



DesignSmart

Empowering VET and Women Entrepreneurs for Sustainable Fashion Innovation

WP2 - Sustainable Fashion and AI Curriculum

T2.1 - Research Framework & Needs Assessment

T2.2 - Desk & Field Research Analysis

NATIONAL REPORT TEMPLATE

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Country: Spain

Organization(s): CCIB - LCB





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Consortium

P1	Leather Cluster Barcelona (LCB), Spain - Coordinator
P2	Eurotraining, Greece
P3	People Forward (PF), Cyprus
P4	BASE3 Società Cooperativa (Base3), Italy
P5	Cámara de Comercio Italiana – Barcelona (CCIB), Spain
P6	PlanB, Greece
P7	Politecnico Calzaturiero (PC), Italy

Project Information

Project title	Empowering VET and Women Entrepreneurs for Sustainable Fashion Innovation
Project acronym:	Design-Smart
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Beneficiary organisation (Project Coordinator)	Leather Cluster Barcelona (LCB)
Project Partners	P1 – P7 listed above
Associate Partners	As listed above

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General Instructions for Partners

Key Requirements:

- Total length: 10-15 pages (Arial 11pt, 1.15 line spacing, margins 2.5cm)
- Sources priority: Recent national data, EU frameworks (GreenComp, DigComp, EQAVET, ECVET), questionnaire/focus group quantitative results, National Committee validation
- Visuals: Include 3-5 charts/tables summarizing survey data (e.g., skills gap percentages, barrier rankings)
- Language: English
- Deadline: 15 March 2026 - Submit via shared drive
- Purpose: Identify VET training gaps, SME/women entrepreneur needs, AI adoption barriers to directly inform SO2.2 curriculum development



Introduction

The DesignSmart project tackles the pressing need to modernize Vocational Education and Training (VET) in the fashion and footwear sectors by weaving together sustainability, circular economy principles, and Artificial Intelligence (AI). Perfectly aligned with the European Union's priorities for green and digital transitions, such as the European Green Deal and Digital Decade, it builds VET providers' capacity to empower small and medium-sized enterprises (SMEs), especially those led by women entrepreneurs, through innovative, sustainable, and digitally driven business models.

Within Work Package 2 (WP2), the focus is on creating an evidence-based Sustainable Fashion & AI Curriculum (covering specific objectives SO2.1 to SO2.3). This National Report brings together key insights across three core areas: sustainable fashion, with emphasis on low-impact materials, circular models, and supply chain traceability; AI-driven eco-design, featuring AI tools for design, prototyping, and environmental impact assessment; and VET digitalization, which covers digital skills development alongside strengthened collaboration between VET providers and SMEs.

To develop these insights, we applied a robust methodology: desk research drawing on standardized T2.1 templates to analyze policies, initiatives, and market data; distribution of 20 structured questionnaires per partner country to gauge training gaps and AI adoption barriers; focus groups engaging 5-10 participants from VET providers, SMEs, and sustainability experts; and validation through National Advisory Committees comprising 5-10 key stakeholders.

Ultimately, this report delivers comparable, national-level analysis of critical skills gaps, training needs, and implementation barriers. These findings will directly shape curriculum development under SO2.2 and VET capacity building via SO2.3, while ensuring full alignment with established EU frameworks including GreenComp, DigComp, EQAVET, and ECVET.



1. Sustainable Fashion

The Spanish national context within the DesignSmart project reflects a dynamic but transnational ecosystem in the fashion, textile, and leather sectors. Spain is characterized by a strong presence of SMEs, regional industrial cluster, and growing alignment with European sustainability and digitalization priorities.

The sector is increasingly influenced by the European Green Deal, the Circular Economy Action Plan, and the Digital Decade, requiring a dual transition: green and digital. However, despite growing awareness, implementation gaps remain significant, particularly among SMEs and vocational education and training (VET) providers.

This report combines:

- Desk research on national policies and initiatives
- Questionnaire data (Spain)
- Focus group insights with SMEs, VET providers, experts

The analysis focuses on:

1. Sustainable Fashion
2. AI-Driven Eco-Design
3. VET Digitalization

1.1 National Context and Relevance of the Sector

Spain's fashion and leather sector is one of the most relevant in Europe, with strong export capacity and high fragmented SME structure.

- SME represent over 90% of the sector
- Strong clusters: Catalonia (leather, fashion), Valencia (footwear), Galicia (textile)
- Increasing pressure for traceability, eco-design and circularity

The leather sector (f.e. Igualada ecosystem) is undergoing transformation through:

- New bio-based materials
- Digital supply chains
- Demand for transparency



Example of Table:

Indicator	National Data 2024/2025	Source	Trend
Total fashion SMEs	15,705 companies (2024)	Observatorio del Texti y la Moda/Modaes, based on INE	-3.0% YoY
Women-led SMEs	37,7% of sole-proprietor businesses in Spain are women-led (2024)	INE, DIRCE	n/a
Export value (fashion sector, broad ICEX definition)	31.664 billion (2024)	Obersvatorio del Textil y la Moda/Modaes, based on ICEX	Broadly stable share; 8,2% of Spain's total goods exports
Export value (textile, apparel, leather and footwear)	23.049 billion (2024)	Obervatorio del Textil y la Moda / Modaes	+3.1% YoY
Catalan leather cluster size	More than 40 companies in Leather Cluster Barcelona	Leather Cluster Barcelona	n/a

1.2 National Policies and Regulations

Spain aligns closely with EU sustainability frameworks:

- Spanish Circular Economy Strategy (España Circular 2030)
- Waste and Contaminated Soils Law (2022)
- Extended Producer Responsibility (EPR)
- Alignment with:

EU Green Deal

Ecodesign for Sustainable Products Regulation (ESPR)

CSRD/ESG reporting





Additionally:

- Increasing pressure on traceability and digital product passports
- Growth of voluntary certifications (f.ex. OEKO-TEX; LWG in leather)

1.3 Existing Initiatives and Projects (3-5 examples required)

Format for each: EU Consortium

Title: Metaskills 4TCLF Project

Organization: CTCP – Portugal

Description (3-4 lines): The Metaskills 4TCLF project focuses on identifying future skills needs in the textile, clothing, leather and footwear (TCLF) sectors. It aims to support SMEs and VET providers in adapting to digital and green transitions through skills intelligence, training frameworks, and capacity – building activities. The project contributes to the development of new professionals profiles aligned with circular economy and digitalization.

Status: Ongoing| Scale: European | Link: <https://www.metaskills4tclf.eu>

Format for each: ACCIÓ – Government of Catalonia

Title: TOKEN Project – Traceability in Leather Value Chains

Organization: Leather Cluster Barcelona (LCB)

Description (3-4 lines): The TOKEN project developed a digital traceability system for leather products, enabling tracking from raw material to final product. It supports transparency, sustainability certification, and compliance with emerging EU regulations. The initiative is highly relevant for SMEs seeking to improve supply chain traceability and data management capabilities in line with circular economy principles.

Status: Completed| Scale: Regional/National| Link: <https://app.origino.io/qrIdenteco/10725>

Format for each: ACCIÓ – Government of Catalonia

Title: Digital Product Passport (DPP) – Leather Sector Implementation

Organization: Leather Cluster Barcelona (LCB)

Description (3-4 lines): This upcoming initiative focuses on the implementation of Digital Product Passports (DPP)

Status: Completed| Scale: Regional/National|

Title: ReGrasPro – Collagen Valorisation from Leather by-products

Organization: Leather Cluster Barcelona (LCB) / Tanneries consortium

Description (3-4 lines): ReGrasPro focuses on the valorisation of collagen and amino acids derived from leather processing by-products before entering the fashion value chain. The project operates at TRL 6-7 and aims to transform waste streams into high-value secondary raw materials, contributing to circular economy practices and industrial symbiosis within the leather sector.

