Funded by the Erasmus+ Programme of the European Union

*ESSA Newsletter n.2/2020*

# European Steel Skills Agenda (ESSA)

## What's New?

### Industrial Skills Requirements in the European Steel Industry

The main industrial skills (current and future) needs of the European Steel Industry have been identified through the analysis of the recent and future trends in steel sector and other related sectors. The analysis has been carried out by desk research and benefiting from ESSA Deliverable 2.1. The resulting report has shared with the partners as ESSA Deliverable D3.1.

**Company skills requirements and foresight: state-of-art**

- The main observed consequence of the technological developments and industrial changes (mentioned both in D 2.1 and D 3.1) is the rapidly growing demand for technological skills. Therefore, this trend will create a high demand for not only basic digital skills, but also advanced technological skills such as programming. Furthermore, awareness of data security and data protection will gain more importance to provide trust in digital technologies.

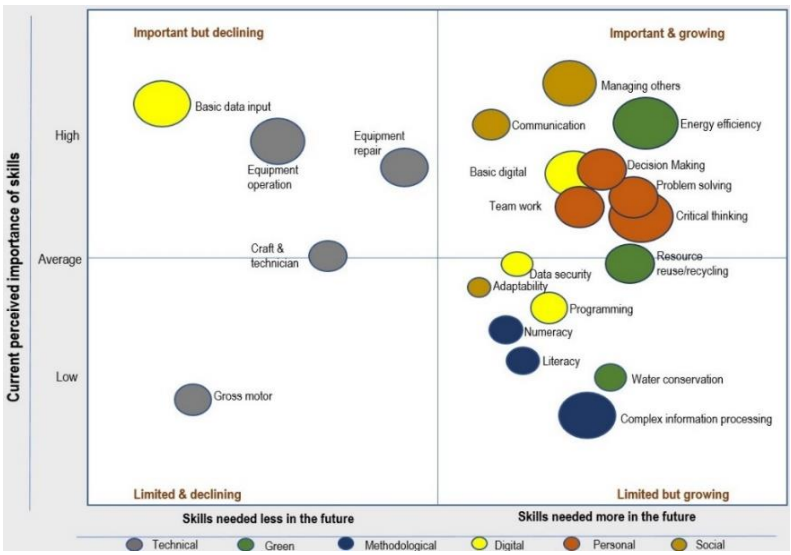


*Figure 1: Current and future relevance of skills (Source; Bayón, F. 2020, Strategic Investments and Skills, Final Conference of "Steel Sector Careers", 15 May)*

- In addition, social and emotional skills - skills that the machine are a long way from mastering - will become increasingly important as digitalisation level of the sector accelerates.
- Due to the increasing automation of the work processes, the workforce will be expected to carry out less monotonous and more complex tasks.
- The completion of these tasks require problem-solving, solid literacy, numeracy, and ICT skills along with soft skills of autonomy, collaboration and coordination.

- Since most of the steel shop workers will be expected to execute varied tasks in several departments, transferability and flexibility will be key skills demanded by the sector. Higher cognitive skills, such as creativity, decision-making, critical thinking, lifelong learning, problem-solving, teamwork and so on will gradually acquire importance.

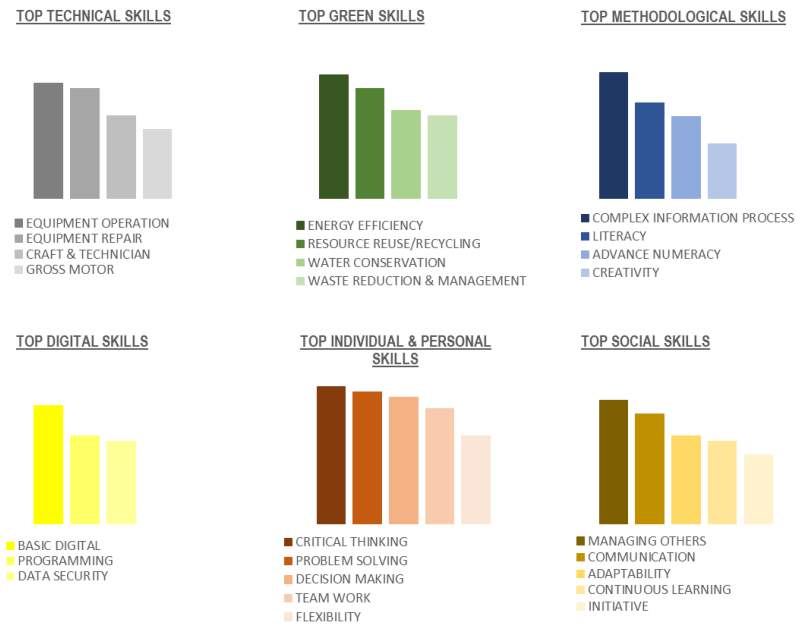


*Figure 2: A comparison between the foreseen demands for technical, transversal and green skills (Source: Bayón, F. 2020, Strategic Investments and Skills, Final Conference of "Steel Sector Careers", 15 May)*

