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COVE REMODE

Unlocking Circular Fashion Design Excellence

RE MODE
UNLOCKING CIRCULAR FASHION DESIGN EXCELLENCE

OCCUPATIONAL TAXONOMY REPORT ON PROFESSIONAL PROFILES

Co-funded by the European Union

REMODE

Unlocking Circular Fashion Design Excellence

ERASMUS-EDU-2024-PEX-COVE

Grant Agreement number: 101194072

D2.2 – Occupational Taxonomy Report on Professional Profiles

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Revision note — version 2.0 (21 November 2026)

Version 1.0 of this deliverable (29 August 2025, Month 7) presented the methodological integration for the development of the occupational taxonomy: the holistic multi-level perspective, the three-step method (SWOT validation and transnational focus group, desk research and sectoral observatories, design of the three questionnaires) and the alignment with the European frameworks ESCO, DigComp and GreenComp. The survey results and the resulting update of the taxonomy were produced afterwards, once the consortium-wide data collection had closed, and were circulated within the consortium in April 2026 as an internal report ("Integration for the development of the occupational taxonomy", referred to as D2.7), which was never uploaded to the Funding & Tenders Portal.

Version 2.0 brings the two documents together as one deliverable, under the title and number of the Grant Agreement, so that the public record of Task 2.2 contains the complete work: Part A (Sections 1–2) reproduces the methodology of version 1.0; Part B (Sections 3–9) contains the literature review, the materials and methods of the taxonomy update, the cross-country survey results, the integrated taxonomy in four job families described through five domains, the discussion, the limitations and the conclusions. In Part B the survey tables and the related text have been recomputed on the final consolidated dataset of 107 SMEs (survey closed on 29 January 2026) instead of the 104-response extract of April 2026, with harmonised answer labels, percentages of respondents and a column for each partner country, which reconciles this report with D2.3 version 2.0. The two reference lists have been merged into one, duplicate entries removed and incomplete or unverifiable entries corrected or dropped. The deliverable is issued on the project's public template with the EU emblem, funding statement and disclaimer.

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PART A — Methodological integration for the development of the occupational taxonomy

Section 1: Introduction

1.1 Rationale for Deliverable D2.2

Deliverable 2.2 shapes an occupational taxonomy that groups together the different professional profiles of the textile and clothing sector, with the aim of classifying the wide range of jobs present in the market, organising the roles more effectively and providing a structured understanding of the various available career paths.

Part A of this report presents the methodological integration for the development of the taxonomy and, in particular, the holistic perspective adopted by the ReMODE project: a lens capable of holding together three complementary levels – the micro level of people and competences, the meso level of organisations and clusters, and the macro level of policies and regulatory frameworks. Part B presents the survey evidence collected with the instruments described here and the resulting integrated taxonomy.

The occupational taxonomy represents a fundamental step in the ReMODE project as it acts as an operational tool for the development of study programmes and pedagogical teaching materials, placing itself in natural continuity with Deliverable 2.1.

If D2.1, through the SWOT analysis, provided an overview of the challenges, strengths and opportunities of the sector in the different partner countries, Deliverable 2.2 translates these inputs into a structured classification of professional profiles. This step was built starting from a series of methodological tools: in particular, through the multi-stakeholder questionnaire that made it possible to collect comparable data from enterprises, educators and graduates.

The taxonomy, constructed in this way, makes it possible to organise the multiple professional roles systematically, describing competences,knowledge, educational and experiential requirements, as well as career opportunities, relative to each profile.

This work provides the basis for the design of curricula and the development of targeted teaching materials, ensuring that the training paths are in line with the needs of the sector and with the mission of ReMODE: to support the circular, digital and green transition of the European textile-fashion sector.

Section 2: Research methodology

2.1 Holistic, Multi-level Perspective on the Occupational Taxonomy

The occupational taxonomy was developed by adopting a holistic and multi-level perspective, already introduced in D2.1, which made it possible to read the three levels (micro, meso and macro) not as separate elements, but as interdependent and co-evolutionary spaces, where policies, organisations and individuals influence each other. In addition, it made it possible to systematically connect regulation, training and labour market dynamics with the practical competences required by the circular, digital, and green (CDG) paradigm for the textile/fashion industry.

Micro-level

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In the methodological framework adopted for D2.2, the micro level is defined as the space of individual competences. It includes companies/employers, young graduates and VET-HEI educators/managers, observed with respect to their ability to acquire and update circular, digital and green (CDG) competences. The inclusion of these three targets in the design of the questionnaires aimed to capture the twin transition (digital and green)from the perspective of the demand for competences (Firms/HR/Organisations), the emerging supply (graduates) and the production/update of training (Managers and Educators). This approach made it possible, from the beginning, to set up a multi-level analysis centred on individual actors and their specific competences.

Meso-level

In D2.2, the meso level is understood as the space of organisations and networks that connect individuals and policies. It includes SMEs, clusters, value chain participants, sectoral networks, local training ecosystems and Centres of Vocational Excellence (CoVEs). In this perspective, the meso level makes it possible to observe how organisations cooperate, share resources and coordinate to translate needs and regulations into concrete practices. It is the level that, through sectoral observatories, industrial associations and dialogue platforms (such as Confindustria Moda, Federmoda, Venice Sustainable Fashion Forum), provided fundamental input for the design of the questionnaires and the development of the occupational taxonomy, making it possible to read the emerging needs of the twin transition in a systemic way.

Macro-level

The macro level as outlined in D2.2 concerns the regulatory frameworks, institutional logics, political conditions, social needs and cultural norms that frame the sustainable transition of the textile and fashion sector. This level brings together European and national policies (such as the Green Deal, sustainability and digitalisation strategies, and European competence frameworks such as ESCO, DigComp and GreenComp), regulatory systems, dynamics of social inclusion and cultural references that guide the demand for new competences. By integrating these elements with the micro and meso levels, the macro level allows the occupational taxonomy to be understood not only as a technical classification, but also as a tool consistent with regulatory processes and with ongoing social and cultural transformations.

Thanks to the coexistence of these three levels, the taxonomy is able to capture not just separate domains, but their continual interaction: individual competences, organisational dynamics and institutional frameworks evolve together in shaping the CDG transition.

2.2 Methodology and tools for the development of the occupational taxonomy

The methodology was structured in three main phases and adopted different analytical tools. First, it made use of instruments already consolidated and employed in D2.1, such as the SWOT analysis, which was validated through a transnational multi-stakeholder focus group. Then, the evidence collected was further examined through desk research and integrated with contributions from sectoral observatories and institutional sources such as AlmaLaurea, Confindustria Moda, Federmoda and the Venice Sustainable Fashion Forum. Finally, on the basis of these results, a questionnaire aimed at companies/HR, graduates and trainers was

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designed. This tool proved particularly useful to translate competence needs into measurable and comparable items, allowing the practical validation of emerging profiles and the construction of an operational framework applicable both in education and in the workplace.

The main objective of the taxonomy was to systematically organise existing and emerging professional profiles, providing an empirical basis for the definition of training pathways, micro-credentials and upskilling/reskilling policies

2.2.1 First step – SWOT validation and transnational focus group

The multi-stakeholder focus group of D2.1 made it possible to validate the SWOT analysis and to classify the most pressing skill gaps. Through structured discussion and electronic voting, five priority gaps were identified:

- 1. zero-waste design and modular pattern-making;
- 2. interoperable data management for the Digital Product Passport (DPP);
- 3. recovery and high-precision fibre sorting;
- 4. conversion of Life Cycle Assessment (LCA) data into verifiable statements;
- 5. cluster facilitation and collaborative governance.

2.2.2 Second step – Desk research and sectoral observatories

The desk research integrated the evidence from the focus group with academic contributions and sectoral sources. The analysis was completed and enriched with sources from the following institutional observatories:

AlmaLaurea, for data on graduates and employment opportunities;

Confindustria Moda and Federmoda, for production dynamics and occupational challenges;

Venice Sustainable Fashion Forum, for scenarios on sustainability and competitiveness.

2.2.3 Third step – Development of the questionnaires

On the basis of the evidence collected, three questionnaires were designed: one for firms/HR/organisations, one for graduates, and one for managers/educators. All three questionnaires shared the following criteria:

- modular structure (introduction, profiling, current situation, needs, future perspectives);
- combination of closed and open questions, integrated with rating scales and priorities;
- multi-level comparability between partner countries and different targets;
- balance between current situation and future perspectives;
- clear language and limited completion time.

2.3 Insights on the application of the tools adopted

2.3.1 Use of the focus group

The focus group reported in Section 6 of D2.1, and in particular in paragraph 6.2 CDG Top-ranked CDG skill gaps – what the poll really told us, was used as an initial summary. The SWOT analysis was not employed directly, but provided content for the focus group discussion. In this context, the most urgent skills gaps for the textile and clothing industry emerged, leading to the identification of five main areas of CDG skills.

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Highlighted gaps:

- 1. Zero-waste design and modular pattern-making: identified as a priority, it showed the lack of practical training on software and methods that allow waste reduction already at the design stage.
- 2. Data management for the Digital Product Passport (DPP) and blockchain: the shortage does not concern only technology, but the ability to integrate material attributes and production processes into interoperable data.
- 3. Environmental impact assessment (Life Cycle Assessment and reporting): the difficulty emerged in transforming environmental data into certified and communicable statements, highlighting the need for specialised profiles.
- 4. Advanced fibre sorting and recycling techniques: the shortage concerns technical figures able to operate with new selection and recycling technologies.
- 5. System leadership and cluster governance: the need was highlighted for transversal competences capable of coordinating different actors, negotiating resources and supporting trust in shared data.

These gaps should not be understood as providing an exact picture of the operational shortcomings of the sector, but rather as guiding signals of the areas where competences are weaker or still developing. Precisely for this reason they provided a strategic starting point, as they made it possible to define the priorities on which to focus the development of the occupational taxonomy and the training framework, and served as a compass to determine which CDG competences should be considered central to the project.

2.3.2 Use of desk research

The analysis of the scientific literature made it possible to deepen and expand the evidence that emerged from the focus group, bringing out further critical dimensions in addition to the five priority gaps already identified.

In the field of digital fashion, the study Exploring design and technological aspects of digital fashion: a systematic review of recent innovations (Yezhova, Wu, Pashkevych, Kolosnichenko, Ostapenko, Struminska, 2024) shows how tools such as advanced CAD, 3D modelling and virtual prototyping are not only technical supports, but technologies capable of transforming design practice in the textile and clothing sector. The spread of these digital environments calls for new professionals able to integrate creativity and management of digitalised processes.

In the area of sustainability, the empirical research Evidences on sustainability issues in the Fashion Supply Chain: An empirical study in Italy (Tebaldi, Brun, Bottani, 2022) highlights the difficulties encountered by textile and clothing companies in translating traceability and impact data into verifiable statements, indicating the need for regulatory and technical-managerial competences related to certifications and reporting systems. A more systemic approach emerges in Sustainability, the Circular Economy and Digitalisation in the German Textile and Clothing Industry (Wiegand & Wynn, 2023), which highlights the need for hybrid profiles able to connect circular practices, digitalisation and regenerative business models.

The cultural and experimental dimension is explored in Making Kin in Fashion Design. From Agri-food Waste to Sustainable Materials in Italy (Vanni, Vaccari, Franzo, 2022), which details how the use of biomaterials derived from agri-food waste generates new alliances

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between human and non-human actors, opening up alternative supply chains and innovative cultural imaginaries for the textile and clothing sector. On a more theoretical level, Fashion Futuring in the Anthropocene: Sustainable Fashion as “Taming” and “Rewilding” (Payne, 2019) introduces the concept of fashion futuring, useful to interpret the tension between techno-optimist approaches, centred on clean technologies, and transformative approaches, aimed at questioning the logic of unlimited growth.

The educational perspective is at the centre of A theoretical framework to address education for sustainability for an earlier transition to a just, low carbon and circular economy (Scalabrino, Navarrete Salvador, Olivieri, 2022), which proposes a model of transformative education able to connect VET, formal education and lifelong learning with the needs of the circular and low-carbon transition. Education is thus recognised as a strategic space for the construction and dissemination of the competences needed in the textile and clothing sector.

Finally, the critical-political dimension emerges from the article Fashion, its Sacrifice Zone, and Sustainability (Niessen, 2020), which offers a decolonial reading of sustainability in fashion. By denouncing the existence of “sacrifice zones” linked to ethnocentrism and colonial legacies, the author calls for a truly inclusive transition, able to integrate social justice and cultural diversity also in the textile and clothing sector.

Taken together, these contributions articulate a framework that is able to connect technological, managerial, cultural, pedagogical and political dimensions, strengthening the conceptual foundations of the occupational taxonomy and making it both a technical and interpretative tool, capable of adequately analysing the current transformations of the textile and clothing sector.

2.3.3 Use of sectoral sources and institutional observatories

AlmaLaurea

AlmaLaurea is an inter-university consortium that collects data on the profile and employment of Italian graduates (covering about 90% of universities). Its annual statistical surveys and the CV database provide reliable information on educational pathways and employment opportunities. For this reason, it represents a fundamental tool for analysing competence needs and linking universities, students and companies.

The annual Reports on the Profile of Graduates and on Employment Conditions (2023, 2024, 2025) provided the empirical basis for the sections of the questionnaire dedicated to graduates, in particular for the questions on current employment (“where do you work?”, “in which area/office?”) and on the perception of preparation (scale 1–5). The structure of the occupational categories (SMEs, large companies, professional firms, agencies) in fact reflects the classification adopted by AlmaLaurea.

