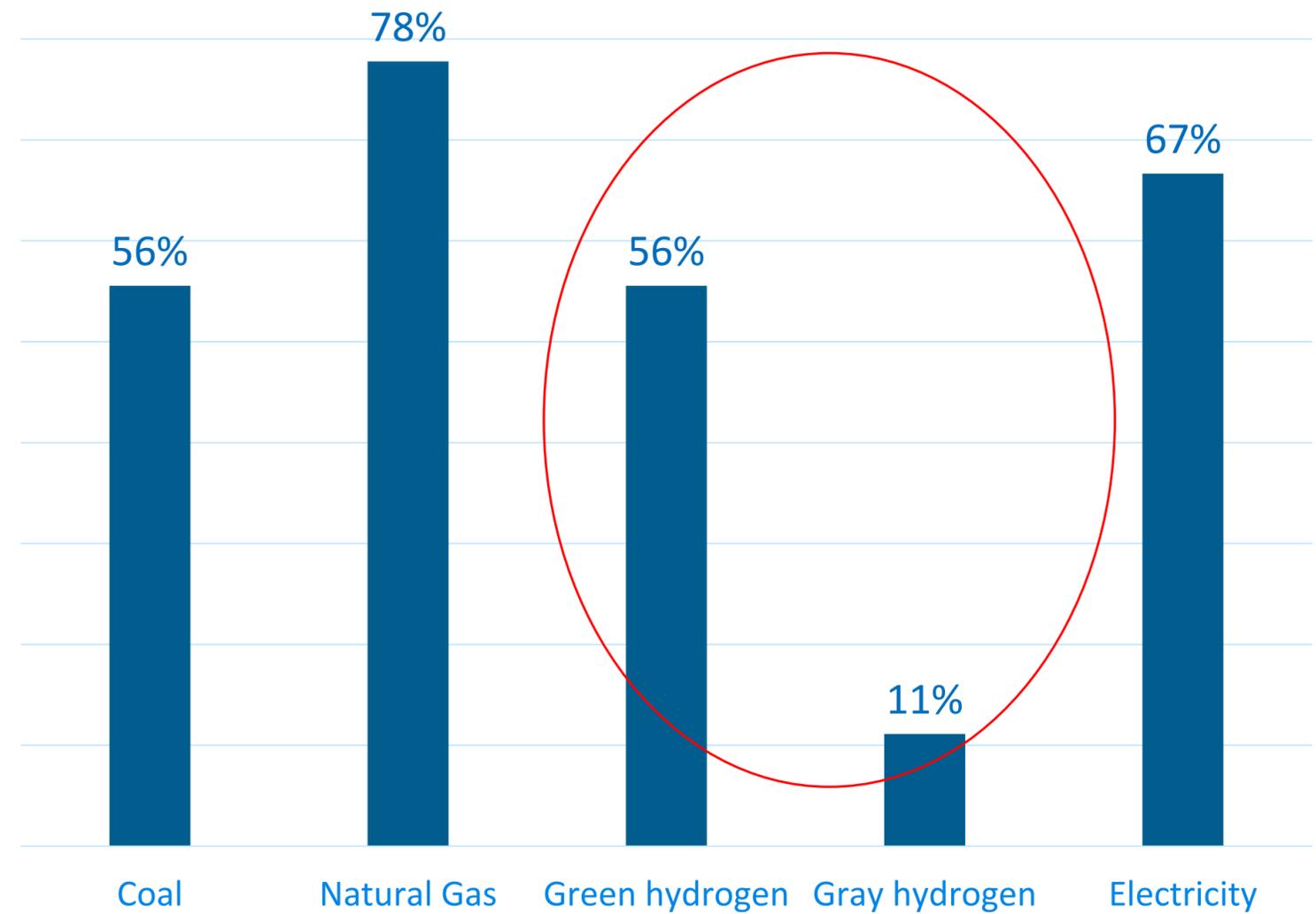


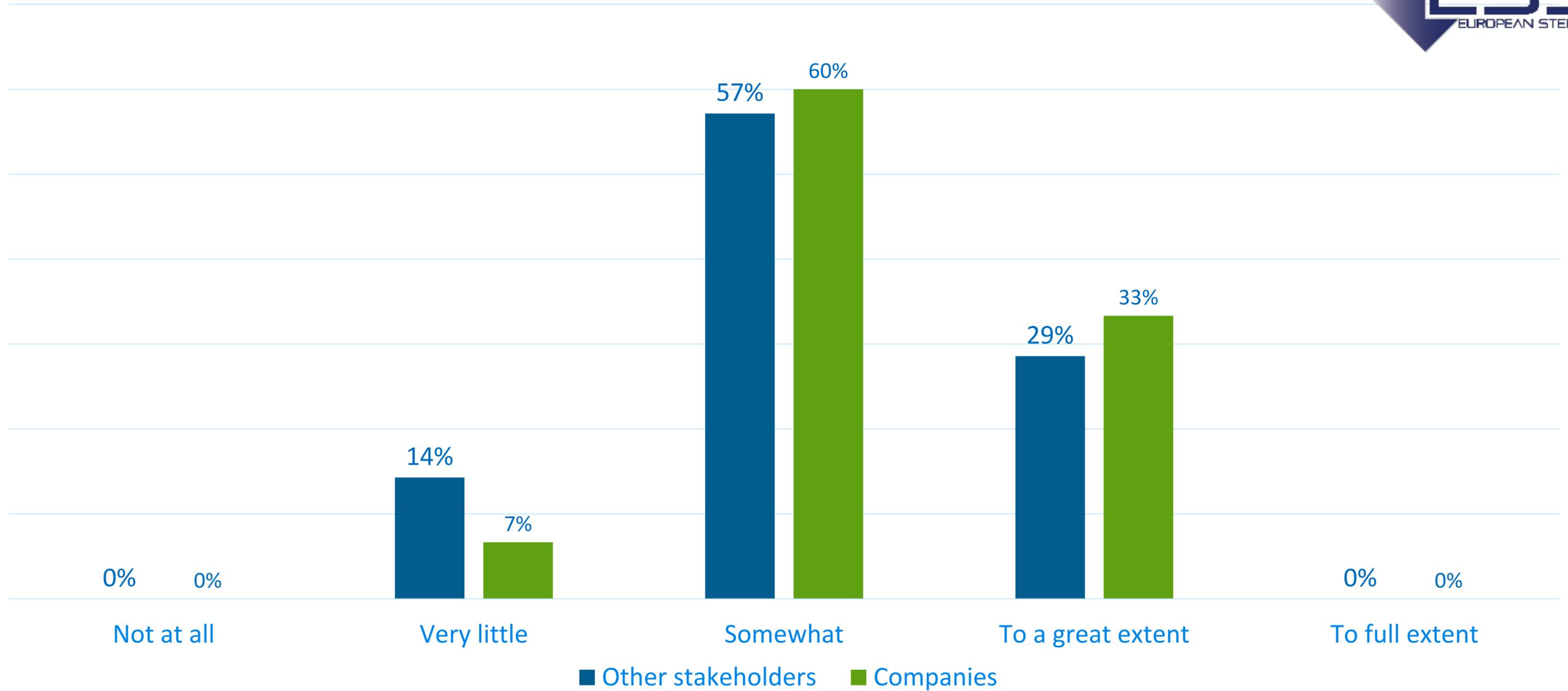
■ In use / supplied / high importance → ■ In use / supplied / high importance ↓ ■ Not in use / not supplied / low importance ↑ ■ Not in use / not supplied / low importance →

