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voice for business

Forging Green Talents

Developing Workers' Skills for the Green Transition through Vocational Training

Established in 1962, *Business at OECD* (BIAC) is the officially recognized institutional business stakeholder at the OECD. We stand for policies that enable businesses of all sizes to contribute to economic growth, sustainable development, and societal prosperity. Through *Business at OECD*, national business and employers' federations representing over 10 million companies provide perspectives to cutting-edge OECD policy debates that shape market-based economies and impact global governance. Our expertise is enriched by the contributions of a wide range of international sector organizations.

The International Organisation of Employers (IOE) was created in 1920 to advocate in the tripartite International Labour Organization on behalf of the global employer and business community. IOE continues to defend and promote these same interests across a wide range of UN agencies, international organisations, intergovernmental processes and the media. IOE is the largest private sector network in the world, representing 50 million businesses through 150 national employers organisations in various policy areas relating to employment, labour markets and socio-economic issues. IOE is recognised for its unique expertise, advocacy and influence as a powerful and balanced voice for business at the international level.

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"The green transition will succeed if the available workforce is equipped with adequate skills, yet talent shortages persist. Businesses are taking initiatives to address this challenge, but cannot be effective alone. In this context, *Business at OECD* (BIAC) and the International Organisation of Employer (IOE) urge stronger public-private collaboration to anticipate skills needs for both developed and developing economies."

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Introduction

Business and enterprises of all sizes are crucial partners in solving one of the world's most pressing challenges: climate change. Across countries, companies are taking a leading role to develop, deploy and scale innovative solutions for sustainable development and the transition to net-zero emissions. This transition, among its many complex elements and implications, also has a fundamental impact on labor markets: It reshapes job structures, creates demand for skills, and necessitates workforce upskilling and reallocation. At least 1.5 billion workers - nearly half of the global workforce – may be impacted globally.

The latest Global Green Skills Report from LinkedIn highlights the discrepancy between the 11.6% growth in demand for green talent in 2024 and the supply growth of only 5.6%. This reinforces the warnings of skills shortages from many business leaders and business associations and presents a real risk of slowing down progress towards climate targets. According to the recent World Economic Forum report on industry decarbonization, skills, knowledge, scarce staffing and expertise to create and deliver a net-zero transition plan are some of the main challenges for mitigation of emissions; 69% of supply chain leaders do not feel knowledgeable or experienced enough to drive net-zero initiatives. The situation varies by country, for example in the UK, PwC analyzed the energy sector projected a green skills gap of about 200,000 workers by 2030. According to EuropeOn, there is a lack of skilled electrical workers across Europe to cover the needs of electrification and green transition. Concerning the newly emerging hydrogen industry there are skills gaps in most countries analysed. Across Africa, there are also significant challenges in finding skilled talent and the experts needed for renewable energy jobs (it is projected that 30% of new renewable energy jobs until 2030 will require vocational or technical training). Indeed, a key challenge in many countries is the high level of informality in the labor market, since vocational training programs are typically designed for formal employment.

References:

- *PwC (2022), Energy transition will be constrained by green skills gap of c.200,000 workers*
- *EuropeOn (2024), The future needs electrical contractors*
- *Kim Beasy, Sherridan Emery, Kerrin Pryor, Tuong Anh Vo (2023), Skilling the green hydrogen economy: A case study from Australia*
- *Reuters (2024), How bridging the skills gap can boost Africa's green energy transition*

In 2025, governments are set to review their climate action plans and submit updated Nationally Determined Contributions (NDCs) under the Paris Agreement. While this presents a critical moment to integrate stronger commitments to climate change, it is an opportunity to strengthen and deepen the means of implementation for those commitments since progress in aligning green ambitions with skills systems remains limited: Only 40 out of 133 NDCs currently refer to climate change education. Due to the skills needs and shortages many businesses are dealing with, going forward, additional emphasis on skills systems is needed to support the move from commitments to action.

To this end, a cross-cutting, integrated discussion is needed with different policy communities. While international frameworks, such as the Paris Agreement, the ILO Just Transition Guidelines, and the OECD MNE Guidelines provide general high-level guidance, this can be complicated by vague concepts and terminologies that are generally not very well understood: For instance, just transition, climate skills, green jobs, or low-carbon economy, get updated, adapted and used in different ways by international organizations, governments and stakeholders. Ongoing discussions towards a shared, common understanding can lead to faster, more effective and efficient joint collective efforts, but must be rooted in on-the-ground realities.

Based on these observations, *Business at OECD* (BIAC) and the International Organisation of Employers (IOE) have collaborated to provide business current case studies of what companies do and need to 'forge green talents' by developing worker skills for the green transition. By taking a bottom-up approach, this paper contributes to a wider debate on what policies are needed to enable the private sector to successfully transition to more environmentally sustainable business models, while enabling all to participate.

This paper showcases that many businesses are taking the initiative by offering training programs to address skills gaps, but governments must do more to support private sector efforts. Prioritizing training not only reduces fear of job loss but also motivates employees by helping them recognize the close connection between their work and sustainable development.

References:

- *Education International (2022), Teach for the Planet*
- *OECD (2024), OECD Employment Outlook*
- *ILO (2012), Working Toward Sustainable Development, Opportunities for decent work and social inclusion in a green economy*
- *IOE (2023), No just transition without skills, Skills for climate change policies*

Findings from Business Use Cases

This section draws on policy recommendations based on insights gained from companies and institutions within the global networks of the International Organisation of Employers (IOE) and *Business at OECD* (BIAC), showcasing how members could benefit from international organizations to leverage training and educational programs in order to support the green transition and achieve long-term sustainability. These policy recommendations provide diverse perspectives from various sectors, highlighting practical approaches to workforce transformation and skills development. While this list is non-exhaustive, it offers a snapshot of effective policy recommendations for fostering green skills across industries.

