



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

## Piloting and Implementing the Blueprint

Report on the piloting and sustainable implementation of the Blueprint framework /strategy, tools and measures

Deliverable D6.2

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## Executive Summary

The deliverable "Piloting and Implementing the Blueprint" explores the activities planned as part of the Blueprint implementation. The aim is to establish a stable and reliable governance and coordination of activities via the industry's existing structures, and to do so on the European, national and regional level. It is a proposal, that has to be discussed with the main actors of the European Steel Industry community.

The piloting and implementation process is based on the strategy 'Prototype of the Blueprint New Skills Agenda Steel' and on the already huge and excellent partnership alliance of ESSA (40 partners comprising companies, training providers, European and national steel associations and social partner, and research institutions). The main elements of ESSA are:

The European Steel Technology and Skills **Foresight Observatory** (ESSA ETF), including the regular (annual or bi-annual) European Steel Technology and Skills Foresight **Panel** (ESSA ETP) (demand side)

The **Online Training** Ecosystem "steelHub" (ESSA OTS) and **Regional Training** Ecosystems (ESSA RTS) (supply side).

The elements are aimed to be **implemented in the existing governance structures of the European Steel community** and connected with existing European platforms and tools beyond the steel sector, which will aim to ensure exchange with the broader European process industry (e.g. within the new Process for Planet programme of SPIRE and via the SPIRE-SAIS Blueprint). The governance structure of ESSA has to be built on a new division of responsibilities, clarified and checked with the European Steel Associations and social partners ESTEP, EUROFER, and industriALL. Connections with European platforms (e.g. Pact for Skills, Centres of Vocational Excellence) and tools (e.g. ESCO, Europass, ECVET) are part of the further development of the ESSA strategy, measures and training (e.g. steelHub, Regional Training Ecosystems). To ensure a stronger integration of Small and Medium Sized Enterprises an "ESSA Task Force SME" was founded, ensuring and integrating the SMEs perspective.

Within the planned Foresight Observatory continuous and regular monitoring and evaluation of the technological and economic development in the steel industry will be guaranteed by the European Steel Technology and Skills Foresight Panel (ESSA ETF), which will be developed further with a strong integration of the ESTEP Focus Groups People and Smart Factories. A steel sector related Repository of Innovation Projects and Recruitment Events will be integrated and continuously updated. The steelHub will be formalised and advanced by an improved infrastructure: business model, learning outcomes as a link to VET programmes, additional job profiles integration, training offers, and train the trainer programmes).

Beside the European coordination the ESSA national-regional roll-out will focus on the European **steel regions** by establishing Regional Training Ecosystems. These steel regions will be strongly connected to the planned Observatory and the steelHub. The European - Steel Regions interplay is foreseen as **European Open Coordination** and bundled in a **European Community of Practice of Steel Regions**, including also relevant national stakeholders via the regional ecosystems. The selection process will be done together with the national steel associations based on the given country information collected. As a first step Round Table discussions and workshops within selected pilot steel regions will take place to explore the possibilities of setting-up a new or improving an existing ecosystem of companies, training providers, policy, research and civil society stakeholder.

It has to be stressed that this is an implementation *plan* to be piloted in practice. Against this backdrop the next steps of the piloting and implementation plan foreseen are:

1. Discussion of the integration of ESSA (namely Foresight Observatory, Community of Practice of Steel Regions) in existing European steel sector governance structures with the European steel associations and social partners
2. Formalisation and improvement of the steelHub infrastructure
3. Establishment of the Task Force SMEs, integrating SME topics and measures
4. Selection of the pilot steel regions and first Round Tables and Workshops in the regions
5. Elaboration and formalisation of the Regional Ecosystem Frameworks
6. Development of the European Community of Practice of Regional Training Ecosystems, including checking transfer to other regions and their integration.

## Introduction

This deliverable "Piloting and Implementing the Blueprint" is exploring activities planned to establish a stable and reliable governance and coordination via existing structures on the European and national/regional level. It is a proposal, that has to be discussed with the main actors of the European Steel Industry community.

The outline following is based on the work developed inside the Task 6.1 ("Piloting and sustainable implementation of the Blueprint framework within the companies and its training providers"). It concerns the piloting of alliances, strategies, tools and methods of the ESSA Blueprint for a sustainable framework implementation beyond the project life span as an industry driven and sector running skills adjustment framework and alliance.

Starting from Deliverable D5.2 – "Prototype of the Blueprint New Skills Agenda Steel", different actions have been defined for the first implementation phase. In particular:

- Elaborating useful parameters for a sustainable integration in existing European and national/regional structures;
- Establishing an interrelated Alliance and Leadership;
- Promoting joint Blueprint activities;
- Preparing the ground for the national/regional roll-out.

Furthermore, the following actions have been identified as useful for piloting and sustainably implementing the Blueprint:

- Assessing pilot training tools, measures and arrangements in order to improve or adjust them;
- Checking additional new and existing offers, in particular train the trainer modules, and integrating them in the steelHub of the Online Training Eco-System "steelHub" (ESSA OTS);
- Collection of pilot training modules and offers from the steel companies and training providers; integration of them in the steelHub;
- Integration of Steel industry relevant training measures of other (mainly Erasmus and Leonardo) projects and train the trainer modules;
- On-site training in companies and VET schools (if possible and wanted) as part of the Regional Training Eco-Systems (ESSA RTS) to be established.

During the pilot implementation and transfer of the Blueprint Prototype we will also include related policy recommendations and cooperation activities with relevant other sectoral Blueprints.

In particular, the Blueprint Prototype will be further developed and piloted (in WP6), mainly focusing on:

- Strategies for the implementation of measures to meet defined skill needs;
- Up-/reskilling schemes for existing and new occupational profiles and related VET curricula;
- Further development of the prototypes of training tools and modules to adjust the immediate skills needs of the companies;
- Documenting and recognising good practice (of skills adjustments).

Considering the actions defined in the Blueprint Prototype (D5.2), this Deliverable D6.2 is structured as follows:

1. The first part is devoted to piloting implementation of the main elements of the Blueprint (Foresight Observatory, Online and Regional Training Eco-systems), in particular how to institutionalise them at the European, national and regional level. This includes also the formalisation of the rules for the Blueprint implementation process concerning the steelHub first (business model) and in a later stage for the whole governance structure. In particular, it is important to define a Business Model for the running of the steelHub as integral part of the ESSA governance structure. As this aspect is not present yet in the Prototype, it is included in the implementation process to set the ground for sustainable financing and running of the Blueprint by a regulation of training inputs and usage. The Business Model will protect intellectual property rights and regulates input and access of any training material.
2. The second part is dedicated to the regional roll-out focusing on the eco-system approach and the selection of pilot steel regions. This process includes not only activities focused on spreading the Blueprint, but also how to get the support from different actors for the Blueprint implementation for the national-regional implementation. Therefore, it is important to raise awareness in order to disseminate the Blueprint, make sure that companies adopt it, encourage that its contents are recognized, etc. On the other hand, regional support is needed as the Blueprint is not only addressed to a European level, but at integrating stakeholders on the regional level with their specific skill demands (for the steel sector in the first line, but it may also become reasonable to integrate other process industry sectors and sectoral Blueprints).

## 1. Blueprint Prototype: Framework for Piloting and Implementation the European Steel Skills Alliance (ESSA)

Piloting and implementation of the ESSA Blueprint follows the principle of a smart, sustainable and forward-looking integration of a proactive skills adjustment in **existing governance structures**. This allows a direct connection of social, people related innovation to upcoming technological developments, integrating the skills (and non-technological, social) perspective right from the beginning, directly connected with technological development and implementation and - more important - unfolding the innovation potential with the competences, experiences of the workforce at the workplace. Renouncing new additional, to be financed structures ESSA and the skills perspective will become an indispensable and visible part of the steel sector's running and supporting structures and institutions (ESTEP, EUROFER, industriALL and the Sectoral Social Dialogue Committee Steel) - mutually developing and supporting technological and social innovation.

To achieve this, the ESSA Blueprint Prototype (WP5) is setting the frame and ground for an interrelated European, national and regional roll-out and cooperation of the European Steel Skills Agenda and Alliance. The Prototype was outlined against the results of the current and future technological and economic development in the steel industry (WP2), the related company skills requirement (WP3) and the VET system framework to support the skills adjustments (WP4) (see Deliverable D5.2). Against this backdrop, the core elements of this Prototype to be initialised are

- The **European Steel Technology and Skills Foresight Observatory** (ESSA ETF), including the regular (annual or bi-annual) **European Steel Technology and Skills Foresight Panel** (ESSA ETP) (demand side)
- The **Online Training Ecosystem "steelHub"** (ESSA OTS) and **Regional Training Ecosystems** (ESSA RTS) (supply side).

Based on these central elements ESSA will focus on a European - Steel Regions interplay by a **European Open Coordination** and as a **Community of Practice of Steel Regions**, including also relevant national stakeholders via the regional ecosystems.

With its **multi-stakeholder cooperation** the ESSA project partnership already includes most of the main European Steel Sector stakeholders, integrating large (multi-national) steel companies, education and training providers, associations and social partners, and research institutions: 24 relevant steel industry stakeholders enhanced by a growing number of associated partners (17 up to now) are already ensuring a sound ground for sustainability since the start of the project, integrating already an ecosystem of stakeholders (companies, training providers, education and research institutions, and social partners), reflecting the European, national and regional level (European and national associations, unions, regional placed global companies). Small and Medium Sized Enterprises (SMEs) are integrated mainly via the Cold Rolling Mill association CIELFFA. However, the ESSA partnership has to be enhanced much more with the SME perspective. This will be done by the already started "ESSA Task Force SME" and by having a strong focus on SMEs and integrating SMEs in the Regional Training Ecosystems.

The ESSA Blueprint **dissemination and collaboration** is, moreover, very much in line with the steel industry organisations' regular activities and annual meetings: At the European level e.g. the European Steel Technology Platform ESTEP, the Sectoral Social Dialogue Committee Steel SSDCS (including EUROFER and industriALL), and the cold rolling association

CIELFFA; on the national level via the national steel platforms and associations such as Federacciai, Wirtschaftsvereinigung Stahl, OS KOVO, UNESID. Additionally, an extensive cooperation took place with the Steel Sector Careers project (funded by EASME/COSME) completed by first collaborations and agreements with other industry related Blueprints (esp. on the exchange of approaches and a common strategy for the rollout to the EU Member States).

In the piloting and implementation phase of the Blueprint Prototype the developed basis will be applied to a first **governance structure** of the Skills Alliance with the aim of ensuring a sustainable running beyond the project life span with a reliable leadership. The European Steel Skills Alliance is foreseen to systematically linking the European Blueprint with the European, national, and more relevant, the regional level of steel regions. The *ESSA governance will be embedded in existing structures* (such as ESTEP, EUROFER, industriALL, and the Sectoral Social Dialogue Committee on Steel (SSDCS)) on the European level and connected with already existing or to be established governance structures of the relevant steel regions, where people live, work and learn.

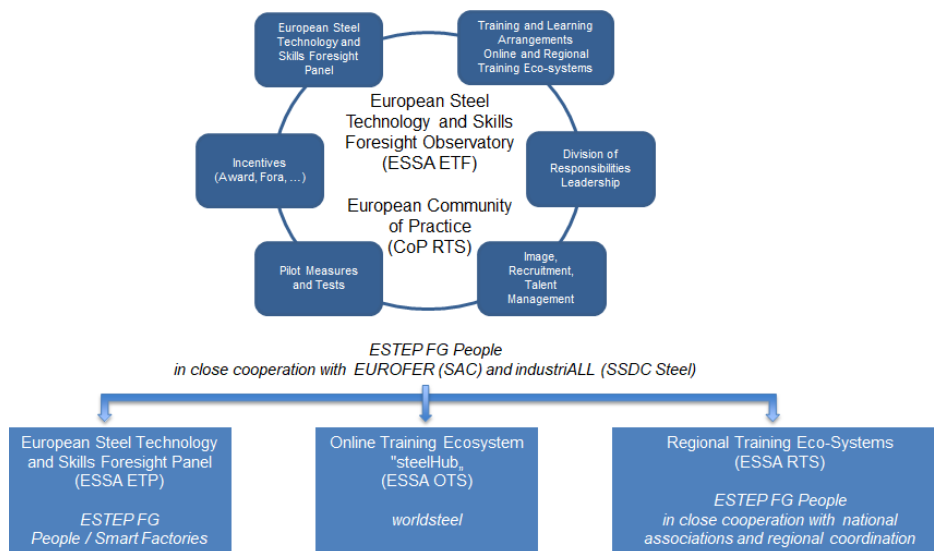


Figure 1: Central Elements of the ESSA Governance Structure.

The main elements of ESSA (reflected also in Figure 1) will be described in detail in the following chapters. European Alliances are built on the ESSA partnership, will have to divide responsibilities and leadership in the steel sector, but have to be integrated also in the broader (process) industry environment.

## 1.1 European Alliances

*Aim: European Alliances are the backbone of the ESSA strategy, setting the ground for a steel sector cooperation by involving companies, VET institutions, science, policy, social partners.*

Alliances and leadership on the European level are based on and expanding the existing ESSA partnership as ESSA is a **project of the Steel Industry for the Steel Industry**. In terms of governance the European Steel Skills Alliance will first have to become part of the existing structures of ESTEP, EUROFER, industriALL, and the Sectoral Social Dialogue Committee on Steel (SSDCS) on the European level. Within these governance structures cross-stakeholder activities have to be initiated and launched, as well as internal integration of skills adjustment activities, measures and tools within the activities of the steel associations, companies, and training providers.



### 1.1.1 ESSA Partnership: A European Steel Community Involvement

The European Steel Skills Alliance is based, as a first step on the steel sector partnership comprising about 40 partners. The project consortium consists of 24 partners:

- **Steel companies:**  
thyssenkrupp Steel Europe, ArcelorMittal Poland, ArcelorMittal Spain, Salzgitter AG, Sidenor, Celsa Group/Barna Steel, Tata Steel
- **Education and training providers:**  
Steel Institute VDEh, IMZ, Scuola Superiore Sant'Anna, Worldsteel / Steel University, DEUSTO, Cardiff University (also research institution), ThyssenKruppSteel Europe Training Centre (part of the steel company), ArcelorMittal Spain Training Centre
- **Steel associations and social partners:**  
EUROFER umbrella organization of the steel industry employers, World Steel Association, UNESID Spanish Steel Association, Belgium Steel Platform, Wirtschaftsvereinigung Stahl (German Steel Federation), Federacciai (Italian Steel Federation), European Cold Rolled Steel Association CIELFFA, Association of Finish Steel and Metal Producers, OS KOVO (trade union)
- **Research institutions:**  
TU Dortmund University, Cardiff University, RINA/CSM, Visionary Analytics VA

completed by 17 **associated partners**:

- ESTEP European Steel Technology Platform, industriALL (European Industry Union), EIT RawMaterials, Industriarbetsgivarna (Swedish Industry Federation), Polish Steel Technology Platform, Enrico Gibellieri (European Steel expert), Unite and Community (UK unions), CEPIS Council of European Professional Informatics Society, University of the Basque Country, Warwick University, ArcelorMittal Italy, Fédération Métallurgie CFE-CGC, Metalowców NSZZ „Solidarność”, UK Steel, SAAT Consulting, Swansea University.

Affiliated organisations to the above are also included and will provide access to their respective members. The partnership is directly involving **14 EU countries**: Belgium, Czech Republic, Finland, Germany, Italy, Lithuania, Netherlands, Poland, Spain and UK, completed by France and Sweden (associated partners). Nevertheless, via EUROFER, industriALL, CIELFFA, and steel company subsidiaries in other countries ESSA is **covering the whole steel industry member states** in Europe, including the steel processing and SME perspective.

### 1.1.2 Division of Responsibilities and Leadership

The ESSA governance structure based in the ESSA Foresight Observatory will be further developed by an integration of stakeholder representatives of all steel relevant areas, ensuring a quadruple helix perspective (industry, policy, education and science, and as much as possible civil society (mainly at the steel regions level, where people live and work)). This will be done in a continuous social innovation process to establish and improve new social practices for continuous and proactive skills adjustments of the steel sector.

