BRIGHTskills

Co-funded by the European Union

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# EU Health Industry Skills Strategy

## A shared framework for workforce transformation



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# Disclaimer

This publication has been prepared within the framework of the **BRIGHTskills project**, co-funded by the Erasmus+ programme of the European Union under Grant Agreement **No. 101187080**.

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# BRIGHTskills project

## Boosting Resilience, Innovation and Growth in Europe's Health Industries through Learning and Development

*Europe's health industries are evolving rapidly, and with it comes the urgent need to upskill and reskill its workforce.*

BRIGHTskills is an **Erasmus+ Blueprint project**.

**Led by EIT Health**, a pan-European, cross-sectorial consortium of **24 partners** — including universities, vocational institutions, and companies, ranging from SMEs to multinationals — joins forces, with the support of the Health Industry LSP, to upskill and reskill the health industry workforce, making sure that Europe has the talent needed to drive innovation, advance competitiveness, and handle major healthcare crises.

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# Why BRIGHTskills?

**Europe's health industry** is undergoing rapid technological, environmental and regulatory change, **creating new demands for workforce readiness and skills development**.

**Our mission** is to equip the **health industry workforce** with the skills, competencies and learning opportunities needed to adapt, grow and remain competitive.

**Our vision** **is a resilient**, inclusive and innovation-ready health industry ecosystem, where companies and workers can benefit from future-oriented skills development.



# Project objectives:

BRIGHTskills addresses talent gaps and skills shortages across Europe's health industries: **Pharmaceutical & Biomanufacturing**, **MedTech**, **Digital Health** and **Medical Supplies**.

Map current, emerging, and **future job profiles** for companies in Europe's healthcare industries

**Promote** long-term employability and social inclusiveness

Design and develop **training courses** tailored to employer and industry needs

**Build partnerships** for a responsive and resilient healthcare ecosystem

# Executive summary

The European health industry ecosystem is being reshaped by digitalisation, artificial intelligence (AI), advanced manufacturing, health-data infrastructures, regulatory change, sustainability requirements and new organisational models. Across pharmaceuticals, biomanufacturing, MedTech, digital health and related sectors, these transformations are increasing demand for hybrid profiles that combine technical, digital, data, regulatory, operational and transversal competences.

BRIGHTskills evidence indicates that skills shortages, competence mismatches and slow adaptation of education and training provision are constraining innovation uptake, competitiveness and resilience.

**The Strategy responds through six interconnected objectives covering skills intelligence, industry alignment, flexible learning pathways, transformation readiness, coordinated ecosystem implementation, and quality, recognition and sustainability**.

This shortened version is designed for external validation through workshops and questionnaires. It retains Chapter 5—including all objectives, activities, tables and the complete roadmap—without alteration. Stakeholders are invited to assess the relevance, completeness, feasibility and sequencing of the proposed actions and to identify implementation barriers, enabling conditions and responsible actors.

The Strategy is an initial, living framework. Consultation results, Skills Partnership input, evidence from the Health Industry Future Skills Observatory and experience from training, validation and recognition activities will inform the interim and final versions.



# Inside the strategy


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# 1 Introduction



The European health industry ecosystem connects industry, SMEs, start-ups, research, healthcare, public authorities and education providers across complex value chains. Its capacity to innovate increasingly depends on a workforce able to adopt, govern and scale technological, regulatory and organisational change.

European frameworks such as the European Skills Agenda, Pact for Skills, Digital Decade and European Industrial Strategy place workforce development at the centre of competitiveness and resilience [1–4]. The European Health Data Space reinforces needs in data governance, interoperability, cybersecurity, compliance and responsible data use [5]. BRIGHTskills WP2 additionally identified a cross-cutting "hybrid profile gap" and practical barriers to continuous training, particularly for SMEs and professionals.

A coordinated sectoral strategy is therefore required to connect labour-market intelligence with learning provision and implementation. Chapter 5 is the main focus of consultation: it translates documented needs into strategic objectives, priority activities and a phased roadmap.

**6** **Strategic objectives**
An interconnected framework

**22** **Priority activities**
From intelligence to implementation

# 2 Methodological approach

The Strategy follows an evidence-based, co-created and iterative **Blueprint approach**. It combines WP2 skills intelligence and primary research, mapping of upskilling and reskilling practices, structured WP3 and consortium co-creation, and alignment with the Skills Partnership. The design was informed by comparable strategies such as ARISA, Digital4Sustainability and BeWell [6–8].

Evidence was translated into priorities by identifying recurrent workforce challenges, competence domains, target groups and implementation conditions. External validation will combine an open questionnaire and thematic Industry Dialogue Workshops to test relevance, missing priorities, feasibility, expected impact, target-group coverage, sequencing, barriers and enabling conditions.

Consultation evidence will inform D3.2, while subsequent Observatory, Skills Alliance, programme-validation and accreditation evidence will inform D3.3. This continuous-improvement cycle is intended to keep the Strategy responsive to technological, regulatory and labour-market change.



**Skills intelligence**



**External validation**



**Best-practice mapping**



**Strategy refinement**



**Co-creation**

# 3 Foundations of the strategy

## Vision



**A resilient, competitive and innovative European health industry ecosystem** supported by a future-ready workforce with the skills, adaptability and recognised learning pathways required to manage technological, regulatory, digital, green and organisational transformation.

## Mission



To translate skills intelligence into coordinated workforce-development priorities and practical actions, strengthen alignment between industry and learning provision, and support quality, recognition, implementation and sustainable uptake.

