CAREER PATHWAYS

O2 T3 Labour Market Intelligence Report – Pais Vasco

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Introduction

This report is based on a comparison of the Labour Market in Pais Vasco in Spain with the Spanish Labour Market as a whole. It is derived from an analysis of Online Job Advertisements undertaken by Cedefop and the European Statistical Agency and made available through the Cedefop OVATE portal.

The report is structure in four sections:

- Occupational demand by sector
- Employment demand by occupation
- Skills demand
- Greenness and Green pervasiveness

The data for the first three is based on Q1 to Q4, 2023. The data on Greenness is from Q1, 2024.

The "Pais Vasco Labour Market Intelligence Report" provides an analysis of the labour market in the Pais Vasco region, compared with the broader Spanish labour market. It examines employment trends by sector, occupation demand, skills demand, and greenness and green pervasiveness, based on data from Cedefop's Online Job Advertisements (OJAs). Key findings show that the Pais Vasco region has a stronger focus on industrial sectors, particularly in manufacturing and trade, compared to Spain's national economy, which is more service-oriented.

Manufacturing and industrial sectors play a crucial role in Pais Vasco's economy, with higher demand for metal and machinery workers than the national average. This highlights the region's reliance on manufacturing, which sets it apart from Spain's broader economy that has a greater focus on legal, social, and office-related jobs. The demand for ICT professionals is also notable in Pais Vasco, underscoring its efforts to position itself as a technology and innovation hub.

In terms of education and training, the report emphasises the need for vocational and technical programs that align with the region's industrial strengths. Prioritising skills in advanced manufacturing, logistics, and digital transformation will be key to sustaining industrial growth. The region also shows potential for growth in green technologies, with higher demand for sustainable manufacturing skills, further enhancing its industrial competitiveness.

Additionally, the report discusses the relatively lower demand for service-based occupations in Pais Vasco compared to Spain. However, sales workers and customer service roles are still critical in both economies, driven by retail expansion. Educational institutions should focus on equipping the workforce with relevant soft skills, such as communication and customer relations, particularly in retail and sales sectors.

The labour market in Pais Vasco reflects a distinct industrial and technology-driven economy compared to the broader Spanish trends. Educational and economic development strategies in the region should prioritise technical, digital, and vocational training, while also supporting innovation in manufacturing and green industries to maintain long-term economic resilience.

1. Employment Demand in Spain and the Pais Vasco Region

Based on the provided occupation demand charts for Spain and the Pais Vasco region (using 2-digit ISCO occupations), the following is a comparative analysis of key trends and implications for economic and social development, as well as education and training.

1.1 Key Differences and Trends in Employment Demand

1. **Legal & Social Professionals**:
    - **Spain**: Legal and social professionals make up a significant portion of the national job market, reaching around 10.5% of all online job advertisements.
    - **Pais Vasco**: The demand for legal and social professionals is also high, but slightly lower than the national average.
    - **Implications**: While Spain as a whole has a strong demand for professionals in legal and social services, Pais Vasco seems to have a more diversified economy, with relatively less dependence on these sectors. This suggests a broader focus on industries outside of legal and social services.
2. **ICT Professionals**:
    - **Spain**: ICT professionals are in steady demand, highlighting the country's ongoing digital transformation.
    - **Pais Vasco**: Demand for ICT professionals in Pais Vasco is higher than the national average, reflecting the region's focus on innovation and technology.
    - **Implications**: Pais Vasco is positioning itself as a technology hub, and this focus on ICT suggests the region's commitment to a digital economy. This creates opportunities for growth in tech-driven industries, R&D, and innovation.
3. **Office Professionals**:
    - **Spain**: The demand for office professionals is substantial across Spain, with many businesses requiring administrative and managerial support.
    - **Pais Vasco**: The demand for office professionals is considerably lower compared to the national average.
    - **Implications**: This difference could indicate that businesses in Pais Vasco are more industrial or technologically oriented, potentially using automation and leaner administrative structures. Alternatively, it could reflect a higher concentration of small- and medium-sized enterprises (SMEs) that do not require extensive office management roles.
4. **Sales Workers**:

- **Spain**: Sales workers represent a large proportion of job opportunities nationally, reflecting a consumer-driven economy.
- **Pais Vasco**: Similar to the national trend, sales workers are in high demand in Pais Vasco.
- **Implications**: Sales and retail are critical sectors for both Spain and Pais Vasco. The growing demand may be driven by the expansion of retail networks and consumer demand in both regions, underlining the importance of equipping workers with customer service and sales skills.

5. **Metal & Machinery Workers**:
   - **Spain**: There is moderate demand for metal and machinery workers nationwide, highlighting the importance of manufacturing.
   - **Pais Vasco**: Demand for metal and machinery workers is significantly higher in Pais Vasco than in the rest of Spain.
   - **Implications**: Pais Vasco has a strong manufacturing base, especially in industrial sectors related to metal and machinery production. This industrial focus sets the region apart from the broader national economy and suggests that the region's economic development policies should continue supporting and modernising the manufacturing industry.
6. **Health Professionals**:
   - **Spain**: There is a steady demand for health professionals across Spain, reflecting a national focus on healthcare services.
   - **Pais Vasco**: Demand for health professionals in Pais Vasco is slightly lower than the national average.
   - **Implications**: While healthcare is important for both Spain and Pais Vasco, the slightly lower demand in Pais Vasco might indicate that the region's population is more concentrated in urban centres with established healthcare services, thus reducing the need for additional professionals.
7. **Hospitality & Retail Managers**:
   - **Spain**: The demand for hospitality and retail managers is strong, reflecting the country's reliance on tourism.
   - **Pais Vasco**: The demand in Pais Vasco for hospitality and retail managers is significantly lower than in Spain overall.
   - **Implications**: Tourism is less critical to the economy of Pais Vasco compared to Spain as a whole. This suggests that the region's economy is less reliant

on tourism, and more focused on industrial, technological, or service-driven sectors.

1.2 Implications for Economic and Social Development

1. **Focus on Technology and Innovation in Pais Vasco**:
    - The higher demand for ICT professionals in Pais Vasco compared to Spain signals that the region is positioning itself as a centre for innovation, R&D, and technology-driven growth.
    - **Implication**: Economic development strategies in Pais Vasco should continue to support the digital economy by fostering start-ups, providing incentives for tech companies, and encouraging innovation-driven industries. A focus on fostering a tech-friendly environment could boost job creation in ICT and associated sectors.
2. **Manufacturing and Industrial Strength in Pais Vasco**:
    - Pais Vasco's higher demand for metal and machinery workers reflects the region's strength in manufacturing, which is a critical component of its economy.
    - **Implication**: Policies should support the modernization of industrial sectors through automation, green technologies, and skills development. Expanding industrial output and integrating cutting-edge technology could sustain growth in this sector.
3. **Balanced Growth in Services and Industry**:
    - Pais Vasco demonstrates a more diversified economy with balanced growth between industrial and service sectors. In contrast, Spain's national economy shows a greater reliance on services such as legal, social, and office-related jobs.
    - **Implication**: Economic strategies should aim to maintain this balance by ensuring continued growth in both sectors. Strengthening infrastructure in key industrial areas, while also supporting service industries, will allow the region to remain resilient in the face of economic shifts.

1.3 Implications for Education and Training

1. **Skills Development in Manufacturing and ICT**:
    - Given the high demand for metal and machinery workers, along with ICT professionals, education and training programs in Pais Vasco should focus on equipping the workforce with relevant technical and digital skills.

- **Recommendation**: Vocational training in industrial processes, robotics, and ICT should be prioritised to meet the needs of the labour market. Collaboration between educational institutions and manufacturing companies could help ensure that the curriculum aligns with industry requirements.

