EUROPEAN COMMISSION

Directorate-General for Structural Reform Support

Health workforce strategy in Latvia

Inception Report

June 15, 2022

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Abbreviations

Abbreviation	*Definition*
CDPC	The Centre for Disease Prevention and Control
CISNS	Council of the National Health System (Spain)
CPD	Continuing Professional Development
DG Reform	Directorate-General for Structural Reform Support of the European Commission
EC	European Commission
EU	European Union
EY/We	Ernst & Young
FWC	Framework contract
HI	Health Inspection
HR	Human Resources
KPI	Key Performance Indicator
LLL	Lifelong learning
MES	Ministry of Education and Science
MoH	Ministry of Health
NGO	Non-governmental organization
NHS	National Health Service
OECD	Organization for Economic Co-operation and Development
OWG	Operational working group
Project	Project “Health workforce strategy in Latvia”
Q&A	Questions and answers
ROMP	Register of Medical Practitioners and Medical Treatment Support Persons
SC	Steering Committee
SRS	State Revenue Service
ToR	Terms of reference

Executive summary

The main goal of the Project "Health workforce strategy in Latvia" is to support Latvian authorities by providing a sound data-driven health workforce planning model to reinforce policy planning and strategic decision making. The model is further supported by the development of technical specifications for an integrated database of health professionals and a sustainable education and training (including continuous professional development) organisational model and linked with the skills and competencies that Latvian health workforce currently possesses and should improve in regard to future healthcare service organisation.

The health workforce planning model developed as part of this Project can be employed by the Ministry of Health (MoH) to assess the critical points of health workforce related policy planning connected to lack of workforce, efficacy of healthcare service delivery, regional division of health workforce and planning education and training for future health workforce. Identifying the critical points within the current health workforce policy planning will in turn enable the MoH to develop a tailored and comprehensive health workforce strategy.

The general objective of this Project is to contribute to institutional, administrative, and growth-sustaining structural reforms in Latvia. In particular, the Project aims to:

- Carry out a comprehensive analysis of the current health workforce situation illuminating potential problem areas.
- Develop a sustainable health workforce training and development organisational model.
- Draft technical specifications for an integrated database of health professionals, including the evaluation of possible integration between the currently existing databases or development of a new database.
- Develop a prediction model for health workforce planning and obtain health workforce predictions for the upcoming 5, 10 and 15 years that will support data-driven decision making within the MoH.

This Inception Report considers the results of the initial review of relevant information as well as meetings held with representatives from the MoH and the Project kick-off meeting where all stakeholders involved in further Project implementation were present to agree upon the proposed Project approach. Moreover, the Inception Report includes an overview of Project activities and their implementation methodology. