LCAMP

Learner Centric Advanced Manufacturing Platform

D3.2 – SI – Slovene Sub-report on Jobs Impact Description

WP3 Learner centric Advanced Manufacturing Observatory

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TKNIKA – Basque VET Applied Research Centre, CIFP Miguel Altuna LHII, DHBW Heilbronn – Duale Hochschule, Baden-Württemberg, Curt Nicolin High School, AFM – Spanish Association of Machine Tool Industries, EARLALL – European Association of Regional & Local Authorities for Lifelong Learning, FORCAM, CMQE: Association campus des métiers et des qualifications industrie du future, MV: Mecanic Vallée, KIC: Knowledge Innovation Centre, MADE Competence Centre Industria 4.0; AFIL: Associazione Fabbrica Intelligente Lombardia, SIMUMATIK AB; Association HVC Association of Slovene Higher Vocational Colleges; TSCMB:Tehniški šolski center Maribor, KPDoNE: Kocaeli Directorate Of National Education; GEBKİM OIZ and CAMOSUN college.

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Project name	Learner Centric Advanced Manufacturing Platform for CoVEs
Acronym	LCAMP
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Project summary	The fifth industrial revolution is built upon the technologies of the fourth, with an increased emphasis on a human-centric, sustainable and resilient industrial base, emphasising the digital and green transitions. A key pillar of this economic transformation is the role played by Advanced Manufacturing systems such as Robotics, 3D & 4D printing, artificial intelligence and high-performance computing.

	I5.0, requires VET to develop 'learning centric approaches' that focus on the holistic competences of humans that plan, manage, oversee or operate technologies. LCAMP will tackle this by incorporating a permanent European Platform of Vocational Excellence for Advanced Manufacturing, seeded from a consortium of 20 partners and over 50 associate organisations including leading VET/HVET centres, companies, regional government, R&D centres, associations of companies and clusters. By collaborating across borders, LCAMP's goal is to support and empower regional AM CoVEs to become more resilient, innovative, and better equipped to train, upskill, and reskill young and adult students to successfully face the digital and green transitions. We will help regions grow and be more competitive through their VET systems. The Alliance is service-oriented, planning to establish permanent structures for: • Teaching & Learning: establishing AM skills frameworks and curricula; launching or revising AM programmes (including micro-credentials); creating or capacity building learning factories (special AM labs, jointly run by VET and industry) • Cooperation and Partnerships: launching a skills & jobs observatory for advanced manufacturing; accelerating industry/VET/region cooperation ideas via an open innovation community and providing consultancy to SMEs on integrating SME/VET connections. • Governance & Funding: creating a one-stop-shop portal for all our services; ensuring a business case for continuing services to stakeholders in the long-term, while enhancing participation
Work Packages	WP01: Project management and coordination. WP02: Learner Centric Advanced Manufacturing CoVEs Alliance. WP03: Observatory. WP04: Open Innovation Community. WP05: Human-Centric Learning for Advanced Manufacturing. WP06: Industry 4.0 technology absorption through the Collaborative Learning Factory. WP07: SME-VET connection. WP08: Advanced Manufacturing Excellence Discovery Platform. WP09: Dissemination. WP10: Roadmap for Continued Development Learner Centric Advanced Manufacturing CoVEs Alliance.

ACRONYMS

AI - Artificial Intelligence

AM - Advanced Manufacturing

Cedefop - European Centre for the Development of Vocational Training

CoVE - Centres of Vocational Excellence

EAfA European Alliance for Apprenticeships

EC European Commission

ECVET European Credit System for Vocational Education and Training

EntreComp The Entrepreneurship Competence Framework

EQAVET European Quality Assurance in Vocational Education and Training

EQF European Qualifications Framework

ESCO European Skills, Competences and Occupations

ETF European Training Foundation

EU European Union

HE Higher Education

HVET Higher Vocational Education and Training

I4.0 Industry 4.0

KET Key Enabling Technology

OECD Organisation for Economic Cooperation and Development

SME Small and Medium Enterprises

SWOT Strengths, Weaknesses, Opportunities, Threats

TVET Technical and Vocational Education and Training

VET Vocational Education and Training

WBL Work Based Learning

CONTENT TABLE

EXECUTIVE SUMMARY

The LCAMP project under the CoVE initiative aims to enhance regional skill ecosystems in Advanced Manufacturing.