The transfer of the results into practice includes a new coordination and **distribution of responsibilities**. Responsibilities but also duties and interaction for continuous learning have to

be *newly balanced and interrelated in the ESSA governance structure* between industry, VET systems, and the individual learner, supported by new policy frameworks, for instance:

- Steel industry focusing on company specific short-termed adjustments of skills needs (within a middle and long-term foresight strategy)
- VET systems engaging with general and transversal competences and skills relevant across sectors
- Individuals by improvement of self-learning capabilities and a lifelong learning attitude, empowering individual lifelong learning capabilities
- Policy by developing new innovative frameworks supporting lifelong learning (e.g. through individual learning accounts, integration of online learning arrangements, new possibilities and more leeway of VET systems to integrate company education and training demands.).

Future development of education and training programs might focus also on different responsibilities, tasks and procedures of the workforce and the executives within the company (based on the results of the ESSA company workshops):

- **Workforce:** Work independently in complex topics with digital media, identifying and articulating skills challenges proactively, personal responsibility for learning, sharpen the individual responsibility of the employees as regards to training, closing skills and knowledge gaps independently by oneself, "find one's feet" quickly, even under tendencies of rationalization and shorter cycles of innovations - that means: learning on your own, open feedback culture, culture of lifelong learning, training as a benefit to employability.  
However, self-responsibility requires guidance: It is theoretically possible for individual workers to take over responsibility for closing the open skill gaps, however on the practical side, it is quite difficult. Pull factors (schemes for career progression) and push factors (fundamental training) are needed. Otherwise, one gets lost in the system. The capacity of people to select learning targets autonomously is limited and difficult without guidance. Empowering courses at the beginning are important to provide people the basic cognitive tools to identify their learning targets. This includes also a new responsibility and role for the executives (mainly related to the workforce appeal described above).
- **Executives:** New leadership from instructing to coaching, mentoring, supporting; conditions for self-learning require active role of executives (impart confidence and implement self-learning), need of cultural change, executives should become mentors, ambassadors, stay role model – identify and break new grounds, provide orientation how to achieve sustainable success.

### 1.1.3 Integration in EU programmes and action and the European process industry community

ESSA will be linked with the European Commission current and planned actions and frameworks: Digital Education Action Plan, Cedefop's work on skills, the sector-based Pact for Skills, the Blueprint for Sectoral Cooperation (focusing on the sectors put forth by the new EU industrial strategy) and the New Skills Agenda 2020 published by the Commission and its planned European Education Area Communication. All these initiatives of the Commission are connected with the full toolbox of the EU, including the EU semester (with country-specific recom-

mendations to facilitate skills uptake), European funds (European Social Fund, European Regional Development Fund, Erasmus+, InvestEU Just Transition Fund, etc.) and the European Social Dialogue.

A strong focus of ESSA will be on the cooperation and exchange with other sectoral industry related Blueprints, especially concerning a combined rollout strategy to the Member States and steel regions. Additionally, concerning green skills there will be a close cooperation and exchange with the SPIRE-SAIS Blueprint "Skills Alliance for Industrial Symbiosis - Cross-sectoral Blueprint for a Sustainable Process Industry"<sup>1</sup>. As the Steel Industry is representing one of the ten energy intensive industry sectors in SPIRE this cross-sectoral Blueprint might produce tangible results also for ESSA which are expected to be integrated in further activities. Additionally, the new Clean Steel Partnership under Horizon Europe and results of the Green Steel project will inform the ESSA Blueprint within the next improvement phase. Important Projects of Common European Interest (IPCEI) of the steel industry will be monitored and listed in a related ESSA repository, checking possible skills alignments.

To broaden the perspective beyond the Steel Industry ESSA integrated institutions in the partnership not focusing (only) on the sector, e.g. EIT RawMaterials and the Council of European Professional Informatics Society (CEPIS) completed by several European platforms, networks and projects:

- European platforms and networks: Skills Panorama, Pact for Skills, Smart Specialisation Platform, European Cluster Collaboration Platform, European Apprentices Network, European Platform for Digital Skills and Jobs, Centres of Vocational Excellence, eTwinning, European Network for the Transfer and Exploitation of EU Project Results (see table 1 below).
- Steel Sector related projects: esp. SUSTAIN, Steel Sector related Important Projects of Common European Interest (IPCEI)
- Steel related Sectoral Blueprints: SPIRE-SAIS, SAM, DRIVES, Construction, and others.
- European tools: ESCO, Europass, EQAVET, ECVET, etc.

The integration of ESSA in the **Pact for Skills** (ESSA is already an approved part of the Pact) and its Industrial Ecosystem and Round Table for Energy Intensive Industries is of especially high relevance to ensure a cross-sectoral industry skills perspective. In the same line the cooperation with other sectoral process industry Blueprints has already started: esp. with SPIRE-SAIS where steel is one of ten relevant sectors focusing on industrial symbiosis and energy efficiency and other Blueprints of the steel value chain: automotive, construction, additive manufacturing.

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<sup>1</sup> <https://www.spire2030.eu/sais>

Platform	Relevance
<b>Skills Panorama</b> <a href="https://skillspanorama.cedefop.europa.eu/en">https://skillspanorama.cedefop.europa.eu/en</a>	Integrates in one single portal data and information on skills needs and mismatches
<b>European Platform for Digital Skills and Jobs</b> <a href="https://ec.europa.eu/inea/en/connecting-europe-facility/cef-telecom/apply-funding/2019-digital-skills-jobs">https://ec.europa.eu/inea/en/connecting-europe-facility/cef-telecom/apply-funding/2019-digital-skills-jobs</a>	Boosting digital skills in Europe, offer information, resources, overview of training and funding opportunities and a community space for networking and collaboration both on European and national level
<b>Pact for Skills</b> <a href="https://ec.europa.eu/social/main.jsp?catId=1517&amp;langId=en">https://ec.europa.eu/social/main.jsp?catId=1517&amp;langId=en</a>	Overarching initiative within the new New Skills Agenda, shared engagement model for skills development in Europe companies, workers, national, regional and local authorities, social partners, cross-industry and sectoral organisations, education and training providers, chambers of commerce and employment services all have a key role to play
<b>Smart Specialisation Platform</b> <a href="https://s3platform.jrc.ec.europa.eu">https://s3platform.jrc.ec.europa.eu</a>	Options to identify those regions and regional clusters that are focusing on the same sectors as ESSA Useful for the plan for regional roll-out of project results.
<b>European Cluster Collaboration Platform</b> <a href="http://www.clustercollaboration.eu">www.clustercollaboration.eu</a>	Options to identify those regions and regional clusters that are focusing on the same sectors as ESSA Useful for the plan for regional roll-out of project results.
<b>European Network for the Transfer and Exploitation of EU Project Results</b> <a href="http://www.enter-network.eu">www.enter-network.eu</a>	Amplify dissemination work The European Network for the Transfer and Exploitation of EU Project Results Since 2005, E.N.T.E.R. has brought together organisations from across Europe in successful EU project work. Join our network by registering your organisation and your projects.
<b>European Apprentices Network</b> <a href="https://apprenticesnetwork.eu/">https://apprenticesnetwork.eu/</a>	Recruitment of talents and young people
<b>eTwinning</b> <a href="https://www.etwinning.net/en/pub/index.htm">https://www.etwinning.net/en/pub/index.htm</a>	Community for schools in Europe and offering a platform for staff (teachers, head teachers, librarians, etc.), working in a school to communicate, collaborate, develop projects, share and being part of a learning community in Europe
<b>Centres of Vocational Excellence</b> <a href="https://eacea.ec.europa.eu/erasmus-plus/actions/centres-of-vocational-excellence_en">https://eacea.ec.europa.eu/erasmus-plus/actions/centres-of-vocational-excellence_en</a>	Bringing together a wide range of local partners, to develop "skills ecosystems" that contribute to regional, economic and social development, innovation, and smart specialisation strategies

Table 1: Overview of relevant EU collaboration Platforms

## 1.2 ESSA Foresight Observatory (including European Regional Community of Practice)

*Aim: The European Steel Technology and Skills Foresight Observatory (ESSA ETF) with its European Steel Technology and Skills Foresight Panel (ESSA ETP) and integrating the European Community of Practice is the core coordination unit for the European and regional activities.*

The **E**uropean **S**teel **T**echnology and **S**kills **F**oresight **O**bservatory (ESSA ETF) will become the central European coordination unit and take over the leadership of the ESSA Alliance co-operating closely with the existing associations and platforms, mainly ESTEP, EUROFER, SSDCS, and industriALL. Under the head of ESTEP FG People, the Observatory will coordinate its activities closely and in collaboration with these European steel platforms and associations. With its clearly defined mission "**Industry driven proactive adjustment of future skills with the industry and for the industry**" the main European strategies of the alliance are reflected in the Observatory objectives:

- **Adjusting the workforce proactively**, to deploy and implement new technologies aimed at optimisation of the production process
- **Monitoring and shortening the implementation of industry relevant qualifications and training**
- **Gaining political support** measures by mobilising and integrating stakeholders and policy makers of the European and national level
- Developing and sharing successful sector-wide **upskilling schemes** and efficient management of knowledge
- Improving the **attractiveness of the steel (and process) industry** and steel sector careers for talented people (**recruitment and retention**).

The Blueprint implementation, operation and monitoring on the European Level within the ESSA Observatory will comprise:

- Communication and involvement strategies for skills adjustments (e.g. new skills demand and development and upload of training measures in the steelHub)
- Rollout of informations, tools, measures to the steel regions and vice versa integrating best practices and tools of the steel regions in the European activities
- Implementation and transfer by engaging the national steel associations and unions
- Setup of adhoc or regular sub-committees for hot topics – mainly incorporated in existing committees
- Organising joint processes of associations, companies, training providers to optimise skills adjustment strategies and VET strategies, tools, curricula across:
  - Associations: linking European and national, regional VET cooperation
  - Companies: joint training programmes, integration of training offers in the steelHub
  - Training Providers: exchanging best practices, advertising the steelHub.

Furthermore, within the Observatory we will ensure activities to:

- Develop and exchange new training and learning arrangements within the online and regional training eco-systems
- Adjust responsibilities and ensure reliable leadership

- Develop incentives for excellent skills development, e.g. by a European Skills Award and Online Fora (e.g. discussing the recent results and demands of the regular Foresight Panel ESSA ETP)
- Develop pilot measures and test (experimental platforms, specific tasks, support for acquiring funding, etc.)
- Improve the image of the sector, supporting recruitment, retaining and talent management by EU-wide communication campaigns, advertise and promote job opportunities and good working conditions, image and awareness-raising campaigns (including underrepresented groups, such as women and migrants)

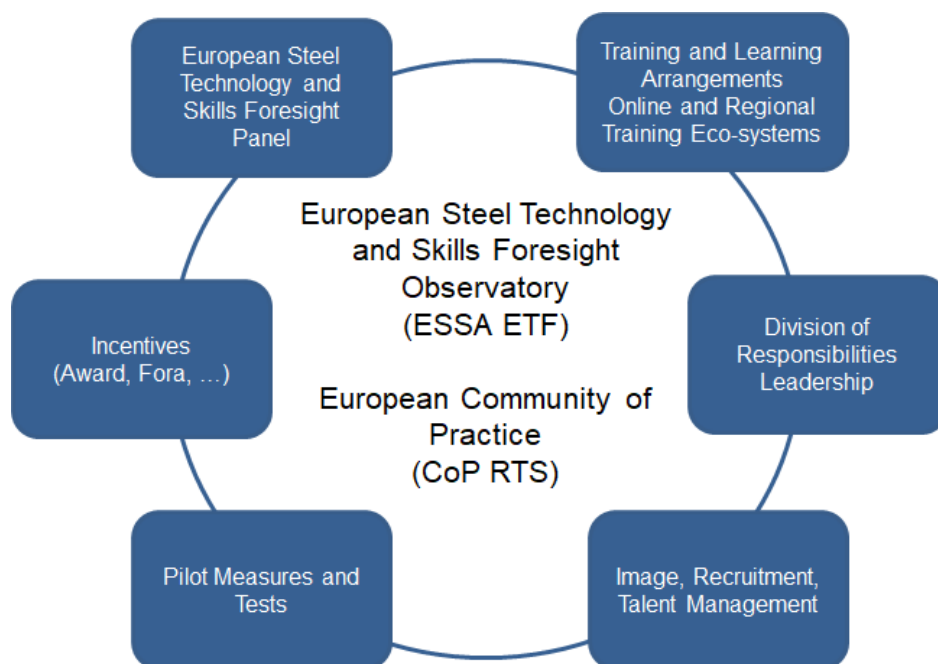


Figure 2: European Steel Technology and Skills Foresight Observatory (ESSA ETF)

As a central and continuous element of the ESTEP Focus Group People (where already a task ESSA+ for transferring ESSA results to the whole steel sector was implemented and approved by the ESTEP Board and Steering Group) the Foresight Observatory is foreseen as the leading governance element on the European level and for connecting the steel regions with the Blueprint - bundling in a systematic process all the necessary activities to monitor and evaluate regularly:

- Technological and Economic Development
- Industry Skills Requirements
- and VET Systems Anticipation and Support of Future Skills.

The already mentioned three core elements are part of the Foresight Observatory for monitoring and adjustment of **skills (demand side)** and to organise **education and training (supply side)**:

- **Monitor and anticipate** new skills demands of the EU steel industry via the European Steel Technology and Skills Foresight **Panel** (ESSA ETP) (demand side)
- **Provide and promote training in T-shaped skills of the main job profiles concerned** via the **Online Training Ecosystem** "steelHub" (ESSA OTS) (supply side)
- **Connecting Regional Training Ecosystems** (ESSA RTS) (regional demand and supply) within a **European Community of Practice**.

Beside the monitoring of the technological, economic and skills related developments via the European Foresight Panel (ESSA ETP) a **project repository** devoted to the most important European innovation projects has been started<sup>2</sup>. The main information of each ESSA relevant project has been summarised, by including data identifying the project, objectives and relevance of technological transformation. In addition, projects have been grouped according to the enabling technologies. This can allow an easy access and overview concerning technological innovations available or under development as well as a wider dissemination of such information among the steel industry.

In addition, a platform including and updating **recruitment events**, to the aim of attracting people to the steel sector, has been developed. According to the dissemination improvement, both the repository and the recruitment platform will be integrated in the ESSA Homepage<sup>3</sup> and they will become part of the ESSA Foresight Observatory. Thanks to the close collaboration and interaction with the RFCS framework, ESTEP, the Clean Steel Partnership and other European Institutions, both platforms will be continuously updated. In particular, concerning the projects repository, new projects information will be updated and included, by asking support from the projects' coordinators through the collaboration of relevant associations and/or involved agencies (e.g. ESTEP, RFCS, CSP, Process4Planet).

Connecting the Regional Training Ecosystems (ESSA RTS) with the ESSA Observatory will be done by establishing a **European Community of Practice (ESSA CoP)**. Within this EU-wide network the Regional Training Ecosystems will share knowledge, tools, strategies and good practice, learn from each other, support each other, and conduct common research and development to improve the steel regions. In order to avoid fragmentation and to reinvent the wheel several times new, the ESSA CoP will catalyse regional collaboration on the European level (within the Foresight Observatory) to develop the training solutions within the local context by connecting the steel regions and its regional stakeholders, using synergies to accelerate the progress.

### 1.2.1 European Steel Technology and Skills Foresight Panel (ESSA ETP)

Based on the results of the analysis and surveys of WP2 (Technological and Economic Development Foresight), WP3 (Industry Skills Requirements), and WP4 (VET Systems Anticipation of Future Skills Requirements) a European Steel Technology and Skills Foresight Panel (ESSA ETP) as a central part of the ESSA Foresight Observatory (ESSA ETF) is under construction to update the technological and economic development and the related demand of skills requirements on a regular (annual or bi-annual) basis. Developing the already conducted pilot surveys further:

- Technological and Economic Foresight Questionnaire (WP2, see Deliverable D2.1, updated July 2021)
- Skills Assessment Questionnaire and Checklist (WP3, see Deliverable D3.1 Version 2, updated July 2021).

