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NAVIGATING SOUTHERN EUROPE'S OFFSHORE RENEWABLE ENERGY FUTURE TOGETHER!

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D **EXCELLENT VET SYNTHESIS ROADMAPS**

The current report presents a consolidated analysis of the Vocational Education and Training (VET) landscape in relation to the rapidly evolving Offshore Renewable Energy (ORE) sector across five SHOREWINNER project partner countries: Portugal, Spain, Italy, Greece, and Cyprus. Drawing from previous comprehensive national-level analyses, this synthesis identifies critical skills mismatches, evaluates current VET offerings, and outlines strategic roadmaps developed by each national Centre of Vocational Excellence (CoVE).

SHARED CHALLENGES ACROSS THE VET LANDSCAPE

The aim is to establish a robust foundation for future project activities that will foster a highly skilled, adaptable, and future-ready workforce capable of driving the Offshore Renewable Energy sector's growth. The analysis across all five CoVEs reveals a shared understanding: while the ORE sector holds immense potential for energy transition and economic development, existing VET systems require significant enhancement to meet its specialized demands. A common thread is the current VET offering's tendency towards general renewable energy, onshore applications, or broader maritime/engineering fields, with a notable scarcity of dedicated, offshore-specific curricula.

This gap is particularly evident in practical, hands-on training tailored to the unique operational conditions of offshore environments, including compliance with internationally recognized safety standards such as those set by the Global Wind Organization (GWO).

The national roadmaps consistently highlight a series of challenges and needs within the current VET landscape. A key finding is the limited availability of programmes explicitly designed for the ORE sector. While many existing courses provide foundational knowledge in engineering or general renewable energy, they often fall short in covering essential offshore-specific technologies—such as floating platforms, subsea cabling, and mooring systems—and specialized maintenance protocols. This leads to notable skills mismatches across both technical and soft competencies.



RETHINKING VET DELIVERY AND INDUSTRY COLLABORATION

Critical hard skills gaps include advanced engineering disciplines (electrical, structural, and offshore-specific), digital competencies essential for the modern ORE industry (such as data analytics, AI, IoT, digital twins, and blockchain), predictive maintenance techniques, and proficiency in specific technical roles like specialized welders, divers, and installation and O&M technicians for offshore environments. Equally vital are soft skills, with a consistent demand across all regions for enhanced critical thinking, problem-solving abilities, effective communication and collaboration, adaptability in a dynamic sector, and, in some contexts such as Spain, improved English language proficiency.

Furthermore, current VET delivery methods are often viewed as overly theoretical, underscoring a pressing need for more immersive, work-based learning opportunities. These include internships, apprenticeships, access to real-world projects, and simulation-based training that replicates complex offshore conditions using virtual and augmented reality technologies. While the importance of effective collaboration between VET providers and ORE industry stakeholders is widely acknowledged, such partnerships often remain ad hoc.

This disconnect results in curricula that are not fully aligned with current industry needs, limited employer engagement in programme design, and insufficient opportunities for both students and teachers to gain practical exposure to the sector. Compounding this, educators and trainers themselves often lack up-to-date, specialized knowledge and practical experience in the ORE sector, which can hinder their ability to deliver cutting-edge training and necessitate continuous professional development. Finally, various barriers related to inclusion and accessibility were identified, including gender diversity challenges with the underrepresentation of women in technical roles, geographical disparities leading to urban-centric training facilities, lingering perceptions of VET compared to higher education, and the need for more accessible pathways for diverse learner groups.

To address these challenges, the national CoVE roadmaps propose a multifaceted, strategic approach aimed at bridging the gap between existing VET provision and the ORE sector's evolving needs. Central to this strategy is

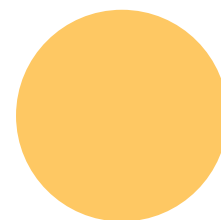
the comprehensive modernization of curricula, including the creation of new programmes or substantial updates to existing ones. This involves integrating GWO-aligned safety training as a standard, embedding essential digital skills, and ensuring coverage of emerging offshore technologies. Specific proposals include the establishment of specialized VET qualifications, the development of targeted specialization courses, and the introduction of elective modules focused on ORE within broader VET programmes.



TOWARD A HARMONIZED, FUTURE-READY VET SYSTEM

To address the pedagogical shortcomings, a universal recommendation is to enhance practical and work-based learning opportunities. This will be achieved through a concerted effort to increase industry internships, apprenticeships, access to simulation labs, and field-based learning experiences, thereby providing learners with the hands-on skills vital for the ORE sector. Concurrently, fostering systemic and strengthened VET-industry linkages is deemed crucial. This involves proactive measures to ensure curriculum co-design with ORE companies, facilitate guest lectures from industry experts, establish mentorship programmes, and ultimately guarantee the ongoing relevance of training programmes to industry needs. The creation of advisory boards, comprising representatives from industry, is a commonly proposed mechanism to achieve this alignment.

Recognizing the diverse needs of learners, the roadmaps also advocate for more flexible and inclusive training pathways. This includes the promotion of modular training approaches, the development and recognition of micro-credentials to allow for stackable learning, and the wider adoption of blended learning models that combine in-person and online delivery to enhance flexibility and accessibility. Furthermore, specific measures are prioritized to promote gender equality within the sector and to ensure that training programmes are accessible and welcoming to all underrepresented groups. Finally, the strategic value of cross-border collaboration is underscored. Leveraging the SHOREWINNER network to develop joint curricula, exchange best practices, standardize qualifications, pool resources for costly facilities like simulation labs, and facilitate learner and educator exchanges is seen as a key enabler for VET excellence. Such efforts aim to foster a harmonized approach to ORE skills development across partner countries.



LOOKING FORWARD

Insights from Cyprus, Greece, Italy, Spain, and Portugal collectively offer a practical and well-defined roadmap. The proposed actions will directly shape the creation of innovative educational materials. Furthermore, the highlighted possibilities for international partnership will be crucial for collaborative learning initiatives. By systematically tackling these requirements, the SHOREWINNER project seeks to substantially improve the standard, applicability, and adaptability of vocational education and training in the offshore renewable energy sector. This will ultimately lead to a competent, competitive and resilient workforce capable of advancing Europe's environmental sustainability goals.



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