The evidence underpinning the Strategy points to six essential requirements:

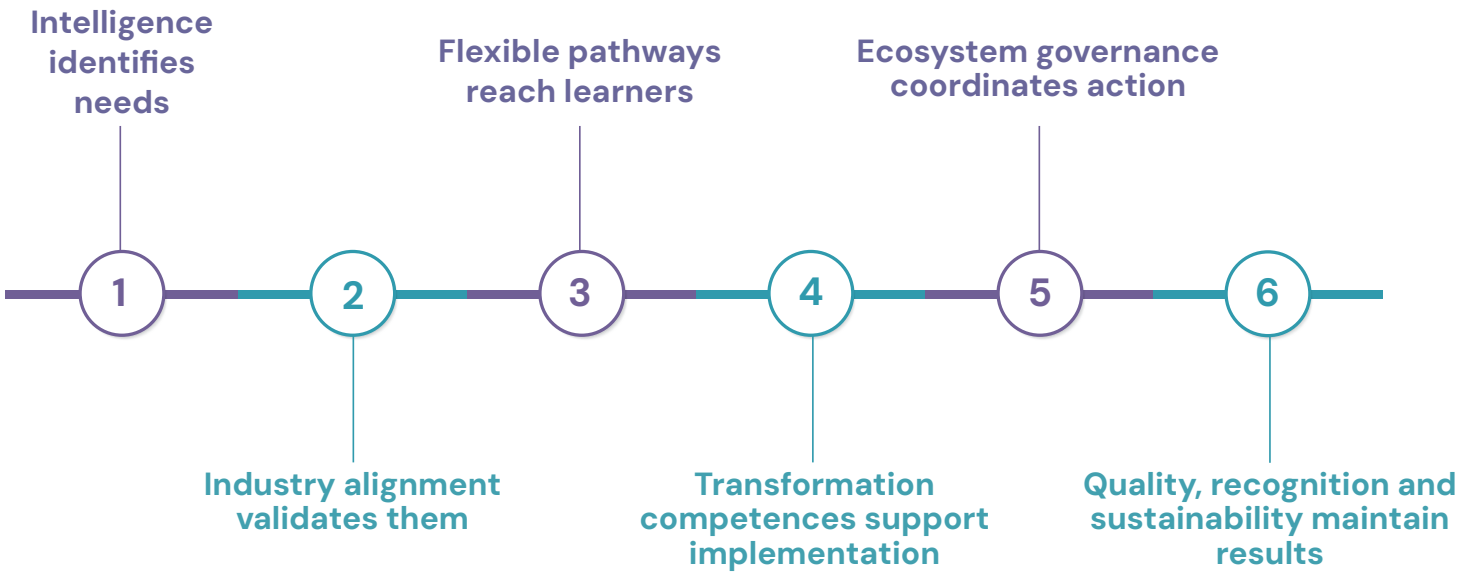
- **Continuous skills intelligence**
- **Modular and practice-oriented lifelong learning**
- **Hybrid and multidisciplinary profiles**
- **Direct industry participation in validating needs and outcomes**
- **Stronger organisational capacity to implement innovation**
- **Durable arrangements for quality, recognition, monitoring and scale-up**

Priority competence domains include digital and AI literacy, health-data governance, interoperability, cybersecurity, regulatory and quality readiness, advanced manufacturing, sustainability, leadership, communication, adaptability and change management.

# 4 Best practices and transferable lessons

Mapped initiatives showed that effective workforce development combines a clearly defined need with employer and stakeholder co-design, flexible and stackable provision, practical learning, transparent recognition, provider capacity building, partnership-based governance, monitoring and a credible sustainability model.

These lessons confirm the integrated logic of Chapter 5:





# 5 Strategic objectives and implementation roadmap

This chapter presents the strategic objectives and priority actions of the EU Health Industry Skills Strategy developed under BRIGHTskills. Building on WP2 Skills Intelligence findings, stakeholder consultations, best-practice mapping, and co-creation activities, it translates the main workforce challenges identified across the European health industry ecosystem into implementation-oriented priorities.

These priorities are intended to guide BRIGHTskills activities during the project and provide a structured basis for longer-term uptake through the Skills Alliance for the European health industry ecosystem and relevant ecosystem actors.

The objectives were initially discussed and refined through a dedicated project workshop involving consortium representatives and were further consolidated during the development of this deliverable (Table 1).

Their formulation reflects evidence gathered through WP2, insights from the Best Practices Questionnaire, and stakeholder input collected through BRIGHTskills and the Skills Alliance for the European health industry ecosystem. In this way, the roadmap connects evidence on skills needs with practical levers for implementation, including skills intelligence, training design, employer engagement, validation, recognition, and sustainability.

**The roadmap is structured around six interconnected strategic objectives.** Together, they address the main gaps identified in earlier chapters: the need for continuous skills intelligence, stronger alignment between training and industry needs, more flexible learning pathways, improved digital, regulatory and sustainability readiness, coordinated ecosystem collaboration, and credible approaches to quality, recognition and long-term uptake.

Each objective therefore combines a strategic rationale, priority activities and a phased roadmap indicating how implementation should progress from short-term consolidation to longer-term adoption across the European health ecosystem.

Since this is the initial version of the Strategy, the roadmap understandably remains relatively high-level. It may be useful to state explicitly that more specific indicators, baselines, responsibilities and monitoring arrangements will be further developed in D3.2 and D3.3, drawing on the Observatory, open consultation, programme validation and accreditation activities.

