FEA-VEE Initiative Policy Report: Consolidated Outcomes and Pathways for Future Uptake

Project FEA-VEE

Fashion Earth Alliance – Vocational Excellence and Enterprise united for training, policy reform and sustainability in the fashion, textiles and apparel industries

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Deliverable Information

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EXECUTIVE SUMMARY

Overview:

This report is produced by the Fashion Earth Alliance – Vocational Excellence and Enterprise (FEA-VEE) project, co-funded by the Erasmus+ Programme (Project No. 101055934), bringing together eleven partners across Bulgaria, Germany, Greece, Romania, Spain, and Sweden to support the sustainable transformation of the fashion and textile sector through skills development, policy reform, and green entrepreneurship.

Key Findings:

- The FEA-VEE initiative arrived at the right moment — the sector across all partner countries is under structural pressure to transform, and the need for such an integrated initiative has never been greater.
- Partners and stakeholders consistently reported that no comparable, purpose-built initiative had previously existed in their regions.
- The project generated value beyond its planned scope: informal professional networks, new collaborations, and connections between designers, educators, and businesses emerged organically from the project's activities.
- Beyond addressing structural problems — the education-industry gap, green skills deficits, regulatory unawareness — the project brought the attention and renewed hope of young people to a sector struggling to attract new talent.
- The educational outputs provided VET providers, students, and businesses with timely, practical grounding in the EU regulatory changes ahead for the sector.

Impact and future uptake:

The FEA-VEE initiative produced tangible results across all six partner countries — professional and cross-sectoral networks connecting businesses, educational institutions, and civil society; two international study visits attended by participants from all partner countries; national internship programmes placing students in real production environments; multiplier events reaching students, educators, and industry professionals; and policy reports and educational materials now in active use by schools, academies, and VET providers. The partnerships, networks, and outputs developed during the project provide a solid foundation for continued collaboration beyond the project's formal timeframe, with clear pathways for scaling results at national level and embedding them in European-level policy, qualification frameworks, and sectoral initiatives.

I. INTRODUCTION

Context and Rationale

The fashion and textile sector across the six FEA-VEE partner countries — Bulgaria, Greece, Germany, Romania, Spain, and Sweden — faces a period of significant transformation. Rising labour costs, workforce shortages, demographic pressures, and the accelerating shift in consumer and regulatory expectations toward sustainability are reshaping the conditions under which producers, designers, and educators operate. **The specific challenges vary by country** — from the erosion of Bulgaria's and Romania's low-cost CMT model, to the digital and green transition pressures facing established industries in Germany and Spain, to the skills and VET modernisation agendas in Greece and Sweden — **the underlying dynamics are shared**: curricula are not keeping pace with industry needs, green entrepreneurship lacks dedicated support infrastructure, and the transition toward circular, sustainable production models is proceeding unevenly and largely without coordinated public policy frameworks at the sectoral level.

At EU level, **incoming regulatory instruments** — the Ecodesign for Sustainable Products Regulation, the revised Waste Framework Directive, Extended Producer Responsibility for textiles, and the EU Strategy for Sustainable and Circular Textiles — are setting new compliance requirements that all partner country sectors must prepare to meet. The FEA-VEE project (Fashion Earth Alliance – Vocational Excellence and Enterprise, Project No. 101055934) was designed to support this preparation: building the skills, networks, policy evidence, and educational infrastructure that the sector needs to transition successfully.

Purpose of the Report

This report is the consolidated end-of-project policy report for the FEA-VEE initiative (Deliverable D6.4). It brings together the findings of the three preceding policy reports — on labour market skills (D6.1), sustainability reforms (D6.2), and green entrepreneurship (D6.3) — alongside the sectoral needs assessment (D2.1), the project's concrete outcomes and impact across all six partner countries, and forward-looking national roadmaps for the continuation and scaling of FEA-VEE results.

The report is addressed to policymakers, VET providers, educational institutions, business associations, and civil society organisations working in or around the fashion and textile sector in the partner countries and at EU level. Its purpose is both analytical — documenting what the research found and what the project achieved — and operational, providing a practical basis for the next phase of work by identifying who should act, on what, and through which instruments.

Methodology

The report is structured around three complementary streams of work, each developed and tailored for the six partner countries — Bulgaria, Greece, Germany, Romania, Spain, and Sweden:

- **The first** is a retrospective review of the three preceding FEA-VEE policy reports (D6.1, D6.2, D6.3) and the sectoral needs assessment (D2.1), analysing what has changed in each partner country over the course of the project and how the challenges and trends identified at the environment have evolved.

- **The second** is the collection and synthesis of outputs, results, impressions, and feedback generated through the project's activities — including study visits, internships, multiplier events, stakeholder engagement, and network development — bringing together what was built, what was learned, and what participants and partners said about its value.
- **The third** is a forward-looking projection of sustainability and future outcomes for each country: identifying pathways for continuity, potential developments, and nationally tailored actions and partnerships that can carry the FEA-VEE results beyond the project's formal timeframe.

II. COUNTRY SPECIFIC REPORTS FOR THE FEA-VEE INITIATIVE IN THE PROJECT PARTNERS` COUNTRIES

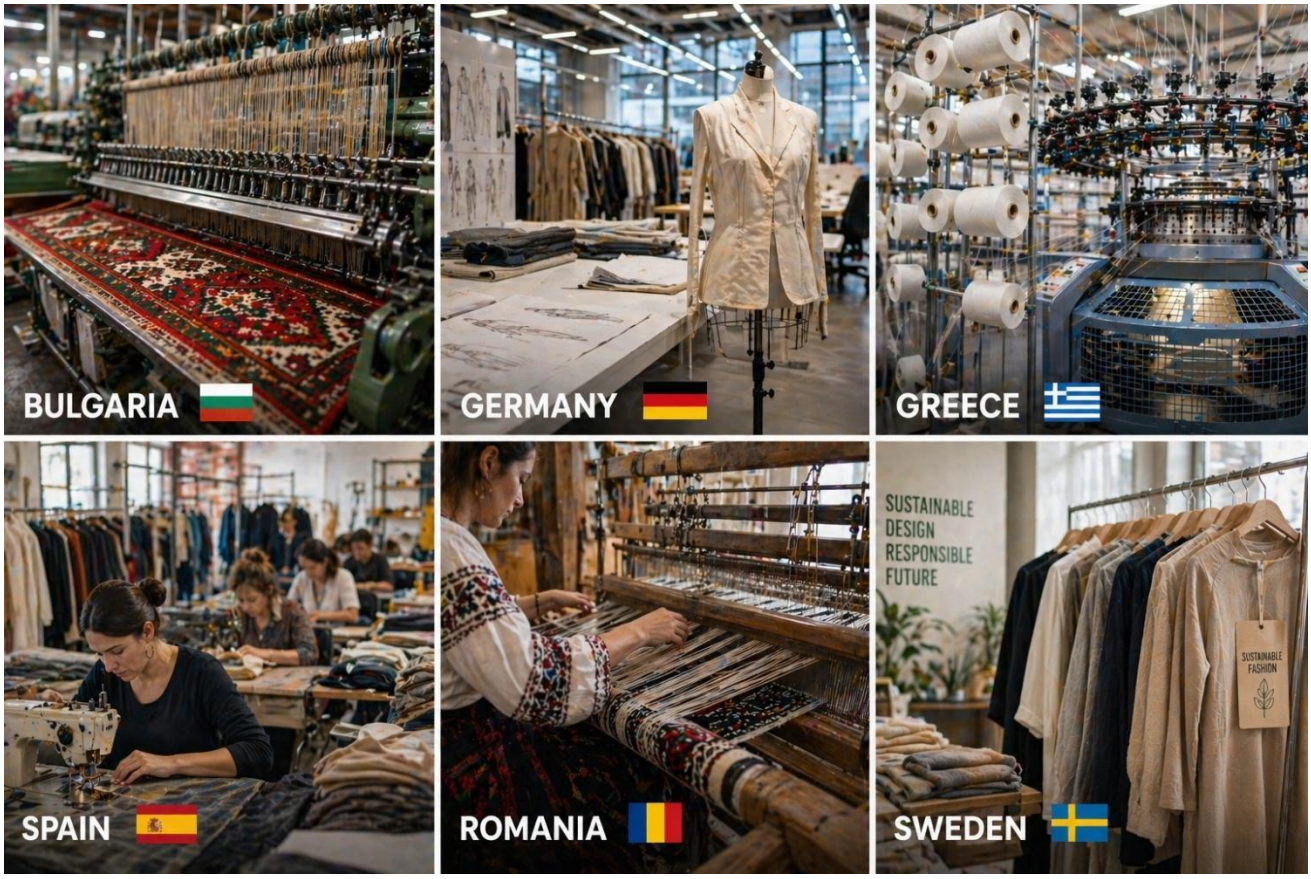

Figure 1 National reports - AI generated image

This chapter presents six national reports developed by the project partners across the participating countries — Greece, Spain, Romania, Germany, Sweden, and Bulgaria — each reflecting the specific sectoral, educational, and entrepreneurial conditions of their national context and produced by the institutions with the closest knowledge of their local industries and stakeholders. The reports were authored by the following partners:

- **Bulgaria:** Bulgarian Fashion Association and Plovdiv Chamber of Commerce and Industry
- **Greece:** Technical Institute of Heraklion Chamber, Fthiotida Chamber and AKMI Anonimi Ekpaideutiki Etairia
- **Spain:** Barcelona Official Chamber of Commerce, Industry, Services and Navigation and UNIVERSITAT POLITÈCNICA DE CATALUNYA
- **Romania:** ROMANIAN FASHION COUNCIL and University of Art and Design Cluj-Napoca (UAD)
- **Germany**: ITKAM - Italienische Handelskammer für Deutschland und VDMD - Netzwerk Deutscher Mode- und Textildesigner e.V.
- **Sweden:** SENSUS

BULGARIA

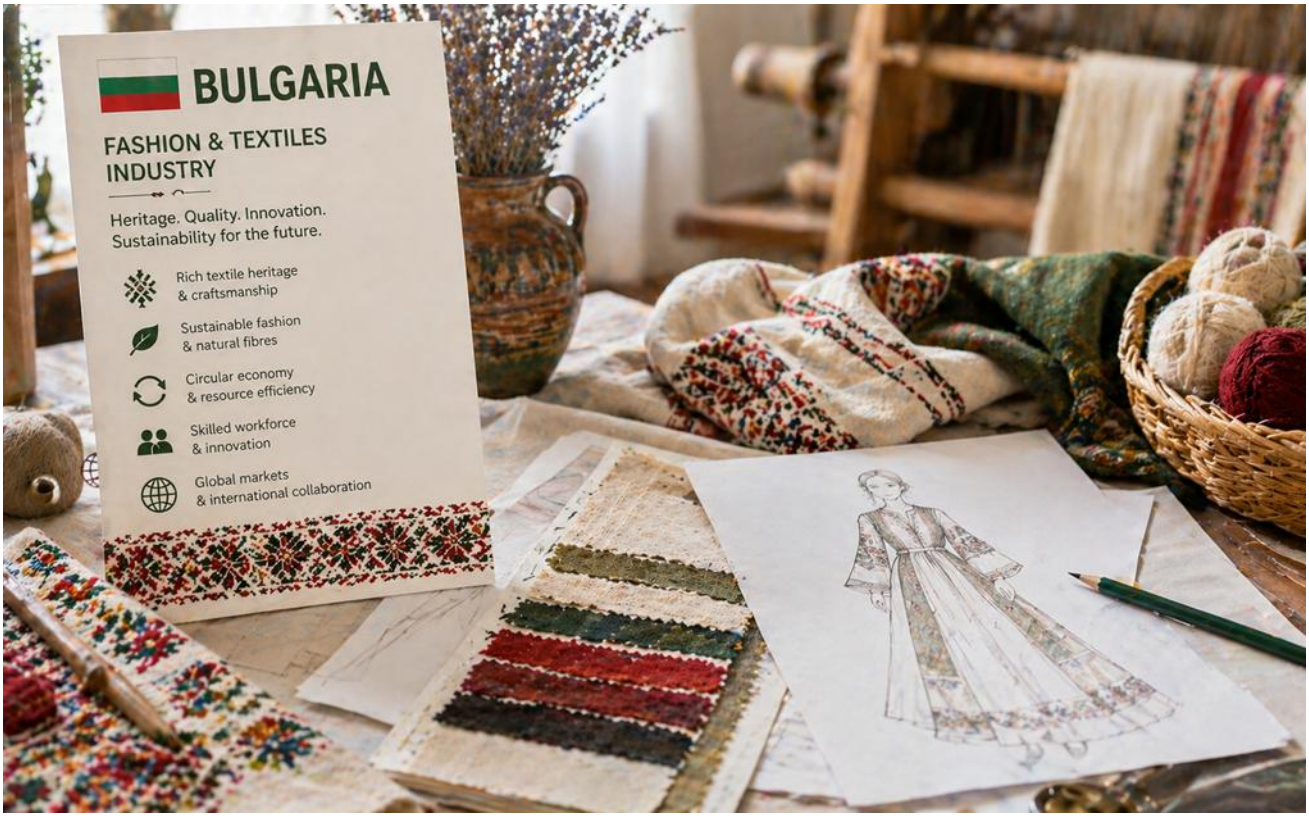

Figure 2 Bulgaria - AI generated image

SUMMARY OF INSIGHTS FROM PREVIOUS FEA-VEE REPORTS

Policy report on Labour Market Skills for the Fashion/Textiles Industries (D6.1)

Bulgaria's fashion and textile sector **faces significant and compounding skills shortages** across several interconnected areas. Digital skills — including e-commerce management, digital marketing, data analytics, computer-aided design (CAD), and product lifecycle management (PLM) systems — are in growing demand but are not adequately provided by the current education and training system. Green and sustainability skills related to circular economy principles, eco-design, sustainable materials sourcing, and low-impact production processes remain scarce, with only isolated company-level efforts visible across the sector. Entrepreneurial and business management skills are also lacking, at a time when professionals increasingly need to navigate complex, fast-changing market conditions, manage global supply chains, and develop viable brand strategies.

A particularly serious structural problem is the growing disinterest among young people **in the sector's technical occupations**. Roles such as garment technologist, pattern maker, sewing machine operator, textile technician, and apparel production specialist are increasingly difficult to fill, as **young people do not perceive these professions as attractive** career paths. The demographic profile of the workforce is deteriorating as a result: the existing labour force is ageing, with insufficient generational

renewal in the production and manufacturing segments of the industry. Where young people do engage with the sector, they tend to gravitate towards its creative and commercial roles — fashion design, visual merchandising, styling, brand communications, marketing, and business development — leaving a deepening and largely unaddressed vacancy in core technical and production occupations. This imbalance risks accelerating significantly as older skilled workers reach retirement age without an adequate pipeline of qualified replacements.

The occupational profile required across the sector is shifting considerably. Future professionals will need competence in digital design tools, 3D garment modelling and virtual prototyping, automated cutting and production equipment, and integrated digital supply chain management. Sustainability literacy and circular economy expertise — including knowledge of fibre-to-fibre recycling, extended producer responsibility, and eco-design methodologies — are becoming core competences rather than specialist additions. Emerging business models, including direct-to-consumer (D2C) retail, on-demand manufacturing, product-as-a-service, and recommerce platforms, place growing emphasis on digital fluency, cross-functional collaboration, and adaptability alongside traditional craft and production skills.

Curricula at both VET and higher education level need to be updated to embed digital and green competences as standard components of all fashion and textile qualifications. This is made particularly urgent by the pace of technological advancement in the sector: automation and advanced manufacturing technologies are fundamentally changing traditional production processes, and there is increasing demand for workers who can operate and manage computerised machinery, apply CAD software proficiently, work with 3D printing technologies, and use a broad range of Industry 4.0 digital tools. VET programmes in particular must reflect this shift, moving beyond traditional craft-based training to equip graduates with the technical literacy that modern production environments require.

Closer collaboration between training providers and industry employers is essential to ensure that programme content keeps pace with technological change and reflects real occupational requirements. Work-based learning, apprenticeships, and structured industry placements should be expanded to strengthen the transition from education to employment and to expose students to the technologies actively in use on the shop floor. Continuing professional development and upskilling pathways must also be developed for the existing workforce, so that experienced production workers can retrain on new equipment and processes rather than being displaced by them. While institutions such as the National Academy of Art and the Technical University of Sofia offer relevant programmes, their combined graduate output remains insufficient to meet industry demand, and the attractiveness of technical vocational pathways in the sector must be actively promoted to counter the demographic decline in the production workforce.

Bulgaria currently lacks a dedicated national strategy for the fashion and textile sector, and sector-specific support instruments remain absent or underdeveloped. At the level of general workforce policy, two horizontal frameworks are relevant. The Strategic Framework for the Development of Education, Training and Learning (2021–2030), adopted by the Council of Ministers in February 2021, sets the direction for VET, lifelong learning, and digital and green skills development across the economy. Under its Priority Area 7, the VET Act was amended in March 2024 to update the List of VET Professions in line with labour market needs and to protect professions facing critical shortages

— a provision directly applicable to the fashion and textile sector. A new Action Plan for 2025–2027 under this framework was adopted in December 2024 under the National Recovery and Sustainability Plan. The Strategic Vision for the Development of Dual VET (DVET) 2030, approved in September 2023, aims to make work-based learning the leading VET pathway, with companies as active drivers of training delivery. A 2024 ordinance implementing the vision introduced more flexible scheduling to accommodate production cycles and simplified the process for SMEs to become registered dual VET partners — both directly relevant to the fashion and textile sector. Despite these instruments, neither framework specifically targets the sector, and adult participation in learning in Bulgaria remains critically low at 1.8% against an EU average of 13.5%.

On wages, the period saw significant nominal increases driven by successive rises in the statutory minimum wage — from BGN 650/month in 2021 to BGN 1,077/month in 2025, a cumulative increase of approximately 65%. The single largest step was a 20% rise between 2023 and 2024 alone. However, these increases have had a dual and somewhat contradictory effect on the sector. On the one hand, they have not been sufficient to make fashion and textile occupations genuinely competitive with other industries: the national average gross wage reached approximately BGN 2,323/month in 2024, meaning that production-level roles in the sector still sit at roughly half the national average. On the other hand, the rapid growth in labour costs is eroding Bulgaria's traditional cost advantage as a CMT manufacturing destination, putting pressure on companies whose business model depends on low-cost contract production for foreign brands.

The period from 2020 to 2025 was shaped by overlapping crises — the COVID-19 pandemic, global supply chain disruptions, the energy crisis, and the war in Ukraine — all of which negatively affected the sector's output, employment, and investment capacity. The pandemic accelerated the adoption of e-commerce and digital marketing, and shifted consumer behaviour towards online retail, casualwear, and second-hand purchasing.

This cost pressure is, however, intersecting with a broader structural shift that presents a potential opportunity. **The growing nearshoring trend** — whereby Western European fashion brands are relocating or rebalancing production closer to home in response to global supply chain disruptions, geopolitical instability, and rising sustainability requirements — is increasing demand for reliable, EU-based manufacturing partners. Bulgaria's geographic proximity to major EU markets, its established production infrastructure, and its EU membership position it well to benefit from this trend.

Policy report on Reforms Supporting Sustainability in Fashion/Textiles (T6.2)

Bulgaria's fashion and textile sector remains at an early stage of the sustainability transition. Over 100,000 tonnes of textiles are discarded annually in Bulgaria, yet only around 8,000 tonnes — less than 8% — are separately collected, and only 2% is actually recycled. Of separately collected textile waste, 60–70% is prepared for reuse, a small portion goes to recycling, 7–8% is incinerated, and around 1% is landfilled. Around 35,000 tonnes of second-hand clothes are processed in Bulgaria each year, the majority being imports, of which approximately 75% is re-exported — meaning the domestic circular economy benefit remains limited.

The sector's production model is still **heavily oriented towards CMT contract manufacturing**, with limited investment in eco-design, sustainable materials, or circular manufacturing. A small number of companies have begun adopting organic fibres, water-efficient dyeing technologies, and zero-waste cutting processes, but these remain isolated initiatives rather than a sector-wide trend. **Consumer behaviour is predominantly price-sensitive** and fast fashion dominates the domestic market. An exception worth noting is Remix, a Sofia-founded recommerce platform that has grown into one of Europe's largest second-hand fashion operations, now active across nine markets and having processed over 23 million items — contributing to an estimated 87 million kg of CO_2 savings and 7.5 billion litres of water saved. Its full-service model of collecting, grading, and reselling garments represents a scalable circular fashion approach with its roots in Bulgaria.

The main barriers are financial and administrative. Companies fund sustainability investments almost entirely from their own budgets, as direct state support for green transition in the sector is absent. General business legislation is not tailored to the textile industry's specific environmental challenges, and the absence of a dedicated Producer Responsibility Organisation (PRO) for textiles means the infrastructure needed to operationalise the forthcoming EPR framework does not yet exist. Companies such as TexCycle, which operate CE-certified textile collection container networks across Bulgarian municipalities, are currently filling part of this gap on a voluntary basis — but a voluntary system cannot substitute for the mandatory national framework that the revised Waste Framework Directive requires member states to establish.