We will integrate both aspects into one short survey combining technological development and skills assessment. This will be done as a joint venture of the of FG People (Skills) and Smart

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<sup>2</sup> <https://confluence.tu-dortmund.de/display/ESSA/EU+Projects+Overview>

<sup>3</sup> <https://www.estep.eu/essa/essa-project/>

Factories (Technology) of ESTEP. Targeted is a combined technology and skills foresight index, which will be monitored on a regular basis (annual or bi-annual), continuously updated and illustrating the course and trends of development over the years.

The results of this quantitative index of the panel will be extended and further explored by an related **additional** Delphi Round of selected experts from different stakeholder groups is planned to discuss and further elaborate the statistical data with two panel rounds as an iterative process. With this mixed methodology the restrictions of each the quantitative and the qualitative approach are overcome: quantitative data are setting a broader and representative ground for a qualitative indepth and context related discussion and interpretation.

Target groups for the

- **Technological foresight and skills assessment panel** are technicians and HR people of the **companies (managers, technicians - HR/Training Centre experts)**,
- **Delphi Expert Panel:** VET institutions, training providers, RTOs and Universities, associations and social partners.

We want to include steel producing and processing large companies and SMEs. The surveys are planned to be distributed by EUROFER, ESTEP, industriALL, CIELFFA, national associations and global companies (as already done with the first questionnaires of WP2 and 3). The experts for the Delphi Panel will be selected by these European associations in close cooperation with national associations and the ESSA Regional Training Eco-systems players.

The European Foresight Panel ETP comprises by **two elements**:

1. Standard part to be repeated in every issue: technological and economic development and related skills requirements: new technologies: current use and future relevance, planned investment, affected company areas and job profiles, barriers and benefits, skills assessment of selected representative job profiles: technical/professional, digital, green, social, personal/individual, methodological skills VET system support and inputs added by an important **issue of the year** (e.g. green skills)
2. Complemented by a (Delphi) Expert Panel (based on the results of the questionnaire)
  1. statistical analysis (processing the results of the questionnaire)
  2. first assessment of the results by the experts (round 1)
  3. qualitative analysis and summary of results of the first expert assessment
  4. second assessment of the qualitative analysis by the experts (round 2).

Additionally, it is considered to analyse job position postings for the forecast of skills gaps and requirements, if there is a reasonable, manageable and affordable method and solution for monitoring.

The final results will be published, disseminated and discussed on a regular basis by:

1. **Public Reports** (ESSA Fact Sheets of about 2-4 pages, translated in the main languages)
2. **ESTEP Workshops** to discuss possible consequences and needed activities for skills adjustment within the broader steel industry sector.

The development and implementation plan of the ETP comprises the following steps:

1. Concept and draft of the method and instruments (August 2021) followed by a project internal review
2. Discussion with ESTEP Focus Group "People" and "Smart Factories" autumn 2021



3. Review of the ETP (content and methods) November 2021
4. Pilot test of the questionnaire (project internal): December/January 2021/2 (internal companies)
5. Expert survey development and selection: Spring 2022
6. Pilot test of the Expert Delphi survey: Spring 2022
7. ESTEP Workshop May 2022
8. Finalisation of the ETP (questionnaire, Delphi survey) Summer 2022.

### 1.3 Training Eco-systems

*Aim: Training Eco-systems are the core content-related elements of ESSA ensuring a continuous reflection of new technological and economic developments relevant for a pro-active adjustment of industry skills demands.*

The results of ESSA so far stress both virtual and on-the-job learning, in the best way combined with each other. Therefore, the European perspective of ESSA intends to focus on the European level by an **Online Training Eco-system** (digital platform, online learning) and on the level of steel regions by national/regional specific **Regional Training Eco-Systems** (regional networking, blended and on the job learning). Both systems are complementary and could be combined by adding specific advantages to each other (such as combining digital online and regional on-site analogue training modules that could be integrated in a broader training program of the companies and VET providers):

- virtual / online: independence of time and space, integration of external modules in company and individual learning paths, coaching and monitoring
- on-site / workplace related: real working experience, interactive learning, "hands on" practical experience.

Concerning VET system integration complementarity is conducted as follows:

1. Regional/national ecosystem will:
  - address recommendations to the states/regions where gaps emerge (e.g. on the ETP panel results, and the WP4 Skills Matrix)
  - provide relevant and up-to-date information on sectoral trends and skills gaps
  - as a basis of which the key actors can act to change the system from within (e.g. improve curricula, considering different learning arrangements);
  - providing policy-makers with abstract models and examples of effective regional VET-business configurations (e.g. see the one described below for Tata Steel).
2. Online ecosystem will
  - provide guidance on how to better navigate and make use of national VET (especially CVET and recognition of non-formal and informal learning procedures) and EU frameworks
  - build micro-credentials on top of VET systems to fill gaps and complement them with more customised training.

#### 1.3.1 Online Training Ecosystem "steelHub"

*Aim: The Online Training Eco-system "steelHub" sets the infrastructure for a European / world-wide exchange of training content, integrating inputs from steel associations and companies,*

*VET systems, other Blueprints, European tools, and the non-formal and informal learning of individuals.*

### steelHub Infrastructure

From the skills and training support side the ESSA Online Training Ecosystem (OTS) is a central European element run by the Foresight Observatory and worldsteel. In the centre of this eco-system the "steelHub" is integrating and connecting the perspectives and inputs of different steel sector related areas: steel associations, steel industry skills requirements by foresight, other Blueprints, VET systems, European tools, and the individual learners/workers. Starting with a first successful pilot training course "Continuous Casting Operator" a new learning arrangement and infrastructure was set up comprising different training measures (e.g. simulation of processes, evaluation of performance). The focus is on new digital learning arrangements and the integration of existing and planned training activities of the partners first and interested steel actors in the follow-up stage related to the technological transformation and the company skills requirements. As an open system based on a systematic framework and business model the integration, input and usage of relevant training modules, tools etc. is possible for everyone interested.

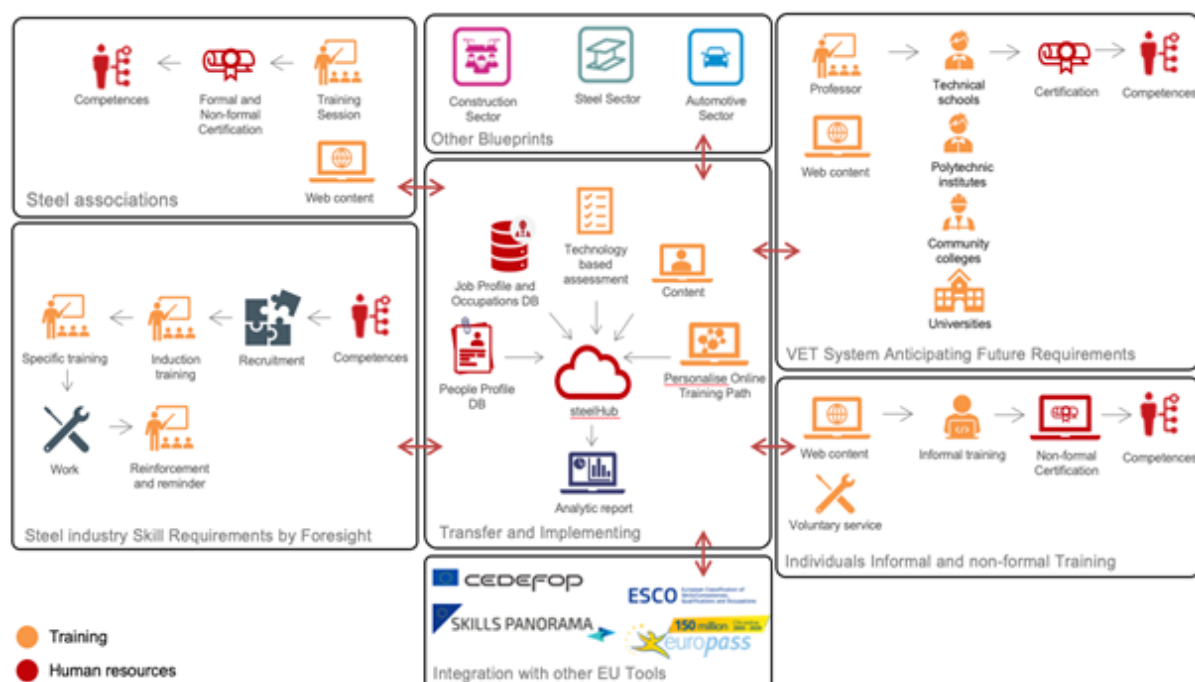


Figure 3: steelHub (European Online Training Ecosystem)

This Online Training Eco-system will be also a European platform for the Regional Training Eco-Systems. It is planned as a link between the European and regional training, and between online and work-based learning. The platform is aligned with European approach to micro-credentials<sup>4</sup>, with qualification evidencing learning outcomes acquired through a short, transparently-assessed course. These contents may complete on-site training, online or in a blended format. The setup can be particularly useful for people who want to (a) build on

<sup>4</sup> [https://ec.europa.eu/education/education-in-the-eu/european-education-area/a-european-approach-to-micro-credentials\\_en](https://ec.europa.eu/education/education-in-the-eu/european-education-area/a-european-approach-to-micro-credentials_en)

their knowledge without completing a full education programme and (b) upskill or reskill to meet labour market needs or to develop professionally after starting work.

The micro-credential approach will allow education institutions to offer such courses on a larger scale and in a comparable manner throughout Europe, ensuring agreed quality standards, and facilitating their recognition and portability across the EU. This is also a key action of the European Skills Agenda, which targets not only higher education but also vocational education and training providers, research organisations, industry, social partners, Chambers of Commerce, Industry or Crafts, and civil society organisations, which we call training providers (reference<sup>5</sup>).

Due to the digital online nature of the micro-credential, this approach will be integrated into the steelHub. As shown in the following figure, steelHub collects the requirement of the industry in "Job Profile and Occupation DB", which will align with ESCO to assure compatibility with EU Tools, given the basis to create the Micro-Credential programs. This database (DB) is connected with a "Content" and "Technology based assessment" DB collecting the training offer of all the training providers and results of the assessment. This connection ensures the alignment of the online training content and programs with the required competencies for the job profiles of the industry, which are managed by the Foresight Observatory. The alignment is done at the level of "Learning Outcomes" following the requirements of CEDEFOP<sup>6</sup>. The results of the training process are stored into "People Profile DB" to be reported to EU Tools like EuroPass.

An additional added value of the steelHub is the on-demand delivery of the training online content and programs offers into the Learning Management System<sup>7</sup> of stakeholders of the Eco-System, like industries, associations, higher education and vocational education organisations. This has been achieved through the implementation of SCORM<sup>8</sup> protocol in the steelHub infrastructure, which is accepted worldwide and implemented in the main software providers to manage online training content like SuccessFactor<sup>9</sup>, mainly used by companies, and Moodle<sup>10</sup>, mainly used by Universities and Schools.

The delivery of the infrastructure of the steelHub has been divided in four stages, which are highlighted in colours in the following image, described in detail in the following sections.

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<sup>5</sup> <https://op.europa.eu/en/publication-detail/-/publication/7a939850-6c18-11eb-aeb5-01aa75ed71a1>

<sup>6</sup> <https://www.cedefop.europa.eu/fi/events-and-projects/projects/european-credit-system-vocational-education-and-training-ecvet>

<sup>7</sup> [https://en.wikipedia.org/wiki/Learning\\_management\\_system](https://en.wikipedia.org/wiki/Learning_management_system)

<sup>8</sup> [https://en.wikipedia.org/wiki/Sharable\\_Content\\_Object\\_Reference\\_Model](https://en.wikipedia.org/wiki/Sharable_Content_Object_Reference_Model)

<sup>9</sup> <https://www.sap.com/products/human-resources-hcm/about-successfactors.html>

<sup>10</sup> <https://moodle.org/?lang=en>

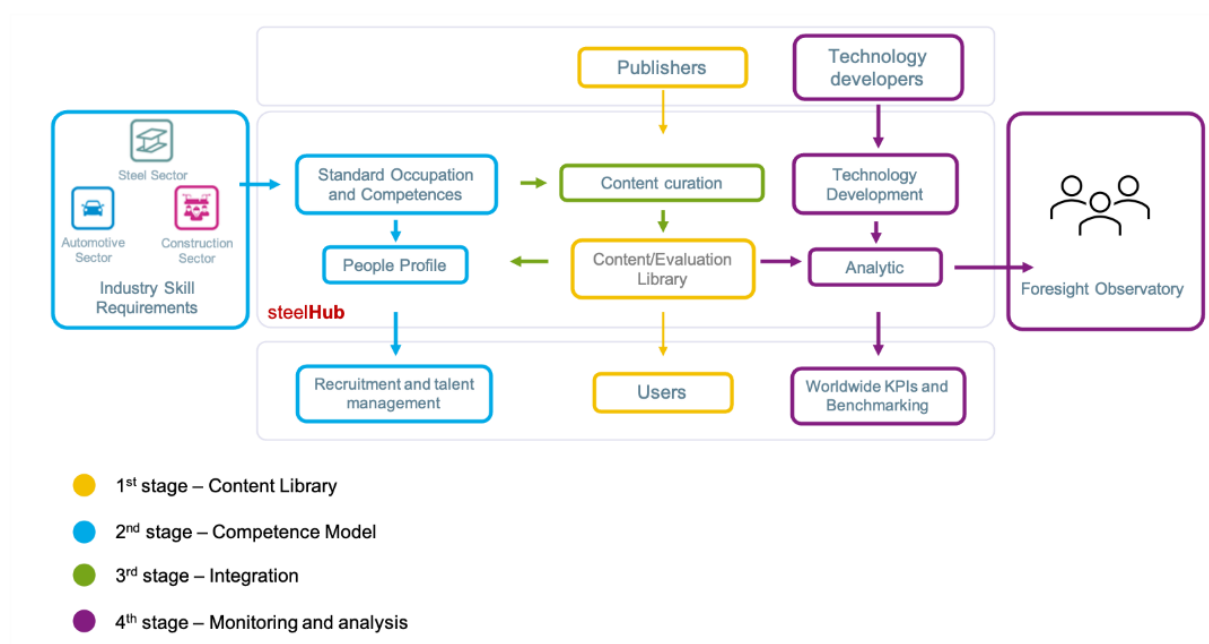


Figure 4: steelHub infrastructure and implementation stages

### 1st Stage - Content Library

The objective of this stage is the implementation of an infrastructure that allows the connection between Publishers and Users. This first stage includes implementation of standard SCORM protocols, licenses management, publishers' access and user report. The content provided by steeluniversity and other early adopter publishers have been already distributed in companies and universities. This first stage is now on its way to integrate more trainings and tools for upskilling the European steel workforce. Therefore, it is necessary to have a formal framework to protect the IP of the publishers and accomplish the GDPR regulation. The general rules for this framework are described in the next chapter "Formalization of steelHub Implementation".

### 2nd Stage - Competence Model

The main goal of this stage is to have a tool to upload the Standard Occupation and Competence DB defined in WP3 and have a link to the ESCO Database. The competence model is under development and validation within WP3; however, the structure of the Database has been defined and implemented in the back-end of the steelHub as shown in the following image. Some important remarks are the multilanguage capability and links to ESCO and ISCO. During the 3rd quarter of 2021 we will be working in the Front-End of this DB in order to give a visual view of the data and allow search and analyses. The first version of the module "People Profile" will be developed during 3rd quarter of 2021 as well.

The screenshot displays the 'steelHub administration' interface. The top navigation bar includes 'Home > Competence Map > Occupations > Blast Furnace Manager'. The left sidebar contains several menu items: 'AUTHENTICATION AND AUTHORIZATION' (Groups), 'BOUNCER' (Companies, Licenses), 'CATALOG' (Bundles, Courses, Publishers), 'COMPETENCE MAP' (Families, Knowledges, Occupations, Sectors, Skill types, Skills), 'METRICS' (Course access logs), and 'STEELAUTH' (Users). The main content area is titled 'Change occupation' and 'Blast Furnace Manager'. It features a language selector (en, es, pt, ru, zh-hans), a 'Name' field with 'Blast Furnace Manager', a 'Description' field with a detailed text about manufacturing managers, a 'Sector' dropdown set to 'Steel', a 'Family' dropdown set to 'Blast Furnaces', an 'ESCO Occupation' field with 'Manufacturing Manager' and its URI, an 'ISCO Group' field with '1321.1' and its URI, and a 'Total functions weight' of 130. At the bottom, there is a 'FUNCTIONS' table with columns for 'KEYWORD SUMMARY', 'DESCRIPTION', and 'WEIGHT'.

Figure 5: steelHub Database Structure

### 3rd Stage - Integration

The main goal of this stage is to connect the content and assets published in steelHub with a competence model Database thru Learning Outcomes. This integration will start on 4th quarter of 2021 and will be important to finish the "People Profile" module.

### 4th Stage - Monitoring and analysis

In this stage tools will be developed to be used by the Foresight Observatory to monitor skill gaps, create reports and make changes if necessary into the Competences Database. An important module included at this stage is a survey and DB of technology developments, which is done in WP2, as a key source of information to perform a deep skills gap analysis. This stage will be implemented on first quarter of 2022.

### Formalisation of steelHub Implementation (Business Model)

As a first business model the following section describes the formal relationship between the publisher, who is the owner of the learning content; and worldsteel, who manage the steelHub infrastructure.

The foreseen Business Model is based on:

1. worldsteel, through steeluniversity, it's education and training programme, has developed expertise and assets in delivering steel industry training;
2. Publisher has developed expertise and assets in delivering training, particularly class-room and online courses;

3. Parties have a shared interest to collaborate in offering the training of the other Party through steelHub distribution channels; and
4. Parties will agree to confirm their mutual rights and obligations in writing in an Agreement.

### **Subject of the agreement**

The Parties agree to collaborate in sharing of learning content. worldsteel grants Publisher a license to use its Software. Publisher grants worldsteel a license to use its Learning Content. The license offered to each Party shall be subject to the terms of the Agreement. worldsteel will provide Publisher with SCORM links to allow Company to access steeluniversity Learning Content through its own learning management system or those of its clients. worldsteel will host the Publisher's Learning Content on its steelHub application to facilitate access by the Publisher and its clients and by worldsteel and its members and clients.

### **Obligation of the parties**

worldsteel shall:

- Host steeluniversity learning content and Company learning content in its steelHub application and website [steeluniversity.org](http://steeluniversity.org);
- Provide company with SCORM files to allow Company's clients to access the steeluniversity and Company training through their client's Learning Management System;
- Take reasonable efforts to market, distribute, support and license the Publisher learning content; and
- Provide company access to steelHub to monitor use of Publisher learning content as well as steeluniversity learning content licensed by Company to its clients.
- Provide technical information and support for its learning content, which includes:
  - Technical support for responding to inquiries and questions of end-users, and
  - Implementation of updates and correction of errors.

Publisher shall:

- Provide steeluniversity with Company learning content files for the purpose of hosting on steeluniversity's steelHub application and website [steeluniversity.org](http://steeluniversity.org);
- Take reasonable efforts to market, distribute, support and license the Company learning content and steeluniversity learning content hosted on steelHub;
- Provide metadata for the learning content, such as images, descriptions, and key words to use for marketing purposes; and
- Provide technical information and support for its learning content, which includes:
  - Technical support for responding to inquiries and questions of end-users, and
  - Implementation of updates and correction of errors.

### **Revenue model**

worldsteel is a Not-For-Profit organization and the description of revenue model of this section reflects the organization's effort to fulfil the task of maintaining the infrastructure and service available through steelHub and continue delivering training content to the Eco-System.

Fees for Service: Neither worldsteel nor the Publisher shall charge the other party fees related to the provision of learning content.

worldsteel Sells Publisher Training Content: In the case worldsteel sells learning content licensed from Publisher, worldsteel shall retain AA% of the realised revenue and Publisher shall receive BB% of the realised revenue.

Publisher Sells worldsteel Training Content: In the case Publisher sells learning content licenses from worldsteel, Publisher shall retain CC% of the realised revenue and worldsteel shall receive DD% of the realised revenue.

### **Payment terms**

Payments will be made quarterly. Each Party shall provide the other Party with an invoice itemising the fees due with reference to this Agreement. Invoices shall be submitted at least thirty (30) days prior to the payment date.

worldsteel will provide Company with a quarterly report summarising usage of learning content licensed under the Agreement between parties. The report will identify the name of the learning content licensed and the total number of users for each item of learning content. The data will be used to calculate license fees due under the Agreement.

### **Intellectual Property**

All rights, title and interest (including but not limited to all copyright, trademark and other intellectual property rights) belonging to the Publisher (including but not limited to learning content) licensed hereunder shall remain exclusively with the Publisher, its affiliates or its licensors. worldsteel, as a licensor of intellectual property of the other Publisher, will cooperate in all reasonable ways to protect the licensed intellectual property.

Except as expressly permitted herein, worldsteel shall not:

1. Copy, modify, adapt, translate, decompile, disassemble or reverse engineer the learning content or any Software provided by the publisher or otherwise attempt to discover the source code;
2. Rent, lease, or assign the Software to any third party; or
3. Permit any learning content, including text, images, video, graphics, data and software provided in connection to this Agreement to be used other than in conjunction with the training of authorised users.

### **Delivery of learning**

worldsteel will host its learning content and that of the Publisher on the steeluniversity cloud-based infrastructure as licensed from Amazon Web Services. Two delivery solutions are employed; steelHub for clients using their own learning management system and steelLMS for clients wanting to use steeluniversity's learning management system.

steelHub is a solution whereby worldsteel provides Customer with a proxy file for each element of learning content, such as a course, simulator or 3D model. The proxy files are compliant with SCORM 2004 4<sup>th</sup> edition. The proxy files are provided to clients for implementation in their LMS. Customer learners launch the content from within the company LMS and information of the learner's performance, like time, score, and status, is recorded in the customer LMS.

steelLMS is a LMS solution created by steeluniversity for those clients who do not have their own LMS. Learning content licensed will be accessible through steelLMS.

## **Territory**

The geographic territory will be defined between parties.

The Parties agree to undertake best efforts to not contact the same potential clients, but in any event, the minimum sales price shall apply. This effort to focus marketing is non-exclusive and each Party shall retain the right to sell licenses to any client.

## **Data Handling**

Publisher acknowledges that worldsteel's data hosting servers are located in the European Union and the United States of America, and worldsteel's delivery of the Software may include worldsteel's collection, maintenance, processing and storage of personal data in Belgium and potential transfers to other countries.

Publisher represents and warrants that:

1. It shall observe and comply with all applicable data protection and privacy laws, legislation or regulations of any country with respect to personal data of Software users;
2. It has obtained all necessary consents to enable the lawful transfer of user's personal data made by Publisher to worldsteel and any sub-processors, to enable the processing of user's personal data for the purposes set out in this Agreement; and
3. It shall obtain all necessary consents for transfer of user's personal data outside the European Economic Area.

### **1.3.2 Regional Training Eco-Systems**

*Aim: The Regional Training Eco-system rolls out training activities at regional levels across steel regions in Europe involving companies, VET institutions, science, policy, social partners (esp. unions), and civil society.*

ESSA results so far and the Prototype will be improved during the iterative, cyclical update route planned especially with relation to the national-regional rollout and implementation strategy. Against this backdrop and in line with the European Open Coordination method, the ESSA Blueprint will be offered as a general cross-European framework and orientation to support specific national and regional skills adjustments in the steel companies and regions. This will include policy and funding recommendations and pathways (e.g. via co-financing of ESF/EFRE and national/regional funds). In line with the Steel Sector Careers project suggestion for combined school- and industry-led initiatives ESSA rollout activities and implementation will focus on the regional level where people live, work and learn with active involvement of companies and VET schools ensuring the "dual approach" by combining practical on the job or workplace-based learning with formal VET and online inputs.

First considerations for the Blueprint implementation led to an interrelated and connected European - National - Regional Implementation and Rollout Structure. In order to provide an overview on EU level about the national outreach, a list of steel member states as well as a list of the steel associations for each country has been provided. Based on a template for describing the variety of national steel companies, training providers, and research institution active in the steel sector, ESSA started to define relevant steel regions for the rollout of the Blueprint. Selected steel regions will be chosen for the set-up of first exemplary Regional Training and Skills Eco-systems. One important selection criterion for the ESSA steel regions is the potential collaborating with European Centres of Vocational Excellence (CoVEs), the European Smart Specialisation Regions (S3 Skills), and regions of the European Cluster Collaboration (already



three steel relevant regional clusters are in place in the Basque Country, Aviles and North-middle Sweden).



Figure 6: Steel Clusters of the European Cluster Collaboration Platform

First exchanges and contacts with the member states were made during the national workshops of the Steel Sector Careers project and other national workshops of the ESSA stakeholders. Focusing on the steel regions, where most of the steel companies are placed, we already achieved a screening of regions and players (companies, training providers, RTOs and others) in Austria, Belgium, Bulgaria, Germany, Italy, Poland, Netherlands. Other countries are considered (Spain and Finland) or requested (Czech Republic, Greece, Hungary, Slovakia, France, Netherlands, Sweden, Romania, Slovenia). Additionally, it was agreed to join forces for the national rollout with process industry related other Blueprints (such as Industrial Symbiosis, Construction, Automotive, Manufacturing) not to bother national VET institutions with attempts of several Blueprints.

Because of the differences in VET systems and skills needs in the European countries and regions, ESSA is not a one size fits all solution but an **orientation framework** to be adjusted and linked to the steel regions' specific demands and environment. With an **Open Coordination** method ESSA will set the necessary European - Regional Framework with the main relevant elements of the European Skills Alliance and Strategy for orientation and mutual support sector-wide. By integrating the national level (because the public responsibility for VET is often placed at the national government level) ESSA will mainly focus on the regional level because of its utmost relevance from a practical implementation perspective. A common strategy for continuous improvement and adjustment of skills, competences, and occupations institutionalised in Regional Training Eco-Systems is needed where people live, work and learn. Additionally, SMEs and steel *processing* companies are more often restricted to a region than big global steel companies, and this is a good way to address them as well. Same applies for the *integration of (national) unions*: They are more active at the company and regional level (and not so interested in "abstract" European solutions, as often being handicapped by language barriers).

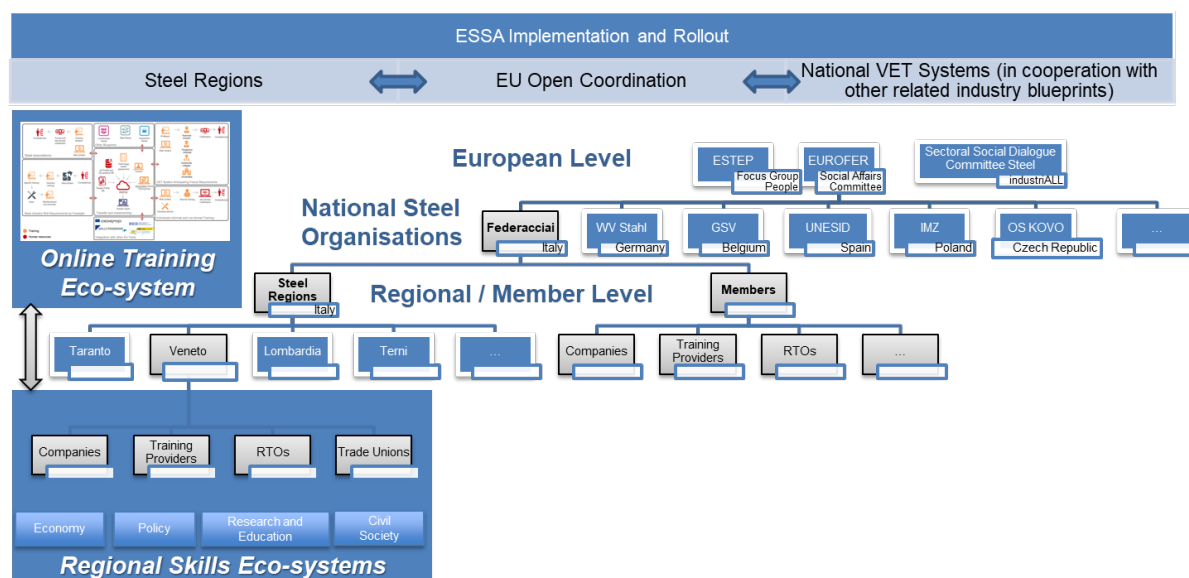


Figure 7: European – National – Regional Rollout

The rollout will be coordinated, supported and implemented by the ESSA Foresight Observatory in collaboration with the European steel associations and platforms as described above. Especially the national steel associations and unions will be involved in the rollout activities. Within the member states there will be a focus on steel regions (steel industry clusters). These clusters will setup different specific (depending on the main regional employment, education and training, and social demands) Regional Skills Eco-systems connected with the steelHub (Online Training Eco-system). With these main steel regions in Europe the ESSA Blueprint will support and be combined with national/regional skills approaches. A key element is the integration of companies, VET institutions, science, policy and social partners (esp. unions), and civil society activities at the regional level within the eco-system structure and governance. **Regional Dialogues** have to be done to set up or integrate the Regional Training Eco-systems in already existing regional structures (for innovation and education and training), checking what kind of support is needed from the national level (steel associations, training providers, VET institutions, policy, funding) and the EU level. Systematic mutual exchange between the Foresight Observatory and the Steel Regional Training Ecosystems will be bundled in a **Community of Practice (ESSA CoP)** within the Foresight Observatory ensuring mutual synergies, support, exchange and learning. This CoP will inform the work of the European Foresight Observatory (ESSA ETF) as a junction for improving skills adjustments proactively together, learning from each other, and pushing both technological innovation and qualification of the workforce forward in a common manner, to the benefit of each other.

The **national VET Systems** will be addressed on the regional level and **in cooperation with other process industry related Blueprints** (such as Industrial Symbiosis, Construction, Automotive, Manufacturing, Textile, and others). A common strategy should prepare the results, offers and demands of different Blueprints for supporting and integration in the national VET systems. This approach will reduce the burden, time and effort of the national VET institutions as well as increase the lobby and influence of the single Blueprints.

## **2. Pilot Implementation of Steel Regions**

Due to the rapid transformation of the steel sector by digital and green technologies, ESSA is delivering a deeper collaboration among the different actors as crucial to expand existing synergies among steel regions in order to implement large-scale upskilling and reskilling strategies. In this regard, the continuous cooperation among companies, universities and VET providers at regional level can also affect new job orientations. On the other hand, incentives can extend across the breadth and variety of training offers available to employees. Moreover, also incentives for e-learning and remote learning tools can encourage the professional upskilling in a sustainable way for companies. Furthermore, EU, national and regional efforts can pay a special attention to targeting hidden and young talents, which in the past have received less support.

### ***2.1 Eco-system Approach***

A successful partnership in a region to strengthen and develop a regional ecosystem should involve different partners:

- Education providers, which deliver expertise in education, help with educational programs and attract new talents to the sector.
- Regional small and large business, which are important for competitiveness and future prospects, aiming at retaining talents at regional level. In addition, collaboration between businesses can improve innovation.
- Governments, involved in a partnership, put a strong and viable labour market and well-trained human capital on the political and economic agenda. In addition, governments can stimulate potential partners to join and can help with subsidies to enable regions to start and expand partnership and to develop activities.
- Civil society should be also integrated as much as possible, in particular at the regional level, where people live and work, in order to ensure, with the other stakeholders, a continuous social innovation process to establish and improve new social practices in skills adjustments.