**SO1** **Build a reliable skills intelligence and workforce anticipation system for the European health industry ecosystem**

**SO2** **Align skills development with industry needs and workforce transformation priorities**

**SO3** **Develop flexible, modular, and future-oriented learning pathways**

**SO4** **Strengthen digital, AI, data, regulatory, sustainability and transversal transformation readiness across the European health industry ecosystem workforce**

**SO5** **Build a coordinated ecosystem for implementation, co-creation, and industrial uptake**

**SO6** **Ensure quality, recognition, sustainability, and long-term uptake of skills development actions**

EU Health Industry Skills Strategy

# Table 1: **Strategic objectives (SOs) and priority activities**

| | SO1. **Build a reliable skills intelligence and workforce anticipation system for the European health industry ecosystem** | SO2. **Align skills development with industry needs and workforce transformation priorities** | SO3. **Develop flexible, modular, and future-oriented learning pathways** | SO4. **Strengthen digital, AI, data, regulatory, sustainability and transversal transformation readiness across the European health industry ecosystem workforce** | SO5. **Build a coordinated ecosystem for implementation, co-creation, and industrial uptake** | SO6. **Ensure quality, recognition, sustainability, and long-term uptake of skills development actions** |
|---|---|---|---|---|---|---|
| **Main workforce challenge addressed** | *Fragmented skills intelligence and limited capacity to anticipate emerging workforce needs.* | *Misalignment between training provision and rapidly evolving industry requirements.* | *Limited flexibility and accessibility of lifelong learning opportunities.* | *Growing demand for digital, AI, data, regulatory and multidisciplinary capabilities.* | *Insufficient coordination and collaboration across the European health industry skills ecosystem.* | *Limited sustainability, recognition and long-term uptake of workforce development initiatives.* |
| **Activities** | **1.1** Skills intelligence and labour market monitoring | **2.1** Industry-driven skills alignment | **3.1** Modular and lifelong learning pathways | **4.1** Digital and AI-related competences | **5.1** Skills Alliance coordination and stakeholder mobilisation | **6.1** Quality assurance and programme validation |
| | **1.2** Emerging occupational profiles and skills mapping | **2.2** Sectoral workforce adaptation | **3.2** Micro-credentials and flexible certification | **4.2** Interoperability, cybersecurity, and health data skills | **5.2** Ecosystem collaboration and co-creation | **6.2** Certification and recognition mechanisms |
| | **1.3** Foresight and future skills anticipation | **2.3** Employer engagement and skills validation | **3.3** Practice-oriented learning approaches | **4.3** Regulatory and implementation readiness | **5.3** Transferability and ecosystem uptake | **6.3** Monitoring and impact assessment |
| | | | **3.4** Capacity building for educators and learning providers | **4.4** Multidisciplinary workforce capabilities | | **6.4** Sustainability and scale-up mechanisms |
| | | | | **4.5** Sustainability and transversal transformation capabilities | | |



BRIGHT skills
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# 5.1 SO1. Build a reliable skills intelligence and workforce anticipation system for the European health industry ecosystem

The transformation of the European health industry ecosystem requires stronger and more coordinated skills intelligence capacities capable of identifying emerging workforce needs, anticipating skills gaps, and supporting evidence-based workforce development decisions. WP2 findings highlighted the need for more continuous and forward-looking approaches to workforce intelligence across pharmaceuticals and biomanufacturing, MedTech, digital health, and related sectors.



**This strategic objective focuses on:**

Strengthening the ecosystem's capacity to monitor labour market developments and identify emerging occupational profiles;
Anticipating future workforce needs linked to technological, regulatory, industrial, and organisational transformation.



**Main target groups involved:**

Industry stakeholders, SMEs, education and training providers, research organisations, sectoral associations, clusters, public authorities, and organisations contributing to workforce intelligence, skills development, and workforce planning activities.



**Key topics:**

Skills intelligence, labour market monitoring, occupational profiles, skills mapping, foresight, future skills needs, workforce transformation, emerging competences, sectoral trends.

## 5.1.1 Skills intelligence and labour market monitoring

This activity focuses on establishing a more systematic and continuous approach to workforce intelligence across the European health industry ecosystem. Through labour market monitoring, stakeholder engagement activities, and evidence generated by the Health Industry Future Skills Observatory, it aims to support the identification of emerging workforce trends and provide a stronger evidence base for workforce development decisions.

### 5.1.2 Emerging occupational profiles and skills mapping

This activity supports the identification and mapping of emerging occupational profiles, evolving competence requirements, and multidisciplinary workforce needs linked to digitalisation, AI adoption, advanced manufacturing, health data, regulatory evolution, sustainability requirements, and organisational transformation. Particular attention should be given to emerging hybrid roles that combine technical, regulatory, digital, operational and transversal competences across different European health industry ecosystem subsectors.

### 5.1.3 Foresight and future skills anticipation

This activity aims to strengthen future skills anticipation capacities through foresight exercises, stakeholder engagement, and analysis of long-term technological, industrial, regulatory, and societal trends affecting the European health industry ecosystem. The activity should support the early identification of emerging skills requirements and contribute to the periodic review of workforce priorities, occupational profiles, and training needs.

### 5.1.4 SO1. Strategic implementation roadmap

| Activities | **1.1 Skills intelligence and labour market monitoring** |
|---|---|
| **Short-term priorities** | Consolidation of skills intelligence inputs from WP2 activities and stakeholder consultations. |
| **Medium-term priorities** | Annual skills intelligence reviews coordinated through the Health Industry Future Skills Observatory and validated through the Skills Alliance, supporting evidence-based updates of workforce priorities. |
| **Long-term priorities** | Regular skills intelligence reviews coordinated through the Health Industry Future Skills Observatory and used to update workforce priorities and Strategy implementation. |

| Activities | **1.2 Emerging occupational profiles and skills mapping** |
|---|---|
| **Short-term priorities** | Initial mapping of emerging occupational profiles and skills needs. |
| **Medium-term priorities** | Occupational profiles reviewed every 2–3 years based on labour market evidence, stakeholder consultations, and emerging technology trends identified through Observatory activities. |
| **Long-term priorities** | Continuous alignment between workforce needs and training provision supported through periodic profile reviews and Skills Alliance validation activities. |

| Activities | **1.3 Foresight and future skills anticipation** |
|---|---|
| **Short-term priorities** | Initial foresight discussions and future skills analysis activities. |
| **Medium-term priorities** | Integration of foresight findings into roadmap refinement and training priorities. |
| **Long-term priorities** | Future skills anticipation integrated into Skills Alliance activities, Observatory outputs, and periodic Strategy reviews. |

Together, the activities under SO1 establish the workforce intelligence function of the EU Health Industry Skills Strategy. The evidence generated through labour market monitoring, occupational profile mapping and foresight activities is expected to inform future updates of training priorities, learning pathways, validation activities, and strategic objectives across the remaining components of the Strategy.