On the opportunity side, two major EU-funded instruments are in principle accessible to fashion and textile sector companies. Bulgaria's Operational Programme on the Environment 2021–2027 provides cohesion funding for waste management and green transition, backed by a total commitment of EUR 5.69 billion for Bulgaria's green transition over the period. Alongside this, the National Recovery and Resilience Plan (NRRP), revised and approved by the European Commission in July 2025, allocates EUR 735 million through the Economic Transformation Programme specifically to support the green and digital transition of Bulgarian SMEs and mid-caps through grants and financial instruments. The NRRP explicitly includes circular economy practices, renewable energy for its own consumption, and resource-efficient production among its eligible investment areas — all directly applicable to textile manufacturers. Bulgaria's strong ICT ecosystem further enables adoption of digitalisation-driven sustainability tools such as traceability systems and supply chain management platforms.

The sector requires targeted policy incentives financial instruments — green investment grants, tax incentives for sustainable production upgrades, and subsidised access to certification schemes — to enable SMEs to invest in eco-design and low-impact production. Given that the NRRP's Economic Transformation Programme funds must be fully deployed by August 2026, there is an urgent window for sector-specific outreach and channeling of these resources towards textile companies undertaking green transition investments. Sector-specific sustainability standards and green public procurement criteria would create market pull alongside regulatory pressure. **Second-hand clothing in Bulgaria is currently subject to the full standard VAT rate of 20%,** with no reduced rate or exemption in place — unlike several other EU member states where fiscal incentives for recommerce have been introduced. Applying a reduced VAT rate to second-hand clothing sales, alongside financial incentives for textile collection infrastructure, would be a concrete and relatively low-cost policy measure to stimulate circular consumption and support the growing recommerce market.

At EU level, the regulatory framework is advancing rapidly, while **in Bulgaria**, transposition is at an early stage. Despite the EU's mandatory separate textile waste collection requirement entering into force on 1 January 2025, Bulgaria has yet to adopt the necessary secondary legislation to give legal status to textile recovery organisations or establish an operational EPR framework — leaving municipalities without a legal basis to finance or procure separate collection services, and the system dependent on voluntary initiative rather than statutory obligation. Bulgaria's National Ethical Standards for Advertising include provisions on environmental claims aligned with ISO 14021, providing a basis for addressing greenwashing. In the absence of a dedicated national strategy for the sector, however, policy action on sustainability remains fragmented and largely reactive to EU-level requirements.

Bulgaria's fashion and textile sector has seen incremental progress on sustainability, but the overall picture remains one of **early-stage transition**. Consumer awareness of sustainability issues is gradually growing, particularly among younger demographics, though purchasing behaviour continues to be driven primarily by price sensitivity and fast fashion still dominates the domestic market. A survey of Bulgarian businesses found that most companies are aware of the UN Sustainable Development Goals yet struggle to follow them in practice, with sustainability largely management-led and varying considerably in depth. Certification to international quality and product safety standards — including ISO 9001, ISO 14001, and Oeko-Tex Standard 100 — is nonetheless widespread among Bulgarian CMT manufacturers, driven not by domestic policy but by the requirements of foreign contractors. European brands sourcing production in Bulgaria routinely require these certifications as a precondition for doing business.

In terms of waste and circularity, voluntarily collected textile waste grew from approximately 6,500 tonnes in 2023 to over 8,000 tonnes in 2024, reflecting rising public engagement, but this remains a fraction of the estimated 100,000 tonnes discarded annually. Bulgaria still lacks a **mandatory textile waste collection system** and a Recovery Organisation for textiles, meaning the sector's circular infrastructure depends on voluntary initiative rather than regulatory obligation. On the production side, the sector continues to rely heavily on CMT contract manufacturing with limited movement towards higher value-added or more sustainable production models.

Policy report on Reforms Supporting Green Entrepreneurship (T6.3)

Bulgaria does not have a **legal definition of "green enterprise."** Green businesses in fashion and textiles operate under general environmental legislation — principally the Environmental Protection Act and applicable EU directives — with no sector-specific provisions for the sector. This legal gap makes it difficult to design targeted tax incentives, define eligibility for sustainability-linked funding, or enforce green procurement standards for fashion and textile businesses specifically.

The Strategy and Action Plan for the Transition to a Circular Economy 2022–2025 (Council of Ministers, Decision No. 832, October 2022) provides a broad policy framework but has limited textile-specific impact.

Green public procurement is an emerging lever: the government has begun embedding sustainability criteria in public uniform contracts, requiring eco-certified materials and sustainable production

processes from suppliers. This creates a market-pull mechanism that is currently absent from the broader private sector policy toolkit.

Bulgaria's NRRP provides instruments directly relevant to green entrepreneurship in the textile sector. Under the NRRP's Smart Industry Component, the Ministry of Innovation and Growth administered Procedure BG-RRP-3.008 "Support for the Transition to a Circular Economy in Enterprises" — part of Fund 2 "Green Transition and Circular Economy" within the Economic Transformation Programme. The procedure provided grants to manufacturing sector enterprises for the adoption of circular economy models, including waste reduction technologies, elimination of single-use plastics, use of bio-based resources, and improved product eco-design.

Despite these instruments, national funding options specifically targeting green innovation in fashion and textiles remain limited. EU funding programmes — Horizon Europe, the LIFE Programme, and Next Generation EU — provide more meaningful support for sustainable SMEs, but Bulgarian green fashion startups are a small fraction of applicants and often lack the capacity to navigate complex European funding processes. Private capital for green fashion through crowdfunding, angel investors, or venture funding is emerging but underdeveloped, particularly outside Sofia.

Bulgaria's startup ecosystem is growing but concentrated in ICT. Green fashion startups remain a niche segment, largely overlooked by mainstream funding and accelerator support.

The period 2021–2025 has seen a modest but real expansion of green entrepreneurship activity in Bulgaria's fashion and textile sector. Across the sector, green entrepreneurship is driven primarily by shifting consumer expectations, global market trends favouring sustainable products, and the pressure of upcoming EU regulatory requirements — rather than by domestic policy incentives. EU regulatory pressure has raised awareness among businesses of the need to adapt, and a small number of pioneering companies have begun integrating circular practices. Civil society has been more active than the public sector: BCTA has expanded its municipal collection network.

2.1. Report “Sectoral, educational and entrepreneurial current situations and needs assessment of target groups in the partner countries”

The fashion, textile and clothing (F,T&C) industry remains a significant sector in Bulgaria's economy, but employment has continued to decline — standing at approximately 80,000 workers in 2022, down 20% over the preceding four years, compared to nearly 100,000 in 2020. The sector accounts for over 6% of national merchandise exports, but has been losing structural competitiveness since EU accession. The COVID-19 pandemic accelerated these trends, with clothing exports dropping 15.5% in 2020.

The key structural challenges are a chronic shortage of skilled workers driven by emigration and ageing population; a low-value-added production model that discourages young entrants; an educational system fragmented and misaligned with industry needs; and the absence of a dedicated national strategy or targeted funding for the fashion segment. The sector holds real potential — particularly through **nearshoring demand and strong production traditions** — but realising it requires a shift toward higher-value-added activities, digitisation, and sustainable production.

Interviews and surveys conducted with business enterprises and educational stakeholders in Bulgaria produced findings consistent with the desk research conclusions. All respondents (100%) confirmed that new employees' skills do not match industry needs. Businesses reported using basic digital tools but described themselves as not yet fully transformed. On sustainability, respondents expressed interest rather than commitment, with larger companies beginning to adopt practices driven by EU buyer requirements. A clear funding gap was confirmed: public support instruments target established manufacturers only, leaving fashion start-ups and design graduates without access.

The research confirms that competing on low production costs alone is no longer viable. Rising wages and labour shortages are pushing producers toward quality upgrading and higher-value positioning, but this transition is uneven and unsupported by public policy. Digitisation is advancing at the operational level — ERP, CAD, digital marketing — but has not yet transformed production processes. Well-performing companies have effectively built their own internal training capacity — a coping mechanism that is not scalable. A holistic, multi-stakeholder approach integrating businesses, education, VET providers, public administration, and NGOs around a common sectoral strategy is clearly needed.

FEA-VEE INITIATIVE OUTCOMES AND IMPACT

The FEA-VEE initiative **arrived at a critical moment for the Bulgarian fashion and textile sector**. At the time the project launched, no comparable initiative existed at either regional or national level to address the challenges facing the industry — a sector that was already under structural pressure from rising labour costs, workforce shortages, demographic decline, and the erosion of its traditional competitive position as a low-cost CMT destination for European brands. The COVID-19 pandemic, the war in Ukraine, energy price shocks, and global supply chain disruptions had further destabilised companies across the value chain. In this context, no regional civil society or professional network for the fashion and textile sector existed in Plovdiv, sustainability was marginal in educational curricula, dual VET practices were not well recognised in the sector.

Both educational study visits abroad organized by project produced a qualitative shift in participants' professional self-understanding. Seeing Teixidors and Trigema (Spain)— companies that have built viable international businesses on sustainability, social inclusion, and quality — challenged the assumption that such models are inaccessible in the Bulgarian context. The Ecodesign Hackathon was particularly formative: multilingual, multicultural teamwork under real-time pressure, with expert jury evaluation, provided skills and confidence unavailable through any existing Bulgarian programme. The international dimension gave participants a sense of belonging to a European professional community — addressing the isolation that is itself part of the sector's structural problem.

Two **relevant policy developments occurred during** the project period. In 2024, the VET Act was amended to update the List of VET Professions and introduce protections for professions facing critical shortages — directly applicable to fashion and textile occupations. In 2023, the Strategic Vision for Dual VET 2030 was approved, aiming to make work-based learning the primary VET pathway, with a 2024 ordinance simplifying SME participation. FEA-VEE's training materials, VET engagement, and

promotion of work-based learning align directly with both instruments — and provide sector-specific content that neither policy addresses by name.

Feedback was consistently positive and centred on one theme. Educational stakeholders valued the EU-level research and training materials they could not have produced independently. Business stakeholders recognised the network as a long-term asset. Young participants consistently described the international study visits as a turning point in how they understood their professional possibilities.

The project produced, for the first time, **structured evidence-based analysis of Bulgaria's fashion and textile sector** across four policy reports (D6.1 labour market skills, D6.2 sustainability, D6.3 green entrepreneurship, D2.1 sectoral needs assessment). This analysis is a precondition for targeted public intervention — the absence of such material has itself been a barrier. At VET level, the project's work on curricula, dual VET practices, and digital and green skills provides practical implementation tools for the 2024 VET Act amendments and the Dual VET 2030 strategy.

The most direct and effective contribution was re-engaging young people with the sector — providing evidence that sustainable fashion is not a theoretical aspiration but a professionally viable path, and that Bulgaria has a credible role to play in Europe's textile future.

NATIONAL ROADMAP FOR FUTURE UPTAKE OF FEA-VEE INITIATIVES

National implementation of FEA-VEE: key notes

The project produced results across several areas:

- **Network formation.** At the outset, no professional network for the fashion and textile sector existed in Plovdiv, and the city lacked integration into national sectoral structures. Through the project, PCCI and the Bulgarian Fashion Association built a structured national partnership for the first time, forming an authentic cross-sector network of emerging professionals, young designers, design students, established brands, and manufacturing companies — alongside working relationships with the Academy of Arts in Plovdiv, local VET schools, national universities, and sectoral associations.
- **Study visits**. Twenty participants from Bulgaria — students, young and emerging fashion design professionals, and owners of small fashion brands — attended both international study visits: the first (Terrassa, Spain, July 2025, hosted by INTEXTER-UPC) and the second (Pforzheim, Germany, October 2025, hosted by VDMD and ITKAM). All participants received certificates of attendance- europass mobility certificates. For the Bulgarian delegation, both visits were a first exposure to working models of sustainable, digitally enabled fashion production — and a direct challenge to the assumption that such models are out of reach for the Bulgarian sector.
- **Internships.** Six students completed three-month hybrid internships — combining on-site and online work — in real business environments at production facilities in Smolyan, Plovdiv, Sofia, and Ruse. The programme placed students directly within operating companies, bridging the

gap between education and industry practice that survey findings identified as one of the sector's most persistent structural weaknesses.

- **Educational materials.** Policy reports and training resources developed under the project have been shared with several secondary schools and higher education institutions currently developing departments focused on sustainable fashion design and production. FEA-VEE outputs filled a gap that no domestic source had previously addressed.

Multiplier events:

- **Plovdiv, 8 October 2024** — organised by PCCI at AMTII's Concert Hall, the event combined a FEA-VEE project presentation with a workshop on sustainability, AI tools, entrepreneurship, and form shaping in fashion design. Targeting fashion design students, educators, and emerging professionals, it introduced the project to a higher education audience for the first time and established the Academy of Arts as a key institutional partner. Post-event discussions on AI in design and sustainable materials led to broader cooperation on curriculum development.
- **Ruse, 1 April 2026** — organised by the Bulgarian Fashion Association at Professional High School for Apparel "Nedka Ivan Lazarova" as part of Ruse Fashion Week, the event featured a motivational talk by Belgian designer Guy-David Lambrechts, a "Fashion and Society" lecture by Ivan Donev, and a hands-on workshop producing textile panels from recycled materials. Targeting VET students, school educators, and local professionals, the event reached a significantly wider audience through its integration into Ruse Fashion Week and national dissemination via bgfa.eu and rusefashionweek.com.

Future pathways for development and building on FEA-VEE results

- **Short-term actions:**

The immediate priority is to consolidate the network and materials before momentum is lost. The educational materials and policy reports should be actively placed with the institutions already expressing interest — the Academy of Arts in Plovdiv, VET schools in apparel technology, and the national universities with textile departments. At least two institutions should pilot FEA-VEE training content within existing courses in the coming academic years.

The study visits format should be replicated as a national event in Bulgaria within the next 12 months, co-organised by the main educational, business and policy stakeholders involved. This could be both a standalone activity and a proof of concept for scaling the model.

- **Mid-term actions:**

The mid-term phase should translate the network and materials into two structured follow-on initiatives.

The first is a dedicated VET curriculum update for sustainable fashion and textiles, using FEA-VEE research and educational outputs as the evidence base. The goal is to have at least one updated

qualification profile for the sector — covering eco-design, circular production, and digital skills — formally adopted under the 2024 VET Act framework.

The second is related to a follow-up project application to be prepared and submitted — an Erasmus+ KA2 Strategic Partnership or a COSME/Single Market Programme application — focused specifically on VET curriculum development for sustainable and digital skills in fashion and textiles across the partner countries. The existing FEA-VEE consortium could be a natural vehicle for this.

- **Long-term actions:**

The long-term goal is institutional embedding: the sector in Bulgaria should have a permanent, publicly recognised training and innovation infrastructure for sustainable fashion — curricula updated on a rolling basis, a functioning industry-education pipeline, and a professional network that is self-sustaining rather than project-dependent.

This requires two things: a national sectoral strategy for fashion and textiles that formally acknowledges the transition away from low-cost CMT and toward sustainable, higher-value production — a document that does not currently exist and that the FEA-VEE policy reports provide the groundwork for — and sustained engagement with EU-level policy processes, including the implementation of the EU Strategy for Sustainable and Circular Textiles, the ESPR, and EPR obligations, which will create binding requirements that the sector must be prepared to meet.

These initiatives could be funded by the following instruments:

- **Follow-up Erasmus+ KA2 project** — a Strategic Partnership focused on VET curriculum development for sustainable and digital skills in fashion and textiles, building directly on FEA-VEE outputs.
- **Erasmus+ KA1 mobility project** — a smaller, focused application enabling ongoing staff and learner mobility between Bulgarian VET institutions and partners in the EU.
- **Horizon Europe / LIFE Programme** — for research-led components, particularly around circular textile production, eco-design methodology, and lifecycle assessment capacity building in Bulgarian companies.

Key stakeholders that could be attracted as actors in further initiatives in the sector:

- **Academy of Arts in Plovdiv** — the natural educational anchor for sustainable fashion in the region, already engaged and with active interest in curriculum development. Primary partner for the FEA-VEE national internships program and study visits abroad.
- **Bulgarian Fashion Association** — national reach, existing policy advocacy capacity, and a demonstrated commitment to the sector's transition. Co-owner of the regional network and lead for any follow-up Erasmus+ application.
- **TexTailor Expo** as a recurring high-visibility dissemination and networking platform, and the **Creative Lab by Ivan Donev** as a proven, scalable format for engaging young talent that already has demonstrated results within the project itself.
- **BATOK (Bulgarian Association for Textiles, Clothing and Leather)** — the principal industry association with direct access to manufacturing companies. Essential for connecting training

outputs to real workforce demand and for co-signing any curriculum update with the Ministry of Education.

- **National Agency for VET (NAVET)** — the regulatory body responsible for qualification profiles and VET standards.

Partnership ideas with sister initiatives and EU platforms:

Several initiatives already exist that share FEA-VEE's goals and networks, making them natural sources of ongoing and future partnership rather than new relationships to build from scratch:

- **VERDEinMED / Bulgarian National Textile Circularity Hub** — launched in February 2025 and coordinated by the Bulgarian Fashion Association (already a FEA-VEE partner), the Hub is a natural structural home for the continuation of FEA-VEE activities. Joint programming between the two initiatives would consolidate rather than fragment the emerging sustainable fashion ecosystem in Bulgaria.
- **SiT — Sustainability in TCLF (Erasmus+ Innovation Alliance)** — the closest sister project to FEA-VEE at EU level, bringing together 15 partners across 8 countries to develop green skills, updated VET curricula, and a MOOC platform for the TCLF sector. Sharing outputs, networks, and advocacy efforts between the two initiatives would amplify both projects' reach and avoid duplication.
- **TexTailor Expo (International Fair Plovdiv)** — Bulgaria's only international textile and fashion trade fair, held annually in Plovdiv with over 2,000 visitors from 20+ countries, a Start-up Zone for young designers, and an accompanying programme of seminars and fashion shows. Partnering with TexTailor Expo would give FEA-VEE a recurring, high-visibility platform reaching industry professionals, educators, and emerging brands in a single event.
- **Creative Lab by Ivan Donev** — a proven format already deployed within FEA-VEE's Ruse multiplier event and at TexTailor Expo 2024, combining motivational content with hands-on sustainable design practice. Formalising Donev's involvement as a recurring project partner would give FEA-VEE a recognisable, high-profile format for engaging young talent that is both scalable and closely aligned with the project's mission.
- **TEXAID / BCTA network** — for the circular economy and waste stream dimensions of the sector, partnership with the Bulgarian Circular Textile Association and its European network connections would extend FEA-VEE's sustainability work into the operational phase of the textile value chain.

KEY FINDINGS AND RECOMMENDATIONS

The FEA-VEE project confirmed that the fashion and textile sector across partner countries is at a genuine turning point. The research, activities, and partnerships developed over four years point to five clear recommendations for policymakers, VET providers, and institutional stakeholders:

- **Update VET curricula as a national priority.** Curricula for fashion and textile occupations must embed eco-design, circular production, and digital skills as standard components — not optional additions.

- **Establish dedicated support for green entrepreneurship.** Fashion and textile start-ups and emerging sustainable brands need access to funding, mentorship, and incubation infrastructure. Current public instruments target established manufacturers and are inaccessible to the creative and entrepreneurial talent the sector needs to renew itself.
- **Build permanent sectoral networks at regional level.** The informal professional networks formed through FEA-VEE demonstrate the value of structured cross-sectoral cooperation. Governments and chambers of commerce should formalise these networks as standing infrastructure
- **Prepare the sector for incoming EU regulatory obligations.** The revised Waste Framework Directive, ESPR, and Digital Product Passport will reshape compliance requirements within years.
- **Continue and scale the FEA-VEE model.** The project's combination of policy research, study visits, internships, multiplier events, and network development is a proven and replicable model, nationally and on EU level.

