HEROES

D4.2 Final Sustainability Report at EU level

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Deliverable Plan

Deliverable lead partner	NIVEL
Contributing partner(s)	World Health Organisation - Regional Office for Europe
Work Package	WP4
Deliverable type	Report
Contractual delivery date	30.06.2026
Actual delivery date	24.07.2026
Dissemination level	Public
Version	3.0

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ABSTRACT

This Final Sustainability Report at EU-level (Deliverable 4.2) sets out how results of the HEROES Joint Action and cooperation on health workforce planning and forecasting (HWP&F) can be sustained beyond the end of the project at national and EU levels. It summarises sustainability actions and plans developed with Participating countries, it presents the Framework for Sustainable Health Workforce Intelligence and its application, and analyses the governance, institutional and data conditions required for durable HWP&F systems. Drawing on policy dialogues, Policy Board discussions and commissioned studies, the report proposes an EU-level theory of change, outlines mechanisms to consolidate and extend HEROES' gains after the Joint Action ends

STATEMENT OF ORIGINALITY

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

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Executive Summary

This Final Sustainability Report is the Deliverable 4.2 of the HEROES Joint Action, providing an EU-level sustainability report that outlines how the Joint Action's results can be sustained, including through cooperation and joint learning on health workforce planning and forecasting (HWP&F) beyond the project's lifetime. Work Package 4 (WP4) aimed to support participating countries in developing sustainability plans, identifying good practices, and creating a framework and tools to guide long-term HWP&F system development; this report demonstrates that these objectives have been met and translated into concrete outputs and early system changes.

HEROES Joint Action has significantly strengthened HWP&F across participating countries, moving from fragmented, project-based efforts towards more institutionalised, learning-oriented system.[1] It has built concrete technical capacity, created shared methods and tools, and consolidated a more connected community of HWP&F practitioners and policymakers. Tangible outputs include: an advanced Minimum Data Set; revised national models; the development and application of the Framework for Sustainable Health Workforce Intelligence; national sustainability plans including strengthened institutions and governance in participating countries; its toolkit; and structured inputs from policy dialogues and the Policy Board to inform EU-level reflection.

At the country level, the sustainability process led to structured national sustainability and policy plans that prioritise actions across four key domains: data and models; planners' capabilities; governance; and political and contextual support. These plans mark a clear shift from one-off modelling exercises to building enduring planning functions, with many countries now focusing on permanent units or observatories, stronger data foundations, and systematic capacity-building rather than ad hoc training. Across the 'clusters' of participating countries, actions varied, but goals were similar, demonstrating that, despite different starting points, countries converge on shared needs: sustained political commitment, robust governance arrangements, and integrated, routinely used workforce intelligence.

Through the project, countries have made it clear that this progress was made possible by collaboration among countries and by dedicated support tailored to their contexts, which they view as essential for ongoing improvements and long-term sustainability.

The report also sets out a focused set of national and EU-level recommendations with clear added value for the Union's broader objectives on

[1] Throughout this document, "Participating countries" is used to refer collectively to the EU Participating countries and Norway participating in HEROES, unless otherwise specified.

resilience, crisis preparedness, labour markets and skills, and for the mandate to support and complement national health policies.

Based on the evidence and to sustain the momentum generated by the HEROES Joint Action, the following recommendations are proposed:

Maintain focus on the progress of the participating countries

1) Participating countries should implement and periodically update their HEROES sustainability and policy action plans so that improvements continue **beyond** the lifetime of the Joint Action.
2) Participating countries should use the HEROES Sustainability Framework to develop rolling multi-year improvement plans on data and models, planner capabilities, governance, and political engagement, building cumulatively on the progress achieved under HEROES.
3) Participating countries, working with national and international partners, should co-develop actions and tools that make sustainable workforce management practices and better workforce metrics easier to use and more widely adopted in national planning.

Continue HEROES knowledge-sharing

4) It would be very useful if the European Commission and WHO Europe use their convening power to keep health workforce planning on the agenda of high-level EU meetings, maintaining visibility and tracking progress on institutionalising HWP&F across the region.
5) Partners of HEROES propose to establish an EU Hub or Platform. The feasibility and operating model of an EU Hub or Platform could be scoped to enable participating countries to access shared learning, knowledge, and tools, and support to use the HEROES Framework and toolkit to design and implement new improvement plans.

Strengthen EU-level collaboration

6) Building on national progress, it would be useful if the EU considers a pilot project with participating countries and relevant organisations (e.g., WHO, professional associations, EUPHA), using a learning cycle or CODA approach to accelerate the sustainability and effectiveness of planning systems, with built-in monitoring and impact assessment.
7) In support of national actions, it would be useful if the European Commission works with participating countries to maximise the use of existing EU funding instruments for health (e.g. currently TSI, RRP, Cohesion funds and future opportunities under the new Multiannual Financial Framework) to strengthen workforce planning systems, informed by learning from HEROES.

Taken together, these recommendations are mutually reinforcing**.** Sustained action of the participating countries and use of the HEROES Sustainability Framework embed improvements nationally; enhanced EU-level knowledge sharing keeps health workforce planning visible and supports continuous mutual

learning; and stronger EU-level assistance and more effective use of financing mechanisms by participating countries provides the enabling conditions and resources to scale and institutionalise good practices. Coordinated action at national and EU levels therefore creates a multiplier effect, accelerating the institutionalisation of robust, sustainable health workforce planning and forecasting across the region.

If acted upon by both participating countries and the EC, these recommendations provide a clear pathway for the sustainability of HEROES results: they would turn the progress achieved through the Joint Action into a durable, EU-wide capacity for sustainable health workforce planning, ensuring that the investments made through HEROES continue to generate value for participating countries and EU citizens in the years ahead.

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Acknowledgements

The authors would like to thank Linda Flinterman and Xavier Bayona Huget for reviewing this report, as well as the Joint Action HEROES work package leads and the country partners for their contributions and feedback. Thanks also to Cidalia Escubido and Robert McMurray for their valuable and informative supplemental reports that informed the development of the recommendations.

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Abbreviations

CfWI	Centre for Workforce Intelligence (UK)
CODA	Collaborative Organisation Development Approach
D4.2	Deliverable 4.2 of the HEROES Project
EC	European Commission
EU	European Union
FSHWI	Framework for Sustainable Health Workforce Intelligence
HaDEA	Health and Digital Executive Agency
HEROES	the Joint Action on HEalth woRkfOrce to meet health challEngeS
HRH	Human Resources for Health
HW	Health Workforce
HWF	Health Workforce Forecasting
HWP	Health Workforce Planning
HWP&F	Health Workforce Planning and Forecasting
JA	Joint Action
JAHWF	Joint Action on Health Workforce Planning and Forecasting
M12	Milestone 12 of the HEROES project
MoH	Ministry of Health
Participating Countries	Participating countries of the HEROES project
SEPEN	Support for the hEalth workforce Planning and forecasting Expert Network joint tender
ToC	Theory of Change
WHO Europe	World Health Organization Regional Office for Europe
WP	Work Package

Introduction

This report is produced as part of the second Joint Action (JA) on Health Workforce Planning and Forecasting (HWP&F), the Joint Action on HEalth woRkfOrce to meet health challEngeS (HEROES) and is designated as Deliverable 4.2 (D4.2) of the project.

The deliverable's description in the Grant Agreement requires that a Final Sustainability Report at the EU-level is to be produced that defines core elements for sustainability of cooperation with the Joint Action partners and / or other EU participating countries. As such this report details the actions that have been taken towards sustainability and recommends a range of actions to be considered enable the continued cooperation of the JA partners and EU participating countries. Each country has made improvements to their planning systems, and has identified how they will work towards the sustainability of their planning systems, including further improvements to their workforce planning systems, which are outlined and enabled through their sustainability plans. All countries felt that the collaborations between them, through the Joint Action, was a key element in achieving their own improvements and that access to further collaboration opportunities are required for continuing on the journey of planning system sustainability.

Health workforce planning is a complex and 'wicked' policy problem that aims to address the 'six rights' of the right people, services, skills, time, place (Birch, 2002) and cost, to ensure health services are delivered to the population. Its complexity and wickedness are due to its long-term nature (Rees et al., 2023), its variety of constituents, their relations and effective power (Khulmann and Burau, 2018), and the changeability of the problem's form, resistance to solutions and pernicious effects due to systemic interactions and interrelationships (Head and Alford, 2015). Thus, it requires range of policies to be implemented simultaneously or sequentially supported by a constant and consistent focus on the system goals and desired outcomes (Deming, 1986). Thus, health workforce planning is not only about simply projecting the numbers, but requires policies that provide a multi stakeholder response to "the issues of recruiting, educating, distributing, retaining, motivating and managing the HW, which implies improving the knowledge about the expectations and behaviours of health workers" (Dussault et al, 2010, p.iv) that are supported by accurate and comprehensive data. The sustainability of health workforce planning systems implies a mix of technical planning capabilities and the management the multiple interests and values of stakeholders, institutional complexities and knowledge uncertainties; that is, to merge both the technical and the social parts of a system (Guest, et al., 2022). As such, health workforce planning effectiveness is not something that can be acquired quickly, rather its attainment is acquired over time and are a challenge to sustain (Rees, et al. 2023).