Confindustria Moda

Confindustria Moda is one of the largest organisations worldwide representing textile and fashion manufacturers in the Western world. The Federation represents a sector which, with just under 400,000 employees and just under 50,000 companies, constitutes a crucial component of the Italian economic and manufacturing fabric. The Federation aims to protect and promote the interests of the sector and its members and represents the entire supply chain, at both the national and international level, and its relations with institutions, public administrations, trade unions, and economic, political, and social organisations. In particular,

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the operations of SMEs contribute to making textiles and fashion some of the most economically important sectors of the Italian industry.

The economic analyses of the Centro Studi of Confindustria Moda (2022, 2023) highlighted the strategic relevance of the fashion and accessory industry for the Italian economy, pointing to key issues such as the shortage of specialised profiles, the training mismatch and the urgency of generational renewal. While these findings reflect the Italian context, they provided valuable inspiration for the design of the common questionnaire addressed to employers across all partner countries. In particular, they helped to shape the sections investigating missing roles, hard-to-find competences and the professional figures needed to support innovation and sustainability in the textile and fashion sector at European level.

CNA Federmoda

Founded in 1946, the National Confederation of Crafts and Small and Medium Enterprises (CNA) represents more than 620,000 entrepreneurs and 1.2 million workers, with a widespread presence across Italy and a representative office in Brussels. Its main goal is to protect and promote micro, small and medium-sized enterprises, especially crafts and self-employment, through representation, collective bargaining and support services.

In the fashion sector, CNA operates through CNA Moda and the observatory CNA Federmoda, which focus on craft enterprises, manual competences and generational change. In line with these themes, the questionnaires included items on pattern making, knitwear and tailoring, as well as the recognition of the contemporary artisan among emerging professions. These aspects are consistent with Santagata's White Paper on Creativity (2009), which highlights the central role of transferring craft competences and the importance of generational renewal to maintain vitality and quality in cultural and creative districts.

Venice Sustainable Fashion Forum

The Venice Sustainable Fashion Forum is an international initiative dedicated to sustainability in the fashion sector, created through the collaboration between Confindustria Moda, TEHA Group and Confindustria Veneto Est. The event takes place annually in Venice and represents a platform for dialogue between companies, institutions, experts and organisations in the sector. The Forum promotes discussion on the sustainable transition of fashion, addressing topics such as circularity, digital innovation, the reduction of environmental impact and social responsibility. Through conferences, panels and the presentation of studies and sectoral data, the Forum has established itself as a reference space for guiding strategies and policies towards a more responsible and globally competitive fashion industry.

The analyses presented annually at the Forum (2022, 2023) contributed to shaping the prospective questions of the questionnaires, in particular those investigating which professions will be the most promising in the coming years and which competences are "hard-to-find." The Forum's evidence showed how the economic slowdown affected the spread of eco-design and how the difficulty in finding profiles with both circular and digital skills constitutes a strategic obstacle. The analysis of the sources made it possible to translate the identified competence areas into concrete professional profiles, already existing or emerging in the textile and fashion sector. Examples include roles linked to creativity and innovation (eco-designer, digital fashion specialist, textile innovation expert), managerial and

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strategic dimensions (sustainability manager, ESG data analyst, innovation process manager), and transversal and educational roles (fashion sustainability educator, multidisciplinary freelance creative).

The profiles identified can be considered as archetypes adoptedto make the completion of the questionnaire more immediate. Their function was to translate the competence areas into concrete and easily recognisable examples for sector stakeholders, thus facilitating the understanding of themes related to sustainability, digitalisation and innovation.

The names of the professional figures used in the questionnaire as archetypes were employed for validation purposes. Their adoption in the taxonomy should not be assumed a priori, but will be subject to the results of the questionnaire: in the absence of positive feedback in terms of recognisability and transversal relevance, the labels will be reformulated or replaced.

2.3.4 Use of the questionnaire

2.3.4.1 Integration of the European frameworks ESCO, DigComp and GreenComp

The questionnaire was structured in alignment with European policies, and during the phase of identification and selection of professional profiles the main European reference frameworks were also consulted: ESCO (European Skills, Competences, Qualifications and Occupations), DigComp (European Digital Competence Framework) and GreenComp (European Sustainability Competence Framework). These tools were not used in a prescriptive way for the construction of individual questions, but they represented a transversal framework of validation and comparability, ensuring that the abstract competences identified through the SWOT analysis and the focus group could be translated into profiles readable in the European competence language.

ESCO made it possible to place the emerging profiles (eco-designer, sustainability manager, digital fashion specialist, etc.) in relation to occupational descriptors already recognised at the European level, facilitating alignment with professional repertoires. DigComp offered a common language for digital competences – from 3D CAD to the management of interoperable data for the Digital Product Passport – allowing technical skills to be linked with the trajectories of the digital transition. GreenComp provided a key reference for integrating the dimensions of sustainability (systemic thinking, responsibility, competences for collective action) into roles connected to governance, impact measurement and cluster leadership.

Note on the use of ESCO and the absence of emerging profiles

In the process of selecting and validating professional profiles, ESCO (European Skills, Competences, Qualifications and Occupations) was also consulted in order to ensure alignment with official repertoires at the European level. However, it came to light that some key professions for the circular, digital and green transition, such as eco-designer, are not yet formally included within ESCO. This absence was not interpreted as a methodological weakness, but rather as an indicator of the added value of the work carried out: the fact that emerging profiles such as eco- designer, digital fashion specialist or contemporary artisan do not appear in the official repertoires highlights the capacity of the ReMODE project to anticipate professional trajectories not yet codified, but already recognised as strategic by sector actors.

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In this sense, ESCO performed a dual function:

- It made it possible to anchor the codified profiles to the existing repertoire (e.g. fashion designer, sustainability manager);
- It highlighted the gaps in the European institutional framework, reinforcing the need for an updated occupational taxonomy and for training tools capable of filling these gaps.

2.3.4.2 Structuring of the questionnaire

Within the methodological process, it was considered necessary to define some preliminary guidelines in order to ensure that questionnaire construction remained in line with project objectives. The aim was to provide clear, accessible tools capable of producing comparable data, while at the same time avoiding excessive rigidity.

The main indications identified were the following:

- 1. Modular structure
- Introduction with explanation of objectives and context.
- General profiling (type of organisation, role, educational pathway, etc.).
- Current situation (existing competences, organisational or curricular structures).
- Competences and needs (critical areas and difficulties in recruitment).
- Future perspectives (emerging professions and training priorities).
- 2. Types of questions
- Single/multiple choice for standardised data.
- Rating scales (e.g. Likert 1–5) for perceptions and levels of preparation.
- Priority questions (max 2–3 choices) to highlight urgent issues.
- Short open responses or “other” option to collect additional input.
- 3. Multi-level comparability
- Structure suitable for comparing different targets (companies, young graduates, educators).
- Comparability between partner countries.
- Reading at multiple levels (demand, supply, training adjustment).
- 4. Balance between present and future
- Questions aimed at detecting both the current situation and emerging competences and roles.
- 5. Accessibility and usability
- Simple and direct language.
- Logical sequence and limited completion time.
- Prevalence of closed questions, in order to encourage participation even in critical periods.

2.3.4.3 Questionnaire target

Firms, human resources and organisations

Fashion and textile companies are the place where the need for new competences emerges most immediately. Involving companies and HR departments makes it possible to

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understand which roles are missing or underrepresented, which competences are more difficult to find, and which training areas are considered a priority for addressing the twin transition.

Graduates

Graduates are the new generation that will enter the supply chain in the coming years. Investigating their level of preparation and the areas of greatest uncertainty makes it possible to measure the distance between the educational offer and the needs of the industry. This target therefore provides a valuable perspective both on the technical competences they acquired throughout their studies and on their ability to imagine and interpret emerging roles.

Educators and managers in VET and HEI

Educational institutions play a strategic role in bridging competence gaps. Involving teachers and coordinators makes it possible to understand how curricula respond to market demands, which areas are less developed, and which strategies are implemented to update them. This group therefore provides a crucial insight into the capacity of education systems to support the twin transition.

Taken together, these three targets make it possible to map the system in a multi-level way: from the side of competence demand (companies), from the side of the emerging supply (graduates), and from the side of the production and updating of competences (educators and managers). This approach allows a comparative and circular analysis, capable of highlighting not only existing gaps but also areas of convergence and margins for innovation.

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PART B — Survey results and integrated occupational taxonomy

Text of the consortium's internal report "Integration for the development of the occupational taxonomy" (IUAV, 25 April 2026), with the survey section recomputed on the final consolidated dataset (107 SMEs) and the section, table and figure numbering continued from Part A.

Section 3: Literature review

The textile and apparel sector is undergoing profound transformations driven by technological, socio-cultural and sustainability-related factors, which are reshaping how products are conceived, manufactured, distributed and valorised. These dynamics are also redefining professional profiles, supporting the emergence of transversal competencies and roles capable of operating at the intersection of design, production, governance and learning ecosystems. Within this evolving landscape, skills become a central analytical focus, as they provide a lens through which to understand how creativity, culture, sustainability and digitalisation interact and recombine, generating new forms of professional practice. Part B updates and refines the taxonomy of version 1.0 through the systematic grouping of profiles into coherent job families and the structured articulation of the associated domains of Skills, Knowledge, Responsibilities, Abilities and Experience Requirements. Section 3 outlines the conceptual framework (ecosystem-based perspectives, occupational taxonomies including ESCO, and recent developments in fashion education); Section 4 presents the research design of the update; Section 5 reports the cross-country survey results; Section 6 presents the integrated taxonomy; Sections 7, 8 and 9 discuss implications, limitations and conclusions.

3.1 Introduction

Fashion education goes hand in hand with the development of fashion studies (Kawamura, 2004; Black et al., 2014; Jenss, 2016). To fully understand the evolving occupational needs in the 21st-century fashion and textile industry, it is essential to also consider the broader framework of fashion studies, whose interdisciplinary nature - spanning history, cultural studies, design, material culture and business studies - shapes both its theoretical foundations and its practical applications.

On the one hand, fashion education, as well as fashion studies, is firmly rooted in an interdisciplinary framework that draws from the humanities and social sciences, shaping both critical inquiry and creative practice. On the other hand, fashion education needs pedagogical frameworks that emphasise active and experiential learning. The 'engagement theory of learning' (Kearsley & Shneiderman, 1998) argues that meaningful learning occurs when students are actively involved in collaborative, technology-based tasks. This approach is particularly relevant to fashion education, where creativity, experimentation, social interaction, and industry-oriented practice are central. It also underscores the need for educators and institutional structures to evolve, becoming more adaptive and expansive in their approaches. Highlights the urgency of transforming educators and institutional structures to be more knowledgeable and expansive (Quaye et al., 2020). This literature review highlights that professional profiles should not be understood solely in terms of technical skills, but also as roles that can support innovation, creativity, and culture and promote inclusion by representing underserved and disadvantaged communities, thus acting as 'agents of change' (Adams, 2016). When applied to the ongoing sustainability transition

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within the fashion sector (Fletcher & Tham, 2019), this perspective becomes particularly relevant, as it positions fashion professionals not only as designers or practitioners but also as actors responsible for driving ethical, environmental, and social transformation within the industry and culture. By doing so, it addresses the following questions: how will competencies in the textile industry and fashion design and production endure in the 21st century? How can these competences be continuously developed and updated to remain relevant amid rapid technological and social changes?

To answer these questions, this work is organised around three major themes:

- 1) The role of ecosystems in shaping professional practices and opportunities.
- 2) The importance of an occupational taxonomy in identifying emerging skills and knowledge, and in sharing relevant concepts for sustainability transitions.
- 3) the cultural and creative dynamics for continuous professional development in a fast-evolving industry.

By exploring the relationships between ecosystems, taxonomies, and skill development, this review provides a comprehensive understanding of how professionals can contribute to shaping - rather than adapting to - the demands of the 21st-century textile and clothing sector. Furthermore, it identifies conceptual tools that support lifelong learning, knowledge exchange, and the integration of sustainability principles in design, production, and management practices. Ultimately, this work contributes to mapping the critical skills and competencies necessary for the sector's resilience, competitiveness, and responsible growth in a rapidly changing technological and socio-cultural environment.

3.2 Ecosystems

The current socio-economic scenario of the EU, usually defined by the Twin Transition, postulates the convergence of ecological and digital transitions to redefine cultural, social, and production parameters. In the context of the textile and clothing sector, there is a growing need to reconvert to production models that integrate practices such as sharing, repairing, reusing, and recycling (Council of the European Union, 2025). In other words, production models that are based on extending the product life cycle yet strongly influenced by the concept of care (The Care Collective, 2020), both for the product and for people. The implementation of this model is undergoing a complex transition phase, and new occupations find themselves operating in an environment that promotes circularity but still reasons with linear growth metrics (Manolchev et al., 2024). In this context, there is a redefinition of ecosystems-encompassing government, corporate networks, research, education, and civil society-and of their reciprocal relationships (Etzkowitz & Leydesdorff, 2000; D'Itria & Colombi, 2023). These dynamics favour collaboration aimed at resource sharing and the definition of common standards; this enables experimentation that, guided by feedback, refines processes while minimizing operational risks. Within this framework, technology acts as a strategic tool, creating functional bridges between the various actors involved (Konietzko et al., 2020). The world of education is often considered a guarantor of professional skills, though this assumption does not always hold true in practice, due to technological gaps between real life and education. However, it is commonly accepted that education plays a key role in incentivizing an approach increasingly oriented towards multidisciplinary teams that know how to adapt the general principles of sustainability to a specific reality, adapting to, and enhancing, the cultural aspect to ensure added value that

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arises directly from ideas (Sehnem et al., 2022; Tiippana-Usvasalo et al., 2023). The place where these ecosystems develop becomes a key factor in a systematic, collaborative vision, as it serves as an incubator for “activities, knowledge, communities, products, cultures, and practices”. This process is grounded in localism (Fletcher, 2018). It involves “the shaping of activity by a region’s natural factors and by what is intriguing and dynamic in a place to ensure its long-term prosperity” and places society in a priority position relative to the economy” (Fletcher, 2018, p.140).