GERMANY

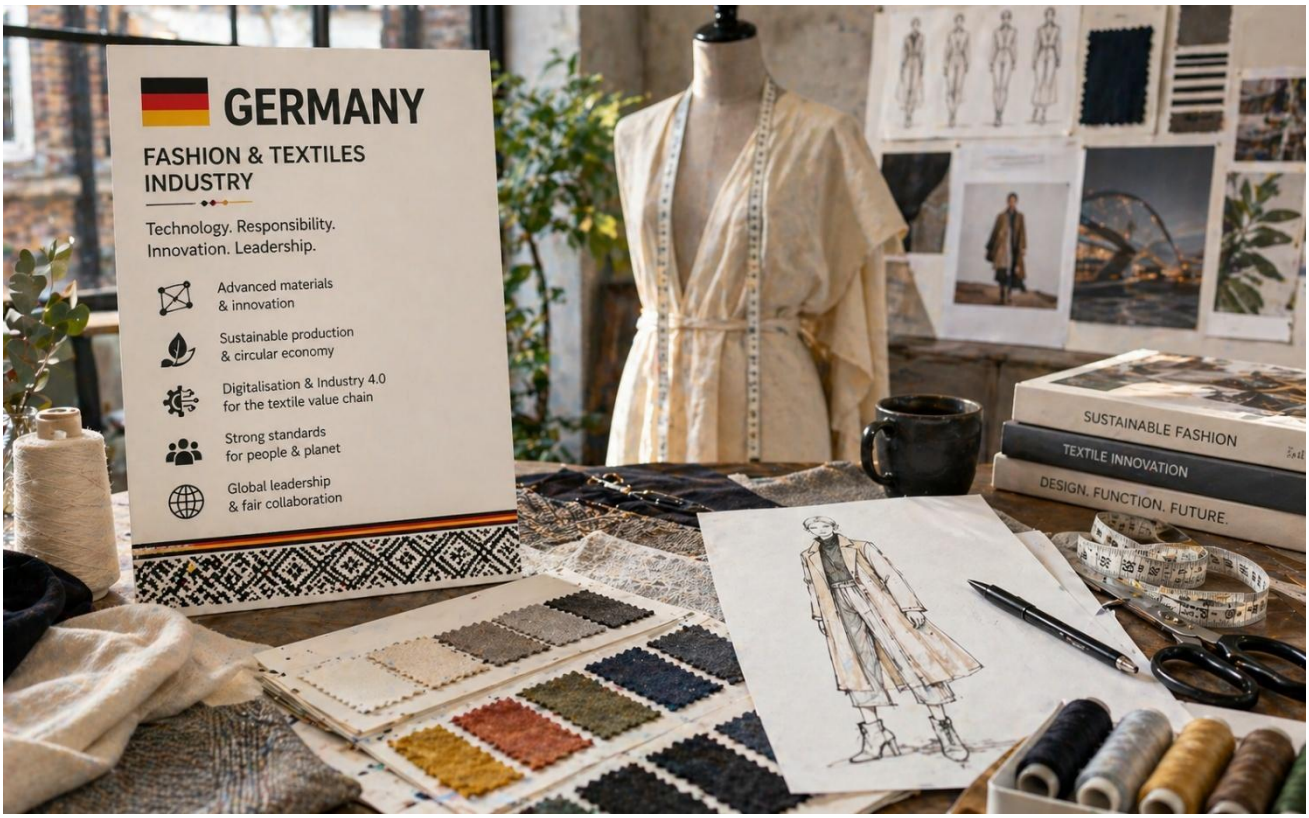

Figure 3 Germany - AI generated image

SUMMARY OF INSIGHTS FROM PREVIOUS FEA-VEE REPORTS

Policy report on Labour Market Skills for the Fashion/Textiles Industries (D6.1)

The German textile and fashion industry has changed significantly over the last three to four years, experiencing a significant transformation in its skills requirements, driven by digitalisation, sustainability and regulations. The sector now needs competences that combine technological expertise, environmental knowledge, and business skills.

Key gaps have emerged in digital competences such as AI-supported production planning, 3D design and digital pattern making, blockchain-based traceability systems, and data-driven supply chain management. While sustainability has become central to corporate strategy, many companies, especially SMEs, lack expertise to operate under frameworks, such as the Supply Chain Act.

Future occupations in the sector are becoming more interdisciplinary. Emerging roles include circular product designers, sustainable supply chain managers, ESG compliance specialists, digital textile engineers, recycling technology experts and green business model developers.

There is increasing demand for designers capable of integrating recyclability, durability, and resource efficiency into product development. Moreover, entrepreneurial skills gaps persist, particularly

regarding green innovations, accessing finance, navigating regulations, and positioning sustainable products in such competitive markets.

Germany's dual vocational education and training (VET) system remains strong. However, the curricula require updating. More focus on circular economy principles and production technologies into VET and university programmes is necessary. Stronger cooperation between industry, universities and research institutions is necessary.

At national level, the implementation of the Supply Chain Act has significantly increased demand for compliance and ESG-related competences within textile and fashion companies. At EU level, the expansion of Corporate Sustainability Reporting requirements and the development of the Ecodesign framework for sustainable products are reshaping skills needs. Additionally, the EU Circular Economy Action Plan reinforces the transition toward efficiency and recycling. Those regulations are accelerating the integration of sustainability and digitalisation into the sector's workforce.

Compared to four years ago, sustainability expertise has become central. Regulatory compliance roles have expanded significantly; digital transformation has accelerated following pandemic-related disruptions and demographic pressures have intensified labour shortages. The skills transition is therefore urgent.

Policy report on Reforms Supporting Sustainability in Fashion/Textiles (T6.2)

Germany's sustainability efforts in the fashion and textile industry have become more structured and policy-driven, aligned with EU objectives. Circularity, material innovation, and responsible production processes are now central pillars of reform.

In recent years, there has been measurable growth in the use of recycled polyester, bio-based and regenerative fibres and chemical recycling technologies. Companies are increasingly integrating digital sampling, prototyping and traceability to reduce waste and emissions. Textile recycling initiatives are expanding, yet large-scale recycling infrastructure remains insufficient.

New regulations at both EU and national levels have raised ecological standards. However, this also increased administrative burdens, particularly for SMEs. Nevertheless, regulatory evolution also creates opportunities. Clearer EU-wide sustainability standards and anti-greenwashing enforcement can help promote equal opportunities. Policy incentives that focus on outcomes rather than procedures, combined with tax benefits for recycled materials and investment support for domestic recycling infrastructure, would accelerate green transition.

Sustainability reforms in Germany are closely aligned with EU-level strategies, particularly the Circular Economy Action Plan and the EU Strategy for Sustainable and Circular Textiles. Nationally, the Circular Economy Act (KrWG) and the gradual expansion of Extended Producer Responsibility mechanisms reinforce obligations in waste.

Over the past three to four years, sustainability has become more incorporated in strict regulation rather than voluntary commitment. Consumer evaluation intensified and transparency expectations increased. The transition is systemic, though implementation gaps remain.

Policy report on Reforms Supporting Green Entrepreneurship (T6.3)

Green entrepreneurship in Germany's textile and fashion sector operates within a demanding policy ecosystem. Sustainable business models are supported by funding, innovation programmes and initiatives such as the Partnership for Sustainable Textiles. However, scaling solutions remains a structural challenge.

An enabling ecosystem requires regulatory stability, reduced bureaucracy, improved access to circular infrastructure and stronger collaboration between technology providers, research institutions and textile companies. While Germany provides innovation grants, environmental funding schemes, and sustainability financing through public institutions, early-stage start-ups often struggle to access growth capital necessary for industrial-scale production.

Financing gaps persist particularly in material innovations and technologies. Investors frequently lack knowledge regarding textile and fashion industries. Initial support, research partnerships and diverse sectors startups could help strengthen the market.

Success factors for sustainable fashion start-ups increasingly include early integration of circular design principles, credible sustainability certification, transparent communication, strong branding, and strategic collaboration with established companies. Digital tools that enhance efficiency increase competitiveness.

Overall, Germany demonstrates coherence with EU sustainability objectives. However, future progress will depend on strengthening innovation and ensuring that regulatory frameworks enable, rather than hinder, sustainable growth.

In recent years, green entrepreneurship has moved to mainstream strategic relevance. Regulatory pressure has increased significantly; sustainability reporting has become more formalised and access to EU-aligned funding has expanded. At the same time, compliance costs and bureaucratic demands have increased, putting pressure on entrepreneurial flexibility.

2.1. Report "Sectoral, educational and entrepreneurial current situations and needs assessment of target groups in the partner countries"

Germany has one of the largest fashion and textile markets worldwide, with a market size of approximately €66.8 billion and around 1.3 million people employed in the sector. The country combines a strong industrial tradition with global retail players such as Adidas, Puma and Hugo Boss. However, domestic production has significantly declined over the past decades due to overseas production: only a small percentage of clothes sold in Germany are produced locally.

Three major structural challenges define the current national context:

- Shortage of skilled labour, intensified by demographic change and decreased appeal of VET pathways in particular fields.
- Digital transformation, which is reshaping production, design, marketing and retail.
- Ecological transition driven by EU regulation, consumer expectations and the European Green Deal.

Sustainability has become central in the sector. Companies increasingly focus on durable products, circular economy, second-hand markets, eco-design and transparency in supply chains. At the same time, meeting environmental regulations and higher energy costs strain finances, especially for SMEs that maintain local production.

Digitalisation has also had a significant impact. CAD/CAM systems, 3D software, cloud systems, AR/VR applications, artificial intelligence and e-commerce platforms are now standard practice.

Reflection of interviews and survey inputs on the national situation:

The 29 interviews conducted in Germany across associations, VET providers, entrepreneurs, teachers and students reflect the broader national dynamics described above.

The identified sectoral challenges mirror national statistics and policies. The difficulty in recruiting qualified staff reflects the nationwide labour shortage affecting multiple sectors. The decline in VET learners in the textile field is also a consequence of broader demographic and educational trends in Germany. Entrepreneurs' mainly concern about: higher production costs, energy prices, supply chain transparency and regulatory compliance.

These findings reflect the post-pandemic and energy-crisis context affecting German SMEs.

Similarly, stakeholders' emphasis on sustainability and digital innovation aligns with observable market developments: increase of second-hand markets, expansion of eco-labels and growth in funding for smart textiles and digital fashion tools.

The strong appreciation of Germany's dual VET system in interviews reflects its international reputation as a reference model. Work-based learning is widely implemented and positively evaluated by both students and companies. Nonetheless, the interviews also reveal a critical weakness: green and digital skills are not sufficiently integrated into curricula, and teachers themselves are insufficiently trained in these areas.

Several important shifts in trends and situation can be identified:

- From mass production to sustainability and quality:

The sector is moving from global outsourcing towards higher quality, durability, circular models, local or European relocation.

Second-hand consumption, repair models and eco-design approaches are gaining popularity. Nowadays sustainability is mainstream, although SMEs still struggle with implementation costs.

- Digital transformation as structural change:

Digitalisation has become a structural necessity. Design, sampling, communication, marketing and even customer interaction increasingly rely on digital tools. Technologies such as 3D printing, AR/VR and AI are seen as forces driving innovation.

Business models are also affected: widespread e-commerce, social media marketing, and cloud collaboration systems are now standard practice.

- Educational adaptation and skills mismatch:

While Germany's dual system remains strong, it faces pressures: VET enrolment in textile professions has significantly decreased, teachers report insufficient preparation for digital and sustainability topics, companies request cooperation with VET institutions and more curriculum updates.

It is recognised that upskilling and reskilling are essential. Platforms that connect VET providers, companies, students and job seekers are very well welcomed.

- Entrepreneurship under pressure:

SMEs face financial constraints, limited funding and regulatory burdens. There is demand for: lower-interest loans, sustainability guidance, support for trade fair participation, structured internship and recruitment platforms.

FEA-VEE INITIATIVE OUTCOMES AND IMPACT

Within the German context, the project has focused on linking education providers, industry stakeholders, and policy discussions to support skills development aligned with the green and digital transitions in fashion and textiles. VDMD and the Italian Chamber of Commerce for Germany coordinated efforts for the internships, hosting study visits, and engaging industry stakeholders.

One of the most significant achievements of the project in Germany was the implementation of the FEA-VEE internship programme, designed to bridge the gap between vocational training and industry practice. The internships targeted students, recent graduates, and young professionals in fashion and textiles, providing three-month placements with industry partners focused on sustainability, digital innovation, and green entrepreneurship.

Five students and alumni successfully completed internships, each producing project work related to sustainability in fashion. The projects addressed topics such as:

- New sustainable fibres and textiles.
- Marketing strategies for sustainable clothing.
- Digital tools for launching sustainable fashion labels.
- Historical perspectives on sustainable fashion.
- Sustainability concepts, brands, and best practices.

Through these internships, participants gained practical experience working with industry stakeholders while developing skills in sustainable production, digital tools, and entrepreneurship, all of which are essential competencies for the transformation of the European textile sector.

A second major achievement was the organisation of international study visits, designed to enhance cross-border collaboration and expose learners to innovative practices in the textile and fashion sector. Ten German participants travelled to Terrassa, Spain, for the first study visit hosted by UPC and gained valuable insight into European perspectives on sustainable textile and fashion production.

In October 2025, Germany hosted the project's second international study visit in Pforzheim, coordinated by ITKAM and VDMD. Participants from six European countries attended a week-long programme featuring:

- Visits to German textile companies such as Trigema and KM Klaus Modelle.
- Workshops on digital pattern recognition and artificial intelligence in fashion.
- Lectures and expert sessions on sustainability in the textile sector.
- Visits to creative hubs such as the EMMA Creative Centre.

Educational tours of institutions including Sigmaringen Fashion College and Albstadt-Sigmaringen University of Applied Sciences.

Both study visits were a central activity of the project and helped the German participants with strengthening networking, social skills, and English language competence while promoting collaboration among European VET institutions. Participants particularly valued the company visits, workshops, and networking opportunities, which provided direct exposure to sustainable manufacturing processes and technological innovation.

Some of the participants of the internship programme and study visits have developed their projects further and will be sharing their expertise in the activities of the SiT – Sustainability in TCLF project in which ITKAM and VDMD participate for Germany as well.

The German multiplier events in Germany, one hosted by ITKAM and one by VDMD, helped to spread the project information to major stakeholders and potential learners:

ITKAM organized a workshop on sustainable textiles on May 15, 2025, in Berlin. The initiative COSH! introduced the participants to the sustainability problems the fashion industry faces in the production and the consumer patterns in Germany, and what individuals can do to make more sustainable choices when buying clothing. ITKAM highlighted how European projects can contribute to attracting young people to the fashion industry by showing ways how to change the sector for the better by specializing on sustainability issues. Especially the German multipliers, the majority of them specialized in textile engineering, took the opportunity of networking after the event, highlighting that one of the major problems on the way to sustainability in fashion is the lack of policy support and transparency. All of them expressed a strong interest in the project and further cooperation.

VDMD organized the "Festival of Sustainability" in Würzburg on 15 November 2025. The participants were not only textile and sustainability actors, but also start-ups and city representatives, from the cultural and creative industries, politics, teaching and sustainable design. They used the opportunity to exchange ideas and engage in constructive dialogue and expressed great interest in FEA-VEE and further collaboration.

Although the project did not aim to create officially recognised qualifications, it contributed indirectly to policy development in Germany by supporting curriculum updates and skills frameworks aligned with sustainability and digitalisation. Educational institutions are encouraged to integrate the developed materials into existing training programmes, thereby strengthening the alignment between vocational training and evolving industry needs.

From a German perspective, it was most valuable to engage educational institutions in the activities of FEA-VEE, emphasizing that change – on an educational, cultural, or policy level – can only be achieved in the collaboration of all levels.

NATIONAL ROADMAP FOR FUTURE UPTAKE OF FEA-VEE INITIATIVES

National implementation of FEA-VEE: key notes

The FEA-VEE project has contributed **to strengthening vocational excellence in the German fashion and textile ecosystem** by promoting skills development, international mobility, and collaboration between education providers and industry stakeholders. Through internships, international study visits, and the development of learning materials focused on sustainability and digitalisation, the project has helped align vocational education with the evolving needs of the textile and fashion sector.

One of the most visible achievements in Germany was the implementation of the FEA-VEE internship programme, which connected students and recent graduates with companies and organizations working on sustainable fashion and textile innovation. The internship projects produced practical outputs—such as research on sustainable fibres, digital fashion entrepreneurship, and sustainability marketing—that can be integrated into teaching and industry practice.

Another important outcome was the international study visit hosted in Germany, which brought together participants from several European countries for workshops, company visits, and networking events. The programme provided direct exposure to sustainable production practices and digital technologies in the German textile industry, strengthening international collaboration between vocational institutions and businesses.

Overall, the project helped position Germany as an active contributor to the European network of Centres of Vocational Excellence (CoVE) in the fashion and textile sector.

Challenges addressed by the FEA-VEE toolkit:

The project addressed several structural challenges within the fashion and textile education ecosystem:

- Skills mismatch between education and industry needs.

Many training programmes lack updated content related to sustainability, circular economy principles, and digital innovation. The project addressed this gap through new learning materials and industry-focused internship opportunities.

- Limited international mobility for vocational learners.

Compared with higher education programmes, VET learners often have fewer opportunities for international experience. The study visits and internships enabled participants to gain cross-border exposure and expand their professional networks.

- Insufficient collaboration between educational institutions and companies.

FEA-VEE strengthened cooperation through practical project work and activities.

- Fragmented knowledge on sustainable textile practices.

The project consolidated knowledge through training resources, providing educators with structured materials that can be integrated into existing curricula. These challenges were addressed effectively through a combination of mobility programmes, practical training opportunities, and collaborative networks, although continued implementation will be necessary to ensure long-term impact.

Among the different project activities, the FEA-VEE **internship programme and international study visits** emerged as the most widely recognized and valued instruments in Germany.

These activities demonstrated several strengths:

- They connected education with real industry environments.
- They promoted international collaboration between learners and institutions.
- They produced practical outputs that can be reused as learning materials.

Participants and stakeholders consistently highlighted these mobility activities as the most impactful elements of the project, as they provided hands-on experience and direct engagement with sustainability practices in the textile sector.

During the project, a **network of stakeholders** was established that connected vocational institutions, industry representatives, and innovation actors in the textile and fashion sector. VDMD in particular provided the industry associations and business networks which provided strong links to companies and supported the internship programme as well as the study visits. Additionally, the project in Germany involved educational institutions, including fashion schools and universities, that hosted study visits and may integrate project results into teaching activities. Among these stakeholders, industry associations and educational institutions provided the strongest support because they represented both sides of the training ecosystem: workforce demand and skills development. These networks will remain essential for maintaining the momentum created by the project.

Future pathways for development and building on FEA-VEE results

The immediate priority should be to ensure continuity and visibility of the project's key instruments, particularly internships and study visits.
Key actions would include:

- encouragement to integrate FEA-VEE learning materials into existing training programmes at fashion schools and universities;
- continuing the internship model developed during the project, using partner companies and industry networks to host students and graduates;
- encourage educational institutions to organise annual study visits or short mobility programmes inspired by the FEA-VEE format;

- promoting the project outputs through sector events, conferences, and training workshops, and in other projects.

To continue the FEA-VEE initiative, it is essential to include various stakeholder groups in order to address the different levels necessary for a more sustainable fashion sector in Germany. This includes, but is not limited to, industry associations, such as the VDMD, to support industry connections, internships, and dissemination; fashion and textile education institutions such as vocational schools and universities that can integrate the learning materials into curricula; companies and start-ups in the textile and fashion sector that can provide internships, company visits, and innovation insights; chambers of commerce and industry organisations, such as ITKAM, to facilitate collaboration with businesses; and, last but not least, European project partners and networks to continue knowledge exchange and joint activities.

VDMD and ITKAM have already agreed to continue their collaboration in other projects. Among them is SiT – Sustainability in TCLF (in progress) as well as for a Blueprint application in 2026. Additionally, ITKAM is building a relationship for future projects with the regionally significant the Sächsisches Textilforschungsinstitut e.V. (STFI) in Chemnitz and University of Art and Design in Offenbach am Main. With an already strong network in the industry, VDMD will continue to strengthen their relationship with the Sigmaringen Fashion College and Albstadt-Sigmaringen University of Applied Sciences.

KEY FINDINGS AND RECOMMENDATIONS

The sector faces a growing skills gap as companies require professionals capable of integrating digital technologies, sustainability principles, and entrepreneurial thinking. Emerging occupations include circular product designers, digital textile engineers, sustainable supply chain managers, and recycling technology specialists. Despite Germany's strong dual vocational education and training (VET) system, curricula often do not sufficiently address these new skills, and enrolment in textile-related programmes has declined. Small and medium-sized enterprises also face increasing pressure from rising energy costs, regulatory compliance obligations, and the financial challenges associated with implementing sustainable production systems. The transformation of the German fashion and textile sector offers significant opportunities for innovation and sustainability, but it requires coordinated action across education systems, industry stakeholders, and public policy to ensure a successful transition.

The FEA-VEE project helped address several of these challenges by strengthening collaboration between education providers, industry stakeholders, and European partners, and providing learning opportunities for students, graduates, and career changers. Working on FEA-VEE has shown that VET and university curricula should be updated to integrate digital technologies, circular design principles, and sustainability management. Expanding internships and industry-education partnerships can help align training with labour market needs. Also, the feedback from stakeholders showed that there should be targeted support for SMEs in the sustainability transition, e.g. governments providing financial incentives and simplified regulatory procedures to help smaller companies adopt sustainable production methods.

First and foremost, the key to involve learners actively is to provide opportunities for work-based learning – not only to encourage entrepreneurial mindset but also a sense of opportunity and broadening horizons. Mobilities such as the FEA-VEE study visits have a major impact on how learners experience sustainable fashion as a European or even global concept.

GREECE

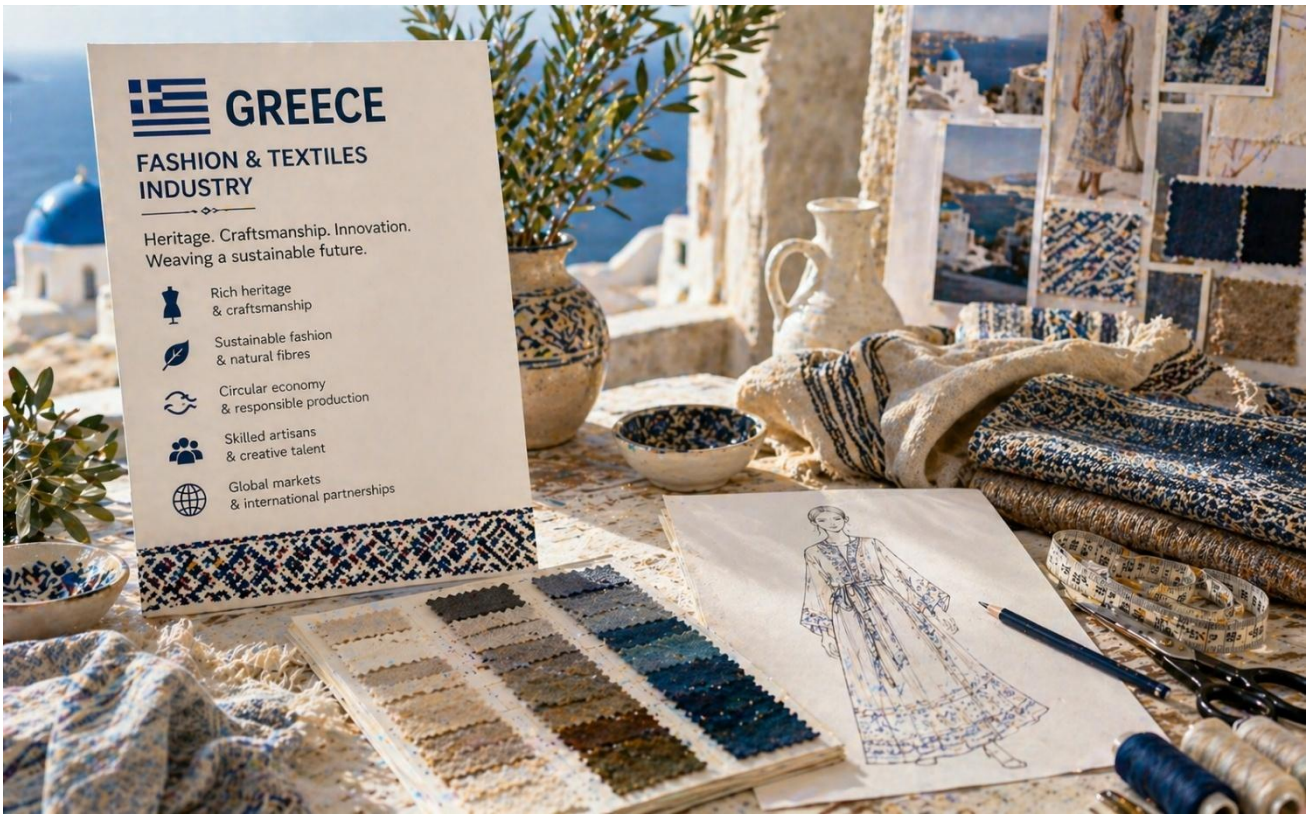

Figure 4 Greece - AI generated image

SUMMARY OF INSIGHTS FROM PREVIOUS FEA-VEE REPORTS

Over the last four years, the Greek fashion and textile sector has undergone a significant transformation, shifting from a period of gradual recovery toward a more structured and sustainable industrial model aligned with European environmental and innovation policies. Earlier FEA-VEE reports identified major structural challenges in the sector, including fragmented vocational training systems, limited adoption of digital technologies, and insufficient policy support for green entrepreneurship. Since 2022, however, a combination of EU funding instruments, national policy reforms, and industry-led initiatives has started to address many of these issues.

The sector has shown signs of recovery and modernization. Production levels have increased, with clothing output rising by approximately 2.8% and textile production by 4.1% in early 2025. Export performance, which had declined significantly in early 2024, recovered by almost 8% by the end of 2025, while domestic retail clothing sales increased by 3.6%. At the same time, new segments such as technical textiles and knitwear are expanding rapidly and are projected to grow by more than 9% annually through 2026. These developments indicate that the Greek fashion ecosystem is gradually repositioning itself toward higher-value products and niche markets.

Beyond economic indicators, the sector is experiencing a broader structural shift toward sustainability, digitalization, and entrepreneurship. European policy frameworks such as the EU Green Deal, the Circular Economy Action Plan, and funding instruments like the Recovery and

Resilience Facility (RRF) have played a crucial role in accelerating this transformation. More than 60 Greek SMEs in the fashion and textile sector have received support to adopt eco-materials and low-waste production methods, while research centers and innovation hubs are exploring biodegradable fabrics and sustainable dyeing technologies.

Educational and training reforms have also contributed to these changes. Vocational education and training (VET) institutions are increasingly integrating digital tools, sustainability principles, and industry collaboration into their curricula. Partnerships between universities, design schools, and local businesses have expanded internship opportunities and practical training, improving graduate employability. Nevertheless, several challenges identified in earlier reports remain partially unresolved, particularly in relation to skills shortages in hybrid "green-digital" occupations and the need for stronger industry-education collaboration.

Overall, the period between 2022 and 2026 marks a transition from identifying structural gaps toward implementing concrete reforms and policy mechanisms aimed at building a more sustainable and competitive fashion ecosystem in Greece.

Policy report on Labour Market Skills for the Fashion/Textiles Industries (D6.1)

The initial FEA-VEE analysis of labour market skills in Greece highlighted a sector experiencing structural change and facing a persistent mismatch between labour supply and industry needs. Between 2015 and 2021, employment in the sector gradually increased to nearly 26,000 employees, while the number of self-employed workers decreased to approximately 14,800 by 2020. This shift suggested a gradual consolidation of production and a transition toward more organized and larger-scale operations.

At the same time, employers consistently reported significant shortages in both technical and digital skills. Traditional craftsmanship remained important, but the industry increasingly required workers with expertise in areas such as digital design tools, e-commerce platforms, ICT systems, and digital marketing. One of the most critical shortages identified was the lack of pattern technologists, a specialized role combining technical knowledge with design skills. The fragmented nature of the Greek VET system, which was largely dominated by private institutions with limited coordination with industry needs, made it difficult to respond quickly to these emerging labour market demands.

Over the last three to four years, several developments have started to address these challenges. Vocational training institutions have begun integrating digital technologies, sustainability concepts, and entrepreneurship modules into their programmes. Courses on 3D design, digital pattern making, eco-materials, and circular production methods have gradually become part of the educational landscape. Universities and training providers, such as the University of West Attica and the Athens University of Economics and Business, have also established partnerships with fashion brands and textile companies to provide internships and hands-on production experience.

Despite this progress, significant skill gaps remain. Designers increasingly need knowledge of eco-materials, digital storytelling, and 3D prototyping, while technicians are expected to understand recycling processes, smart textiles, and AI-supported production systems. In addition, managerial staff require expertise in ESG compliance, sustainable finance, and international market strategies.

These hybrid "green-digital" skill profiles are becoming increasingly essential for the sector's competitiveness within the European market.

Policy report on Reforms Supporting Sustainability in Fashion/Textiles (D 6.2)

Sustainability has become one of the defining drivers of change in the Greek fashion and textile industry. Earlier FEA-VEE reports highlighted the growing importance of circular economy principles and the need to align national industrial practices with European environmental policies. A key milestone in this process was the adoption of the National Action Plan on Circular Economy, which established ambitious goals to reduce industrial emissions and promote sustainable production practices.

Since 2022, the **sustainability agenda has accelerated significantly.** Greece is preparing for several new EU regulatory requirements, including the 2026 ban on destroying unsold textiles, which is expected to reduce overproduction and encourage more responsible inventory management. At the same time, the number of companies implementing environmentally responsible practices has increased substantially. More than sixty SMEs have adopted eco-materials and low-waste production techniques, while the use of wastewater control systems and eco-dyeing technologies has increased by over 20% since 2023.

Research institutions and innovation centers are also contributing to the development of sustainable materials and processes. Projects focused on biodegradable fabrics, natural dyes, and renewable energy use in production facilities are gaining traction. In parallel, small workshops and ateliers are reviving traditional craft techniques, such as hand-loomed linen production, often combining them with modern technologies and renewable energy sources.

Despite these positive developments, several structural barriers remain. **Small and medium-sized enterprises often struggle with the financial and administrative burden** associated with sustainability certifications and compliance with EU environmental standards. In addition, the national infrastructure for large-scale textile recycling is still under development, limiting the full implementation of circular production models.

Nevertheless, sustainability has moved **from being an optional business strategy to a regulatory requirement and a competitive advantage**. Greek companies are increasingly integrating environmental considerations into their design, production, and marketing processes, positioning themselves within the broader European transition toward circular fashion.

Policy report on Reforms Supporting Green Entrepreneurship (D 6.3)

Green entrepreneurship has emerged as a key driver of innovation in the Greek fashion and textile sector. Earlier FEA-VEE analyses identified the need for stronger financial support mechanisms, clearer regulatory frameworks, and improved access to incubation and mentoring services for sustainable start-ups.

In recent years, the policy environment has become significantly more supportive. Several regulatory measures have been introduced to encourage sustainable business models and circular production practices. The implementation of the Extended Producer Responsibility (EPR) scheme in 2023 requires producers to take responsibility for the entire lifecycle of their products, encouraging recycling, reuse, and upcycling initiatives. Additionally, the ban on textile waste disposal in landfills, which came into effect in 2024, has further strengthened incentives for companies to develop circular production models.

Financial instruments have also expanded considerably. The Development Law 4887/2022 and related national investment programmes provide grants, tax exemptions, and financial incentives for companies investing in green technologies, textile recycling, and sustainable fabric production. Through the Recovery and Resilience Facility and REPowerEU initiatives, Greece has allocated more than €768 million to support green transition projects and sustainable manufacturing.

In addition to public funding, the entrepreneurial ecosystem is gradually evolving. Angel investors now benefit from tax deductions of up to €900,000 when investing in innovative companies, creating new opportunities for start-ups in the sustainable fashion sector. As a result, investment in digital and sustainable technologies has increased by approximately 30% between 2024 and 2026.

However, challenges remain. Access to financing is still uneven, particularly for small design studios and early-stage ventures. Moreover, while consumer awareness of sustainable fashion is growing, eco-friendly products are often perceived as more expensive, limiting their market penetration. Strengthening the connection between innovation, education, and business development remains essential for the long-term success of green entrepreneurship in Greece.

2.1. Report “Sectoral, educational and entrepreneurial current situations and needs assessment of target groups in the partner countries”

The national findings from the D2.1 report highlighted several structural challenges affecting the Greek fashion and textile sector, particularly in relation to education, workforce skills, and entrepreneurial capacity. Interviews with industry representatives, educators, and entrepreneurs revealed that companies faced persistent difficulties in recruiting employees with both technical expertise and digital competencies. At the same time, many educational programmes were considered outdated and insufficiently aligned with industry needs.

Survey results confirmed that stakeholders viewed sustainability, digitalization, and entrepreneurship as the three most important priorities for the future development of the sector. Companies expressed strong interest in training programmes focusing on eco-materials, circular production processes, digital marketing, and international market access.

Over the last four years, several developments have begun to address these challenges. New training initiatives and collaborative programmes between universities, vocational institutions, and industry

actors have expanded opportunities for practical learning and internships. Online learning platforms and EU-supported educational projects have improved access to specialized knowledge, particularly in remote regions and smaller communities.

These developments indicate a gradual alignment between the education system and industry requirements. However, stakeholders continue to emphasize the importance of strengthening practical training, expanding apprenticeship programmes, and supporting young entrepreneurs who wish to develop innovative and sustainable fashion businesses.

Overall, the insights from the interviews and surveys remain highly relevant and continue to reflect the current situation in the Greek fashion and textile sector. While progress has been made in policy development, training provision, and industry collaboration, further investment in skills development, sustainable infrastructure, and entrepreneurial support will be necessary to fully unlock the sector's potential.

FEA-VEE INITIATIVE OUTCOMES AND IMPACT

The implementation of the FEA-VEE project in Greece, with the active involvement of TIHC, Chamber of Fthiotida and AKMI International, has generated tangible results for vocational education and training (VET), particularly in strengthening the connection between education, entrepreneurship, and the labor market. Through the piloting of updated educational materials, international study visits, and internship opportunities, the project has supported students, educators, and stakeholders in developing new skills related to entrepreneurship, sustainability, and innovation in the TCLF sector.

The project has contributed to improving the quality of vocational education by introducing modern teaching approaches and by enabling participants to gain international exposure. These experiences have allowed learners and educators to observe innovative practices in other European countries and apply them within their local context.

One of the most significant achievements of the project in Greece has been the successful piloting of updated VET educational materials and training modules developed within the FEA-VEE project. These materials focus on entrepreneurial competencies, sustainability, and innovation within vocational education.

More precisely, the educational resources developed during the project were integrated into pilot training activities involving students and educators. Participants had the opportunity to test the learning materials through practical exercises, case studies, and project-based learning activities designed to simulate real business environments.

Another key achievement has been the organization and implementation of international study visits and internship opportunities, which allowed participants to gain first-hand experience in different European vocational education systems and business environments. These mobility activities enabled students and staff to observe innovative practices related to entrepreneurship education, sustainability strategies, and collaboration between education providers and industry.

Participants engaged in structured learning activities during the study visits, including workshops, company visits, meetings with VET providers, and discussions with entrepreneurs and policymakers. Moreover, they had the opportunity to exchange knowledge and expertise with colleagues across Europe and understand the transnational perspective of the sector. These experiences enriched participants' understanding of how entrepreneurial education can be effectively integrated into vocational training programs.

Additionally, the project fostered new institutional partnerships and collaborations between partner organizations, international project partners, and local stakeholders such as companies, educators, and training institutions. These partnerships created opportunities for knowledge exchange, joint learning activities, and potential future collaborations beyond the duration of the project.

During the last three years, there has been an increasing emphasis at both national and European levels **on strengthening entrepreneurial and green skills within vocational education and training**. The FEA-VEE project contributes to these policy priorities by supporting the development of educational tools that promote innovation, sustainability, and entrepreneurial thinking among learners.

The competencies developed through the project align with current policy directions in vocational education that emphasize experiential learning, international mobility, and stronger cooperation between education providers and industry. The integration of entrepreneurial learning within VET programs reflects broader efforts to enhance employability and prepare students for rapidly changing labor markets.

In this context, the project has contributed to reinforcing the role of VET institutions as active participants in regional innovation ecosystems. By providing practical tools and methodologies for entrepreneurship education, FEA-VEE supports policy objectives aimed at fostering a culture of innovation and sustainable economic development.

The outputs developed within the project have been actively used by several groups of stakeholders:

- Educators involved in the pilot activities applied the project's training materials within their teaching practice, adapting them to the needs of their students and integrating them into existing curricula. These materials were particularly useful for introducing experiential learning approaches that encourage students to develop entrepreneurial ideas and work collaboratively on problem-solving activities.
- Students participating in the project benefited from the opportunity to test these tools in real learning environments, while also engaging with international partners during study visits and collaborative activities.
- Local stakeholders, including companies and training organizations, also engaged with the project through meetings, workshops, and multiplier events. Moreover, the internships that were realized through the implementation period gave students the opportunity to experience first hand work based learning and connect with the market needs. These interactions provided valuable insights into industry needs and helped ensure that the educational materials developed by the project remain relevant to labor market demands.

Target groups for the developed materials
The educational materials and training resources developed by the FEA-VEE project are intended for multiple user groups within the vocational education ecosystem.

The primary users include:

- VET students interested in developing entrepreneurial skills and sustainable business thinking.
- VET educators and trainers seeking innovative teaching methodologies.
- Training institutions that wish to incorporate entrepreneurship education into their curricula.
- SMEs to upskill and reskill their staff.

Additionally, the materials may also be used by organizations involved in youth entrepreneurship support, career guidance professionals, and local stakeholders interested in promoting innovation and sustainable economic development.

The accessibility and adaptability of the project outputs ensure that they can continue to be used beyond the lifetime of the project, contributing to long-term improvements in vocational education.

Feedback collected from participants and stakeholders indicates a high level of satisfaction with the project activities and outcomes. Participants particularly appreciated the opportunity to engage in international learning experiences and to exchange ideas with peers and experts from different countries.

The satisfaction surveys conducted during the study visits abroad revealed that participants valued the practical nature of the activities, including company visits, workshops, and discussions with professionals. These experiences allowed them to gain new perspectives on entrepreneurship education and understand how different European systems approach vocational training.

Stakeholders also highlighted the usefulness of the educational materials developed by the project, noting that they provide practical tools for teaching entrepreneurship in a way that is engaging and relevant for students.

Multiplier events organized within the project created opportunities for broader dissemination of the project results and facilitated dialogue among stakeholders from education, industry, and policy environments.

During these events, participants discussed the importance of integrating entrepreneurial and sustainability skills into vocational education. Stakeholders emphasized the need for stronger cooperation between VET providers and businesses, as well as the value of international mobility experiences for students and educators.

The **suggestions** emerged during these discussions, including:

- Expanding opportunities for internships linked to entrepreneurship education.
- Developing additional training resources that support green entrepreneurship.
- Strengthening collaboration between educational institutions and local businesses.

These discussions also opened possibilities for future cooperation between project partners and local stakeholders interested in continuing similar initiatives.

Following the study visits and internship experiences, several positive developments emerged. Participants began applying new approaches to project-based learning and entrepreneurial education within their institutions. Educators incorporated elements of the project's methodology into their teaching practices, encouraging students to develop innovative ideas and collaborate on entrepreneurial projects.

The project also strengthened networks among participating institutions and stakeholders, creating a foundation for future collaborations, including potential joint projects and continued mobility opportunities for students and educators.

The internships and study visits implemented during the project played a significant role in **supporting the personal and professional development of participants**. Arguably, participants reported increased confidence in their abilities to collaborate in international environments, communicate across cultures, and explore innovative solutions to real-world challenges. While the exposure to new educational approaches and business practices encouraged them to think more creatively about entrepreneurship and sustainability.

Many participants indicated that the mobility experience motivated them to pursue further opportunities for international collaboration and professional development. The experience also strengthened their understanding of the importance of entrepreneurial skills in modern labor markets.

Participants were primarily motivated by the opportunity to gain international experience, develop new competencies, and expand their professional networks. The possibility of engaging with real business environments and innovative training practices provided strong incentives for students and educators to participate actively in the project activities.

Stakeholders such as educators and institutional partners were motivated by the opportunity to enhance their educational practices, strengthen international cooperation, and contribute to improving the quality of vocational education.

NATIONAL ROADMAP FOR FUTURE UPTAKE OF FEA-VEE INITIATIVES

National implementation of FEA-VEE: key notes

The FEA-VEE project has fundamentally shifted the discourse within the Greek Fashion and Textile Sector (FTS) by bridging the gap between theoretical sustainability and practical industrial application. Over the project's duration, the initiative has successfully addressed the "Skill Mismatch" challenge, a critical gap where the labor market demanded digital and green competencies that traditional curricula were not offering. By introducing a specialized **Training Toolkit** (developed during WP3 and WP4), the project provided a structured methodology for SMEs to adopt circular economy principles and digital tools, such as CAD and e-commerce analytics, which are now essential for survival in a consolidated market.

The most recognized project instrument has been the **FEA-VEE Learning Outcomes and Skills Assessment Framework**. This instrument allowed Greek professionals and students to evaluate and validate their expertise in previously unrecognized fields like sustainable fabric sourcing and digital pattern-making during the project's pilot phases. This success was bolstered by a strong network of **key stakeholders**, most notably the **Hellenic Fashion Industry Association (SEPEE)**. Although not a formal consortium partner, SEPEE acted as a strategic collaborator and a vital bridge, aligning the project's training results with the real-world needs of family-owned businesses and assisting in navigating the country's complex regulatory environment.

Future pathways for development and building on FEA-VEE results

The future operational plan for Greece focuses on realistic and actionable integration. The primary pathway for growth is the **adjustment of existing Vocational Education and Training (VET) materials** to incorporate the FEA-VEE specialized learning modules. This ensures that the project's outputs continue to produce graduates equipped with "hybrid" skills (digital + sustainable) that meet the technical requirements of recent laws, such as the 2024 landfill ban.

- **Short-term (1 Year):** Formal adjustment of private and public VET curricula to integrate FEA-VEE digital training modules. This step leverages the existing project toolkit to provide immediate up-skilling for high-demand roles like "pattern technologists."
- **Mid-term (2–3 Years):** Strengthening institutional collaboration to establish a formalized "Fashion Career Follow-up" system. This will utilize FEA-VEE's assessment tools to better match graduates with enterprises seeking expertise in green transition and high-tech deployment.
- **Long-term (5+ Years):** Establishing a National Fashion & Textile Observatory in collaboration with academic institutions. This entity would use FEA-VEE's data collection methodologies to provide annual "Skills Foresight" reports, ensuring that the Greek VET system remains perpetually aligned with evolving EU environmental standards and digital trends.

Key Implementation stakeholders:

- **Ministry of Development and Investments:** For aligning future funding with the Green Transition Fund.
- **SEPEE (Hellenic Fashion Industry Association):** As a primary stakeholder for industry-wide dissemination and feedback on evolving market needs.
- **Local Municipal Authorities:** To support the practical implementation of textile waste collection systems required by new mandates.
- **Specialized VET Institutes (e.g., AKMI):** To lead the practical integration of the FEA-VEE sustainable learning materials into formal education.

Continuation and scaling Initiatives:

To ensure continued growth, the FEA-VEE initiative is already leveraging existing **synergies with "sister" projects, specifically the ECOSYSTEX and SiT (Sustainability in Textiles) projects**. Interestingly, FEA-VEE partnership actively participates these years in Forum on Vocational Excellence, being an active member of the alliance and creating synergies. These partnerships are vital for harmonizing Greek training results with broader European standards, ensuring that "Made in Greece" fashion remains competitive and digitally advanced.

