

Habitat Sector Skills Strategy

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Alliance of Centres of Excellence in Vocational Training for Sustainable Habitat



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MS13. Habitable Sector Skills Strategy

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Habitat Sector Skills Strategy
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INTRODUCTION

The Habitat sector faces a profound transformation driven by the dual green and digital transition, the industrialization of construction processes, regulatory pressures from European frameworks such as the Skills Pact and the EU Skills Agenda, and new social expectations regarding comfort, health, and sustainability of the built environment. In this context, the Vocational Education and Training (VET) system must evolve from relatively stable models toward a much more dynamic, interconnected, and demand-sensitive scheme, capable of anticipating changes and responding quickly to new skills needs, as derived from the analysis of the current state of the skills ecosystem in the Habitat sector.

This roadmap, developed within the HABITABLE Cove project, proposes a coherent and articulated framework to equip the VET system with the necessary capacity to serve the sector in the short, medium, and long term, integrating general and intermediate objectives—identified from the state of the art and international cases such as those from the OECD and the "Skills First" approach—, key ecosystem actors, standardized tools like ESCO and the Spanish National Catalogue of Professional Competence Standards (LO 3/2022), and estimated timelines in a common vision aligned with the 2009 European Recommendation on Quality Assurance in VET.

The purpose of this document is to present, in an operational and accessible way, how the Habitat Sector Skills Strategy will be deployed within the HABITABLE project in order to strengthen the capacity of VET systems to serve the Habitat sector in the short, medium and long term. It builds on the objectives of HABITABLE –creating and consolidating an alliance of Centres of Vocational Excellence, improving the matching between skills supply and demand, and supporting the twin green and digital transition– and translates them into a concrete roadmap for skills development in the Habitat ecosystem.

Within this framework, the milestone MS13 aims to establish the roadmap that will provide the VET system with the capacity to serve the Habitat sector over time. Therefore, this document specifies the general objectives and intermediate goals derived from the analysis of the current state of the skills ecosystem, and describes for each of them the stakeholders involved, the tools to be used and the expected time horizon. The document is conceived as an explanatory and user-friendly reference that makes the Habitat Sector Skills Strategy understandable and

actionable for HABITABLE partners and for the wider community of actors in the Habitat ecosystem.

1. Purpose and Meaning of the Roadmap

The central purpose of this roadmap is to guide the transformation of the Vocational Education and Training (VET) system linked to the Habitat sector toward a true skills ecosystem, where the identification, development, and effective use of competencies become the main axis of training and employment policy, as proposed in the HABITABLE Cove project deliverable T5.2. It involves shifting from a focus on standardized qualification offerings to a "Skills First" approach, inspired by the World Economic Forum framework and adapted to the Habitat sector context, where what matters is that individuals possess the capabilities necessary to successfully perform current and future jobs, addressing mismatches identified in the state-of-the-art analysis including international cases like China, Australia, and Scotland.

This approach aligns with the OECD Skills Strategy, which emphasizes three key levers: developing relevant skills, activating their supply in the labor market, and ensuring their effective utilization in productive environments. This roadmap defines a **long-term shared vision** among FP-Habitat ecosystem agents, articulated around a three-dimensional model that integrates collaborative horizontalities (companies, skills providers, and enablers like clusters), facilitating verticalities (European policies such as the Skills Pact), and 45° mediations for holistic evolution.

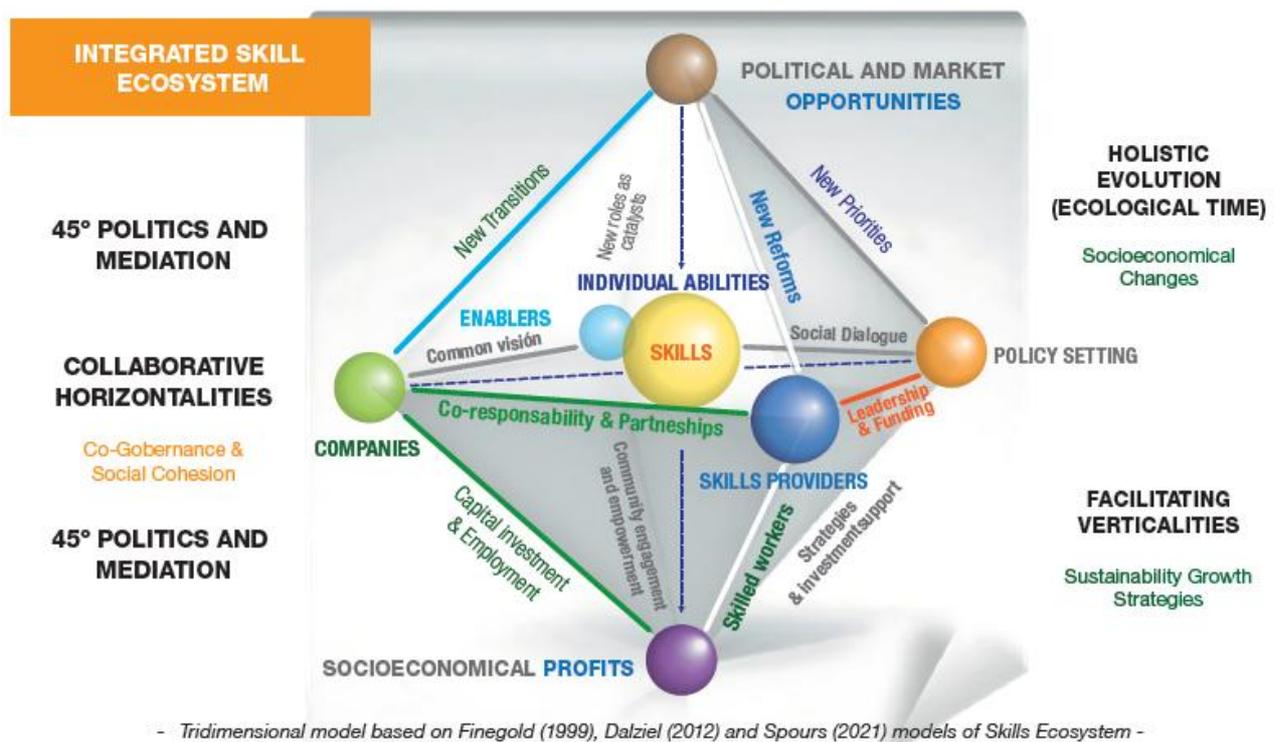


FIGURE 1. Integrated skills ecosystem. SEXTUPLE HELIX. Source: Sigüenza, A. F. (2024). Skills strategy for the habitat sector.

It establishes **clear general objectives** aligned with this vision, derived directly from the current state of the sector, such as identifying skills gaps, articulating needs in job descriptions, and promoting skills-based career pathways. It deploys these objectives into **operational short, medium, and long-term intermediate goals**, with estimated timelines like 12 months for initial key occupation mappings using ESCO and 24 months for dual VET program implementation. It identifies specific actors (business associations, regional administrations like Castilla y León, unions, and VET centers), standardized tools (Spanish National Catalogue of Professional Competence Standards and skills intelligence platforms from HABITABLE WP2), and timelines for each goal, facilitating implementation and monitoring through effectiveness indicators.

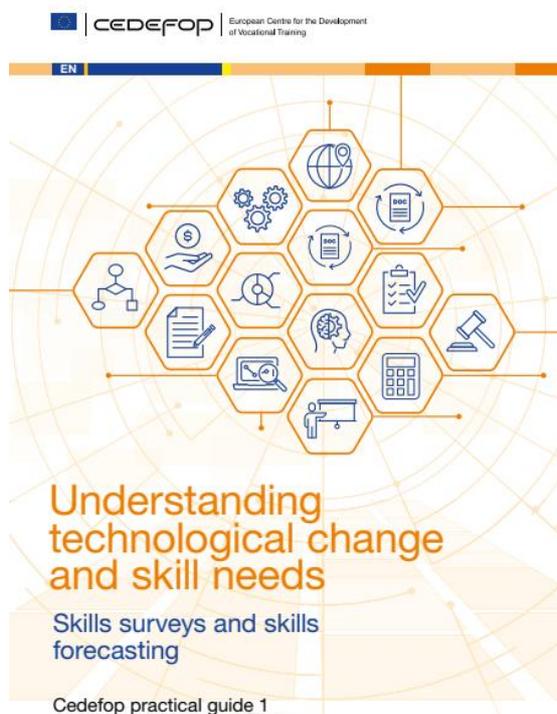


FIGURE 2. Source CEDEFOP elaboration

<https://www.cedefop.europa.eu/en/publications/4197>

It is not a static document, but a living instrument that must be reviewed and updated periodically in light of sector evolution driven by green and digital transitions, emerging technologies, and labor market dynamics, in accordance with the recommended ecosystemic innovation tank in Habitat Skill Ecosystem analysis. This dynamic nature ensures alignment with the 2009 European Parliament and Council Recommendation on the European Quality Assurance

Reference Framework for VET, promoting certification of learning outcomes and qualification mobility in the Habitat sector.

2. Framework: From VET System to Skills Ecosystem

2.1. The Habitat Skills Ecosystem

The concept of a skills ecosystem is key to understanding the nature of the proposed transformation, configured as a regional or sectoral social formation in which human capabilities are developed and deployed for productive purposes, according to Finegold's seminal definition adapted to the Habitat sector.

A skills ecosystem is defined as an articulated set of actors, relationships, resources, and norms that, in a given sector or territory, shape how people's capabilities are developed, recognized, and utilized to generate economic and social value, evolving from skills formation models to three-dimensional approaches incorporating collaborative horizontalities, facilitating verticalities, and dynamic mediations, as proposed in the HSE (Habitat Skill Ecosystem) model. In the Habitat sector, this ecosystem integrates construction companies, product and solution manufacturers, installers, maintenance, rehabilitation, and built environment service companies; initial and continuing VET centers, centers of excellence like those in the HABITABLE Alliance, universities, and employment training entities; educational, labor, and economic development administrations, as well as public employment services and qualifications agencies; and clusters, business associations, unions, professional colleges, and innovation entities.

What matters is not only who participates, but how these actors relate: how skills needs data are shared through intelligence platforms like that developed in HABITABLE WP2, how training programs are jointly designed under co-responsibility and partnership principles, how capabilities are assessed in real work contexts using innovative standards, and how results are fed back into the system for holistic evolution in ecological time. This dynamic is conditioned by environmental factors such as twin transitions (digital and green), European policies (Skills Pact, EU Skills Agenda), and market opportunities, ensuring sustainable socioeconomic benefits in terms of growth, social cohesion, and qualified employability.

The full conceptual description of the Habitat Skills Ecosystem model, including its three-dimensional structure and theoretical foundations, can be found in the "Skills strategy for the Habitat sector". Here, the model is taken as a starting point to define concrete goals, actors and tools for its implementation within HABITABLE.

2.1.1. Habitat ecosystem actors within the HABITABLE project

Within the HABITABLE project, the Habitat Skills Ecosystem is operationalised through a concrete constellation of actors:

- **Centres of Vocational Excellence (CoVEs)** acting as key skills providers and innovation hubs in their respective territories.

- **Regional and national VET and education authorities**, responsible for regulating and steering VET systems and qualifications.

- **Companies from the Habitat value chain** (construction, wood and furniture, ceramics and glass, building services, energy and related services), providing work-based learning opportunities and defining real skills needs.

- **Clusters and sectoral associations**, which coordinate companies, facilitate dialogue and promote joint initiatives.

- **Research and higher education institutions**, contributing with knowledge, foresight and innovation to the skills ecosystem.

- **Public employment services and guidance providers**, supporting transitions into and within the Habitat sector.

Together, these actors form the practical “Habitat ecosystem” on which this roadmap is based, and they are the primary target groups for the implementation of the strategy.

2.2. The “Skills First” Approach as Guiding Principle

The skills strategy for the Habitat sector adopts the “Skills First” approach as its guiding principle, as detailed in the base document's dedicated section, recognizing that prioritizing skills over formal qualifications transforms labour markets by expanding available talent and fostering inclusion. This means that skills are considered the basic unit of analysis, planning, and action, above specific formal qualifications or trajectories, aligning with dynamic, customizable, and granular taxonomies like ESCO or the Spanish National Catalogue of Professional Competence Standards established by LO 3/2022, for example. Jobs are described by sets of observable and evaluable competencies, not just professional categories or education levels, facilitating the articulation of needs in job postings and adoption of competency-based assessments with minimum equity and cognitive rigor standards. Training, experience recognition, and informal learning are articulated to build and accredit these capabilities continuously, through action areas such as co-developing programs with industry and government, promoting lifelong learning, and skills-based talent pathways.

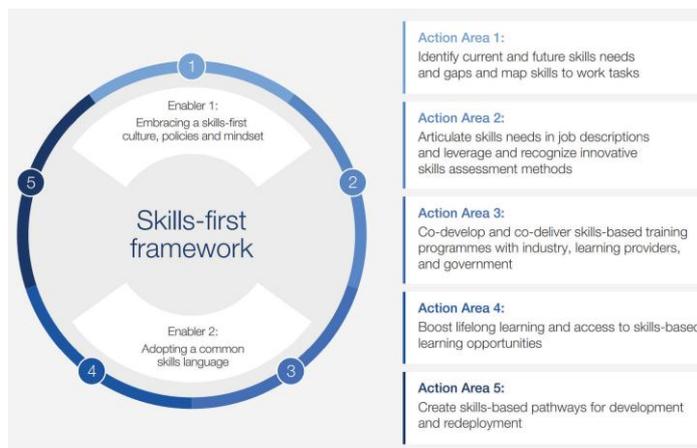


FIGURE 3. Skills First Approach plan.

Source: Sigüenza, A. F. (2024). Skills strategy for the habitat sector.

This approach addresses three critical challenges observed in multiple countries —mismatch between what is taught and used (e.g., Australia), underutilization of competencies (e.g., Scotland), and formal overqualification with little return in employment quality (e.g., Spain)—, according to the analyzed state of the art. In the Habitat sector, where technical and regulatory innovation is intense, “Skills First” enables more agile adaptation by focusing efforts on specific capabilities related to ecological transition (e.g., energy efficiency in building), digitalization (e.g., BIM and online platforms), industrialization (e.g., modular prefabrication), and new social demands like accessibility and healthy comfort, contributing to a high-skills equilibrium that boosts sectoral productivity and resilience.