Today

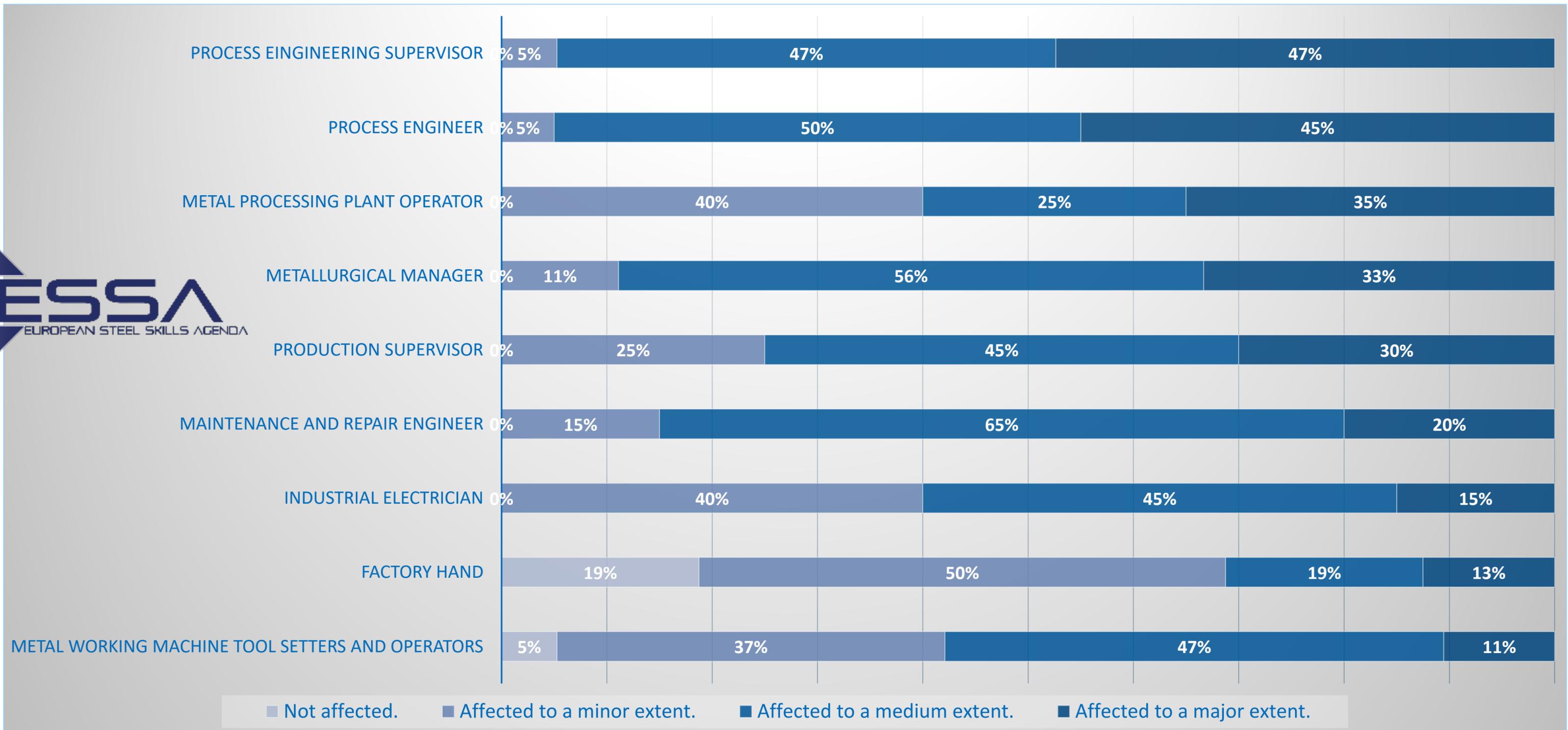


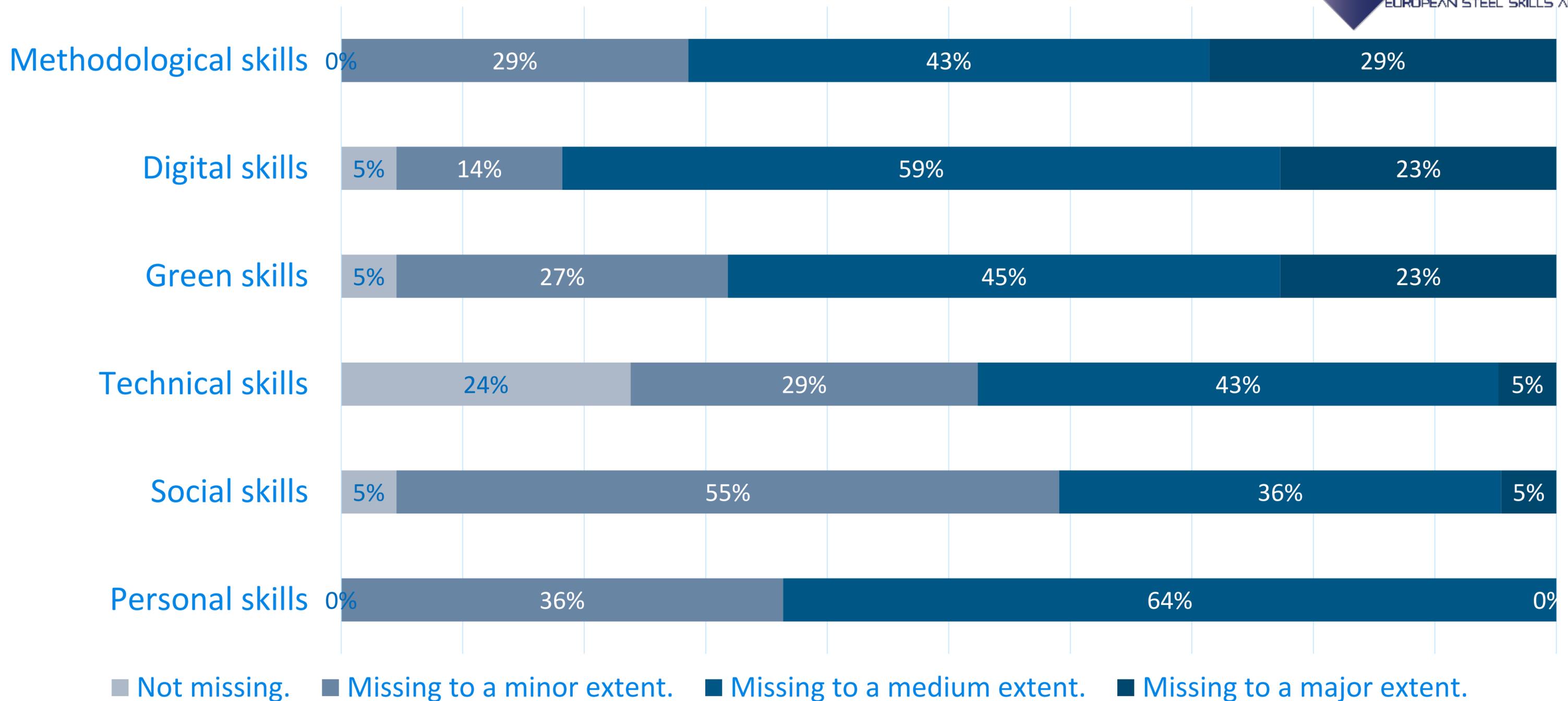
In 5 years





ESSA Radar 2025: Affected Job Profiles by Task Changes







SKILLS4EII

Skills Alliance for the Green, Digital and Social Transformation of the Energy Intensive Industries (Skills4EII)

Please participate in our Stakeholder Survey
<https://forms.cloud.microsoft/e/x08YvxTHwg>



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Skills4EII Work Program



SKILLS4EII

Skills Alliance for the Green,
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INDUSTRY 5.0



