



Funded by the  
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Blueprint “New Skills Agenda Steel”:  
Industry-driven sustainable European Steel Skills Agenda and Strategy (ESSA)

## Mid-term Conference of the European Steel Skills Alliance (ESSA)

„Industry Skills Requirements  
for a Future-proven Steel Industry “

27<sup>th</sup> of May 2021

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## ESSA WP3 Task 3.1

Definition of skills needs (recent and future) and redefinition of professional profile.

- Identification of workforce gaps that will be set as a basis for next tasks, particularly WP4

### Focus of the Task :

- Analysis of existing professional profiles within steel companies and the skills that are related to them.
- Definition of the skills that will be required by steel companies to be more competitive in the future.

### The phases of the Task:

Reflection of technological and economic scenarios on the background of concrete company demands

Review of the current professional profiles and unification (ESCO)

Identification of current and future level of skills for each profile

An identification of workforce gaps

A common database of professional profiles

# Methodology

Definition of skills needs (recent and future) and redefinition of professional profiles

A. Create, analyze and standardize the job profiles of the steel sector



Aim: influence on VET, other trainings and university education system

- ✓ **European Steel Profile Family tree**
- ✓ **Steel Professional Role Profile Descriptions**
  - ESCO approach: data from ESCO database
  - Generation of
    - ESSA skill categories (3 levels)
    - Current/future proficiency levels
  - ESCO Occupation titles ↔ STEEL SECTOR Job Profiles

B. Identify the most relevant/needed future skills and skill gaps



Aim: development of ESSA Online Training Ecosystem (ESSA OTS) (by Steel University) and direct connection with EQF

- ✓ **Skills Assessment and Foresight Questionnaire**
  - Based on the "Professional role profile description"
  - Selection of the most representative 9 STEEL SECTOR job profiles
- ✓ **Develop "Pipeline for Learning Outcomes"**
  - Connect functions-skills-knowledge (ESCO&ESSA)
  - Develop learning outcome for each skill & knowledge
  - Validate the results by companies and Connect with training offers

C. Generate an automated/common job profile database



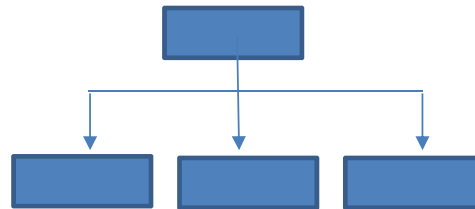
Aim: A common and interactive professional database for industry & training centers

- ✓ **Automation and combination of the steel professional job profile descriptions**
  - based on ESCO and data integration from other sources (other European frameworks, scientific reports/papers and feedback of industrial WP3 partners)



# A. Create, Analyze and Standardize the job profiles of the steel sector

## ✓ European Steel Profile Family Tree



“European Steel Profile Family Tree”:

- ✓ 26 main families (Level 1)
- ✓ more than 200 professional role profiles (Level 2) belonging to each family