The scope of the project will focus on **Industrial Symbiosis**. This involves building upon FEA-VEE's green entrepreneurship findings to create local "resource exchange networks" where textile waste from one Greek SME becomes the raw material for another's upcycling project. This will be supported by the development of specialized "Circular Designer" training modules.

KEY FINDINGS AND RECOMMENDATIONS

The FEA-VEE project has concluded at a pivotal moment for the Greek Fashion and Textile Sector, marking a transition from traditional industrial practices to a mandatory circular model. The primary finding of this initiative is that while Greece has established a robust legislative framework, notably through the 2023 Extended Producer Responsibility (EPR) scheme and the 2024 textile landfill ban, there remains a significant gap between regulatory intent and industrial capacity. The sector is currently characterized by a "double transition": the need to simultaneously digitalize production through Industry 4.0 tools and adopt complex sustainability protocols. Our research indicates that although the labor market is consolidating into larger, more resilient entities, the "skill mismatch" remains the most significant barrier to growth. Professionals are increasingly required to possess hybrid competencies that combine traditional craftsmanship with digital traceability and eco-design, a demand that the current VET system is only beginning to meet through the integration of the FEA-VEE Training Toolkit.

The project further identified that green entrepreneurship in Greece is hampered not by a lack of vision, but by a lack of specialized infrastructure and targeted financial incentives. While general investment laws exist, they often do not account for the specific lifecycle challenges of textiles. Furthermore, the collaboration with stakeholders like SEPEE and synergies with projects such as ECOSYSTEX and SiT have highlighted that the future of the Greek FTS depends on its integration into the European circular ecosystem. For "Made in Greece" to remain a competitive label, it must move beyond aesthetic value and prove its environmental integrity through verifiable data and certified skills.

Based on these findings, the following three recommendations are proposed for stakeholders and policymakers:

- **Institutionalize "Green VET" Curricula:** Policymakers should mandate the permanent integration of FEA-VEE's digital and sustainable learning modules into the national vocational training framework. This should include a formal certification process for "Circular Fashion

Specialists" to ensure that the workforce can meet the technical requirements of the EU Green Deal.

- **Establish Targeted Fiscal Incentives for Circularity:** Stakeholders should advocate for specific amendments to Development Law 4887/2022 that provide higher tax exemptions and direct grants for SMEs investing in textile-to-textile recycling technologies and digital traceability systems (such as the Digital Product Passport).
- **Develop Regional Circular Resource Hubs:** The government should support the creation of shared industrial hubs, particularly in textile-heavy regions like Northern Greece. These hubs would provide the necessary infrastructure for waste collection and raw material processing, allowing smaller family-owned businesses to comply with landfill bans without bearing the prohibitive costs of individual recycling facilities.

ROMANIA

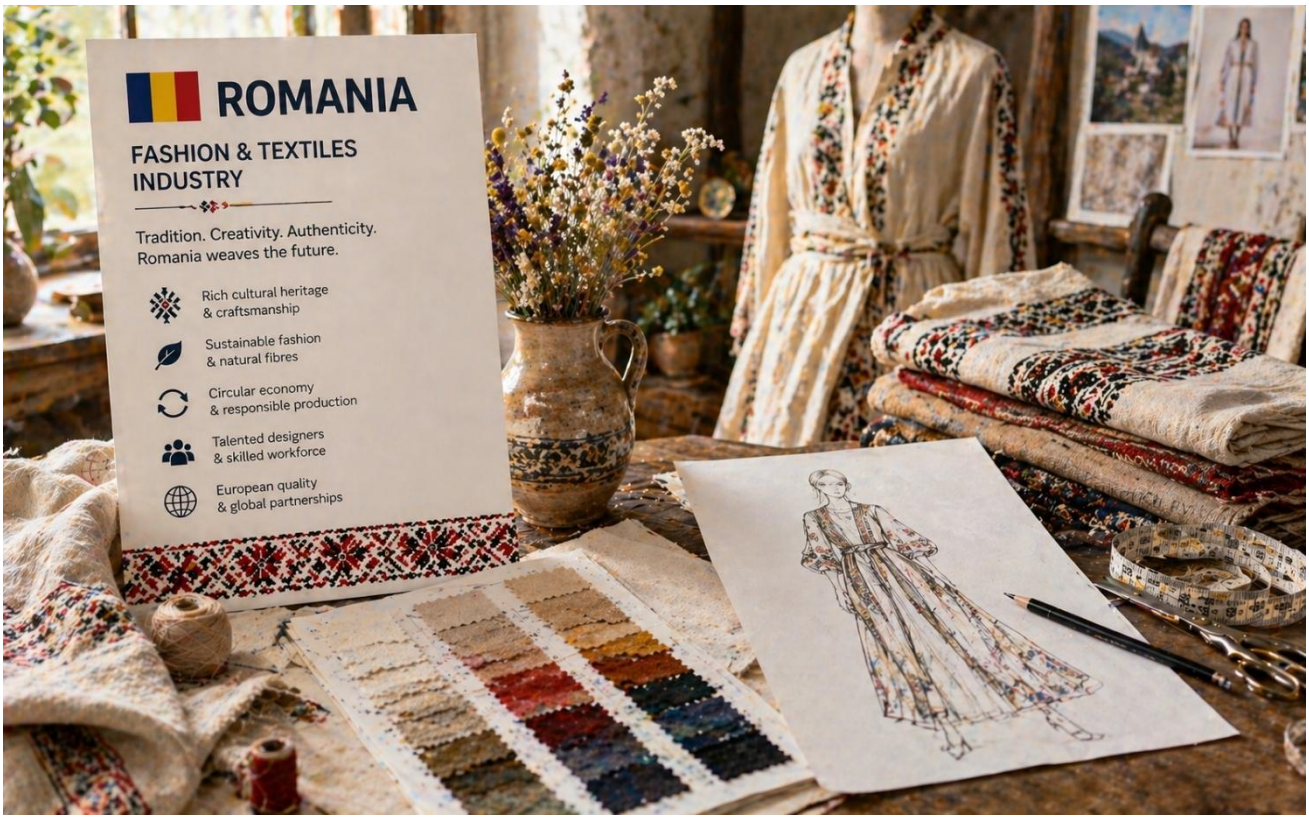

Figure 5 Romania - AI generated image

SUMMARY OF INSIGHTS FROM PREVIOUS FEA-VEE REPORTS

Policy report on Labour Market Skills for the Fashion/Textiles Industries (D6.1)

In Romania, the key gaps identified in digital, green, design, and entrepreneurial skills are the following:

- **Digital skills** are not very well developed, limited adoption of CAD/CAM, PLM and digital sampling having as result slow product development and high sampling costs. Also, the underdeveloped e-commerce/digital marketing is an actual gap
- **Green / sustainability skills** are not yet covering the chemical management, cleaner production and water/energy efficiency in wet processes and the Romanian companies are having little practical knowledge of LCA, carbon accounting and sustainability certifications (GOTS, OEKO-TEX, EU Ecolabel).
- **Design & product innovation skills** are not covering rapid prototyping capabilities and we are facing limited materials innovation (functional/technical textiles, bio-based fibers).

Entrepreneurs are facing difficulties in accessing growth finance, the export/branding capabilities are weak and **business** model innovation (service models, circular business models) is limited.

The 6 Romanian universities with programs dedicated to the fashion design and technology in the textile industry are introducing to the students some of the identified future skills profiles for fashion/textiles occupations – as: operator for textile machines, industry 4.0 lead, traceability

specialist, tech-designer, digital pattern maker, circularity officer, specialist in print digital &smart textile, as well as E-commerce & Brand Growth Manager and Supply chain & Sourcing specialist. And the list is not finalized.

The education which is developing skills in software, hardware, specialization and closing the processes with certifications and VET recommendations are the keys for the development of the textile industry.

- **Regarding the National/EU policies and regulations,** below is an update for EU and Romania rules that matter most for textile/apparel companies selling or operating in Romania (manufacturers, brands, importers, retailers, e-commerce).
- **Separate collection of textile waste** required from 1 Jan 2025 is already in force in Romania. That means for textile businesses we'll expect more scrutiny on how you manage post-consumer textiles (take-back points, partnerships, traceability).
- **EU Textile EPR** (Extended Producer Responsibility) is now in procedure to be adopted in Romania (implementation window). The EU has adopted new rules that make producers financially responsible for end-of-life textile management (EPR), with a Romanian roll-out timeline leading to mandatory schemes by 2028.

The **Ecodesign for Sustainable Products Regulation (ESPR)** creates the legal framework for **product-specific rules** and introduces the **Digital Product Passport** concept. Textiles are widely expected to be among the **early priority product groups**

Packaging and Packaging Waste Regulation (PPWR) – it is published as Regulation (EU) 2025/40 and entered into force Feb 2025, with application in Romania ~18 months later (Aug 2026).

We have to recognize that many things changed for the last 3-4 years in Romania Does exist Romanian textile companies which:

- Started a DPP readiness file per SKU (materials, suppliers, compliance docs);
- Build the "placed on market" reporting capability;
- Tighten chemical declarations (REACH, microplastics restriction where relevant);
- Set up a forced-labour / due diligence evidence pack (policies, traceability, audits).

Policy report on Reforms Supporting Sustainability in Fashion/Textiles (T6.2)

Regarding the **Circularity in Romania**, the real situation is the following:

- Separate collection of textile waste is mandatory from 1 Jan 2025 (EU-wide), and Romania has aligned this obligation into its waste management framework; implementation is largely through local authorities/municipal systems.
- Collection and treatment capacity is still limited and uneven, and much textile waste still ends up in mixed waste streams .

Existing "textile waste processing" capacity in Romania (EEA/ETC-CE country profile) includes (examples of authorized facility types):

- 3 textile waste shredding facilities (Vâlcea, Botoșani, Bistrița-Năsăud)
- 4 facilities producing textile briquettes / granulation for energy recovery (Mureș, Bacău, Bihor, Galați)
- 1 geotextile carpet production facility (Hunedoara)
- 1 facility treating textile waste for production of "efiloxane" (Galați)

Regarding the **Materials,** Romania is strongly integrated in EU supply chains, so material flows are often visible in trade data:

- Romania imports large volumes of textiles (OEC reports ~$6.37B textiles imports in 2024).
- Textiles & clothing exports are primarily to EU partners (top destinations include Italy, Germany, France, UK, Netherlands for 2023).
- Cotton is a meaningful input (Trading Economics using UN Comtrade: ~$209M cotton imports in 2024).
- Romania's sector often works with imported fabrics/inputs), assembled/finished locally for EU markets—so circularity improvements depend heavily on:
  - what materials buyers specify and
  - what data suppliers can provide (composition, chemicals, recycled content proof).

Regarding the **Production processes** Romania is widely described as a major European garment manufacturing base with a history of CMT / subcontracting ("lohn") production, tied to EU brands' nearshoring needs (lead time, proximity).

The "sustainable/circular" production practices in Romania tend to be concentrated in:

- design + product development choices (durability, timelessness),
- cutting-room waste prevention,
- upcycling deadstock / scraps,
- lower-impact dyeing approaches (including plant-based dyes in niche cases),
- small-batch/on-demand models to reduce overproduction.

Romania is facing several constraints, the biggest being:

- Insufficient separate collection and sorting scale, especially for post-consumer textiles (limits feedstock quality),
- The treatment capacity is currently oriented to shredding / downcycling / energy recovery, not large-scale fiber-to-fiber recycling.
- Supply-chain model dependence (CMT/outsourcing) means circularity is often constrained by brand specifications (materials chosen upstream; limited control over fiber blends).

Policy report on Reforms Supporting Green Entrepreneurship (T6.3)

Romania's green entrepreneurship reforms are strongly shaped by the **European Green Deal**, which drives investments, innovation, and transition to low-emission, circular business models across industries including textiles. The Green Deal aims to make the EU climate-neutral by 2050 and

mobilise significant funding through instruments like the Just Transition Mechanism and Sustainable Europe Investment Plan — offering business support, innovation financing, and skills development.

Romania has adopted a **National Circular Economy Strategy and Action Plan** that provides:

- Framework for transforming industry toward circular business models;
- Targets for resource efficiency, reuse and recycling across sectors;
- Measures to support eco-design, sustainable material use and waste reduction. Implementation actions include timelines to 2026 for strategy execution and governance mechanisms to support uptake.

Romania's policy framework increasingly reflects **EU norms on circularity, eco-design, and sustainability** . These reforms support green businesses by creating demand for sustainable textiles through public purchasing, encouraging innovations in product design and materials, standardising environmental performance metrics that facilitate sustainable branding.

Green entrepreneurship in Romania can tap into **EU structural and investment funds** within the 2021-2027 financial framework:

- Cohesion Policy Funds / Regional Development can finance green manufacturing upgrades, energy/resource efficiency projects, and circular practices;
- Just Transition Fund channels money into regions and sectors transitioning away from high-carbon or linear models;
- InvestEU / Horizon Europe support innovative green technologies and circular economy business models.

The success factors for sustainable start-ups in fashion/textiles are the education and training for sustainable business models and green innovation — a necessary complement to financial support for eco-entrepreneurs.

We have to admit that Romania, for the last 2 years, has aimed to improve governance and coordinated policy support, connecting stakeholders across public institutions, industry and clusters to streamline sustainability actions. This lays the groundwork for future tailored incentives and regulatory certainty for green entrepreneurship.

2.1. Report "Sectoral, educational and entrepreneurial current situations and needs assessment of target groups in the partner countries"

At the national level, a short report is underlining the following:

- **Textile waste**: Romania generated about 7.5 kg textile/capita (2020), and an estimated ~75–80% of textile waste ended up in mixed municipal waste, with limited selective collection infrastructure.
- **Treatment capacity** exists but is skewed toward shredding / downcycling / energy recovery-type pathways, with relatively modest evidence of scalable "fiber-to-fiber" systems in-country (as reflected in Romania's circular economy profile).

- **Business practice signals**: documented "best practice" examples inside Romania tend to cluster around eco-design, durability, recycled inputs, waste reduction in cutting/production, and lower-impact dyeing, but these are still more "islands" than the default operating model.
- **Labour-market pressure** (macro): Romania faces structural labour-market constraints (participation, migration, skills mismatches), which spill into manufacturing sectors like textiles.

Here below are the identified textile sector-level skills needs:

- **Post-consumer textile collection + sorting scale** (quantity + quality of feedstock), including municipal–private partnerships.
- **Traceability + product data readiness** (to meet the next wave of EU requirements and brand demands).
- **Upgrading production toward higher value** (design-to-delivery, technical textiles, small-batch flexibility, compliance services) rather than pure cost-based subcontracting (common in the region, reflected in skills strategy work).

Romania has already participated in structured work to modernize **textile/clothing/leather/ footwear qualifications**, including **MOOCs at EQF level 5** aimed at both initial VET learners and employed adults (upskilling/reskilling).

Recent Romania-linked technical education research emphasizes the need for learning pathways in **technical textiles / smart textiles** and integration of **digital + green skills**.

FEA-VEE INITIATIVE OUTCOMES AND IMPACT

In Romania, the FEA-VEE project contributed to reinforcing the **green and entrepreneurial transformation** of the textile and fashion sector by:

- Connecting **VET providers, universities, SMEs, clusters and public institutions**;
- Promoting **circular economy principles** in training and business development;
- Aligning national training practices with **EU sustainability priorities**.

One of the most concrete achievements in Romania was the organisation of the 2 **internships in Spain and Germany,** focused on sustainability of the textile processes. Students from the Universities of Art from Cluj Napoca and Bucharest , higher education institutions completed **internships also in Romanian SMEs** implementing eco-design, waste reduction, and circular practices.

Internships included exposure to sustainable material sourcing, cutting-room waste optimisation, digital tools for pattern-making and efficiency.

A core achievement of FEA-VEE in Romania was the development of **modern learning materials** integrating sustainability and entrepreneurship.

Developed materials included training modules on Circular economy in textiles, Sustainable business models, Eco-design principles, Green entrepreneurship competencies. The digital learning resources

supporting blended learning approaches and the guidance materials for educators on integrating sustainability into curricula are the most important facilities of the learning modules.

FEA-VEE contributed to encouraging sustainable start-ups and micro-enterprises and supporting collaboration between clusters, SMEs and education providers, met during the dissemination during the multiplier events we organised in Cluj Napoca (by UAD) and Bucharest (by RFC) .

The project FEA- VEE adopts a **Centre of Vocational Excellence (CoVE)** approach, meaning materials are not limited to students, but support the full value chain of skills development and green entrepreneurship. Students in fashion design, textile engineering, product development, entrepreneurship and business students technical textile research groups are interested in the subjects treated in the learning modules. We are already having a good *feedback on the project's outcomes – does exist interest in* Supplementary sustainability modules, Case studies for project-based learning, Green business model design exercises, Research support for sustainable textile innovation

Internships and study visits in the context of piloting the FEA-VEE educational/VET updates:

The internships programs contribute to the personal development of participants – below are listed some raw Impressions of few participants:

- "*My experience in Pforzheim, Germany gave me the opportunity to meet people I would not normally have met. These people who are students, teachers or people who work in the field of fashion or textiles are people from whom I managed to learn something and with whom I continue to keep in touch. The jewelry museum was an experience with a strong impact for me, as was the visit to the university where I interacted with one of the professors and she provided me with relevant information for my studies. The organized visits gave us the opportunity to learn about what we can do as artists or designers after completing our studies, such as a residency within the space offered by EMMA*" – Alexandra COSTANASIU – UAD
- "*The internship provided me with valuable experience, despite the fact that the project organization from the German team was not always efficient. Visiting various fashion institutions helped me better understand how the industry works in that part of the country and gave me a clearer perspective on how I could develop my career, including the opportunity to travel to Pforzheim*" – Alejandra RAMIREZ - UAD
- "*Regarding the internship, I can say that I had a wonderful experience and that I met very nice people!* 🥹*The activities were interesting, varied and we were presented with numerous work and study opportunities in Pforzheim and beyond, which I will definitely consider when I finish my studies!* 🤲*I learned a lot, both from the specialists who held conferences and workshops, and from the other students, with whom I shared the experience! I would have liked to have had a little freer time in the program, so that we could explore the city and its surroundings and get better acquainted with the local culture and people. But apart from that, I have nothing to reproach them for! I met wonderful, lively and enthusiastic people, both among the organizers and among the students! I made friends from Greece, India and Cluj, and my roommates became like sisters to me.* 🤲 *We cried with sadness when we broke up, but we*

can't wait to see each other again soon, either in Cluj at their place or in Bucharest! (or who knows, in another study program)" - Tara OZON - UNARTE

NATIONAL ROADMAP FOR FUTURE UPTAKE OF FEA-VEE INITIATIVES

The most important impact of the FEA-VEE project in Romania — and more broadly across the countries where the six-partner research informed the development of the learning modules — lies in its role as a practical bridge between the green transition agenda and the realities of a sector still largely operating on linear, subcontracting-based production models.

The reach of the project extended beyond the six partner countries. Representatives from the Republic of Moldova (Technical University of Chisinau), Serbia (Technical Faculty "Mihajlo Pupin" Zrenjanin, University of Novi Sad), and China (Zhejiang Fashion Institute of Technology) engaged with the FEA-VEE outputs and recognised the quality and relevance of the learning materials. All three expressed readiness to scale and replicate the FEA-VEE toolkit in their own institutional contexts.

Romania's textile sector has traditionally operated under linear production models and CMT/lohn subcontracting structures, with limited exposure to circular design and eco-innovation practices. A clear mismatch existed between labour market needs — driven by the green transition and EU compliance requirements — and the content of existing VET curricula. The FEA-VEE toolkit directly addressed this gap by introducing structured learning modules covering circular economy principles, eco-design methodologies, sustainable materials knowledge, and green entrepreneurship competencies. These modules will support the modernisation of sustainability content in partner institutions and improve alignment with EU green policy priorities.

Romanian VET and higher education institutions have historically operated at a distance from industry realities, resulting in limited practical exposure for learners, outdated skill sets, and weak feedback loops between SMEs and educators. The project helped to initiate a shift in this relationship by bringing together institutional and industry voices around shared learning objectives.

The most engaged and supportive stakeholders throughout the project were FEPAIUS — the National Federation of Workers in the Textile Industry — and the cluster Romanian Textile Concept. Both organisations consistently reflected the needs of the target groups they represent, covering the full spectrum of sector actors:

- **Manufacturing SMEs** (CMT and finishing): productivity improvement, waste prevention, compliance documentation, digital traceability, and pathways toward higher value-added production and technical textiles.
- **Brands, retail, and e-commerce operators**: supplier transparency, materials strategy including recycled content evidence, product data systems, and take-back and repair pilots.
- **Workers:** modular upskilling routes, digital tools, quality and process control, and awareness of safer chemical handling practices.
- **Learners in VET and higher education**: job-ready practical competencies combined with circular economy and digital skills, supported by access to modern equipment through industry partnerships.

- **Entrepreneurs and start-ups:** access to financing, ecosystem connectors such as clusters and incubators, regulatory compliance knowledge, and infrastructure for collection, sorting, and reuse.
- **Institutions** including local authorities, intermediaries, and clusters: development of textile collection and sorting networks, standardisation of data and reporting, and the design of pilots that can become scalable models.