## 5.2 SO2. Align skills development with industry needs and workforce transformation priorities

The European health industry ecosystem is undergoing rapid transformation driven by digitalisation, AI adoption, advanced manufacturing, evolving regulatory requirements, sustainability pressures, health data and interoperability requirements, supply chain resilience needs, and changing workforce expectations.

WP2 findings highlighted persistent gaps between training provision, labour market needs, and operational realities across different parts of the ecosystem. These gaps were particularly evident in areas experiencing rapid technological, regulatory, organisational, and industrial change, where competence requirements often evolve faster than education and training systems can adapt. Stakeholders also emphasised the need for more **industry-driven, adaptable, and implementation-oriented approaches** to workforce development capable of responding to increasingly multidisciplinary workforce needs.

This objective supports closer cooperation between industry, education and training providers, SMEs, clusters, public authorities, and other stakeholders to ensure that workforce development priorities remain relevant, practical, and responsive to sectoral transformation dynamics.

**This strategic objective focuses on:**

Strengthening the alignment between skills development activities and evolving workforce needs across the European health industry ecosystem.
Emphasis is placed on ensuring that workforce development priorities remain responsive to technological, regulatory, organisational, and industrial transformation dynamics identified through WP2.

**Main target groups involved:**

Industry stakeholders, SMEs, education and training providers, sectoral associations, public authorities, clusters, and workforce development actors.

**Key topics:**

Industry alignment, workforce transformation, skills adaptation, employability, industrial competitiveness, implementation readiness, sectoral collaboration, skills validation.

### 5.2.1 Industry-driven skills alignment

This activity focuses on improving alignment between training provision, competence development activities, and evolving industry needs across the European health industry ecosystem. It promotes structured engagement between employers, training providers, sectoral organisations, and other stakeholders to ensure that workforce development priorities reflect current and emerging competence requirements. Particular attention is given to rapidly changing workforce requirements linked to digitalisation, AI adoption, advanced manufacturing, regulatory evolution, and emerging industrial priorities.

### 5.2.2 Sectoral workforce adaptation

This activity supports workforce adaptation to technological, organisational, and regulatory transformation across pharmaceuticals and biomanufacturing, MedTech, digital health, and medical supplies. Particular attention should be given to supporting the development of hybrid skillsets and multidisciplinary capabilities required to respond to evolving sectoral demands and workforce transformation trends identified through WP2. It promotes flexible and implementation-oriented approaches aimed at improving workforce adaptability and long-term employability.

### 5.2.3 Employer engagement and skills validation

This activity aims to strengthen employer engagement in skills development processes, including the validation of emerging competence needs, occupational priorities, and workforce development approaches. It supports the systematic involvement of employers in identifying workforce priorities, reviewing training relevance, and contributing to the continuous improvement of workforce development activities.

### 5.2.4 SO2. Strategic implementation roadmap

| Activities | **2.1 Industry-driven skills alignment** |
|---|---|
| **Short-term priorities** | Identification of priority workforce needs through stakeholder engagement activities. |
| **Medium-term priorities** | Improved alignment between training priorities and sectoral workforce demands. |
| **Long-term priorities** | Workforce priorities periodically reviewed and validated through employer consultations, Skills Alliance activities, sectoral working groups, and skills intelligence updates. |

| Activities | **2.2 Sectoral workforce adaptation** |
|---|---|
| **Short-term priorities** | Initial identification of workforce transformation priorities across sectors. |
| **Medium-term priorities** | Integration of adaptation priorities into training and implementation activities. |
| **Long-term priorities** | Training priorities, learning pathways and competence frameworks periodically reviewed and updated using labour market evidence, Observatory outputs and stakeholder validation activities. |

| Activities | **2.3 Employer engagement and skills validation** |
|---|---|
| **Short-term priorities** | Engagement of employers and industry representatives in validation activities. |
| **Medium-term priorities** | Strengthened collaboration between employers and training providers. |
| **Long-term priorities** | Long-term employer participation in skills validation, curriculum review, programme development, and workforce intelligence activities coordinated through the Skills Alliance and related ecosystem structures. |

Together, the activities under SO2 support the translation of workforce intelligence into practical workforce development priorities. By strengthening collaboration between employers, training providers, and other ecosystem actors, the objective helps ensure that skills development actions remain aligned with evolving sectoral needs and workforce transformation dynamics.

## 5.3 SO3. Develop flexible, modular, and future-oriented learning pathways

WP2 findings indicated a growing need for more flexible and adaptable learning models capable of responding to the rapid transformation of the European health industry ecosystem. Stakeholders consistently highlighted that traditional training approaches often struggle to keep pace with evolving workforce requirements linked to digitalisation, AI adoption, regulatory evolution, advanced manufacturing, and changing organisational needs. Time constraints, resource limitations, and the need for continuous upskilling were identified as key barriers to participation, particularly among SMEs and professionals working in rapidly evolving environments. As a result, stakeholders emphasised the importance of lifelong learning, modular training provision, and practice-oriented learning.