- In a team-oriented and collaborative working environment, skills as problem-solving, critical thinking and decision-making will become crucial for steelworkers, reflecting the new roles of the new generation workforce. Since a functional teamwork between co-workers is crucial, the employees will be expected to have excellent communication skills.
- In general, the relevance of these skills including general equipment operation, inspecting and monitoring skills will decrease, due to the increasing automation of the industrial processes. Nevertheless, they will still remain the largest category of the workforce skills.
- Furthermore, the European steel industry is making big efforts to meet the EU's 2050 environmental targets. As a consequence of the growing focus on environmental awareness, energy efficiency and sustainable steelmaking, the green skills are already crucial for steel sector.
- Overall, Therefore, Industry 4.0 and sustainability appear to be the main drivers leading the evolution of skills needed in the European steel industry. The general trend points to a greater demand for technological knowledge and less technical knowledge.

## European Steel Profile Family Tree

- The 'Family Tree' concept is principally analogous to a human family where characteristics from one generation pass to the next but are also incorporated with new characteristics.
- It is a valid view which can be used to facilitate navigation and demonstrate relationships between job profiles. It also give us a clear idea about the organizational structure that the family belongs to.
- First version of European Steel Profile Family Tree was generated and shared with other ESSA partners. It is completed and modified with the contribution of other industrial WP3 partners.
- The homogenization of the profile family tree was carried out through eliminating some sub family profiles and merging the equivalent profiles for the standardization process.
- In the end 26 main families (Level 1) and more than 200 professional role profiles (Level 2) belonging to each family were created.
- The final version of the family tree aimed to be used as reference for the whole steel sector