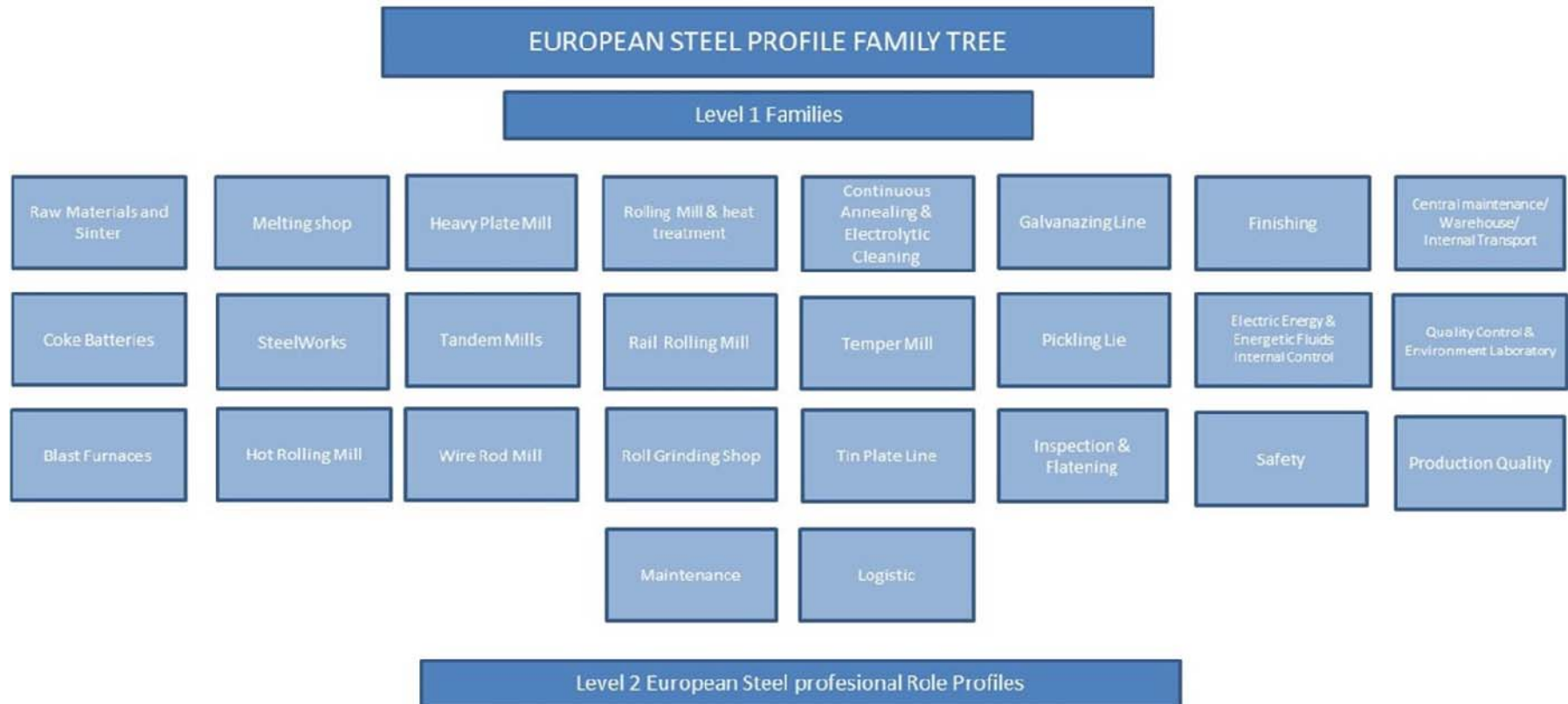
**Job profile family tree\*:**



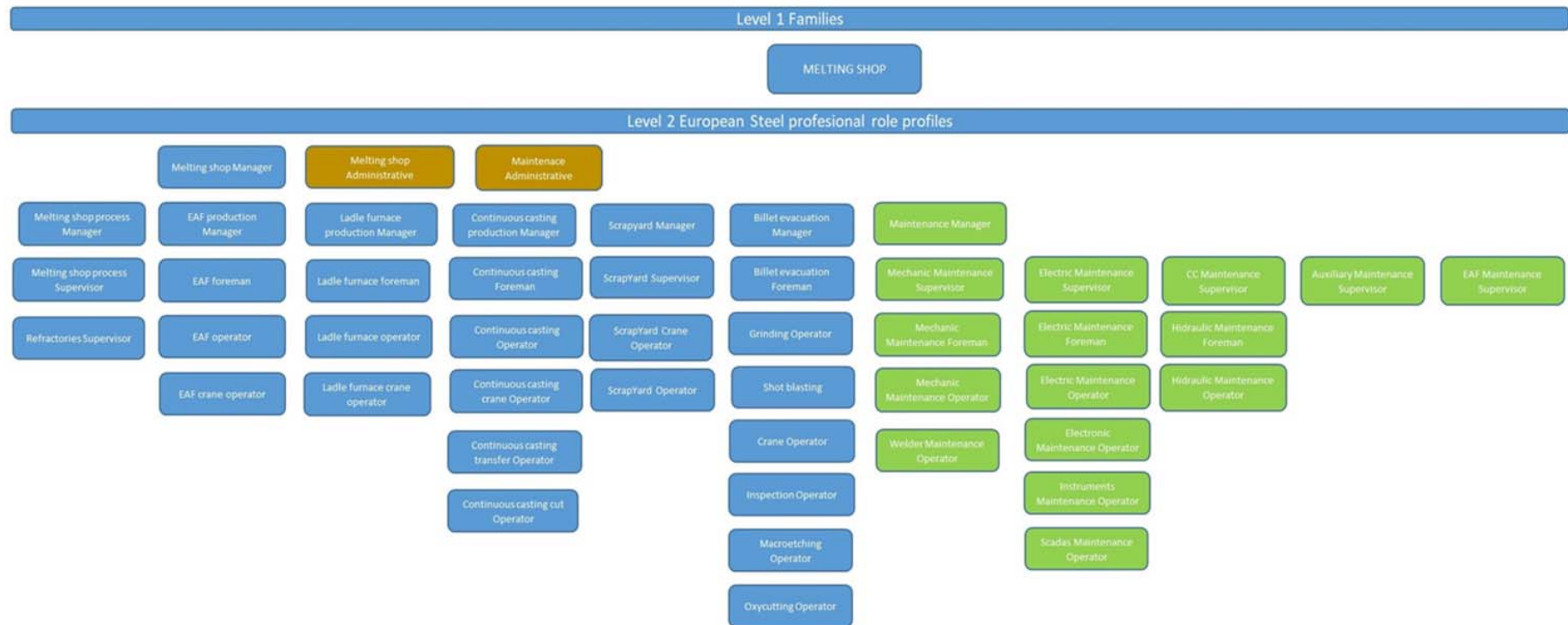
- ✓ analogous to a human family
- ✓ from one generation pass to the next one incorporating new characteristics.