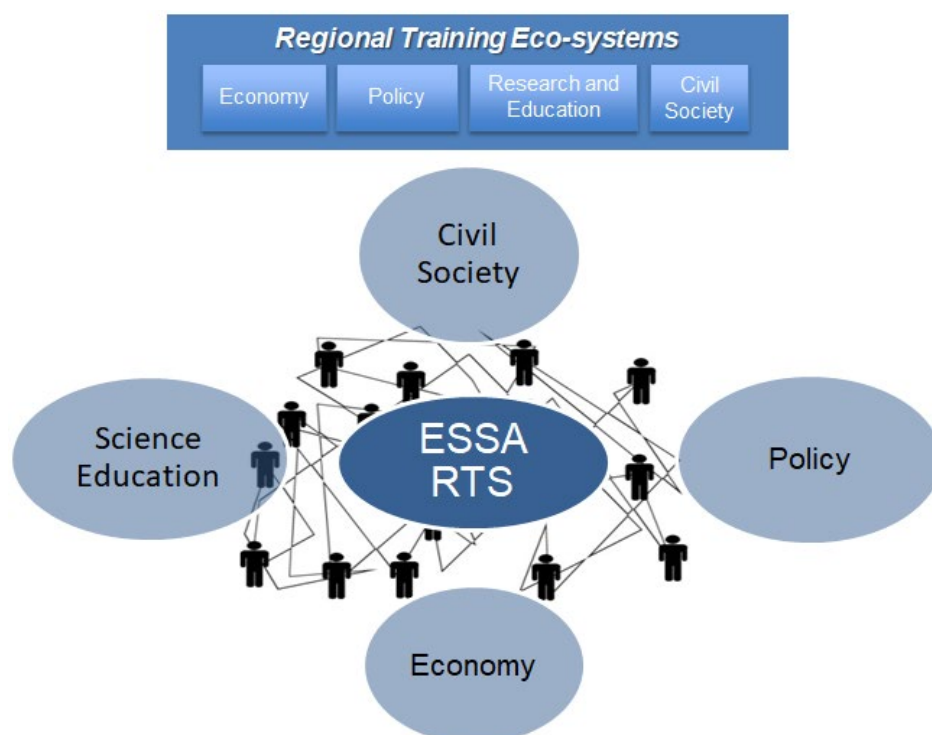


Figure 8: Regional Eco-system

In the implementation of the national and regional roll-out strategies, national associations, steel companies, unions and training providers will play a key role. Through the close collaboration with national and regional VET institutions, the strategy and the implementation process will be developed, in order to set the ground for a national/regional roll-out, adaptation and modification. On this subject, the European Steel Regions will develop specific comprehensive territorial skills strategies, in line with economic, industrial, smart specialisation and innovation strategies, affecting the areas involved.

During the first step of the pilot implementation an overview of the main European steel regions has been provided, thanks to the support of EUROFER and contributions from partners and national steel associations of several European countries. To this purpose, a template for gathering information and describing the main European Steel Regions was developed (see Figure 9). In particular the main stakeholders and players have been identified to set up a Regional Training Eco-systems of steel companies, training providers, RTOs, and trade unions.

Regions	Region A	Region B	Region C	Region D	Region E	Region ...
Companies						
Training Providers with a national scope						
Training Providers with a local scope						
RTO with a national scope						
RTO with a local scope						
Trade Unions with a national scope						
Trade Unions with a local scope						

Figure 9: template for describing the main EU steel regions.

A first set of steel regions has been identified in Italy, Poland, Germany, Belgium, Austria and Bulgaria, with the support of the national steel associations. The distribution of the steel companies is often not homogeneous, and there are big companies across Europe with a lot of employees relevant for the (regional) labor market to a high degree. However, beside these global players we will integrate steel processing SMEs as much as possible and other regional actors.

An overview of already mapped regions is provided in Figure 10, listing the main steel regions in the first set of EU countries.

<b>Italian Steel Regions</b>	Friuli Venezia Giulia – Puglia – Toscana – Veneto – Umbria – Lombardia – Valle D'Aosta – Liguria – Piemonte – Emilia-Romagna – Basilicata
<b>Polish Steel Regions</b>	Silesia – Malopolska – Opolskie Province – Mazowsze – Świętokrzyskie Province – Podkarpackie Province
<b>German Steel Regions</b>	Western Germany /Rhein-Ruhr Area – Southern Germany /Saar Area – Northern Germany – Eastern Germany
<b>Belgian Steel Regions</b>	Flemish Region – Wallonia Region
<b>Bulgarian Steel Regions</b>	Pernik – Burgas – Ruse – Montana
<b>Austrian Steel Regions</b>	Linz – Mur-Mürz-Area (within federal state of Styria) – Graz

Figure 10: Overview of mapped EU steel regions (June 2021)

Within these steel regions we identified all the relevant actors that could become part of the Regional Training Ecosystem (based on the feedback of national associations to our template, see Figure 9). In order to provide an example of a European steel region, the situation of the Region "Western Germany / Rhein-Ruhr Area" is depicted in Figure 11. In a first step, it shows the whole range of companies (big companies and SMEs) still remaining after the structural change of this former extensive steel region, the strong social partnership with unions, training providers and research institutions of national and regional scope. Becoming evident that there are already existing cooperation structures, ESSA will adjust and implement its training tools and support to the demands and necessities of the specific region, systematically extending the mutual European - Regional collaboration on skills adjustment, further integrating VET institutions (national such as the German Federal Institute for Vocational Education and Training BIBB and local vocational schools), as well as stakeholders from policy and civil society.

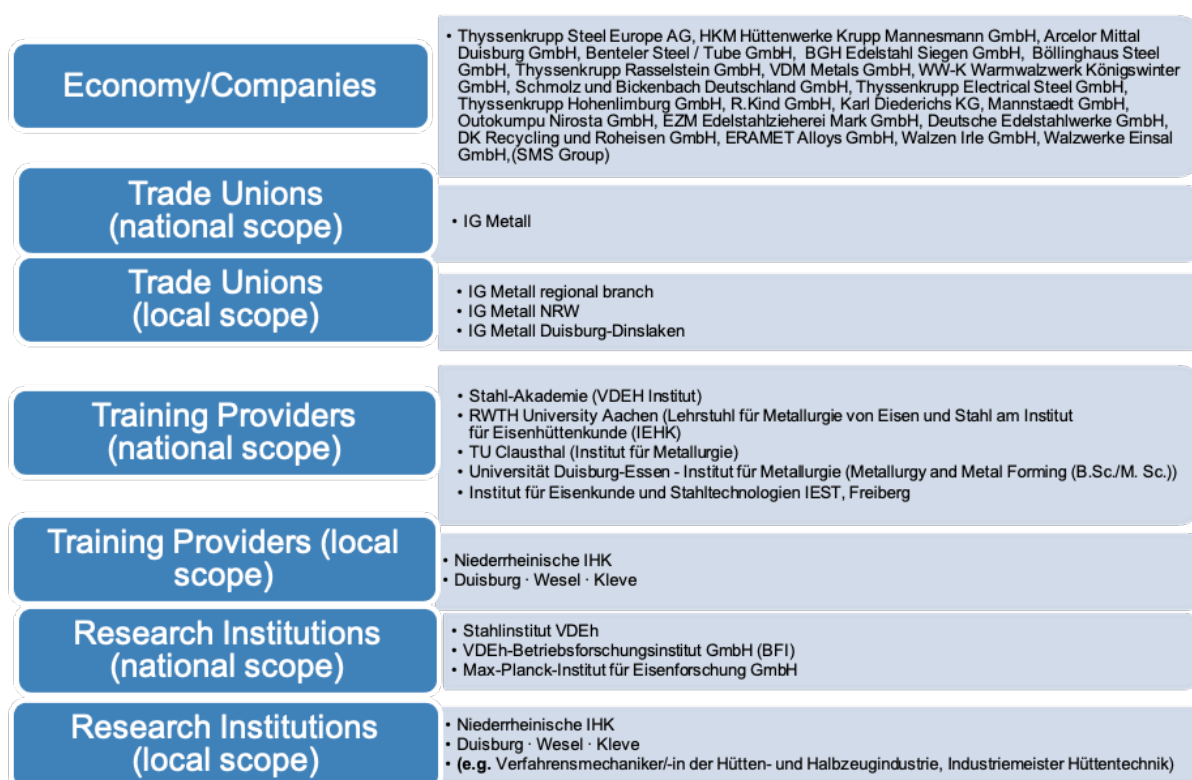


Figure 11: Steel Region Example "Region Western Germany /Rhein-Ruhr Area"

In order to achieve continuous improvements and adaptations of skills, competences and occupations in the Regional Training Ecosystems a common strategy should be applied. Therefore, there will be a focus on existing shortfalls that could be closed by European level support. On the regional level high attention will be paid to the integration of SMEs and steel processors as well as (national, regional) trade unions active at a practical company and regional level. The establishment, coordination and integration of European activities will be done in the native language of the regions/countries. Doing so, important elements from the regional level will complement and enrich the entire Skills Alliance.

Based on the experience of Schröder 2012 for implementing new regional structures for Life-long Learning, the Regional Training Ecosystems will

- indicate new learning opportunities and support structures responding to the increasing and fast changing demands of work, education/training for companies, VET systems, and the individual learner

- integrating steel (and the wider) industry demands as a structural principal of the regional education and training system, including the improvement, reconstruction and partly new construction of traditional structures
- orientate on learning outcomes and the recognition of competences adopted on other ways than formal learning
- emphasize the growing demand and challenge for every single person to deal actively and self-confident with constant changes in the world of labour and society and - at the same time - challenge public responsibility to support individuals who are not able to maintain active learning
- improve quantitative and qualitative participation of lifelong learning of the workers and inhabitants of a region, giving access and support where people work and live.

ESSA will not serve a one-size-fits all solution but a European orientation and support framework with a set of guidelines for adapting, modifying, complementing and further developing the Blueprint on the regional level, step-by-step within a social innovation process. Therefore, the implementation process of the Regional Training Ecosystems is characterised by

- a quick start within a "corridor of possible developments"
- new possibilities to get hold of and mobilise potential trainings
- an increased potential for education to become a "location factor" for integrated regional-local development (including the attraction of young people to the steel (and process industry) sector).

To facilitate integrational developments, the relevant stakeholders and institutions (maybe still working strictly separated) at the regional level will be connected along with their competences, responsibilities and cultures, by creating synergies in spending resources, and addressing the employees' professional competences, creativity, and willingness to cooperate for:

- pedagogic integration: new or better learning opportunities, counselling and guidance services, new learning settings, a common learning culture, etc.
- organisational integration: common administrative or directing structures, common use of resources (staff, rooms, equipment, monitoring instruments), corporate identity
- regional integration: activities and projects which reflect local demands, central or de-central organisation of learning sites, local networking, continuous communication with politics and administration, with social partners and enterprises.

This will lead to specific and different steel regions profiles under the umbrella of the European Steel Skills Alliance, focusing on specific regional demands, necessities and possibilities.



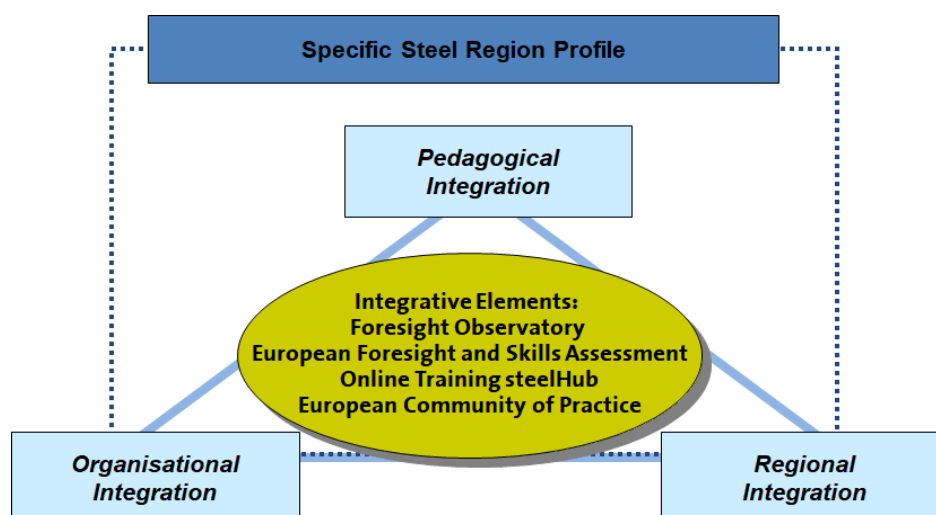


Figure 12: Pedagogical, organisational, and regional integration

By combining the regional (and national) level with the European Steel Skills Alliance and Strategy an integrative and binding cooperation going beyond pure networking is advised: extending complementary, subsidiary or supporting cooperation with setting up a new structural framework (common orientations, objectives and their practical implementation). In the sense of Social Innovation we are aiming at developing new social practices, putting industry demands and the learner in the centre (changing from an institutional to a strict learner's and learning process perspective). This includes different, heterogeneous innovation processes at the local level (depending on the recent demands and framework of the regions) within a common framework and overarching support structure and some common product developments. The local context for companies will also be informed by type of production and meeting the skill needs of EAF and BOF (or Hydrogen) are different (meaning different skill needs), and the plants will be at different stages of technological development and require different training provision, and VET provision has a local dimension also depending on the existing cooperation and infrastructures.

Again, within these rollout activities it is foreseen to join forces with other sectoral (process industry) Blueprints to harness synergies and joint strategies, avoiding separate addressing and integration of the same actors.

## 2.2 Pilot Regions

### 2.2.1 Selection Criteria and Procedure

Concerning the selection of pilot steel regions in the different EU Countries, the first selection of these countries has been carried out by considering the five case study countries selected in WP4 for the VET system analysis, focused on their structures and main characteristics (Italy, regional; Spain, company oriented; Germany, dual system; Poland, centralised; UK, market oriented). Because of the Brexit the constraints of a UK rollout have to be checked, esp. due to missing EU funding opportunities to establish Regional Training Ecosystems. Beside this, further selection criteria for pilot regions have been defined. In particular, regions have been selected by considering areas where there is a significant steel production and where there are historically productive activities for the sector. For instance, this can be well represented by Northern Italy, the German Ruhr Area, and by the Spanish regions Basque Country and Asturias. A further criterion considered is the active participation and the expression of interest



in the ESSA project by many actors in the region. This can provide better possibilities for co-operation inside the ESSA project with a large number of companies present in the selected region, even if they are outside the partnership of the project.

Furthermore, in the selection process of criteria for steel regions, the different routes for producing steel have been considered. Steel is currently produced in EU by two main steelmaking processes:

1. Integrated route, where steel is made from iron ore mainly via the Blast Furnace (BF). Iron, as sinter or pellets, is reduced by coke in the BF, and then converted into crude steel in a Basic Oxygen Furnace (BOF).
2. Electric route, where steel is made mainly through the recycling of scrap in an Electric Arc Furnace (EAF).

However, although in the last few decades the circularity through the EAF route and a shift to fully decarbonised electricity and the continued need for virgin steel have increased, as a third selection criteria new Carbon-lean production routes (i.e. hydrogen directed reduction and carbon capture use and/or storage (CCUS) steelmaking processes) are being considered. In this context, the transition to a climate-neutral economy can significantly affect the economic and the employment impacts on regions with important steel companies.

Since the piloting phase requires a slightly more continuous exchange between the companies that should exploit the roadmap and the institutions that are developing it, the more logical way to select the pilot regions has been performed by taking also into account the main countries included in the partnership within the ESSA project and already selected in WP 4 (i.e. Germany, Italy, Spain, Poland, United Kingdom – if compatible with Brexit constraints). However, other countries from northern Europe are important in the steel sector, although they are less represented in the ESSA project. For this reason, also Sweden and Finland have been considered as well as Netherlands.

An additional selection consisted in including some consolidated cooperation, in particular some existing clusters to compare them with the development of new regional training ecosystems. Already identified steel collaboration clusters in this sense are: Siderex Basque Steel Cluster (Basque Country, Spain) and Steel Innovation Cluster/Polo del Acero (Aviles, Spain).