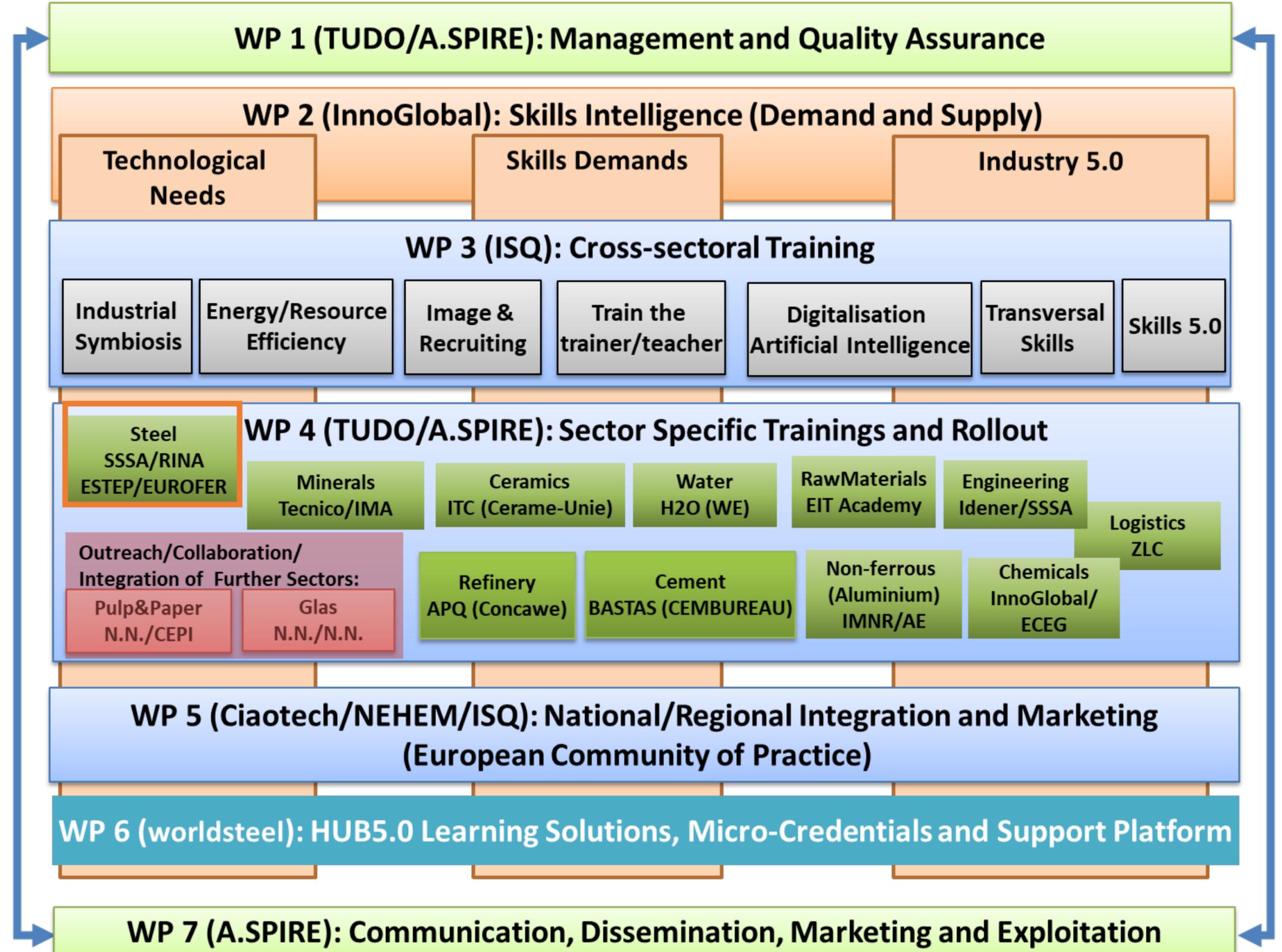
Human-centric



Sustainable



Resilient



Skills4EII Skills4Sight - Game Changer Job Profiles



Game-Changer Role Profile: Circular Resilience Strategist

Role Title: Circular Resilience Strategist

Core Mission: To design, architect, and manage the organization's resource and supply chain ecosystems to be simultaneously circular (zero-waste) and highly resilient to disruption. This strategic role moves beyond simple operational efficiency to build systems that are regenerative, adaptive, and shock-proof, securing the company's long-term viability in a volatile world.