The following table summarizes the areas of action and the proposed actions:

Action Areas	Actions
<i>Action Area 1: Identify gaps and future needs for professional skills and map the skills needed to perform work tasks.</i>	<i>Obtain labour market data</i>
	<i>Get HR data and training data</i>
<i>Action Area 2: Articulate competency needs in job descriptions and harness and recognize innovative competency-based assessment methods.</i>	<i>Present descriptions of skills and competencies on the job</i>
	<i>Adopt minimum standards to design competency assessments</i>
	<i>Establish common standards to register and verify the acquired competences</i>
<i>Action Area 3: Co-development of training programs with companies, training providers and administration.</i>	<i>Develop learning objectives that meet the skills needs of companies</i>
	<i>Building alliances with training providers</i>
	<i>Ensuring access to learning and resources</i>
<i>Action Area 4: Promote training throughout life and access to learning opportunities based on competencies.</i>	<i>Provide people with practical experiences to develop their skills</i>
	<i>Offer funding for training, upskilling, and reskilling opportunities</i>
	<i>Promote the development of mentoring programs</i>
<i>Action Area 5: Create competency-based pathways to develop and redeploy talent.</i>	<i>Assess and monitor professional competencies in performance management</i>
	<i>Foster adaptability and resilience in the organization's culture</i>
	<i>Recognize the financial value of competencies through competency-based salaries and compensation</i>

FIGURE 4. Source: Sigüenza, A. F. (2024). *Skills strategy for the habitat sector*.

The Skills First approach is described in detail in the “Skills strategy for the Habitat sector”. In this MS13, it is understood in a practical way: defining jobs in terms of competencies, designing VET programmes to develop those competencies, and using assessment and validation tools that focus on what people can actually do in real work situations.

3. Long-term Vision and General Objectives

3.1. 2035–2040 Vision: A Robust and Adaptable FP-Habitat Ecosystem

The long-term vision can be summarized in the aspiration to have, by the 2035–2040 horizon, an FP-Habitat ecosystem capable of anticipating and responding agilely to skills needs arising from technological innovation, European regulations such as the Skills Pact and EU Skills Agenda, and social demands for sustainability and habitable comfort, as projected in the three-dimensional HSE model .

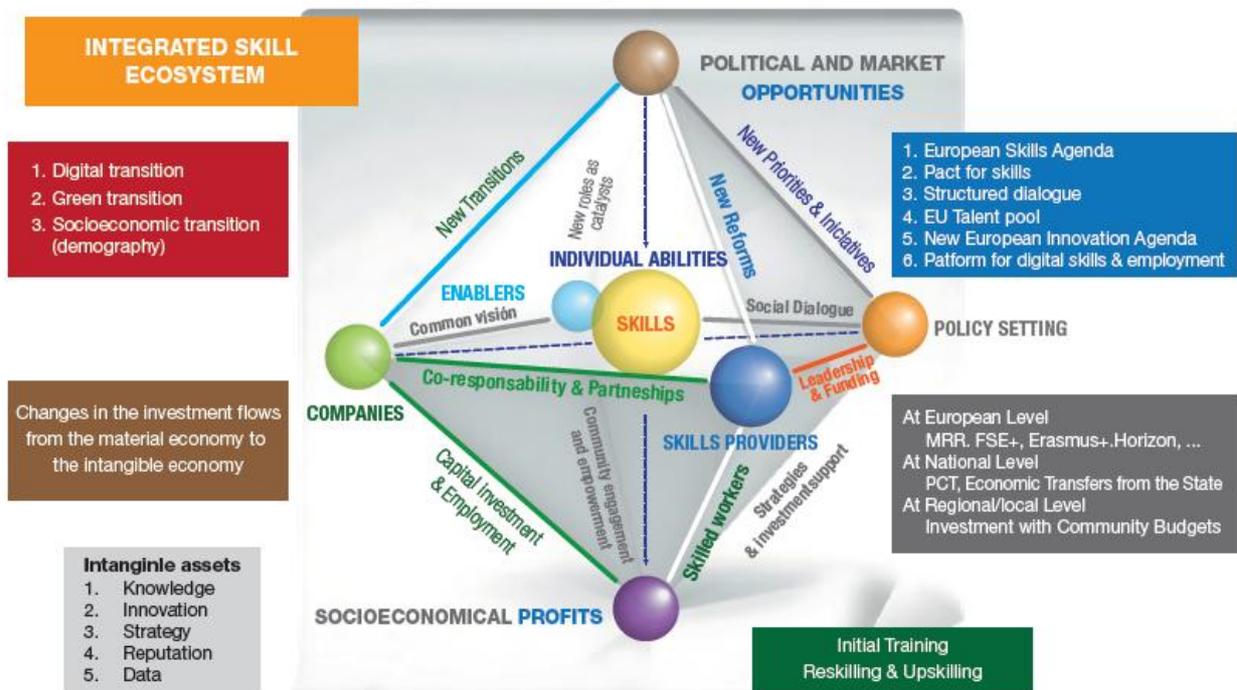


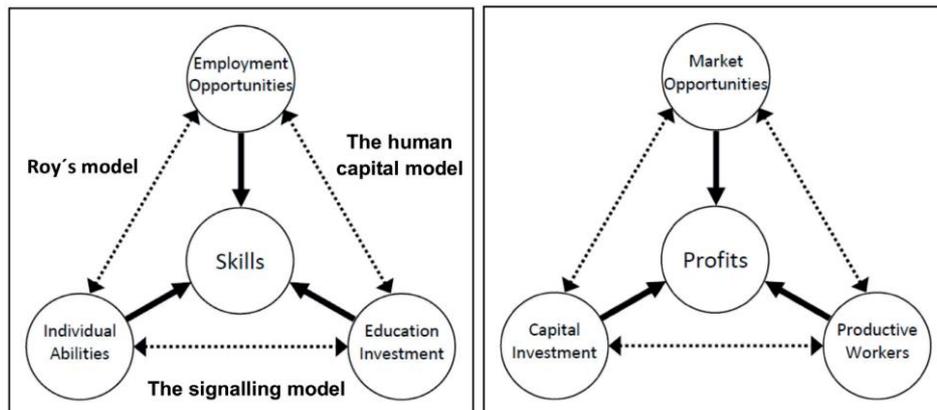
FIGURE 5. Integrated skills ecosystem in the common context of European Regions.

Source: Sigüenza, A. F. (2024). Skills strategy for the habitat sector.

This ecosystem will ensure attractive, inclusive, and sustainable professional pathways for individuals, with real opportunities for lifelong qualification improvement through skills-based pathways and reskilling/upskilling programs aligned with twin green and digital transitions.

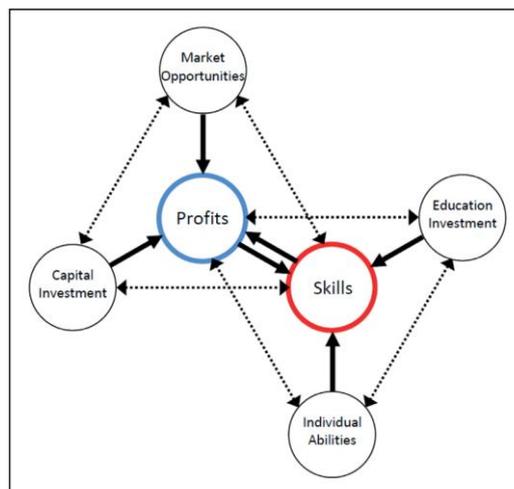
Companies will more easily find the profiles they need to compete, innovate, and grow, reducing bottlenecks due to skilled personnel shortages identified in the current state analysis, where sectors like construction face persistent deficits in key occupations such as energy efficiency installers or BIM specialists.

It will be recognized at the European level as an example of a skills ecosystem oriented toward the green and digital transition in the Habitat sector, contributing to the HABITABLE Cove Alliance of Centres of Excellence and serving as a reference in the European Talent Pool and European Digital Skills Platform.