Finally, the training initiative considered by the regional rollout will cover all relevant stakeholders and workers' categories. Therefore, the expected educational level of the audience is expected to encompass both basic and advanced degrees considering linguistic issues as not all employees and regional stakeholders or actors might speak English. Therefore, in the piloting stage of the selected steel regions, ESSA partners have to ensure the establishment of the selected steel regions with their native language, providing on-site support. This is a further element that leads to preference, in the piloting stage, the selection of the Steel Regions among the countries that are included in the partnership of the ESSA project.

To sum up, the selection criteria can be summarised as follows:

- Relevance of the region for the steel sector;
- Willingness to participate;
- Consideration of both traditional and novel production routes, i.e. the Electric (EAF-based) steelmaking route, the integrated (BF-based) route, as well as the novel Hydrogen-based processes;

- Pilot countries of the VET system selected within the ESSA project (Germany, Italy, Spain, Poland, United Kingdom), consideration of Sweden, Finland, Austria, Belgium, the Netherlands, and Bulgaria;
- Existing consolidated cooperation clusters of the steel sector, to integrate the skills perspective;
- Possibilities of the ESSA partners to move in related steel regions in order to provide direct support and overcome language problems in the piloting stage, by facilitating the discussion with the local stakeholders in the native language.

The selection criteria have been considered in the procedure to achieve the regional pilot implementation. In particular, some pilot regions have been selected by the partners involved, with the support of the national steel association, also to the aim of identifying the most representative companies and the main stakeholders engaged, that will take part in the following steps of the implementation. Furthermore, round tables with stakeholder groups (companies, trade unions, training institutions, research institutes, policy and civil society) in the selected regions will aim at gathering information, at verifying the interest and the willingness to participate. This process will launch a social innovation process in the selected regions integrating all the relevant and willing stakeholders, followed by the review of experiences, development and events. Finally, the activities developed and implemented can be transferred and integrated to other regions, after the consolidated implementation on pilot regions. To sum up, the following steps have been defined:

1. Selection of (5-6) pilot regions (together with the National Steel Associations);
2. Regional Round Table Meetings: Information / Verification of interest / willingness to participate with stakeholder groups in the dedicated region (to look at companies, trade unions, training institutions, research institutes, policy and civil society). On this subject, 2 Workshops are planned one in Sept/Oct and one in Nov/Dec 2021 in each of the selected regions;
3. Launch a social innovation process in the selected regions;
4. Review of experiences, development and events;
5. Transfer / integration of other regions, after focusing on pilot regions.

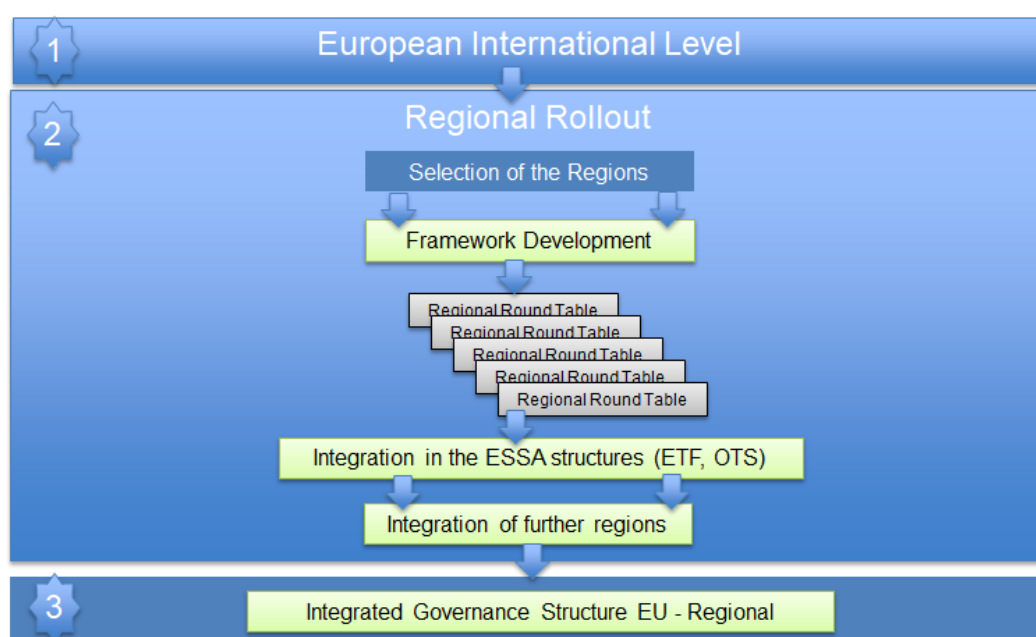


Figure 13: European - Regional Rollout

### 2.2.2 Countries and Regions

Most of the big steel companies do have strong relationships with the regions they are placed in. Corporate Social Responsibility activities (a) show the responsible corporate conduct towards environment, employees and other stakeholders going beyond legal requirements; (b) lead to new business strategies, cross-sector cooperation, stakeholder integration and interaction; and (c) are the starting point for new problem solutions and approaches - within the company and in the local, regional environment. Against this backdrop the regional cooperation within a Regional Training Eco-System of all the willing stakeholders from different sectors (industry, policy, education and research, and civil society) will raise a win-win-situation improving regional development. To illustrate how this networking could look like from the industry perspective, the Tata Steel Eco-system experience is described in the following as a kind of a first reference model, added by some first information about other countries and possible steel regions.

#### **The Netherlands (Regional Training Ecosystem TATA Steel IJmuiden as a first reference model)**

Dutch national, regional and local policies have been stimulating the enhancement of strong regional ecosystems. In particular, national policies subsidized the creation of regional public private partnership in Centers of Expertise (with Universities of applied science) and Centers of Innovative Craftsmanship (with VET providers) to create together with companies and knowledge institutes strong centers for education and innovation around a certain sector in the region<sup>11</sup>. In addition, the Dutch national government developed more “focused based” economic policy. Specific sectors were selected based on being the most innovative for the country but also the most competitive on the world market. Nine “Top sectors” were defined and, as these sectors are mostly regionally based, national policy focused on the enhancement R&D and innovation, with also a special emphasis on the role of the regional ecosystem and focused on more partnerships between education, businesses, knowledge institutions and local and regional governments. Concerning the steel sector in the Netherlands, in the region of Tata Steel **IJmuiden** a strong regional ecosystem has been developed. In particular, Techport is a regional public-private partnership, a regional network with more than 60 schools, companies and governments. It includes also Tata Steel Academy, which aims at achieving international competitiveness of the regional manufacturing and maintenance industry, well-trained technical staff and a culture of open innovation. The case study at Tata Steel shows that it is crucial having new talents available on the regional labour market, due to the aging and mobility of workforce. In addition, it is fundamental that the current and new workforce are capable of delivering the transitions that the steel sector is facing, for instance the developments in Smart Maintenance and the Energy Transition. In this process, Tata Steel needs to be supported by regional schools, other regional companies and regional and local government. And the partnership mainly focuses on four action lines, such as technology promotion (especially among young people), attractive technology education, attractive jobs in technology and innovation.

TATA Steel Academy is comprising its own company school, a training centre, a material handling centre and an Advanced Analytics Academy. Every year around 170 apprentices enrol in a vocational training programme leading to a formal certificate (EQF level 3 or 4) recognized by the Dutch government. Furthermore, also employees enrol – while already working for the

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<sup>11</sup> Source: <https://wea-rekatapult.eu/>

company – in vocational programmes at EQF level 4 and 6 (and in the near future also 5). The vocational programmes are offered in a close partnership with a VET provider (Nova College) and several universities of applied science in the region. Training is now also provided in co-operation with the same VET provider in the region, Nova College. This is in line with the overall model in The Netherlands, which foresees a close collaboration between VET providers and businesses. At Tata Steel, students spend 80% of their time in the company and one day a week learning at Nova College and obtain a certificate which is recognised by the government. In the training centre and at the material handling centre, 6,000-7,000 training courses (e.g. safety training, technical training, operational excellence, material handling) are provided every year to Tata Steel's employees, but also to businesses from the region. Additionally, Tata Steel focuses on enhancing interest in technical disciplines, especially for girls and young women. For instance, this is done during the Girls' Days, on which girls get to discover careers in technical industries and meet role models that prove they can have interesting careers in these industries.

Additionally, Tata Steel Academy partakes in Techport, a regional public-private partnership, the goal of which is to achieve future international competitiveness of the regional manufacturing and maintenance industry, well-trained technical staff and a culture of open innovation. The partnership focuses on four action lines, namely: technology promotion (especially among young people), attractive technology education, attractive jobs in technology (that is, how to recruit and retain new talents) and innovation. Examples of actions undertaken by Tata Steel Academy as part of the partnership are usage of 3D printers, advanced analytics, virtual reality, classes in science and technology for pupils from primary schools. Two projects that deserve particular attention are the Fieldlab Smart Maintenance and the Hyperloop. The former was started together with various partners from the industry, but also education providers (both VET providers and universities) to enhance the curriculum in Smart Maintenance offered by Tata Steel Academy and to train employees from all companies through a test setup of a water pump installation. Tests are based on real-life situations fed back by steel plants. The Hyperloop is a project meant to create a clean alternative for short haul flights, in which smart autonomous vehicles move through a network of safe tubes made out of steel. Tata Steel Academy uses this project to combine R&D with education. Students from the Academy and from universities and researchers work together to design, produce and test prototypes of the tubes.

Field Lab Smart Maintenance is an example of a project with different partners: *Tata Steel, ROC Nova College, Vrije Universiteit Amsterdam, Amsterdam Center of Data Analytics, SKF, Bosma & Bronkhorst, Semiotic Labs, IJssel Technologie, SKF Group, Inertia, Facta*. The Field lab comprising a part of the curriculum for the VET school, short workshops/trainings for employees from all the partners, and it is part of the development for an Associate Degree (level 5 EQF) Smart Maintenance. The Field Lab is a test setup of a waterpump installation, where students and employees can test and practice how to innovate our maintenance strategies by using sensors and algorithms. Tata Steel factories deliver the input for real situation cases and issues to be tested and experienced in this fieldlab.

### **Why working together in a regional ecosystem?**

For Tata Steel it is very important to have an adequate amount of new talents available on the regional labour market to work at the company due to the aging and mobility of the workforce. However, besides quantity, it is also very important that the current and new workforce are capable of delivering the transitions that our company and the steel sector in general is facing, for instance the developments in Smart Maintenance and the Energy Transition. To stay competitive shortages of well-educated human capital have to be provided and the skills of the

workforce have to be improved to keep innovating. Therefore, Tata Steel invests in current and future human capital; in skills, in ability to adapt to new ways of working and to deliver improvements and innovations by the workforce, working together with others. This is something Tata Steel cannot do alone and they need the region: schools, other regional companies and support of (regional and local) government. Successful partnership in the region was created to strengthen and develop a regional ecosystem:

- Educational providers: They deliver expertise in education and help with educational programs of good quality and – where needed – also formalization (recognition by government and on labour market). Secondly, they are important for attracting new talent to the sector and interest them in technology. Schools are a very good place to reach new potential and interest them. Also, educational providers can help businesses with translating innovation and new technologies into what an employee or student needs to know or do differently and help prepare them for the future.
- Businesses, small and large, in the region are part of the production and supply chain. First of all, also the business (and their employees) in the region need to be able to adapt fast to new innovations and not follow behind, as they are also part of the value chain and therefore important for competitiveness and future prospects. Furthermore, labour markets in the Dutch country are mainly regional. Therefore, it is necessary to attract and retain talents in the region together. Thirdly, in collaboration between companies innovation and mutual learning can flourish. And lastly, a large company as Tata Steel has the scale to really test prototypes and new innovative ideas. One of the challenges start-ups face is to be able to scale up their idea. In the partnership of Techport Tata Steel is able to bring fully test prototypes of small businesses in the region on a larger scale.
- Governments are also fully involved in the regional partnership as they are important for agenda setting, putting a strong and viable labour market and well-trained human capital on the political and economic agenda. Secondly, governments can give a boost to the scope and size of the network and can stimulate potential partners to join. And lastly, governments can help with “injection” subsidies to enable regions to start a partnership and to develop activities, after development being carried on by the partners themselves.

The partnership focuses mainly on four action lines (**promote, learn, work, innovate**) namely:

1. Technology promotion (especially among young people): many children loose interest in technology after a certain age. In different events and activities (challenges, career events, assignments) business show how careers in technology look like and let them experience it as well. An important specific target group are girls as they are under-represented in technological education programs and careers. There are special events and programs to also reach this big potential group.
2. Attractive technology education: make sure that with by working together closely as education providers and business, curricula stay up to date and entail enriched context of technology and innovation.
3. Attractive jobs in technology is about recruitment (traineeships for instance) and how we are able to retain talents in our region by lifelong learning and development programs and possibilities for mobility between companies in the region and keep upskilling our workforce in the region.
4. Innovation: TATA Steel works together in Techport with different partners on different activities. For starters they bring in use cases from the companies involved around

smart maintenance. Then prototypes are tested and business cases for it them are elaborated. Furthermore, they test new technologies in field-labs, not only for learning more about the technology itself but also to get more insight in the skills gaps of employees or students have concerning this new technology.

A couple of **lessons learned so far** about working together closely is:

- A clear agenda helps: it gives all partners a clear idea and scope of the partnership.
- Bring in content: a partnership/working together is not a goal but a means to a goal.
- Government support can boost and strengthen partnerships and collaboration in the region.
- Try to build a structural network, with explicit commitment (for instance in kind contributions of companies)
- To get companies to join and/or to really get involved in projects; build a business case. If you can show what a business will miss out on or what it can deliver in money and time, businesses are willing to invest.
- Do not over-ask smaller businesses: They are important for your region (human capital, innovation etc) but do not always have the time (or money) to be a big contributor. Nevertheless, it is very important that they stay connected and can join trainings and activities.

### **Countries in Consideration**

For the following countries we have more or less detailed information about the steel regions. But this overview allows first impressions of the similarities and differences.

#### **Germany**

Related to Germany's a federal state, consisting of sixteen partly sovereign federated states named Länder, four main steel regions can be identified, as follow:

1. "Western Germany / Rhein- Ruhr Area" (North Rhine-Westphalia);
2. "Southern Germany / Saar Area" (Saarland, Bavaria, Baden-Württemberg);
3. "Northern Germany" (Lower saxony, Bremen, Hamburg);
4. "Eastern Germany" (Thuringia, Saxony, Brandenburg).

The "Western Germany /Rhein- Ruhr Area" (North Rhine-Westphalia) (see Figure 11 above) includes many steel companies (i.e. Thyssenkrupp Steel Europe AG, HKM Hüttenwerke Krupp Mannesmann GmbH, Arcelor Mittal Duisburg GmbH, Benteler Steel / Tube GmbH, BGH Edelstahl Siegen GmbH, Böllinghaus Steel GmbH, Thyssenkrupp Rasselstein GmbH, VDM Metals GmbH, WW-K Warmwalzwerk Königswinter GmbH, Schmolz und Bickenbach Deutschland GmbH, Thyssenkrupp Electrical Steel GmbH, Thyssenkrupp, Hohenlimburg GmbH, R.Kind GmbH, Karl Diederichs KG, Mannstaedt GmbH, Outokumpu Nirosta GmbH, EZM Edelstahl-zieherei Mark GmbH, Friedrich Lohmann GmbH, Deutsche, Edelstahlwerke GmbH, DK Recycling und Roheisen GmbH, ERAMET Alloys GmbH, Walzen Irle GmbH, Walzwerke Einsal GmbH,(SMS Group)). In addition, in this region the main training providers/RTO with local scope are identified, such as Niederrheinische IHK Duisburg·Wesel·Kleve (e.g. Verfahrens-mechaniker/-in der Hütten-und Halbzeugindustrie, Industriemeister Hüttentechnik). On the other hand, the Trade Unions with the local scope are: IG Metall regional branch, IG Metall NRW, IG Metall Duisburg-Dinslaken.