2. **Training for Sales and Service Sectors**:
    - Sales workers are in high demand in both Spain and Pais Vasco, suggesting that training programs focused on customer service, sales techniques, and retail management will be essential.
    - **Recommendation**: Educational providers should emphasise soft skills development, such as communication and customer relations, in their curricula. Additionally, work placement programs in retail and sales industries could help students transition smoothly into the job market.
3. **Innovation-Driven Education**:
    - The growing demand for ICT professionals in Pais Vasco highlights the need for innovation-driven education, with a focus on digital skills, coding, software development, and data analytics.
    - **Recommendation**: Universities and technical colleges should offer specialised ICT programs and collaborate with tech firms to provide hands-on learning opportunities. Introducing coding boot camps and tech incubators in the region could also help foster a culture of innovation.
4. **Health and Social Care Training**:
    - While the demand for health professionals in Pais Vasco is slightly lower than the national average, it remains an important sector. Ensuring an adequate supply of healthcare workers is critical for maintaining a high quality of life.
    - **Recommendation**: Educational institutions should continue to offer training programs for health professionals, ensuring that there are enough workers to meet regional needs, especially as the population ages.

1.4 Conclusion

The labour market in Pais Vasco reflects a more industrial and technology-driven economy compared to the broader national trends in Spain. While both regions show strong demand for service-based roles, Pais Vasco's emphasis on ICT and manufacturing sets it apart. Policymakers and educational providers should tailor their strategies to address these regional nuances, ensuring that both industrial and service sectors are supported. Fostering skills development in manufacturing, technology, and customer service will help sustain economic growth in the region.

2. Occupation Demand by Sector in Spain vs. Pais Vasco Region

Based on the provided data from Online Job Advertisements (OJAs) for both Spain and the Pais Vasco region, this report will analyze key differences in sectoral occupation demand and explore the implications for economic and social development, as well as education and training.

2.1 Key Differences in Sectoral Occupation Demand

1. **Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles**:
    - **Spain**: This sector represents approximately 7% of job advertisements nationally.
    - **Pais Vasco**: In the Pais Vasco region, this sector is the most prominent, comprising around 17% of job advertisements.
    - **Implication**: The significantly higher demand for jobs in wholesale and retail trade in Pais Vasco reflects a regional focus on trade and distribution activities, possibly due to the region's strong industrial base and proximity to trade routes. Educational programs in Pais Vasco should focus on logistics, retail management, and supply chain operations to align with this demand. Moreover, customer service skills, along with digital commerce knowledge, should be emphasised to support retail transformation in the digital age.
2. **Manufacturing**:
    - **Spain**: Manufacturing accounts for about 12% of job advertisements nationally.
    - **Pais Vasco**: In Pais Vasco, the demand for manufacturing roles is higher, approximately 14%.
    - **Implication**: Manufacturing is a crucial part of the Pais Vasco economy, reflecting the region’s industrial and engineering strength. To meet this demand, educational institutions in the region should expand vocational training and higher education programs in advanced manufacturing, automation, and industrial engineering. Fostering skills in green manufacturing and sustainable production techniques will also be key to maintaining competitiveness.
3. **Administrative and Support Service Activities**:
    - **Spain**: Nationally, this sector is the largest, with approximately 13% of job advertisements.

- **Pais Vasco**: In Pais Vasco, administrative and support services account for around 9%.
- **Implication**: Administrative and support service roles are important but less dominant in Pais Vasco compared to the national average. The region's economy seems to be more focused on industry and trade. Nonetheless, there remains a need for administrative skills, and educational programs should continue to offer training in office management, business support, and administrative technologies.

4. **Information and Communication**:
   - **Spain**: Information and communication technology (ICT) jobs represent around 9% of job advertisements nationally.
   - **Pais Vasco**: In Pais Vasco, ICT jobs represent around 8%.
   - **Implication**: Both the national and regional demand for ICT skills is strong, though slightly lower in Pais Vasco. Educational institutions should continue to invest in ICT programs, focusing on emerging fields like cybersecurity, software development, and digital transformation. Collaboration with local tech firms can ensure that educational curricula align with industry needs.
5. **Technical, Engineering, and R&D Activities**:
   - **Spain**: This sector represents around 4% of job advertisements nationally.
   - **Pais Vasco**: In Pais Vasco, the share is slightly higher, reflecting around 6% of job advertisements.
   - **Implication**: Pais Vasco has a strong industrial and engineering tradition, which explains the higher demand for technical and R&D professionals. Universities and vocational schools in the region should focus on expanding engineering programs, particularly in areas such as mechanical engineering, industrial design, and research in renewable energy and sustainability. Innovation-driven sectors such as robotics and advanced materials should also be emphasised.
6. **Human Health and Social Work Activities**:
   - **Spain**: Health and social work represents approximately 9% of national job advertisements.
   - **Pais Vasco**: The sector is smaller in Pais Vasco, representing around 6% of job advertisements.
   - **Implication**: While healthcare and social work are important nationally, they are less dominant in Pais Vasco, possibly due to the region's stronger focus on industry and services. However, with ageing populations, there will be an

increasing demand for healthcare services. Training programs in healthcare, particularly in elder care and nursing, should be enhanced to meet future demands.

7. **Education**:
    - **Spain**: Education-related job advertisements account for around 4% of total demand nationally.
    - **Pais Vasco**: In Pais Vasco, education represents a slightly smaller share of job advertisements, around 3%.
    - **Implication**: Education remains a vital sector in both regions, though it is less prominent in Pais Vasco. Educational institutions should continue to train future educators, with a focus on digital education, technical training, and special education to meet regional and national needs.
8. **Construction**:
    - **Spain**: Construction represents around 4% of job advertisements nationally.
    - **Pais Vasco**: In Pais Vasco, the share is similar, representing around 5%.
    - **Implication**: The demand for construction jobs is steady in both regions. The focus should be on training workers in sustainable construction practices, urban infrastructure, and project management to support future development needs. Educational institutions in Pais Vasco should expand their construction-related programs to include training on smart cities and environmentally friendly building techniques.
9. **Consultancy, Marketing, Accounting, and Legal Services**:
    - **Spain**: These services represent approximately 10% of national job advertisements.
    - **Pais Vasco**: In Pais Vasco, this sector has a smaller share, approximately 5%.
    - **Implication**: The relatively lower demand for consultancy, marketing, and legal services in Pais Vasco reflects its industrial and trade-focused economy. However, as businesses in the region grow and internationalise, demand for these professional services is likely to increase. Educational institutions should continue to offer business and legal training, but with a focus on industrial consulting and corporate law.

2.2 Implications for Economic and Social Development

1. **Focus on Trade and Manufacturing in Pais Vasco**:

- The much higher demand for wholesale, retail trade, and manufacturing roles in Pais Vasco compared to the national average underscores the region's industrial strength and role as a hub for trade and distribution.
- **Implication**: Economic development strategies should focus on supporting these sectors by investing in infrastructure, such as logistics hubs, and fostering innovation in manufacturing technologies. There is also potential to attract foreign investment by positioning Pais Vasco as a leader in advanced manufacturing and trade logistics.

2. **Strengthening R&D and Innovation**:
   - The higher demand for technical, engineering, and R&D roles in Pais Vasco suggests a strong focus on innovation and product development.
   - **Implication**: The region should continue to promote R&D activities by supporting partnerships between universities, research institutes, and the private sector. Investments in innovation hubs, tech parks, and research facilities will help drive long-term economic growth and technological advancement.
3. **Balanced Growth in Services**:
   - While manufacturing and trade dominate in Pais Vasco, the region also shows steady demand for administrative, professional, and support services, though lower than the national average.
   - **Implication**: Diversifying the economy by promoting growth in business services, finance, and legal consulting will create a more balanced and resilient economy. Programs aimed at developing entrepreneurship and SME (small and medium-sized enterprise) support could also boost service sector growth.

2.3 Implications for Education and Training

1. **Vocational Training for Trade and Manufacturing**:
   - With the high demand for trade and manufacturing workers in Pais Vasco, vocational and technical training should be a top priority for educational institutions.
   - **Recommendation**: Schools should partner with local industries to offer specialised programs in logistics, supply chain management, industrial automation, and advanced manufacturing technologies. Apprenticeship programs will be essential in bridging the gap between education and practical skills.
2. **ICT and Digital Transformation**:

- Although ICT demand is strong across both regions, there is an opportunity for growth in digital services and technology-driven innovation in Pais Vasco.
- **Recommendation**: Educational institutions should offer more advanced ICT programs, including digital transformation, AI, data science, and cybersecurity. Public-private partnerships with tech companies will help foster a strong digital economy in the region.