Status: Pending funding / Pre-implementation| Scale: Regional/National

1.4 Required Competences in the Sector

Survey results show high awareness but implementation gaps.

- Sustainability integration: 4.3/5
- Circular readiness: 3.95/5





Key competences:

- Eco-design and lifecycle thinking (75% identified as critical)
- Knowledge of sustainable materials (70%)
- Supply chain traceability (64%)
- Sustainability reporting (CSRD) (60%)

1.5 Barriers and Opportunities

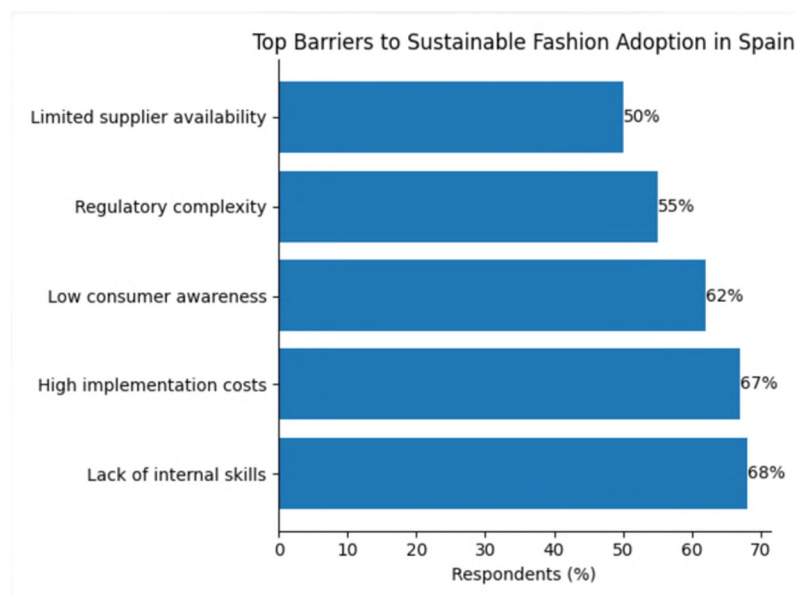
Primary Barriers (ranked by questionnaire responses):

1. Main barriers (ranked)

- High costs for SMEs (80%)
- Lack of internal skills (70%)
- Low consumer awareness (65%)
- Regulatory complexity (55%)
- Limited supplier availability (50%)

Opportunities:

- EU funding (Horizon, Erasmus+)
- Growing consumer demand
- Strong cluster ecosystem
- Innovation in bio-materials





1.6 National Best Practice

Title: Leather Cluster Barcelona Innovation Ecosystem for Sustainable and Digital Transition

Organization: Leather Cluster Barcelona (LCB)

Description (150-200 words):

Leather Cluster Barcelona (LCB) represents a leading national best practice in fostering sustainable innovation and digital transformation, within the leather and fashion ecosystem. As a cluster organization, LCB brings together SMEs, tanneries, technology providers, and research institutions to accelerate the adoption of circular economy principles and digital solutions.

Through initiatives such as the TOKEN (traceability systems), upcoming Digital Product Passport (DPP) implementation, and innovation projects like ReGrasPro (valorization of collagen-based by-products), LCB supports companies in improving transparency, resource efficiency, and sustainability performance. These initiatives directly addresses key sector challenges, including traceability, regulatory compliance, and waste reduction.

From a DesignSmart perspective, LCB offers highly transferable elements, including strong education industry collaboration models, SME-oriented training approaches, and the integration of a real industrial case studies into learning processes. Its ecosystem facilitates practical experimentation (TRL 6-7), enabling learners and professionals to engage with real-world challenges.

The scalability of this model lies in its cluster-based approach, which can be replicated across regions to support SMEs in the green and digital transition, particularly in sectors with complex value chains such as fashion and leather.