**This strategic objective focuses on:**

Supporting the development of flexible and future-oriented learning pathways that improve accessibility, scalability and workforce adaptability;
Promoting long-term employability across the European health industry ecosystem.



**Main target groups involved:**

Education and training providers, universities, VET providers, industry stakeholders, SMEs, trainers, professionals, and lifelong learning providers.



**Key topics:**

Modular learning, lifelong learning, micro-credentials, flexible certification, blended learning, practice-oriented learning, workforce adaptability, educator development, capacity building, learning provider support.

### 5.3.1 Modular and lifelong learning pathways

This activity focuses on promoting modular, stackable, and lifelong learning approaches supporting continuous upskilling and reskilling across different sectors and professional profiles within the European health industry ecosystem. Such approaches are intended to facilitate more flexible participation in training activities and support the progressive acquisition of competences throughout professional careers.

### 5.3.2 Micro-credentials and flexible certification

This activity supports the development and adoption of micro-credentials and flexible certification approaches by education and training providers, employers and other workforce development stakeholders. These approaches aim to make skills development more accessible and scalable, improve the recognition of learning outcomes and support flexible learning pathways across the European health industry ecosystem.

### 5.3.3 Practice-oriented learning approaches

This activity promotes practice-oriented learning through simulations, project-based learning, laboratory work, challenge-based learning and work-integrated learning aligned with operational workforce needs. It aims to strengthen the practical relevance of training provision and support the application of acquired competences in real-world professional settings.

### 5.3.4 Capacity building for educators and learning providers

This activity supports capacity-building approaches aimed at strengthening the adaptability, quality, and long-term sustainability of training provision across the European health industry ecosystem. It focuses on supporting educators, trainers, and learning providers in responding to evolving skills needs, emerging technologies, and regulatory developments. The activity promotes continuous professional development, knowledge exchange, and organisational learning to enhance the delivery of relevant and high-quality training. Over time, additional mechanisms to support scalability and sustainability may be further explored and validated through future project activities.

### 5.3.5 SO3. Strategic implementation roadmap

| Activities | **3.1 Modular and lifelong learning pathways** |
|---|---|
| **Short-term priorities** | Identification of priority modular and lifelong learning approaches. |
| **Medium-term priorities** | Integration of modular learning pathways into training activities. |
| **Long-term priorities** | Lifelong learning pathways periodically updated using labour market evidence, Observatory outputs, and Skills Alliance consultations. |

| Activities | **3.2 Micro-credentials and flexible certification** |
|---|---|
| **Short-term priorities** | Exploration of flexible certification and micro-credential approaches. |
| **Medium-term priorities** | Integration of micro-credentials into future training activities. |
| **Long-term priorities** | Broader adoption of micro-credentials and flexible certification approaches across education providers, employers, and workforce development initiatives. |

| Activities | **3.3 Practice-oriented learning approaches** |
|---|---|
| **Short-term priorities** | Identification of implementation-oriented learning methodologies. |
| **Medium-term priorities** | Increased use of practice-oriented and work-integrated learning approaches. |
| **Long-term priorities** | Practice-oriented and work-integrated learning embedded into education, training, and workforce development activities. |

| Activities | **3.4 Capacity building for educators and learning providers** |
|---|---|
| **Short-term priorities** | Initial engagement of educators, trainers, and learning providers in capacity-building activities. |
| **Medium-term priorities** | Development of scalable educator support and organisational learning approaches. |
| **Long-term priorities** | Training provision capacities strengthened through educator development, institutional learning support, and continuous capacity-building activities. |

Together, the activities under SO3 focus on the design and delivery of workforce development approaches capable of responding to evolving sectoral needs. While SO6 addresses quality assurance, recognition, and long-term sustainability, SO3 focuses on how learning opportunities are structured, delivered, and adapted to support continuous workforce development across the European health industry ecosystem.

## 5.4 SO4. Strengthen digital, AI, data, regulatory, sustainability and transversal transformation readiness across the European health industry ecosystem workforce

WP2 findings indicated increasing demand for workforce capabilities related to digital technologies, artificial intelligence, health data management, interoperability, cybersecurity, regulatory readiness, and implementation capabilities across the European health industry ecosystem. The findings also highlighted the growing importance of multidisciplinary skillsets capable of combining technical, regulatory, operational, and organisational competences.

Stakeholders also highlighted the growing need for multidisciplinary competences capable of supporting the adoption, implementation, governance, and operational integration of emerging technologies across different industrial and organisational contexts. WP2 also highlighted the growing relevance of sustainability-related competences and transversal transformation capabilities, including leadership, adaptability, communication, resilience and change management, as key enablers of workforce transformation across the ecosystem.

These developments are creating new competence requirements across pharmaceuticals, MedTech, biomanufacturing, digital health, and related sectors, increasing the need for professionals capable of navigating both technological and regulatory complexity. Addressing these challenges requires not only technical skills development but also stronger implementation readiness, cross-sector collaboration, and an understanding of regulatory, organisational, and operational dimensions linked to workforce transformation.

**This strategic objective focuses on:**

Strengthening digital, AI, data, cybersecurity, regulatory, sustainability and transversal transformation readiness across the European health industry ecosystem workforce while supporting multidisciplinary and implementation-oriented capability development across the ecosystem.

**Main target groups involved:**

Industry stakeholders, SMEs, professionals, education and training providers, regulatory actors, healthcare organisations, digital health actors, and workforce development stakeholders.

**Key topics:**

Digital skills, AI competences, interoperability, cybersecurity, health data governance, EHDS readiness, regulatory skills, sustainability competences, leadership and change management, multidisciplinary capabilities, implementation readiness, workforce transformation.