LCAMP plans to establish a European Platform of Vocational Excellence for Advanced Manufacturing, promoting resilience and innovation across regions through collaboration.

This report is a result of the LCAMP Observatory, which is one of the services the LCAMP platform will put available for the final users. The Observatory is led by the French cluster *Mecanic Vallée* and the French VET centre CMQ.

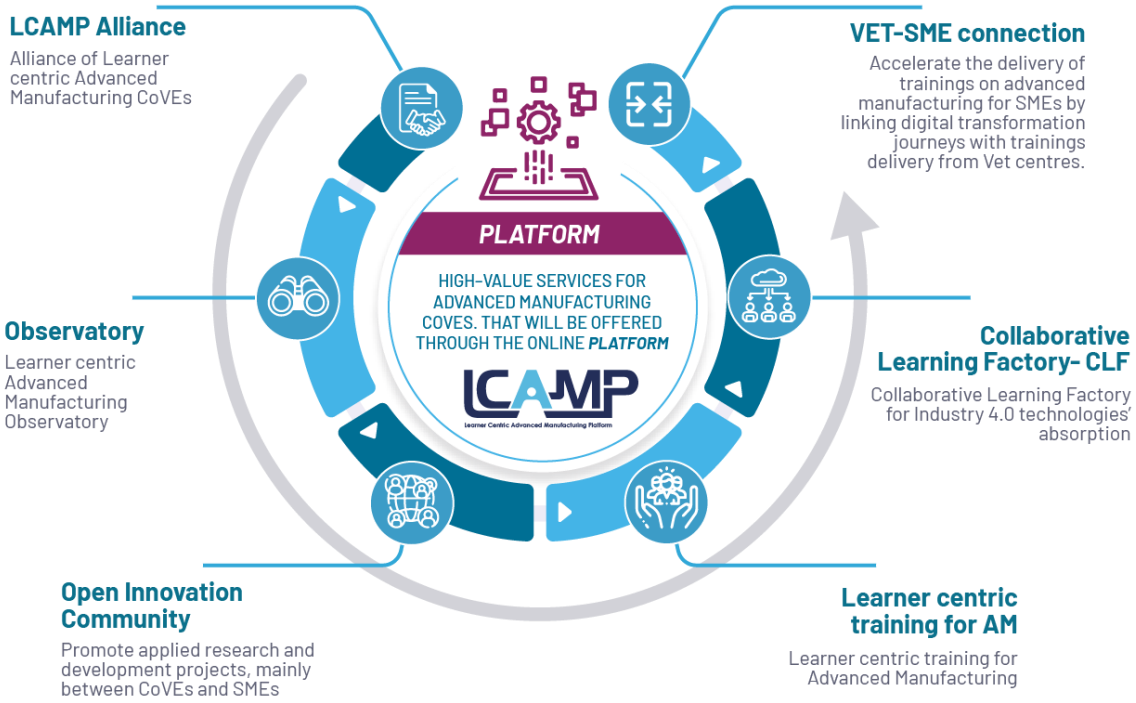

Figure 1 - Outputs and services that will be delivered by the LCAMP platform

1. INTRODUCTION

The LCAMP Observatory will serve as an easily accessible source of information for VET centres, authorities in charge of curricula, companies, clusters and other associations through a digital platform. Throughout the LCAMP project, the Observatory will issue periodic reports covering technology trends, labour market changes, skill requirements, and occupations in Advanced Manufacturing.

The following publication of yearly reports is expected:

- Report 1: June 2023, D3.2 – M12 (https://lcamp.eu/wp-content/uploads/sites/53/2023/07/D3.2-Observatory_reportN1-2.pdf)
- Report 2: September 2024, D3.2 – M24 (this year's focus)
- Report 3: June 2025, D3.2 – M36

In this report, the Observatory work package analyses the impact of digital and green transitions on the competences of the workforce in the advanced manufacturing industry.

It focuses on a selection of jobs occupied mainly by people qualified by European Qualification Framework (EQF) levels 3-6 studies, that make up a significant part of the current demand in industrial companies located in Slovenia.

The information gathered and the conclusions reached are the basis for the development of other activities under the LCAMP Project (https://lcamp.eu/). In addition, the contents of this report may be analytical material for some stakeholders to develop activities in their respective fields, such as VET Centres, clusters and business associations, companies, etc. These stakeholders will find basic information for the development of activities such as the integration of technology in VET centres, the revision of content (curriculum) and learning methodologies, the updating of continuous training, the design of VET specialties, among others.

The combination of desk (analysis of reports published on the subject in the last years) and field (direct analysis of the job positions selected, conducted through interviews with managers of companies) research activities followed in the elaboration of the report converges in the detailed description of the selected job. The elements derived from the general analysis have been combined with elements conditioned by the context of companies, revealing specific results in relation to the occupation.

In term of project management and collaborative work, this year aimed to validate how to describe a job's impact and related skills and validate the frame to allow other work packages to use such Observatory results.

2. METHODOLOGIES

The **D3-2-M24-A-Observatory Methodology** document describes methodology to produce this **Sub-Report part of 10 Sub-reports.** It includes:

- The methodology to select jobs to analyse
- The methodology to analyse the impacts
- The methodology to validate the Sub-Reports

3. JOB'S IMPACT ANALYSIS

This section deals with the analysis of the selected job. As mentioned in the methodology we started analysing the changes faced by companies and identifying the **levers of those changes** affecting the specific jobs; then we described the **changes in skills and knowledges** detected in the analysis.

3.1. LIST OF JOBS SELECTED

Here is the short list selected by Slovenia:

Esco code	Esco Occupation	1 - Industry sectors	2 - Digital and Green transitions new trends impacting	3 - Employability	4.relevance for the Smart Specialisation Strategy – at Regional/Country?	5 - Education level.
2141.10	Process engineer	**Automotive Manufacturing, Aerospace and Defence, Electronics and Semiconductor Manufacturing, Medical Device Manufacturing, Pharmaceutical Manufacturing, Chemical and Petrochemical Manufacturing, Renewable Energy Technologies, Advanced Materials Manufacturing**	1-1 Internet of Things (IoT) / Smart Sensors / 5G technology, 1-2 Artificial Intelligence (AI) / Machine learning / Big Data Analytics, 2-1 Virtual and Augmented Reality, 3-1 Cybersecurity, 4-1 3D Printing/Additive Manufacturing, 4-4 Digital Twins, 4-6 Predictive Maintenance, 5-2 Circular Economy	High demand. Statistical Office of the Republic of Slovenia (see SiStat) has noted a rise in engineering employees (2021 (year) -> 7545 (employees), 2022 -> 7831, 2023 -> 8050).	This job with defined skills and competencies was clearly defined as a job of the future by the Slovene labour market and such defined in publication by the national SMART specialization strategy (SRIP) (Gergorić et al. 2023).	EQF 5, 6

Table 1 - Job selection sum-up

3.2. PROCESS ENGINEER

3.2.1. JOB DESCRIPTION AND SCOPE

Job description

Esco Job description: Process engineers apply engineering concepts in order to improve all kinds of production and manufacturing processes in terms of efficiency and productivity. They evaluate the variables and constraints present in given processes and present engineering solutions to optimise them (ESCOa).

Process engineering is a broad term encompassing a variety of scientific and technical skills knowledge and competencies. It revolves around the central idea of converting one form of material to another form of material (Ramanujam 2022).

The occupation holder, the process engineer, should be an expert, who is responsible for designing, developing, constructing, implementing, and overseeing manufacturing processes in various industries. Their main task is to manage and optimize production processes and ensure that products are manufactured efficiently and with high quality. They oversee the health and safety of workers, who are part of the production process that the engineer is overseeing. In case they recognize potential problems, they propose solutions such as possible trainings for workers, elimination of technical issues in the machines or production lines (Gergorić et al. 2023, p.14).

A misconception in understanding the scope of the profession is that the process engineer does not partake in the detailed development of individual machines or equipment. In addition, process engineers are quite significant in the chemical industry (Ramanujam 2022), which consequently equates the sub-occupation of a chemical process engineer to a process engineer. To note, the description of the occupation, tasks and competences are narrower and more specific for a process engineer working in the chemical industry.

Business area

Process engineers are integral to various business areas and industry sectors within advanced manufacturing. Here are some key sectors where process engineers play a significant role (see ESS, Moje delo):

- **Automotive Manufacturing**: Process engineers participate in automotive manufacturing, where they optimize production processes for vehicle assembly, stamping, welding, painting, and finishing. They focus on improving manufacturing efficiency, reducing cycle times, and enhancing product quality through process optimization, automation, and continuous improvement initiatives (see Automotive World).
- **Aerospace and Defence**: Process engineers play a role in aerospace and defence manufacturing, where they optimize processes to produce aircraft, spacecraft, and defence systems. They focus on ensuring compliance with aerospace quality standards, reducing

manufacturing costs, and improving production efficiency through process optimization and automation (see AIA).

- **Electronics and Semiconductor Manufacturing**: In electronics manufacturing, process engineers are responsible for developing and optimizing processes for semiconductor fabrication, printed circuit board (PCB) assembly, and electronic component manufacturing. They work on tasks such as yield improvement, defect reduction, and process control to ensure high-quality electronic products are manufactured efficiently and cost-effectively (see SIA).
- **Medical Device Manufacturing**: Process engineers in medical device manufacturing ensure compliance with strict regulatory standards, such as those set by the FDA (Food and Drug Administration) in the United States or the CE marking requirements in Europe. They develop and implement manufacturing processes that adhere to quality management systems (QMS) and Good Manufacturing Practices (GMP) to ensure the safety and efficacy of medical devices (Process Development and Optimization, Quality Control and Assurance, Scale-Up and Technology Transfer, Lean Manufacturing and Continuous Improvement, Supply Chain Management, New Technology Integration, Cleanroom Operations) (see MedTech Dive).
- **Pharmaceutical and Biotechnology**: In the pharmaceutical and biotechnology sectors, process engineers are involved in developing and optimizing manufacturing processes for pharmaceutical drugs, vaccines, biologics, and medical devices. They work on tasks such as process validation, scale-up, and technology transfer, ensuring compliance with regulatory requirements and maintaining product quality and consistency (see Pharma Manufacturing).
- **Chemical and Petrochemical Manufacturing**: Process engineers are essential in chemical and petrochemical industries, where they design, optimize, and oversee chemical processes to produce chemicals, polymers, fuels, and other industrial products. They ensure efficient and safe operation of chemical plants, optimize production parameters, and develop innovative processes to improve yield, quality, and environmental sustainability (see Chemistry world).
- **Renewable Energy Technologies**: Process engineers contribute to renewable energy manufacturing by optimizing processes to produce solar panels, wind turbines, and energy storage systems. They work on tasks such as materials processing, device fabrication, and assembly, ensuring efficient and sustainable manufacturing of renewable energy technologies (see IRENA).
- **Advanced Materials Manufacturing**: Process engineers play a role in industries focused on advanced materials such as composites, ceramics, and nanomaterials. They develop and optimize processes for material synthesis, fabrication, and characterization, enabling the production of high-performance materials for various applications, including aerospace, automotive, and electronics (see Composites World).
- **Food and Beverage Processing**: Process engineers play a crucial role in the food and beverage industry, where they design and optimize processes for food production, processing, and packaging. They ensure food safety, quality, and hygiene standards are met while maximizing efficiency and minimizing waste in food manufacturing operations (see Food Processing).
- **Metalworking and Fabrication**: Process engineers engage in metalworking and fabrication industries, where they develop and optimize processes for metal forming, machining, welding, and surface finishing. They work on tasks such as process design, tooling selection,

and quality control to ensure efficient and high-quality production of metal components and products (see The Fabricator).