2. AI-Driven Eco-Design

2.1 Context and Level of Digital Maturity

Survey results show moderate digital maturity:

- AI familiarity: 2,76/5
- Digital tool usage: 2,9/5
- Data readiness: 3,24/5

Spain shows early-stage AI adoption, especially among SMEs.

2.2 National Policies on AI and Digital Innovation

Spain has established a comprehensive policy framework to support digital transformation and Artificial Intelligence (AI) adoption, particularly targeting SMEs. However, survey results indicate that the impact of these policies at operational level remains limited, especially in the fashion and leather sectors.

National AI Strategy and Digital Transformation Roadmap

Spain's digital transformation is guided by:

National Artificial Intelligence Strategy (EINA)
Digital Spain 2026 Agenda

These frameworks aim to:

- Promote AI integration across industries
- Strengthen digital skills
- Foster innovation ecosystem and data-driven business models

Despite these efforts, survey results show that AI familiarity among respondents remains low (2,76/5), indicating that national strategies have not yet fully translated into sector-specific adoption, particularly among SMEs.

SME Digitalization Programs

Spain has implemented several funding and support mechanisms:

- Digital Kit Programme (EU-funded vouchers for SMEs)
- Regional innovation grants
- Training initiatives for digital skills

These programs provide:

- Financial support for digital tools
- Access to consultancy and implementation services
- Training in digital and AI competences

However, according to survey data:

- The use of digital tools in companies is still limited (2,9/5)





-Many SMEs face difficulties in accessing or effectively using these programmes

This suggests a gap between availability of support and real uptake capacity, particularly due to lack of internal skills.

Industry 4.0/5.0 Frameworks and Competence Centres

Spain support industrial digitalization through:

- Industry 4.0 initiatives
- Digital Innovation Hub (DIHs)
- Technology centers (f.e. Inescop, Eurecat)

These centers provide:

- Testing environments
- Technical support
- Innovation services for SMEs

Nevertheless, survey findings shows that:

- Data management readiness is only moderate (3,24/5)
- SMEs still lack capabilities to fully benefit from advanced technologies

This highlights the need for stronger between competence centers and VET systems.

Tax and Financial Incentives for AI Adoption

Financial incentives include:

- Tax dedications for R&D and innovation
- Public fundings schemes for digital transformation
- EU co-funded programmes (NextGenerationEU)





2.3 Applications of AI in Fashion Eco-Design (2-3 national examples)

The integration of Artificial Intelligence (AI) in fashion eco-design in Spain is still emerging, but several applications are gaining relevance, particularly among innovative companies, research centres and cluster-driven initiatives. While adoption remains limited among SMEs, early use cases demonstrate strong potential to improve sustainability performance, efficiency and decision-making.

AI Application and Use Cases

1. Generative Design for Sustainable Products

AI-based generative design tools are increasingly used to support the creation of optimized patterns and product design with reduced material waste. These systems allow designers to explore multiple design alternatives based on sustainability parameters such as material efficiency, durability and recyclability.

In Spain, this approach is mainly explored by advanced design environments and innovation-driven companies, as well as within collaborative projects involving clusters and research institutions. However, adoption remains limited due to the need for advanced digital skills and access to specialized software.

2. Virtual Prototyping and 3D Sampling

Virtual prototyping technologies, supported by AI and 3D modelling tools, enable companies to reduce the need for physical samples, significantly lowering material waste and production costs.

This application is increasingly relevant in the Spanish fashion and footwear sectors, where companies are beginning to adopt digital sampling tools to accelerate product development cycles. In addition, digital twin technologies are emerging to simulate production processes and supply chains, allowing for better planning and resource optimization.

Despite these advantages, the use of such tools is still concentrated in larger companies or innovation-oriented SMEs, due to investment costs and training requirements.

3. AI-Driven Material Optimization and Environmental Impact Prediction

AI tools are being developed to analyze and optimize material selection based on environmental impact, performance and cost. These systems can support Lifecycle Assessment (LCA) processes by predicting environmental impacts across different design scenarios.

In the Spanish context, these applications are mainly present in research centers and innovation projects linked to clusters such as Leather Cluster Barcelona, where efforts are being made to integrate sustainability data and digital tools into material development and selection processes.

However, SMEs face significant barriers in adopting these technologies, particularly due to limited data availability and lack of technical expertise.

AI applications in fashion eco-design in Spain are at an early adoption stage, with strong potential but limited diffusion among SMEs. Their implementation requires not only technological investment, but also targeted training and capacity building VET systems.





4. AI-Based Leather Classification for Quality and Waste Reduction (LCB Case)

An important national example of AI application in eco-design is the development of an AI-based systems for the classification of natural leather, led within the Leather Cluster Barcelona ecosystem. This initiative focuses on identifying and categorizing natural defects in leather hides through machine vision and artificial intelligence.

The system combines specialized machinery with AI algorithms trained to detect variations, imperfections and quality differences in leather surfaces. This enables more precise classification and optimized use of raw materials, reducing waste and improving resource efficiency in the early stages of the production process.

From a sustainability perspective, this application contributes directly to circular economy principles by maximizing material utilization and supporting more efficient production planning. It also allows companies to better match material quality with product requirements, reducing overconsumption of high-grade leather.

The project is currently in a development and scaling phase, with ongoing efforts to refine the AI models and expand their industrial applicability. It represents a highly relevant and transferable use case for DesignSmart, particularly in demonstrating how AI can be applied in traditional sectors to enhance sustainability and efficiency.

2.4 Required Competences

The transition towards AI-driven eco-design in the Spanish fashion and leather sectors requires the development of hybrid competences combining digital, technical and sustainability knowledge. Survey results confirm that while awareness of digital tools exist, practical skills and implementation capacity remain limited.

In particular, the level of familiarity with AI tools is relatively low (2,76/5 average score), and the use of digital tools for design and decision-making is also moderate (2,9/5), highlighting a clear skills gap.

Digital – Technical Competences

The most relevant competences identified include:

- Data literacy and data-driven design thinking

Professionals need the ability to collect, manage and interpret data related to materials, production processed and environmental impact. This is essential for informed decision-making and for integrating sustainability criteria into design processes.

Survey insight:

Around 70% of respondents indicate limited capacity to manage and use data effectively (linked to moderate score: 3,24/5)



- Entry-level AI platforms and tools proficiency

Basic knowledge of AI tools (f.e. for pattern generation, material analysis or forecasting) is increasingly required. However, SMEs often lack access to training and practical applications.

Survey insight:

Approximately 72% of respondents report insufficient training in AI tools and applications

AI familiarity remains low (2,76/5), confirming limited exposure

Entry-level AI platforms and tools proficiency

Back knowledge of AI tools (f.e. pattern generation, material analysis or forecasting) is increasingly required. However, SMEs often lack access to training and practical applications.

Survey insight:

Approximately 72% of respondents report insufficient training in AI tools and applications

AI familiarity remains low (2,76/5), confirming limited exposure

- CAD/3D modelling, digital simulation and virtual prototyping

These competences are critical for reducing physical sampling, improving efficiency and enabling sustainable design processes.

Survey insight:

Around 65% of respondents identify gaps in digital design and simulation tools

Use of digital tools remains limited (2,9/5 average)

- AI-supported sustainability metrics interpretation

Professionals need to understand and interpret outputs from AI tools related to environmental impact (f.e LCA indicators, material efficiency)

Survey insight:

Around 60% of respondents report difficulties in linking digital tools with sustainability metrics

While Spanish SMEs are aware of the potential of AI in eco-design, the main barrier lies in the lack of practical, entry-level competences that enable real adoption. This highlights the need for accessible application-oriented training within VET systems.