This in-depth analysis seeks to explore and understand the context and characteristics of ecosystems in the twin transition, as places where new professions and skills emerge and develop to support the shift toward a circular economy.

3.3 Taxonomies

This research project proposes a taxonomy to structure and interpret the emergence of new professions and skills within the twin transition. Such an effort is grounded in the understanding that classification is a fundamental cognitive and social process, as “humans are by nature animals who classify objects and events” (Christiansen, 1994, p. 3), and that “we all spend large parts of our days doing classification work, often tacitly, and we make up and use a range of ad hoc classifications to do so” (Bowker & Star, 1999, p. 1-2).

Bowker and Star (1999) also emphasize that classifications are not neutral devices, as they select and highlight certain perspectives while simultaneously contributing to the obscuring of others. In this way, classificatory schemes shape social reality, influencing the processes of defining identities, aspirations, and the conditions of recognition and dignity for individuals within society. For the authors, it follows that an effective classificatory system cannot be conceived as definitive but must be understood as a “living” artifact (Bowker & Star, 1999, p. 326), subject to revision and adaptation over time in response to shifting social contexts and the subjects involved.

Christiansen (1994) links the human capacity to classify to the conception of the individual as an occupational being. Occupations are considered complex dynamics of a person's intention within a context that changes over time. From this perspective, the act of classifying sets of actions - even ordinary and everyday ones - contributes to bringing them back into the category of socially recognized occupations, making them interpretable and evaluable, and attributing to them a dimension of meaning that goes beyond the functional or physiological component. Within this framework, the ESCO (European Skills, Competences, Qualifications and Occupations) taxonomy serves as a tool for bridging theoretical and practical dimensions, while also serving as a lens through which to understand the broader characteristics of classification systems in the current European context.

ESCO is the multilingual classification developed by the European Commission, with the contribution from market experts, aimed at describing, identifying, and classifying occupations, skills, competences, and qualifications (ESCO, 2025). It is constructed and updated primarily through manual processes and provides standardized descriptions of skills; it is intended for multiple users, including individuals, employers, universities, and training institutions (Chiarello et al., 2021). While serving as a common reference language at the European level - thereby promoting transparency, comparability, translation, and the analysis of qualification content (ESCO, 2025) - taxonomies like ESCO face a structural challenge: the intrinsically dynamic nature of professions requires continuous updates, for

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which traditional manual management models are becoming increasingly burdensome and difficult to sustain, especially in the face of the rapid emergence of new skills (Butt et al., 2025).

In addition to real-time mapping of skills, the literature highlights a growing focus on forecasting skill demand, with the aim of supporting the alignment between the workforce and the needs of a rapidly evolving market (Chen et al., 2024). This orientation entails a methodological rethinking of the tools employed: traditional approaches, such as questionnaires, are, in fact, limited in their ability to guarantee the level of granularity necessary for the construction and updating of taxonomies (Chiarello et al., 2021). In contexts characterized by accelerated change, the alignment among skills, people, and processes becomes increasingly complex (Rikala et al., 2024), reinforcing the role of taxonomies in giving shape and structuring knowledge in continuously evolving environments (Butt et al., 2025), including sectors such as textiles and clothing. In this perspective, dynamic taxonomy models require continuous updates and the interception of emerging trends, offering support to workforce planning processes (Gonzalez Gomez et al., 2025). Through the integration of data mining techniques, learning analytics, and artificial intelligence, these approaches claim to enable the analysis of heterogeneous data and the development of frameworks capable of identifying and representing skill gaps in real time (Rikala et al., 2024).

3.4 New approaches to fashion competencies

Recent scholarship in fashion and design education has increasingly emphasised the need to decolonise curricula, challenging Eurocentric narratives and dominant aesthetic paradigms that have historically marginalised non-Western perspectives (Fletcher & Tham, 2019; Niessen, 2020). Decolonising the curriculum involves critically examining whose knowledge, values, and histories are represented in teaching materials, and restructuring learning experiences to value diverse cultural perspectives (Cheang & Suterwalla, 2020). Co-design has emerged as a critical pedagogical strategy in this context. By involving students, communities, and practitioners from diverse cultural backgrounds in the design of educational content, co-design fosters collaborative learning environments that acknowledge and respect multiple forms of knowledge (Sanders & Stappers, 2008; Manzini, 2015). This approach not only democratizes curriculum development but also cultivates empathy, cultural sensitivity, and ethical engagement with global fashion systems. Diversifying fashion education goes hand in hand with inclusivity and cultural respect. Scholars have argued that fashion curricula must move beyond the replication of Western design norms and incorporate textile practices, design philosophies, and aesthetics from historically underrepresented cultures. Such inclusion promotes a richer understanding of global fashion and challenges students to critically interrogate issues of appropriation, authorship, and representation. Moreover, contemporary debates in fashion education increasingly foreground environmental and social sustainability. Integrating ecological considerations into curricula-ranging from material sourcing to waste reduction-aligns with calls for a more responsible and socially accountable fashion industry (Fletcher, 2014). An inclusive curriculum thus simultaneously addresses cultural and environmental justice, encouraging students to develop design solutions that are both ethically and ecologically informed. In sum, literature suggests that a decolonized, co-designed, and diversified fashion curriculum can cultivate cultural literacy, ethical awareness, and sustainability consciousness among

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students. By centering multiple knowledge systems, engaging communities in co-creation, and embedding environmental considerations, fashion education can move toward greater inclusivity and social responsibility. Future research should continue to explore practical models of curriculum co-design, evaluating their impact on student learning outcomes, cultural sensitivity, and sustainability practices.

Section 4: Materials and methods

The methodology used in the research was applied to define an occupational taxonomy of professions in the textile and apparel sector, conceived as a tool to support training design and the development of teaching materials. The taxonomy was structured according to criteria such as skills, abilities, experience requirements, and career trajectories, with the aim of making explicit the relationships, hierarchies, and potential evolutions of professional profiles.

Existing literature was initially explored to define the theoretical basis of the research. The review included various sources, including academic articles, essays, and book chapters found in databases such as Scopus, Web of Science, and Google Scholar. To ensure comprehensive and up-to-date coverage of the topic, material from recent publications, including 2025, was analysed. The adoption of targeted keywords, including taxonomy development, skill taxonomy, ecosystems, sustainability, circular economy, and fashion education, allowed the skills mapping to be framed within a broader, more systemic perspective, going beyond simple identification of sectoral skills. Through terms such as capabilities, co-design, and decolonizing the curricula, the research also broadened its scope of investigation towards an interdisciplinary approach. The integration of references to the Twin Transition and Innovation Ecosystems finally helped interpret the topic of skills and professional profiles within an evolutionary framework, connected to the cultural, technological, and sustainability transformations of the sector.

The selected articles were grouped into three general themes that defined the structure of the literature review and supported the contextualization of the occupational taxonomy. The first area, dedicated to ecosystems, focused on the interaction among government, business networks, research, and civil society in the context of the Twin Transition, where ecosystems emerge as incubators of circular practices, and technology serves as a strategic bridge among different actors. The second area, dedicated to taxonomies, explores different aspects of this tool, from its nature as an artifact to the importance of its dynamism, using ESCO (European Skills, Competences, Qualifications, and Occupations) as a case study. The analysis also highlights the need to move beyond traditional mapping methods, integrating artificial intelligence and data mining to identify skill gaps in real time. Finally, the third area, on fashion skills (New approaches on fashion competencies), focuses on the evolution of training, emphasizing the decolonization of curricula and the questioning of Eurocentric paradigms. Through co-design between students and professionals, the aim is to integrate cultural sensitivity, inclusiveness, and environmental justice into design, with the goal of training professionals to act as ethically and environmentally conscious “agents of change”.

Data collection was divided into two phases: an initial quantitative survey conducted in August 2025, followed by a second between December 2025 and January 2026. The

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questionnaire design required particular attention to balancing the questions, ensuring data comparability and clarity, and also considering the administration period (August).

The dissemination of the questionnaires was handled directly by each ReMODE consortium partner, who engaged their key stakeholders in their respective local contexts. Data were collected via the Google Forms platform through three separate questionnaires (reproduced in the ReMODE research instruments repository), addressed to: companies/HR/ organizations; managers and educators (VETs and HEIs); and graduates. This initial phase allowed us to build a preliminary information base and verify the consistency of the survey instruments with the research objectives.

At the end of the first collection, which had seen limited participation due to seasonality, the results gathered then offered useful insights for optimizing the survey instrument in both content and dissemination methods. Based on this evidence, an optimized questionnaire administration strategy was adopted for the second collection (conducted between December 2025 and January 2026). This strategy, aimed primarily at educators (VETs and HEIs, analysed in Deliverable D2.3) and SMEs, resulted in a significantly higher response rate, strengthening the information base for subsequent analyses and project outputs.

Each ReMODE consortium partner managed the distribution of the questionnaire, involving their respective local stakeholders. A total of 107 valid responses were received from SMEs by the close of the survey on 29 January 2026 (Italy 29, Greece 23, Türkiye 20, Finland 18, Germany 17); the figures in Section 5 are computed on this final consolidated dataset, which supersedes the 104-response extract used in the internal version of April 2026. Digital platforms, Google Forms, were used for the collection, as in the first survey, but EUsurvey, recommended by the consortium partners for its flexibility in linguistic translation, was also used.

This approach improved the quality and consistency of the collected data, allowing for in-depth analysis of aspects related to professional profiles, required skills, sustainability practices, and training needs in the sector. The data underwent a cleaning and validation process (checking response consistency and completeness, removing duplicates, and normalizing variables affected by translation). Subsequently, a descriptive analysis of the responses was conducted to identify recurring patterns and priorities, considering all participating countries jointly. This approach made it possible to systematize the evidence supporting the occupational taxonomy.

Section 5: Cross-country survey results — SMEs' readiness for the circular economy

5.1 Introduction

This cross-country report describes the current state of professional roles in SMEs within the textile and clothing sector. In particular, it analyses the hardest-to-find skills, the expected demand for new professional profiles and the missing or under-represented roles. The results provide an evidence base for developing and implementing an occupational taxonomy aimed at improving both the visibility of profiles within the employment system and support for CV drafting and updating.

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The analysis is based on the final consolidated dataset of the ReMODE SME survey (INS-01, “Circular Economy Readiness of SMEs in the Fashion and Textile Sector”), closed on 29 January 2026: 107 valid respondents across five countries — Italy (n = 29), Greece (n = 23), Türkiye (n = 20), Finland (n = 18) and Germany (n = 17). Percentages are computed on the respondents answering each item (n is given in each table); multi-select items therefore sum to more than 100%. Country columns reproduce the figures of the national SME reports annexed to D2.3 version 2.0. Variant option labels introduced by partner translations (for example “technical expertise” and “technical specialisation”) have been harmonised.

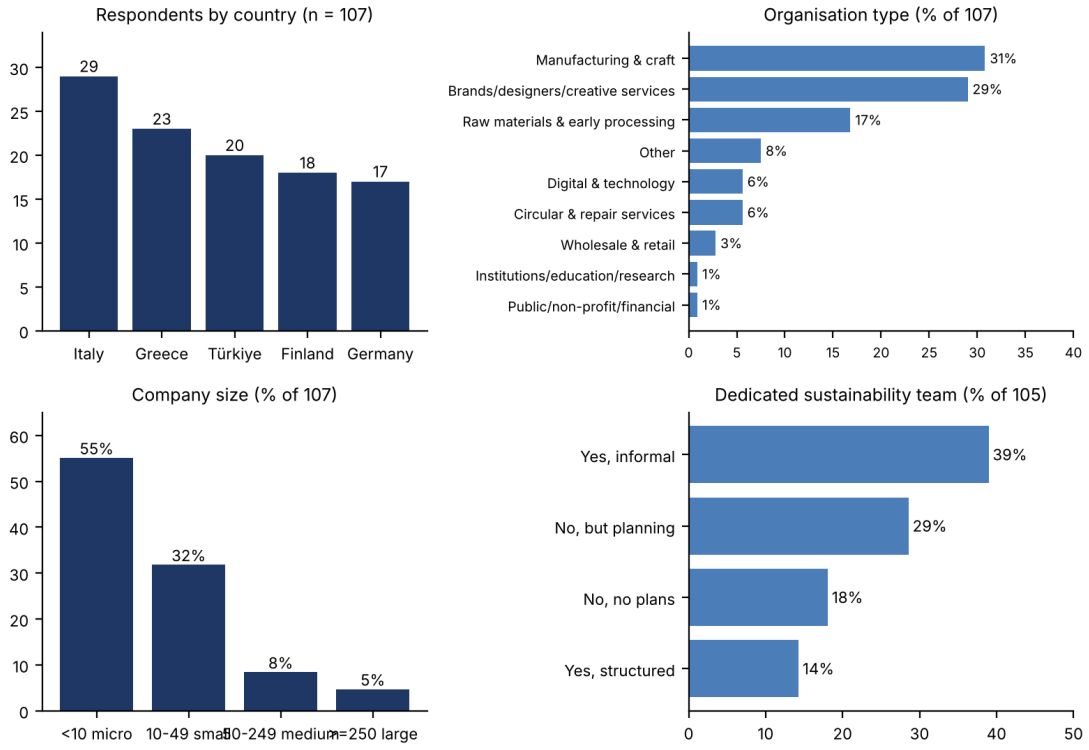

Figure 1 — Sample composition: respondents by country, organisation type, company size and sustainability governance (final dataset). Source: ReMODE SME survey, final consolidated dataset (107 respondents), AUEB-RC.