Source: Dalziel (2012, Figure 11, p. 21).

Source: Dalziel (2012, Figure 4, p. 14).



Source: Dalziel (2012, Figure 19, p. 38).

FIGURE 6. A stylised model of skills utilisation

Source: Sigüenza, A. F. (2024). *Skills strategy for the habitat sector*.

This vision involves transitioning from "low skills equilibrium" situations or persistent imbalances—observed in cases like Australia's failed demand-driven system or Spain's high overqualification—to a "high skills equilibrium," where qualification levels and their effective use at work mutually reinforce each other, maximizing skills utilization according to the three levers of the OECD Skills Strategy.

3.2. General Objectives of the Roadmap

The roadmap is articulated around five general objectives, each of them directly aligned with the five Action Areas defined in the Habitat Sector Skills Strategy. For each objective, the implications, key stakeholders, main tools and indicative time horizon are specified.

General Objective 1. Identify current and future skills needs and gaps.

Objective. To establish a permanent and evidence-based system to identify current and emerging skills needs across the Habitat sector, reducing information asymmetries between VET providers, companies and public authorities.

Implications. This objective requires setting up regular labour market intelligence processes, analysing job offers and emerging occupations, and updating the Habitat skills map on a systematic basis.

Key stakeholders. VET authorities, labour market observatories, CoVEs, clusters, sectoral associations, public employment services and companies.

Main tools. Habitat skills map, sectoral surveys, foresight exercises, data analytics and the integration of ESCO and national catalogues of professional competence standards.

Time horizon. Short and medium term (first 3–7 years), with annual updates and reviews.

General Objective 2. Articulate skills needs in job descriptions and assessment methods.

Objective. To translate identified skills needs into clear, competency-based job descriptions and to adopt common principles and minimum standards for skills assessment and validation.

Implications. This implies moving from qualification-based to skills-based HR and VET practices, revising job profiles, and introducing competency-based assessment tools in both VET centres and companies.

Key stakeholders. Companies, HR managers, CoVEs, qualification agencies, VET centres and social partners.

Main tools. Competency-based job descriptions, shared assessment standards, digital portfolios, micro-credentials and recognition of prior learning procedures.

Time horizon. Short and medium term (2–7 years), with progressive consolidation in the long term.

General Objective 3. Co-develop and co-deliver skills-based training programmes.

Objective. To redesign and implement VET programmes for the Habitat sector through strong co-development and co-delivery between VET providers and companies, especially via dual VET and work-based learning.

Implications. This objective requires reconfiguring curricula, increasing company involvement in teaching and assessment, and scaling up dual VET offers in Habitat-related qualifications.

Key stakeholders. CoVEs and VET centres, companies, clusters, chambers of commerce, VET authorities and social partners.

Main tools. Dual VET schemes, apprenticeships, internships, joint curricula, company-based training projects and tutor guidelines.

Time horizon. Medium term (4–7 years) for large-scale deployment, with long-term consolidation.

General Objective 4. Boost lifelong learning and access to skills-based learning opportunities.

Objective. To ensure that workers, unemployed people and adults in transition can regularly update their skills in line with green and digital transitions in the Habitat sector.

Implications. This requires flexible, modular training offers, targeted re-skilling and up-skilling programmes and supportive guidance and financial incentives for adults.

Key stakeholders. Adult learning providers, CoVEs, public employment services, companies, sectoral organisations and regional/national authorities.

Main tools. Modular VET programmes, short specialist courses, online and blended learning, recognition and validation of non-formal and informal learning, and guidance services.

Time horizon. Medium and long term (4–15 years), with progressive expansion of participation rates in lifelong learning.

General Objective 5. Create skills-based pathways for development and redeployment.

Objective. To build transparent, skills-based career pathways in the Habitat sector, enabling workers to progress horizontally and vertically and to move between related occupations.

Implications. This involves linking skills acquisition to career progression, supporting redeployment in times of structural change and using skills as a basis for promotion and mobility.

Key stakeholders. Companies, CoVEs and VET centres, guidance services, social partners and public authorities.

Main tools. Career pathways frameworks, competency portfolios, skills-based promotion practices, procurement policies that reward skills, and monitoring and evaluation systems.

Time horizon. Long term (8–15 years), building on short- and medium-term foundations.

4. Short-term Goals (1–3 years): Building the Foundations

In the short term (1-3 years), the priority is to equip itself with the minimum strategic infrastructure to plan soundly and act coordinately, establishing the operational bases of the Habitat sector skills ecosystem in line with the current state analysis and initial Skills First action areas outlined in HABITABLE Cove project. These intermediate goals, with specific 12-24 month timelines, involve key actors such as regional administrations (e.g., Castilla y León), clusters like AEICE, HABITABLE Alliance VET centers, companies, and unions, using tools like European labour market data, ESCO, and the Spanish National Catalogue of Professional Competence Standards (LO 3/2022), to lay precedents enabling medium- and long-term objectives toward a high skills equilibrium.

4.1. Goal 1C: Initial Map of Habitat Occupations and Competencies

The development of a sectoral map of occupations and competencies is proposed to identify key current occupations in Habitat branches —such as infrastructure construction, industrialized housing, energy installations, and sustainable rehabilitation—, critical competencies associated with each, especially those related to green (e.g., energy efficiency and circular economy) and digital (e.g., BIM modeling and IoT platforms) transitions, and emerging trends potentially affecting job content in the next 5–10 years, such as robotization in prefabrication and AI integration in project management.



FIGURE 7. “Skills First” strategy in the Skills Ecosystem. Source: Sigüenza, A. F. (2024). *Skills strategy for the habitat sector*.

This map will be developed by combining labour market data (e.g., EURES reports and sectoral observatories), job supply-demand analysis, company consultations, and review of existing competency frameworks like ESCO, which classifies 3,008 occupations and 13,890 labour-market-linked skills. Its production requires involvement from administrations, observatories, qualifications institutes, VET centers, and business and union organizations, aligning with base document Action Area 1 for identifying current and future gaps; the goal is an operational first version in 12–18 months, integrated into HABITABLE WP2 Skills Intelligence Platform, with an annual update system.