- **Environmental and Sustainable Manufacturing**: Process engineers contribute to environmental and sustainable manufacturing initiatives by developing processes that minimize waste, energy consumption, and environmental impact. They focus on implementing green manufacturing practices, recycling technologies, and renewable energy solutions to improve the sustainability of manufacturing operations (see Trellis).

3.2.2.CONTEXT AND LIMITATIONS

Gaining insights from the global and European manufacturing sectors offers valuable context for understanding the role and potential demand for process engineers in Slovenia. The manufacturing industry in Slovenia is a vital part of the national economy, with key sectors including automotive, pharmaceuticals, electronics, machinery, and metal products. As a member of the European Union (EU) and the Eurozone, Slovenia benefits from access to the EU single market and active participation in European supply chains (Gergorić et al. 2023).

In the year 2018 the World Economic Forum published a report ‘Readiness for the Future of Production Rate (see Readiness for…2018), which gives an estimation on how well the respected countries are prepared to co-shape and benefit from the Industry 4.0. Readiness typically refers to a country's ability to capitalize on future production opportunities, mitigate challenges and risks, and remain flexible and adaptable in the face of unforeseen events. The future readiness assessment evaluates different aspects of readiness and includes 100 countries from around the world. Based on the Report, Slovenia falls in the 1st quadrant of countries taking the 21st place. A similar conclusion is taken from the Competitive Industrial Performance (CIP) index, where Slovenia is ranked 32nd (see CIP) and thus considered an industrially competitive country (Krevs 2022).

The global manufacturing landscape is rapidly evolving with advancements in technology, digitalization, and Industry 4.0. In Slovenia, process engineers are key to this transformation, driving productivity, quality, and competitiveness.

The automotive sector, led by companies like Revoz (Renault) and TPV Group, sees process engineers optimizing vehicle assembly, stamping, welding, and painting processes to enhance efficiency and meet high standards. In pharmaceuticals, companies like Krka and Lek rely on process engineers to optimize drug manufacturing, ensuring regulatory compliance and consistent product quality. In electronics and machinery, companies like Gorenje and Iskraemeco focus on process optimization, using robotics, IoT, and AI to improve efficiency and flexibility in manufacturing (Gergorić et al. 2023).

While there are significant opportunities for process engineers in Slovenia’s manufacturing sector, there are also challenges to consider:

Skills Gap: Despite the strong manufacturing base in Slovenia, there may be a shortage of skilled workers, including process engineers, with expertise in advanced manufacturing technologies and methodologies. Addressing the skills gap through education, training, and workforce development initiatives is essential to ensure the continued growth and competitiveness of the manufacturing sector.

Regulatory Environment: Process engineers in Slovenia must navigate complex regulatory requirements, both domestically and within the EU. Compliance with regulations related to quality management, environmental protection, and occupational health and safety is critical for manufacturing operations and may pose challenges for process engineers.

Technological Adoption: While Slovenia's manufacturing sector is increasingly embracing digitalization and Industry 4.0 technologies, there may be barriers to the adoption of advanced manufacturing solutions, particularly among small and medium-sized enterprises (SMEs). Process engineers may encounter resistance to change and may need to advocate for investment in new technologies and training programs to drive innovation and competitiveness.

Global Competition: Slovenia's manufacturing sector faces competition from global markets, particularly in Eastern Europe and Asia. Process engineers must continually seek opportunities for process improvement, cost reduction, and innovation to remain competitive on the international stage (Gergorić et al. 2023).

Despite these challenges, process engineers in Slovenia play a crucial role in driving innovation, efficiency, and sustainability in manufacturing operations. By leveraging their expertise in process optimization, automation, and technology integration, they contribute to the growth and success of Slovenia's manufacturing sector in an increasingly globalized and competitive environment (VSPI).