Objectives and Goals of Work Package 4

The HEROES Grant Agreement specifies that sustainability of the Joint Action HEROES should be composed of a set of implementation actions, the continuation and further enhancement of the products, and the continuation of knowledge sharing among HWP&F experts. To direct this over the term of the project a First Sustainability Plan was developed, which outlined the strategy and actions for facilitating national-level HWP&F improvement and continuity and lesson collection for actions that can be applied at the national and EU-Level. As the term sustainability was not clearly defined in the HEROES Grant Agreement, a definition was derived from Moore, et al. (2017) that has been applied for Work Package Four (WP4), which is 'the ability of a program or implementation strategy to continue delivering benefits after a defined period'.

Applying this sustainability definition, several actions were developed to be undertaken across WP4. These were to support the development of national sustainability plans that reflect local needs and contexts, and the development of sustainability support for the participating countries, and to identify 'good' practices for HWP&F system sustainability at the national and at the EU-level.

Four tasks comprised WP4, with aim to provide participating countries with policy direction, policy development and implementation examples and discussion, identify sustainability factors to consider and include in action and sustainability plans of the participating countries and to develop a framework (with toolkit) to build upon and continue the improvements initiated by HEROES. Table 6 in the Appendix identifies these tasks and their milestones and deliverables codes.

In addition to other actions, for example, Deliverable D2.4 Policy Briefs, distilled existing good practice to support the development of the Joint Action and informed the sustainability work.

Further details of the contribution of Task 4.3's Sustainability strategy: First sustainability plan and the Final sustainability report at the EU-level are contained in Appendix 1, along with the key output of WP4.4, Methodology for sustainable framework for HWF intelligence [from here referred to as 'the Framework']. This framework was intentionally designed to be flexible so that it can be used across the diverse contexts and capacities of EU participating countries, allowing them to assess their Health Workforce Planning and Forecasting system and prioritise actions to strengthen them.

The role of this report

This document is not an implementation plan; it is a report whose purpose is to:

a. summarise sustainability actions undertaken during HEROES and planned to take place after its conclusion;
b. discuss approaches to support planning sustainability at national level of participating countries after HEROES;
c. present recommendations based on lessons learned across the project; and
d. indicate the key functions and potential actions at the national and EU level required to sustain progress after the Joint Action ends

Thus, the report first presents a summary of the evidence from the sustainability plan actions of the participating countries and, secondly, the broader environment to promote the sustainability of the Health Workforce Planning and Forecasting system, by identifying two key issues: governance institutionalisation and system-level considerations.

To develop the discussion on these two issues, the report synthesises two pieces of commissioned work on (i) organisational and system factors and (ii) good practices from outside of the health sector that should be considered benchmarks for improving the response of HRH planning systems. Within the discussion is a synthesis of data collected from a content analysis of the Policy board and Policy dialogues that reflect the current thinking of the HEROES participating countries for the sustainability of their planning systems. Using these data, a Theory of Change is offered that models how to tie these strands together. From this, a set of actions/recommendations for consideration at the EU-level has been developed. These recommendations, based on the lessons from HEROES, are for consideration and would require further development before implementation.

Sustainability Plans of the participating countries

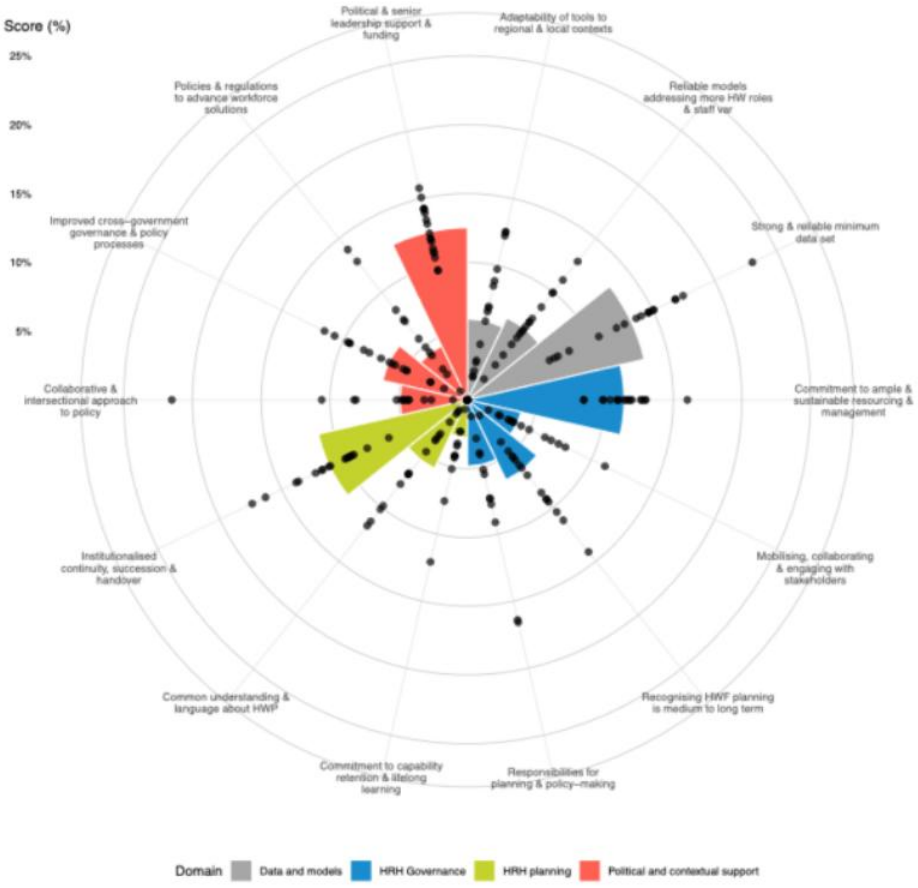
As part of working within the HEROES JA, all participating countries have made progress in building technical capacity for HWF planning. However, technical improvements alone are not sufficient. Without institutional structures, governance and long-term resourcing, these gains risk becoming dependent on short-term projects or individual expertise. Therefore, the sustainability plans of the participating countries outline a series of concrete actions to ensure a sustainable approach to improving their planning systems beyond the life of the JA. Table 3 summarises the priority actions in the sustainability plans of the participating countries at the cluster level.

To support the development of these sustainability plans, HEROES country teams conducted a series of discrete choice experiments on the 1000Minds platform to assess the relative priority of the individual HWP&F planning-system sustainability factors.

Figure one provides a polar plot showing the relative priority of the framework's factors. Each dot shows the *average* importance by country, and the shaded area shows the average importance of the factor to all the countries.

While some factors see a significant spread in the importance placed on them by country teams, three factors are consistently rated as important for sustainability (i.e. the dots are tightly clustered); political and senior leadership support and funding, commitment to ample and sustainable resourcing and management, and a strong and reliable minimum dataset.

Figure 1. Relative priority of the Framework for Sustainable Health Workforce Intelligence domain factors of Participating countries



Examples of Country Sustainability Plan directions

The Sustainability approach of the Joint Action emphasises that durable improvements in health workforce intelligence depend on institutionalisation and on the social and political arrangements that surround technical tools. The 'Framework' makes it explicit that technical gains in data, modelling, and capabilities only translate into lasting impact when they are embedded within stable institutions, clear governance arrangements, and sustained political engagement that give workforce intelligence legitimacy, continuity, and influence.

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- **Portugal** offers a clear example of the HEROES socio-technical sustainability approach. It is not only about investing in technological advances, including progress in standardising data and improving digital architecture, but also about committing to developing a permanent national function for strategic workforce planning and to a cross-government governance architecture that brings together key ministries and professional bodies. These institutional reforms are accompanied by proposals for an inter-ministerial committee and structured policy dialogues, designed to secure political ownership and ensure that workforce intelligence systematically informs national strategies and resource allocation.