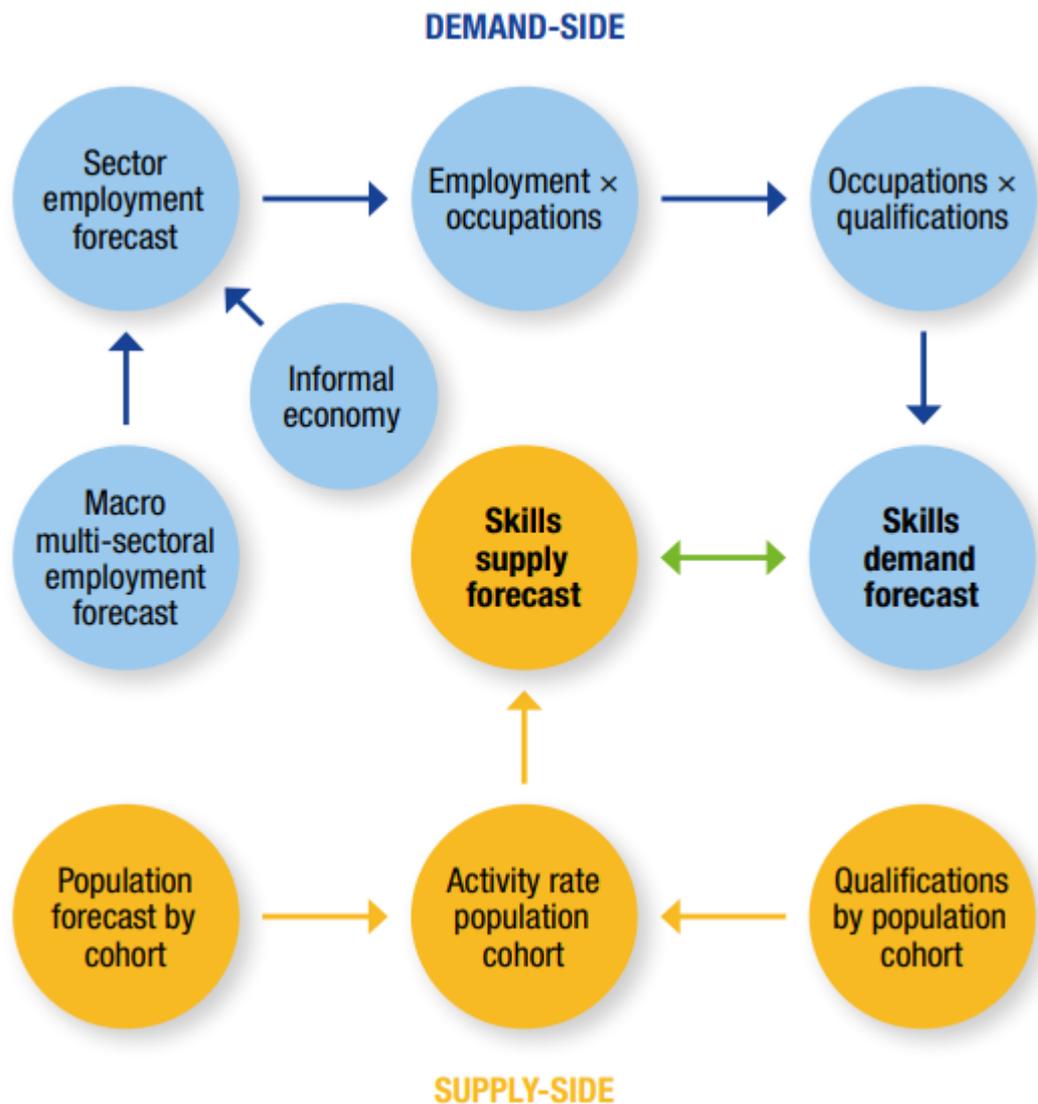


FIGURE 8. Source CEDEFOP elaboration (<https://www.cedefop.europa.eu/en/publications/4197>)

4.2. Goal 2C: Establishment of a Strategic VET - Habitat Alliance

The creation of an alliance or platform is proposed to serve as a stable space for concertation and strategic decision-making on Habitat competencies, extending the embryo formed by HABITABLE Cove partners toward a pan-European collaborative network inspired by the HSE sextuple helix model. This alliance will include educational and labour administrations, VET centers, clusters, business associations, unions, employment services, and innovation entities, fostering co-responsibility and partnership interactions as detailed in ecosystem collaborative horizontalities. It will have a clear mandate on skills planning, action prioritization, and roadmap monitoring, emphasizing skills provision expansion and attraction to VET systems through shared decision-making. It will rely on a governance structure with a plenary body, thematic working groups (e.g., twin transitions, lifelong learning), and technical secretariat funded by FSE+ and MRR; the goal is formal constitution —leveraging existing forums from the EU— and consolidated work agenda, procedures, and minimum resources in the second year, evaluated by participation and signed commitment indicators.

4.3. Goal 3C: Common Competency Framework and Shared Language

The development of a common competency framework for the Habitat sector is proposed to facilitate communication among companies, VET centers, administrations, and individuals, aligned with the key "common language" enabler of the Skills First approach and taxonomies like Spain's National Catalogue of Professional Competence Standards, ordering 508 standards linked to relevant VET titles. This framework will articulate relationships between occupations, competency units, training modules, and learning outcomes, prioritizing dynamic granularity for transferable competencies in ecological and digital transitions. It will reference existing national and European frameworks —like ESCO and the European Quality Assurance Framework for VET (Recommendation 2009/C 155/01)—, adapting them to Habitat via affinities with National Economic Activities Catalogue activities (up to 105 sector-associated). It will serve as a basis for profiles, programs, and innovative assessment systems, such as equity-minimum standards; development will require technical tables with sectoral and VET experts, culminating in 18–24 months with a first version under periodic review, integrated into the LO 3/2022 National Catalogue.

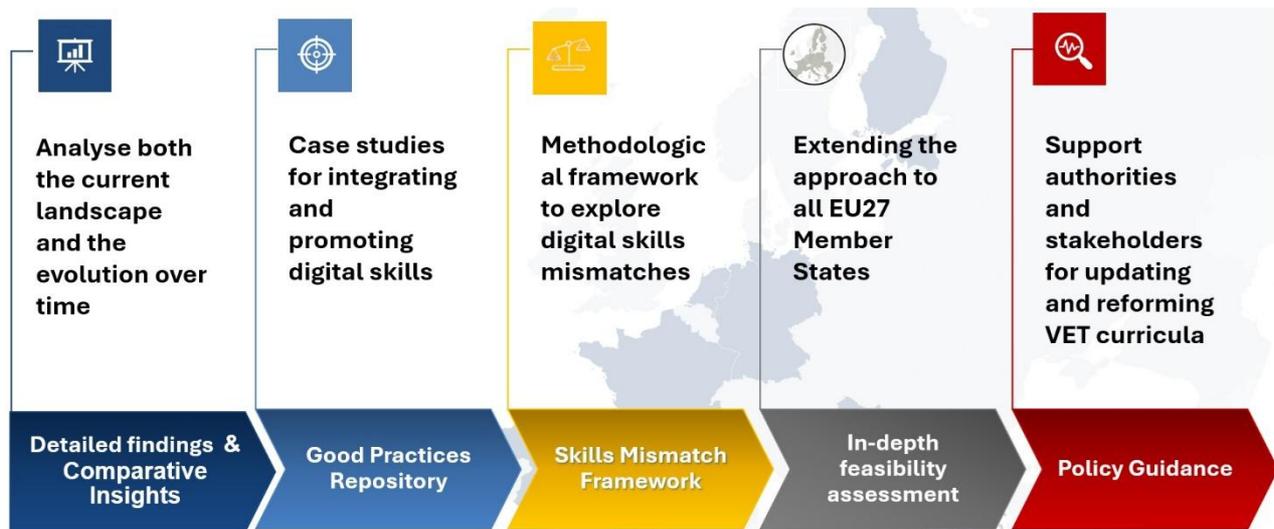


FIGURE 9. Source CEDEFOP elaboration. <https://www.cedefop.europa.eu/en/projects/digital-skills-tomorrow-promoting-inclusive-excellence-vet-curricula>

4.4. Goal 4C: Initial Attractiveness and Guidance Program

Simultaneously, action is needed on the social perception of the sector and linked VET, where enrollment in professional families like Building and Civil Works represents only 0.55% of the total in Spain (2022/2023 course), despite modular offer diversity in CNCP levels 1-3. An initial attractiveness and guidance program is proposed to disseminate sector opportunities among students, families, unemployed, and transitioning workers —addressing hypothetical decision processes by groups per adapted Maslow pyramid—, showcase real success itineraries and professional profile diversity (e.g., from basic operations auxiliaries to higher technicians in energy efficiency), and highlight Habitat's contribution to climate goals, quality of life, and innovation via public-private collaboration campaigns. This program will use events, company visits, audiovisual materials, digital platforms, and specialized media partnerships, inspired by base document visibility, partnership, and easing actions; design can occur in the first year with adapted Careers New Zealand benchmarks support, with progressive rollout from the second, measuring impact by inquiry and enrollment increases.