3.2.3.FROM CURRENT SITUATION TO ON GOING SITUATION

Here after the description of the main tasks impacted by **Digital Technology** and/or **Green transition**, modifications and evolutions of the related needed skills.

Task	Impacting Digital Technology and/or Green transition	Impact Description	Related needed skills/knowledge impacted	Expected tendency for skill evolution	Skill type	Maturity level to reach	Skill ESCO URL	Skill Description
Introduce new technologies for automated production	1-1 Internet of Things (IoT) / Smart Sensors / 5G technology	Enable the seamless connection of devices and systems across the production floor, facilitating real-time data exchange and automation at an unprecedented scale.	Proficiency in IoT device integration, smart sensor calibration, 5G network infrastructure, and real-time data analytics.	+	Skill	L4	http://data.europa.eu/esco/skill/751941a0-5645-4f8b-b97e-b252909d5edb	Create repeatable patterns of ICT activity within an organisation which enhances the systematic transformations of products, informational processes and services through their production.
	1-2 Artificial Intelligence (AI) / Machine learning / Big Data Analytics	Utilize AI and machine learning to analyze production data, enabling real-time process optimization and predictive adjustments.	Expertise in AI, machine learning algorithms, and big data analytics for process optimization.	+	Skill	L3	http://data.europa.eu/esco/skill/751941a0-5645-4f8b-b97e-b252909d5edb	Create repeatable patterns of ICT activity within an organisation which enhances the systematic transformations of products, informational processes and services through their production.

Analyse and propose improvements based on production data	1-2 Artificial Intelligence (AI) / Machine learning / Big Data Analytics	Leverage AI and machine learning to analyze large volumes of production data, identifying patterns and inefficiencies that may not be immediately apparent.	Proficiency in AI and machine learning algorithms, experience with big data analytics tools.	+	Skill	L3	http://data.europa.eu/esco/skill/47a49cd6-097d-457a-9f7b-c290c14930d5	Collect and evaluate numerical data in large quantities, especially for the purpose of identifying patterns between the data.
	4-6 Predictive Maintenance	Enhance maintenance efficiency by using predictive maintenance tools to analyze production data, identifying potential equipment failures before they occur.	Experience with predictive maintenance tools, ability to analyze equipment data for preventive actions.	+	Knowledge	L3	http://data.europa.eu/esco/skill/7d913551-e17a-40ba-baf7-48d0c3b12e50	The use of data analytics and mathematical calculation to manage and monitor the conditions of machines and production processes.
Ensure data security and regulatory compliance	3-1 Cybersecurity	Strengthen data protection and ensure compliance with regulations by implementing robust cybersecurity measures to safeguard production data against breaches and unauthorized access.	Expertise in cybersecurity measures, knowledge of data protection regulations.	+	Knowledge	L2	http://data.europa.eu/esco/skill/8088750d-8388-4170-a76f-48354c469c44	The methods and best practices that protect ICT systems, networks, computers, devices, services, processes and people against unauthorised access, modification and/or denial of service of assets.
Create detailed project	4-4 Digital Twins	Improve project planning accuracy by using digital twins to simulate and visualize project	Proficiency in digital twin technology, skills in project management.	+	Knowledge	L2	http://data.europa.eu/esco/s	Model designed to generate a virtual representation of an object or system updated from real-time data. The