- to facilitate navigation and to demonstrate relationships between job profiles.
- to understand the organizational structure that the family belongs to.
- to use the profiles for reference or as a base to develop further profile levels.

# A. Create, Analyze and Standardize the job profiles of the steel sector






# A. Create, Analyze and Standardize the job profiles of the steel sector



## A) Create, Analyze and Standardize the job profiles of the steel sector

### ✓ Steel Professional Role Profile Descriptions

The European STEEL SECTOR Professional Role Profiles aim:

- ✓  to provide a common/standard template
- ✓  to compare different profiles more easily
- ✓  to provide a fast start for developing new profiles or contributing to designing new job descriptions.

Main source for the STEEL SECTOR Professional Profiles



ESCO Database

# A. Create, Analyze and Standardize the job profiles of the steel sector

- ✓ Steel Professional Role Profile Description

## ESSA Skills Categories

Level 1	Technical skills	Transversal skills				
Level 2	Physical and Manual	Digital	Green	Social	Individual/ personal	Methodological
Level 3	General equipment operation General equipment repair and mechanical skills Craft and technician skills Gross motor skills and strength Inspecting and monitoring skills	Basic digital skills Advanced data analysis and mathematical skills Cybersecurity Use of complex digital communication tools Advanced IT skills & Programming	Environmental awareness Energy efficiency Water reduction Waste reduction and management Resource reuse/ recycling	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	Critical thinking & decision making Personal experience Adapt to change Work autonomously Active listening	Basic numeracy and communication Basic data input and processing Advance literacy Quantitative and statistical skills Complex information processing and interpretation Process analysis Creativity Complex problem solving



# A. Create, Analyze and Standardize the job profiles of the steel sector

## ✓ Steel Professional Role Profile Description

steelHub administration

Home > Competence Map > Occupations

WELCOME, MURACT@STEEUNIVERSITY.ORG

7 occupations

SECTOR	FAMILY	NAME	ESCO OCCUPATION	ISCO GROUP
<input type="checkbox"/>	Steel	Blast Furnaces	Blast Furnace Manager	Manufacturing Manager 1321.1
<input type="checkbox"/>	Steel	Melting Shop	Continuous casting operator	Casting machine operator 8121
<input type="checkbox"/>	Steel	Melting Shop	EAF Crane Operator	Crane, hoist and related plant operators 8343.4
<input type="checkbox"/>	Steel	Melting Shop	EAF Production Manager	Manufacturing Manager 1321.1
<input type="checkbox"/>	Steel	Melting Shop	Manufacturing manager	1321.1
<input type="checkbox"/>	Steel	Melting Shop	Melting Shop Process Manager	Manufacturing Manager 1321.1

steelHub administration

Home > Competence Map > Occupations > EAF Production Manager

WELCOME, MURACT@STEEUNIVERSITY.ORG. VIEW SITE / CHANGE PASSWORD / LOG OUT

Change occupation en

EAF Production Manager

Name: EAF Production Manager

Description: "Manufacturing managers plan, oversee and direct the manufacturing process in an organisation. They ensure products and services are efficiently produced within the timeframe and budget given." (ref. Manufacturing Manager, ESCO Code: 1321.1)  
Examples of the occupations classified here:  
Heads of all component manufacturing processes in the manufacture of iron and steel. The plant may be a stand-alone facility or a relatively independent unit within a larger site.  
Organisational Context

Sector: Steel

Family: Melting Shop

ESCO Occupation: Manufacturing Manager ESCO Occupation URI: http://data.europa.eu/esco/occupation/1

ISCO Group: 1321.1 ISCO Group URI: For example 8122

Total functions weight: 100

FUNCTIONS

DESCRIPTION	WEIGHT
Assures compliance of all plant operations with company policy and federal, state, and local regulations.	7

# A. Create, Analyze and Standardize the job profiles of the steel sector

## ✓ Steel Professional Role Profile Description

The screenshot displays the 'steelHub administration' interface. The browser address bar shows the URL: [hub.steeluniversity.org/admin/competencemap/skill/4/change/](http://hub.steeluniversity.org/admin/competencemap/skill/4/change/). The page title is 'steelHub administration' and the user is logged in as 'MURACT@STEEUNIVERSITY.ORG'. The breadcrumb trail is 'Home > Competence Map > Skills > Plan health and safety procedures'. The left sidebar contains a navigation menu with sections: 'AUTHENTICATION AND AUTHORIZATION' (Groups), 'BOUNCER' (Companies, Licenses), 'CATALOG' (Bundles, Courses, Publishers), and 'COMPETENCE MAP' (Families, Knowledges, Occupations, Sectors, Skill types, Skills). The main content area is titled 'Change skill' with a language dropdown set to 'en'. The skill being edited is 'Plan health and safety procedures'. The form includes a 'Name' field with the value 'Plan health and safety procedures', a 'Description' field with the text 'Set up procedures for maintaining and improving health and safety in the workplace.' and a URL 'http://data.europa.eu/esco/skill/bb663409-5c88-4e3a-bc16-01aa1c8ce171'. The 'Reuse level' is set to 'Cross-sector'. The 'Skill type level1' is 'Transversal skills', 'Skill type level2' is 'Methodological', and 'Skill type level3' is 'Process analysis'. A dropdown menu is open, showing options: Digital, Green, Individual/personal, Methodological (checked), and Social. At the bottom, there are buttons for 'Delete', 'Save and add another', 'Save and continue editing', and 'SAVE'.