2.5 Challenges and Barriers to Adoption

Key challenges from focus groups/questionnaires:

The adoption of AI-driven eco-design in Spain is constrained by a combination of financial, cultural and skills-related barriers. Both questionnaire results and focus group discussions confirm that, while there is growing awareness of the potential of AI, significant obstacles still prevent its effective implementation, particularly among SMEs.

Key Challenges

Investment costs (software, hardware, infrastructure)



High investment costs represent one of the most critical barriers to AI adoption. SMEs often lack the financial capacity to invest in advanced technologies, including AI software, digital infrastructure, and specialized equipment.

Survey insight:

Around 67% of respondents identify costs as a major barrier

Focus group evidence:

“In some cases, monitoring and control costs exceed the benefits derived”

Digital culture and resistance to change

A strong cultural resistance to digital transformation persists, particularly in traditional sectors such as leather and craftsmanship. Many companies continue to operate with established processes and are hesitant to adopt new technologies due to perceived risks.

Focus group evidence:

“A strong cultural resistance is also observed: many companies continue to operate according to traditional models”

Shortage of hybrid design-digital-sustainability profiles

There is a clear lack of professionals combining design, sustainability and digital competences. This shortage limits companies' ability to implement AI solutions effectively.

Survey insight:

Approximately 70% of respondents highlight the need for new hybrid skill profiles

Focus group evidence:

“Training should better align with market needs, introducing more technical profiles and higher-level specialization pathways”

Limited targeted VET training availability

The current VET system does not yet provide sufficient training opportunities specifically focused on AI and sustainability integration. This results in a gap between industry needs and available training.

Survey insight:

Around 72% of respondents report insufficient AI-related training

Focus group evidence:

“Vocational preparation still presents gaps”

The main barriers to AI adoption in Spain are not technological but also structural, requiring coordinated action across funding, training and cultural transformation.



2.6 National Best Practice

Title: Leather Eyes Organization: Leather Cluster Barcelona

Description:

This best practice focuses on the development of an AI-based system for the classification of natural leather, combining machine vision technologies with artificial intelligence algorithms. The system is designed to identify and categorize natural defects in leather hides, enabling a more precise and efficient use of raw materials in the production process.

By integrating AI into early-stage material assessment, the solution allows companies to optimize cutting processes, reduce waste, and better match material quality with product requirements. This contributes directly to sustainable production by maximizing resource efficiency and reducing the unnecessary use of high-quality materials.

The initiative represents a strong example of innovation within a traditional industrial sector, demonstrating how AI can be applied to enhance sustainability and operational performance. The project is currently in a development and scaling phase, with ongoing improvements in algorithm accuracy and industrial integration.

From a DesignSmart perspective, this case offers highly transferable practices, including the integration of AI into real production environments, the development of hybrid technical competences, and the use of practical, industry-based learning scenarios. It also provides replicable model for VET curricula enabling learners to engage with real-world applications of AI in sustainable production systems.





3. VET Digitalization

3.1 State of the Art of VET Digitalization

The Spanish VET system is undergoing a progressive digital transformation, although the level of maturity remains uneven across institutions and regions. While basic digital infrastructures are widely available, the integration of advanced technologies and digital pedagogies is still developing.

LMS platform and hybrid learning

Most VET providers have adopted Learning Management System (LMS) and hybrid learning models, particularly following the COVID-19 pandemic. However, their use is often limited to content delivery rather than interactive simulation-based learning.

Survey insight:

Digital readiness of VET institutions: moderate (around 3,5/5)

Capacity to integrate digital learning tools: moderate (aprox.. 3,2/5)

Digital pedagogy integration

Digital pedagogy in fashion and footwear curricula remains limited, with a strong reliance on traditional teaching methods. While some institutions are introducing digital tools (CAD,3D) their integration is not yet systematic.

Focus group insight:

“Training should combine practical laboratories, real business case studies and digital simulations”

VET-industry digital collaboration

Collaboration between VET providers and industry exists but is still insufficiently digitalized. Opportunities such as visual apprenticeships, shared digital platforms co-creation environments are not yet widely implemented.