plans and budgets		scenarios, allowing for precise budgeting and timeline forecasting.					kill/f4a6e9f7-5cff-46c0-894c-59c20bb78694	virtual representation process is through the combination of data and technology simulation, using sensors to produce data of the physical object, such as temperature or energy to build its digital twin. Machine learning, simulation and reasoning are involved in this process.
Coordinate with engineering and R&D teams	4-2 Robotics and Automation	Enhance collaboration and innovation by integrating robotics and automation into engineering and R&D processes, streamlining workflows, and enabling the development of more advanced, efficient production systems.	Understanding of robotics systems, experience in automation technologies.	+	Knowledge	L4	http://data.europa.eu/esco/skill/f4a6e9f7-5cff-46c0-894c-59c20bb78694	Set of technologies that make a process, system, or apparatus operate automatically through the use of control systems.
	4-3 Collaborative Robots (Cobots)	Facilitate effective collaboration by integrating collaborative robots (cobots) into engineering and R&D workflows, allowing teams to work alongside robots in a shared space, increasing productivity, and enhancing precision in tasks that require human-robot interaction.	Proficiency in cobot programming, experience with human-robot collaboration.	+	Knowledge	L3	http://data.europa.eu/esco/skill/0f5374e3-0b9b-4b16-af7a-49654ce0bb15	Human-Robot Collaboration is the study of collaborative processes in which human and robot agents work together to achieve shared goals. Human-Robot Collaboration (HRC) is an interdisciplinary research area comprising classical robotics, human-computer interaction, artificial intelligence, design, cognitive sciences and psychology. It is related to the definition of the plans and the rules for communication to perform a

								task and achieve a goal in a joint action with a robot.
Stay updated on latest technological advancements	5-3 Energy Efficiency	Enhance energy efficiency by staying informed about the latest technological advancements, allowing for the adoption of cutting-edge energy-saving technologies and practices in production processes. This proactive approach helps reduce energy consumption, lower operational costs, and support sustainable manufacturing goals.	Knowledge of emerging energy-efficient technologies, continuous learning.	+	Knowledge	L1	http://data.europa.eu/esco/skill/22c45bf7-e52b-475f-847b-c32a87f65a5d	The circular economy aims to keep materials and products in use for as long as possible, extracting the maximum value from them while in use and recycling them at the end of their life cycle. It improves resource efficiency and helps to reduce the demand for virgin materials.
Document all processes and updates accurately	5-11 Environmental Monitoring and Reporting	Ensure compliance with environmental regulations by accurately documenting all processes and updates, enabling precise environmental monitoring and reporting. Proper documentation supports transparency, facilitates audits, and ensures that environmental performance is consistently tracked and improved.	Proficiency in environmental documentation, knowledge of reporting tools.	+	Skill	L2	http://data.europa.eu/esco/skill/c0ccbd15-36f3-4515-ae0b-b4062d225ee2	Comply with regulations banning heavy metals in solder, flame retardants in plastics, and phthalate plasticisers in plastics and wiring harness insulations, under EU RoHS/WEEE Directives and China RoHS legislation.

Table 2 - Tasks and skills impacted

3.3. EXPERTS' COMMENTS

For the purpose of composing the Slovenian sub-report we received comments from 4 experts. With their various backgrounds of holding functions in industrial, governmental and VET-centre positions, they were able to provide a multiview take on the featured profession.

Process engineer. The skills required for a process engineer primarily stem from mechanical engineering and organizational sciences, including technology, production planning and management, and the quality and reliability of processes. However, the current study programs lack sufficient practical knowledge in information systems such as MRP/ERP, MES, and PLM.

Process engineers need more training in statistical methods, statistical process control (SPC), informatics, data analysis, and business and production process modeling for effective process analysis and optimization. Despite significant demand, the current education system does not adequately prepare professionals for these roles.

A process engineer needs diverse skills due to the increasing complexity of technological processes. Emerging technologies in AI, virtual and augmented reality are crucial, as idle times in industrial processes directly affect company losses. Slovenian companies are already using modern process optimization technologies, but rapid developments in this field demand updated educational programs.

In the short term, VET centres should adjust curricula to include digital twin and shadow production. Long-term solutions might involve developing new vocational programs tailored to process engineering. By enhancing educational programs to cover practical applications and emerging technologies, Slovenia can cultivate a skilled workforce ready to drive efficiency and innovation in various industries.

4. CONCLUSION AND OUTLOOKS

The Slovenian sub-report dealt with the analysis of the occupation process engineer. As our analysis shows the demands in the industrial job market is high and there is a need for workers with skill and knowledge pertaining to the profession.