## B. Identify the most relevant/needed future skills and skill gaps

### Skills Assessment and Foresight Questionnaire, objective

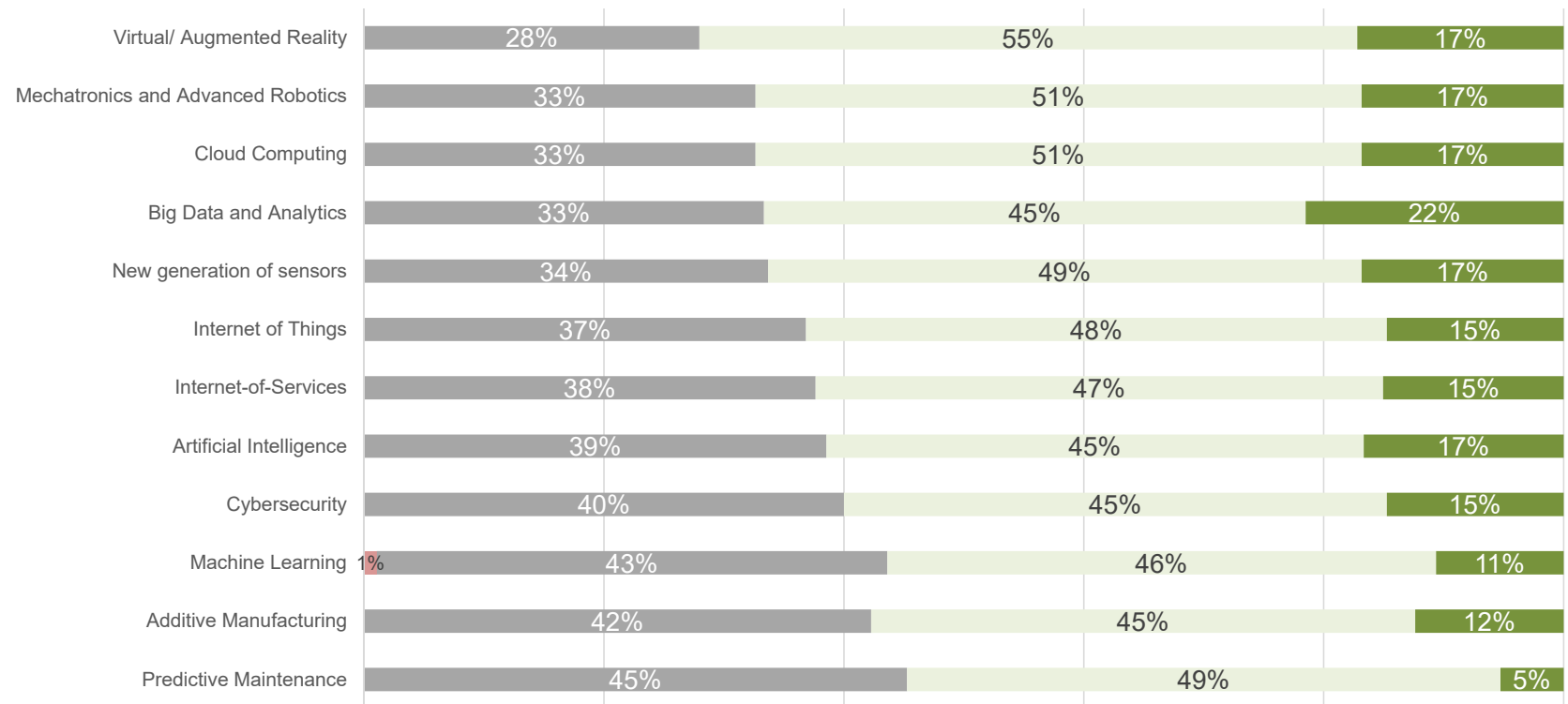
**Aim:** To find out the most relevant skill needs and most outstanding skills gaps for each profile/hierarchical group/ for the steel industry.

### Skills Assessment Survey, Key Facts

- ✓ Based on the “Professional role profile description”
- Online questionnaire on the future developments of skill requirements and the relevance of key technologies within jobs in the steel industry
- ESSA skills categories and 5 current/future proficiency levels
- Period of survey: November 2020 – January 2021
- Participants: **33** and in total **113 job profiles assessments** (~ 3.4 job profile assessments per participant)

## B. Identify the most relevant/needed future skills and skill gaps

### Skills Assessment Survey Results



■ Strong decline in relevance ■ Decline in relevance ■ Constant relevance ■ Increase in relevance ■ Strong increase in relevance

## B. Identify the most relevant/needed future skills and skill gaps

### Skills Assessment Survey Results

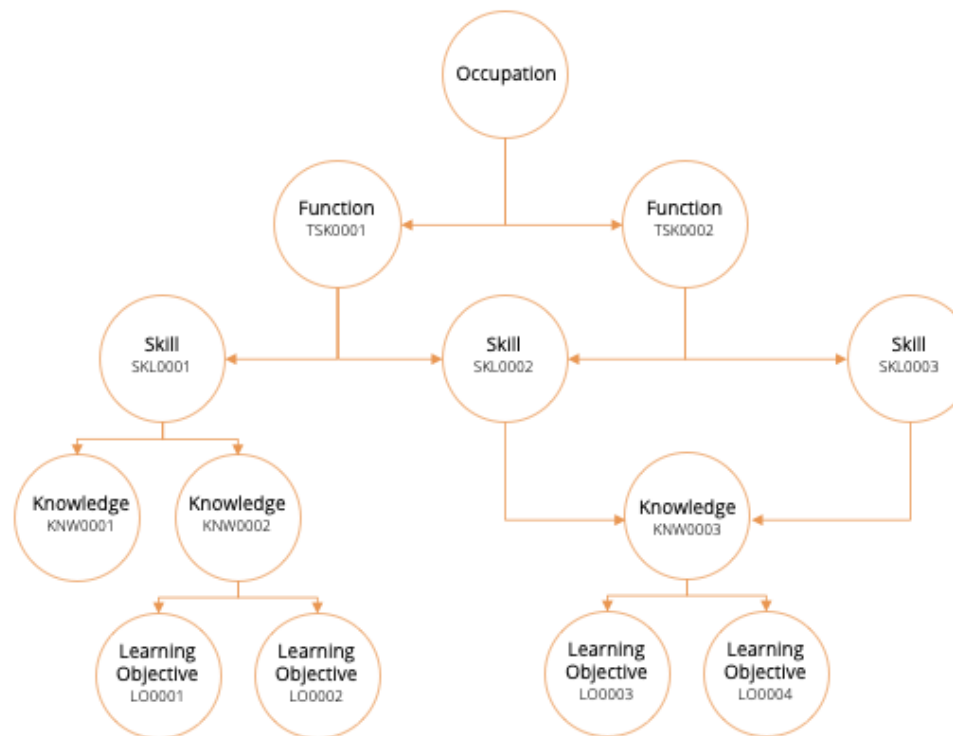
*Top 3 required skills per job profile*

<b>Metallurgical managers</b>	<b>Process engineer</b>	<b>Maintenance and repair engineer</b>	<b>Process engineer supervisor</b>	<b>Production supervisor</b>
<ol style="list-style-type: none"> <li>1. Social skills</li> <li>2. Personal skills</li> <li>3. Methodological skills</li> </ol>	<ol style="list-style-type: none"> <li>1. Methodological skills</li> <li>2. Personal skills</li> <li>3. Green skills</li> </ol>	<ol style="list-style-type: none"> <li>1. Methodological skills</li> <li>2. Personal skills</li> <li>3. Green skills</li> </ol>	<ol style="list-style-type: none"> <li>1. Green skills</li> <li>2. Methodological skills</li> <li>3. Social skills</li> </ol>	<ol style="list-style-type: none"> <li>1. Social skills</li> <li>2. Personal skills</li> <li>3. Methodological skills</li> </ol>
<b>Industrial electrician</b>	<b>Metal processing plant operator</b>	<b>Factory Hand</b>	<b>Metal working machine tool setters and operators</b>	
<ol style="list-style-type: none"> <li>1. Technical skills</li> <li>2. Digital skills</li> <li>3. Personal skills</li> </ol>	<ol style="list-style-type: none"> <li>1. Technical skills</li> <li>2. Personal skills</li> <li>3. Green skills</li> </ol>	<ol style="list-style-type: none"> <li>1. Technical skills</li> <li>2. Personal skills</li> <li>3. Green skills</li> </ol>	<ol style="list-style-type: none"> <li>1. Technical skills</li> <li>2. Personal skills</li> <li>3. Green skills</li> </ol>	



## B. Identify the most relevant/needed future skills and skill gaps

### Development of “pipeline for learning outcomes”



### Connecting function(tasks)-skills-knowledge (ESCO & ESSA skill categories)

- Identify the functions of the occupation scope
- Capture the knowledge, skills and competences that are needed to successfully perform the functions.

## B. Identify the most relevant/needed future skills and skill gaps

### Development of “pipeline for learning outcomes”

#### Develop “learning outcome” for each skill & knowledge

##### Learning outcome

- ✓ is systematically promoted in the EU policy agenda for education, training and employment.
- ✓ binds together important European tools developed during the last decade, notably the **European Qualification Frameworks (EQF)**.
- ✓ Increasingly influences the definition and writing of qualifications and curricula as well as the orientation of assessment and teaching and training.
- ✓ Connects the world of employment (industry) and of education and training: (a) talent management & recruitment purposes (b) development of training courses, tools and activities