The collaboration with these stakeholders will continue in the years ahead, remaining open to new partners, platforms, and actors as the work progresses. Together, short-term, mid-term, and long-term action steps will be developed as the foundation for the continued transformation of Romania's textile and fashion industry.

KEY FINDINGS AND RECOMMENDATIONS

Romania's textile sector faces a structural challenge that runs deeper than skills gaps or regulatory readiness: a long-standing dependence on CMT subcontracting has left the industry with narrow profit margins, high price pressure, limited autonomy in material selection and sustainability decisions, and persistent vulnerability to external demand fluctuations. Moving up the value chain — from contract manufacturing toward design, brand development, and higher-value production — remains the sector's most critical and most difficult transition.

This structural constraint is becoming increasingly consequential as the EU's circular economy policies, ecodesign requirements, and sustainability reporting obligations accelerate. Buyers are demanding traceability, recycled content evidence, and reduced environmental footprint as standard conditions of business. Many Romanian SMEs currently lack the internal capacity to meet these requirements: sustainability reporting, product-level traceability, and compliance documentation are not yet embedded in their operational practice, and the resources to develop this capacity independently are limited.

Based on consultations with experts in the field, the following recommendations are proposed for stakeholders and policymakers seeking to support the sector's development:

- Encourage the **transition from CMT to full-package production**, supporting companies to develop integrated capacity in design, sourcing, and manufacturing — reducing dependence on buyer-dictated models and increasing value retention within Romania.
- Support the **development of Romanian fashion and textile brands**, providing access to marketing support, intellectual property guidance, and export promotion instruments that help domestic producers build their own identity in EU and international markets.
- Promote **technical textiles and niche high-value segments as growth areas** where Romania's existing production expertise can be repositioned toward higher-margin, innovation-driven markets less vulnerable to low-cost competition.
- Strengthen circular infrastructure by developing regional textile sorting and collection hubs that give SMEs practical access to recycled and recovered materials, reducing dependence on virgin inputs and building the operational basis for circular production models.

- Create **textile-focused green incubators** and facilitate access to EU green funding instruments — including the NRRP, Horizon Europe, and the LIFE Programme — to support sustainable start-ups and help established companies finance the compliance and innovation investments that the green transition requires.

SPAIN

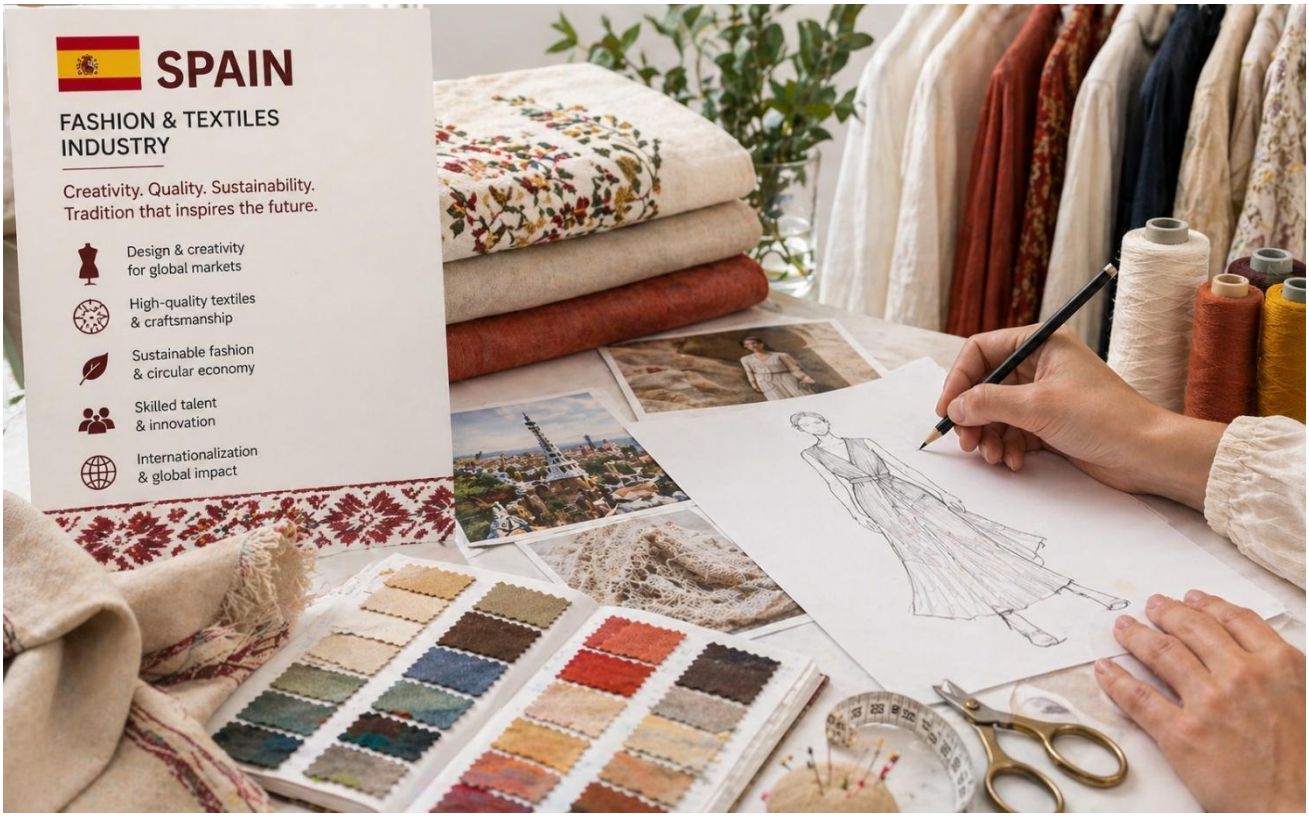

Figure 6 Spain - AI generated image

SUMMARY OF INSIGHTS FROM PREVIOUS FEA-VEE REPORTS

In the past 3–4 years, the sector has undergone a **dual key transition**: sustainability and digitalisation. Circularity has strengthened through environmental, social, and economic models, illustrated by projects such as *Roba Amiga* (industrial-scale recycling with social value) and *Teixidors* (traceability, craftsmanship, and inclusion). The adoption of Industry 4.0 technologies—IoT, Big Data, AI, 3D, blockchain—has improved processes, transparency, and new business models.

Education and companies have become more connected through challenge-based learning, with the **Ecodesign Hackathon** standing out as a key initiative that reinforces applied ecodesign and serves as a reference for vocational training models.

Future professional profiles require strong digitalisation competencies, as digital tools are seen as essential levers to enhance **industrial sustainability and competitiveness**.

Policy report on Labour Market Skills for the Fashion/Textiles Industries (D6.1)

Regarding skills, the sector still shows gaps in digital (CAD, 3D, AI), green (LCA, ecodesign criteria), creative (circular design), and entrepreneurship competencies (sustainable value propositions). In terms of regulation, there is also a clear need for policies that **prioritise sustainability from the product design phase**.

Policy report on Reforms Supporting Sustainability in Fashion/Textiles (T6.2)

Circularity has become a strategic axis due to new regulations such as Spanish **Law 7/2022**, which mandates separate collection of textile waste and strengthens recycling and reuse. Sustainable materials—organic, recycled, and bio-based fibres—have gained prominence, along with improvements in production processes (energy efficiency, water management, digitalisation).

However some barriers persist: lack of regulatory harmonisation, inflation, low recycling rates, insufficient innovation, and the well-known *green gap* between awareness and purchasing behaviour. Policies and regulations must include support for SMEs, incentives for sustainable R & D and technology, and tools to reduce the Green Gap.

Policy report on Reforms Supporting Green Entrepreneurship (T6.3)

The political framework has evolved significantly: the **Climate Change Law**, the **Spanish Circular Economy Strategy**, **PERTE** programmes, and alignment with European directives have created a strong regulatory foundation for the development of new green business models.

At the same time, funding has expanded thanks to *Next Generation EU*, programmes from IDAE and ICO, tax deductions for sustainable R & D, and the boost of accelerators such as CirCoAx or clusters like MODACC.

Successful start-ups combine sustainability + technology, adopt circular models, and align with REACH, the upcoming **Digital Product Passport**, and ecodesign requirements. Social demand and transparency act as essential drivers.

The expanding regulatory landscape (EPR, ESPR, DPP, CSRD, CSDDD) accelerates the sector's maturity and forces innovation, generating an ecosystem that is increasingly robust, cooperative, and ready to scale green initiatives.

2.1. Report "Sectoral, educational and entrepreneurial current situations and needs assessment of target groups in the partner countries"

The information gathered in the report D.2.1 about Spain reflected the situation in 2022, and anticipated a transformation of the sector driven by digitalisation, the expansion of ecommerce, and growing regulatory pressure linked to sustainability. 3 years later, these predictions have been broadly confirmed. Concerning sustainability, at national level, the weight of online commerce and new business models have intensified in line with European patterns: the EU identifies textiles as one of the value chains with the greatest environmental impact and one of the priority sectors within the European Green Deal and the Strategy for Sustainable and Circular Textiles, where textile consumption represents the fourth highest environmental impact in the EU**,** generating **5**.8 million tonnes of waste annually[1]. This European context accelerated Spain's own transition towards a more regulated and circular model, confirming the directions that the report already signalled as inevitable medium-term sectoral shifts.

[1] Consulted online: Comisión Europea – EU Strategy for Sustainable and Circular Textiles (impacto ambiental del textil en la UE)

The interviews and surveys included in the report D.2.1 clearly reflected Spanish companies' concern about the lack of advanced digital skills, particularly in virtual design, simulation, data analysis and operational sustainability. Current developments in the country show that this perception was accurate: the use of simulation and 3D tools has become consolidated across Europe as part of industrial digital transformation, supported by the Digital Europe strategy and by competence frameworks promoted by the European Commission. This transformation aligns with the findings of the Digital Economy and Society Index (DESI), which confirms the gap between business digitalisation and digital skills in several Member States, including Spain[2]. The training gap highlighted in the report therefore not only reflects the national reality but aligns with the broader European diagnosis, which identifies strengthening vocational education and emerging technology skills as a priority in the textile industry and fashion sector.

In terms of sustainability, the report already warned that European regulation would radically change sector requirements. This has been realised: the EU Strategy for Sustainable and Circular Textiles establishes that by 2030 all textile products placed on the European market must be durable, repairable, recyclable, free of hazardous substances, and produced in accordance with environmental and social standards[3]. In addition, the revision of the Waste Framework Directive approved in October 2025 introduced, for the first time, mandatory Extended Producer Responsibility (EPR) for textile products across all Member States, requiring companies to finance textile collection, sorting, and recycling, with eco-modulated fees based on environmental impact[4]. It also requires Member States to establish separate textile collection systems and mechanisms specifically designed to curb fast fashion. These measures directly reflect the challenges identified in the report for Spain: the need for traceability, ecodesign, circular models, and well-defined end-of-life processes.

Shifts in consumer trends also reinforce the report's findings. Eurostat confirms that European expenditure on clothing and footwear shows volatile behaviour, with recent declines in several categories, matching the deterioration in fashion consumption observed in Spain and partially anticipated in the report's interviews[5]. At the same time, consumer priorities across Europe increasingly favour durability and sustainability: according to the European Commission, 88% of Europeans believe that clothing should last longer, and this expectation is integrated into the EU Textile Strategy's action lines[6]. These patterns reinforce the validity of the report's observations: demand is shifting towards higher-quality, lower-impact products, in line with broader European expectations.

Finally, recent developments show that Spain has begun addressing several of the challenges identified in the report three years ago. The transposition of EU legislation—particularly future EPR systems and the digital product passport—is driving companies to improve traceability and invest in ecodesign and circularity. In parallel, updates to Vocational Education and Training and the reinforcement of digital skills, supported by European initiatives such as the Digital Skills and Jobs

[2] Consulted online: Digital Economy and Society Index (DESI)

[3] Consulted online: EU Textiles Strategy, visión 2030

[4] Consulted online: Revised Waste Framework Directive enters into force

[5] Consulted online: Household consumption by purpose (ropa y calzado)

[6] Consulted online: EU Textiles Strategy, datos de consumo

Platform, are beginning to close the training gap highlighted in the report[7]. Although progress remains uneven, the challenges identified have evolved into concrete regulatory, educational and business priorities.

FEA-VEE INITIATIVE OUTCOMES AND IMPACT

In Spain, FEA-VEE has progressed from planning to real-world testing through a portfolio of actions that combine company-based training placements, study visits, teaching materials and methodologies for VET/higher education, and satisfaction assessments with traceable data.

All of this has been deployed in alignment with two key dynamics:

- the transformation of Vocational Education and Training under Organic Law 3/2022 and its implementing regulation (Royal Decree 659/2023), which generalise Dual VET and reorganise the system into five capitalisable levels;
- the European framework of Erasmus+ Centres of Vocational Excellence (CoVE), which promotes local skills ecosystems and transnational cooperation oriented toward the digital transitions and toward results with impact beyond the project.

In 2024–2025, **training agreements were formalised with textile companies** in Catalonia, acting as "extended classrooms" of the FEA-VEE curriculum. These included Folgarolas Textil SA, Lafact FUPAR–Tallers Teixidors, United Weavers SL and Singular Wardrobe SL. Learning outcomes focused on fabric analysis (woven/non-woven, equipment adjustments according to standards), technical design and R&D with tone/texture sampling, printing processes (machine preparation and operation, parameter control, quality), spinning calculations, prototype development, and product-development documentation and trend tracking, along with training in design software and order management. These tasks demonstrate the transfer of FEA-VEE competences to real operational functions and align with the company-based training and shared responsibility requirements established by compulsory Dual VET under Organic Law 3/2022 and Royal Decree 659/2023 (modules with in-company phases, general/intensive dual modalities, and shared supervision)**.**[8].

An **educational study visit was organized in Terrassa (Barcelona, Spain)**, which brought together 60 participants from the six project countries in a programme that combined classroom sessions, laboratories, industry engagement and an ecodesign hackathon. Sessions addressed textile digitalisation and Industry 4.0, ranging from IoT and Big Data to AR/VR, digital twins and traceability systems applied to efficiency and circularity always in the framework of the textile and fashion sector. Visits to Roba Amiga provided insight into a large-scale circular-economy model, while Teixidors showcased high-quality artisanal processes and traceability in natural fibres. The Ecoloop UB success case—award-winning for its innovation in recycled technical textiles—was also presented, along with creative workshops at the Textile Museum and a technical visit to the UPC spinning and weaving laboratories focused on mechanical recyclability. The hackathon, involving multinational and

[7] Consulted online: EU Digital Skills and Jobs Platform – Spain Digital Agenda 2026

[8] Consulted online: Real Decreto 659/2023, de 18 de julio, por el que se desarrolla la ordenación del Sistema de Formación Profesional.

multidisciplinary teams, supported the redesign of products across their life cycle; the winning proposal, “Outdoor Canopies”, stood out for its creative reuse concept and technical feasibility. The methodology combined diagnostic quizzes, guided work and expert evaluation, strengthening competences in LCA, repairability, modularity and design for disassembly, in line with emerging European requirements such as the ESPR and the Digital Product Passport (DPP[9]..

The later satisfaction survey showed overall evaluations ranging from “excellent” to “good”, with no negative responses. Participants highlighted the academic and professional impact, organisational quality and activities such as company visits, the hackathon and the keynote lecture. Overall, the experience demonstrated strong formative impact and a format that can be replicated in future editions.

Based on the pilot actions, the project has consolidated **teaching resources** (e.g., hackathon guide, rubrics, LCA and traceability templates, digitalisation content), competence packages and demonstrator cases (Roba Amiga, Teixidors, Ecoloop UB) that can be easily integrated into Level D (cycles) and Level E (specialisation), and reused in micro-training (Level A) for rapid upskilling.

Main users include:

- VET centres and universities offering textile-fashion and sustainability pathways;
- SMEs and workshops requiring practical tools for ecodesign, durability and traceability;
- clusters/technology centres for in-company training;
- public administrations (education/industry/environment) aiming to align qualifications with EU regulation (ESPR, EU Textiles Strategy, DPP, textile EPR).

The European regulatory shift towards durable, repairable and traceable products (EU Textiles Strategy, ESPR and DPP) reinforces the relevance of FEA-VEE outputs: designs based on disassembly and recyclability, skill matrices for repairability, traceability tools and impact arguments (LCA) anticipating the Digital Product Passport and Extended Producer Responsibility. In Spain, Organic Law 3/2022 and Royal Decree 659/2023 make Dual VET structural and organise the offer into stackable levels, creating an ideal framework for curricular mainstreaming (modules with in-company phases, microcredentials, specialisations) and for strengthening VET–industry cooperation, as demonstrated through FEA-VEE training placements. At European level, the CoVE approach requires ecosystems connecting centres, companies, R&D and administrations, and mobility for learners and staff; the combination of placements + visits + hackathon aligns perfectly with this logic of excellence and transfer beyond the consortium and project period**.**

Below are listed some applications of outputs by partners and stakeholders:

- Host companies applied FEA-VEE skill matrices to assign tasks (e.g., Folgarolas focused on fabric verification and testing equipment; Teixidors and Singular Wardrobe on prototyping

[9] Digital Product Passport (DPP) for the textile sector

and controlled printing), producing reference letters useful for Europass Mobility[10] and employability.

- UPC–INTEXTER contributed expert validation to the hackathon and opened mechanical-recycling laboratories to contextualise design decisions with end-of-life criteria, reinforcing LCA and responsible-design culture among students.
- International participants transferred content (e.g., colour theory or CAD/AI) to their own courses and proposed replicating the hackathon format in their home institutions.Stakeholder feedback.
- Educators, students and companies highlighted strengths such as international exposure, immediate applicability (Roba Amiga/Teixidors visits; CAD/AI workshops) and networking. Improvement priorities from the Germany visit—motivation-based selection, logistical transparency, stable scheduling with time for networking and engagement with the local ecosystem (museums/creative centres/companies)—have already been incorporated into the planning of new mobilities. This continuous-improvement dynamic aligns with CoVE quality principles and with the use of Europass instruments to formalise learning outcomes in learners' CVs.

Two multiplier events were organized in Spain: One in Terrassa organized by UPC and a 2nd one organized in Barcelona by BCC. FEA-VEE events in Spain acted as multipliers by transferring lessons learned (e.g., rubrics, guides, evaluation criteria) to educators and companies, and by opening new links with clusters and technology centres. Recurring suggestions in stakeholder forums included strengthening alignment with current EU regulation (ESPR, DPP), connecting coursework with digital-passport requirements (composition, footprint, traceability data) and expanding the SME network for intensive dual phases.

The most common motivations—technical and creative innovation, real-world sustainability, industry exposure and international networks—were evident in initial quizzes and satisfaction forms. The combination of real case studies, intercultural teamwork and public presentations reinforced soft skills (communication, teamwork, leadership, storytelling) along with technical competences (LCA, CAD/AI, traceability, repair-oriented design). Several participants reported changes in professional outlook (e.g., new interest in ecodesign or DPP-focused traceability) and teaching transfer (use of colour theory/colourimetry or sustainability content), demonstrating personal impact beyond the mobility itself.

The main impact FEA-VEE has built is capacity: dual training placements with task descriptions and company mentoring; study visits with applied learning; teaching resources and evaluation guides; satisfaction surveys supporting continuous improvement. This architecture accelerates national adoption in Spain—precisely as Dual VET becomes compulsory—and prepares learners and companies for the new European regulatory context (ESPR and DPP). Its CoVE-oriented ecosystem is

[10] Europass Mobility

evident: centres, companies, R&D and public administrations collaborate in pathways that connect competences with public policy and with the real challenges of the European textile-fashion industry**.**

The FEA VEE project has shown a **significant contribution** to the development of educational and industrial policies through company-based training placements, international study visits and teaching materials adapted to the new European and Spanish regulatory frameworks. The training periods in textile companies in Catalonia have enabled the application of real competences in production processes, design, traceability and innovation, aligning with the new compulsory Dual VET model and the shared-supervision requirements established by Spanish legislation.

The study visits strengthened technical skills (LCA, modular design, traceability, CAD/AI) and transversal competences (teamwork, communication, leadership), while increasing motivation through real exposure to companies and innovation ecosystems.

The project has produced tools and resources directly applicable to European policies such as the ESPR, the Digital Product Passport and the EU Textile Strategy, supporting the transition toward more durable, repairable and traceable products. It has also reinforced the CoVE approach through collaborations between educational centres, companies, R & D and public administrations, contributing to a more robust ecosystem prepared to scale green initiatives. Feedback from mobility activities and the adjustments incorporated into new editions demonstrate a continuous-improvement dynamic aligned with European quality principles.

Overall, FEAVEE has strengthened the connection between competences, public policies and the actual needs of the textile-fashion sector, contributing both to the personal development of participants and to the adaptation of the educational and industrial system to new regulatory and sustainability requirements.

NATIONAL ROADMAP FOR FUTURE UPTAKE OF FEA-VEE INITIATIVES

National implementation of FEA-VEE: key notes

In Spain, the FEA-VEE project has been aligned with **two major transformations**: the reform of Vocational Education and Training (VET) under Organic Law 3/2022 and Royal Decree 659/2023, which strengthen Dual VET, and the green–digital transition of the textile-fashion sector driven by European regulation (EU Textile Strategy, Digital Product Passport, and forthcoming textile EPR). Within this context, the project has enhanced the system's capacity to respond to new technical, regulatory and sustainability demands.