- **Slovenia** intends to keep health workforce planning on the political agenda by organising a strategic policy dialogue on the governance and technical oversight of its planning model, thus enabling linkage of the model to broader legal and regulatory reforms for health workforce planning. In parallel, it plans to expand and link, through legislation, key workforce datasets, including supply, demand, retirements, and health insurance data, and to integrate the planning model into the national statistical database environment, so that modelling becomes part of the country's core data infrastructure rather than a stand-alone project tool. To underpin this, Slovenia intends to establish a dedicated intersectoral unit and use multi-stakeholder structures to regularly review indicators and validate model outputs, ensuring that the technical work is embedded in formal governance processes and can directly inform national policy.
- **Germany** demonstrates how a strongly institutionalised, politically anchored system can support advanced technical capabilities. BMG (Federal Ministry of Health, Germany) is working towards a centrally coordinated national health workforce planning system that provides national and regional data, supported by a scientific advisory board that meets regularly to review data, assumptions, and model outputs and to build cross-organisational consensus. This aims to ensure that technical work on models and scenarios is supported by governance structures and federal-level engagement that can provide evidence into to support policy decisions at different governance levels.

Cluster Level Sustainability

Each cluster produced sustainability plan summaries indicating the priorities for their constituent participating countries. Table two provides a summary of the key actions taken. It indicates that while there is heterogeneity in planning efficacy and health system administrative arrangements of the participating countries, their planning priorities are broadly grouped, which reflect a range of context-appropriate actions related to the four domains of the Framework.

Table two's results, which overlap extensively with the themes contained in the HEROES Policy Brief 3 (Kuhlmann, et al., 2026), show a growing understanding of the need to address the wider planning issues of institutionalisation, cross-government coordination and political visibility. This wider focus on planning factors appears to be in part due to the adherence to the social-technical system perspective that delineates the Framework's domain structure and the emerging visibility of the gaps in health workforce planning sustainability becoming more evident.

Table 1. Cluster-based Outputs of the Sustainability Plans of the participating countries

Cluster	FSHWI Domain	Identified Priorities and Examples of actions
5	Political support, contextual and environmental factors	Strengthening Governance and Institutional Coordination, e.g., inter-ministerial and intra-ministerial coordination mechanisms. Continuing policy dialogues to build consensus on priorities and engage policy makers
	HRH Governance	Strengthening institutional arrangements for health workforce (HWF) planning, e.g., Establishing a Coordinating Unit or Observatory. Addresses coordination, learning and integration across levels of governance, e.g., international to National to local dialogues, systematising pilot projects.
	HRH Planners Capabilities	Systematically build and sustain the HRH Planners Capabilities, e.g., training programmes, identify resources, institutionalization, networking, and continuous international collaboration.
	Data and Models	Data improvement e.g., data standardization, data scope expansion, data governance. Implementation of digital infrastructure and operationalization of advanced forecasting, e.g., improve data and model infrastructure and efficacy
6	Political support, contextual and environmental factors	Maintain health workforce planning on the political agenda, e.g., structured policy dialogues, cross-ministerial fora, and formal boards.
	HRH Governance	Formalising institutional arrangements for health workforce planning, e.g., defining and implementing responsible bodies or inter-sectoral unit, engaging expert assistance.
	HRH Planners Capabilities	Strengthening the analytical and planning skills, e.g., competency assessments, targeted training, mentoring or assistance from outside bodies.
	Data and Models	Developing and embedding data systems and forecasting models, e.g., improving models, expand datasets, integrating registries, linking models to centralised data.
7	Political support, contextual and environmental factors	Securing long-term political commitment and embedding health workforce planning within broader policy agendas, e.g., recurrent policy dialogues and expert forums, formal political anchoring, aligned workforce planning with existing ministry strategies, stakeholder coordination platform, policy dialogues.
	HRH Governance	Institutionalization of health workforce planning, e.g., developing standing units within Ministries of Health, scientific advisory board, cross-organizational working group.
	HRH Planners Capabilities	Retaining and strengthening technical and leadership capacity, e.g., systemised training, international learning, integrated planning.
	Data and Models	Sustaining robust data systems and forecasting tools, e.g., extensive profession coverage, extensive profession coverage, improving data integration and linkages, prioritizes dataset completion, including broader datasets.

The framework's domain structure allows participating countries to explicitly identify actions that support long-term sustainable improvements and to identify interdependencies between domains, thereby enhancing sustainability and enabling participating countries to deliver greater capacity. While some factors see a significant spread in the importance placed on them by country teams (see Figure 2), three factors are consistently rated as important for sustainability (i.e. how the dots are clustered). These are (i) political and senior leadership support and funding, (ii) commitment to ample and sustainable resourcing and management, and (iii) a strong and reliable minimum dataset.

Despite the variety in starting points between countries across the clusters, several critically important common outcomes are apparent at a national level:

- **Secure sustained political commitment and cross-government alignment**, especially between ministries of health, education, finance, labour and regional authorities.
- **Create stable legislative and regulatory conditions** that enable predictable planning and investment, including better alignment of education outcomes, labour market dynamics, and health service needs (e.g., legal bases for data sharing, interoperable information systems, and long-term strategies)
- **Institutionalisation of HWF planning** within permanent structures (e.g. observatories, dedicated HWF units, standing working groups or advisory boards), with formal mandates and secured resourcing.
- **Embedding of learning and feedback loops** in governance (regular review of indicators and model outputs, joint interpretation and follow-up), so that workforce intelligence is consistently used in policy and investment decisions
- **Institutionalised capacity-building and knowledge retention**, through structured, recurrent training programmes addressing a range of skills (technical, analytical, leadership and facilitation), developing guidance documents and mentoring arrangements, reducing dependence on individual experts
- **Sustained participation in networks and communities of practice**, at international, national, and local/subnational levels to support ongoing peer learning and adaptation.
- **Robust, standardised and routinely updated data foundations**, covering a broader set of HWF professions and incorporating additional variables (e.g. mobility, employment sector, retirement, training capacity).
- **Aligning data and model capability,** optimising or adjusting models to available data, while seeking improved data breath and quality.
- **Transition from one-off modelling exercises to adaptive decision-support systems**, providing regular projections, scenario analysis and regional insights that are used in policy dialogues, planning cycles and resource allocation.

HEROES and the approach to sustainability have led several participating countries to move from solely fortifying their technical capabilities to addressing deficits in permanent, well-resourced planning structures, and to developing coordination, convening, and leadership skills. This shift towards institutionalisation should enable participating countries to further capitalise on HEROES' actions for more sustainable planning capabilities over the longer term. However, while the Framework supported the development of sustainability at a national level, the discussions from the HEROES Policy Dialogues and Policy Action Plans highlight the critical nature of international collaboration in implementing improvement plans and sustaining momentum. The next section discusses this and how an ongoing EU approach is a critical element of sustained improvement at a national level.

Making a Change: a discussion on EU-level Health Workforce Planning system sustainability

The context of change

In parallel to the HEROES Joint Action, research has begun to emerge that the HWP planning problem and its environment is more complex (Sturmberg, 2025), ill defined (Rees et al., 2025) and context sensitive (Onvlee et al., 2026) than first assessed. It is also considered to be dependent on "windows of opportunity" of political support and stakeholder commitment that are often transient (Onvlee et al., 2021). Even the words being used to label our endeavours 'planning and forecasting' entrench historical "status quos" that are unresponsive to determining the shape, state and volume of future workforces (Gorman, 2015). Thus, a change in language that reflects broader planning perspectives, ones that are closer to the nature of the problem attempting to be solved would also help to support more sustainable planning systems and their outcomes (Rees et al., 2025). This perspective validates the approach taken by the Joint Action, which expanded from a focus on purely 'technical' elements of planning to include the system's 'social' factors such as governance and political engagement.

The traditional HWP&F approach, which tends to be concerned with the numbers of workers appears to a contributing factor for weak workforce planning outcomes. Rather, HWP&F should be moving towards planning for workforce capability, disposition and activity and integrated with the service design. To plan for an appropriate future workforce, simply projecting the often highly aggregated numbers of workers required is not sufficient, rather it is more productive to understand the capabilities and the ranges of clinical roles and that a future workforce would be required to have for required service provisions (Gorman, 2015). This "capabilities approach" to HWP&F (Scotter, et al., forthcoming) like that being introduced in Sweden and Slovenia, attempts to better match future population needs and location with an appropriate mix of capabilities [people, skills and resources] to support service delivery designs.

In this vein, two pieces of work were commissioned as part of HEROES to contribute to the approach to sustainability in the Joint Action. The first, McMurray (2025) argues that the complexity of health workforce planning,

combined with significant differences across participating countries, makes uniform, standardised solutions ineffective and potentially counterproductive. The second, Eusebio (2025) reviews non-health industries that share similar attributes of the health sector to identify their good practices and how these practices may apply to health and its workforce planning. Both these texts should be read in conjunction with this report.