Game-Changer Role Profile: Digital Twin Deployment Lead

Role Title: Digital Twin Deployment Lead

Core Mission: To lead the strategic implementation, integration, and operational use of digital twins across the organization's most critical assets and processes. This role acts as the bridge between the physical and digital worlds, overseeing the creation of high-fidelity virtual models that can be used to simulate, predict, and optimize performance, resilience, and resource efficiency.

Game-Changer Role Profile: Sustainable Product Innovation Lead

Role Title: Sustainable Product Innovation Lead

Core Mission: To lead the development and market launch of a new generation of customer-aligned, sustainable, and eco-efficient products. This role acts as the central hub, integrating customer insights, new materials science, circular economy principles, and emerging regulations to create products that are both environmentally superior and commercially successful.

Game-Changer Role Profile: Human-Machine Teaming & Resilience Lead

Role Title: Human-Machine Teaming & Resilience Lead

Core Mission: To architect and oversee the safe, intuitive, and effective collaboration between human operators and autonomous systems (AI, robotics, cobots), with a special focus on maintaining operational resilience during unforeseen or crisis situations. This role ensures that technology empowers and augments human judgment rather than simply replacing it, creating a truly collaborative and shock-proof production environment.

Skills4EII Skills4Sight - Game Changer Job Profiles



Game-Changer Role Profile: Green Skills & Capability Architect

Role Title: Green Skills & Capability Architect

Core Mission: To act as the strategic architect of the organization's human capital transformation. This role proactively maps future workforce capability needs driven by sustainability and Industry 5.0, and designs the comprehensive strategies to reskill, upskill, and acquire the talent necessary to thrive.