Challenges Faced

- **Skills Shortages:** Many businesses highlight skills shortages as a pressing challenge. The availability of competent professionals for emerging green sectors, such as hydrogen technology, AI-driven processes, and sustainable agriculture is often lacking, particularly in the locations and at the times they are needed.
- **Regulatory and Bureaucratic Challenges:** Complex policy and lack of smooth processes hamper the implementation and scalability of many programs mentioned in the case studies.
- **Financial Bottlenecks:** The lack of adequate fund allocations and other incentives towards green projects and training programs are barriers to scaling up the efforts of business and accelerating job creation for the transition.
- **Public Awareness Deficit:** Lack of awareness and attractivity lessens interest and participation in green jobs, especially in underrepresented groups.
- **Infrastructure and Resource Limitations:** In many countries and regions, access to modern training tools and facilities remains challenging.

Key Success Factors

- **Strong Partnerships and continued Public-Private dialogue:** Collaboration between companies, governments, workers, educational institutions, and NGOs is an effective way of ensuring training relevance and scalability.

- **Tailored Training Programs:** Developing customized and sector-specific programs that address the particular context and green skills requirements can ensure stronger buy in from workers and relevance for subsequent jobs.

- **Integration of Advanced Technology:** While access to advanced technologies like Artificial Intelligence (AI), Virtual Reality (VR), and digital platforms depends on infrastructure availability, the use of innovative approaches with technologies such as AI, VR, and digital platforms enhances the quality and accessibility of training.

- **Commitment to Lifelong Learning:** The promotion of continuous education through vocational training, reskilling, and upskilling initiatives ensures workforce adaptability.

- **Community Involvement:** Engaging in local agencies such as municipal agencies, non-profits, educational institutions, and community development groups, and various stakeholders creates pathways for lessening gaps and the wider involvement of people in green programs.

- **Expand Apprenticeships Programs**: Government and institutions should place a high priority on the growth in apprenticeship schemes as a major component of the acquisition of green qualifications. These programs provide entry points to hands-on experience and nurture practical proficiency.

Recommendations for the OECD and Governments

Strengthen Cross-Sector and International Collaboration for Scalable Solutions

- Foster sharing lessons, evidence-based solutions, and skills-focused partnerships among governments, academic institutions, and industries to drive innovation, workforce reskilling.
- Enable Public-Private Partnerships (PPPs) with risk-sharing frameworks to facilitate competitive, scalable green solutions including in upskilling and vocational training systems.

Promote Accessible Skills Development and Vocational Training

- Increase dedicated funding and incentives for open-access training initiatives, empowering businesses to upskill their workforce and enhance global competitiveness.
- Expand structures like lifelong learning programs as well as apprenticeships to reach diverse demographics, cultivating a versatile and dynamic green workforce.
- Invest in skills anticipation tools and data collection of labour market needs, including continued public-private dialogue to understand industry needs.

Support Market-Led Work-Based Learning and Transition Programs

- Support employer-led, work-based learning initiatives that blend theoretical and practical training to bridge skill gaps and foster readiness for green jobs.
- Design workforce transition programs that seamlessly integrate workers from traditional industries into greener roles, ensuring equitable access to open labor markets.
- Training and skills development base on market needs; working with employers and businesses is a key prerequisite for maximizing employability.

Expand Awareness and Access to Green Job Opportunities

- Launch targeted campaigns to raise awareness of green skills including among youth and underrepresented groups, highlighting accessible training pathways aligned with global market needs.

- Develop retraining programs for workers displaced by shifts in certain sectors, equipping them with in-demand green skills for a competitive green economy.

Enhance Digital and Green Infrastructure for Inclusive Growth

- Invest in digital infrastructure to enable broad, equitable access to online learning and resources, particularly for disadvantaged regions.

- Simplify regulations to support the establishment of training facilities.

Enhance Skills Assessment Frameworks for Targeted Workforce Development

- Establish standardized green skills assessment frameworks to evaluate workers' and jobseekers' existing competency levels, ensuring reskilling programs align with labor market needs.

- Develop and integrate diagnostic tools based on structured reference frameworks, to provide clear, transparent pathways for individuals transitioning into green jobs.

- Encourage governments and industry stakeholders to implement Individual Learning Accounts (ILAs) and voucher schemes, to facilitate access to training and upskilling opportunities across all sectors.

Annex: Compilation of Business Use Cases

Company/ Organization	Sector of activity	Education solution
Eni	Energy and Oil	Offshore wind reskilling programs focused on enabling workforce transition from traditional oil to renewable energy sectors.
ENEDIS	Energy (Electricity distribution)	Training programs on sustainable energy solutions and grid modernization with a focus on renewable energy management.
Digital Coalition – The National Coalition for Digital Skills and Jobs of the Slovak Republic	Digital and green skills development.	Online diagnostic tool and reference framework for green skills, integrated into national occupational standards.
GET (Global Energy Transition)	Energy	Vocational training programs focused on transitioning skills towards renewable energy technologies and greener practices across the energy sector.
greentech.training	Renewable Energy and Climate Mobility	Climate Mobility Accreditation (CMA) provides specialized training, certifications, and job placements in green energy, supported by blockchain and mobile learning innovations.
HP	Technology	Vocational training programs designed to promote sustainability, innovation in digital technology, and green solutions across IT and related sectors.
Iberdrola	Energy	Training programs aimed at building skills for renewable energy technologies, focusing on solar and wind power sectors.
Infinited Fiber	Circular Textile Fibre Production	Training programs on producing sustainable fibers from textile waste, focusing on circular economy and recycling practices in the textile industry.

