



COMPETENCY STANDARDIZATION

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Consortium

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Aluminium focused Light Metals Vocational Training Module Development

Task 1.2 - Competence level and standards verification collective work

COMPETENCY STANDARDIZATION

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1. Introduction

Aluminium is a strategic (or important industrial) material in Europe used in variety of sectors such a Automotive and Transport, aerospace, electronics, building and construction, packaging and consumer goods.

AluVET project covers the creation of a most needed training program by the metal sector namely light metals – aluminium production and design processes which are absent in metal technologies and metallurgy technologies VET modules on high school level of participating countries.

The problem faced in current vocational training is the existing programs are for general purposes and only cover basic information. Another important problem with these programs is that they do not have any or sufficient experience in the trainers in the institutions providing the relevant training and there is no digital and soft skills competence or training workers and students can benefit from.

The general objective of the action is;

To increase the light metal / Aluminium focused proficiencies of metal technology professional educators and students with the new industry needs-based training program supporting the curriculum.

The specific objectives of the action are;

- Increasing the sectoral and digital awareness of trainers and students and developing new programs for the expectations of the aluminium industry.
- Filling the vocational competence gap between Vocational Education and training providers and industry representatives
- Providing an online, interactive training platform that is in line with ECVET standards and up-to-date sectoral needs.
- Providing an up-to-date Toolbox platform used in aluminium industry downstream production and on-the-job observation service points for VET Scholars, trainers as well as students, blue-collars and aluminium industry representatives.

2. Summary of the Action

Prior to the project, the project consortium has made focus group meetings to determine what is needed in metal technologies, specifically, light metals sector vocational education.

Current vocational education certifications or high school level curriculums do not contain light metals training programs such as Aluminium Facade Systems and Aluminium Forged products as an option. However, these competencies require an intense module structure with work-based learning aspects. The feedback we have got from the industry covering all the participating organizations were;

- Newly Graduated do not know the principles of light metals technologies



- The blue collars who are in the workplace do not know the production processes and workplace as well as occupational health and safety applications.
- Vocational training programs are being prepared for general purposes in Metal Technologies and cover only the basic information that are insufficient in terms of content and number and are not based on sectoral needs
- They state that their training content is not up to date

Therefore, with this intellectual output, the AluVET project will design industrial needs-based training modules for light metals to fill sectoral HR needs in the sector.

The output will be an innovative approach to the current Metal technologies curriculum in both national levels and be aligned to The ECVET alignment will improve the transferability of the output by providing appliance chance in any European Vocational Education and Training institution. After alignment, the mentioned modules will be offered also to the National Ministry of Education. Acceptance of the modules will be left to the national authorities, however, in case of the intention of alterations to the present curriculum, project partners will provide support to the process.

The mentioned light metals modules will be specific and explain metal industries from a different perspective also containing Glass, Iron, Steel, and Construction perspectives. The module will contribute to the downstream procedures of light metals design.

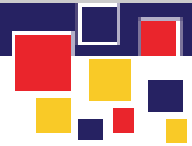
3. What is Competency Standardization?

Competency standardization refers to the process of establishing and maintaining consistent criteria or benchmarks for evaluating the knowledge, skills, abilities, and behaviors required to perform effectively in a particular job or profession. It involves defining a set of competencies that individuals should possess to meet the expected standards of performance.

Competencies are specific attributes or characteristics that enable individuals to perform their roles effectively. These may include technical skills, problem-solving abilities, communication skills, leadership qualities, and other job-related attributes. Standardizing competencies involves defining the desired proficiency levels for each competency and establishing clear expectations for performance.

The process of competency standardization typically involves the following steps:

- **Identification:** Identifying the key competencies required for successful performance in a specific job or profession. This can be done through job analysis, expert opinions, industry standards, or competency frameworks.
- **Definition:** Clearly defining each competency in terms of observable and measurable behaviors or indicators. This ensures that the competencies are specific and can be assessed objectively.
- **Proficiency Levels:** Establishing different proficiency levels for each competency, indicating the expected level of mastery or expertise. These levels can range from basic or entry-level to advanced or expert.



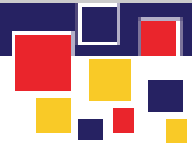
- **Assessment Tools:** Developing assessment tools and methods to evaluate individuals' competency levels. This may include tests, interviews, simulations, performance evaluations, or other forms of assessment.
- **Training and Development:** Designing training programs and development initiatives to help individuals acquire and enhance the required competencies. This may involve providing resources, workshops, mentoring, or on-the-job training.
- **Evaluation and Feedback:** Regularly evaluating individuals' competency levels and providing feedback on their performance. This helps identify areas for improvement and supports ongoing development.
- **Review and Update:** Periodically reviewing and updating the competency standards to align with changing job requirements, industry trends, or technological advancements.

Competency standardization aims to promote consistency, fairness, and objectivity in evaluating and comparing individuals' performance. It helps organizations set clear expectations, improve recruitment and selection processes, facilitate employee development, and enhance overall performance and productivity.

4. Who Is This Document For?

Competency standardization is relevant and beneficial to various stakeholders, including:

- **Organizations:** Competency standardization helps organizations establish a common set of criteria for evaluating and comparing the performance of employees. It enables them to define job requirements, set performance expectations, and support talent management processes such as recruitment, selection, training, and development. Standardization also promotes consistency across different departments or locations within an organization.
- **Human Resources (HR) Professionals:** HR professionals play a key role in implementing competency standardization within organizations. They are responsible for conducting job analyses, developing competency frameworks, designing assessment tools, and managing talent development programs. Competency standardization provides HR professionals with a structured approach to aligning workforce capabilities with organizational goals.
- **Employees:** Competency standardization provides clarity to employees regarding the skills, knowledge, and behaviors required for effective job performance. It helps them understand the expectations of their roles and supports their career development by identifying areas for improvement and guiding their learning and training efforts.
- **Job Seekers:** Competency standardization can benefit individuals seeking employment by providing clear guidelines on the skills and competencies desired by employers. Job seekers can assess their own competencies against the standardized benchmarks and identify areas for development or further training to enhance their employability.
- **Professional Associations and Regulatory Bodies:** Competency standardization is important in professions that require licensure or certification. Professional associations and regulatory bodies often establish competency standards to ensure a minimum level of professional competence and to protect the public interest. Standardization helps



maintain professional integrity, set ethical standards, and ensure consistency in professional practice.

It is important to note that the specific implementation and focus of competency standardization may vary depending on the industry, profession, or organization in question. The stakeholders involved and their specific needs may differ, but the overall goal is to define and maintain consistent standards for effective performance.

5. The Current Landscape of Employment

The aluminum industry plays a crucial role in various sectors, ranging from construction and transportation to packaging and renewable energy. As the demand for aluminum continues to rise, it brings both opportunities and challenges for companies operating in this sector. One of the key factors that significantly impact the success and sustainability of aluminum companies is their human resource management practices.

Qualified Person Requirement

% 69

of the companies cannot met qualified
employee need of the companies cannot
met qualified employee need

When addressing the requirements for qualified personnel in aluminum production and applications, our study revealed interesting insights. Out of the companies surveyed, 31% reported that they precisely met the demand for qualified individuals in their country. This indicates that these organizations have successfully recruited and developed a workforce with the necessary skills and knowledge for aluminum production and its various applications.

However, the findings also highlighted a significant gap in meeting the qualified person needs in the aluminum industry. Approximately 30% of the surveyed companies admitted that they were unable to completely fulfill the demand for qualified personnel. This suggests that a substantial portion of organizations within the aluminum sector is facing challenges in acquiring and retaining the right talent with the required competencies.