Stimulating change

In reviewing the evidence on prior joint actions and similar initiatives McMurray finds that the nature of the HWP problem, country heterogeneity and role of context makes a one-size fits all solution or tool set for improving HWP&F system development "difficult at best and dysfunctional at worst" and states that a "sense of impermanence discourages long term planning… also work[s] against long term investment and may encourage short term risk-averse behaviours". In addition, as health is a system, these short-run fixes exert change that can affect the system's dynamics, which change both the 'fix's' trajectory and lead to distortions or disconnections from the 'fix's' intention and actual outcome. These create new sets of problems or produce resistance to further improvements. This feature of systems is a problem for capacity development projects that might seek a linear development route and thus are unable to respond to the totality of the wickedness of the HWP&F problem.

Therefore, to be as effective as possible beyond the Joint Action HWP&F capacity development will require a continuation of the supportive environment HEROES created in which participating countries operate. McMurray indicates that to short-circuit the extant, persistent barriers to improvement that participating countries experience, an environment that incorporates learning from prior actions and uses short-run, monitored implementation cycles is more appropriate than relying on longer-term linear plans. HEROES potentially represents a single 'learning cycle' of 'as is, to be, to do' followed by improvement and sustainability and policy action plans. Long-term sustainability built on a series of 'learning cycles' at the national level supported at the EU level are likely to better allow responses to the extant political realities, health need trajectories and improvements of planning governance and stakeholder engagement improvements than the 'classic' forward linear planning attempts.

A mechanism that enables these sustainable planning processes is the Collaborative Organisation Development Approach (CODA). It is a methodology focused on improving the effectiveness, adaptability, and overall health of organisations through planned systemic change, moving past one-off policy implementations toward a structure that can continuously develop, implement, scale, evaluate, and adapt innovative responses to the complex European HWP&F problems. Its key difference from the Joint Action, is that it aims to be adopted as a continuous process rather than a discrete project and requires the 'constancy of purpose' when undertaking and sustaining system change.

The CODA mechanisms encourage and enable continuous mutual adaptation from participating to reduce their isolation and to improve their access to learning opportunities: as it is imperative that participating countries continue to work together to learn from and leverage their differences as a result of their actions and results undertaken through HEROES.

Thus, to promote sustainable HWP&F, any organisational change mechanisms and institutional policies are required to prioritise continuous mutual adaptation over static harmonisation. Though to do this would require collective actions across EU that:

(i) Secures high-level political leadership for HWP&F, including framing it as an investment (not a cost) necessary for jobs growth, economic security, and crisis preparedness;

(ii) Leverages existing databases to hasten moves toward common data standards and interoperability requirements for core HWP&F metrics across all participating countries, such as formalising structures to collect and combine quantitative and qualitative data of the participating countries, such as those in the proposed HEROES Advanced Minimum Data Set;

(iii) Promotes the development of adaptive capacity, through participating countries considering or establishing dedicated HWP&F units that sustainably formally empowered, resourced and localised leadership to enhance continuous learning;

(iv) Considers the CODA framework as a means for participating countries to maintain their HEROES results by supporting action research and collaborative adaptation of the framework within and across participating countries; and lastly

(v) Continues to collaborate within a supportive enabling environment to best sustain and build on the results from HEROES over the long term.

A more detailed strategy for incorporating and implementing the CODA to support EU-level HWP&F sustainability is presented in McMurray (2025).

Good Practice Benchmarks

The health workforce operates in complex, high-risk environment where failure can result in serious harm or system disruption. However, the health sector has not typically applied the workforce and safety principles used in other industries that also share similar safety-critical profiles to the health sector. Therefore, these can be used as useful comparative benchmarks to add to those ‘good’ practices found from within health through the Joint Action. These other industries tend to prioritise expertise, situational awareness, system resilience, and learning from everyday operations as part of their organisational systems and cultures.

In practice, many health systems rely on “general management” approaches rooted in industrial production models. These approaches often emphasise efficiency, standardisation and short-term performance metrics - frequently at the expense of understanding how clinical work is actually delivered or how risk is managed at the frontline. Further, as these general management approaches were principally developed for industrial production systems with predictable, standardised work, they do not adequately respond to the uncertainty, complexity and safety-critical nature of healthcare. It is likely that shortages

from poor attraction, recruitment and retention policies and processes are linked to this mismatch.

In contrast, as Eusebio (2025) points out, safety-critical industries tend to apply “Humanistic Management” approaches that place greater emphasis on understanding the work being done, strengthening system capabilities, and supporting professional judgement in complex environments. Here, the workforce is treated as a strategic asset that is essential to system performance and safety, rather than a cost to be controlled. Sustaining expertise, adaptability, and continuous learning over time within these organisations is viewed as central to managing uncertainty and to maintain safe and reliable services. Table two provides a contrast between these two management approaches.

Thus, there are some lessons from safety-critical industries that could be adopted by healthcare. Significantly, there is a recognition for a reframing of how work is designed and how the workforce is planned for, which also requires a review of the present regulations and laws that may be embedding counter-productive practices.

This reframing requires HWP&F planning systems of the participating countries to begin to embrace the following practices that are hallmarks of safety-critical industries:

(i) a continuous identification of early risk signals.

(ii) a reluctance to simplify through recognising that complex systems cannot be reduced to linear explanations.

(iii) a sensitivity to operations, ensuring real-time awareness of frontline work.

(iv) improving stakeholder relations through a deference to expertise and allowing decision-making to shift to those with the most relevant knowledge

(v) a commitment to resilience.

(vi) that the HWP&F planning role become significant across government for supporting adaptation, recovery, and learning over time.

Table 2. Contrasts between General and Humanistic management approaches

Dimension	General Management Approaches	Humanistic, Safety-Informed Approaches
Management focus	Workforce transformation	Work transformation
Primary objective	Cost improvement / cost containment	Effectiveness, value, and outcomes
View of the workforce	Workforce primarily as a cost	Workforce as an asset critical for success
Focus of work	Task-focused approaches	Work / professional praxis-focused approaches
Valuation of work	Technical primacy	Context- and risk-sensitive valuation of work
Resilience	Individual resilience	System capability for resilience
Workforce configuration	"Christmas tree" workforce models	Interdisciplinary expert teams
Use of data	Limited responsiveness to internal data	Sensitivity to operations
Safety logic	Avoiding harm (Safety I)	Creating safety (Safety II)
Capacity model	Over-capacity working / normalised overwork	Productive slack
Workforce planning	Supply-side workforce models	Demand-driven labour models
Experience deployment	High-risk work populated by novices	Retention of frontline expertise with safe learning

Source: Eusebio (2025)

Aligning for Change

This subsection provides a rapid review of minutes, documents and transcripts of the completed HEROES EU Policy dialogues, Policy board and stakeholder meetings up to the time of writing. In HEROES, 'EU level policy dialogues' refer to cross-country EU events involving participating countries grouped by geographic or contextual similarity. These various meetings included representatives of HEROES of the participating countries and other stakeholders and across their discussions some common threads are apparent. Table three provides summarised common threads from these fora and the associated mechanisms suggested to address them.

These themes provide the 'direction of travel' that participating countries and stakeholders believe is appropriate for ensuring the sustainability of the results of JA HEROES, embedding the gains and offering a high likelihood of greater sustainability of the HWP&F planning systems of the participating countries. They are, therefore, a key dataset for the recommendations that appear at the conclusion of the report.

Table 3. Common threads and suggested mechanisms from HEROES National and EU-Level fora

Identified themes	Suggested mechanisms
EC has a complementary role of supporting health workforce development, focusing on facilitating mutual learning, supporting the development of ideas and pilots, and assisting with implementation.	The establishment of a learning platform to facilitate knowledge and practice exchanges, for example regular sessions on current and emerging HWP&F issues or topics, sharing lessons and failures to enhance practice and improve implementation
Importance of peer to peer or cluster learning opportunities for participating countries and cross-border cooperation and interoperability	Shared border-countries / bilateral agreements to collaborate where similarities may exist
Access to experts and knowledge that is updated and respond to the needs of the participating countries	Access to and updating of 'good' practices, including stakeholder engagement and involvement
Health workforce reform is a continuous and widespread activity across countries and HWP&F requires institutionalisation to be sustainable	Continue a stream of health workforce-related project calls, access to a range of EU funds that relate to health system strengthening
The need to improve HWP&F endeavours and enable forecasting and planning models for new or emerging service and to link national level forecasting to service-level forecasting or requirements	Support the improvement and convergence of health workforce indicators, data and registries across countries and international agencies, e.g., for improved HRH data warehousing or utilizing EHDS for more proper HWF data to assist EU decision makers to access relevant data
Further spread of institutionalisation endeavours to maintain and improve planner and policy maker capabilities	Actions to promote more effective evidence-informed HRH policies, such as Integrate HRH intelligence within health system digitalization strategies or a HRH planning observatory
HWP&F planning system sustainability is elusive, while political support and resources are not certain	Increase visibility of HRH and HWP&F at the national and international levels to ensure resources and political support can be mobilised