Company/ Organization	Sector of activity	Education solution
INSU	Installation & Construction	Training in sustainable installation practices, digital skills in BIM/VR, and green technologies essential for modern construction.
Randstad	Talent and workforce solutions	Workforce training in sustainable practices, with a focus on supporting organizations transitioning to greener practices through talent development.
Remeo Group	Circular Economy and Waste Recycling	Specialized vocational training on waste management and recycling processes, aimed at improving the circular economy in waste management practices.
Ren-Gas	Hydrogen and Methane Fuel Production	Training for green energy professionals focused on the production of hydrogen and methane as renewable fuels, with emphasis on sustainable energy transition.
Shell	Energy	Reskilling initiatives supporting the transition from traditional oil and gas roles to new positions in renewable energy sectors like wind, solar, and hydrogen.
The Adecco Group	HR and workforce solutions	Green skills development programs focusing on training staff for roles in emerging green sectors, aligning with the global push for sustainability.
The Swedish Installation Federation	Engineering, Installation, and Energy	Vocational training aimed at reskilling workers to support the green transition, with a focus on energy efficiency and renewable energy installations.
thyssenkrupp Steel Europe	Steel Manufacturing and Hydrogen Production	Hydrogen-focused vocational training, with modular training for new technologies, specialized apprenticeships, and a comprehensive hydrogen training program.
Volvo Group	Automotive and heavy equipment manufacturing	Vocational training focused on green transition in the automotive sector, including sustainability, vehicle maintenance, and modern green technologies like electric vehicles.

Eni

Eni Corporate University*, in partnership with the University of Strathclyde, developed a reskilling program for professionals in the oil and gas sector to transition to the offshore wind industry. The program addresses the overlap in skills between these sectors, focusing on offshore wind technology and project management. The methodology includes reviewing existing competencies, performing a skills gap analysis, and offering a targeted curriculum designed to bridge those gaps, with a particular focus on floating wind technology.

The program is set to launch in October 2024, starting with 11 Eni employees. Six online modules will be provided, customized to the participants' skill levels following an assessment. The program is expected to scale and address the broader transition to low-carbon technologies and aim to demonstrate that collaboration between energy sectors can accelerate the energy transition by leveraging existing expertise. Indeed, reskilling programs, backed by government support and academic partnerships, are crucial to ensuring a successful transition for workers and meeting national decarbonization goals.

Key Success Factors:

- Strong partnership with a leading academic institution (University of Strathclyde) to leverage oil and gas expertise and apply it to renewable energy.
- Focus on specific skills required for the offshore wind sector, with structured reskilling to facilitate workforce transition.

Challenges Encountered:

- Addressing the skills gap between traditional fossil fuel sectors and the emerging green energy sectors.
- Ensuring alignment with government energy transition agendas to maximize impact and support job retention in low-carbon industries.

Policies Needed:

- Collaboration between governments, universities, and industries to scale reskilling initiatives and equip workers for low-carbon roles.
- Government support to mitigate potential job losses from the energy transition, ensuring a smooth workforce shift from fossil fuels to renewables.

Enedis

Enedis, along with RTE and sector partners, launched "Les écoles des réseaux pour la transition énergétique" (The Network Schools for Energy Transition) to address a projected 61% growth in electrical network jobs by 2030. The program focuses on aligning educational curricula with industry needs, providing conversion and reintegration schemes, and enhancing the attractiveness of core sector jobs, particularly through vocational programs in electrical trades and electrotechnics.

Results of this initiative shows within one year, that 100 high schools partnered with Enedis to offer vocational electrical network classes to nearly 6,000 students. Another 40 high schools introduced higher technical education (BTS) programs with internships and work-study opportunities in the energy sector.

Key Success Factors:

- Strong partnerships with the Ministry of National Education, professional organizations, and companies to ensure curriculum relevance.
- Focus on gender diversity, particularly through initiatives that train women for electrical network management roles.

Challenges Encountered:

- Recruitment difficulties due to the image deficit of electrical grid jobs.
- The need for promotional campaigns to attract more candidates to the sector, particularly women.

Policies Needed:

- Targeted communication to raise awareness about electrical grid jobs among young people and job seekers.
- Financial incentives for companies to invest in training, apprenticeships, and professional development, especially to support gender diversity.

Digital Coalition – The National Coalition for Digital Skills and Jobs of the Slovak Republic

Digital Coalition is a multi-stakeholder platform that unites key actors from business, education, public administration, and civil society. Its mission is to advance digital and green skills in response to the twin transformation. As the first national body to develop a Reference Framework for Green Skills, modelled on language proficiency frameworks (A1.1 to C), the Coalition provides a structured approach to defining and assessing green competencies required for sustainable development.

Alongside the framework, Digital Coalition has developed an online diagnostic tool that allows individuals to assess their green skill levels. Upon completion, users receive a certificate and a personalized report, helping them understand their current position and plan their educational or career pathways more effectively. The tool is currently being piloted among managers and decision-makers in companies, public institutions, and municipalities, with the goal of promoting skill anticipation and lifelong learning in green transformation processes.

Key Success Factors:

- The framework and tool were developed as part of the national project "Digital Future", which is a flagship initiative for digital and green upskilling in Slovakia.
- The project runs a nationwide roadshow to raise awareness and provide access to diagnostic testing, promoting both green and digital skills.
- Additionally, The logic of this green framework has been integrated into Slovakia's National Occupational Classification – a national registry of over 1,800 occupations, where digital and green literacy is now being incorporated as part of the core skillset descriptions. Migration and integration of this logic into occupational standards is currently underway.
- This approach ensures that employees only train in areas where gaps exist, enabling efficient career planning, personalised learning paths, and targeted upskilling.