3. **Emphasis on Technical and Engineering Education**:
   - The higher demand for technical and R&D roles in Pais Vasco highlights the need for specialised engineering and technical education.
   - **Recommendation**: Universities and technical schools should expand programs in mechanical, civil, and industrial engineering, with a particular focus on sustainable technologies, automation, and robotics. R&D initiatives should be encouraged through funding and research opportunities for students.
4. **Healthcare and Social Work**:
   - While healthcare demand is lower in Pais Vasco than nationally, the ageing population will increase the need for healthcare professionals.
   - **Recommendation**: Healthcare programs, particularly in nursing and elder care, should be expanded to meet future needs. The integration of healthcare technologies and telemedicine in training programs can prepare the workforce for modern healthcare challenges.
5. **Business and Legal Services**:
   - As Pais Vasco's economy continues to grow, demand for consultancy, marketing, and legal services will likely increase, even if it is currently lower than the national average.
   - **Recommendation**: Business schools should focus on developing programs that train students in industrial consulting, corporate law, and financial services, tailored to meet the specific needs of the region's industrial and trade-driven economy.

2.4 Conclusion

The labour market in Pais Vasco is distinct from the national average, with a higher focus on wholesale trade, manufacturing, and technical roles, while demand for service-based sectors is relatively lower. Educational institutions in the region must prioritise vocational training, engineering education, and technical skills to meet the needs of the local economy. At the same time, fostering growth in ICT and professional services will help diversify the economy and ensure long-term resilience. By aligning education and training programs with regional demand, Pais Vasco can continue to thrive as an industrial and trade hub within Spain.

3. Comparative Report on Skills Demand in Spain vs. Pais Vasco Region

Based on the provided ESCO skill demand data for Spain and the Pais Vasco region, this report outlines key differences in skills demand and offers insights into the implications for economic and social development as well as education and training strategies.

3.1 Key Differences in Skills Demand

1. **Self-Management Skills and Competences**:
    - **Spain**: 60.4%
    - **Pais Vasco**: 60.2%
    - **Analysis**: Both Spain and Pais Vasco show an almost identical demand for self-management skills, indicating the importance of autonomy, time management, and personal accountability across sectors.
    - **Implication**: Self-management skills are essential across industries, reflecting the increasing emphasis on independent work and productivity. Educational institutions should prioritise these skills in their curricula through project-based learning, time management workshops, and individual accountability exercises.
2. **Communication, Collaboration, and Creativity**:
    - **Spain**: 49.99%
    - **Pais Vasco**: 45.3%
    - **Analysis**: While both Spain and Pais Vasco rank communication and creativity skills highly, demand in Spain is slightly higher.
    - **Implication**: Communication, teamwork, and creativity are fundamental across diverse sectors, from business to technology. Educational systems should integrate communication and collaboration projects, and foster creativity across various disciplines, including STEM (Science, Technology, Engineering, and Mathematics) and the humanities.
3. **Social and Communication Skills**:
    - **Spain**: 48.1%
    - **Pais Vasco**: 46.7%
    - **Analysis**: The demand for social and communication skills is significant in both Spain and Pais Vasco.

- **Implication**: These skills are increasingly important in customer-facing roles, healthcare, and service industries. Social competence development, including negotiation, empathy, and active listening, should be a core component of both vocational and academic programs.

4. **Business, Administration, and Law**:
    - **Spain**: 41.5%
    - **Pais Vasco**: 37.8%
    - **Analysis**: While business skills are in high demand nationally, Pais Vasco shows slightly lower demand in this area.
    - **Implication**: The national economy's need for business and administrative skills reflects a strong service-oriented sector. Educational programs in business administration and legal studies should continue to expand, but the Pais Vasco region may prioritise more industrial or technical skills, suggesting a different economic focus.
5. **Engineering, Manufacturing, and Construction**:
    - **Spain**: 27.1%
    - **Pais Vasco**: 29.7%
    - **Analysis**: Demand for engineering and construction skills is higher in Pais Vasco than the national average.
    - **Implication**: Pais Vasco's industrial base, especially in manufacturing and construction, drives higher demand for engineering and technical expertise. Vocational training and higher education programs should focus on industrial skills, including sustainable construction, advanced manufacturing, and engineering design.
6. **Information and Communication Technologies (ICT)**:
    - **Spain**: 21.6%
    - **Pais Vasco**: 18.5%
    - **Analysis**: National demand for ICT skills is higher than in Pais Vasco.
    - **Implication**: Although ICT remains critical, the lower demand in Pais Vasco may reflect a stronger industrial focus. However, digital transformation and Industry 4.0 technologies are likely to influence ICT demand in the region in the coming years. Education in ICT, especially focusing on industrial applications, should be a priority in the region.
7. **Languages**:

- **Spain**: 34.8%
- **Pais Vasco**: 37.7%
- **Analysis**: The demand for language skills is higher in Pais Vasco than the national average.
- **Implication**: With the region's strong ties to international business and tourism, as well as its bilingual culture (Spanish and Basque), language skills are critical. Educational institutions should continue promoting multilingual proficiency, with emphasis on English, French, and other major global languages to support international trade, tourism, and diplomacy.

8. **Management Skills**:
   - **Spain**: 31.2%
   - **Pais Vasco**: 29.5%
   - **Analysis**: Both regions show significant demand for management skills, though Spain has a slightly higher demand.
   - **Implication**: Effective leadership and management skills are crucial for businesses in both Spain and Pais Vasco. Management programs should emphasise strategic leadership, project management, and people management, particularly in relation to emerging industries like renewable energy and advanced manufacturing.
9. **Information Skills**:
   - **Spain**: 25.2%
   - **Pais Vasco**: 23.1%
   - **Analysis**: The national demand for information skills, including data analysis and information management, is higher than in Pais Vasco.
   - **Implication**: As the economy becomes more data-driven, information skills will be essential across sectors. Education systems should ensure that students are equipped with skills in data management, digital literacy, and analytical thinking, particularly for roles in ICT and research.
10. **Natural Sciences, Mathematics, and Statistics**:
    - **Spain**: 8.2%
    - **Pais Vasco**: 4.4%
    - **Analysis**: There is a noticeable gap between the national and regional demand for science and mathematics skills.

- **Implication**: Pais Vasco may have a more vocational or industrial focus, with less emphasis on scientific research or academia. However, to remain competitive in innovation and technology, the region should encourage STEM education, particularly in fields like renewable energy, biotechnology, and data science.

3.2 Implications for Economic and Social Development

1. **Industry Focus in Pais Vasco**:
    - The higher demand for engineering, manufacturing, and construction skills in Pais Vasco highlights the region's industrial focus compared to the national trend.
    - **Implication**: Economic development strategies in Pais Vasco should continue supporting industrial innovation, particularly in advanced manufacturing and green technologies. This also indicates a need for infrastructure development to support these industries.
2. **Service Sector and Business in Spain**:
    - Nationally, there is a higher demand for business, ICT, and communication skills, reflecting the country's service-driven economy.
    - **Implication**: Spain's economy may benefit from continued investment in service industries, such as finance, tourism, and customer service. Educational systems should continue supporting business and communication skills development.
3. **Emerging Tech Skills**:
    - While ICT demand is slightly lower in Pais Vasco, the national trend shows increasing emphasis on digital skills.
    - **Implication**: To future-proof the regional economy, Pais Vasco must invest in digital transformation, Industry 4.0, and ICT training programs. These efforts should focus on integrating digital technologies into traditional industries like manufacturing.

3.3 Implications for Education and Training

1. **Engineering and Vocational Training in Pais Vasco**:
    - The higher demand for engineering and construction skills in Pais Vasco suggests the need for robust vocational training programs focused on industrial and technical disciplines.

- **Recommendation**: Schools and vocational institutes in Pais Vasco should emphasise technical skills related to manufacturing, engineering, and industrial technologies. Collaboration between industry and education providers will ensure that graduates meet the region's workforce needs.