The “Southern Germany /Saar Area” (Saarland, Bavaria, Baden-Württemberg) includes the following steel companies: AG der Dillinger Hüttenwerke, Stahlwerk Bous GmbH, Rogesa Roheisen Gesellschaft Saar mbH, Saarstahl AG, BSW Stahlwerke GmbH, Max Aicher GmbH. In this region operates IG Metall regional branch, as a Trade Union with a local scope.

The “Northern Germany” (Lower Saxony, Bremen, Hamburg) includes the following steel companies: Arcelor Mittal Bremen GmbH, Arcelor Mittal Hamburg GmbH, Salzgitter AG Stahl und Technologie, Salzgitter Flachstahl GmbH, Peiner Träger GmbH, Ilsenburger Grobblech GmbH and Georgsmarienhütte GmbH. In this region operates IG Metall regional branch, as a Trade Union with a local scope.

The “Eastern Germany” (Thuringia, Saxony, Brandenburg) includes the following steel companies: Arcelor Mittal Eisenhüttenstadt GmbH, B.E.S. Brandenburger Edelstahlwerke GmbH, BGH Freital GmbH, BGH Edelstahl Lugau GmbH, Stahlwerk Thüringen GmbH, Schmiedewerke Gröditz GmbH, H.E.S. Henningsdorfer Edelstahlwerke GmbH and ESF Elbe-Stahlwerke Feralpi GmbH. In this region operates IG Metall regional branch, as a Trade Union with a local scope.

In Germany IG Metall is the trade union with a national scope. In addition, the main training providers that operate at national level are: Stahl-Akademie (VDEH Institut), RWTH University Aachen (Lehrstuhl für Metallurgie von Eisen und Stahl am Institut für Eisenhüttenkunde (IEHK), TU Clausthal (Institut für Metallurgie), Universität Duisburg-Essen - Institut für Metallurgie (Metallurgy and Metal Forming (B.Sc./M. Sc.)) and Institut für Eisenkunde und Stahltechnologien IEST, Freiberg.

On the other hand, the main RTO with a national scope are: Stahlinstitut VDEh, VDEh-Betriebsforschungsinstitut GmbH (BFI), Max-Planck-Institut für Eisenforschung GmbH.

## Italy

Concerning Italian steel regions, the situation is manifold. Although most of the steel plants (mainly based on the electric steelmaking route) are located in Northern Italy, in almost all Italian regions there are steel plants. In addition, some companies present in the Northern regions own and manage steelworks located also in central or southern Italy. Furthermore, in northern Italy there is a system including steel producers and users. For instance, the mechanical and automotive sectors in the northern regions (including, for instance, also Emilia Romagna) draw on neighbouring companies for supplies. On the other hand, although some regions do only have one steel company placed, these are big companies with a lot of employees and relevant for the (regional) labour market to a high degree.

The main steel regions in Italy are: Lombardia (38 steel companies), Friuli Venezia Giulia (4), Toscana (2), Emilia Romagna (3), Veneto (7), Umbria (1), Valle D'Aosta (1), Liguria (1), Puglia (1), Piemonte (2), Basilicata (1).

Going into detail, the main steel companies in Lombardia are: Acciaieria Arvedi, Arvedi Tubi Acciaio, Acciaierie Di Calvisano, Acciaitubi, Alfa Acciai, Borusan Mannesmann Vobarno Tubi, Caleotto (Feralpi), Tenaris-Dalmine, Duferdofin – Nucor, Feralpi Siderurgica, Ferriera Alto Milanese, Ferriera Valsabbia, Ferrosider, Fiav L. Mazzacchera, I.T.A., Itla Inox, Industrie Riunite Odolesi I.R.O., Italfond, Itla Bonaiti, Lamina, Lima Eusider, M.A.B. Metallurgica Alta Brianza, Marcegaglia Carbon Steel, Metallurgica Marcora, O.L.A.N. Officina Laminazione Nastri, O.R.I. Martin, Olifer, Redaelli Tecna, Riva Acciaio - Malegno (BS), Riva Acciaio - Cervenno (BS), Riva Acciaio - Sellero (BS), Riva Acciaio - Caronno Pertusella (VA), Rodacciai, S.N.A.R. Laminati, Salzgitter Mannesmann Stainless Tubes Italia, Tecnotubi, Travi e Profilati di Pallanzeno,

Ugitech Italia. The main steel companies in Friuli Venezia Giulia are: Acciai Speciali Zorzetto, Ferriere Nord, JINDAL SAW ITALIA, METINVEST TRAMETAL. The main steel companies present in Veneto are: Acciaierie di Verona (Pittini), Acciaierie Valbruna, Acciaierie Venete, AFV Acciaierie Beltrame, ASFO, Ferriera Valsider, NLMK Verona. In Emilia Romagna are present RUBIERA SPECIAL STEEL, S.I.P.I. and STILMA, while in Piemonte are located PRO-FILMEC and RIVA ACCIAIO - Leseugno (CN), and in Toscana there are JSW Steel Italy Piombino and Liberty Magona, both located on the coastal area. On the other hand, in some Italian regions, there is only one plant. In particular, in Puglia there is Acciaierie D'Italia (formerly ArcelorMittal Italia - AMI), in Umbria there is Acciai Speciali Terni (AST), while in Valle D'Aosta Cogne Acciai Speciali, in Liguria Fabbrica Italiana Lamiera and in Basilicata SIDERPOTENZA-PITTINI.

Concerning the Italian Training Providers with a local scope, in Friuli Venezia Giulia there are University of Udine and Officina Pittini as well as Danieli Academy (a private training branch of Danieli Officine Meccaniche, which offers training to internal personnel and to personnel belonging to the other private companies that are customers of or correlated to Danieli Officine Meccaniche and Danieli Automation). In Puglia there is Politecnico di Bari, Ordine Ingegneri di Taranto while in Veneto there are Ricoversider (Federacciai) and University of Padova. In Umbria the main local Training Providers are University of Perugia, ITIS Terni, CFP Terni (Regione Umbria) and IPSIA Terni "S. Pertini". In Lombardia there are Riconversider (Federacciai) and ISFOR- Fondazione AIB, while in Liguria University of Genova, in Piemonte the Politecnico of Torino and FORAZ (Consorzio interaziendale per la formazione professionale) and in Emilia Romagna Riconversider (Federacciai).

Concerning Training Providers with a national scope, some universities (e.g. Scuola Superiore Sant'Anna, University of Pisa, Politecnico of Milano) or research centers (e.g. RINA-CSM, Riconversider, Associazione Italiana di Metallurgia, Consiglio Nazionale delle Ricerche), despite some of them have their headquarters in different areas of Italy (i.e. central Italy), able to provide their training offers throughout Italy.

Among other stakeholders, the main Trade Unions with a national scope are FIOM (CGIL), CGIL, FIM (CISL), CISL, UIL, UILM. However, some of them have an organizational layout not only at national level, but also at regional and provincial level. In particular, each trade union has also a delegation at Steel plant level if its representatives are elected by the employees.

## Spain

While the mapping of steel regions in Spain is still in progress there is already a growing collaboration with existing steel clusters of the European Cluster Collaboration Platform: Siderex Basque Steel Cluster and Polo del Acero (Steel Innovation Cluster), presented and discussed already at the ESSA Mid-term conference session "Regional Strategies for Future Skills in the Steel Industry".

**SIDEREX** is a non-profit Steel Cluster Association of the Basque Country created in 1996. It assembles the key businesses of the value chain in the steel sector of carbon, stainless and alloy steel mills, steel processors to engineering and equipment manufacturers, spare parts, components, raw materials, service companies for steel plants and representatives of the Basque network in Science, Technology, and Innovation. The objective of Siderex is to improve the competitiveness in the steel industry through cooperative actions between businesses and other stakeholders as well as to protect the business interests of associated partners. In this way, it provides a complete portfolio in the areas of Internationalization, Technological Innovation, Business Innovation, Sustainability.



The ROOM4STEEL Classroom (SIDEREX) aims at facing one of the main problems for the sector, such as the lack of specialization of society (students) around the steel industry. On this subject, the driving-force companies in the region, committed to society and with the collaboration with the Basque Country University (Faculty of Engineering of Bilbao), have created in the 2020/21 academic year the ROOM4STEEL Classroom (under the sponsorship of SIDEREX). This classroom is focused on training of students to incorporate them into the job market of companies in the steel sector, by retaining young talents and enhancing and increasing their capabilities, as well as by improving the image of the steel sector among new students.

First discussion with SIDEREX showed a high interest for the complementary ESSA perspective of blue-collar workers, because up to now from a skills perspective it is only focusing on the academic and higher education side. Vice versa, SIDEREX is important for the ESSA rollout in its region, by transferring and disseminating the results of the ESSA project to a large number of industries using multiples information channels, such as Side News, Steel Observatory, scientific journals, social media, website, press releases.

Asturias region has a powerful role in steel-related developments in Spain as well. In Asturias there are several value chains with steel products. The related collaboration cluster **Polo del Acero (Steel Innovation Cluster)** aims at improving competitiveness by facing current challenges, such as twin transition and promoting the skills for the future. This Steel Innovation Cluster includes 19 partners with a turnover close to 5.000 M€ (80% partners cover 80% of the sector) and almost 10,000 direct employment (49% of the sector). Its mission includes: boosting leadership of Steel Innovation Cluster through the technological differentiation of its products and processes; promoting technological collaboration that allows assuming projects with large scope, attracting talent and new companies; promoting innovation and technology development among the cluster members. In addition, the objectives of this cluster include the promotion of training and qualification in all matters related to R&D&I within the Steel Value Chain. For instance, the cluster project CALDIA is a training initiative performed 3 times since 2017 and it involved more than 150 participants from industry. It is open to partners all along the steel value chain, including tailored modules for the promotion of Digital Competences and on solving particular challenges under collaborative schemes. IDONIAL (Asturias Region) is the first Spanish Authorised Training Body. Profiles (i.e. Operator, Designer, Inspector and Supervisor) were created for METAL AM processes in industry and training courses in place. On this subject, STEEL SQUARE is a strategic asset, originated from the strategic partnership between ArcelorMittal and IDONIAL. Steel Square is a unique facility that provides solutions in and for steel.

The ESSA partner ArcelorMittal Spain Holding and ArcelorMittal Poland have regional campuses of ArcelorMittal University in both countries and both campuses are keen to become a key factor in the test and roll out of ESSA project tools.

### Poland

Steel industry in Poland is concentrating in the south-eastern area, where most of the steel companies and their training providers are placed. Therefore, ESSA will be integrated in these already existing cooperation structures to stress the skills adjustment proactively and systematically connect the region with the European Steel Skills Alliance and Strategy.

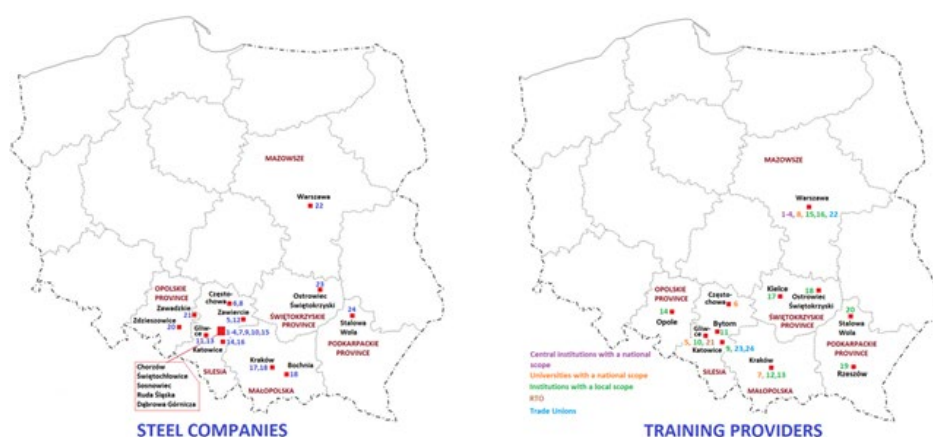


Figure 14: Polish steel companies and training providers

ESSA will concentrate on the Silesia region (Śląskie Province / Voivodeship): The capital city - Katowice, area - 12,333 km<sup>2</sup>, population - 4.5 million. The Śląskie Voivodeship is the most industrialized region in Poland and one of the most industrialized areas in Europe. Traditionally, it is a place of hard coal mining and steel mills were built near the coal mines. Silesia is characterized by the largest employment in the country (11.9% of national employment in the national economy), and in terms of the total value of industrial production sold (17.9%), the region ranks second in the country. The economy of the voivodeship is dominated by the following industries: coal (in Silesian mines producing 90% of the sold production of hard coal mining in Poland) and metallurgy, as well as the electromechanical, metal, chemical and food industries. The voivodeship has the largest share in the production of passenger cars and crude steel. There are 16 steel plants in the voivodeship. Total crude steel production capacity in terms of Maximum Possible Production (MPP) in this region is around 8 million tonnes per year, which is near 70% of domestic production capacity.

Companies present in the Silesia region include:

- One steel plant based on BF + BOF route of steel production: ArcelorMittal Poland Oddział w Dąbrowie Górniczej / *ArcelorMittal Poland's Unit in Dąbrowa Górnicza* – Headquarter of ArcelorMittal Poland (AMP), former Huta Katowice.
- 4 steel plants based on EAF route of steel production: CMC Poland; Huta Częstochowa; Walcownia Rur Batory (Alchemia Group); Cognor Oddział Ferrostal Łabędy w Gliwicach / *Cognor Branch Ferrostal Łabędy in Gliwice*
- 11 re-rollers steel plants (including 3 AMP production sites): ArcelorMittal Poland Oddział w Sosnowcu / *ArcelorMittal Poland's Unit in Sosnowiec* – former Huta Cedler; ArcelorMittal Poland Oddział w Świętochłowicach / *ArcelorMittal Poland Świętochłowice Unit* – former Huta Florian; ArcelorMittal Poland Oddział Huta Królewska / *ArcelorMittal Poland's Huta Królewska in Chorzow*; Rurexpol (Alchemia Group); Huta Bankowa (Alchemia Group); Kuźnia Batory (Alchemia Group); Cognor Oddział Ferrostal Łabędy w Zawierciu / *Cognor Branch Ferrostal Łabędy in Zawiercie*; Huta Łabędy; BGH Polska (BGH Group); Huta Pokój (Węglokoks Group); Ferrum.

Quite significant number of stakeholders is engaged in this region in context of VET for steel sector: central institutions (Ministerstwo Edukacji Narodowej (MEN); Departament Strategii, Kwalifikacji i Kształcenia Zawodowego (DSKKZ) / *Ministry of Education and Science; Department of Strategy, Qualifications and Vocational Training (DSKKZ)*, Ośrodek Rozwoju Edukacji

(ORE) / *Educational Development Centre (ORE)*, Instytut Badań Edukacyjnych (IBE) / *Educational Research Institute (IBE)*, Związek Zakładów Doskonalenia Zawodowego (ZZDZ) w Warszawie / *The Union of Vocational Education Centres (ZZDZ) in Warsaw*); Universities with a national scope (Politechnika Śląska w Gliwicach m(PSI) / *The Silesian University of Technology, Gliwice (PSI)*, Politechnika Częstochowska w Częstochowie (PCz) / *The Częstochowa University of Technology, Częstochowa (PCz)*, Akademia Górniczo-Hutnicza w Krakowie (AGH) / *AGH University of Science and Technology, Krakow (AGH)*, Politechnika Warszawska, Warszawa (PW) / *The Warsaw University of Science and Technology, Warsaw (PW)*), RTO with national scope (IMZ), Training providers with a local scope (Zakład Doskonalenia Zawodowego (ZDZ) w Katowicach / *Vocational Education Centre (ZDZ) in Katowice*, Górnośląskie Centrum Edukacyjne (GCE) im. Marii Skłodowskiej - Curie w Gliwicach / *Maria Skłodowska-Curie Upper Silesian Educational Centre (GCE) in Gliwice*, Centrum Kształcenia Ustawicznego (CKU) w Bytomiu / *Continuing Education Center (CKU) in Bytom*), Trade Unions with a national scope (Federacja Związków Zawodowych Metalowców i Hutników w Polsce (FZZMiH), Warszawa / *Federation of Trade Unions of Metalworkers and Metallurgists in Poland (FZZMiH), Warsaw*, Krajowa Sekcja Hutnictwa NSZZ "Solidarność" Katowice / *National Metallurgy Section of NSZZ "Solidarność" Katowice*) and Trade Unions with a local scope (Zarząd Regionu Śląsko-Dąbrowskiego NSZZ Solidarność Katowice Regionalna Sekcja Hutnictwa NSZZ Solidarność / *The Board of the Śląsko-Dąbrowski Region of NSZZ Solidarność Katowice Regional Steel Section of NSZZ Solidarność*).