Challenges Encountered:

- Introducing such innovative frameworks and diagnostic tools requires a shift in mindset across stakeholders, especially in communicating the value of skills diagnostics as an enabler, not a burden.
- Sustained engagement of employers and public institutions is essential to scale adoption.
- Integrating green and digital literacy indicators into national policy frameworks requires long-term commitment and coordination among ministries and sectors.

Policies Needed:

- Implement mandatory baseline skill assessments for all publicly funded upskilling and reskilling programs to ensure efficient resource allocation.
- Strengthen institutional capacity to interpret results and translate them into personalized learning recommendations.
- Incentivize lifelong learning through individual learning accounts, especially for green upskilling.
- Support public-private partnerships that connect diagnostic tools with real job market opportunities.
- Invest in awareness campaigns to build a culture that values transparency in skill levels and actively engages in continuous learning.

GET

Global Energy Transition (GET) facilitates the transition of oil and gas workers into the green energy sector through various support mechanisms such as job boards, mentoring, industry certifications, upskilling/reskilling, educational grants, and business incubation support. The program provides individualized guidance by assigning mentors to each worker in transition, helping them map out their path to new careers. Services begin post-termination, with resume writing assistance and case-by-case support for workers who do not immediately find a green energy position. In addition, GET partners with universities to offer discounted green energy courses, local/national/global green energy employers, and government entities like the US Department of Labor. They leverage these partnerships to broaden employment opportunities for transitioning workers and offer their services at little or no cost. However, the main challenge remains the funding gap, as many green energy projects lack financing to fully expand job availability. With this project, GET has placed over 600 people from the oil and gas sector into new jobs, funded 22 scholarships, and is currently assisting 70 more workers in transition. The program's capacity exceeds the current availability of green energy jobs, and additional government funding for green projects is necessary to expand job creation.

This project demonstrates the need for tailoring support to individual worker needs and leveraging volunteer efforts has proven effective in reducing downtime for transitioning employees. However, the gap between job availability and demand highlights the need for greater investment in green energy sectors to ensure a smoother transition.

Key Success Factors:

- Individualized support for transitioning workers through mentoring and case-by-case assistance.
- Strong partnerships with educational institutions and green energy employers.
- Free or low-cost training options through grants and partnerships.

Challenges Encountered:

- The number of green energy jobs available is significantly lower than the number of workers being displaced from the oil and gas sector.
- Many green energy projects remain unfunded, limiting job creation and the overall transition.
- Sustaining long-term initiatives is difficult due to budget constraints, despite early program success.

Policies Needed:

Increased government funding for green energy initiatives is crucial to expand job opportunities. Government programs focused on assisting displaced oil and gas workers would provide the additional resources necessary for successful transitions. Without these measures, GET's efforts are hindered by the limited availability of green jobs relative to the number of workers they can assist.

Greentech.training

greentech.training has developed the **Climate Mobility Accreditation (CMA)** initiative to address the skills gap in the green energy sector by creating a globally recognized, cross-national training framework. The CMA targets both entry-level candidates and skilled professionals, equipping them with specialized green skills needed to work within the renewable energy and climate sectors.

The CMA program has two entry pathways:

- **International Pathway (CMA-I)**: For skilled candidates with prior technical training, such as engineers. Candidates undergo a 4-6 week specialization, with roles like solar technician or intercropping specialist.
- **National Pathway (CMA-N)**: For new entrants and individuals without prior technical training. This includes additional language and technical training, preparing candidates for roles in the local climate sector or for further apprenticeships.

Training includes both practical and theoretical aspects, covering skills such as solar technology, project management, and intercropping. The program integrates innovative elements such as blockchain for credential verification, AI-enabled digital training tools, and mobile learning platforms for remote and ongoing education.

Trough this initiative, **greentech.training** recently completed a Solar Technician program in North Lebanon with 25 participants, in partnership with IOM and InnoEnergy, funded by the Italian government. The program is aligned with local and international standards and aims to foster employability across borders, providing participants with job placement opportunities domestically and internationally.

Moreover, the company have build strong partnerships with international entities like the German Federal Ministry for Economic Affairs and Climate Action (BMWK), IOM, and InnoEnergy support curriculum relevance, scalability, and alignment with industry needs. Collaboration with local chambers of commerce and community organizations also facilitates direct connections with employers.

Challenges Encountered:

High bureaucratic requirements and limited incentives for SMEs to co-develop green skills programs pose barriers to expansion. There is a need for streamlined pathways and increased support for climate-focused vocational programs.

Support Needed from Governments:

greentech.training advocates for policies that reduce bureaucratic hurdles, create incentives for SMEs to join training programs, and provide global insurance schemes for climate employers. Additionally, support for mobility pathways for accredited talent would allow skilled workers to move easily across regions in need of green expertise.

HP Life

HP LIFE provides free business skills training to students, entrepreneurs, and lifelong learners worldwide. The program includes more than 30 courses across eight languages, with a new focus on green skills such as the circular economy. HP LIFE also hosts the annual BeChangeMaker competition, which encourages participants to develop social ventures aligned with the UN SDGs.

With this iniative HP achieved:

- 45 million people reached through HP's digital equity programs in 2023.
- Over 1.2 million **HP LIFE** users enrolled since 2016.
- In 2023, the BeChangeMaker competition attracted more than 570 applicants from 87 countries, with the winning team developing a justice accessibility mobile app.

Key Success Factors:

- Broad global reach and accessibility through online platforms.
- Partnerships with organizations like UNIDO, USAID, and WorldSkills International to align training content with sustainability and business development goals.

Challenges Encountered:

- Significant skills gaps in the workforce, particularly in digital and technological areas critical to sustainable development.
- Access to digital tools and connectivity remains a challenge, especially in underserved regions.