As was the scope of the analyses, we covered professions falling in the range of EQF level 3 – 6. The qualifications to carry on the research professions can be obtained at a Higher vocational college, which falls to level 5 (EQF 5 or SOK – Slovenian qualification – level 6) (see Slovensko ogrodje kvalifikacij) as well as in higher stages EQF 6 and 7.

The desk research and Expert's comment section show a clear need to foster this profession, finding such information from VET centres, industry and general EU trends. However, it is not so clearly seen by the main governmental institution – the Employment Service of Slovenia (hereafter ESS), who provides an overview of the most needed occupations for the territory of Slovenia. Every year they create a selection of profession, which they categorize into three groups – deficit, balance and surplus. The analyses are of a qualitative nature that aim to define the foreseen ratio between the offer and demand of certain occupations for the following year. The results are gained from the data obtained by ESS and a panel of experts (6 – 10 experts per panel).

Another important institution, which gives insight into occupational trends is the Statistical Office of the Republic of Slovenia (hereafter SiStat), which currently analyses 609 occupations in the republic of Slovenia. Both SiStat and ESS follow the same standard of occupational classification (see SiStat-a). While SiStat follows the trends of 609 occupations, ESS offers descriptions of more then 500, though it does not offer a precise number.

On the other hand, the before mentioned analyses of occupational trends in the territory of Slovenia analyses less than 200 occupations per year, having analysed 183 occupational groups in 2023 (see ESS). The profession covered in this report was not included in the analyses. Nor does it have its own classification, rather it is a part of a wider set of professions.

To conclude, we see a rise in demand and interest in the covered profession. It differs from industry to VET centres and governments, effecting the policies and approaches on how we deal with occurring challenges.

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LCAMP

Learner Centric Advanced Manufacturing Platform

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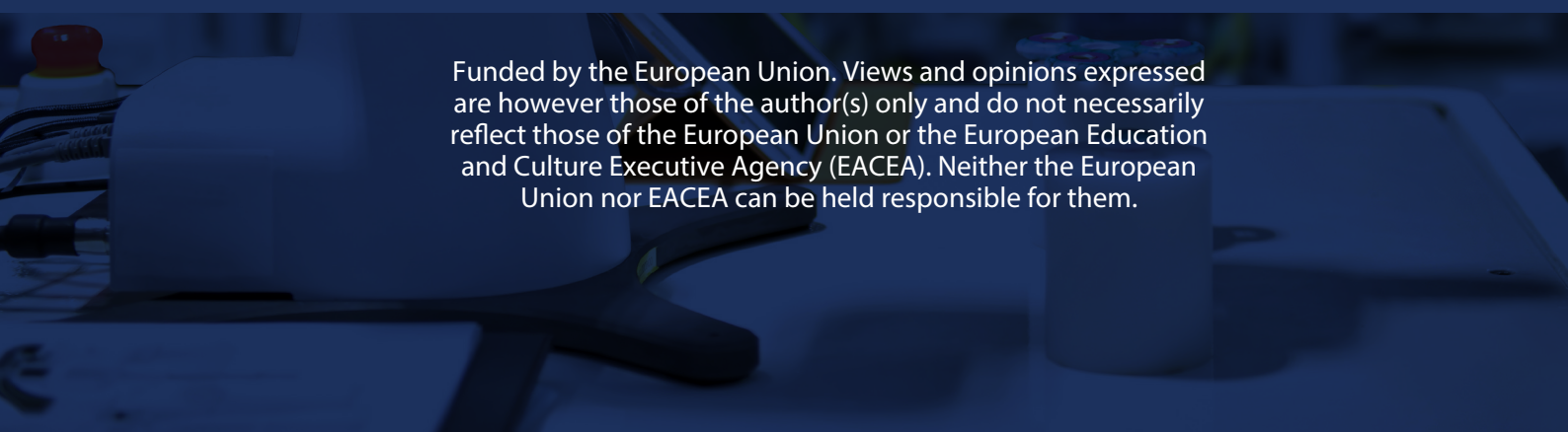

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