5.2 Overall results

1. Job position

Table 1. Job position of the respondent (All n=102)	**All % (n)**	**FI**	**DE**	**GR**	**IT**	**TR**
(Co)Founder/owner	49% (50)	50%	38%	78%	64%	5%
Manager / senior executive	22% (22)	17%	19%	13%	8%	55%
Head designer / creative director	15% (15)	6%	25%	9%	20%	15%
Other	15% (15)	28%	19%	0%	8%	25%

Table 1. (Co-)founders and owners account for 49% and managers or senior executives for 22% (71% combined); head designers and creative directors 15%.

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2. Type of organisation

Table 2. Type of organisation (NACE-based groups) (All n=107)	All % (n)	FI	DE	GR	IT	TR
Manufacturing & craft	31% (33)	22%	24%	22%	55%	20%
Brands/designers/creative services	29% (31)	22%	29%	56%	28%	5%
Raw materials & early processing	17% (18)	6%	6%	0%	10%	65%
Other	8% (8)	22%	6%	0%	3%	10%
Digital & technology	6% (6)	11%	12%	9%	0%	0%
Circular & repair services	6% (6)	17%	0%	13%	0%	0%
Wholesale & retail	3% (3)	0%	12%	0%	3%	0%
Institutions/education/research	1% (1)	0%	6%	0%	0%	0%
Public/non-profit/financial	1% (1)	0%	6%	0%	0%	0%

Table 2. Manufacturing and craft (31%) and brands, designers and creative services (29%) account for 60% combined; raw materials and primary processing 17%; remaining categories 8% or less each.

3. Company size

Table 3. Number of employees (All n=107)	All % (n)	FI	DE	GR	IT	TR
<10 micro	55% (59)	50%	53%	91%	59%	15%
10-49 small	32% (34)	44%	35%	9%	34%	40%
50-249 medium	8% (9)	6%	6%	0%	0%	35%
>=250 large	5% (5)	0%	6%	0%	7%	10%

Table 3. Micro enterprises (<10) are 55% and small enterprises (10–49) 32% (87% combined); medium 8% and large 5%.

4. Roles relevant in the company

Table 4. Roles relevant in the company (multiple answers) (All n=103)	All % (n)	FI	DE	GR	IT	TR
Eco-Designer/Sustainable Product Designer	40% (41)	28%	47%	52%	42%	26%
Circularity & Sustainability Manager	33% (34)	39%	41%	30%	23%	37%
Ethical Trade & Supply Chain Auditor	21% (22)	17%	18%	17%	15%	42%
Trend Forecasting Analyst	20% (21)	11%	12%	26%	12%	42%
DPP & Traceability Specialist	19% (20)	33%	35%	17%	8%	10%

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Digital Product Designer/3D	19% (20)	17%	12%	44%	12%	10%
Inventory & Demand Optimisation Mgr	18% (19)	28%	0%	39%	12%	10%
Circular Supply Chain & Reverse Logistics Mgr	18% (18)	11%	24%	30%	12%	10%
Sustainability Educator & Trainer	16% (17)	11%	24%	17%	12%	21%
ESG & Sustainability Data Analyst	16% (16)	33%	18%	22%	4%	5%
None of the above	16% (16)	22%	0%	4%	31%	16%
AI Personalisation & Customer Insights Mgr	14% (14)	11%	24%	13%	12%	10%
Digital Transformation & Innovation Leader	14% (14)	22%	12%	26%	4%	5%
Curriculum Designer	12% (12)	6%	29%	9%	12%	5%
Digital Showroom & Virtual Experience Coord.	8% (8)	6%	0%	22%	4%	5%
Digital Production & PLM Systems Mgr	7% (7)	0%	24%	9%	4%	0%

Table 4. Multiple answers; % of respondents. The most selected roles are Eco-Designer/Sustainable Product Designer (40%) and Circularity & Sustainability Manager (33%), followed by Ethical Trade & Supply Chain Auditor (21%), Trend Forecasting Analyst (20%), DPP & Traceability Specialist and Digital Product Designer/3D Fashion Designer (19% each); 16% select none of the listed roles.

5. Challenges in filling sustainability-related roles

Table 5. Main challenges when filling new sustainability-related roles (multiple answers) (All n=104)	**All % (n)**	**FI**	**DE**	**GR**	**IT**	**TR**
Budget constraints	66% (69)	78%	65%	83%	52%	58%
Lack of qualified candidates	41% (43)	22%	35%	56%	22%	74%
Lack of awareness about roles	31% (32)	28%	18%	30%	22%	58%
Limited internal training	16% (17)	6%	24%	9%	26%	16%
No need for these roles	16% (17)	33%	12%	0%	30%	5%

Table 5. Budget constraints (66%) and lack of qualified candidates (41%) are the top challenges, followed by lack of awareness about these roles (31%); 16% report limited internal training opportunities and 16% no need for such roles.

6. Hardest-to-find skills

Table 6. Skills hardest to find in the labour market (multiple answers) (All n=104)	**All % (n)**	**FI**	**DE**	**GR**	**IT**	**TR**
Technical specialisation	52% (54)	35%	62%	48%	36%	85%
Craftsmanship	51% (53)	47%	31%	44%	82%	35%

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Sustainability management	36% (38)	12%	50%	52%	21%	50%
Circular economy/recycling skills	33% (34)	35%	44%	35%	21%	35%
Soft skills	32% (33)	24%	12%	39%	29%	50%
Digital/automation skills	19% (20)	6%	19%	39%	11%	20%

Table 6. Technical specialisation (52%) and craftsmanship (51%) are selected most often, followed by sustainability management (37%) and circular economy/recycling skills (33%); digital/automation skills 19%.

7. Effects of digitalisation

Table 7. How digitalisation has changed the company's operations (multiple answers) (All n=106)	**All % (n)**	**FI**	**DE**	**GR**	**IT**	**TR**
Better tracking materials/shipments	49% (52)	33%	56%	39%	34%	90%
Decisions supported by digital data	41% (43)	50%	38%	44%	31%	45%
More automated tasks	38% (40)	39%	50%	52%	24%	30%
AI tools in design/product dev	35% (37)	28%	75%	48%	14%	25%
No major change	23% (24)	33%	0%	17%	48%	0%
PLM/digital product systems	13% (14)	22%	31%	9%	7%	5%

Table 7. Better tracking of materials or shipments (49%), more decisions supported by digital data (41%) and more automated tasks (38%) are the top effects; 35% use AI tools in design or product development; 23% report no major change so far; 13% use PLM or other digital product systems.

8. Most effective training formats

Table 8. Training formats considered most effective (multiple answers) (All n=101)	**All % (n)**	**FI**	**DE**	**GR**	**IT**	**TR**
Case-study learning	45% (45)	56%	50%	44%	38%	40%
Hands-on practical labs	44% (44)	38%	62%	39%	35%	50%
Internal mentoring/workshops	42% (42)	38%	38%	52%	42%	35%
Workshops & design sprints	40% (40)	31%	50%	52%	38%	25%
Partnerships with universities	33% (33)	25%	31%	48%	31%	25%
On-site bootcamps	29% (29)	19%	44%	17%	8%	65%
Peer-to-peer/team-based	25% (25)	38%	19%	30%	23%	15%
Live expert-led webinars	25% (25)	25%	19%	30%	27%	20%
Micro-learning modules	25% (25)	25%	31%	26%	19%	25%

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Self-paced e-learning	20% (20)	19%	6%	30%	12%	30%
Virtual/3D environment training	17% (17)	12%	0%	44%	12%	10%
Scenario-based simulations	15% (15)	12%	6%	17%	8%	30%
Micro-credentials (online)	15% (15)	6%	31%	22%	15%	0%
Role-play exercises	11% (11)	0%	6%	13%	12%	20%

Table 8. Case-study learning (45%), hands-on practical labs (44%), internal mentoring and workshops (42%) and workshops and design sprints (40%) lead; partnerships with universities 33%; on-site bootcamps 29%; online micro-credentials 15%.

9. Training priorities for the next two years

Table 9. Top training priority areas for the next two years (multiple answers) (All n=104)	**All % (n)**	**FI**	**DE**	**GR**	**IT**	**TR**
Green skills/sustainability	55% (57)	50%	76%	48%	36%	75%
Digitalisation/Industry 4.0	52% (54)	56%	65%	61%	21%	70%
Project mgmt/communication	50% (52)	38%	59%	56%	61%	30%
Technical & artisanal skills	48% (50)	31%	35%	39%	64%	60%
Distribution & logistics	25% (26)	25%	29%	35%	25%	10%

Table 9. Green skills/sustainability (55%), digitalisation/Industry 4.0 (52%), project management/communication (50%) and technical and artisanal skills (48%) are selected by about half of the respondents; distribution and logistics 25%.

10. Professions most in demand in the next 3–5 years

Table 10. Professions expected to be most in demand in the next 3–5 years (multiple answers) (All n=104)	**All % (n)**	**FI**	**DE**	**GR**	**IT**	**TR**
Digital fashion specialist/3D designer	43% (45)	28%	41%	70%	19%	60%
Textile innovation expert/biomaterials	40% (42)	33%	41%	35%	42%	50%
Artisan/craftsperson	35% (36)	28%	18%	26%	54%	40%
Legal compliance (EPR, DPP)	30% (31)	50%	18%	26%	12%	50%
Eco-designer	25% (26)	17%	35%	39%	19%	15%
Multidisciplinary creative	23% (24)	33%	12%	26%	19%	25%
Fashion data analyst	21% (22)	17%	24%	30%	19%	15%

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Table 10. Digital fashion specialist/3D designer (43%) and textile innovation expert/biomaterials (40%) lead, followed by artisan/craftsperson (35%), legal compliance specialist for EPR and DPP (30%), eco-designer (25%), multidisciplinary creative (23%) and fashion data analyst (21%).

11. Dedicated sustainability team

Table 11. Presence of a dedicated sustainability team (All n=105)	**All % (n)**	**FI**	**DE**	**GR**	**IT**	**TR**
Yes, informal	39% (41)	44%	35%	44%	41%	30%
No, but planning	29% (30)	22%	35%	48%	22%	15%
No, no plans	18% (19)	22%	12%	0%	22%	35%
Yes, structured	14% (15)	11%	18%	9%	15%	20%

Table 11. Informal team 39% and structured team 14%; 29% plan to establish one and 18% have neither a team nor plans.

12. Missing or under-represented sustainability-related roles

Table 12. Sustainability-related roles missing or under-represented (multiple answers) (All n=99)	**All % (n)**	**FI**	**DE**	**GR**	**IT**	**TR**
Eco-design specialist	41% (41)	50%	41%	65%	29%	21%
ESG data analyst	40% (40)	62%	47%	35%	33%	32%
Circularity manager	38% (38)	31%	59%	30%	38%	37%
Sustainability trainer/educator	35% (35)	44%	35%	35%	17%	53%
Supply chain traceability expert	34% (34)	44%	47%	30%	33%	21%
Human rights/ethical sourcing	33% (33)	44%	29%	35%	38%	21%

Table 12. Eco-design specialist (41%) and ESG data analyst (40%) are selected most often, followed by circularity manager (38%), sustainability trainer/educator (35%), supply chain traceability expert (34%) and human rights/ethical sourcing expert (33%).

5.3 Data analysis

Introductory note: this section presents a labour-market view based on the needs and priorities expressed by the responding SMEs.

5.3.1 Context and sample profile

The sample (Figure 1) is concentrated in three segments of the textile and clothing ecosystem: manufacturing and craft (31%), brands, designers and creative services (29%) and raw materials and primary processing (17%). Other organisation types (circular and repair services, digital and technology services, wholesale and retail and, marginally, public, non-profit and financial organisations and institutions, education and research) account for a residual share, with no single category above 8%. The national samples differ in their value-chain position: the Greek and German samples are dominated by brands and designers, the

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Italian by manufacturing and craft and the Turkish by raw materials and early processing (65%), which must be kept in mind when reading the country columns.

The respondent profile is senior: (co-)founders and owners account for 49% and managers or senior executives for 22% (71% combined), with head designers and creative directors at 15%, so that the responses largely reflect a decision-making and strategic perspective. The distribution by company size confirms the focus on SMEs: 55% operate with fewer than 10 employees and a further 32% with 10 to 49. Regarding governance, a dedicated sustainability team is relatively widespread although mostly informal: 39% report an informal team, 14% a structured team, 29% plan to establish one and 18% have neither a team nor plans; the share without a team or plans is highest in Türkiye (35%) and nil in Greece.

5.3.2 Relevant roles and emerging profiles

For the roles considered relevant in the company (Q4), responses concentrate on profiles related to sustainable product design and circularity management: Eco-Designer/Sustainable Product Designer (40%) and Circularity & Sustainability Manager (33%). A second group follows at around one fifth of respondents: Ethical Trade & Supply Chain Auditor (21%), Trend Forecasting Analyst (20%), Digital Product Passport (DPP) & Traceability Specialist (19%), Digital Product Designer/3D Fashion Designer (19%), Inventory & Demand Optimisation Manager (18%) and Circular Supply Chain & Reverse Logistics Manager (17%). More specialised profiles related to digital showrooms (8%) and PLM systems (7%) are mentioned least, and 16% select none of the listed roles, a share that reaches 31% in Italy. Country patterns are marked: the DPP & Traceability Specialist and the ESG & Sustainability Data Analyst are selected by a third of the Finnish and German respondents but by few Italian ones, whereas the Ethical Trade Auditor and the Trend Forecasting Analyst are most relevant in Türkiye (42% each) and the Digital Product Designer in Greece (44%).

The difficulties in filling such roles (Q5) are first of all financial — budget constraints are cited by 66% of respondents, and by more than three quarters in Greece and Finland — and then related to the labour market: 41% report a lack of qualified candidates (74% in Türkiye, 56% in Greece) and 31% a lack of awareness about these roles (58% in Türkiye). Limited internal training opportunities (16%) and the view that such roles are not needed (16%, but 33% in Finland and 30% in Italy) complete the picture.

5.3.3 Hardest-to-find skills and digitalisation

Among the hardest-to-find skills in the labour market (Q6), the most selected are technical specialisation (52%) and craftsmanship (51%), followed by sustainability management (37%) and circular economy/recycling skills (33%); soft skills are cited by 32% and digital/ automation skills by 19%. The two leading gaps have different geographies: technical specialisation is the dominant shortage in Türkiye (85%) and Germany (62%), craftsmanship in Italy (82%); sustainability management is a shortage for half of the Greek, German and Turkish respondents but for 12% of the Finnish ones. The question on how digitalisation has changed the company's operations (Q7) provides context: better tracking of materials or shipments (49%, and 90% in Türkiye), more decisions supported by digital data (41%) and more automated tasks (38%) are the main effects; the use of AI tools in design or product development is reported by 35% overall and by 75% of the German respondents, while 23%

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report no major change so far (48% in Italy) and only 13% use PLM or other digital product systems.

5.3.4 Enabling roles and support functions

Roles linked to training and skills management are present but not central in the sample: the Sustainability Educator & Trainer is relevant for 16% of the respondents and the Curriculum Designer for Digital & Sustainable Fashion for 12% (29% in Germany). This may indicate that these profiles are not currently among the priorities most frequently recognised by the responding organisations. One possible interpretation is that, in SMEs, these functions are often covered in an unstructured way or through external support (trainers, consultants, partners) rather than through dedicated hires; in this perspective they can be considered as support activities for upskilling and skills management rather than “core” roles. The picture changes when respondents are asked which sustainability-related roles are missing (Q12): the sustainability trainer or educator is then cited by 35% overall and by 53% of the Turkish respondents, which confirms the enabling function of this profile.

5.3.5 Training needs: priority areas and formats

Comparing the hardest-to-find skills (Q6) with the training priorities for the next two years (Q9) shows a partial alignment: technical specialisation and craftsmanship are the most frequent shortages, and technical and artisanal skills are a training priority for 48% of the respondents — close to green skills/sustainability (55%), digitalisation/Industry 4.0 (52%) and project management/communication (50%), and first in Italy (64%) and Türkiye (60%). The green and digital priorities are strongest in Germany (76% and 65%) and Türkiye (75% and 70%), while the Italian respondents put project management and communication first (61%). In terms of upskilling, the training formats considered most effective (Q8) are practical and contextualised: case-study learning (45%), hands-on practical labs (44%), internal mentoring and workshops (42%) and workshops and design sprints (40%). Partnerships with universities are valued by 33% (48% in Greece) and on-site bootcamps by 29% (65% in Türkiye); self-paced e-learning (20%), virtual/3D environment training (17%, but 44% in Greece), scenario-based simulations (15%), online micro-credentials (15%) and role-play exercises (11%) are selected less often.

5.3.6 Future demand and missing or under-represented roles

Regarding the professions expected to be most in demand in the next three to five years (Q10), SMEs most frequently select the digital fashion specialist/3D designer (43%, and 70% in Greece) and the textile innovation expert in biomaterials (40%), followed by the artisan/ craftsperson (35%, 54% in Italy) and — a result that was under-estimated in the April 2026 extract because of split answer labels — the specialist in legal compliance for Extended Producer Responsibility and the Digital Product Passport (30%, and 50% in Finland and Türkiye). The eco-designer (25%), the multidisciplinary creative (23%) and the fashion data analyst (21%) complete the list. For missing or under-represented sustainability-related roles (Q12), the most selected are the eco-design specialist (41%, 65% in Greece) and the ESG data analyst (40%, 62% in Finland), followed by the circularity manager (38%, 59% in Germany), the sustainability trainer (35%), the supply chain traceability expert (34%) and the human rights/ethical sourcing expert (33%).

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5.4 Conclusions

The data highlight four complementary directions: a strengthening of sustainability and circularity roles already recognised as relevant; an increasing demand for profiles that integrate digitalisation, materials innovation and regulatory compliance (DPP, EPR); a continued need for technical and artisanal skills, which remain the hardest to find; and a cross-cutting dimension related to culture and learning and capacity-building, understood as SMEs' ability to read and value profiles (for example through clearer and more comparable CVs), identify needs and activate upskilling pathways aligned with the gaps identified. The final dataset confirms the directions of the April 2026 extract and strengthens two of them: the compliance profile, selected by 30% as a profession in demand, and the differentiation between national ecosystems, with the Turkish and German samples asking first for technical, green and digital skills, the Italian sample for craftsmanship and project management, and the Greek and Finnish samples for digital design, traceability and ESG data competences.

On this basis, an update of the taxonomy presented in version 1.0 of this report is proposed in Section 6, confirming its structure in professional families. The taxonomy groups roles by business function and by the contribution they can make to circularity, digitalisation and compliance, taking into account the priorities, gaps and trends emerging from the survey; at this stage it represents a first classification approach to be progressively refined and validated in the subsequent work packages. Specifically, the taxonomy is organised into four job families: (A) Strategy, Governance & Circular Transformation; (B) Creative Design & Digital Production; (C) Market Intelligence & Value Chain Operations; (D) Culture & Learning. The roles most frequently cited as relevant (Q4) are mainly concentrated in governance/strategy and design/creation (A and B). By contrast, many roles indicated as missing or under-represented (Q12) — in particular those related to ESG data, traceability/ DPP and verification along the value chain — fall between governance and value-chain operations (A and C). The fourth family (D) represents the functions that facilitate the connection between training systems and SMEs' needs, supporting role adoption over time and the updating of the skills needed to address the gaps identified.

Section 6: Integration and development of the occupational taxonomy

6.1 Introduction

This chapter presents the integration and update to the occupational taxonomy introduced in version 1.0 of this report. It confirms the existing framework based on professional families while revising its structure and content in light of evidence from the second survey.

The proposed revision aims to harmonise the language and adopt shared labels already validated by questionnaire respondents for use throughout the project, and represents a first level of reorganisation, designed to be progressively refined and validated in subsequent Work Packages. This approach responds to the need to ensure consistency with the main existing reference frameworks, facilitating the integration of professional profiles within shared and recognisable schemes. Such alignment is essential to ensure the comparability, transferability, and recognition of emerging professions, as well as to support the

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development of training and career pathways that are formally usable across different institutional and market contexts.

In Tables 13 and 14, the current reading of professions develops along a pathway that spans the entire value chain, from the definition of strategic priorities and requirements (Job Family A), to activities related to design and digital industrialisation (Job Family B), up to the operational and data-driven management of market processes and the value chain (Job Family C). Job Family D completes the framework by highlighting the enabling role of organisational culture and lifelong learning, which are essential to bridge skills gaps and support the evolution of roles over time. In this context, the taxonomy is structured into four Job Families: (A) Strategy, Governance & Circular Transformation; (B) Creative Design & Digital Production; (C) Market Intelligence & Value Chain Operations; (D) Culture & Learning.

Table 13. Evolution of the classification: from Families (version 1.0, August 2025) to Job Families (version 2.0).

Family (version 1.0)	Job Family (update)
Creativity and Digital Innovation	A – Strategy, Governance & Circular Transformation
Sustainability Strategy and Governance	B – Creative Design & Digital Production
Production and Technical Craftsmanship	C – Market Intelligence & Value Chain Operations
Operational and Cross-cutting Support	D – Culture & Learning

Table 14. Profile consolidation: mergers and new roles compared to the version 1.0 taxonomy.

Role (updated)	Type	Profession in version 1.0
Circularity & Sustainability Manager (Combines Circularity Manager, Sustainability Innovation Lead, Recycling/Upcycling Manager)	Expansion	Sustainability Manager/CSR Specialist
Digital Transformation & Innovation Leader (Digital Transformation Lead +Innovation Director + Change Management Specialist + Sustainability Transformation Manager)	Expansion	Innovation Process Manager
ESG & Sustainability Data Analyst (ESG Data Analyst + Sustainability Reporting Officer + Data Analyst roles)	Renaming/expansion	ESG Data Analyst/Impact Strategist
Digital Product Passport (DPP) & Traceability Specialist (DPP Specialist +Supply Chain Traceability Expert)	Expansion/ strengthening	Supply Chain Expert/Traceability
Eco-Designer/Sustainable Product Designer (Eco-designer + Materials Researcher)	Merger	Eco-designer + Textile Innovation Expert/ Biomaterials
Ethical Trade & Supply Chain Auditor Ethical Trade/Supply Chain Auditor)	Renaming	Human Rights and Ethical Work Expert

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Sustainability Educator & Trainer (Sustainability Educator + Digital SkillsTrainer + L & D Manager)	Expansion	Sustainability Educator/Internal Trainer
Digital Product Designer/3D Fashion Designer (Digital Product Designer +3D Fashion Designer)	Expansion	Digital Fashion Specialist/3D Designer
Trend Forecasting Analyst	Renaming	Fashion Data Analyst/Trend Forecaster
Artisan/craftsperson	Renaming	Contemporary artisan
Multidisciplinary creative	Renaming	Multidisciplinary Freelance Creative
Digital Production & PLM Systems Manager (Digital Production Specialist +PLM Manager)	New	
Circular Supply Chain & Reverse Logistics Manager (Circular Supply Chain Manager + Reverse Logistics Specialist + Lifecycle/Take-back roles)	New	
Digital Showroom & Virtual Experience Coordinator	New	
AI Personalization & Customer Insights Manager	New	
Inventory & Demand Optimization Manager	New	
Legal Compliance Expert (EPR, DPP, etc.)	New	
Curriculum Designer for Digital & Sustainable Fashion	New	
HR Fashion Specialist (Green & Digital Talent Acquisition)	New/extension	HR Fashion Specialist (Green & Digital Talent Acquisition): profile supporting recruitment and alignment between skills needs and the labour market, particularly relevant in SME contexts.

6.2 New taxonomy configuration

Job Family A: Strategy, Governance & Circular Transformation

- Circularity & Sustainability Manager (combines Circularity Manager, Sustainability Innovation Lead, Recycling/Upcycling Manager)
- Digital Transformation & Innovation Leader (Digital Transformation Lead + Innovation Director + Change Management Specialist + Sustainability Transformation Manager)
- ESG & Sustainability Data Analyst (ESG Data Analyst + Sustainability Reporting Officer + Data Analyst roles)
- Legal Compliance Expert (Extended Producer Responsibility – EPR, digital passport, etc.)
- Ethical Trade & Supply Chain Auditor (Ethical Trade/Supply Chain Auditor).

Job Family B: Creative Design & Digital Production

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- Eco-Designer/Sustainable Product Designer (Eco-designer + materials researcher)
- Digital Product Designer/3D Fashion Designer (Digital Product Designer + 3D Fashion Designer)
- Digital Production & PLM Systems Manager (Digital Production Specialist + PLM Manager)
- Artisan
- Multidisciplinary creative.

Job Family C: Market Intelligence & Value Chain Operations

- Circular Supply Chain & Reverse Logistics Manager (Circular Supply Chain Manager + Reverse Logistics Specialist + lifecycle/take-back roles)
- Digital Product Passport (DPP) & Traceability Specialist (DPP Specialist + Supply Chain Traceability Expert)
- Trend Forecasting Analyst
- AI Personalization & Customer Insights Manager
- Inventory & Demand Optimization Manager
- Digital Showroom & Virtual Experience Coordinator (Digital Showroom Coordinator).

Job Family D: Culture & Learning

- Sustainability Educator & Trainer (Sustainability Educator + Digital Skills Trainer + L & D Manager)
- Curriculum Designer for Digital & Sustainable Fashion (curriculum designer for fashion/ digital innovation)
- HR Fashion Specialist.

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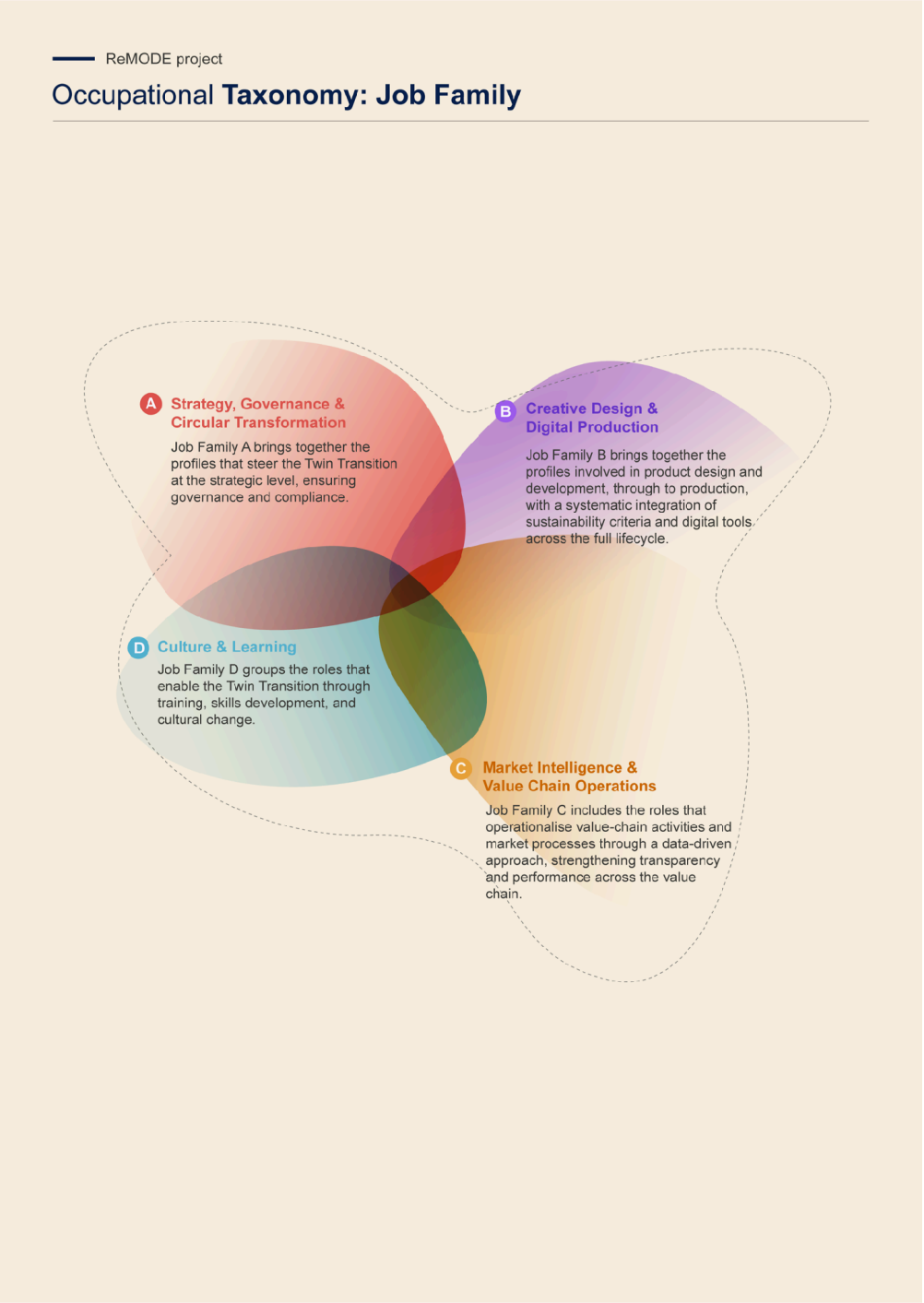

Figure 2 — New taxonomy configuration: the four job families. Source: IUAV, 2026.

Table 15. Summary of the job families across the five domains (Skills, Knowledge, Responsibilities, Abilities, Experience Requirements).

Job Family	Skills	Knowledge	Responsibilities	Abilities	Experience Requirements
A. Strategy, Governance & Circular Transformation	ESG strategy & KPIs; stakeholder management; change	Circular economy; governance/ reporting; regulation;	Policies & roadmaps; ESG reporting; compliance/	Evidence-based decisions; trade-offs; align functions; manage	Master's-level pathways; 2-5+ yrs CSR/ESG/ compliance;

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	management; data literacy; translating requirements into controls	transparency & traceability; risk & compliance	accountability; traceability controls; transformation programmes	complexity; inclusive stakeholder consultation	executive programmes; Living Labs exposure (pilots)
B. Creative Design & Digital Production	Eco-design/ circularity; 3D prototyping; PLM workflows; process optimisation; artisanal upskilling; co-design	Materials & impacts; lifecycle strategies; sustainable design; production/quality; PLM; diverse textile cultures	Define product requirements; validate solutions; documentation/ versioning; reduce impacts; enable digital tool adoption	Iterate rapidly; manage aesthetic/ performance/ impact trade-offs; knowledge transfer; continuous learning; justice-informed design	Design/ engineering pathways; academies/ portfolio; 1-5 yrs dev/3D/PLM/R & D; Living Labs/ prototyping
C. Market Intelligence & Value Chain Operations	Supply chain & logistics; reverse flows; traceability/ DPP; analytics/ forecasting; inventory optimisation; digital channels	Value chain processes; data quality; auditing/ compliance; market trends; circular operations; DPP requirements	Ensure flow performance; implement traceability; provide reliable data; reduce waste/unsold stock; manage digital touchpoints	Turn signals into actions; integrate data; balance service/cost/ impact; solve multi-system issues; due diligence via data	Logistics/ engineering/data pathways; specialised programmes; 2-5 yrs operations/ traceability/ analytics; Living Labs pilots
D. Culture & Learning	Curriculum & learning design; up/reskilling; facilitation; assessment; partnerships; HR support; co-design	Lifelong learning; active methodologies; green/digital frameworks; change management; inclusivity; decolonising curricula	Design training pathways; define objectives/criteria; enable adoption at work; communities of practice; update competence language	Build engagement; adapt to contexts; make skills transferable; connect ecosystem; evaluate co-designed curricula's impacts	Education/HR pathways; arts/ design HEIs & conservatoires; 2-4 yrs L & D/HR; Living Labs learning pilots

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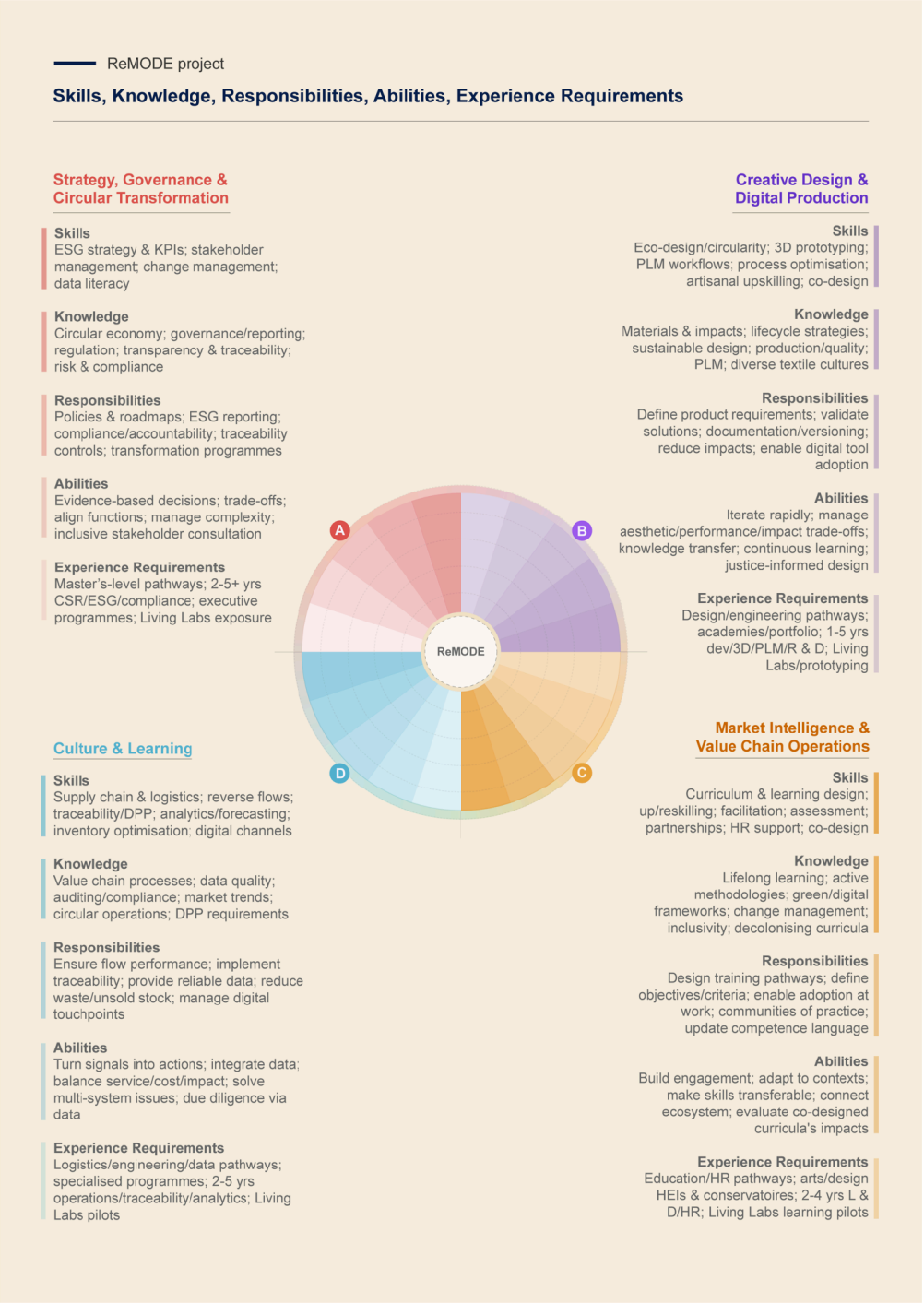

Figure 3 — Summary of the job families across the five domains. Source: IUAV, 2026.

6.3 Description of the job families

6.3.1 Job Family A. Strategy, Governance & Circular Transformation

Job Family A brings together the profiles that steer the Twin Transition at the strategic level, ensuring governance and compliance. In the textile and apparel sector, sustainability is increasingly configured as a cross-cutting responsibility: it requires professionals able to connect vision, rules, and performance measurement, translating the principles of circularity and responsibility into business choices, processes, and operational control mechanisms.

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Skills: Definition of sustainability strategies and KPIs; project and change management; stakeholder management and communication; data literacy applied to governance and reporting; ability to translate requirements into processes and operational controls; coordination of different actors around shared standards and objectives; reading and use of data to support KPIs and improvement plans.

Knowledge: Principles of circular economy and lifecycle thinking; governance and reporting frameworks; regulatory requirements and transparency/traceability standards; supply chain fundamentals and impacts; risk & compliance concepts; logics and limits of classification systems (roles/skills) as tools to be updated over time.

Responsibilities: Set roadmaps and priorities; define policies and procedures; integrate circularity into product and supply-chain choices; ensure compliance and accountability; ensure transparency and traceability controls; monitor performance, including ESG monitoring and reporting, and ensure continuous improvement; coordinate transformation programmes and change management; ensure consistency and updating of internal references on roles and skills to support comparability and transferability.

Abilities: Make evidence-informed decisions; align different functions around shared goals; negotiate trade-offs between impact, time, and costs; lead internal adoption and continuity over time; manage complexity in multi-actor contexts. Ability to ensure inclusive stakeholder consultation when defining standards, KPIs, and decision-making criteria.

Experience Requirements: Education pathways may include Master's-level studies (or equivalent) in economics, management, law, industrial engineering, statistics, or related fields; relevant postgraduate courses may also be provided by specialised academies and executive programmes. Professional experience typically ranges from 2-5+ years in CSR/ corporate sustainability, ESG reporting/auditing, compliance (including transparency/ traceability requirements), and governance-related roles (depending on seniority). Core experience should include strategic ESG planning, stakeholder engagement, and the translation of regulatory/reporting requirements into procedures, KPIs, and internal accountability mechanisms. Exposure to Living Labs or similar multi-stakeholder pilot settings can be relevant when policies, governance mechanisms, or reporting processes are tested and refined iteratively with ecosystem actors.

6.3.2 Job Family B. Creative Design & Digital Production

Job Family B brings together the profiles involved in product design and development, through to production, with a systematic integration of sustainability criteria and digital tools across the full lifecycle. From an interdisciplinary perspective, this family connects creativity and design culture with materials knowledge and the ability to translate technological innovation into solutions that can be concretely applied in design and production processes.

Skills: Eco-design and design for circularity (materials, durability, repairability, disassembly); digital development and prototyping (3D modelling and digital workflows); data and workflow management in PLM; industrialisation and optimisation of processes and production flows; integration of advanced tools to support design and development; valorisation of technical and artisanal know-how and its upskilling in an innovation perspective; collaboration in multidisciplinary teams; ability to translate cultural and identity values into product requirements consistent with sustainability and manufacturability. Co-design skills (working

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with students/communities/practitioners) and cultural sensitivity to avoid Eurocentric bias in design norms, with the ability to critically address appropriation, authorship, and representation in the design process.

Knowledge: Materials and their impacts (including alternatives and biomaterials); product lifecycle and extension strategies (durability, repairability, reuse); principles of sustainable design; production and quality fundamentals; standards and technical documentation; digital product development workflows; PLM systems and processes; elements of design culture and fashion languages useful to guide informed choices. Knowledge of diverse textile practices, design philosophies, and aesthetics from historically underrepresented cultures, and of ethical frameworks linking cultural respect with environmental and social sustainability.

Responsibilities: Define product and sustainability requirements; design and validate solutions (physical and digital); ensure consistency between design, materials and manufacturability; manage documentation and versioning; contribute to reducing waste and impacts across the lifecycle; facilitate integration between creative, technical and production skills; support industrialisation and optimisation of production flows; contribute to the adoption of digital and advanced tools in design and development processes; maintain and update technical-artisanal competences in line with innovation.