Policies Needed:

- Government investment in digital infrastructure to ensure educational continuity and access to online learning tools, especially in remote areas.
- Incentives for educational institutions to digitize curricula and train educators in new technologies to support a greener, more digitally connected economy.

Iberdrola: Greenskilling Program

Iberdrola developed the **Greenskilling Program** which focus on developing the skills of employees to support the green transition. This program offers various training initiatives, including technical training for specialized roles, strategic capacity building, and interactive masterclasses led by industry experts. Additionally, Iberdrola fosters collaborative knowledge communities to encourage peer learning and the dissemination of green technology knowledge. The program targets all Iberdrola employees, with tailored content depending on their roles. Since the launch of this initiative the Greenskilling Program has reached 90% of Iberdrola's workforce, involving around 35,000 employees. Participants have completed over 1.5 million training hours, achieving advanced proficiency in green technologies and significantly improving their skill levels.

Through this project, Iberdola creates an holistic approach that combines both technical training and strategic capacity building which is essential to the green transition.

Key Success Factors:

- Integration of interactive learning, peer knowledge sharing, and masterclasses to keep up with cutting-edge green technology.
- Collaboration with governments to align training programs with national regulations and technical standards, ensuring the relevance and compliance of skills development initiatives.

Challenges Encountered:

Streamlining certification processes for green skills remains an area of improvement to enhance recognition and the value of the training initiatives.

Policies Needed:

Iberdrola benefits from policies that provide clear technical standards and guidelines for green skills, but further improvement is needed in streamlining certification processes for greater recognition of these competencies.

Iberdrola and UNICEF

Iberdrola in partnership with **UNICEF**, provides green skills training for vulnerable youth through the **Generation Unlimited** initiative. This program aims to improve training and employment opportunities in the green economy for young people in Spain, Brazil, and Somalia. The program focuses on green technical skills such as photovoltaic panel installation, electric vehicle charging point setup, and energy efficiency, while also offering personal development support, including mentorship, soft skills, and socio-emotional guidance.

With this initiative, the project offered 200 internships and 77 permanent jobs. In more than 50 Iberdrola supplier companies in Spain. Over 300 young people have been trained through green technical programs. In Brazil, 6,000 young people have gained access to green skills, and 650 young people in Somalia, 60% of whom are girls, have received innovative skills training to enhance employability.

This initiative demonstrates the model of socio-labor inclusion, which combines technical green skills training with holistic support (mentorship, socio-emotional guidance, etc.), to be effective in helping vulnerable youth transition to employment and prove that close collaboration between private companies, social entities, and public institutions is key to scaling these efforts.

Key Success Factors:

- Collaboration with suppliers, educational institutions, and social organizations to provide comprehensive green training and internships.
- Active involvement of corporate volunteers and mentors to support youth in transitioning to employment in the green sector.

Challenges Encountered:

- Overcoming the socio-economic barriers faced by vulnerable youth, such as limited access to training and employment opportunities.

Policies Needed:

- Policies that promote work-linked training programs combining theoretical and practical experience.
- Tax incentives and subsidies to encourage companies to hire young people from vulnerable backgrounds.

Iberdrola: Global Green Employment (GGE) Platform

Iberdrola has also developed the **Global Green Employment (GGE) platform** to support the green transition through vocational training, career guidance, and job placements in green jobs across countries where it operates. This platform provides essential resources for students, job seekers, and professionals, as well as for companies and educational institutions, all working together to build a workforce equipped for the renewable energy industry.

The GGE platform is the only platform currently focused on green employability that offers a comprehensive green skills map, identifying in-demand jobs by country and detailing required skills. Training programs cover all the roles related to renewable energies, from key roles such as solar panel installation, wind turbine maintenance, and smart grid management , to any green job related to sustainable mobility or sustainable agriculture. Additionally, GGE provides job listings from Iberdrola and partners, supporting employability by highlighting the skills valued by green-sector employers.

Since its launch, the GGE platform has achieved significant growth, with over 1thousand active users and a steady increase in partnerships in Spain, Mexico and UK. It is set to expand to Germany by 2025, aiming to connect millions of people to green employability opportunities.

Key Success Factors:

Collaboration with universities and educational institutions ensures the integration of green and digital skills in academic programs. Iberdrola's partnerships with these institutions promote innovation in renewable energy technology and ensure training aligns with market needs.

Challenges Encountered:

Promoting public awareness of green jobs and skills requirements remains a challenge. Iberdrola is addressing this through tailored communication campaigns that target diverse audiences to raise awareness of green employability, , and also to help reduce the existing gap between education systems and the skills and knowledge required by companies regarding the energy transition.

Policies Needed:

Consistent policy frameworks supporting the energy transition, investment in renewable infrastructure, and capacity-building initiatives for green skills are essential to the success of Iberdrola's efforts in green job creation.

Infinited Fiber

Infinited Fiber Company is a Finnish technology and fashion company with a patented technology that turns cotton-rich textile waste, such as worn-out t-shirts, jeans, or production scraps into Infinna™, a premium-quality, versatile textile fiber with the natural, soft look and feel like cotton. Key skills required include chemical process knowledge, supply chain management, and scaling up production from pilot to industrial scale.

This project aims to build a first commercial scale Infinna™ plant in Finland. The company's process can handle blended fabrics, making it suitable for post-consumer textile waste recycling. Infinna™ can be used in variety of applications to replace virgin cotton.

Trough the initiative the business community wants to demonstrate that scaling up innovative technologies in the circular economy requires a combination of technical expertise, project management, and collaboration across the value chain. Companies need to prioritize the development of these skills to ensure the success of circular economy initiatives.
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Key Success Factors:

- Expertise in chemical recycling processes and the ability to scale them to industrial levels.
- Knowledge of the textile value chain and circular economy principles to ensure the efficient recycling of waste materials.