Deficiencies in Professional and Personal Development

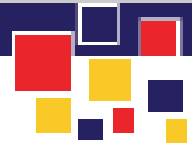
% 55

the companies see the
employees inexperienced
while of the companies
see the employees
inexperienced

% 35

state that they have
insufficient and/or
outdated information

Approximately 55% of the companies expressed that they encounter candidates with limited experience. This suggests that a significant portion of individuals seeking employment in the



aluminum industry lack the practical experience necessary to meet the demands of the job roles. This can pose challenges for organizations as they may need to invest additional resources in training and onboarding to bridge the experience gap.

Furthermore, 31% of the companies reported that candidates often come with insufficient and outdated information and knowledge. This finding highlights the importance of continuous learning and staying up-to-date with industry trends and advancements. It indicates that a considerable number of candidates may lack the necessary skills and knowledge required to thrive in the rapidly evolving aluminum industry.

Working Area Difficulties

Extrusion

Welding

Rolling

Facade

Considering the fields of activity in the sector, extrusion emerged as the field where companies reported the highest difficulty in finding qualified individuals, with 27% of companies expressing challenges in this area. Extrusion involves shaping aluminum into desired profiles and forms, and the demand for skilled professionals in this field is driven by the growing use of aluminum in various industries. The shortage of qualified personnel in extrusion can impact the production capacity and quality of extruded aluminum products.

Welding was another area identified as a challenge, with 19% of companies reporting difficulties in finding qualified welders. Welding plays a critical role in joining aluminum components, and skilled welders are essential for ensuring the structural integrity and quality of aluminum products. The shortage of qualified welders can affect manufacturing processes, product quality, and overall operational efficiency.

Moulding and casting were identified as fields where 18% of companies face difficulties in finding qualified individuals. Moulding and casting processes are integral to producing complex aluminum parts and components. The shortage of qualified personnel in these areas can impact production capacity, lead to longer lead times, and limit the ability of companies to meet customer demands.

Current Situation in Vocational Training and Education

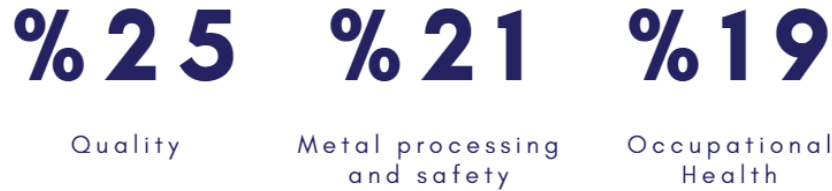
This lack of awareness suggests that there may be limited interaction or collaboration between educational institutions offering vocational courses and companies within the aluminum industry. The disconnect between the industry and vocational education providers can lead to a mismatch between the skills taught in these courses and the actual requirements of the working environment.

However, it is worth noting that some companies recognized the potential value of vocational courses. They believed that the applications and methodologies taught in these courses can be useful for the working area and provide valuable hands-on experience. This indicates that there



is an understanding of the practical benefits that vocational courses can offer in terms of developing relevant skills and knowledge.

Current Skill Need



The findings from our study provide insights into the topics that companies in the aluminum industry believe should be included in vocational training courses. The highlight focuses on that organizations consider crucial for developing a skilled workforce and addressing industry-specific needs.

Quality emerged as the top topic, with 25% of companies expressing that it should be included in vocational training courses. This underscores the significance of ensuring product quality and adhering to quality standards in the aluminum industry. Companies recognize the importance of training individuals in quality management principles, techniques, and practices to meet customer expectations and maintain a competitive edge.

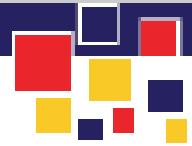
Metal processing was identified as the second most important topic, with 21% of companies emphasizing its inclusion in vocational training courses. Metal processing encompasses various techniques and processes involved in working with aluminum, including extrusion, welding, casting, forging, and rolling. Developing skills in metal processing is crucial for ensuring efficient production, maintaining product integrity, and meeting industry standards.