The challenges identified in the report—gaps in advanced digital skills (3D, simulation, data), limited operational sustainability knowledge (LCA, traceability, ecodesign), and weak connections between training and industry—were addressed through these project activities: company internships, study visits, ecodesign hackathons, training materials, and sector-specific competence packages. Internships in Catalan textile companies enabled participants to apply learning in real tasks such as prototyping, fabric analysis, stamping, quality control and digital design. The study visits held in Terrassa and Germany deepened learning in industrial digitalisation, circular design, recyclability and advanced traceability, with high satisfaction levels among participants.

Within the Spanish study visits, the ecodesign hackathon became the project's most distinctive instrument. The combination of multinational teamwork with life-cycle thinking, repairability, modularity and circular redesign positioned it as an effective methodology fully aligned with emerging European requirements.

The project was supported in Spain by several collaborative networks of VET centres, textile SMEs, circular-economy entities, technology centres and international partners. Companies provided real learning contexts and feedback on emerging job profiles, while the international dimension enabled methodological exchange and future replicability of the tools developed.

Overall, FEA-VEE has strengthened Spain's capacity to deliver VET aligned with the green-digital transition of the textile-fashion sector. It has reduced skill gaps, improved VET–industry cooperation, introduced innovative methodologies in digitalisation and ecodesign, and created pedagogical tools. Thanks to the joint contribution of CCB, UPC-INTEXTER and the wider ecosystem, the project's results could be integrated into Dual VET, modular training, micro-credentials and reskilling programmes, ensuring continuity and scalability beyond the project itself.

Future pathways for development and building on FEA-VEE results

In the **short term (0–2 years)**, there is a need to strengthen digital, green, and ecodesign skills—especially in CAD, 3D, AI, blockchain, LCA, and regulatory knowledge—through training programmes and micro-credentials. It is suggested to simplify the regulatory framework (EPR, DPP, CSRD) by creating guides and technical support, strengthening innovation incubators such as CirCoAx and clusters like MODACC, and creating territorial units that align companies, public administration, and educational centres.

In the **medium term (2–5 years)**, it is suggested integrating circularity and Industry 4.0 into vocational and university education to develop hybrid professional profiles, as well as promoting industrial infrastructures for textile recycling and consolidating regional circular innovation ecosystems. A key challenge is preparing the sector for the Digital Product Passport in 2027, which will require interoperable data platforms and robust traceability systems.

In the **long term (5–10 years)**, the sector is expected to transform towards a fully circular value chain based on advanced recycling, monomaterials, local digitalised production, and renewable energies. There is also a need to internationalise green startups and export the "FEAVEE model" at the European level.

KEY FINDINGS AND RECOMMENDATIONS

The textile–fashion sector in Spain has undergone a dual transition: **sustainability and digitalisation**, driven by new regulations and Industry 4.0 technologies.

Persistent skill gaps remain in digital (CAD, 3D, AI), green (LCA, ecodesign) and creative competencies. Recent reforms (Law 7/2022, ESPR, DPP, the new Dual VET model) have reshaped training needs and business requirements. The FEA VEE project deployed internships and international study visits aligned with the new Dual VET framework and the CoVE model, strengthening both technical and transversal competencies. The ecodesign hackathon became a key tool for developing modularity,

repairability and life-cycle-oriented design. Spain now has a stronger ecosystem connecting education centres and companies.

Main conclusions that can be drawn are the following:

- **FEAVEE has reduced the identified skills gaps**—digitalisation, ecodesign and traceability—by providing practical tools adapted to new European regulatory requirements.
- **Internships and study visits generated strong educational and motivational impact**, reinforcing technical knowledge and soft skills, and demonstrating a replicable model.
- **The project aligns fully with the new Dual VET reform**, strengthening national implementation of work-based learning.
- **The produced materials and methodologies directly support European policies**, including the DPP, ESPR and future textile EPR mechanisms.
- **A CoVE-oriented ecosystem has been strengthened**, integrating education centres, companies and public actors, enabling scalability and long-term sustainability of the model.

Recommendations for policymakers and stakeholders are outlined below:

- **Strengthen Dual VET with broader company participation:** Internships proved effective for competence transfer and compliance with national legislation (Organic Law 3/2022, Royal Decree 659/2023).
- **Therefore, it is recommended to e**xpand networks of collaborating companies and create Dual VET pathways specialised in digitalisation and circularity.
- **Integrate FEAVEE resources and methodologies into VET and university curricula:** The project produced rubrics, hackathon guides, traceability templates and digitalisation materials aligned with EU policies.
- **Therefore, it is recommended to suggest** these materials in modules on ecodesign, digitalisation and traceability.
- **Prepare the sector for the 2027 Digital Product Passport (DPP):** Project results highlight essential competencies in LCA, disassembly-oriented design and traceability.
- **Therefore, it is recommended to** develop specialised programmes for SMEs and training centres to support documentation of product composition, environmental footprint and required DPP metadata.

SWEDEN

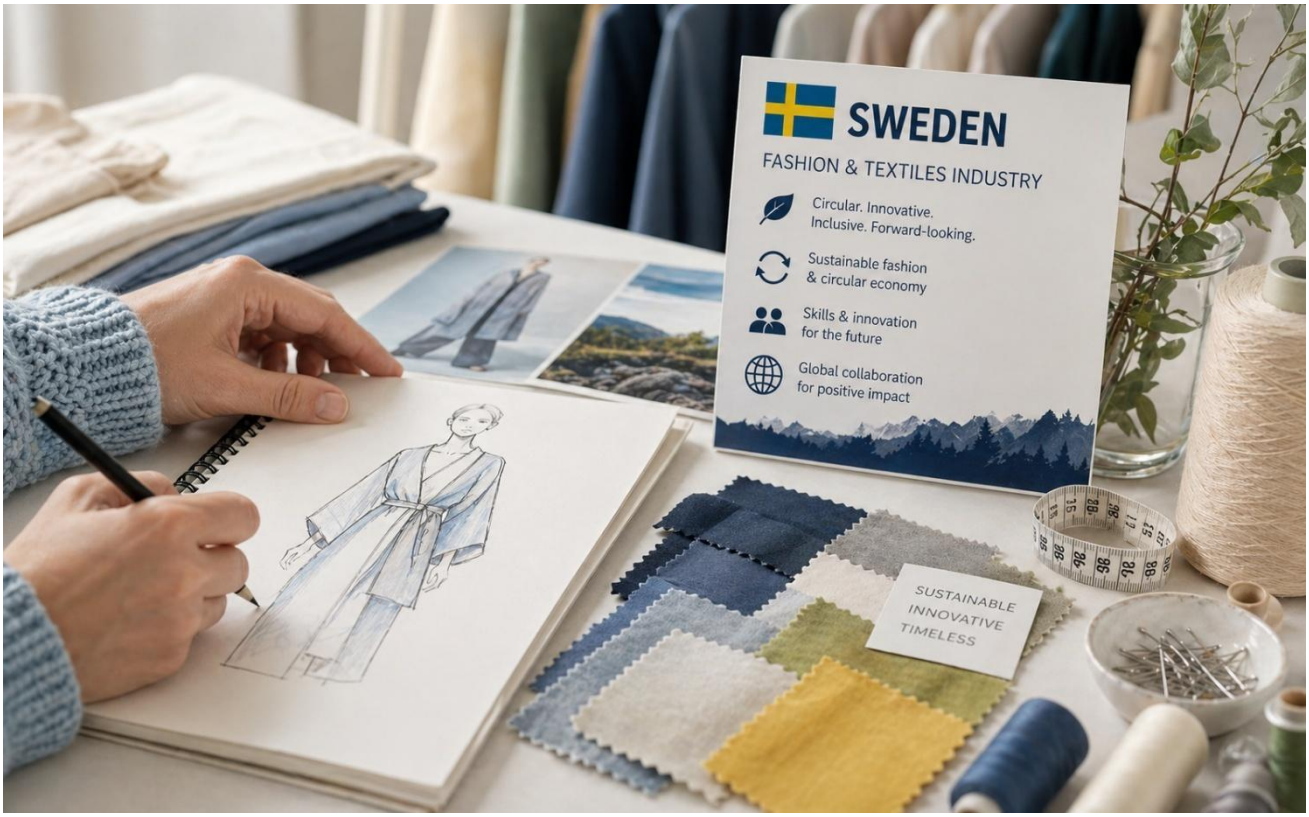

Figure 7 Sweden - AI generated image

SUMMARY OF INSIGHTS FROM PREVIOUS FEA-VEE REPORTS

Policy report on Labour Market Skills for the Fashion/Textiles Industries (D6.1)

The Swedish fashion and textile industry is currently experiencing **a profound structural transformation** driven by sustainability requirements, digitalization, and changing consumption behaviour. The main labour market skill gaps are observed within digital competence, green transition knowledge, design innovation, and entrepreneurial service-oriented thinking.

Regarding **digital skills**, there is an increasing need for workforce competence in artificial intelligence–supported design tools, virtual fitting technologies, and 3D sampling. Production and education environments are gradually shifting towards hybrid digital workflows, where technical understanding of digital garment development and online customer interaction is becoming essential. The COVID-19 pandemic accelerated this development by promoting remote learning models, digital communication, and technology-enhanced production systems across both industry and education.

Green and circular economy skills represent one of the most critical future labour market demands. The industry faces shortages in knowledge related to circular textile systems, life-cycle management, sustainable supply chains, and material quality assessment. The transition towards extended product life cycles is gaining importance, meaning that garments must be designed to circulate longer within consumption systems through reuse, repair, and recycling. Sustainability considerations are also increasingly influencing product development and business models.

Design and technical competence requirements are changing as well. Traditional fashion design is gradually being replaced by multifunctional design approaches that support on-demand production, repair-friendly garment construction, and recyclability. Additionally, the ability to evaluate second-hand garment quality and develop identity-oriented or digital fashion products is expected to become more relevant in future labour markets.

Entrepreneurial and service-based competences are emerging as key drivers of sectoral competitiveness. New business models are developing around clothing rental services, sharing platforms, repair and mending services, and second-hand trading systems.

Future occupational profiles in the textile sector are expected to integrate technical, environmental, and digital knowledge. New professional roles may include circular fashion production specialists, textile repair and life-cycle extension technicians, digital garment design experts, sustainable supply chain coordinators, and specialists in quality assessment of reused garments. These developments reflect the broader transition towards circular consumption and production models.

Vocational education and training systems require further modernization to meet these labour market demands. Strengthening fundamental textile knowledge, material science understanding, and production technology awareness is necessary. In addition, sustainability education should be systematically integrated into curricula, including circular economy principles and environmental impact assessment. Digital competence training should also be expanded, particularly regarding AI-based design, digital production tools, and hybrid working methods. A decline in enrolment in basic textile education has been observed in recent years, which has resulted in the closure of some lower-level textile training programmes. This trend highlights the need to increase the attractiveness of textile and technical vocational education among younger populations.

At the policy level, forthcoming European Union regulation on textile waste and circular design is expected to significantly influence industry development between 2025 and 2035. The regulation will require companies to assume greater responsibility for product life-cycle management, which will reshape manufacturing, design, and retail practices

Over the past three to four years, several structural changes have occurred in Sweden’s fashion and textile sector. There has been rapid growth in e-commerce and multi-channel retailing, accompanied by stronger consumer awareness of sustainability and transparency. Digital production methods, including artificial intelligence applications and 3D sampling technologies, have expanded particularly within production segments. Second-hand markets and repair service sectors have also experienced significant growth. Furthermore there has been a change in the legislation about collection used textiles which has made obvious that Sweden has a real challenge in creating the infrastructure for this process. This process will need the input of skilled professionals. Some companies are experimenting with micro-factory concepts for remake, repair, and small-scale experimental production. Knowledge development institutions such as Nordiska textilakademin emphasize the need for stronger circular textile competence and regulatory awareness within workforce education.

Overall, the Swedish labour market for fashion and textiles is moving towards a circular, digitally integrated, and service-based industrial model. Future workforce development will require combined

expertise in sustainability, textile technology, digital production, and entrepreneurial service innovation to support long-term industry transformation.

Policy report on Reforms Supporting Sustainability in Fashion/Textiles (T6.2)

Sweden's fashion and textile sector is undergoing a significant **sustainability transition**, shaped by national climate commitments, evolving regulatory frameworks, technological innovation and shifting market dynamics. The key national findings reveal both opportunities and challenges in advancing circularity, material innovation, sustainable production processes and regulatory alignment.

Sweden's long-term climate policy, established in 2017, targets net-zero greenhouse gas emissions by 2045, positioning sustainability at the core of national economic and industrial strategies. Although targeted stage goals for 2030 and 2040 are not yet fully on track, the overall trajectory towards lower emissions continues, with consumption-based emissions decreasing by about 20 percent since 2008. For the fashion and textile sector, which relies heavily on imported production, consumption-based emissions are especially relevant. High public awareness of climate issues and strong support for societal measures to reduce climate impact create favourable social conditions for sustainable reforms.

Findings on circularity and sustainable materials show that Swedish companies increasingly prioritise eco-friendly materials, recycling processes and circular business models. Adoption of recycled and bio-based fibres such as organic cotton, lyocell, and recycled polyester reflects a material innovation trend. Pioneering recycling technologies—such as the transformation of used cotton and cellulose-rich textiles into new fibres—illustrate the sector's potential to close material loops and reduce dependency on virgin resources. Circular manufacturing processes focus on recycling and reuse within production, supported by both enterprise initiatives and collaborative R&D efforts. Platforms and physical concepts promoting second-hand markets and slow fashion complement these material and production innovations by extending product life cycles and reducing waste.

Despite these positive developments, several regulatory barriers remain. The absence of separate textile waste collection systems nationwide has limited the practical implementation of circular strategies. Under current municipal waste frameworks, textiles are treated as general household waste, which delays systematic reuse and material recovery. Sweden has from the first of January 2025 complied with the EU Waste Directive requirement for separate textile collection, which represents both an opportunity and a vast operational challenge. The sector has experienced widespread problems in the collecting process. The amount of used textile streams were widely underestimated and it has been clear that the infrastructure for these processes are not yet in place. It currently lacks streamlined logistics, infrastructure and clear producer incentives to transform collected textiles into reusable materials at scale.

Meanwhile there are several large recycling projects that have been put on hold or going bankrupt during the past few years. Renew:cell and Siptex being the clearest examples.

An important **regulatory opportunity** lies in the proposed Extended Producer Responsibility (EPR) for textiles. This EU-driven reform, introduced in Sweden 2022, which is currently being investigated by Naturvårdsverket, will present a proposal on how the requirements should be formulated in the fall of 2026. It will require producers to take responsibility for the entire lifecycle of textile products, including end-of-life management. Harmonised across the EU, a robust EPR system can accelerate separate collection, sorting and recycling infrastructure, sending stronger economic signals for circular design and material innovation. Complementing EPR, the expanded Ecodesign Regulation—once formally approved by the European Parliament and Council—will set product requirements that favour durability, repairability, recyclability and transparency. Key elements of the regulation include prohibitions on destruction of unsold goods and prioritisation of sustainability criteria for textiles and other product categories. These regulatory reforms open substantial opportunities for systemic change by embedding sustainability into product design, supply chains and corporate accountability.

Identified barriers also include the complexity and fragmentation of certification systems. Although credible standards such as the Nordic Swan Ecolabel, Global Organic Textile Standard (GOTS) and Good Environmental Choice (Bra Miljöval) play valuable roles in validating sustainable practices, their multiplicity can confuse consumers and dilute trust. Standardisation and clearer guidance on certification quality would strengthen policy incentives for both producers and purchasers.

Policy incentives and standards needed to further advance sustainability include tax incentives, funding for R&D, and consumer education programmes. Reduced VAT on repair services has already been implemented to encourage prolongation of product lifecycles. Research and development tax credits supporting sustainable innovation help companies invest in new materials and processes. Strengthening public-private partnerships, expanding training in circular design, and increasing awareness of sustainability tools—such as the Swedish Wool Standard, which classifies and promotes high-quality domestic wool—would further embed circular practices across the sector.

Over the last three to four years, the sector has experienced marked changes in trends and conditions. Consumer behaviour has shifted towards more sustainable purchasing, with second-hand fashion markets growing substantially and online circular platforms expanding visibility and accessibility. Service-oriented consumption models, such as clothing rental and repair services, have gained traction as alternatives to traditional ownership, even though we have seen several initiatives not being able to survive.

Policy momentum has increased as well. The formal introduction of textile EPR, separate textile waste collection, and the ongoing negotiation of broader Ecodesign requirements signal greater regulatory direction toward sustainability. Collaborative initiatives, such as the Remore project to promote circular offers in municipal contexts, and national investment programmes like Klimatklivet, which subsidises low-emission technologies, demonstrate expanding support for sustainable production and consumption. Additionally, multi-stakeholder efforts such as the Swedish Wool Initiative and Textile & Fashion 2030 reinforce material innovation and platform development, bridging gaps between producers, designers, researchers and consumers.

In conclusion, Sweden's reforms supporting sustainability in fashion and textiles reveal a landscape in transition: increased policy alignment, evolving material and production innovations, and growing market demand for circular solutions. These developments are fostering the conditions necessary for

systemic change, even as barriers related to infrastructure, regulatory coherence and financing remain to be addressed. Continued policy refinement, stronger incentives, and a unified approach to standards are essential to sustain progress and unlock the full potential of sustainable and circular textile industries.

Policy report on Reforms Supporting Green Entrepreneurship (T6.3)

Sweden has developed a **dynamic and evolving environment to support green entrepreneurship**, particularly within the fashion and textile industries. The country's ambitious climate objectives and strong sustainability culture continue to provide the foundation for a policy ecosystem designed to stimulate new green business models. However, recent assessments indicate that current policy instruments are insufficient to meet the national climate targets. Total greenhouse gas emissions in 2045 are projected to be approximately 70 percent lower than in 1990 under the existing policy scenario. This implies that the 2045 net-zero target will not be achieved with current measures alone, leaving a gap of around 21 million tonnes of CO_2 equivalent. Even with the full implementation of supplementary measures, a remaining gap of approximately 10 million tonnes is expected.

These findings highlight that, despite a comparatively advanced policy environment and strong institutional support for green entrepreneurship, Sweden must strengthen and accelerate its climate actions to close the remaining gap. For the fashion and textile sector, this underscores the importance of scaling circular business models, reinforcing regulatory instruments, and increasing investment in sustainable production and consumption systems.

Within this broader policy ecosystem, specific legislative developments, public-private partnerships, and collaborative platforms create conditions conducive to green entrepreneurship. Although Sweden lacks a single, legally binding definition of a "green enterprise," businesses that meet recognised sustainability standards such as ISO 14001 or obtain widely accepted ecolabels, including the Nordic Swan Ecolabel or the Global Organic Textile Standard (GOTS), are de facto recognised as sustainable actors. Circular economy policies, led by agencies such as the Swedish Environmental Protection Agency (Naturvårdsverket), promote separate textile waste collection, reuse and recycling. Sweden's Extended Producer Responsibility (EPR) system for textiles, introduced in 2022, stands as a key regulatory reform that obliges producers to be responsible for the environmental impacts of their products throughout the lifecycle. The system stimulates the development of circular business models by requiring companies to invest in recycling, sorting, and material recovery infrastructures rather than relying solely on traditional linear production.

Financing instruments and incentives play a central role in enabling green entrepreneurship. At the European level, programmes such as Horizon Europe and the European Regional Development Fund (ERDF) offer Swedish entrepreneurs access to research and innovation grants that prioritise sustainability, green technologies, and circular economy solutions. These EU mechanisms complement national investment support schemes. Klimatklivet, for example, is a Swedish government grant system providing funding for local emission-reducing projects and supporting the uptake of low-emission technologies across industries including textiles. Financial institutions also contribute by offering green loans, credit guarantees and sustainable finance products. Bank loans with preferential conditions for environmentally beneficial projects are available from institutions such as Danske Bank and Swedbank, while the Swedish Export Credit Agency (EKN) offers a Green

Credit Guarantee to facilitate lending for activities aligned with the EU Taxonomy for sustainable economic activities. Almi Företagspartner provides tailored financing, advisory services, and co-financing arrangements designed to mitigate investment risks for startups and small businesses focused on sustainability and innovation. Additionally, Sweden's historical role in pioneering green bonds — exemplified by the City of Gothenburg's issuance of the world's first municipal green bonds — highlights the country's longstanding commitment to mainstreaming environmental finance.

Incubation support and entrepreneurial networks further strengthen the ecosystem for green startups. Incubators and accelerators with sustainability mandates, such as BoråsINK and impact-oriented coworking spaces like Impact Hub Stockholm, provide mentoring, market access, business development support and connections to investors. Foundations such as the Norrsken Foundation offer accelerator programmes and venture capital funds targeting solutions to global challenges including climate change and environmental degradation. Sectoral initiatives — including Textile & Fashion 2030, the Sustainable Fashion Academy, and platforms facilitated by TEKO and the Swedish School of Textiles — deliver training, knowledge exchange and opportunities for collaboration that help fashion and textile startups adopt circular models, access know-how and scale operations. These networks reduce information asymmetries, enable partnerships across value chains, and channel technical expertise into entrepreneurial activity.