Abilities: Turn constraints into design solutions; experiment and iterate quickly; assess trade-offs between aesthetics, performance, and impact; transfer knowledge across creativity, technical functions, and production; continuously learn and update tools and methods. Ability to develop ethically and ecologically informed design solutions by embedding cultural and environmental justice considerations throughout the product lifecycle.

Experience Requirements: Education pathways may include a degree or vocational training certificate in fashion design, product/industrial design, materials/chemical/textile engineering, or related fields; specialist fashion and design academies may provide equivalent pathways, particularly when supported by a portfolio. Professional experience typically ranges from 1-5 years in pattern making and product development, eco-design and LCA-informed design, digital prototyping/3D modelling (e.g., CAD/CLO3D), PLM-supported product data management, and/or textile/materials R & D (including biomaterials), depending on the specific role. Experience gained through Living Labs and other hands-on innovation settings (e.g., pilots, co-design workshops, prototyping sprints) can be relevant to demonstrate applied problem-solving and iterative validation.

6.3.3 Job Family C. Market Intelligence & Value Chain Operations

Job Family C includes the roles that operationalise value-chain activities and market processes through a data-driven approach, strengthening transparency and performance across the value chain. In an ecosystem characterised by heterogeneous actors (companies, suppliers, research, and education) and the need to cooperate on shared standards and data, these profiles oversee flow management and traceability, up to the interpretation of market signals to support decisions and optimisation.

Skills: Management of logistics and supply-chain flows (including reverse flows and recovery processes); design and management of traceability systems and the Digital

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Product Passport; data management and analysis (data collection, quality and use for market analysis, forecasting and planning; demand planning; insights); optimisation of demand, inventory and unsold stock through analytics and digital solutions; use of digital tools for touchpoints and channels (e.g., showrooms and virtual experiences); operational coordination with suppliers and partners around shared data and standards.

Knowledge: End-to-end value chain processes; traceability models and data quality; compliance and auditing fundamentals along the supply chain; market dynamics and trends; circularity principles applied to operations (take-back, reuse, repair, recirculation) and "care" logics across the product lifecycle; architectures and information requirements of the Digital Product Passport.

Responsibilities: Ensure continuity and performance of flows; implement and manage transparency and verifiability controls, including traceability systems and DPP; make reliable data available for operational and commercial decisions; reduce inefficiencies, unsold stock and waste; coordinate internal/external actors on processes and standards; support integration between impact objectives and operational constraints; manage digitally enabled touchpoints and channels (including virtual experiences) in support of market processes.

Abilities: Read weak signals and translate them into actions; integrate heterogeneous data; balance service, cost, and impact; solve complex problems in multi-actor and multi-system contexts; adapt processes to rapid market and technology changes. Ability to operationalise transparency and due diligence through shared data practices with suppliers and partners.

Experience Requirements: Education pathways may include a degree (or equivalent) in logistics/supply chain management, industrial engineering, statistics/data science, marketing, or related fields; specialised academies and professional programmes can provide complementary training on traceability standards, digital systems and analytics tools, and-where roles involve digital touchpoints/experience design-higher education institutions in arts and design may also offer relevant pathways (e.g., academies of fine arts). Professional experience typically ranges from 2–5 years in operations and supply chain management, traceability implementation (including digital systems and standards, potentially blockchain-enabled solutions), auditing/compliance along the value chain, and/or data-driven market analysis (forecasting, demand planning, consumer insights, and data visualisation). Experience in Living Labs (or comparable multi-actor pilot environments) can be relevant for testing traceability/DPP solutions, data-sharing practices, and operational process changes with suppliers and partners.

6.3.4 Job Family D. Culture & Learning

Job Family D groups the roles that enable the Twin Transition through training, skills development, and cultural change. Evidence from the literature highlights the effectiveness of participatory and engagement-oriented pathways that accompany change by combining technical competencies, cultural awareness, and sustainability. In less structured organisational contexts, these functions may be distributed or activated through networks and partnerships; however, they remain crucial to translate needs into continuous upskilling/ reskilling plans and to make skills and profiles more legible and transferable.

Skills: Learning design and curriculum design (on green and digital competences); definition of upskilling/reskilling plans for roles and functions; production of learning contents and

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assessment tools; facilitation and delivery of labs/workshops; coaching/mentoring and knowledge transfer; communication and change facilitation; facilitation of communities of practice; partnership management between companies, training providers and territories; co-design of pathways with stakeholders and professional communities; support to HR in reading needs and in attracting/managing talent with emerging skills. Co-design facilitation skills to involve students, communities, and practitioners from diverse cultural backgrounds in curriculum development and learning activities.

Knowledge: Lifelong learning and upskilling/reskilling approaches; active and participatory learning methodologies; green and digital competences frameworks; organisational dynamics and change management; tools to map roles and skills (taxonomies and frameworks) intended as dynamic references; principles of inclusivity and valorisation of diverse knowledge in education and training. Knowledge of decolonising and diversifying curriculum approaches (critical reflection on representation, Eurocentric narratives, authorship and appropriation) and how to embed cultural respect, inclusivity and environmental/social sustainability (justice) as cross-cutting learning outcomes.

Responsibilities: Translate needs into training pathways; define objectives, contents and evaluation criteria; design curricula and training pathways; enable adoption of competences in daily work; produce contents and assessment tools; support HR and management in skills planning and in talent management/attraction; promote communities of practice and internal communication initiatives; promote a culture of continuous learning; keep language and references on competences updated to make them comparable and usable.

Abilities: Create engagement and motivation; adapt pathways to different contexts and levels; make competences and profiles “readable” and transferable; connect resources and ecosystem actors to support change over time; facilitate collaboration and learning in multicultural and interdisciplinary contexts. Ability to design inclusive learning experiences that cultivate cultural literacy, ethical awareness, and sustainability consciousness, and to evaluate the impact of co-designed curricula on learning outcomes and practice.

Experience Requirements: Education pathways may include a degree (or equivalent) in education sciences, psychology, human resources, communication, or related fields; specialised academies and professional qualifications in training, coaching, facilitation, and HR can also be relevant, especially when combined with sector-specific exposure. In addition, higher education institutions in the arts, design, and performing arts (e.g., academies of fine arts and conservatoires) may provide relevant pathways for roles connected to creative pedagogy, curriculum design, and cultural facilitation. Professional experience typically ranges from 2-4 years in corporate training and facilitation, curriculum design and learning & development, skills assessment, and/or HR talent acquisition and career-path management, ideally with exposure to sustainability and digital-skills topics. Experience in Living Labs (or similar participatory learning and innovation settings) can be relevant for co-designing, piloting, and evaluating the training pathways with companies, learners, and ecosystem partners.

At this stage, the taxonomy does not aim to provide an exhaustive analysis of each role, but rather to define an initial coherent set of categories and descriptors to be used as a shared working baseline. Validation and refinement will take place progressively in subsequent Work Packages, through further engagement with stakeholders and the application of the

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taxonomy to different cases and contexts. Within this iterative process, each individual profile can be calibrated against the framework of its Job Family, modulating the depth and combination of the five domains according to organisational specificities and to the evolution of technologies, standards, and sector practices. The progressive enrichment of the information base with additional data and applied feedback will also strengthen the alignment and mapping of the proposed profiles against the taxonomies and repertoires most widely used today, facilitating their adoption and recognition in education and labour-market contexts. The proposed update consolidates the version 1.0 taxonomy into a four–Job Family framework, offering a coherent reading of the value chain and of the main functions involved in the Twin Transition. The characteristics described for each family through the five domains, Skills, Knowledge, Responsibilities, Abilities, and Experience Requirements, provide a transversal framework that is useful to make profiles comparable and to guide the subsequent operational translation.

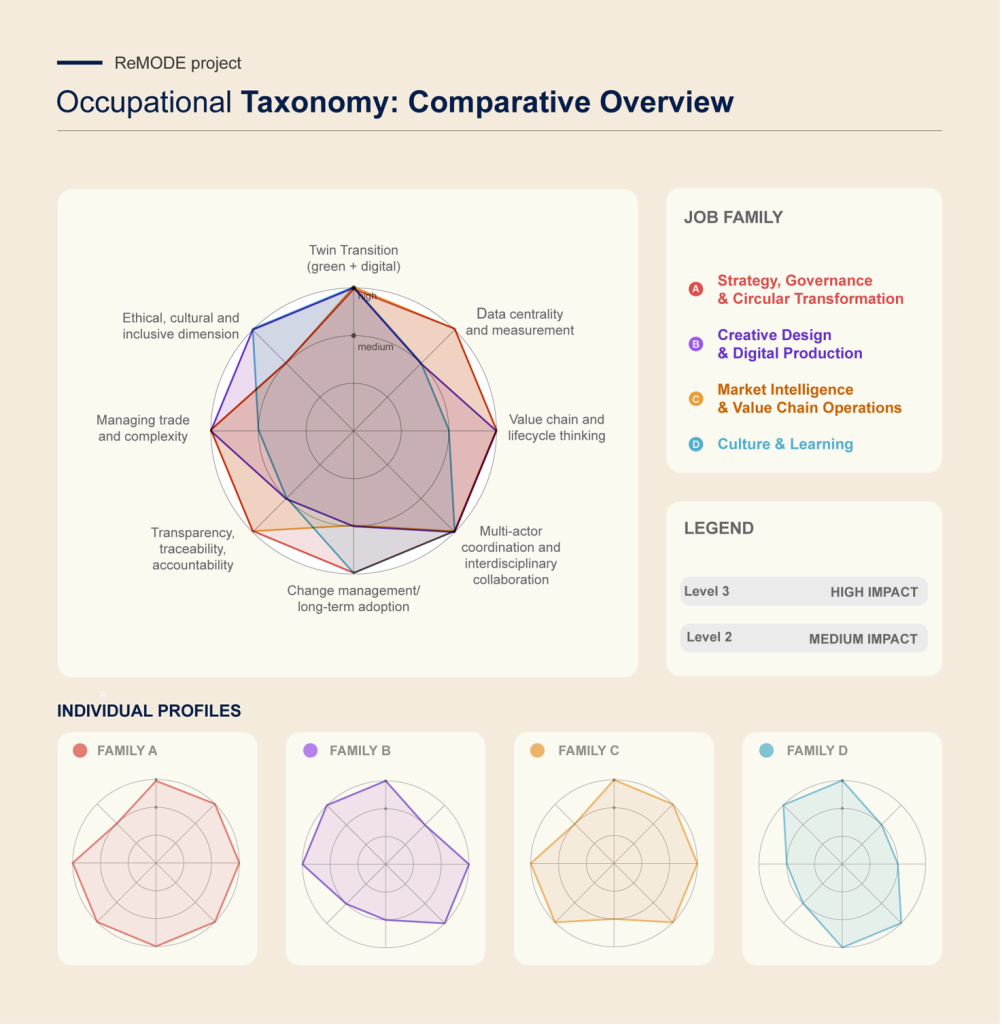

Figure 4 — Shared elements across job families: comparative overview. Source: IUAV, 2026.

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Section 7: Discussion — implications for the ReMODE project

This section discusses the implications of this deliverable for the ReMODE project. The update of the occupational taxonomy provides a shared baseline for the next phases, linking empirical evidence and training design and enabling the translation of needs, trends, and skill gaps into learning objectives and contents. It also makes profiles more comparable in the labour market, facilitating their use in selection and HR management (job adverts, CVs, job descriptions) and alignment with existing repertoires/frameworks (e.g., ESCO). Operationally, structuring the taxonomy into job families and the five domains' Skills, Knowledge, Responsibilities, Abilities and Experience Requirements provides ReMODE with a shared working grid to connect needs analysis, profile definition, and curriculum development, enabling modular pathways and support tools (career guidance and guidance) to clarify role areas, transitions and development trajectories. This function is particularly useful for profiles with a strong cultural and learning component, where it is necessary to integrate the training dimension, transversal competences and professional specificities.

7.1 Classification, curricula, and profile recognition

A key implication for ReMODE concerns the relationship between pedagogical design and profile recognition. Classifying and naming professions affects the visibility of roles and the usability of curricula: without a clear framing, profiles risk remaining marginal in selection, onboarding, and valorisation practices. For this reason, within the project, work on curricula and the formalisation of profiles must progress together. In this direction, articulation into job families and the five domains of Skills, Knowledge, Responsibilities, Abilities, and Experience Requirements, contributes to positioning roles in a readable way; a level of detail that is not excessively fragmented facilitates adoption and adaptation to different organisational contexts.

Based on questionnaire responses on roles considered relevant within companies, profiles such as Sustainability Educator & Trainer and Curriculum Designer for Digital and Sustainable Fashion rarely emerge as roles that are directly internal to the company. This does not imply low relevance: especially in SMEs, these functions may be located elsewhere or outsourced. In this sense, they can be framed as enabling profiles, useful for onboarding, curriculum analysis, and monitoring the evolution of skills, supporting internal mobility and skills governance. This suggests the opportunity to distinguish between functional relevance and the formal presence of a role: including these profiles in the taxonomy helps make their function explicit within transition processes. The proposed classification also facilitates dialogue between companies, education providers, and stakeholders by offering shared categories.

7.2 Operational implications for the next phases of the project

Finally, this section highlights some operational implications for the next phases of ReMODE. The updated taxonomy should be consolidated through stakeholder validation, to strengthen its clarity and fit with use contexts. It can also guide the development of training pathways and support tools, ensuring internal coherence and improved external readability of profiles. In parallel, it will be important to qualify the type of gaps observed, distinguishing between actual shortages of competences/roles and misalignments between training

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categories and labour demand: difficulties in recruiting certain profiles may also depend on non-aligned labels and low readability of profiles and curricula (e.g., in CVs and job descriptions). Consequently, alongside strengthening sustainability-related competences, the project can also act on terminological clarity. Overall, ReMODE's added value lies in integrating the training and the occupational dimension; in this sense, the taxonomy represents an enabling condition to sustain the effectiveness of project actions over time and to make emerging roles effectively usable within the system.