5. Medium-term Goals (4–7 years): Transforming Supply and Devices

In the medium term (4-7 years), efforts focus on deeply transforming training supply and skills development devices, consolidating short-term foundations through operational implementation of Skills First Action Areas 3, 4, and 5 outlined in HABITABLE Cove project document of the task 5.2. These intermediate goals, with 3-7 year timelines, intensely involve the strategic FP-Habitat alliance, HABITABLE Centers of Excellence, sector companies, regional administrations, and European funds like FSE+ and MRR, using tools such as the common competency framework, sectoral map from WP2, and Spanish National Catalogue of Professional Competence Standards (LO 3/2022), to advance toward a dynamic ecosystem enabling long-term high skills equilibrium via co-developed programs, lifelong learning, and skills-based career pathways.

5.1. Goal 1M: Modular and Flexible reconfiguration of VET Supply

Building on the short-term common competency framework and needs map, Habitat-related VET cycles and programs must adapt toward more modular and flexible structures, aligning with LO 3/2022 modularity and ESCO granular taxonomies for cumulative, accreditable lifelong pathways. This involves defining training modules explicitly linked to prioritized competency units —like the 508 standards identified in relevant professional families (Building and Civil Works, Installations, Energy and Water, etc.)—, creating pathways combining modules from different families converging on hybrid Habitat profiles (e.g., industrialized construction technicians with BIM and energy efficiency skills), and incorporating specialization courses and microcredentials allowing competency updates without full cycles, responding to base document Action Area 4 for skills-based learning access. Piloting can start in years 3–5 at HABITABLE excellence centers, with gradual extension in years 5–7 via company alliances for real-context validation, evaluated by modular completion rates and accreditation levels.



FIGURE 10. Source CEDEFOP elaboration <https://bk-con.eu/wp-content/uploads/pact-for-skills-newsletter-march-2025.pdf>

5.2. Goal 2M: Extension of Dual VET and On-the-Job Learning Model

The medium term must normalize dual VET and on-the-job learning formats as standard Habitat pathway components, as detailed in base document Action Area 3 emphasizing apprenticeships, internships, and industry co-delivery. This requires intensifying company collaboration for dual VET slots, quality internships, and real-environment training projects —especially intensive modalities with labor contracts (minimum 35% at educational centers)—; designing shared tutoring guides clarifying company and center tutor roles per European dual VET quality standards; and establishing real-context competency assessment mechanisms leveraging company performance evidence via innovative methods like digital portfolios and blockchain verification. The goal is that, by period end (4–7 years), a significant percentage of Habitat-linked branch students (target: 50%+) have undergone sufficient-intensity, quality company training experiences, measured by qualified labour insertion rates and company feedback within the strategic alliance.

5.3. Goal 3M: Structured Re-skilling and Up-skilling Programs for Dual Transition

The medium term must also consolidate specific professional recycling (re-skilling) and competency updating (up-skilling) programs for active workers adapting to new technologies, regulations, or organizational models —like the EPBD Energy Performance of Buildings Directive— and other-sector individuals reorienting to Habitat occupations, addressing Action Area 4 for lifelong learning and twin transitions. Programs will focus on sustainable construction, energy efficiency (e.g., Passivhaus certifications), process digitalization (BIM, IoT, modular prefabrication automation), industrialization, and material/product circular economy, integrating transversal competencies like problem-solving and collaboration per OECD DeSeCo framework. Design will leverage initial-phase knowledge (competency map and framework) and online platforms, intensifying rollout from year 4 via FSE+ funding toward year-7 consolidation, evaluated by adult participation indicators (e.g., 30% active workers) and skills utilization improvement.

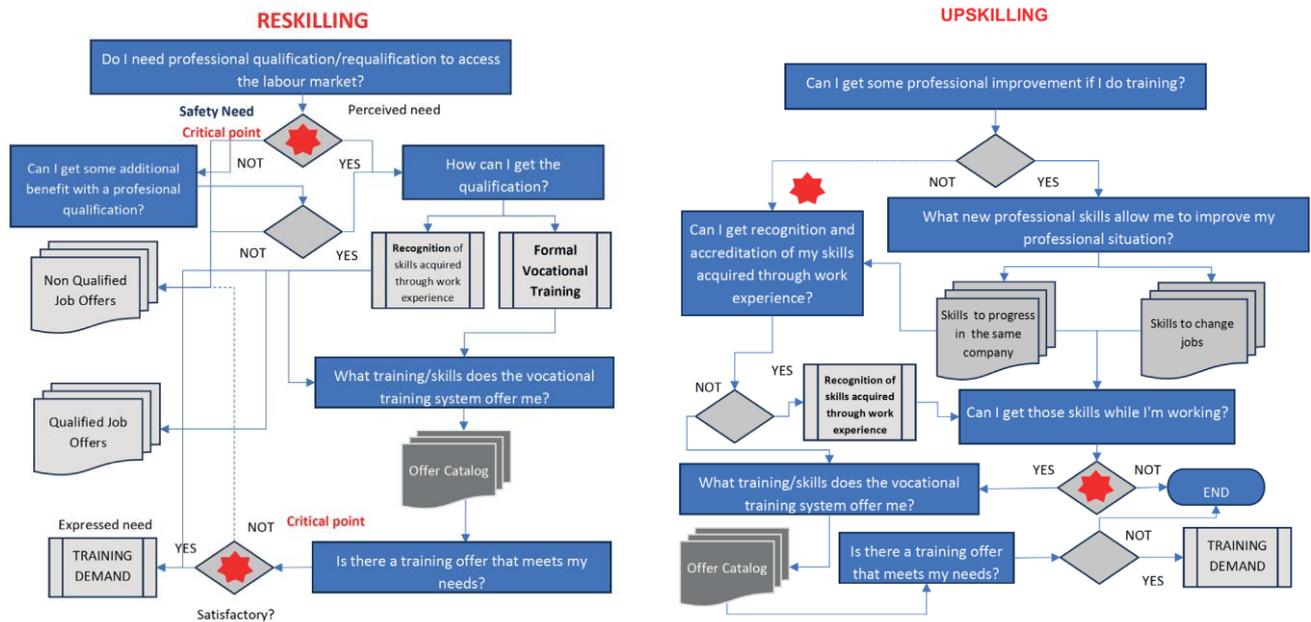


FIGURE 11. Decision-making process of unemployed adults.

Source: Sigüenza, A. F. (2024). *Skills strategy for the habitat sector*.

5.4. Goal 4M: Ecosystem Monitoring and Evaluation Systems

Implementing a monitoring and evaluation system is strategic for collective ecosystem learning and roadmap continuous improvement, per base document Action Area 5.8 for effectiveness monitoring via ecosystemic innovation tank. The system must collect data on labour insertion (e.g., EURES rates), employment quality (average wages, stability), skills use (OECD utilization surveys), company and student satisfaction, and training ROI (costs vs. productivity); provide dashboards and predictive analyses supporting strategic alliance and stakeholder decisions, integrated into HABITABLE WP2 Platform; and incorporate in-depth periodic evaluations enabling objective, goal, and action reorientation based on emerging twin-transition gaps. Operational rollout is foreseen in years 4-5 with methodologies aligned to 2009/C 155/01 European Recommendation, featuring annual reviews and exhaustive triennial evaluations for dynamic ecosystem adjustments.

6. Long-term Goals (8–15 years): Consolidating the High-Skills Ecosystem

In the long term (8–15 years), the roadmap aspires for short- and medium-term foundations and transformations to yield a stable, robust, and European-recognized ecosystem, achieving the HSE-model-projected "high skills equilibrium" from HABITABLE Cove document *“Skills strategy for the Habitat sector”* via consolidation of all five Skills First action areas and OECD Skills Strategy levers. These final intermediate goals, with 8-15 year horizons, rely on FP-Habitat strategic alliance maturity, excellence centers, industrialized companies, and administrations, using consolidated tools like the common competency framework, WP2 monitoring system, and LO 3/2022 National Catalogue, ensuring sustainable socioeconomic benefits like inclusive growth, social cohesion, and twin-transition leadership.

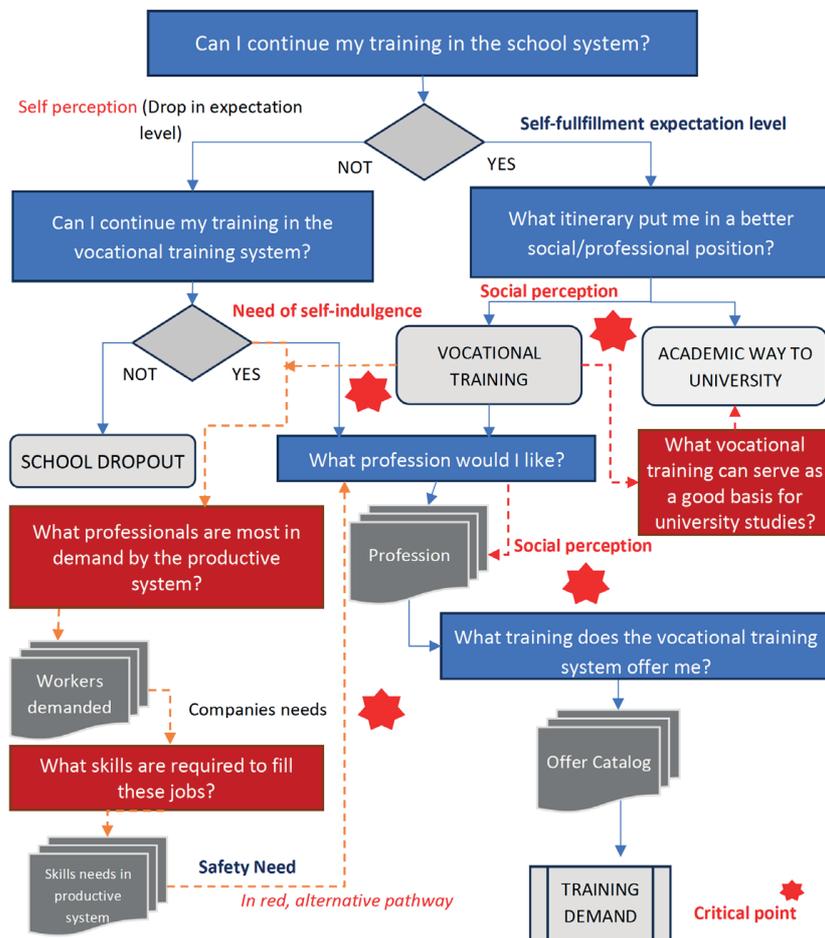


FIGURE 12. Decision-making process of the young people: hypothetical pathway

Source: Sigüenza, A. F. (2024). *Skills strategy for the habitat sector*.

6.1. Goal 1L: Habitat Ecosystem in “High Skills Equilibrium”

The Habitat sector is targeted to achieve a high skills equilibrium where most jobs require medium and advanced capabilities —like those for key occupations in modular prefabrication, advanced BIM, and Passivhaus energy efficiency— and utilize them effectively, overcoming low equilibria seen in historical cases like Scotland or Spain with labor polarization and endemic underutilization. Formal overqualification levels (high in Spain per state-of-the-art analysis) and skills underutilization will significantly reduce, dropping from average European 20% overqualification to under 10% via skills-based assessments and internal redeployment pathways. Companies will perceive training investment and work reorganization —aligned with skills-prioritizing procurement and competency-based pay— as central competitiveness factors, fostering innovation and resilience to demographic and globalization changes. This equilibrium is not static but a renewed capacity to adjust VET systems and skills use to environmental transformations, evaluated triennially by the ecosystemic innovation tank with OECD effective utilization indicators.

6.2. Goal 2L: Transparent, Competency-Based Professional Pathways

Another long-term goal is clear, widely known professional pathways in the Habitat sector, articulated around competency accumulation per base document Action Area 5 for talent development and redeployment pathways. This involves defining career routes indicating horizontal (e.g., from CNCP level 1 basic operations auxiliary to sustainable rehabilitation technician) and vertical progression (to digitalized project management), associated modules and credentials (ESCO microcredentials), and recommended experiences like intensive duality and real projects. Instruments like blockchain-verifiable competency portfolios, group-tailored guidance services (youth, adults, vulnerable per adapted Maslow pyramid), and non-formal learning accreditation systems aligned with 2009/C 155/01 European Recommendation will be offered. Progression in salary and responsibility will, where possible, link to new competency acquisition and demonstration, promoting pay-for-skills and portfolio-based promotions for diverse talent retention; thus, VET becomes an entry gate and lifelong support for long, versatile Habitat careers.

6.3. Goal 3L: Internationalization and European Recognition

Finally, the aspiration is for the FP-Habitat ecosystem to gain international recognition as a Skills First and competency ecosystem model benchmark in green/digital transition-linked sectors, positioning the HABITABLE Alliance as a leader in the European Talent Pool and Digital Skills Platform. This involves active participation in European VET excellence center networks and alliances, like those from the Skills Pact and Erasmus+, exchanging practices with cases like Singapore's Skills Future or Australia's National Skills Commission. International projects enabling competency comparability via ESCO and EQF, facilitating cross-border microcredential mobility and validation in sustainable habitat, will be driven. Mobility of students, faculty, and technical staff across countries —leveraging Horizon and MRR funds— will be fostered, strengthening the ecosystem's European dimension via forums like Structured Dialogue and benchmarking Spanish Habitat clusters (e.g., AEICE) in circular economy and industrialized housing.

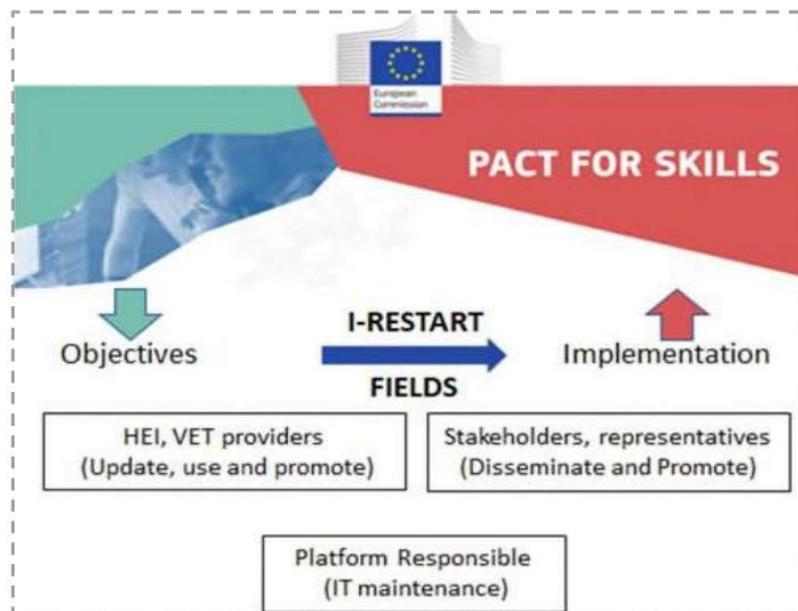


FIGURE 13. Source CEDEFOP. https://www.agro-alimentarias.coop/docs_download/proyecto-i-restart-newsletter-n-1