### 5.4.1 Digital and AI-related competences

This activity focuses on strengthening digital and AI-related competences required across the European health industry ecosystem, including capabilities linked to AI adoption, digital transformation, data-driven processes, and emerging digital technologies. Particular attention is given to supporting the effective adoption, implementation, and use of these technologies within organisational and operational settings.

### 5.4.2 Interoperability, cybersecurity, and health data skills

This activity supports the development of workforce capabilities related to interoperability, cybersecurity, health data governance, data management, and the secure use of digital health solutions across different industrial and organisational environments.

It also contributes to strengthening readiness for the implementation of emerging European health data initiatives, including the European Health Data Space.

### 5.4.3 Regulatory and implementation readiness

This activity aims to strengthen workforce preparedness for the implementation, governance, and regulatory integration of digital and AI-enabled technologies, including an understanding of compliance requirements, operational readiness, risk management, quality assurance, and implementation-related challenges.

### 5.4.4 Multidisciplinary workforce capabilities

This activity promotes multidisciplinary and cross-sector capability development connecting technical, regulatory, organisational, business, and operational competences required to support workforce transformation across the European health industry ecosystem.

Particular emphasis is placed on hybrid skill profiles that combine expertise from multiple domains and facilitate collaboration across different functions, sectors, and professional communities.

### 5.4.5 Sustainability and transversal transformation capabilities

This activity supports the development of sustainability-related and transversal competences across the European health industry ecosystem workforce. It addresses green health industry competences alongside leadership, adaptability, communication, resilience and change management capabilities that are increasingly important for workforce transformation and organisational readiness.

These competences support individuals and organisations in responding effectively to technological, regulatory, environmental and societal changes affecting the sector.

### 5.4.6 SO4. Strategic implementation roadmap

| Activities | **4.1 Digital and AI-related competences** |
|---|---|
| **Short-term priorities** | Identification of priority digital and AI-related workforce needs. |
| **Medium-term priorities** | Integration of digital and AI competences into training and workforce development activities. |
| **Long-term priorities** | Digital and AI competence priorities regularly updated through workforce intelligence, technology monitoring, and stakeholder engagement. |

| Activities | **4.2 Interoperability, cybersecurity, and health data skills** |
|---|---|
| **Short-term priorities** | Identification of priority interoperability, cybersecurity, and health data skills needs. |
| **Medium-term priorities** | Increased integration of data governance and cybersecurity capabilities into workforce development activities. |
| **Long-term priorities** | Data, interoperability, and cybersecurity priorities continuously integrated into workforce development and training activities. |

| Activities | **4.3 Regulatory and implementation readiness** |
|---|---|
| **Short-term priorities** | Initial identification of implementation and regulatory capability gaps. |
| **Medium-term priorities** | Integration of implementation readiness approaches into training and workforce activities. |
| **Long-term priorities** | Regulatory and implementation readiness strengthened through continuous integration of compliance, governance, and quality-related competences. |

| Activities | **4.4 Multidisciplinary workforce capabilities** |
|---|---|
| **Short-term priorities** | Identification of multidisciplinary competence needs across sectors. |
| **Medium-term priorities** | Increased integration of cross-sector and multidisciplinary learning approaches. |
| **Long-term priorities** | Multidisciplinary capabilities reinforced through integrated technical, regulatory, operational, and organisational learning approaches. |

| Activities | **4.5 Sustainability-related and transversal transformation capabilities** |
|---|---|
| **Short-term priorities** | Identification of sustainability-related and transversal competence priorities across the European health industry ecosystem. |
| **Medium-term priorities** | Increased integration of sustainability, leadership and organisational transformation capabilities into workforce development activities. |
| **Long-term priorities** | Sustainability and transversal transformation priorities continuously embedded into workforce development, organisational learning and workforce adaptation activities. |

Together, the activities under SO4 focus on strengthening the competences required to support technological, regulatory, organisational and sustainability-related transformation across the European health industry ecosystem.

This includes capabilities linked to digitalisation, AI, health data, compliance, sustainability, leadership, adaptability and multidisciplinary collaboration.

While SO3 focuses on how learning pathways are structured and delivered, SO4 defines the priority competence domains required to support workforce transformation across the European health industry ecosystem.

## 5.5 SO5. Build a coordinated ecosystem for implementation, co-creation, and industrial uptake

WP2 findings highlighted that effective workforce transformation in the European health industry ecosystem requires stronger coordination between industry, education and training providers, research organisations, public authorities, clusters, and other ecosystem actors.

Stakeholders consistently emphasised the need for collaborative and co-creation-oriented approaches capable of supporting knowledge exchange, alignment of priorities, transferability of practices, and implementation of workforce development activities across different sectors and regions.

Particular emphasis was placed on the role of the Skills Alliance as a long-term coordination structure supporting stakeholder mobilisation, ecosystem alignment, and implementation of the EU Health Industry Skills Strategy.




**This strategic objective focuses on:**

Strengthening collaboration, co-creation, stakeholder mobilisation, and ecosystem coordination capacities supporting the implementation and long-term uptake of the EU Health Industry Skills Strategy across the European health industry ecosystem.

**Main target groups involved:**

Industry stakeholders, SMEs, education and training providers, clusters, research organisations, healthcare organisations, public authorities, sectoral associations, and Skills Alliance members.

**Key topics:**

Ecosystem collaboration, stakeholder mobilisation, co-creation, implementation support, transferability, ecosystem uptake, public–private cooperation, Skills Alliance coordination, scalability.

### 5.5.1 Skills Alliance coordination and stakeholder mobilisation

This activity focuses on strengthening the role of the Skills Alliance for the European Health Industry as a coordination structure supporting stakeholder engagement, consultation activities, implementation support, ecosystem alignment, and long-term cooperation across the European health industry ecosystem. The Skills Alliance is expected to facilitate dialogue between stakeholders, support the validation of priorities, and contribute to the dissemination and uptake of workforce development activities.