Sustainable startups in the fashion and textile industries often succeed when they integrate several critical factors. Regulatory alignment is one such factor: entrepreneurs who design their models to anticipate or complement regulatory requirements, such as EPR and ecodesign mandates, are better positioned to scale and attract investment. Market responsiveness is also vital; Swedish consumers show strong interest in sustainability, driving demand for products and services that reduce environmental impact. Startups that address consumer preferences for longer product lifespans, transparency in supply chains, or service-oriented models such as second-hand trading, rental services, repair platforms or digital solutions tend to achieve stronger market traction. The adoption of digital tools, including e-commerce platforms, blockchain for traceability, and digital product passports, further enhances competitiveness, enabling startups to combine sustainability with operational efficiency and innovation.

On the policy front, both Swedish national reforms and EU level developments have influenced the entrepreneurial landscape. The formal introduction of textile EPR expands producer obligations and indirectly stimulates investment in recycling technologies, material innovation and circular service models. Sweden's implementation of separate textile waste collection by 2025, in compliance with EU waste directives, is another transformative step that opens new commercial opportunities in sorting, reuse and material recovery services. At the EU level, the Ecodesign Regulation, broadening its scope to include durability, repairability and product-level sustainability criteria, represents a forward-looking regulatory trend with implications for textile and fashion products sold within the Union. Although some regulatory instruments are still pending formal adoption, their anticipated implementation signals clear directionality for sustainable business development.

Over the past three to four years, significant changes have further shaped the support environment for green entrepreneurship. Circular economy business models have gained momentum and broadened in scope. The second-hand market, rental models and service-oriented consumption patterns have expanded as Swedish consumers become increasingly conscious of environmental impacts and cost-effective alternatives to fast fashion. Financial support structures have become

more targeted, with climate investment instruments and regional initiatives such as the Remore project in Borås improving access to funding for small and medium-sized enterprises experimenting with circular solutions.

Furthermore, as a presumed consequence of the economic situation and current politics, we have also observed closures and bankruptcies among circular economy initiatives, such as the textile recycling company Renewcell and the investment in the automated textile sorting technology Siptex, run by the municipal company Sysav.

Policy clarity has improved as well, with Sweden aligning national measures with emerging EU frameworks, thereby providing firmer strategic signals for entrepreneurs and investors. Collaborative innovation networks have expanded, facilitating cross-sector partnerships between established brands, research institutions, municipal programmes and startups. Initiatives such as the Swedish Wool Standard, a collaborative value chain effort to classify and promote domestic wool, illustrate how stakeholder coordination can drive material innovation and open new market segments for green ventures. Digitalisation has also accelerated, enabling startups to embed sustainability into their business models from inception and leverage technological platforms for traceability, transparency and customer engagement. Collectively, these trends indicate a maturing green entrepreneurship ecosystem in Sweden, where policy reforms, financial incentives, market dynamics and collaborative networks converge to support sustainable innovation in the fashion and textile industries.

2.1. Report “Sectoral, educational and entrepreneurial current situations and needs assessment of target groups in the partner countries”

The Swedish fashion and textile sector is undergoing a transition toward sustainability, digitalisation and circular economy business models. Climate policy targets, strong consumer awareness of sustainability, and EU regulatory developments are the main drivers shaping the industry. Sweden’s goal of achieving net-zero greenhouse gas emissions by 2045 creates long-term pressure and incentives for businesses to adopt green practices. Because much of Sweden’s clothing is produced abroad, consumption-based emissions remain highly relevant.

A key finding is the shortage of practical competence in circular textile knowledge, material quality assessment, and sustainability legislation. Retail workers often lack technical textile understanding, while wholesale and supply chain actors need stronger regulatory and environmental competence. Vocational education enrolment in basic textile programmes has declined, highlighting the importance of institutions such as Nordiska textilakademin, which supports competence development in sustainable design, production and quality management.

Digital transformation is accelerating. Companies are increasingly adopting AI-supported design, virtual sampling, 3D modelling, and blockchain-based traceability solutions to improve transparency and sustainability performance. Startups and export-oriented firms are leading implementation, while large companies are gradually integrating these technologies.

Green entrepreneurship is supported by a relatively strong policy and financing ecosystem, including Klimatklivet grants, EU innovation programmes, and sustainability-oriented financial products such

as green loans and credit guarantees. Regulatory reforms are a major change factor. Extended Producer Responsibility for textiles and upcoming EU ecodesign requirements are pushing producers to take life-cycle responsibility for products, including recycling and waste management.

Consumer behaviour strongly supports sustainability, although price remains an important purchasing factor. The second-hand market has grown significantly, and service-based business models such as repair and rental services are expanding. An example of sustainability-driven business practice is Nudie Jeans, which promotes garment longevity through repair services.

Overall, the sector is moving toward circular production, digitalised value chains, and service-oriented consumption. Main challenges include access to financing for startups, fragmentation of certification systems, and the need to strengthen technical textile education. The next decade is expected to further accelerate green entrepreneurship, sustainability innovation, and regulatory-driven transformation.

FEA-VEE INITIATIVE OUTCOMES AND IMPACT

Sensus has successfully implemented the planned activities within the FEA VEE project period. The project has combined practical experience, educational activities, and international exchange in order to strengthen knowledge, skills, and engagement in sustainable fashion. The implementation has been characterised by hands-on learning, strong participant involvement, and a clear connection between local initiatives and international mobility.

A central and highly concrete achievement has been the **completion of two internships at the company of Jennie Dahlen AB**. These internships provided participants with practical experience in sustainable fashion production and circular design processes. Participants gained first-hand insight into sustainable material choices, small-scale and ethical production methods, circular design principles, and business models within sustainable fashion. They were actively involved in daily operations, contributing to ongoing work and developing an understanding of both the creative and organisational dimensions of sustainable entrepreneurship. The internships strengthened professional competencies and created a clear bridge between theoretical knowledge and real-world application, thereby supporting vocational excellence in the field.

In addition, **Sensus organised a series of workshops on sustainable fashion targeting both fashion students and public groups.** The workshops addressed the environmental impact of the fashion industry, circular and regenerative approaches, sustainable consumption patterns, and practical methods for redesign and reuse. By combining theoretical input with practical exercises, the workshops enabled participants to critically engage with current industry challenges and reflect on both personal consumption habits and systemic issues. The workshops also functioned as platforms for disseminating project results and preparing participants for international mobility, including the study visits to Barcelona and Pforzheim.

International exchange has been another key achievement. In total, 20 participants took part in study visits to Barcelona and Pforzheim, where they met organisations, designers, and initiatives working with sustainability, circular economy models, and alternative production systems. These

visits provided concrete examples of how sustainability can be integrated throughout the value chain and strengthened participants' understanding of international perspectives, policy and market conditions, collaborative models, and innovative educational approaches. The mobility activities also enhanced intercultural competencies and supported the development of international networks.

An important feature of the project has been **active participant involvement and co-creation**. Students contributed not only as learners but also to workshop preparation, dissemination activities, documentation of study visits, and the sharing of experiences within their local networks. This approach strengthened ownership, peer learning, and leadership skills, while ensuring broader dissemination of knowledge within educational contexts and to the public.

Overall, the combination of internships, workshops, international study visits, and participant-driven dissemination has created a coherent learning pathway where theory, practice, and international exchange reinforce one another. The project has strengthened vocational competences, increased awareness of sustainable fashion practices, fostered international collaboration, and established partnerships that provide a foundation for continued development and future initiatives in sustainable fashion.

During the project period there has been a **significant policy change regarding the collection of used garments.** Managing the large volumes of accumulated textile waste has posed a significant challenge for responsible municipalities, contracted companies, and in some cases social NGOs. The knowledge generated and disseminated through the FEA VEE project to its participants and stakeholders has the potential to enhance understanding of textile reuse and recycling processes, thereby contributing to more informed and effective handling of textile waste.

The participants were motivated by several interconnected factors during **the national internships program**. A strong driving force was the opportunity to broaden their professional and international networks. The possibility to travel to another country, meet new people, and engage in practical learning experiences was highly attractive — particularly in a sector that is both creative and globally interconnected.

The study visits were not limited to passive observation. They included practical site visits, dialogue-based sessions, and collaborative formats such as workshops and hackathon-inspired problem-solving activities. These elements created dynamic learning environments where participants could actively engage with real-life challenges together with peers and professionals from other contexts.

Another key motivation was the opportunity to **become part of a European network** within sustainable fashion and textiles. Participants expressed a desire to better understand how sustainability is approached in different countries and how circular models are implemented across contexts. Being connected to a broader European ecosystem made the transition towards sustainable fashion feel more tangible and collective rather than isolated or local.

Deepening knowledge was also an important motivational factor. Many participants were already interested in sustainability but wanted more concrete tools, real-world examples, and international perspectives. The combination of internships and study visits offered both practical experience and strategic insights into how sustainability can be integrated into business models, branding, and production systems.

The internships and study visit programmes contributed significantly to the personal and professional development of participants.

One important outcome was the creation of strong interpersonal bonds. Spending several days together abroad — sharing accommodation, meals, reflections, and daily experiences — fostered trust and openness within the group. For some participants, it was a new and formative experience to share both professional and personal space in this way. This strengthened their communication skills, adaptability, and intercultural understanding.

Professionally, participants expanded their European networks and gained confidence in engaging in international dialogue. Meeting designers, entrepreneurs, educators, and sustainability experts in Barcelona and Leipzig broadened their perspectives on what is possible within the field of sustainable fashion. They developed a better understanding of different market conditions, policy environments, and business cultures.

The programmes also enhanced participants' **collaborative problem-solving skills**. Through group discussions and hands-on activities, they learned to approach sustainability challenges from multiple perspectives and to co-create ideas with others. This strengthened both their critical thinking and their ability to work in diverse teams.

Overall, the most significant growth was the expansion of their European professional networks and the realisation that they are part of a larger movement working towards a more sustainable textile and fashion industry. This sense of belonging and shared purpose contributed to increased motivation and long-term engagement.

One of the most tangible developments following the study visits and internships has been the continued strengthening of the participants' networks. The connections established during the mobility activities have remained active beyond the project period.

Participants continue to stay in contact, sharing job opportunities, internship possibilities, project ideas, and knowledge. This peer-to-peer support has created an informal but valuable professional network across countries. In several cases, contacts established during the visits have led to further collaboration and professional opportunities.

The internships also contributed to a clearer understanding of how sustainable practices can be implemented in daily work. Participants have reported applying lessons learned — particularly regarding circular design, branding strategies, and communication around sustainability — in their own projects or workplaces.

In this way, the study visits and internships did not end as isolated learning events. Instead, they functioned as catalysts for long-term professional relationships, continued collaboration, and ongoing knowledge exchange within the European sustainable fashion ecosystem.

NATIONAL ROADMAP FOR FUTURE UPTAKE OF FEA-VEE INITIATIVES

National implementation of FEA-VEE: key notes

Sensus has actively involved stakeholders throughout the implementation of the FEA VEE project, primarily **through collaboration with Jennie Dahlen**, who has served as a guest lecturer in textile education at Handarbetets Vänner. Through her dual role as both practitioner and educator, she has created a strong and practical link between the project, the vocational education and training (VET) sector, and the sustainable fashion industry. This connection has provided access to key stakeholders, as well as teachers and students who have taken part in the project activities and benefited from its results.

The collaboration has enabled Sensus to establish and strengthen relationships with educators, students, and professionals within textile and fashion education. Through these networks, the project's activities and outcomes have been disseminated in structured educational settings, allowing teachers to integrate project-based knowledge, practical examples, and sustainability perspectives into their curricula. In this way, the project has contributed to the development of more sustainability-oriented vocational education and reinforced the relevance of sustainability within textile training.

The project has supported VET excellence by connecting education with real-life industry practices, strengthening the practical and entrepreneurial competencies of students, and encouraging critical reflection on production and consumption systems within the fashion sector. Students who engaged in the project gained exposure to current sustainable fashion practices, circular design principles, and alternative business models. This has enhanced their employability and strengthened their capacity to contribute to the green transition in the textile and fashion industries.

In addition, **several participants in the study visits have been employees of stakeholder organisations and private companies, including major actors such as H&M,** which has significant influence on global sustainable fashion development. Their involvement has increased the project's innovation potential and systemic relevance by contributing valuable industry perspectives on supply chains, large-scale production, corporate sustainability strategies, and the practical challenges of implementing circular models within global companies. At the same time, their participation in workshops and study visits has enabled knowledge transfer back into their respective organisations, creating a two-way exchange between education, grassroots initiatives, and established industry actors.

By fostering dialogue and collaboration across educational institutions and private sector stakeholders, the project has functioned as a platform for cross-sector learning and mutual inspiration. Overall, stakeholder engagement within the FEA VEE project has reinforced its core objectives of promoting vocational excellence, supporting innovation in sustainable fashion practices, and contributing to the broader green transition within the textile and fashion ecosystem.

Furthermore, FEA VEE provides a solid foundation for future initiatives. It can serve as a baseline for a follow-up project with a stronger focus on circular fashion business models and sustainable brand-building strategies. Such a continuation could further explore how to develop and communicate sustainable brand identities, effectively convey circular values, and influence consumer awareness

and decision-making. In this way, the outcomes of FEA VEE extend beyond the current project period and create opportunities for continued innovation, collaboration, and sector development within sustainable fashion.

Future pathways for development and building on FEA-VEE results

The materials developed within the FEA VEE project are primarily intended to serve as complementary educational resources within vocational and higher education in the textile and fashion field. We see particular relevance for folk high schools and textile universities, where the materials can enrich existing courses and strengthen the integration of sustainability perspectives into textile and fashion education.

Rather than replacing existing curricula, the materials are designed to function as a practical and inspirational complement. They provide concrete case studies, examples from internships, insights from international study visits, and reflections on circular design and sustainable business models. This makes them particularly suitable for courses focusing on sustainable fashion, textile production, entrepreneurship, and circular economy practices.

For students, the materials offer real-life examples that connect theory to practice. They present current challenges and innovative approaches within the fashion industry, helping learners develop both technical skills and a deeper understanding of sustainability in a global context. By incorporating experiences from both small-scale designers and larger industry actors, the materials support critical thinking and broaden students' perspectives on possible career pathways within the green transition of the sector.

In addition to formal education contexts, parts of the material can also be used within Sensus' study circle activities. Adapted sections can serve as study circle material for participants interested in sustainable fashion, circular consumption, and textile reuse. In this way, the project results can reach a wider audience beyond vocational education, contributing to public awareness and community-based learning.

Through this dual use – as a complement within formal education and as study material within civil society learning contexts – the developed materials have the potential to support both vocational excellence and broader engagement in sustainable fashion practices.

During our multiplier events, the discussions focused not only on circular fashion practices but also on branding and marketing within the context of sustainability. A central theme was how companies and designers can position themselves in a fast fashion industry while maintaining credibility and integrity in their sustainability work.

Participants explored questions such as: How do you build a brand around circular values? How do you communicate sustainability without falling into greenwashing? How can small actors differentiate themselves in a market dominated by fast fashion?

The discussions highlighted the importance of tone of voice, transparency, and value-driven communication. Setting the right tone towards consumers was identified as a key challenge. Participants reflected on how consumer behavior is shaped by trends, price sensitivity, and marketing strategies, and how sustainable brands must balance inspiration with education. Understanding how

consumers think — and what motivates long-term behavioral change — was seen as essential for strengthening the impact of circular business models.

Although the FEA VEE project has not directly **developed new policy documents**, it has contributed to the implementation and operationalisation of both European and Swedish sustainability policies within vocational education and the textile sector.

At European level, the project aligns with key frameworks such as the European Green Deal, the Circular Economy Action Plan, and the EU Strategy for Sustainable and Circular Textiles. These policy initiatives emphasise the transition towards circular production systems, sustainable value chains, and increased responsibility within the textile industry. Through its internships, workshops, study visits, and multiplier events, FEA VEE has translated these policy ambitions into practical learning experiences and professional development activities.

At national level, the project supports Sweden's environmental and climate policy objectives, including the Generational Goal (Generationsmålet) and the national environmental quality objectives related to reduced climate impact and sustainable consumption. The project is also aligned with Swedish policy discussions on sustainable textile management, extended producer responsibility (EPR) for textiles, and the promotion of circular business models.

Through dialogue-based workshops and multiplier events, participants have engaged in discussions about regulatory frameworks, transparency requirements, corporate responsibility, and the risks of greenwashing. These conversations have increased awareness of both EU-level regulation and Swedish sustainability ambitions, strengthening participants' capacity to act in accordance with emerging legislation and policy directions.

By involving vocational education providers and integrating sustainability and circular economy principles into educational contexts, the project has also contributed to the policy ambition of strengthening green competences within VET systems. This aligns with both EU recommendations on vocational excellence and Swedish educational priorities focused on sustainable development as an integrated perspective in all education.

Furthermore, the **involvement of industry representatives** — including employees from larger companies with significant market impact — has created opportunities for knowledge transfer between policy ambitions and industry practice. Exposure to international best practices during the study visits has provided inspiration for organisational development and internal sustainability strategies that reflect both national and European policy goals.

In this way, FEA VEE has contributed to policy development not by drafting new legislation, but by strengthening implementation capacity, raising awareness, and supporting behavioural and structural change within education and industry. The project has functioned as a bridge between policy frameworks and everyday practice in the sustainable fashion ecosystem.

KEY FINDINGS AND RECOMMENDATIONS

Sweden's fashion and textile sector is undergoing a significant structural transition driven by sustainability regulation, digitalisation, and shifting consumer behaviour. The most pressing skill gaps lie in circular textile knowledge, digital production competences, and life-cycle management. Vocational enrolment in basic textile programmes has declined, and the infrastructure required to manage separate textile waste collection — mandatory since January 2025 — is not yet fully in place. High-profile setbacks, including the insolvency of Renewcell and the suspension of the Siptex sorting facility, underscore the difficulty of scaling circular solutions under current economic and policy conditions.

At the same time, positive developments are evident. Consumer demand for second-hand, repair, and rental services is growing. Digital tools — including AI-assisted design, 3D sampling, and blockchain-based traceability — are being adopted by export-oriented firms and startups. The forthcoming Extended Producer Responsibility framework and the EU Ecodesign Regulation provide a clear long-term direction, even as their implementation details remain under negotiation.

The FEA-VEE project demonstrated how targeted mobility and hands-on learning can effectively bridge this gap. Through internships, workshops, and study visits to Barcelona and Pforzheim, participants developed practical circular design competences and built lasting European professional networks. The involvement of industry actors including H&M strengthened knowledge transfer between education and large-scale corporate sustainability practice, and the project's materials provide a ready foundation for integration into vocational curricula going forward.

III. CONCLUSION

The FEA-VEE project was launched at a moment of genuine urgency for the fashion and textile sector across Europe. Four years later, the picture that emerges from six national reports is consistent: the challenges were real, the gaps were structural, and the project's response — combining policy research, skills development, international mobility, network formation, and multiplier events — proved both timely and effective.

Across all partner countries, the research confirmed a shared set of conditions. The skills produced by VET and higher education systems do not match what industry needs. The transition toward sustainable and circular production is proceeding unevenly and is driven more by regulatory pressure and buyer demands than by proactive domestic policy. Green entrepreneurship lacks the dedicated infrastructure — incubation, funding, mentorship, and qualification frameworks — that would allow it to scale. And in most countries, no integrated, cross-sectoral initiative of this kind had previously existed.

What the project added was not only knowledge, but confidence. In Bulgaria and Romania, it challenged the assumption that sustainable, higher-value production is inaccessible to sectors built on low-cost CMT. In Germany and Spain, it demonstrated how education and industry can collaborate practically and effectively around sustainability and digitalisation. In Greece, it provided tools and frameworks that VET institutions and SMEs were actively seeking. In Sweden, it connected individual practitioners to a European community of purpose at a time when the national circular economy infrastructure is still catching up with regulatory obligations.

The study visits to Spain and Germany, the national internship programmes, the multiplier events, and the learning materials produced under the project are not abstract outputs. They changed professional trajectories, sparked new institutional partnerships, generated materials now in active use, and created networks that are self-sustaining beyond the project's formal close.

Several conclusions can be drawn with confidence. **The sector is at a turning point, and the direction of travel is clear: sustainability, digitalisation, and circular production are becoming baseline requirements, not competitive differentiators.** The regulatory instruments driving this shift — the revised Waste Framework Directive, the Ecodesign for Sustainable Products Regulation, Extended Producer Responsibility schemes, and the Digital Product Passport — will create binding obligations that neither companies nor education systems can defer indefinitely. The question is not whether to adapt, but how quickly and with what support.

The FEA-VEE model — combining evidence-based policy analysis with direct engagement of students, professionals, educators, and businesses — is a proven approach to answering that question. It is replicable, scalable, and directly aligned with the policy directions that EU member states are being asked to implement. The partnerships, materials, and networks it created are the foundation for the next phase of work.

The report closes with a clear message to policymakers, VET providers, and institutional stakeholders: the groundwork has been laid. What is needed now is the will to build on it — through dedicated national strategies for the sector, updated qualification frameworks, sustained investment in green

skills and entrepreneurship infrastructure, and continued cross-border collaboration. The FEA-VEE initiative demonstrated what is possible when these elements come together. The task ahead is to make that the norm rather than the exception.

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