7. Actors, Tools, and Governance: Shared Responsibility

The implementation of this roadmap requires shared governance, assuming no single actor can ensure strategy success alone, consistent with the HSE three-dimensional model emphasizing collaborative horizontal interactions (companies-providers), facilitating verticalities (policies-administrations), and 45^o mediations for holistic evolution. Each goal translates into specific actions assigned to lead actors (e.g., strategic FP-Habitat alliance for overall coordination), co-leads (e.g., AEICE-like clusters for sectoral mapping), and collaborators (e.g., VET centers and unions for dual pilots), with clear European funding resources (FSE+, MRR, Erasmus+) and timelines differentiated by horizon: short (12-24 months: map and framework), medium (4-7 years: modularity and reskilling), long (8-15 years: high equilibrium).



FIGURE 14. Source CEDEFOP elaboration. <https://euroguidance.eu/a-union-of-skills-to-equip-people-for-a-competitive-europe>

Key tools include employment and skills data information and analysis systems, like HABITABLE Cove WP2 Skills Intelligence Platform for dynamic gap mapping via EURES data and sectoral surveys; Habitat-adapted sectoral competency frameworks and standards, integrating ESCO (13,890 classified skills), Spanish National Catalogue of Professional Competence Standards (LO 3/2022 with 508 relevant units), and affinities with National Economic Activities Catalogue (105 associated activities); modular, dual, and recycling VET programs linked to real needs, including cumulative microcredentials, intensive duality ($\geq 35\%$ in-company), and online platforms for twin-transition upskilling; and robust evaluation, quality assurance, and competency accreditation mechanisms, aligned with 2009/C 155/01 European Recommendation, blockchain verification, and minimum equity/cognitive rigor standards.

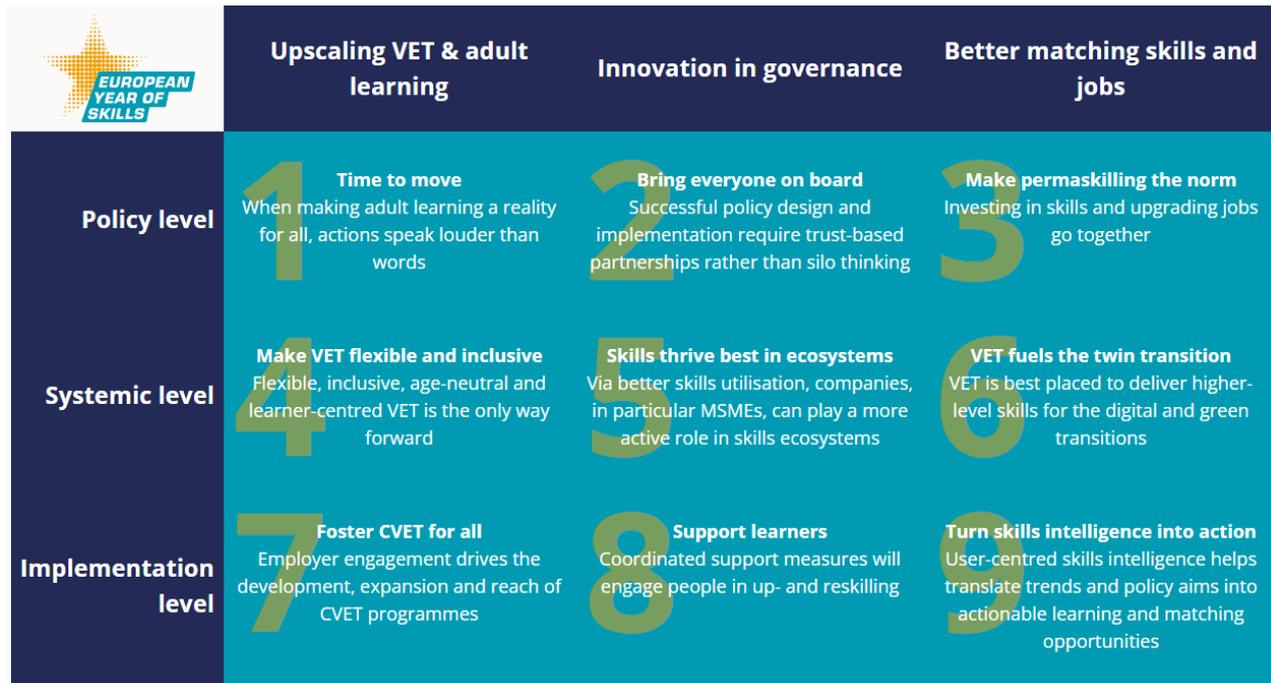


FIGURE 15. Source CEDEFOP elaboration. <https://www.cedefop.europa.eu/en/landing-page/EYS2023/message6.html>

The strategic FP-Habitat alliance —established in goal 2C with plenary body, thematic groups, and technical secretariat— serves as the space where these tools are articulated, actions prioritized per ecosystemic innovation tank (Action Area 5.7), tensions resolved via structured dialogue, and joint progress monitored via dashboards with OECD indicators (insertion, skills utilization, training ROI). Thus, the roadmap shifts from declarative document to operational guide directing collective decisions, resources, and efforts toward a high-competency ecosystem serving the Habitat sector, triennially evaluated for adjustments to global drivers like demographics, globalization, and climate change.

7.1. Specific roles within the HABITABLE project

In the context of HABITABLE, the implementation of this roadmap relies on a clear distribution of roles:

- **CoVEs and VET centres:** lead the redesign and delivery of VET programmes, pilot dual VET and modular offers, develop micro-credentials and recognition of prior learning, and collect evidence on skills acquisition and use.
- **Regional and national administrations:** provide the regulatory and funding framework, integrate the roadmap into VET and skills policies, support the scaling-up of successful pilots and ensure alignment with EU initiatives (Pact for Skills, EU Skills Agenda, etc.).
- **Companies and business organisations:** define skills needs, co-design curricula, host apprenticeships and internships, participate in assessment, and adopt skills-based HR practices that reward competency development.
- **Clusters and sectoral platforms:** coordinate companies and VET providers, facilitate dialogue, create joint projects, and act as intermediaries to mobilise SMEs and other local actors.
- **Research and higher education partners:** support foresight, methodological development, evaluation, and innovation in teaching and assessment methods.
- **Public employment services and guidance providers:** help match learners and workers with training and employment opportunities, and support transitions into Habitat occupations.

This role distribution is reflected in the design of the goals and in the implementation plan, ensuring that each objective has clear responsibility and ownership within the HABITABLE consortium.

8. Conclusion

This MS13 document explains the Habitat Sector Skills Strategy, its objectives and how it will be implemented within the HABITABLE project. It translates the conceptual framework and the Skills First principles into a concrete roadmap for the VET system, with clear goals, actors, tools and timeframes. By doing so, it provides an accessible reference for all stakeholders in the Habitat ecosystem and supports the creation of a high-skills equilibrium in the sector, in line with the European Skills Agenda and the objectives of the HABITABLE Alliance of Centres of Vocational Excellence.

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