2. **Business and ICT Education in Spain**:
    - Nationally, Spain shows higher demand for business, ICT, and data management skills.
    - **Recommendation**: Educational institutions across Spain should focus on enhancing ICT-related training, including programming, cybersecurity, and data analytics. Business schools should offer courses that cover digital transformation, entrepreneurship, and global business strategies.
3. **Language Skills in Pais Vasco**:
    - The higher demand for language skills in Pais Vasco indicates the region's need for multilingual professionals.
    - **Recommendation**: Language training should remain a key focus, especially for students entering tourism, international business, and diplomacy. Schools should encourage proficiency in English and French, in addition to regional languages like Basque and Spanish.
4. **Strengthening STEM Education**:
    - The lower demand for natural sciences and mathematics in Pais Vasco suggests a need for stronger STEM (Science, Technology, Engineering, and Mathematics) programs.
    - **Recommendation**: To support innovation and sustainability in industrial sectors, STEM education should be expanded, with a focus on practical applications like renewable energy, data science, and sustainable manufacturing.

3.4 Conclusion

The labour market in Pais Vasco and Spain shows distinct differences, with Pais Vasco focusing more on industrial skills, while Spain as a whole emphasises business, ICT, and service-related competencies. These regional differences should guide educational and economic development policies. By focusing on technical training and industrial skills, Pais Vasco can maintain its industrial competitiveness, while Spain's broader emphasis on ICT and business skills supports a service-oriented economy. Both regions should continue to foster STEM education, language proficiency, and leadership skills to meet future labour market demands.

4. Report on Greenness and Green Pervasiveness by Occupation in Spain (Q1 2024)

The provided data presents an analysis of greenness and green pervasiveness across various occupations in Spain, classified by 4-digit ISCO codes. Below is a detailed examination of the insights gathered from the data, along with the implications for economic and social development and education and training in Spain.

- **Greenness**: Refers to the proportion of green skills within the total number of unique skills observed for each occupation.
- **Green Pervasiveness**: Measures the percentage of online job advertisements (OJAs) that mention at least one green skill.

4.1 Key Occupation Insights

1. **Teaching Professionals Not Elsewhere Classified**:
    - **Greenness**: High. A significant share of green skills is integrated into the teaching profession, especially in roles that cover sustainability and environmental education.
    - **Green Pervasiveness**: High. The proportion of job advertisements requiring green skills is substantial in this occupation.
    - **Implications**: Education is a key vehicle for promoting sustainability, with teachers playing a crucial role in shaping future generations. As sustainability becomes central to national and global agendas, the demand for educators who understand and can teach green concepts will continue to rise. Educational institutions need to update curricula to include environmental literacy across disciplines.
2. **Life Science Technicians (Excluding Medical)**:
    - **Greenness**: Moderate to high. Life science technicians are involved in research areas that increasingly incorporate sustainability, particularly in biology, ecology, and conservation science.
    - **Green Pervasiveness**: Moderate. A good proportion of job ads for this role emphasise green skills.
    - **Implications**: The life sciences sector will play a crucial role in advancing environmental research and policy. As the field continues to evolve, training programs should place a greater emphasis on sustainable research methods, conservation techniques, and green technologies. Collaboration between educational providers and research institutions will be essential to address skill gaps in this area.

3. **Medical and Pathology Laboratory Technicians**:
    - **Greenness**: Moderate. While not traditionally viewed as a green sector, lab technicians are increasingly required to adopt environmentally responsible practices, such as minimising waste and using eco-friendly materials.
    - **Green Pervasiveness**: Moderate.
    - **Implications**: As healthcare practices move towards sustainability, technicians need to be trained in green lab practices, including reducing environmental impact and adopting resource-efficient technologies. Medical training programs should incorporate sustainability as part of their core curriculum, particularly for laboratory work.
4. **Chemists**:
    - **Greenness**: Moderate. Chemists are increasingly working on developing sustainable products, green energy solutions, and environmentally friendly chemical processes.
    - **Green Pervasiveness**: Low to moderate.
    - **Implications**: As the chemical industry shifts towards green chemistry, educational programs must train chemists in sustainable processes, including green synthesis methods, renewable energy applications, and eco-friendly product development. Professional development programs should also focus on updating existing workers' skills to meet these new demands.
5. **Database and Network Professionals**:
    - **Greenness**: Low. Although the digital sector is not traditionally green-focused, the adoption of energy-efficient data centres and sustainable IT practices is gaining traction.
    - **Green Pervasiveness**: Low.
    - **Implications**: As digital infrastructure grows, ensuring it is energy efficient will be critical to reducing the environmental impact of this sector. Training in sustainable digital infrastructure, including energy-efficient data management, should be incorporated into IT education and professional development.
6. **Physical and Engineering Science Technicians**:
    - **Greenness**: Moderate. These roles are key in the development and maintenance of green technologies, such as renewable energy systems and sustainable construction practices.
    - **Green Pervasiveness**: Low to moderate.

- **Implications**: Engineering education needs to emphasise green technologies, including renewable energy, sustainable construction, and eco-friendly materials. Schools and vocational training programs should update their curricula to ensure graduates are equipped with the skills needed for green engineering roles.

7. **Social Work and Counselling Professionals**:
    - **Greenness**: Low. Sustainability is not traditionally emphasised in this field.
    - **Green Pervasiveness**: Very low.
    - **Implications**: There is a growing recognition of the social impacts of environmental change, such as climate migration and mental health challenges related to environmental degradation. As these issues become more prevalent, training for social workers and counsellors should incorporate environmental awareness and sustainability as part of their approach to holistic care.

4.2 Implications for Economic and Social Development

1. **Growing Importance of Green Skills**:
    - The data indicates that green skills are increasingly important across a range of occupations, particularly in education, life sciences, and technical fields. This trend reflects Spain's broader commitment to transitioning towards a sustainable economy.
    - **Implication**: Spain's economic development strategy must continue to support the expansion of green jobs across various sectors. Investment in renewable energy, waste management, and green innovation will drive job creation, while also ensuring the country meets its environmental targets.
2. **Focus on Sustainability in Education**:
    - Teaching professionals play a crucial role in embedding sustainability into the curriculum at all levels of education. As sustainability becomes a key component of social development, more green skills will be required in the education sector.
    - **Implication**: Educational policymakers should prioritise sustainability education, ensuring that teachers are equipped with the necessary green skills to teach environmental responsibility. This could include mandatory green training modules in teacher certification programs and ongoing professional development opportunities for educators.
3. **Green Science and Innovation**:

- The role of life sciences, chemistry, and engineering in driving sustainable innovation cannot be overstated. These sectors are central to developing new technologies and methods to combat climate change and reduce environmental impact.

- **Implication**: Research and development should be a key focus of economic policy, with government support for green innovation initiatives. Public-private partnerships can foster innovation, while grants and incentives can encourage businesses to adopt green technologies.

4.3 Implications for Education and Training

1. **Integration of Green Skills in Vocational and Higher Education**:

   - The data shows that green skills are becoming a requirement in both scientific and technical fields. To meet future workforce demands, vocational and higher education institutions must adapt their training programs to incorporate sustainability across disciplines.

   - **Recommendation**: Vocational programs, particularly in the life sciences, engineering, and ICT sectors, should integrate green skills training. Universities should also offer specialised courses on green technologies, renewable energy systems, and environmental science to prepare graduates for the emerging green economy.

2. **Upskilling the Workforce in Green Technologies**:

   - Occupations like lab technicians, database professionals, and engineers are seeing increasing demand for green skills. Upskilling programs can help workers in these sectors adapt to new requirements.

   - **Recommendation**: Professional development programs should be offered to workers in technical fields, focusing on green skills and sustainable practices. This will help ensure the existing workforce is prepared to meet the changing demands of the job market.

3. **Expansion of Green Science Education**:

   - Life sciences and chemistry are particularly well-positioned to contribute to green innovation, but training in these areas must keep pace with industry advancements.

   - **Recommendation**: Educational institutions should update their science curricula to include green chemistry, eco-friendly lab practices, and sustainable scientific research methods. Partnering with industries focused on environmental science could help bridge the gap between education and the job market.

4.4 Conclusion

The labour market in Spain is increasingly shaped by the integration of green skills across various occupations, with education, life sciences, and technical professions leading the way. As Spain continues its transition to a sustainable economy, the demand for workers with green skills will grow. This shift has important implications for economic and social development, as well as education and training. By investing in green education, upskilling the workforce, and promoting sustainable innovation, Spain can ensure that its labour market is well-positioned for the future.