Survey insight:

Collaboration level with companies: moderate (around 3/5)

3.2 National Policies for Digital Education

Spain has developed a strong policy framework to support digital education and VET modernisation:

Digital education strategies

- Spain Digital Strategy 2025
- VET Modernisation Plan (Plan de Modernización de la FP)
- Lifelong learning initiatives

Teacher competence frameworks

- Alignment with DigCompEdu (European framework for educators)
- National initiatives for teacher digital upskilling

Investments in VET digitalization





- Public investment in digital infrastructure and equipment
- Support for innovation centres and applied technology hubs
- Funding for digital training programmes

EU alignment

Spain is strongly aligned with:

- Digital Education Plan (2021 – 2027)
- DigComp / DigCompEdu frameworks
- GreenComp (indirectly through sustainability integration)

3.3 Initiatives and Projects (3-5 examples)

1. LaGaspar – Digital and Industry – Linked Design Education

- Integration of digital tools and real industry projects
- Focus on human-centered design and innovation
- Strong collaboration with companies

2. University of Lleida – Industry – Academia Collaboration

- Bridge between research and industry
- Integration of digital tools in applied learning
- Support for innovation and entrepreneurship

2. Digital VET Innovation Projects (regional/national)

- Introduction of LMS platforms and hybrid learning
- Early adoption of simulation tools and digital content
- Pilot use of VR/AR in technical training

4. Cluster – Based Training (LCB ecosystem)

- Industry-driven training initiatives
- Exposure to real innovation projects (AI, traceability, materials)
- SME – oriented learning environment

3.4 Required Competences for Teachers and Learners

The transition towards digital VET requires both general and specialized competences.

General digital literacy (all VET staff)

- Use of LMS platforms
- Digital communication and collaboration tools
- Basic data handling





Survey insight:

Digital competences of teachers rated moderate (3/5)

Specialized competences

- CAD and 3D modelling
- AI tools and digital simulation
- LMS management and digital content creation

Survey insight:

Around 65-70% identify gaps in advanced digital skills

Digital collaboration and content creation

- Co-creation with industry
- Development of digital learning materials
- Use of interactive and simulation-based tools

3.5 Gaps and Emerging Needs

Identified gaps from primary data:

The analysis highlights several critical gaps in VET digitalization:

Key Gaps:

- Limited opportunities for trainer upskilling
- Insufficient integration of digital pedagogy
- Weak VET-industry digital collaboration platforms
- Limited use of emerging technologies (AI, VR, simulation)

Indicator	Average Score (1-5)	Interpretation
Digital readiness of insitutions	3,2	Moderate
Teacher digital competences	3,0	Moderate -Low
AI integration in VET	2,8	Low
Collaboration with industry	3,0	Moderate



Additional insight:

- 72% of respondents report lack of AI-related training
- 65% identify gaps in digital tools and simulation

The Spanish VET system shows moderate digital maturity but lacks the depth and specialisation required to support AI-driven and sustainability-oriented training.

3.6 National Best Practice

Title: LaGaspar – Practice – Based Digital Design Education Model Organization: Escola Municipal d'Art i Disseny LaGaspar

Description:

LaGaspar represents a strong example of innovation in VET digitalization, combining digital tools, human centered design methodologies, and close collaboration with industry. The institution integrates digital technologies such as CAD tools, simulation and project-based learning into its curriculum, while maintaining a strong connection with real production contexts.

A key strength of this model lies in its emphasis on practical, hands-on learning, where students engage in real industry challenges and collaborative projects. This approach facilitates the development of both digital and sustainability competences, bridging the gap between education and labor market needs.

From a DesignSmart perspective, LaGaspar offers highly transferable elements, including blended learning methodologies, integration of digital tools into design education, and strong VET-industry collaboration. Its model can be replicated across regions to support the development of hybrid skills combining design, sustainability and digitalization.