Occupational health and safety, along with the environment, ranked third in importance, as stated by 19% of companies. It reflects the industry's commitment to ensuring a safe and sustainable working environment. Training programs that focus on occupational health and safety practices, risk assessment, hazard identification, and environmental regulations can contribute to creating a culture of safety and environmental responsibility within the aluminum industry.

Expectations from the Blue-Collar's



The common expectation from these five different working areas (aluminium rolling, façade design and montage, aluminium welding, and aluminium extrusion) is a strong emphasis on knowledge and familiarity with international standards. This suggests that companies in the aluminium industry value professionals who are well-versed in industry standards and regulations that ensure quality, safety, and compliance on a global scale.



International standards play a significant role across these working areas, reflecting the industry's recognition of the importance of adhering to established norms and practices. This includes standards related to rolling, façade design and montage, welding, and extrusion processes. Professionals with knowledge of international standards are more likely to contribute to the production of high-quality and compliant aluminium products.

Additionally, the findings highlight the importance of staying updated with new advancements and technologies in each field. Topics such as new/hybrid rolling systems, new generation rolling methods/processes, new generation welding methods, and new generation extrusion processes indicate a demand for professionals who are knowledgeable about the latest techniques and methods in their respective areas.

Design-related aspects are also significant expectations across multiple fields, including product design in rolling, design of new generation façade and its elements, and post-processing in extrusion. This emphasizes the importance of professionals who can contribute to the design and development of innovative and efficient aluminium products.

Furthermore, specific technical areas are highlighted for each working area. For example, prevention of corrosion between weld surfaces in aluminium welding and extrusion of medium and hard aluminium alloys in aluminium extrusion are specific knowledge areas that companies value in blue-collar professionals.

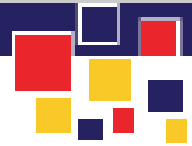
Overall, the common expectations across these working areas include a strong foundation in international standards, awareness of new advancements and technologies, competence in design-related aspects, and specialized knowledge in specific technical areas relevant to each field. Meeting these expectations can contribute to the overall success and competitiveness of companies in the aluminium industry.

Digital Skills Prospect

Digital skills play a crucial role in the aluminum industry because the sector is going through a digital transformation. This means that companies are embracing digital technologies and processes to gain a competitive edge and improve their operations. Having digital skills is essential for professionals in the industry for several reasons.

Firstly, digital skills help boost productivity and efficiency. With the use of digital tools and technologies, tasks can be automated, and processes can be optimized. This saves time, reduces errors, and increases overall productivity. Imagine being able to streamline operations, minimize downtime, and get things done faster and more efficiently with the help of digital skills.

Secondly, digital skills contribute to improved quality control. By leveraging digital technologies like sensors and real-time monitoring systems, professionals can closely monitor production parameters, detect any deviations, and make data-driven decisions. This ensures consistent product quality and allows for proactive maintenance to prevent issues before they occur.



Basic Digital Skills

Digital Security

Data Literacy

Digital Literacy

Based on the analysis conducted, it is evident that digital skills and soft skills are highly valued in the aluminum industry for blue-collar workers. This reaffirms the importance of training programs to enhance these skills. However, it is worth noting that some companies do not offer internal digital training programs for their blue-collar employees. Consequently, individuals in these roles may need to seek external training to acquire the necessary digital skills.

According to the findings, several key skills are identified as essential for blue-collar workers in the industry. These include Basic Digital Skills, Digital Security, Digital Literacy, and Data Literacy. Given that the acceptance and understanding of digital tools among blue-collar workers is relatively low, there is a clear need for training in utilizing digital tools effectively and managing digital data.

To sum up, the analysis highlights the significance of digital and soft skills for blue-collar talents in the aluminum industry. It emphasizes the necessity for training programs, particularly in areas such as Basic Digital Skills, Digital Security, Digital Literacy, and Data Literacy, as these skills are essential for staying competitive in a digitalized work environment.

Soft Skill Prospect

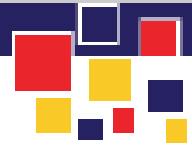
Soft skills are incredibly important in the aluminum industry because they go hand in hand with the technical expertise required for various roles. While technical knowledge is essential, it's the soft skills that truly make a difference in the industry.

One of the key soft skills in the aluminum industry is effective communication. Being able to communicate clearly and concisely is crucial for interactions with team members, suppliers, and customers. It helps to prevent misunderstandings, improve coordination, and ultimately enhance productivity.

Teamwork and collaboration are also vital in the aluminum industry. Many projects and tasks require employees to work together in teams. That's where soft skills like teamwork, cooperation, and the ability to work well with others come into play. These interpersonal skills enable employees to build positive relationships, resolve conflicts, and create a harmonious work environment.

Leadership and management skills are highly valued in the aluminum industry as well. Strong leaders inspire and motivate their teams, make sound decisions, and find innovative solutions to challenges. Leadership skills help in coordinating projects, optimizing resources, and ensuring smooth operations.

Adaptability and flexibility are essential soft skills in an industry that is subject to constant change. The aluminum industry faces evolving market demands and technological advancements. Soft skills like adaptability and flexibility allow employees to adjust to new



situations, embrace change, and quickly learn new processes and technologies. This adaptability helps organizations stay competitive and seize opportunities in a rapidly evolving industry.

Customer service is another area where soft skills make a difference. In the aluminum industry, employees often work closely with customers, understanding their needs, and delivering quality products and services. Soft skills like empathy, active listening, and problem-solving play a crucial role in providing exceptional customer service. Professionals who excel in these areas can build strong customer relationships, enhance satisfaction, and contribute to long-term business success.

Ethical conduct and professionalism are highly valued in the aluminum industry. Soft skills related to business ethics, integrity, and professionalism contribute to a positive work culture. They build trust with colleagues and customers and uphold the reputation of the organization.

Time management and organization skills are crucial in an industry where meeting project deadlines and managing multiple tasks is common. Soft skills in these areas allow professionals to effectively plan their work, allocate resources, and deliver high-quality results within specified timeframes.

In summary, soft skills are essential in the aluminum industry as they complement technical expertise and contribute to overall success. Effective communication, teamwork, leadership, adaptability, customer service, ethical conduct, and time management are just a few examples of soft skills that make a difference. By nurturing and valuing these skills, the aluminum industry can cultivate a skilled workforce that excels in their roles and contributes to the industry's continuous development and innovation.



6. Bridging The Gap – Filling The Skill Gap

The manufacturing sector, particularly companies involved in metals manufacturing like aluminum, plays a crucial role in the economy. Manufacturing is anticipated to be a key factor in the post-pandemic economic recovery, as it demonstrated its resilience during the pandemic with its strongest. However, the metal manufacturing landscape is evolving rapidly on a global scale, and there is a clear necessity to invest in the manufacturing industry given the prevailing political uncertainties. Therefore, it is essential for the sector to take measures to futureproof itself.

Despite being one of the prominent sectors, the broader metalworking industry faces challenges in attracting new talent and apprentices. Employees believe that not enough is being done to encourage young people to pursue a career in the sector. Additionally, there is a concern about fewer younger individuals entering the metalworking industry each year. The skills shortage is considered a serious issue that needs to be addressed. Without adequate action from businesses and the government, the industry may struggle to meet growing demand and face significant impacts on the aluminum sector. It is crucial to support emerging talent and attract the next generation of skilled workers to overcome these challenges.

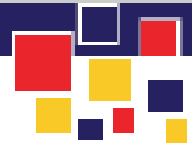
7. Bridging The Gap – Supporting Skills-Based Hiring

One of the major concerns raised by hiring managers is the difficulty in locating candidates with the right skills. Emphasizing skills-based hiring can help alleviate these concerns by simplifying the process of finding skilled candidates for challenging-to-fill positions.