### 5.5.2 Ecosystem collaboration and co-creation

This activity promotes collaboration and co-creation approaches involving industry, education and training providers, research organisations, healthcare actors, public authorities, and other stakeholders involved in workforce development and ecosystem transformation activities. It aims to support the joint identification of priorities, exchange of expertise, and collaborative development of workforce development solutions adapted to evolving sectoral needs.

### 5.5.3 Transferability and ecosystem uptake

This activity supports the transferability, scalability, and uptake of successful practices, workforce development approaches, and implementation models across national, regional, and cross-sector contexts. Particular attention is given to facilitating the adaptation of proven approaches to different organisational, sectoral, and geographical environments.

### 5.5.4 SO5. Strategic implementation roadmap

| Activities | **5.1 Skills Alliance coordination and stakeholder mobilisation** |
|---|---|
| **Short-term priorities** | Consolidation of stakeholder engagement and Skills Alliance coordination activities. |
| **Medium-term priorities** | Increased stakeholder participation in implementation and co-creation activities. |
| **Long-term priorities** | Ecosystem coordination sustained through Skills Alliance governance, stakeholder consultations, thematic working groups, and Strategy reviews. |

| Activities | **5.2 Ecosystem collaboration and co-creation** |
|---|---|
| **Short-term priorities** | Identification of priority collaboration and co-creation opportunities. |
| **Medium-term priorities** | Strengthened collaboration between ecosystem actors across implementation activities. |
| **Long-term priorities** | Ecosystem cooperation sustained through recurring stakeholder consultation rounds, Skills Alliance activities, co-creation exercises and validation of workforce development priorities. |

| Activities | **5.3 Transferability and ecosystem uptake** |
|---|---|
| **Short-term priorities** | Identification of transferable practices and implementation approaches. |
| **Medium-term priorities** | Increased replication and adaptation of successful approaches across ecosystems. |
| **Long-term priorities** | Validated workforce development approaches replicated and adapted across regional, national, and sectoral contexts. |

Together, the activities under SO5 provide the collaborative structures required to support implementation of the Strategy across the European health industry ecosystem.

While SO1–SO4 focus on workforce intelligence, alignment, learning pathways, and competence development, SO5 focuses on the stakeholder engagement, coordination, and ecosystem collaboration needed to support their effective implementation and uptake.

## 5.6 SO6. Ensure quality, recognition, sustainability, and long-term uptake of skills development actions

WP2 findings and the Best Practices analysis indicated that the long-term impact and scalability of workforce development activities depend not only on the quality of training provision but also on credible validation approaches, recognition pathways, monitoring capacities, and sustainable implementation models.

Stakeholders consistently highlighted the importance of strengthening the credibility, visibility, transferability, and long-term continuity of skills development activities across the European health industry ecosystem.

The analysis also revealed growing interest in certification approaches, programme validation, impact assessment frameworks, and sustainability models capable of supporting broader adoption and long-term implementation of workforce development activities.

At the same time, sustainability and scale-up approaches remain less consistently developed across many initiatives.



**This strategic objective focuses on:**

- Quality assurance;
- Recognition;
- Monitoring;
- Sustainability;
- Implementation capacities that support the long-term uptake, credibility, and scalability of skills development actions across the European health industry ecosystem.



**Main target groups involved:**

Education and training providers, certification bodies, industry stakeholders, SMEs, public authorities, workforce development actors, LSP members, and ecosystem partners.



**Key topics:**

Quality assurance, programme validation, certification, recognition mechanisms, impact assessment, sustainability, scale-up, implementation continuity, ecosystem uptake.

### 5.6.1 Quality assurance and programme validation

This activity focuses on supporting quality assurance and programme validation approaches aimed at improving the credibility, consistency, and implementation readiness of workforce development activities across the ecosystem.

It contributes to ensuring that workforce development actions are aligned with identified skills needs and maintain consistent quality standards over time.

### 5.6.2 Certification and recognition mechanisms

This activity supports the exploration and development of certification and recognition approaches aimed at improving the transparency, portability, visibility, and long-term recognition of skills and learning outcomes. Particular attention is given to facilitating recognition by employers, education and training providers, and other relevant stakeholders involved in workforce development and skills validation activities.

### 5.6.3 Monitoring and impact assessment

This activity promotes monitoring and impact assessment approaches supporting continuous improvement, evidence-based refinement, and long-term evaluation of workforce development activities and implementation progress. The activity also supports the identification of lessons learned and informs future adjustments to workforce development actions.

### 5.6.4 Sustainability and scale-up mechanisms

This activity supports the development of sustainability and scale-up approaches aimed at strengthening the long-term implementation, ecosystem uptake, transferability, and continuity of workforce development actions beyond the project lifetime. This includes promoting institutional embedding, continued stakeholder engagement, integration into existing training offers, and exploration of diversified sustainability models where appropriate.