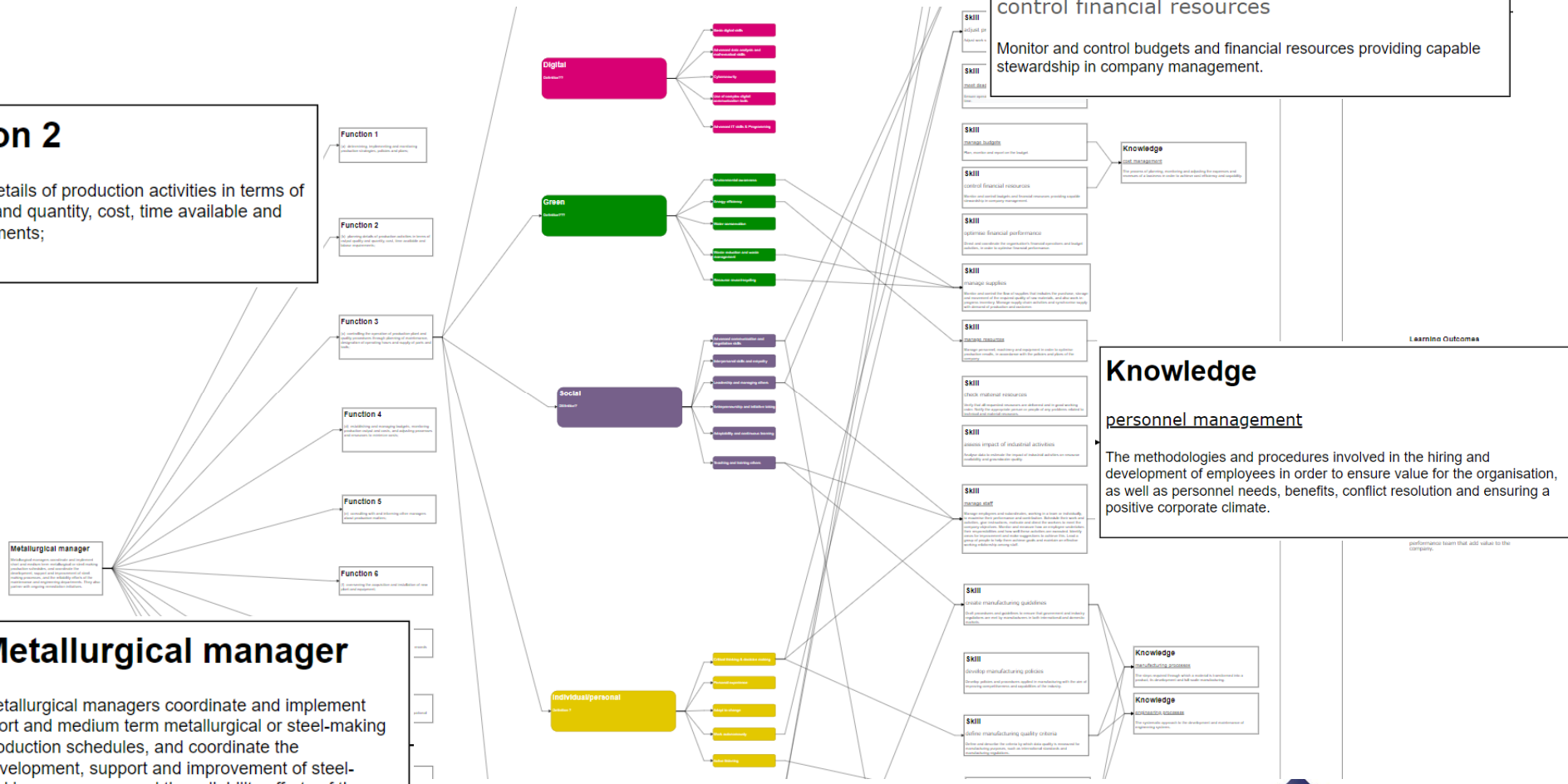
#### Validate the results by companies and match them with training offers

# B. Identify the most relevant/needed future skills and skill gaps

## Development of "pipeline for learning outcomes"

**Function 2**  
 (b) planning details of production activities in terms of output quality and quantity, cost, time available and labour requirements;

**Metallurgical manager**  
 Metallurgical managers coordinate and implement short and medium term metallurgical or steel-making production schedules, and coordinate the development, support and improvement of steel-making processes, and the reliability efforts of the maintenance and engineering departments. They also partner with ongoing remediation initiatives.

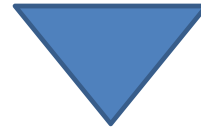


[Direct link](#) for the example graph



## C. Generate an automated/common job profile database

The potentiality for the equivalence between ESCO and the titles in the STEEL SECTOR



The automatization of the description of the **European Steel Sector Professional Role Profiles**

(taking **ESCO description of occupations** as the basis)

**Aim:** A common database of professional profiles related with steel sector, which is **interactive** for continuous updating



**How?** : integration of the data and automation





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Thanks for your attention

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

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