Skills-based hiring, also known as competency-based hiring, has emerged as a favored recruitment approach that prioritizes an applicant's skills and knowledge over their academic background or work experience. This trend has gained widespread popularity among employers, driven by the changing nature of work and the need for candidates who possess the necessary skills to thrive in a dynamic and competitive job market. Rather than relying solely on traditional qualifications, employers now seek job-ready candidates who can make an immediate impact and adapt to new challenges.

The growth of skills-based hiring is motivated by the demand for employees who can hit the ground running, reducing the need for extensive training and onboarding. Moreover, this approach allows employers to attract a more diverse pool of candidates, promoting inclusivity and enabling individuals with unique skills and perspectives to contribute effectively to the workplace.

As the job market embraces gig-oriented work arrangements, skills-based hiring becomes even more relevant, enabling workers seeking freelance or contract-based employment to showcase their capabilities and find opportunities that align with their skills. Overall, skills-based hiring represents a shift towards a more efficient, adaptable, and inclusive recruitment process that better meets the needs of the evolving workforce and the demands of a rapidly changing job landscape.



8. In Summary

In this document, we have explored the critical aspects of competency standardization for blue-collar workers in the light metal, specifically the aluminum industry. Through an in-depth analysis of the current landscape and the challenges faced by employers, we have identified key competencies that are essential for these workers to excel in their roles and contribute effectively to the industry's growth and success.

Combining the findings from our research, we have categorized these key competencies into two main areas: technical skills and knowledge related to metal processing, occupational health and safety, quality management, EU regulations, and environmental practices, along with vocational education and training; and the growing importance of digital and soft skills, encompassing digital literacy, data literacy, digital security, business ethics, communication, commitment, dependability, motivation, management, and leadership skills.

In Summary:

To work effectively in the light metal, specifically the aluminum industry, blue-collar workers must possess a diverse set of competencies that address the industry's unique challenges and requirements. Here are the key competencies that should be emphasized in training and development programs:

Technical Competencies:

- ***Metal Processing***: Proficiency in extrusion, welding, rolling, and façade operations to ensure the smooth and efficient production process.
- ***Occupational Health and Safety (OHS)***: A strong understanding of OHS principles specific to aluminum manufacturing, maintaining a safe working environment.
- ***Quality Management***: Acumen in maintaining high-quality standards throughout the production process to meet customer demands.
- ***EU Regulations and Green Transition***: Familiarity with relevant regulations and sustainability practices, ensuring compliance and environmental responsibility.
- ***Vocational Education and Training Programs (VET)***: Recognition of the importance of VET programs in enhancing technical competency and practical skills.
- ***Environment and Design Knowledge***: Understanding of environmentally sustainable practices and design principles.

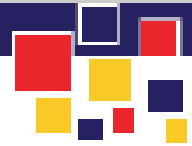
Digital and Soft Skills:

- ***Basic Digital Skills***: Proficiency in fundamental digital skills, essential for various tasks in the modern workplace.
- ***Digital Security***: Understanding of digital security practices to protect sensitive information and counter cyber threats.
- ***Digital Literacy***: Ability to navigate and utilize digital tools effectively for job-related tasks.



- **Data Literacy:** Competence in understanding and interpreting digital data, crucial for decision-making processes.
- **Business Ethics:** Emphasis on moral standards and professionalism to ensure right behavior in the workplace.
- **Good Communication:** Strong communication skills for effective collaboration and understanding among team members and stakeholders.
- **Commitment:** Demonstrating dedication and loyalty to the company's goals and values.
- **Dependability:** Being reliable and accountable in fulfilling job responsibilities.
- **Motivation:** Displaying high levels of motivation and enthusiasm to enhance productivity and job satisfaction.
- **Management Skills:** Acquiring effective task management and organizational skills.
- **Leadership:** Developing qualities to guide and inspire others.

By integrating these competencies into training and development initiatives, employers can nurture a skilled and adaptable workforce that meets the industry's evolving demands. This comprehensive approach will contribute to the long-term growth and success of the aluminum industry, while empowering blue-collar workers to thrive in their roles and build fulfilling careers.



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