### 5.6.5 SO6. Strategic implementation roadmap

| Activities | **6.1 Quality assurance and programme validation** |
|---|---|
| **Short-term priorities** | Identification of priority quality assurance and validation approaches. |
| **Medium-term priorities** | Integration of validation and quality assurance mechanisms into training activities. |
| **Long-term priorities** | Quality assurance and validation approaches embedded into workforce development activities across the ecosystem. |

| Activities | 6.2 Certification and recognition approaches |
|---|---|
| **Short-term priorities** | Exploration of certification and recognition approaches. |
| **Medium-term priorities** | Increased integration of recognition mechanisms into workforce development activities. |
| **Long-term priorities** | Certification and recognition approaches adopted by employers, education providers, and workforce development stakeholders. |

| Activities | 6.3 Monitoring and impact assessment |
|---|---|
| **Short-term priorities** | Identification of monitoring and evaluation priorities. |
| **Medium-term priorities** | Integration of impact assessment approaches into implementation activities. |
| **Long-term priorities** | Workforce development activities continuously refined using monitoring results, impact assessment findings, and stakeholder feedback. |

| Activities | 6.4 Sustainability and scale-up mechanisms |
|---|---|
| **Short-term priorities** | Identification of sustainability and scale-up priorities. |
| **Medium-term priorities** | Development of ecosystem uptake and implementation continuity approaches. |
| **Long-term priorities** | Workforce development actions sustained through institutional uptake, stakeholder engagement, and integration into broader ecosystem initiatives. |

Together, the activities under SO6 focus on ensuring that workforce development actions remain credible, recognised, measurable, and sustainable over time.

While SO5 focuses on ecosystem coordination and implementation support, SO6 focuses on the quality, recognition, monitoring, and sustainability conditions required to support long-term uptake and impact.

## 5.7 Strategic roadmap: Skills for Europe's health industry ecosystem

The six strategic objectives presented in this chapter form an integrated implementation framework supporting workforce transformation across the European health industry ecosystem. While each objective addresses a distinct dimension of skills development, they are designed to operate as interconnected components of a broader workforce transformation agenda.

Together, the objectives provide a structured pathway for translating workforce intelligence, stakeholder priorities, and skills development needs into practical actions supporting industrial competitiveness, innovation capacity, workforce resilience, and long-term ecosystem sustainability.

| | |
|---|---|
| **Short-term priorities** | **Priorities** focus on establishing the foundations required for implementation, including evidence gathering, stakeholder engagement, skills mapping, and identification of priority actions. |
| **Medium-term priorities** | **Priorities** focus on integrating these priorities into workforce development activities, governance structures, and implementation mechanisms. |
| **Long-term priorities** | **Priorities** focus on sustaining, scaling, and continuously improving workforce development approaches through ecosystem coordination, periodic review, and institutional uptake. |

# 6 Towards the final strategy

The EU Health Industry Skills Strategy establishes the initial strategic framework for workforce transformation across the European health industry ecosystem.

Designed as a living and evolving strategy, it will be progressively refined through stakeholder consultation, validation activities, and implementation experience throughout BRIGHTskills, culminating in a mature, implementation-oriented framework that supports skills development, innovation, industrial competitiveness, and long-term workforce resilience.



## 6.1 Validation pathway

D3.1 establishes the initial strategic baseline. The present version is specifically structured to support external validation, mainly focused on Chapter 5, through questionnaires and workshops. Consultation results will be analysed against the evidence base and used to document confirmed priorities, proposed amendments, divergent views, implementation conditions and issues requiring further investigation.

The interim version (D3.2, August 2027) will integrate consultation findings, Industry Dialogue Workshop results, Skills Alliance input, emerging Observatory evidence and early implementation experience. The final version (D3.3, June 2028) will consolidate validation, training and quality-assurance evidence into a mature and operational framework. Endorsement and ecosystem-uptake activities will continue through December 2028 and beyond BRIGHTskills.

# 7 Conclusions



The European health industry ecosystem requires a coordinated response to workforce transformation. Digitalisation, AI, health-data use, advanced manufacturing, regulatory complexity, sustainability and organisational change are creating demand for multidisciplinary capabilities while exposing persistent gaps between industry needs and learning provision.

The EU Health Industry Skills Strategy translates this evidence into six complementary objectives and a phased roadmap. Its central contribution is to connect skills intelligence with practical implementation: aligning stakeholders, strengthening learning pathways and transformation competences, and creating mechanisms for quality, recognition, sustainability and scale.

External validation is now essential. The workshops and questionnaires will determine whether the proposed priorities are relevant across subsectors and countries, whether implementation assumptions are realistic, and which revisions are needed before D3.2.

The Strategy should ultimately function as a living European framework, updated through evidence and sustained through ecosystem ownership.

# Glossary

| Abbreviation | Full name |
|---|---|
| **AI** | Artificial Intelligence |
| **ARISA** | Artificial Intelligence Skills Alliance |
| **D3.1** | Deliverable 3.1 – EU Health Industry Skills Strategy (Initial) |
| **D3.2** | Deliverable 3.2 – Interim version of the EU Health Industry Skills Strategy |
| **D3.3** | Deliverable 3.3 – Final version of the EU Health Industry Skills Strategy |
| **EHDS** | European Health Data Space |
| **ENISA** | European Union Agency for Cybersecurity |
| **ESG** | Environmental, Social and Governance |
| **EU** | European Union |
| **GxP** | Good Practice quality guidelines |
| **IMF** | International Monetary Fund |
| **IP** | Intellectual Property |
| **ISPOR** | International Society for Pharmacoeconomics and Outcomes Research |
| **IT** | Information Technology |
| **IVDR** | In Vitro Diagnostic Medical Devices Regulation |
| **LSP** | Large-Scale Partnership |
| **MDR** | Medical Device Regulation |
| **MedTech** | Medical Technology / Medical Technologies |
| **OECD** | Organisation for Economic Co-operation and Development |
| **OER** | Open Educational Resources |
| **SaMD** | Software as a Medical Device |
| **SMEs** | Small- and Medium-sized Enterprises |
| **SO** | Strategic Objective |
| **STEM** | Science, Technology, Engineering and Mathematics |
| **VET** | Vocational Education and Training |
| **WHO** | World Health Organization |
| **WP** | Work Package |

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Boosting Resilience, Innovation and Growth in Europe's Health Industries through Learning and Development.

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