Challenges Encountered:

- A shortage of professionals with the necessary skills to commercialize and scale up chemical recycling technologies.
- Difficulty finding talent with experience in building and managing supply chains for circular textile production.

Policies Needed:

- Government incentives to support the commercialization and scaling of innovative recycling technologies.
- Policies that promote collaboration across industries and sectors to build circular economy supply chains.

INSU

INSU is a key player in Sweden's installation industry, specializing in training for both companies and individuals in electrical, HVAC, and energy sectors. Operating since the early 1990s, INSU provides essential skills training aligned with the green transition and digital innovation in construction. Owned by **Installatörsföretagen**, an industry organization representing over 4.200 companies and 63.000 employees, INSU's educational offerings are tailored to meet the evolving demands of the installation sector.INSU provides a flexible learning approach that includes distance learning, enabling both new entrants and experienced workers to access advanced skills in digital and sustainable technologies. Its initiatives include:

- **Total BIM** : In collaboration with **Chalmers University**, INSU developed Total BIM, integrating Building Information Modeling (BIM) and Virtual Reality (VR) to improve construction planning and efficiency. This project is designed to elevate skills for installation coordinators, allowing them to work with 3D models, virtual setups, and precise installations, enhancing long-term project efficiency and quality
- **Applications for Funding with MYH**: INSU continuously applies for funding through **Myndigheten för yrkeshögskolan (MYH)**, the Swedish National Agency for Higher Vocational Education, to expand its programs and enhance training in critical areas like energy management and sustainable installation technologies
- **Innovation Startsida and Smart Built Environment**: INSU collaborates with **Smart Built Environment** and **Innovation Startsida** to secure financial support and advance projects that introduce new digital tools and sustainable practices within the installation industry, focusing on energy efficiency and IoT integration for modern infrastructure

Through RTotal BIM and VR-based training, INSU is set to transform learning in the installation sector. The initiative will be expanded to 26 additional courses, positioning INSU as a leader in digital construction training. These programs provide a comprehensive foundation for a digitally enabled workforce skilled in Total BIM and VR applications, which are essential for the green transition in construction and installation. With those projects, INSU managed to build partnerships with institutions like **Chalmers University** and funding from national agencies such as MYH ensure that INSU remains at the forefront of innovation in the installation industry. These collaborations allow INSU to deliver cutting-edge programs that align with market needs and sustainability goals, with support from industry-leading resources and experts.

Challenges Encountered:

Scaling these specialized training programs across different regions, while maintaining high quality, is a significant challenge. Meeting the growing sector demand for skilled labor with advanced technical competencies in Total BIM and sustainable installations requires ongoing support and resources.

Policies Needed:

INSU seeks increased governmental funding for advanced training in Total BIM and VR, policy support for digital skills integration in national training frameworks, and incentives to promote lifelong learning within the installation industry.

Randstad

The **Randstad Academy** in Germany provides reskilling and upskilling programs in collaboration with education providers. These programs focus on fields critical to the green transition, such as metal and electrical engineering, and industrial mechanics (e.g., turning, milling, CNC). The academy addresses the growing demand for skilled talent in the renewable energy sector by upskilling training workers to fill specialized roles.

Trough this initiative, more than 100 employees have successfully completed training programs at the Randstad Academy. Many of these graduates now work as skilled professionals placed in assignments through Randstad, and some graduates have been hired directly by client companies in the renewable energy sector.

The Randstad Academy's success highlights the importance of tailored skilling training programs that meet the specific needs of the green transition. Partnerships between businesses and educational institutions are essential for ensuring that workers are equipped with the necessary skills for the evolving demands of the green economy.

Key Success Factors:

- Strong collaboration between Randstad and educational institutions to align training content with industry needs.
- Customized learning journeys tailored to the specific skills required for the renewable energy sector.
- Support for continuous learning and professional development through certificates that validate workers' new skills.

Challenges Encountered:

- Addressing the talent scarcity in green sectors, particularly as the demand for workers with specialized green skills continues to grow.
- Ensuring that training programs remain responsive to rapidly evolving technological and market changes in the renewable energy sector.

Policies Needed:

- **Increase investment in renewable energy skills programs:** Government funding should prioritize reskilling initiatives that address skill gaps in sectors like renewable energy, providing financial support to scale these programs.
- **Incentivize partnerships between companies and educational providers:** Tax breaks or subsidies could encourage further collaboration between private companies and vocational training institutions to expand access to green skills training.

Remeo Group

Remeo Group has transformed from a traditional waste collection company into a key player in the circular economy. It operates a state-of-the-art recycling facility in Vantaa, Finland, where waste is sorted and processed using robots powered by artificial intelligence. The company emphasizes the need for new skills related to data processing, material understanding, and legislative knowledge in waste recycling and sustainability.

With this initiative, Remeo processes 350,000 tonnes of waste annually, 160,000 tonnes of which are recycled for further use. The Vantaa plant has introduced AI-based robotics for waste sorting, which has significantly improved the efficiency and quality of recycling processes. The initiative shows that data-driven processes are essential for optimizing recycling operations and waste management. Companies in the circular economy need to prioritize the development of both data literacy and materials science skills to meet sustainability goals

Key Success Factors:

- Integration of advanced AI and robotics to enhance material processing and sorting.
- A focus on data literacy and interpretation to optimize circular economy processes and ensure efficient recycling.
- Strong partnerships within the value chain to promote waste reduction and recycling.

Challenges Encountered:

- A shortage of professionals with deep material expertise and advanced data processing skills to optimize recycling operations.
- Difficulty in managing partnerships across the value chain to ensure smooth circular economy processes.