Section 8: Study limitations and future research

This section outlines the main methodological limitations of the study and identifies directions for further research, validation activities, and refinement of the occupational taxonomy developed within WP2. First, it should be noted that the empirical evidence derives from survey data and therefore reflects— to a significant extent—companies' perceptions and self-assessments, in particular those of respondents in senior roles. This approach may introduce elements of subjectivity linked to different interpretations of occupational categories and competences, as well as potential biases in the assessment of needs. In addition, cross-country comparability may be affected by linguistic and institutional differences, as well as by different levels of digital maturity and different degrees of preparedness regarding circular economy principles. Finally, the cross-sectional nature of the survey provides a snapshot at a given point in time and does not, in itself, allow for the observation of evolutionary trajectories over time.

Alongside these aspects, it is also important to consider limitations related to the taxonomy-building process itself. Defining job families and describing profiles through the five domains of Skills, Knowledge, Responsibilities, Abilities, and Experience Requirements necessitates a balance between granularity and usability: an overly detailed taxonomy may be difficult to adopt and update, whereas an overly broad taxonomy risks losing descriptive capacity with respect to emerging roles and hybrid configurations. Moreover, the presence of transversal profiles may generate partial overlaps between domains and boundaries between roles that are not always clear-cut. This issue is particularly evident in SMEs contexts, where functions are often distributed across a small number of people, and positions tend to combine heterogeneous responsibilities.

In light of these limitations, the deliverable identifies stakeholder engagement as a key development line for the validation and progressive refinement of the taxonomy. In particular, structured moments of comparison (e.g., interviews and workshops) with SMEs, education and training actors, and other sector stakeholders are relevant to verify the clarity of role labels, the relevance of profiles to use contexts, and the internal coherence of the descriptive domains. Further research can strengthen the robustness of the evidence through triangulation across sources (e.g., complementing the survey with documentary analysis, company cases, or labour-demand data) and, where possible, through longitudinal data collection to monitor the evolution of needs over time. Consistent with ReMODE's four-year duration, the taxonomy should be understood as a dynamic artifact to be updated iteratively (terminology, level of detail, possible extensions), also starting from recurring difficulties in sourcing specific roles or competences, which should be analysed and qualified on a case-by-case basis.

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In addition, a dedicated validation process should position the proposed job families and profiles within existing occupational classification systems by mapping them to ESCO (and, where relevant, to national classifications) and by identifying any gaps or misfits. Where the proposed profiles are not adequately covered, the process should also support the development of a consolidated proposal to add or update entries in ESCO (or comparable taxonomies), based on iterative refinement of labels and descriptors through stakeholder feedback.

Overall, the limitations discussed here do not reduce the relevance of the deliverable's contribution but rather delimit its interpretation. The findings should therefore be read as an exploratory and comparative baseline that supports the systematisation of profiles and alignment between education and occupational languages, while recognising that the adoption and transferability of the taxonomy will depend on subsequent verification steps in different contexts and on the evolution of sector practices.

Section 9: Conclusions

This deliverable has explored the relationship between the transformations underway in the textile and apparel sector, emerging skills needs, and the updating of professional profiles, placing the occupational taxonomy at the centre of the analysis. Through the integration of empirical evidence and conceptual reflection, the work has refined the taxonomy presented in version 1.0 of this report by organising profiles into job families and describing them through a shared grid based on the following five domains: Skills, Knowledge, Responsibilities, Abilities, and Experience Requirements. This approach strengthens the internal coherence of the classification and enhances its comparability, in line with the logic of the Twin Transition. The findings show that digital and sustainable transformations do not translate solely into the emergence of new roles, but also into a reconfiguration of existing profiles and skill combinations, often characterised by a strong transversal dimension. In this context, the updated taxonomy helps make these processes more readable by offering a structured representation of professional profiles across design, production, governance, and learning. Finally, the attention devoted to enabling profiles and to functions that may also operate outside formal company structures reinforces an ecosystem-based reading of competences, consistent with the objectives of the ReMODE project.

A further contribution of this deliverable concerns the way in which the taxonomy connects training design and the recognition of profiles within the occupational system. At this stage, rather than describing each individual role in full detail, the objective is to identify common characteristics for each job family, using the five domains' Skills, Knowledge, Responsibilities, Abilities and Experience Requirements as a shared grid. A more granular articulation of the domains for individual profiles requires more specific evidence and will be developed progressively as the project advances, through additional data and validation moments. Looking ahead, the taxonomy can support curriculum alignment and career guidance activities, also helping to better qualify the observed gaps (actual shortages vs terminological misalignments) and to accompany the continuous updating of profiles in relation to standards, technologies, and sector practices.

In conclusion, the overall value of this deliverable lies in its ability to integrate empirical analysis and conceptual reflection, offering a reference framework that supports the

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subsequent phases of the project. Through the update of the occupational taxonomy, ReMODE now has a tool that describes the transformations underway and supports their interpretation in terms of competences and profiles, laying the foundations for the progressive consolidation of professional profiles in the sector.

In this perspective, the updated job families and profile categories are intended not only for internal project use but also to be mapped and proposed for inclusion in ESCO and other comparable occupational classification systems to strengthen the visibility, portability, and formal recognition of emerging and reconfigured roles across European labour-market and education contexts.

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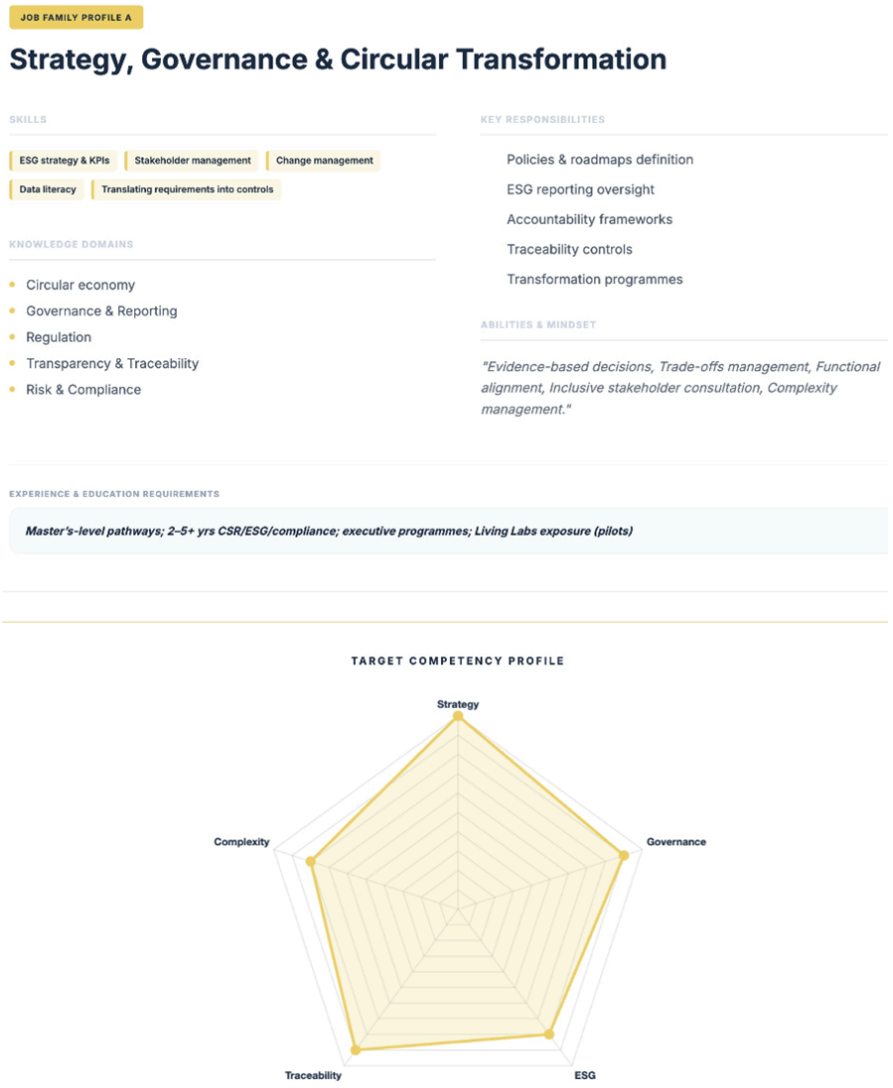
Annex — Job family profile cards

Graphic profiles of the four job families (skills, knowledge domains, key responsibilities, abilities and mindset, experience and education requirements, target competency profile). Source: IUAV, 2026.

Job Family A — Strategy, Governance & Circular Transformation



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Job Family B — Creative Design & Digital Production

JOB FAMILY PROFILE B

Creative Design & Digital Production

SKILLS

Eco-design/Circularity | 3D Prototyping | PLM workflows | Process optimisation | Artisanal upskilling | Co-design

KNOWLEDGE DOMAINS

- Materials & Impacts
- Lifecycle strategies
- Sustainable design
- Production/Quality
- Diverse textile cultures
- Digital tool adoption

KEY RESPONSIBILITIES

Define product requirements
Validate performance/impact
Documentation & Versioning
Reduce impacts
Enable digital tool adoption

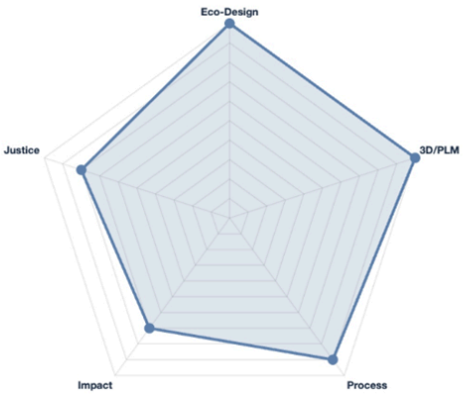
ABILITIES & MINDSET

"Iterate rapidly, Manage aesthetic/impact trade-offs, Knowledge transfer, Continuous learning, Justice-informed design."

EXPERIENCE & EDUCATION REQUIREMENTS

Design/engineering pathways; academies/portfolio; 1–5 yrs dev/3D/PLM/R&D; Living Labs/prototyping

TARGET COMPETENCY PROFILE



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Job Family C — Market Intelligence & Value Chain Operations

JOB FAMILY PROFILE C

Market Intelligence & Value Chain Operations

SKILLS

Supply chain & logistics | Reverse flows | Traceability/DPP | Analytics/Forecasting | Inventory optimisation | Digital channels

KNOWLEDGE DOMAINS

- Value chain processes
- Data quality
- Auditing/Compliance
- Market trends
- Circular operations
- DPP requirements

KEY RESPONSIBILITIES

- Flow performance management
- Traceability implementation
- Provide reliable data
- Reduce waste/unsold stock
- Manage digital touchpoints

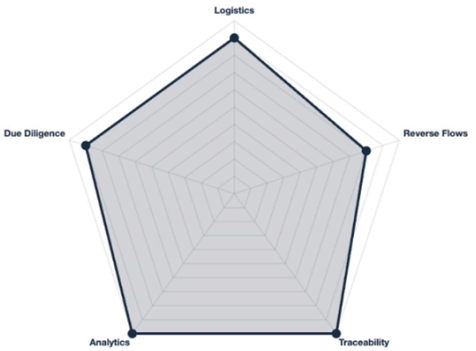
ABILITIES & MINDSET

"Turn signals into actions, Integrate data, Balance service/cost/impact, Solve multi-system issues, Due diligence via data."

EXPERIENCE & EDUCATION REQUIREMENTS

Logistics/engineering/data pathways; specialised programmes; 2–5 yrs operations/traceability/analytics; Living Labs pilots

TARGET COMPETENCY PROFILE



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Job Family D — Culture & Learning

JOB FAMILY PROFILE D

Culture & Learning

SKILLS

Curriculum & learning design | Up/Reskilling | Facilitation | Assessment | Partnerships | HR support | Co-design

KNOWLEDGE DOMAINS

- Lifelong learning
- Active methodologies
- Green/Digital frameworks
- Change management
- Inclusivity
- Decolonising

KEY RESPONSIBILITIES

- Design training pathways
- Define objectives/criteria
- Enable adoption at work
- Communities of practice
- Update competence curricula

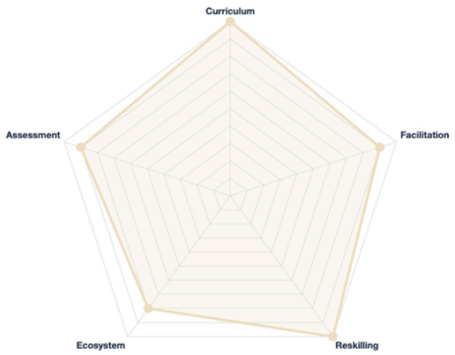
ABILITIES & MINDSET

"Build engagement, Adapt to contexts, Make skills transferable, Connect ecosystem, Evaluate co-designed curricula impacts."

EXPERIENCE & EDUCATION REQUIREMENTS

Education/HR pathways; arts/design HEIs & conservatoires; 2–4 yrs L&D/HR; Living Labs learning pilots

TARGET COMPETENCY PROFILE



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RE MODE

UNLOCKING CIRCULAR FASHION DESIGN EXCELLENCE

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