Conclusions

Synthesis of key findings for DesignSmart curriculum development:

This national report highlights the key challenges and opportunities for the Spanish fashion and leather sectors in the transition towards sustainability and digitalization, providing a solid evidence base for the development of the DesignSmart curriculum.

Main Critical Issues

Across the three areas analysed – sustainable fashion, AI-driven eco-design, and VET digitalization – the main critical issues identified are:

- A gap between awareness and implementation of sustainability practices, particularly in SMEs
- Low adoption of AI and digital tools, despite recognition of their potential
- A significant shortage of hybrid competences, combining sustainability, digital and design skills
- Insufficient alignment between VET systems and industry needs, especially emerging areas such as AI and circular economy

These findings confirm that the transition is not only technological, but also structural and educational.

National Specificities

The Spanish context presents specific characteristics that shape these challenges:

- A highly **fragmented SME-based ecosystem**, with limited financial and technical capacity
- Strong **regional clusters** (f.e. Leather Cluster Barcelona), acting as innovation drivers
- A relevant **industrial tradition (f.e. leather sector)** facing the need for digital and generational transformation
- Growing alignment with **EU sustainability and digital policies**, creating both pressure and opportunity

Priority Training Areas

Based on the analysis, the following priority areas for training emerge:

- Circular design and eco-design methodologies
- Sustainable materials and lifecycle assessment (LCA)
- AI tools for design, production and decision-making
- Data literacy and digital competences
- Digital prototyping and simulation (CAD/3D)

These areas are essential to bridge the gap between theoretical knowledge and practical implementation.



Strategic Opportunities for VET- SME Collaboration

The Spanish ecosystem offers strong opportunities to strengthen collaboration between VET providers and SMEs:

- Development of cluster-based training models, leveraging existing innovation ecosystems
- Integration of real business case studies into training programmes
- Expansion of work-based learning and co-creation environments
- Use of digital platforms to enhance collaboration and accessibility

Such approaches are critical to ensure the relevance and applicability of training.

Operational Recommendations for Curriculum Design

To effectively address identified gaps, the DesignSmart curriculum should:

- Focus on **practical, application-oriented learning**, tailored to SME needs
- Combine **sustainability, digitalization, and AI competences** in an integrated way
- Use **blended learning formats**, combining online content with hands-on experiences
- Incorporate **real industry challenges and case studies**
- Support **trainer upskilling**, particularly in digital and AI-related competences

Quantitative indicators achieved:

The analysis is supported by both quantitative and qualitative evidence:

- Approximately 70-75% of questionnaire respondents identify critical skills gaps, particularly in sustainability and AI-related competences
- Around 72% report insufficient training in AI tools, confirming the need for targeted capacity building
- Focus group discussions validate the priority training needs, highlighting gaps in vocational preparation and the need for more practical and technical training approaches
- Findings are consistent with stakeholder input and aligned with project objectives, providing a solid basis for curriculum development.

The Spanish fashion ecosystem demonstrates strong potential for sustainable and digital transformation, but requires targeted training solutions that bridge the gap between knowledge and implementation, particularly for SMEs.



Bibliography

References / Bibliography

- Use a consistent academic style, either APA 7th edition or Harvard.
- Include all sources cited in the text.
- Examples:
 1. National policies: National Circular Economy Strategy, Year, Publisher
 2. Project documents: Questionnaire results summary, Partner Organization, 2025
 3. EU documents: EU Policy Document, Institution, Year
- For online resources, include the full URL and date accessed.

Annexes

- Number and clearly title each annex.
- Include only materials that support the report's results:
 1. Questionnaire Results Summary – tables and charts from 20 participants.
 2. Focus Group Documentation – protocol, participants, and key quotes or excerpts.
 3. National Advisory Committee Records – meeting dates, participants, and key decisions.
 4. Raw Data / Supplementary Materials – additional charts, policy extracts, or supporting documents.
- Cross-reference annexes in the main text.
- Number tables and figures sequentially (e.g., Table A1, Figure A2).