Policies Needed:

- Government investment in educational programs that focus on data science and material technology for the circular economy.
- Policies that support partnership management and promote collaboration across the entire waste recycling and circular economy ecosystem

Ren-Gas

Ren-Gas is developing a gas fuel production and distribution network for heavy road transport, focusing on renewable energy sources like hydrogen and methane. The company emphasizes project development skills that combine technical and commercial expertise, environmental licensing, and market analysis for an emerging hydrogen economy.

Those new skills will support the development of six power-to-gas plants, expected to produce 2.5 TWh of renewable gas fuel by 2030 to achieve the transition from diesel to renewable gas fuels for heavy transport vehicles.

Key Success Factors:

- Expertise in market development, including understanding the entire energy chain from electricity procurement to the sale of renewable fuels.
- Advanced contracting and project development skills to secure financing and partnerships for large-scale renewable energy projects.

Challenges Encountered:

- A shortage of hydrogen experts, particularly those skilled in plant operations and hydrogen safety.
- Difficulty finding the right talent to manage and optimize plant operations in a rapidly growing sector.

Policies Needed:

- Government support for hydrogen-related vocational training programs to address the shortage of experts.
- Policies that promote investment in hydrogen infrastructure and support the development of new renewable energy markets.

Shell UK

Shell UK focuses on preparing workers for a low-carbon future through reskilling and training in renewable energy, including wind, solar, and hydrogen. The program supports STEM education and works in collaboration with educational institutions and governments to ensure alignment with industry needs. Training targets both current employees transitioning to new roles and new entrants to the energy sector.

Key Success Factors:

- Partnerships with governments and educational institutions.
- Focus on STEM education and renewable energy technologies.

Challenges Encountered:

Addressing the skills gap in the transition from traditional energy sources to renewables.

Policies Needed:

Policies to enhance collaboration between energy companies, governments, and educators in developing green skills training programs.

Shell Oman

The **Energy for a Just Transition (EJT)** collaboration focuses on worker and community-centered engagement for transitioning to net-zero economies. EJT emphasizes co-creation with local stakeholders to design sustainable energy solutions, ensuring that economic, social, and environmental benefits are shared equitably. By engaging communities, labor unions, and business partners, the initiative supports workforce reskilling and skills development while promoting social dialogue to address transition challenges.

EJT projects have demonstrated successful partnerships across energy sectors, enabling equitable transition strategies and the development of benefit-sharing mechanisms.

Trough the project it has been shown that proactive stakeholder engagement and co-creation processes are vital to a just energy transition. Empowering local communities to shape project outcomes fosters long-term resilience and economic opportunities. Balancing socio-economic risks with environmental goals is key to ensuring sustainable, inclusive energy projects

Key Success Factors:

- Proactive engagement with diverse community stakeholders.
- Co-creation of benefit-sharing agreements for long-term positive impact.

Challenges Encountered:

- Addressing stakeholder engagement fatigue in regions with multiple energy projects.
- Managing socio-economic risks associated with transitioning out of carbon-intensive operations.

Policies Needed:

- Regulatory frameworks that facilitate community benefit-sharing and co-creation mechanisms.
- Policies that encourage transparent social dialogue for labor unions and workers impacted by the energy transition.

The Adecco Group

The Adecco Group and its 3 Business Units (Adecco, LHH and Akkodis) has implemented a wide range of training programs aimed at upskilling and reskilling workers for green jobs. These programs target various sectors, such as hydrogen, public policy, automotive, and clean energy, aligning the workforce with the demands of the green transition. Key training initiatives include hydrogen awareness modules for operators and technicians, leadership training for public officials on green policy implementation, and large-scale reskilling programs in partnership with organizations like BlocPower.

Through this initiative several results were achieved:

- In the **Hydrogen Sensibilization Module**, 195,000 candidates across 26 job types in France have been identified as potential trainees, and the module covers over 1.6 million workers in related fields.
- The **BlocPower partnership** resulted in 15 underrepresented women completing training in tech and clean energy, with further cohorts planned.
- The **Giobert Project** in Italy trained executives on carbon footprint measurement methodologies, aiming to apply sustainable management practices across all company plants.

The Adecco Group's diverse training programs demonstrate the need for flexible, sector-specific approaches to green job reskilling. A collaborative approach between governments, educational institutions, and private companies is essential to ensure the success of green training programs and to meet the growing demand for green skills across various industries (The Adecco Group Training for Green …).

Key Success Factors:

- Leveraging digital learning platforms and work-based learning to provide practical, industry-specific training.
- Strong public-private partnerships, such as with local governments, philanthropic organizations, and private companies, to fund and implement training initiatives.
- Customizing training modules to address the unique needs of different sectors, ensuring alignment with local labor market demands and green policies.

Challenges Encountered:

- Lack of visibility and awareness of green training programs, particularly for elected officials and workers in emerging sectors like hydrogen.
- Matching business needs with available public funding can be complex, particularly when addressing evolving sectors and their skill demands.
- Ensuring digital literacy and basic tech skills for participants, especially in pilot programs for underrepresented groups, remains a significant challenge.

Policies Needed:

- Increase funding for work-based learning: Governments should expand funding opportunities for upskilling and reskilling programs, particularly in emerging green sectors.
- Promote awareness of training opportunities: Governments need to launch targeted campaigns to raise awareness of training programs, especially for elected officials and public sector workers, and create incentives for companies to participate in green transition projects.
- Support local green transition projects: Provide funding and regulatory support for local and regional green transition projects, ensuring that public officials and local workers are equipped with the tools and knowledge to implement meaningful changes.