## Belgium

Belgium is a federal State divided in 3 regions: Flanders, Wallonia and Brussels. There is also a division based on the languages. They are referred to as "communities". However, this word is not adapted to its constitutional signification: Flemish Community, "French" (meaning French speaking) Community and the German-speaking Community. Brussels is a particular situation, being the capital of the country as well as the fundamental administrative centre for the European Union.

Regions have mostly economical competences but communities have the competence of scholar education (primary, secondary and high schools).

Concerning companies, the division of companies between regions is not relevant unless about energy prices. It can be rather spoken in terms of Groups:

- Arcelor Mittal: Gent + Liège & Industeel (AMDS branch)
- APERAM Genk + Châtelet
- NLMK La Louvière + Clabecq
- Liberty Steel (LLD)
- RIVA - Thy-Marcinelle
- TATA Steel – Segal

In addition, there are 2 Research Centers: OnderzoeksCentrum voor de Aanwending van Staal (OCAS) and Centre de Recherches Métallurgiques (CRM)

Training Providers with a national/regional scope are not present in Belgium, as the sector did not set up 'steel academy' of specific steel training institutes. However, there is a promoting association on steel called INFOSTEEL, which focuses on the use of steel in the construction in Belgium and Luxemburg. Therefore, INFOSTEEL organises classes and a training set, but its goal is to promote steel among all players (engineering bureaus, architects, etc.) involved in construction.

Concerning Trade Unions with a national scope, they can be divided in 3 families, divided themselves into Flemish and French-speaking branches and blue/white collars:

- Christian: ACV/CSC METEA (blue collar) + LBC/CNE (white collars):
- Socialist: ABVV METAAL + MWB (blue collar) + SETCa/BBTK (white collars)
- Liberal (CGSLB)

In addition, leading personnel have their own trade union: CNC/NCK. It is important to remind that Trade Unions do not have juridical personality in Belgium. Concerning Trade Unions with a local scope, in Belgium all Trade-Unions have a hierarchical structure including regional or local branches, but they do not have 'own' existence, not differentiated from their 'national' structure.

## **Bulgaria**

In Bulgaria the main Steel Regions are Pernik, Burgas, Ruse, Montana. They include the main companies, such as Stomana Industry SA (Pernik), Promet Steel JSC (Burgas), EMC Distribution Ltd (Ruse), Berg Montana Fittings EAD (Montana). In the listed regions are present Training Providers with a local scope. In particular: Technology Vocational High School "Marie Curie", in Pernik; Technology Vocational High School "N.Vaptsarov", in Radomir; Vocational High School, in Burgas; Vocational High School on Mechanical Engineering, in Ruse. In addition, in Bulgaria as Training Providers with a national scope there are: University of Chemical Technology and Metallurgy, Technical University – Sofia, and the "Angel Kanchev" University of Ruse.

The main Trade Unions with a national scope in Bulgaria are the Trade Union Metalicy and the National Federation Metallurgy. On the other hand, concerning the Trade Unions with a local scope, in Pernik there are Trade Union Metalicy, National Federation Metallurgy, National Trade Union Zashtita, while in Burgas there are Trade Union Metalicy and National Federation Metallurgy.

## **Austria**

In Austria, there are three main steel regions, such as:

1. Linz: this is the city, where Voestalpine group is headquartered, and also where its main division (Steel Division) is located.
2. Mur Mürz Area (within federal state of Styria): this is the area, where historically the iron and steel industry developed.
3. Graz: this is not the main steel area, but the city where Stahl- und Walzwerk Marienhütte Gesellschaft m.b.H is located.

Concerning companies, in Linz voestalpine AG (holding company) and voestalpine Stahl GmbH (as well as other companies of the voestalpine steel division) are present. On the other hand, in the Mur Mürz Area there are the following companies: voestalpine BÖHLER Edelstahl GmbH & Co KG, and other companies of the voestalpine High Performance Metals Division; voestalpine Metal Engineering GmbH and other companies of the voestalpine High Performance Division; Stahl Judenburg GmbH; Breitenfeld Edelstahl AG. Finally, Graz includes Stahl- und Walzwerk Marienhütte Gesellschaft m.b.H.

In Austria, Training Providers with a national scope include Universities mainly focused on technology (i.e. Montanuniversität Leoben, FH Joanneum Kapfenberg, Johannes Kepler Uni-

versität Linz, K1 MET – Metallurgical Competence Centre in Linz (research centre), FH Oberösterreich – University of Applied Sciences Upper Austria, with technology focus in Wels, Technische Universität Vienna, Technische Universität Graz, FH Technikum Vienna). In addition, there are some public schools like: high technical schools, of which some have a special focus on steel/metals (like the one in Leoben); vocational schools, if a relevant technical apprenticeship is chosen.

Concerning the Training Providers with a local scope, in Linz there is Voestalpine Ausbildungszentrum Linz, Duale Akademie – a special training with different training priorities, including one in metal technology, offered by Economic Chamber in Upper Austria. On the other hand, in Mur-Mürz-Area there is voestalpine Ausbildungszentrum Kapfenberg.

Concerning Trade Unions, the main Trade Unions with a national scope are: Pro-GE and gpa-djp.

### **3. Implementation Roadmap: Relevant Aspects**

The development of the roadmap for the implementation and transfer of the Blueprint is based on a framework, which establishes how to systematically implement and discuss the main elements. This process also concerns the integration of the different stakeholder groups. In particular, the Implementation and Transfer phase, in its first contours and its further development, relies on the Blueprint Prototype developed in WP5, described in Deliverable 5.2 “Prototype of the Blueprint New Skills Agenda Steel” and in Deliverable 5.1 “Training Framework”. The roadmap activities provide a clear presentation of the outcomes that will be developed in the implementation and transfer phase of the ESSA project as well as the synergies with stakeholders and new alliances. Process- and result-oriented Key Performance Indicators (KPIs) will monitoring the project outputs and outcomes (WP8) in this direction, advancement and success rate for both during the project and after its completion are in focus.

#### ***3.1 Integration of new training offers in the steelHub - ESSA Online Training Ecosystem (ESSA OTS)***

Based on the pilot tests and the further development of the steelHub infrastructure, new training offers for the ESSA Online Training Ecosystem (ESSA OTS) will be integrated. This will imply the collection of the training modules and offers from the ESSA partners in the matrices to be integrated in the steelHub Online Training Eco-System (ESSA OTS), which works as an exchange platform. In line with the ESSA Training Ecosystems (especially the steelHub) rollout, training providers will provide their training offers, by considering the rights of their contents (see first draft of a business model in chapter 2.3.1.2 Formalisation / Business Model, to be developed further with the partners). The steelHub is an exchange platform for training offers, including input and output of the contents. In addition, in this context, training activities and modules developed by companies and training providers will be coordinated by worldsteel. In particular, the steelHub of the Online Training Eco-System (ESSA OTS) will implement and transfer human resources and training relevant contents and issues from and to all the relevant stakeholders, such as Associations, Industry, Other Blueprints, VET Systems, Individuals and EU Tools. The ESSA Job Profile and Occupational Matrix will be integrated in the steelHub and the assessment and the improvement of pilot training tools will be provided as well as new measures and arrangements. On the other hand, the analysis of technical and economic barriers will be performed to increase the integration of new content into the steelHub for skills

gaps defined through the ESSA Skills Assessment Checklist and the Survey carried out with Training Providers. The Online Training Ecosystem (ESSA OTS) will be integrated in the planned Regional Training Ecosystem (ESSA RTS) Framework, which will be in turns developed in a more elaborate way. Consequently, in the developed business model the international and European access should be differentiated.

In the implementation process, further practical implementation challenges are mainly related, on one hand, to technological and economic aspects and, on the other hand, to content and target groups. In particular, concerning the technological and economic challenges, it is fundamental to have a more visible integration of transversal skills. This aspect will be further elaborated and supported through the achieved results from the skills survey of the selected pilot professional profiles. In addition, some other crucial aspects concern the compliance of the infrastructure with General Data Protection Regulation as well as the agreement to use aggregated data generated by users for data analytic processing.

As far as the business model is concerned, some crucial issues include fees for usage of training modules and of the worldsteel infrastructure as well as formal agreement and Copyright protection among administrative entity of the steelHub and content providers as well as users.

Challenges related to the content and target groups include the attraction and the integration of elder and lower skilled workers/learners to such digital tools and how to perform this integration. In addition, it is important to specify how to improve digital skills for online learning, how to attract trainers for such tools, how to integrate the modules in VET systems (e.g. as example for other industries than the steel sector), and, finally, how to integrate the online training measures in the companies and VET system structures, curricula.

### ***3.2 Collection of train the trainer offers***

A further step concerns the **collection of train the trainer offers**. In particular, the actions focused on the integration of the training offers in the steelHub, where they will become available for a wide audience (see chapter 2.3.1.2 Formalisation / Business Model for details). In this regard, a dedicated template was developed in order to collect and to integrate train the trainer modules, coming from steel companies and training providers. In addition, training the trainer modules will be offered to be integrated into VET provision at European national and at sector level. Furthermore, methodologies and specific training courses for trainers will be provided in order to improve digital skills for trainers as well as to increase contents around new technologies for training courses, and to enable non-trainers (peers, leaders) to train (new digital learning arrangements).

### ***3.3 Development of the Regional Training Ecosystem (ESSA RTS) Framework and Rollout***

The development of the Regional Training Ecosystem (ESSA RTS) Framework will be a crucial step of the Implementation and Transfer phases. The first outlines of this framework will be developed in a more elaborate way, **connected with the Online Training Ecosystem (ESSA OTS)**. This method includes the elaboration of parameters for integrating existing European and national/regional structures with Alliances and Leadership, by promoting joint Blueprint activities for a national/regional rollout. On this subject, national and regional rollout strategy has been prepared with National Associations, Steel Companies and Training Providers. This

has led to the selection of first pilot regions. Furthermore, Steel regions, Steel Industry Clusters, will setup different specific Regional Skills Eco-systems connected with the steelHub (Online Training Eco-system), depending on the main regional employment, education and training, and social demands. This process will be supported by ESSA Blueprint in order to combine them with national/regional skills approaches. This will be achieved by considering some key elements, such as the integration of companies, VET institutions, science, policy, social partners (esp. unions), and civil society initiatives at the regional level within the eco-system structure and governance.

The ESSA rollout activities and implementation will be focused on the regional level where people live, work and learn with active involvement of companies and VET schools. In this context, national VET Systems will be addressed together with other process industry related Blueprints (such as Industrial Symbiosis, Construction, Automotive, Manufacturing, Textile, etc.). A common strategy should be focused on the preparation of results, offers and demands of different Blueprints for supporting and integration in the national VET systems.

Furthermore, skills, competences, and occupations will be continuously improved and adjusted in Regional Training Eco-Systems integrating national unions as they are more active at the company and regional level. A crucial aspect will be the translation of the online training framework into an onsite training environment at steel regions level as well as the development of complementary Regional Training Eco-systems (ESSA RTS).

The regional framework development will include also the exploration of esp. European funding schemes of the European Commission relevant for the regions (European Social Fund, European Regional Development Fund, Erasmus+, InvestEU Just Transition Fund, etc.).

### ***3.4 Repository of Innovation Projects and Recruitment Events at ESSA homepage***

In the implementation phase a key role will be played by a continuous update of a **Repository of Innovation Projects and Recruitment Events** both in Confluence space of the ESSA project and ESSA homepage. In particular, the update and improvement of the repository of Innovation Project will be performed according to the Work Package 2 activities. This repository of innovation projects and recruitment events will be connected with the competence database of the steelHub. Besides, the front end of this repository might need to be independent of any homepage in order to be disseminated through different channels, like into company systems.

### ***3.5 Structural Integration of the ESSA Measures***

Through different workshops/meetings including steel associations, a further discussion on the structural integration of the ESSA ETF (European Steel Technology and Skills Foresight Observatory), ETP (European Steel Technology and Skills Foresight Panel), OTS (Online Training Ecosystem), RTS (Regional Training Ecosystem) will be performed. This will be focused on the engagement of other European tools, such as ECQA (European Certification and Qualification Association), for certification of steel related skills and training modules with in the ESSA OTS and RTS ecosystems, the Skills Panorama, to exchange our results with the broader VET and industry community, and Europass, to collect learning outcomes for the individual learner.

In addition, the discussion will be also focused on the implementation of the European Steel Technology and Skills Foresight Observatory (ESSA ETF) as a central coordination unit, to be

integrated in existing European Steel Sector structures (e.g. as a task of the ESTEP Focus Group People). Furthermore, the ESSA Foresight Observatory in collaboration with the European steel associations and platforms (ESTEP, EUROFER, SSDCS, and industriALL), will coordinate, support and implement the rollout, and the existing national steel associations and unions will be involved in the rollout activities. In particular, the activities of the Observatory will be devoted on: monitoring and evaluating regularly technological and economic developments and related industry skills requirements; ensuring the alignment and support of the Online and Regional Training Eco-systems; performing a regular foresight survey.

Finally, within this development, the rollout will look at the **Alliances and Leadership building**, by establishing interrelated Alliances and Leadership on the European, national and regional level, fostering joint Blueprint activities and setting the ground for a national/regional rollout. In addition, the responsibilities for the different representatives (i.e. associations, companies, VET providers and systems, individual learner) will be allocated. The participating organisations, or stakeholders, have been selected because each is – in different ways – strategically committed to the European steel industry. Key stakeholders, including those directly involved in the project and those to which the project relates, have been identified and will be drawn upon for the identification and analysis of the intelligence related to the execution of the Blueprint and for the design and development of the network beyond the finite funding period of the project. The already huge ESSA partnership is engaged in supporting measures for the transfer, implementation, monitoring, cooperation and dissemination (EU and Member State Level) as well as for national roll-out preparation in collaboration with other blueprint developing sectors:

- Steel companies and social partners (associations and unions) are central and are engaged with ESSA aims and objectives for skills needs identification and analysis, and the upskilling of the workforce for the overall contribution to competitiveness, through database and foresight tools as well as training module development.
- Education and training providers contribute to the creation and development of the network by assisting in conducting analysis of existing training and qualifications frameworks and development of new programmes and curricula as well as supporting training modules development.
- The research institutes provide the social and technical basis of the skill needs analysis and contribute to skill requirements and foresight in respect of Work 4.0, as well as contributions to analysis of national VET requirements, regulations and systems and Blueprint development, including training and train the trainer modules and the interrelation to existing EU tools like EQF, ECVET, etc.). A contribution to policy recommendations (including collaboration with EU and Member State Stakeholders, national funding institutions) will also be coordinated by the research institutes.
- The contribution of sector experts is for integrating their knowledge of areas covered by the project to get sound feedback on Blueprint processes and progress, as well as key contribution to policy recommendations and transfer, implementation and monitoring processes.

#### 4. Next Steps

Having in mind, that the deliverable summarises the *planned* implementation and piloting measures of the European Steel Skills Alliance and Strategy, the next steps foreseen are:



1. Discussion of the integration of ESSA (namely Foresight Observatory, Community of Practice of Steel Regions) in existing European steel sector governance structures with the European steel associations and social partners
2. Formalisation and improvement of the steelHub infrastructure
3. Establishment of the Task Force SMEs, integrating SME topics and measures
4. Selection of the pilot steel regions and first Round Tables and Workshops in the regions
5. Elaboration and formalisation of the Regional Ecosystem Frameworks
6. Development of the Community of Practice of Regional Training Ecosystems, including checking transfer to other regions and their integration.

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