Game-Changer Role Profile: Just Transition Orchestrator

Role Title: Just Transition Orchestrator

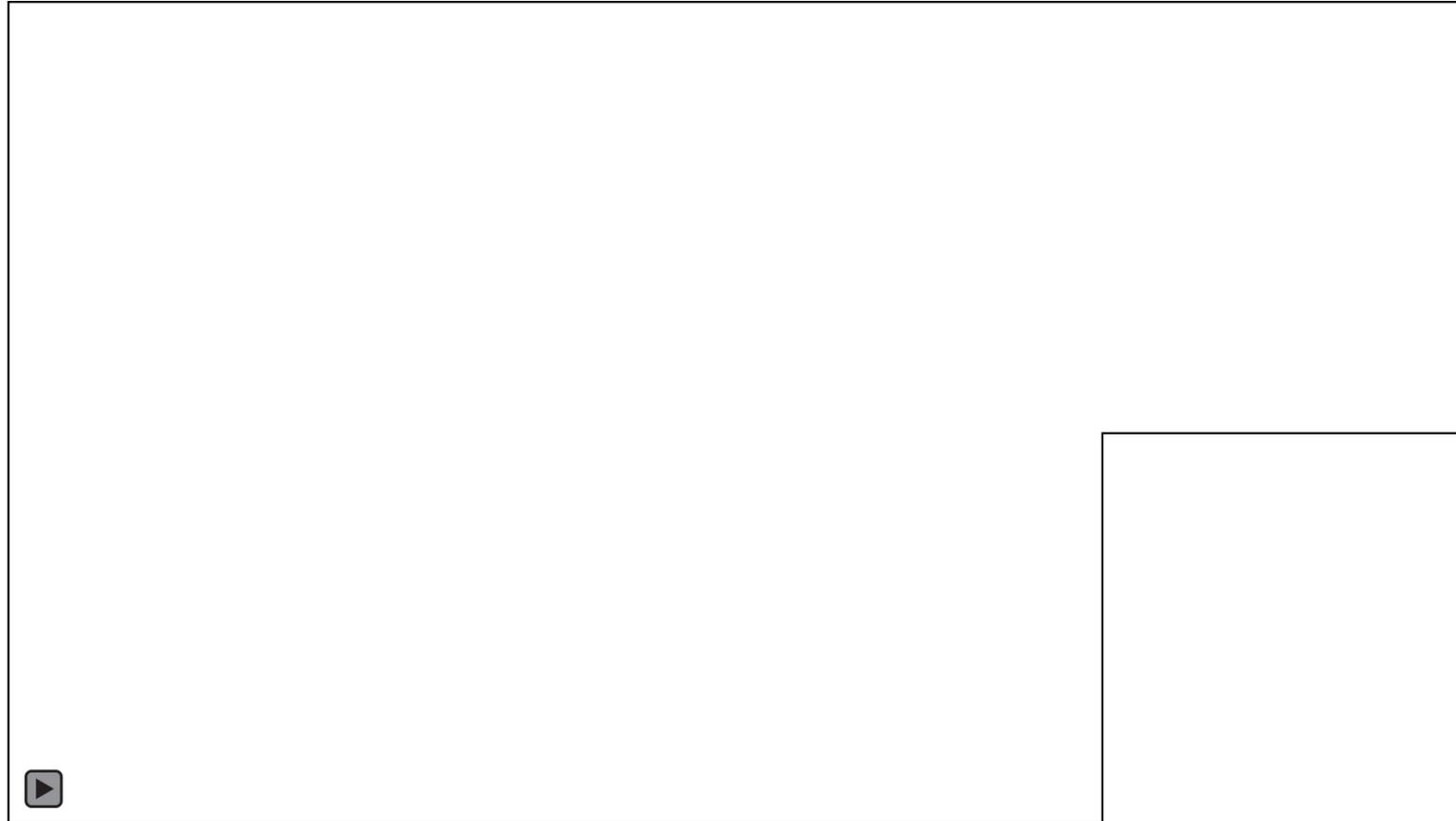
Core Mission: To proactively design, lead, and manage the social and community impacts of the organisation's decarbonisation and automation journey. The Orchestrator ensures the transition is equitable, generates new sustainable opportunities for the existing workforce and local communities, and solidifies the company's long-term social license to operate.

Game-Changer Role Profile (Steel): Green Steel Transition Architect

Role Title: Green Steel Transition Architect

Core Mission: To design, orchestrate, and de-risk the end-to-end decarbonization of steelmaking operations. The Architect leads the strategic integration of transformative technologies - primarily green hydrogen, large-scale electrification, and circular scrap systems - while ensuring the long-term competitiveness and resilience of the business.