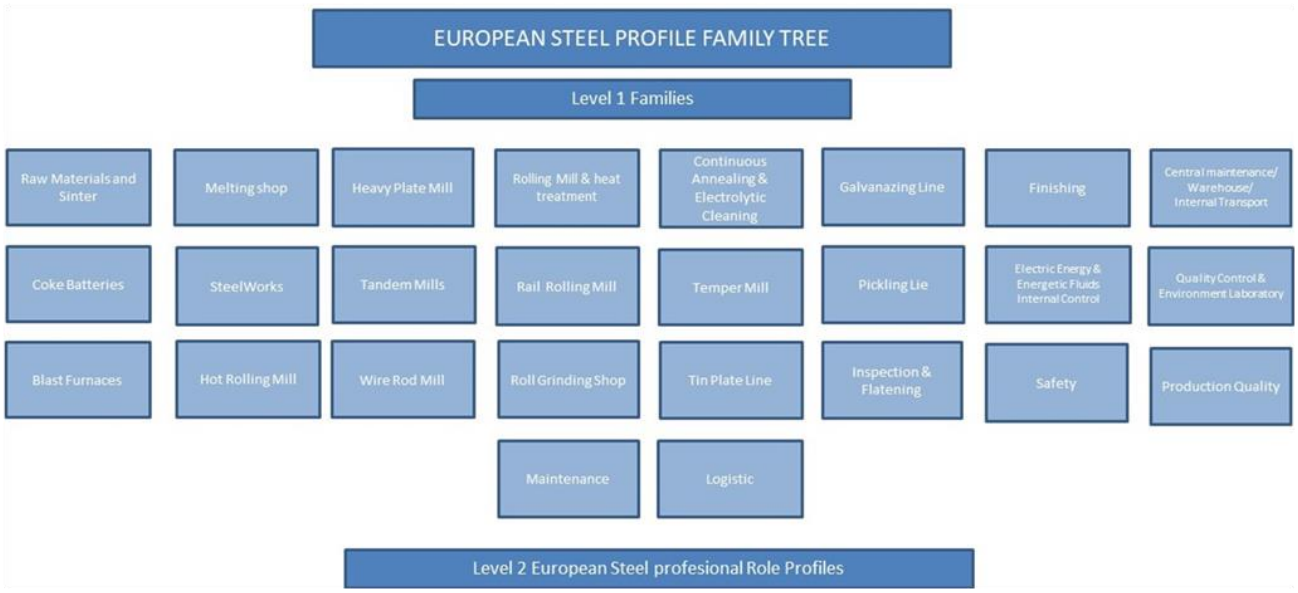


*Figure 3: European Steel Profile Family Tree (Level1-Families)*

## Steel Professional Role Profile Description

| PROFILE TITLE | Process engineering supervisor 3119 | | |
|---|---|---|---|
| Summary Statement | | | |
| Mission | Process engineering technicians/ supervisors work closely with engineers to evaluate the existing processes and configure manufacturing systems to reduce cost, improve sustainability and develop best practices within the production process. | | |
| TASKS | Current | Future | |
| Main task/s | adjust engineering designs<br>advise on manufacturing problems<br>analyse test data<br>collaborate with engineers<br>conduct routine machinery checks<br>create solutions to problems<br>*analyse production processes for improvement*<br>*assess operating cost*<br>*create technical plans*<br>*manage supplies*<br>*operate soldering equipment*<br>*operate welding equipment* | (here it should be listed, which tasks are changing/modified in which way, and if new tasks appear) | |
| Equivalent profiles in steel sector | Process engineering technician, Melting shop process supervisor, Blast furnaces process professional, Improving hot coil line shift manager | | |
| SKILLS | | Current Level | Future Level |
| Transversal skills | | | |
| Digital skills | Basic digital skills | | |
| | Advanced data analysis and mathematical skills | | |
| | Cybersecurity | | |
| | Use of complex digital communication tools | | |
| | Advanced IT skills & Programming | | |
| Green skills | Environmental awareness | | |
| | Energy efficiency | | |
| | Water conservation | | |
| | Waste reduction and waste management | | |
| | Resource reuse/recycling | | |
| Social skills | Advanced communication and negotiation skills | | |
| | Interpersonal skills and empathy | | |
| | Leadership and managing others | | |
| | Entrepreneurship and initiative taking | | |
| | Adaptability and continuous learning | | |
| | Teaching and training others | | |
| Individual, personal skills | Critical thinking & decision making | | |
| | Personal experience | | |
| | Adapt to change | | |
| | Work autonomously | | |
| | Active listening | | |
| Methodological skills | Basic numeracy and communication | | |
| | Basic data input and processing | | |
| | Advanced literacy | | |
| | Quantitative and statistical skills | | |
| | Process analysis | | |

- The European STEEL SECTOR Professional Role Profiles are constructed consistently to provide a common template, since a standard template makes it easier for users to compare different profiles and provide a fast start for developing new profiles or contributing to designing new job descriptions.
- ESCO database was used as the main reference since, in ESCO each occupation comes with an occupational profile, in which the knowledge, skills and competences that are relevant for the respective occupation are listed
- After a detailed analysis, technical, transversal, digital, green etc. skills to be incorporated in the template were selected.
- 'Equivalent steel sector profiles' section was added to the template to recognize all the equivalent steel job profiles to the aforementioned ESCO occupation in the profile description.
- For that, a map is generated as a starting point to the relevance between ESCO Occupation titles and Steel Sector Professional Role Profiles was generated. It does and will highly simplify and fasten the process of creating new steel job profile descriptions.

- A questionnaire for the industrial partners was designed to identify the most relevant current and future skills and their levels for the European steel sector.

## Sectorial Job Profile Database

- The potentiality for the equivalence between ESCO and the titles in the STEEL SECTOR opened the door to the automatization of the description of the European Steel Sector Professional Role Profiles taking the ESCO description of occupations as the basis.
- The aim is to generate a common database of professional profiles related with steel sector, which is interactive for continuous updating through integration of data and automation.
- For that, an excel-based software is developed to automate the description of the different steel-related job profiles.
- In this way, an automated database of job profiles related with steel industry was delivered using "Steel Professional Role Profiles description template" format.
- The steel job profile descriptions are in progress and the information needed to fill each profile description will also have to be incorporated into the steel job profile database. Therefore, the automatization process of the database is still in progress.

## Next Events

Funded by the Erasmus+ Programme of the European Union

Working sessions between ESCO and WP3 partners in October.

## Useful links

- ESCO newsletter, 15 July 2020: https://ec.europa.eu/newsroom/empl/newsletter-specific-archive-issue.cfm?newsletter_service_id=1855&lang=default
- A. Skill Shift, Automation and the Future of the Workforce; Mckinsey & Company: Bughin, J.; Hazan, E.; Lund, S.; Dahlström, P.; Wiesinger, A.; Subramaniam, USA, 2018.
- Blueprint for Sectoral Cooperation on Skills: Towards an EU Strategy Addressing the Skills Needs of the Steel Sector: European Vision on Steel-Related Skills of Today and Tomorrow; Executive Agency for Small and Medium-sized Enterprises (European Commission), Publication Office of the European Union: Luxembourg, 2019.

**Follow us on**

**ESSA website: www.estep.eu/essa**

**For further information on this topic, please contact:**

**Tugce Akyazi, University of Deusto**

**Tugceakyazi@deusto.es**

Funded by the Erasmus+ Programme of the European Union