The Swedish Installation Federation

The Swedish Installation Federation operates the education company **INSU**, which offers continuous education and training for the installation sector, including electricians and HVAC installers. The training programs are funded through fees and public vouchers, with tailored programs available for specific companies. Adult education plays a significant role in supporting professionals through the Swedish **Transition Reform (Omställningsstudiestöd)**, which helps workers in mid-career access retraining for the green transition.

With this project, approximately 6,000 electricians and 2,000 HVAC installers complete training every year at the upper secondary level, with an additional third trained through adult education programs. This ensures a continuous supply of skilled workers for the installation sector, critical to supporting the green transition.
This project demonstrates that close collaboration between businesses, educational institutions, and government bodies is essential for developing the skills required for the green transition. Lifelong learning and targeted support for SMEs are crucial to ensuring that all sectors can contribute to a sustainable future

Key Success Factors:

- Integration of government support through public vouchers and partnerships with educational bodies, such as the **Swedish National Agency for Education** and **Myndigheten för yrkeshögskolan** (MYH).
- Continuous adaptation of training programs to meet the evolving needs of the green economy, focusing on electrification and energy-efficient installations.

Challenges Encountered:

- SMEs face challenges in navigating academic hurdles and accessing sufficient resources to fully participate in retraining initiatives.
- Coordination between businesses and higher education institutions is necessary to ensure that lifelong learning programs are aligned with industry needs.

Policies Needed:

- Continued support for vocational training through public vouchers and funding.
- Policies that simplify the processes for SMEs to access training and support services for the green transition.
- Expansion of lifelong learning opportunities at universities to enhance skills development for experienced professionals.

Thyssenkrupp

thyssenkrupp Steel Europe (tkSE) is advancing the green transition within the steel industry, aiming to produce green steel by 2026. At its Duisburg facility, tkSE is constructing a state-of-the-art direct reduction plant (DR-plant) to decarbonize steel production. This shift necessitates extensive retraining of the workforce, particularly in hydrogen technology, and the establishment of new vocational training pathways to equip employees with the skills required for this transformation.

tkSE has implemented a tripartite training strategy to prepare employees for its green steel production goals. Among those projects, tkSE develop:

- Hydrogen Expert Training: Approximately 300 employees are being qualified as hydrogen experts, with additional training developed in partnership with the Lower Rhine Chamber of Industry and Commerce.
- Apprenticeships in Hydrogen Technology: In 2023, 50 apprentices began specialized hydrogen training, with plans to establish an on-site vocational training center for 100 apprentices annually.
- Modular Training Approach: The training strategy comprises basic qualifications, specialized training for new plants, and on-the-job learning during commissioning, ensuring comprehensive skill development for transitioning employees.

With those initiatives, tkSE achieved to provide in the past few years around 4,500 training sessions across 400 courses, a large portion of which focused on environmental protection and green transformation. The new training module for hydrogen skills has been piloted with 50 apprentices and is expected to expand across Europe as part of the hydrogen value chain.

Moreover, those initiatives allows some joint collaborations with the Lower Rhine Chamber of Commerce, German universities, and European projects such as the European Steel Skills Agenda to provide critical support for curriculum development. These partnerships enhance industry-standard green skills training, ensuring workforce readiness for new sustainable technologies.

Challenges Encountered:

Funding limitations for short-term hydrogen training modules and a lack of streamlined support for complex upskilling needs represent barriers to scaling training efforts. Improved access to funding for brief yet essential training sessions would accelerate tkSE's workforce transformation.

Policies Needed:

tkSE calls for simplified funding processes for short-term, high-impact green skills training and greater support for industry-specific vocational training initiatives aligned with the hydrogen economy and sustainable steel production

Volvo

Volvo Group has been involved in Public-Private Development Partnerships (PPDPs) for over a decade, focusing on vocational training for mechanics and drivers in developing countries. The program aims to equip individuals with the skills needed to maintain and operate Volvo vehicles and equipment safely and efficiently. Training combines classroom instruction, hands-on practice, and internships, covering areas such as vehicle maintenance, safety, and environmental management. Innovative elements include the use of state-of-the-art technologies such as virtual reality simulations and modern driving simulators for an immersive experience.

Since 2013, Volvo Group and its partners have invested over 350 MSEK in seven vocational training programs across Africa (Ethiopia, Morocco, Zambia, and Congo DRC).These initiatives have trained 7,335 graduates, with 80% finding employment within six months of graduation. The program has also created 5,868 jobs, secured 10% female participation, and successfully placed 731 women into the job market.

This initiative aims to demonstrate the need for government alignment with global sustainability goals, such as the SDGs, for the success of green vocational training programs. Volvo's focus on integrating green innovation and technology into its training curriculum ensures participants are prepared for future roles in the green economy. Collaboration between governments, educational institutions, and industry is essential for achieving lasting impact.

Key Success Factors:

- Strong partnerships with development agencies like SIDA, USAID, and UNIDO, which provide funding, expertise, and alignment with the SDGs.
- The inclusion of state-of-the-art technologies in training programs, enhancing learning in regions with limited physical training infrastructure.
- Collaboration with local governments to ensure the programs align with national development goals, improving scalability and sustainability.

Challenges Encountered:

- Administrative barriers in setting up training academies due to complex regulatory requirements.
- A lack of long-term funding to expand training programs and integrate them more fully into national education systems.
- Limited infrastructure investments in some regions, reducing the employment opportunities for program graduates.

Policies Needed:

- Develop supportive regulatory frameworks to streamline the setup of training academies.
- Offer tax incentives or subsidies to encourage private sector investment in vocational training.
- Commit to long-term vocational education policies and public infrastructure investments to support green transition goals.
- Facilitate more structured Public-Private Partnerships (PPPs) for clearer roles and risk-sharing mechanisms.

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