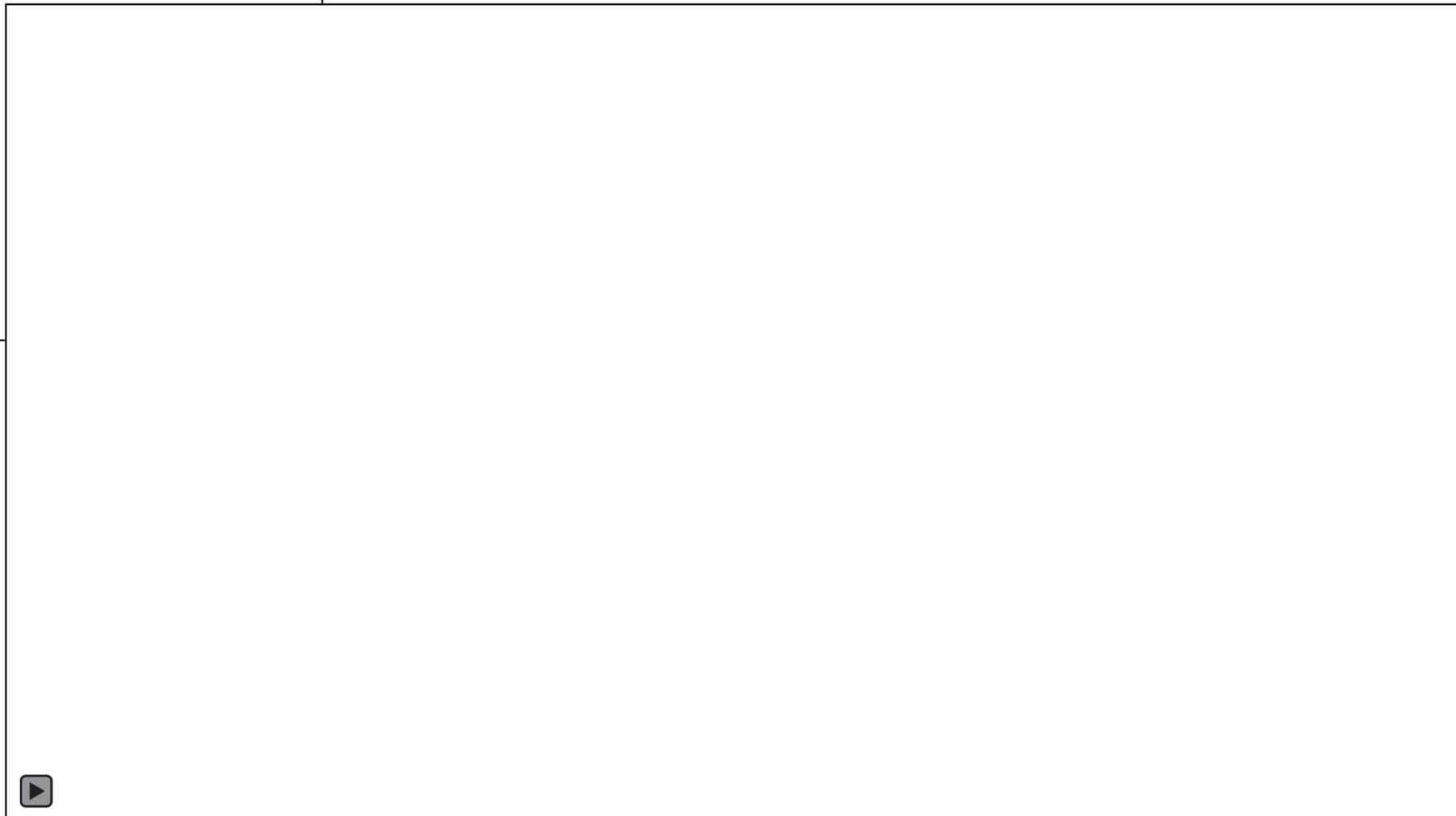
Online Training Platform: SKILLS4Planet and steelHub



<https://hub.steeluniversity.org>



<https://hub.skills4planet.eu/>



- OUTCOMES
- Deliverables
- Publications
- Other Results
- IMAGE & RECRUITMENT**
- NEWSLETTER
- CONTACT

Steel Sector

Steel Institute VDEh: "Studier Metallurgie" (Study Metallurgy)

thyssenkrupp Steel Europe: "Green steel: For the climate", #nextgenerationsteel

thyssenkrupp Steel Europe: #GenerationTK

Steel Sector Careers (Video)

Steel Sector Careers (Overview)

worldsteel's Sustainability Charter

UNESID: Promotion of Steel Women





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**PACT FOR
SKILLS** *Leader*



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Thanks for your attention!

ESSA: <https://www.estep.eu/essa>

SPIRE-SAIS: www.spire2050.eu/sais

Skills4EII: <https://www.aspire2050.eu/skills4eii>

LSP EII: https://pact-for-skills.ec.europa.eu/about/industrial-ecosystems-and-partnerships/energy-intensive-industries-large-scale-partnerships_en

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