Directions for change: approach and mechanisms

A Theory of Change

As discussed previously, the improvement of sustainable HWP&F planning systems cannot rely on the application of technical competencies alone and require a shift in how planning is to be achieved and the management approaches to embed it. Thus, the application of lessons learned from HEROES and progress of the actions of the participating countries can no longer be left to chance. In the past, much of the continuity of the previous HRH Joint Actions relied on the assumption that countries would continue on their own. Unfortunately, history tells us that this assumption is not always valid. McMurray points to factors such as political and public service stability, country size, resource availability, and absorptive capacity as reasons why countries did not advance as expected. In general, this is amplified by the HWP&F cycle being longer than the political cycles of the participating countries, which presents the opportunity for discontinuity of policy, leadership and institutional memory (Rees, et al., 2023). This short long-term dynamic offers an explanation for why

relying on internal motivation or a “self-starting” approach as a continuity driver for participating countries was previously ineffective. Rather, sustaining HEROES’s enabling environment is likely to be more successful for building on the results of the participating countries through a continuity of access.

As such, consideration should be given to future HWP&F capacity development the EU-level to be less “self-starting” and aim for continued “accessibility”. Here change and improvement occur through the co-identification of priorities, mentoring of cross-country teams, multiple communities of practice, and in some cases a direct assistance approach. WHO Europe already has extensive experience with direct assistance, that are set out in its Biennial Plans conducting Health Labor Market Assessments, Health Workforce Information Assessments and through its convening powers initiating participating countries and sub-European HW governance policy dialogues. These actions are initiated and coordinated by the MoH of the participating countries, the respective WHO Europe country offices or through direct contact with the WHO European office. To support continuity of HEROE’s results, direct assistance interventions would be appropriate when participating countries are considering setting up HRH Units or institutionalising HWP&F, or for specific advice on institutionalisation initiatives. The sustainability plans of the participating countries have already identified some of these institutionalisation actions as their future priorities.

The Theory of Change (ToC) for this report is presented as Figure two, showing a link between the EU-level and at national-level actions and how they jointly contribute to the expected outcomes and the continuity of HEROES’ results. The ToC presents participating countries operating within a context ruled by their demographic and geographic realities, their health statistics, policy and political contexts and national / global trends and interconnectedness. With respect to HRH planning and policy, the country's capacity for developing policy, data collection and monitoring and planning workforce training and stability were the focus of HEROES. However, as countries advance, they require developing a more sustainable HWP&F system to develop evidence-based HRH policy, monitor plans, enable HRH governance and have visible continuous leadership. This continuum of interconnected factors is reflected by the Framework’s capacity pyramid design and supporting tools, with its technical and social domains.

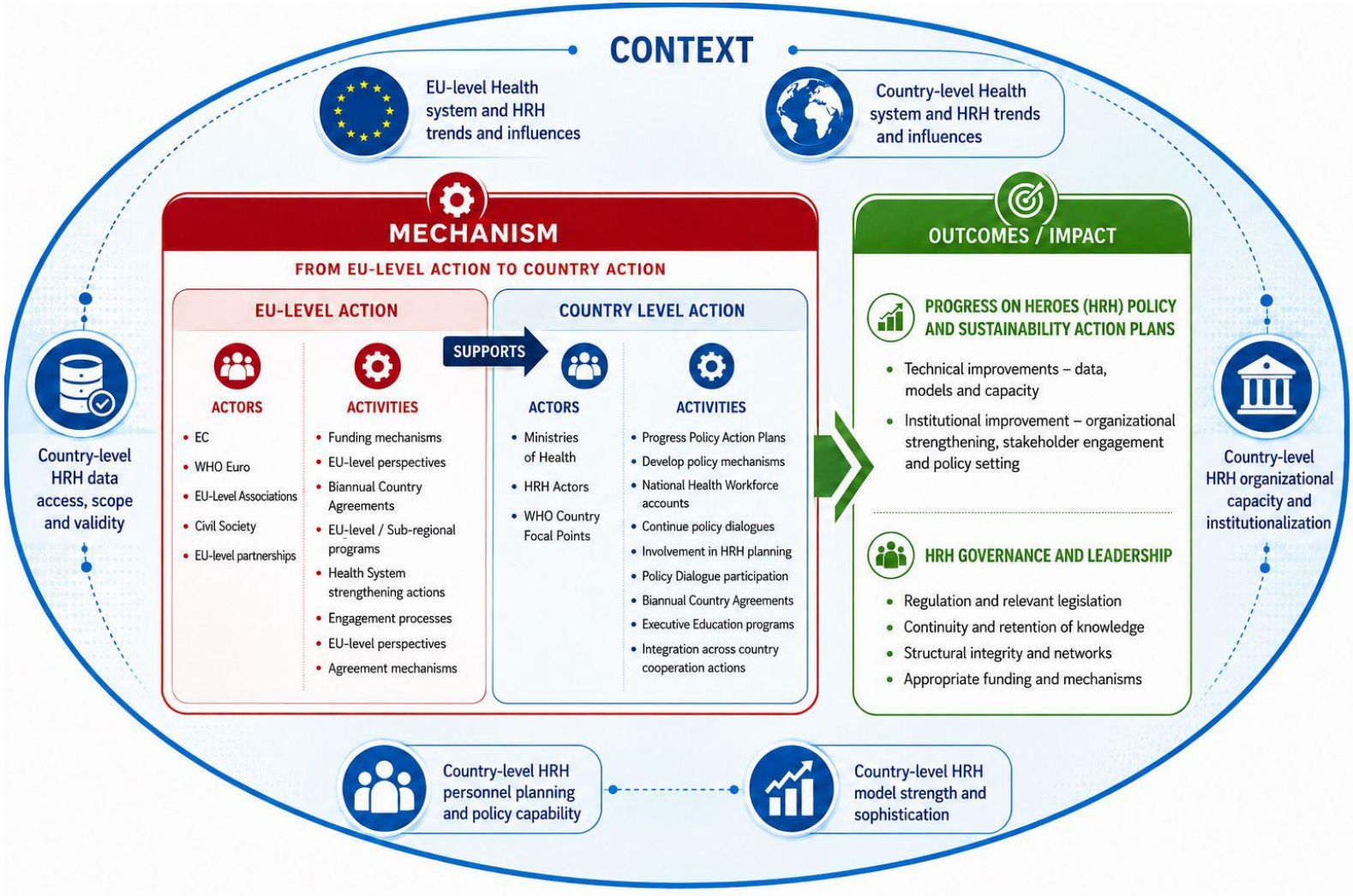
Thus, through this ToC, the continuity of the gains from the HEROES project are contingent on the interplay of ongoing and complementary actions available to participating countries following the completion of the Joint Action. Long-term sustainability needs to be an outcome of these ongoing actions at both levels, rather than assuming there will be sufficient participating countries’ inertia to resist external forces and continue progress towards a sustainable HWP&F system. This would provide more control for governments of the participating countries that comes from embedding policies and procedures and creating planning ‘capability’ and functionality.

These improved capabilities assist to orientate HWP&F output relevance for future service requirements and designs driven by government policy or strategy, which in turn determine the planning pathways. Thereby ensuring that the ‘right’ workforce capabilities are available for the health system of the future ensuring that HWP ‘6-rights’ of people, services, skills, time, place, and costs can be delivered by the system.

Thus, HWP&F system improvement should not be held up waiting for the “windows of opportunity”, although they can take advantage when these occur. Rather, Onvlee, et al. identify that these windows should become structural, thereby ensuring that progress towards planning system sustainability can be constant. Further, a workforce capabilities approach encourages deeper understandings of the behaviours and preferences of workforce groups to be used alongside numerical data for deeper planning and policy analysis purposes (see MABEL project, Melbourne Institute of Applied Economic and Social Research, 2026).

Taken as whole, the evidence and the progress from the participating countries of HEROES appears to be pointing to taking less of the ‘self-starting’ approach for future of Health Workforce Planning and Forecasting across Europe, towards taking the ‘accessibility’ approach characterised by CODA-style cycles of improvement. This approach would allow for a more supportive environment to ensure that HEROES’s results continue. These outcomes of the participating countries would be enabled by the range of supportive EU-level mechanisms outlined above, made available to participating countries. This includes support for implementing effective solutions, along with continued access through ongoing engagement with others to collective knowledge, expertise, and technical assets. The following subsection provides a brief description of possible EU-level mechanisms and how these may contribute to a more supportive environment for the sustainability of the planning systems of the participating countries.

Figure 2. A Theory of Change for the HEROES project's continuity



Co-funded by the European Union

Mechanisms for change at the EU-level

The Theory of Change identifies several mechanisms needed at EU level to support sustainable planning. From Figure two, the collection of various actions aims to provide an infrastructure for participating countries to engage and thereby set and implement their plans and priorities. Such a continuing dynamic should enable participating countries to forward their country sustainability plans and continue development based on short-run, monitored implementation cycles, as envisaged by CODA.

EU Level Actions

To support national-level action, a supportive international environment is viewed as important. The primary international actors engaged on health and health workforce are the European Commission (EC) and WHO through their European Office and Country Offices, whose combined convening power creates a strong enabling environment. Convening powers of multi-lateral organisations have been shown to be a key mechanism for maintaining a focus on HWP&F country-based advancement and a to provide high-level political visibility (KIT Institute and Universitas Padjadjaran, 2024). WHO Europe has found that using its convening powers provides a needed mechanism to bring countries together and promote inter-country learning and knowledge sharing through its sub-regional networks on Human Resources for health. HEROES participating countries such as Sweden, Slovenia, Norway, Ireland, Malta, and Estonia believe the convening power through JA HEROES provides not just technical support, but also legitimises their efforts and supports engagement with policymakers. This type of action and support is seen as required to continue, contributing to the sustainability of HEROES' impacts.

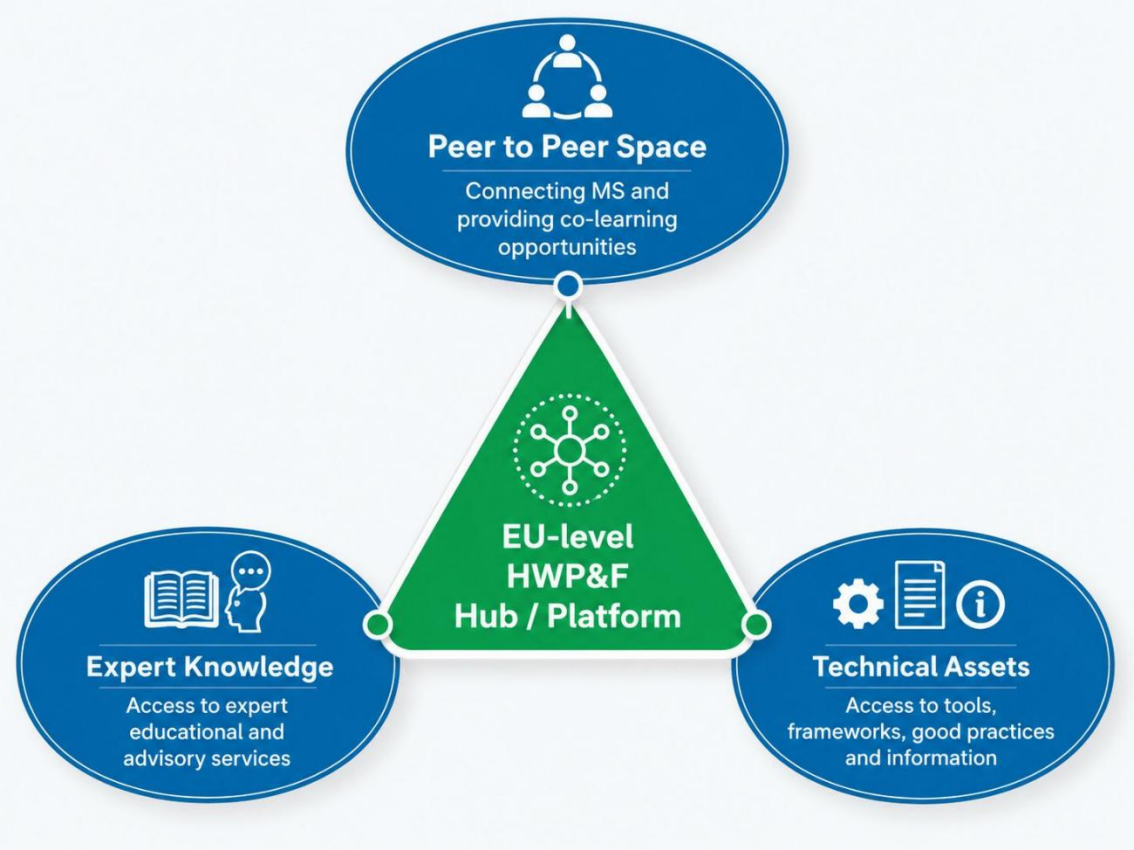
An enabling environment is liable to be further strengthened by the EU-Level professional and sector organisations, whose members at the country level are the critical stakeholders for engaging for effective planning outcomes. By working together, multiplier effects can be achieved, yielding a greater sum than the sum of their parts from these EU-Level interactions and supporting national implementation and sustainability.

The view of participating countries involved in HEROES is that international collaboration on HWF&P clearly adds value and promotes progress, as it is more than what can be achieved by participating countries in isolation. These international perspectives could be maintained by retaining policy dialogues, improving planning and intelligence gathering across the EU and making them available to the participating countries, and utilising the convening power of both actors to keep health workforce issues on the international agenda.

The cluster sustainability plans (see Table 1) reveal that many participating countries have identified specific actions focused on governance, institutionalisations, and political support, context and environmental factors. To progress, these will require a HEROES-type environment that continues to provide opportunities for countries to learn from one another and support their further development. Such an environment could be facilitated by a Hub or Platform that provides access to participating countries' interaction spaces, knowledge and experts, and technical tools, information, and mechanisms for their application. As an example of a similar approach, the European Public

Health Association has developed such a resource through its significant investment in capacity-building and its involvement in EU-level initiatives such as the WHO–ASPHER Roadmap for Professionalising the Public Health Workforce, the Essential Public Health Functions, and ECDC competency frameworks. The initiative does not intend to duplicate or compete with existing resource providers, but to play a coordinating role to strengthen coherence, visibility, and collaboration across existing initiatives (Albreht and Marchandise, 2026). Such a vision can be applied to collaboration resources that could be considered as part of the HEROES results sustainability. Figure three shows a conceptualisation of the key function of such a digitally-based resource.

Figure 3. Key functions of an HWP&F Sustainability Hub/Platform



In addition, such a Hub/Platform can enable participating countries to address the complexity of the HWP&F cycle, particularly the gap between short-run political or policy cycles and the long-run planning cycle for the health workforce. This is an acute problem for many participating countries where political directions or quick-win policies seek short-term gains that are at odds with the longer-term training and registration cycles required for securing health workforce sustainability. A range of mechanisms that have been identified through the HEROES policy dialogue processes and sustainability plans are outlined in Appendix 3. Further details on the Policy dialogues and resulting Policy action plans of the participating countries can be found in the HEROES Deliverable D4.1 20 Policy action plans derived from policy dialogues.

Recommendations for Change

Based on the evidence and discussion presented above, and to maintain the momentum that has been created by the HEROES JA it is suggested that the following recommendations be considered:

Maintain a focus on the progress of participating countries:

1) Participating countries should implement the actions included in their sustainability action plans and policy action plans which extend beyond the life of HEROES to continue building on the improvement of the HEROES Joint Action in the immediate future.
2) Participating countries should use the HEROES Sustainability Framework to develop further 2-year improvement plans focused on identified priorities, building on their progress as part of HEROES across Data, Models, Planners Capabilities, Governance, and political engagement.
3) Participating countries should seek to co-develop with WHO Europe, OECD, Eurostat, relevant EU agencies collecting data and other policy-focussed partners actions making tools accessible to support the wider awareness and adoption of more sustainable HW management practices and to produce better workforce metrics to support national planning approaches.

Continue HEROES knowledge sharing gains by;

4) Leverage EC and WHO Europe convening powers to build on the achievements of HEROES and have the health workforce and its planning included as a discussion point at high-level EU-level meetings to maintain its visibility and communicate progress on the institutionalisation of HWP&F across the region.
5) Consider scoping the feasibility and delivery model for a Hub/Platform through which participating countries can access sharing, learning, knowledge and tool opportunities. Through such a platform participating countries may act to develop improvement plans based on the HEROES Framework to deliver concrete progress and sustainable improvements in their planning systems applying the Framework for Sustainable Health Workforce Intelligence and its accompanying toolkit.

Strengthen EU-level assistance by;

6) Building on the important progress at the national level from HEROES, it would be very useful if the EU considers a pilot project, in collaboration with participating countries and relevant organizations (e.g. WHO, Professional Associations, EUPHA, etc) based on a CODA approach for accelerating planning system sustainability and effectiveness at national level. Any such project should include programmed monitoring and impact assessment as a key deliverable.
7) In support of national actions, it would be useful if the EC works with participating countries to ensure that existing funding sources for

health (e.g., currently TSI, RRP, Cohesion funds and future MFF funding opportunities) are accessed consistently and well utilised, building on the learning from HEROES, to support the improvement of workforce planning systems.

As indicated in the discussion on the ToC, as we move beyond HEROES, a combination of coordinated actions at the national and EU levels provides a multiplier effect and an opportunity to develop new and innovative mechanisms as knowledge of good practices for HWP&F institutionalisation becomes more widely available.

The above set of recommendations are set out with the view to facilitate moving participating countries into the institutionalisation of HEROES' gains. This can be supported through convening powers and platform-based knowledge sharing experiences, which in turn are able to be adopted and implemented by participating countries through processes that rely on continuous sets of learning cycles. These act to form a supportive environment where responsibility for sustainability actions lie with participating countries, but are enhanced by the supportive environment in which they will operate.

Conclusion

This report has presented the sustainability actions of the HEROES JA, summarised the progress made by participating countries, highlighted the priorities of their sustainability plan, and discussed the unique and difficult policy and developmental context in which HWP&F policy and practice exist.

From this evidence and accompanying analyses, a set of national and EU-level actions has been developed for consideration. A ToC developed for this report emphasised the added value of continued collaboration among all relevant stakeholders as a unique opportunity to sustain and leverage the gains of HEROES. Five broad recommendations are provided for consideration, and it is suggested that as the HEROES JA winds down these be a basis for further dialogue on what may come next.

In closing, it is evident from a cursory examination of the previous HWP&F JAs that it would be a missed opportunity not to continue cross-country collaboration on workforce planning. As such, this report has used a broader range of influences in its considerations to suggest a path above the prospect of mere technical gains for participating countries. The report emphasises that for a way forward, participating countries require a supportive environment conducive to development and better analysis of country and cross-country contexts if they are to successfully continue their HWP&F planning system sustainability journeys.

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Appendix1: Overview of Sustainability Actions

This appendix presents a summary of the outputs from WP4 and commissioned inputs, which were to support the identification and development of recommendations for the continuity of planning strengthening and the progressive improvement of the HWP&F systems of the participating countries.

First Sustainability Plan Contributions

The First Sustainability Plan (Milestone 12) was finalised on the 31st of March 2025. It outlined the project's sustainability strategy and the activities to facilitate sustainability action planning of the participating countries. Table six indicates the WP4 tasks and their outputs. Further details of these tasks are to be found in the D1.2 Final deliverable on HWF planning: data, models and skills. Overarching and comparative synthesis of the evidence.

Table 6. Outputs of the Sustainability WP

Task	Activity	Description	Milestones and deliverables
4.1	Policy dialogues of the participating countries	Participating countries facilitated policy dialogues focussed a range of country level issues based on the focus of HEROES	M9, M11, D4.1
	EU-level Policy dialogues	Main issues found relevant to this report were to provide a platform for continued gains and wider awareness of resources and role of HWP&F	M9, M11, D4.1
4.2	Policy Board	Policy board meetings and stakeholder forum held	M10
4.3	First Sustainability plan and Final sustainability report at EU-level	The first sustainability plan outlined actions to support participating countries and project sustainability. This report provides EU-level recommendations	M12, D4.2
4.4	Methodologies to build a sustainable HWF planning including FSHWI and Toolkit	Self-assessment framework to enable participating countries to identify, prioritise and plan sustainability actions	M8

Summary of First Sustainability Plan Outputs

The project's Policy Board consisted of representatives from national HWF planning competent authorities (Ministries of Health), who met four times to discuss the main evidence and results from HEROES activities to be embedded in the national policies, strategies and plans.

In addition, a stakeholder forum including HWF experts, public health experts, academia, policy makers, propose guiding principles for the designation of a national body that engages state, local, public and private stakeholders, including educational bodies and universities, in a systematic way.

The project also proscribed 20 Policy Dialogues (18 at national level, and two at the EU level) to be held. These aimed to raise awareness in policy makers and key national/regional stakeholders on the need to strengthen health workforce planning in the participating countries to meet health challenges were held. The two EU-level policy dialogues were also held to assist to identify good practices and the policies or changes in existing policies that are required to enable the tackling of major health workforce challenges.

Key to building sustainable planning systems is the use of the HEROES' Sustainability Framework for Health Workforce Intelligence by Participating countries and the setting of country priorities for planning system sustainability. This is not a one-off task, but part of a longer-term journey mirroring the HWP&F cycle itself that infers series of action, monitoring and learning loops. Alongside this iterative process, some applicable tools that support the framework domain actions were identified. These tools cover a range of technical activities through to social domain processes such as governance and resolving system factors. The framework's toolkit is to be made available through the website: https://hwftoolkit.semmelweis.hu/index.php/en/ by the end of the project.

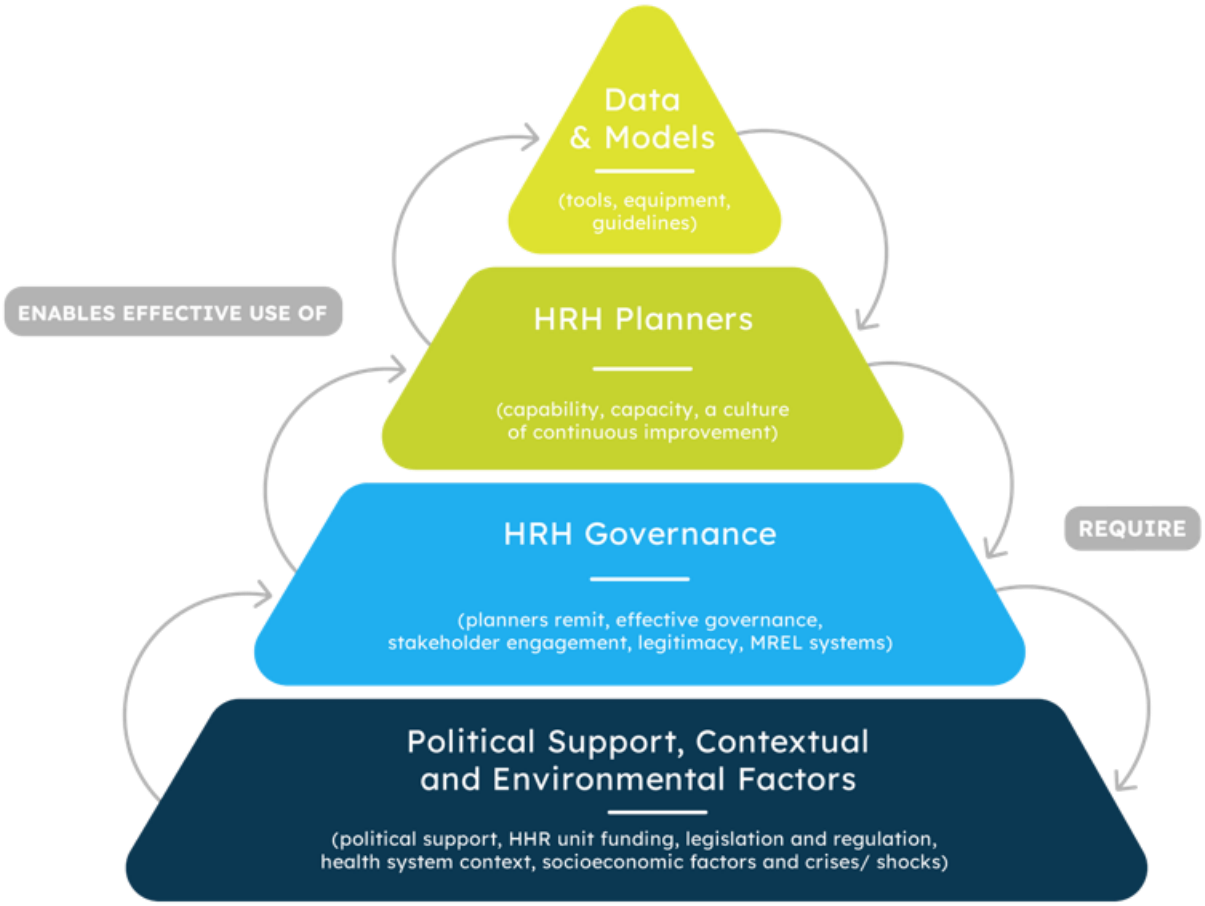
Supporting WP4's activities, three Policy Briefs, Deliverable D2.4 Policy Briefs, were also developed as part of WP2 to highlight the main policy questions, detail policy options, and methods for these option's implementation for the continuity of the project's aims. The policy briefs were also the central topic of one of the EU policy dialogues. These dialogues aimed to support the development and adoption of national, sub-national and local policies related to effective and flexible health workforce planning through policy dialogues with key stakeholders.

Appendix 2: The Framework for Sustainable Health Workforce Intelligence

To address the HWP&F system heterogeneity of the participating countries, this framework was first based on generic project sustainability factors that were modified to reflect the needs of a sustainable HWP&F system.

Representing the social-technical system that healthcare is, these modified factors were grouped into four domains, two 'technical' domains encompassing factors covering data, planning tools and planners' skills and two 'social' domains that include organisational, system and political factors. Figure five shows the framework's domains and their interoperative nature to achieve sustainable capacity development of the HWP&F systems of the participating countries, while Table seven provides details of the factors associated with each domain.

Figure 5. A Framework for Sustainable Health Workforce Intelligence



Source: adapted from Potter and Brough (2013)

Table 7. Sustainability Framework Domain Factors

Domain	Description	Key factors
Data and Model	The tools used by planners to effectively plan	• Strong and reliable minimum data set (incorporating 'qual' and 'quant'). • Reliable models addressing more health worker roles & staff and their required capabilities within the context of the services delivered. • Adaptability of tools to sub-national & local contexts.
HRH Planners Capability	The collective skills and capacity of planners across the health system	• Institutionalised continuity, succession & handover for planning teams • Common understanding and language about HWP between stakeholders • Commitment to retention and lifelong learning • Focus on system understanding and capability requirements not only model parameters
HRH Governance	The institutional arrangements, which are within the control of planners underpinning planning and the prioritisation, resourcing, and delivery of planning activities.	• Commitment to ample & sustainable resourcing & management. • Institutional responsibilities for planning & policy-making clearly defined. • Mobilising, collaborating & engaging with stakeholders. • Monitoring, reporting, evaluation, and learning. • Collective recognition HWF planning is medium- to long-term.
Political and contextual support	The environment in which planning is taking place. The cross-government working, macro investment in the health system, and the legislative and regulatory environment.	• Political & Senior leadership support & funding. • Improved cross-government governance & policy processes. • Collaborative & intersectional approach to policy. • Legislation, regulations, and policies to advance workforce solutions.

The framework can therefore be used by planners to assess current performance, identify gaps, prioritise actions and the resources required for the development, improvement, and monitoring of the HWP&F planning systems of the participating countries.

Appendix 3: Mechanisms for facilitating EU-Level and Country-Level Sustainability

This appendix summarises a range of mechanisms that, if facilitated at the EU level, would provide participating countries with an improved environment for further learning and knowledge-sharing opportunities. These mechanisms are appropriate for different circumstances and provide benefits depending on the context. These mechanisms are summarised in Table 5.

Table 5. Mechanism for HWP&F planning sustainability at the EU-Level

Mechanism	Description	Expected impact for participating countries	Guideline materials / Tools
Policy Dialogue	Brings stakeholders together, provides a collaborative setting for issue identification, and prioritization, aids relationship building	Technical and Institutional improvement, implementation of specific improvements and solutions	HEROES Joint Action – EU level Policy Dialogues, HEROES Policy Dialogue Guide -Guidelines for national level Policy Dialogues
Communities of Practice	Focus on specific learning need, participation voluntary, require time commitment, leadership resourcing and administration requirement, flexible	Continuity and retention of knowledge, Structured integrity of networks, Institutional improvement, implementation of specific improvements and solutions	EC CoP Checklist, WBG CoP guide, Wenger-Trayner et al. (2023).
Twinning	Two (or more) countries, useful for scaling up, reinforces institutional and administrative capacity to deliver specific and mandatory results	Institutional improvement, specific knowledge access, implementation of specific improvements and solutions	EC Common Twinning Manual (2014), CEMR-CCRE (2024), Campos et al., (2023), Saha, N & Sáha, P (2025).
Knowledge transfer processes	A mix of actions depending on knowledge type and change frequency, effective for improving personnel capacity and introducing new procedures	Technical and Institutional improvement, Continuity and retention of knowledge	Ferdows (2006)
CfWI tools	A range of planning and workshop tools to develop plans, highlight pathways and refine data, structure models	Technical improvement, Continuity and retention of knowledge	https://www.gov.uk/government/collections/workforce-planning-for-health-public-health-and-social-care#:~:text=The%20Department%20of%20Health%2C%20Public,on%20the%20National%20Archives%20website.
Stakeholde	To allow the analysis of	Continuity and	Godet 2001, pp.255-279.

r analysis	HWP&F stakeholders' continued engagement, priority setting and managing change	retention of knowledge, Structured integrity of networks, Institutional improvement	Stanley, 2017, 1000Minds.com

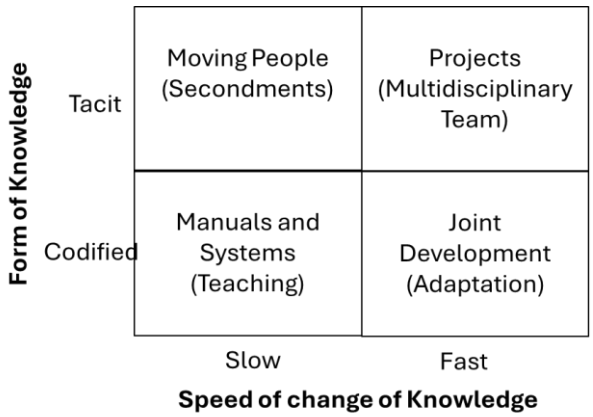
The first of table five's mechanisms is the Policy dialogue. These work to focus and inform stakeholders on an issue but can also raise some of the conflicts between stakeholders, which will have to be resolved through the planning process. Policy dialogue may also be more successful when there is sufficient data on the issue of focus, as a lack of data can lead to erroneous judgements and weak planning assumptions. In this case planning to plan can be a focus of a policy dialogue rather than policy solutions as the initial goal.

Next, to effect collaborative learning, Communities of Practice (CoP) have been found effective to provide capabilities to teams, enhance mutual engagement across multi-agency projects, learning and knowledge sharing through iterative activities and network commitment. CoPs rely on three structural elements, its domain, what the community is there for (topic), its community i.e., who is there and who should be there, and Practice, what should they do together or to make a difference to practice. Thus, CoPs work well when these three domains are well aligned, but can also be difficult to institute, maintain and retain its knowledge as some members may come and go as their needs are met. The power of a CoP is that members learn from and with each other.

Twinning is a mechanism commonly used within the EU that brings together administrations of a Beneficiary Country (BC) with another participating countries to develop their institutional capacity. Twinning projects can be used for targeted administrative co-operation through the transfer of hands-on public sector experience and expertise to deliver specific and mandatory results. Thus, twinning helps to build long-term relationships between participating countries and exposes BS to wider contact with the diversity of administrative practices inside the EU. Twinning requires commitment and resourcing, such as a Twinning Adviser, who may be seconded from a government department of a participating country, though it has been found that twinning tends to work well when conditions are right.

Rather than the formal twinning process, knowledge may also be shared through more direct mechanisms. In more specific contexts a range of knowledge transfer processes can be considered that relate to the type of knowledge and rate of change in that knowledge. Figure four presents Ferdow's knowledge transfer typology, which assigns each quadrant as either tacit (informal, personally held knowledge) or codified (formalised, extant knowledge) and as either slow or fast with respect to the speed of change in the knowledge area. These four ways to respond to the transfer of knowledge depending on the conditions and context, and the typology indicates that effective knowledge transfer can take place through relatively simple mechanisms involving moving knowledge or people.

Figure 4. Knowledge transfer mechanisms



Source: Developed from Ferdows, 2006

The UK Centre for Workforce Intelligence developed a range of tools and 'good' practices specifically for HWP&F planning. These tools are designed to assist with technical problem solving and to strengthen stakeholder and joint planning processes. Wider availability of these tools would enhance the existing set from SEPEN (see https://hwftoolkit.semmelweis.hu/index.php/en/) that is to be augmented by the tools above assembled to support the Framework.

Lastly, a set of mechanisms that allow for deeper stakeholder analysis to seek to understand the power and influence of stakeholders on proposed plans and strategies and to understand their preferences have been included. Applying these tools may require some specific training, but they have been shown that the detailed stakeholder data produced enables deeper analysis and the ability to adapt strategies and decision-making under conditions of uncertainty using evidence rather than assumptions (see Rees, 2023).

D4.2 Final Sustainability Report at EU level

Co-funded by the European Union

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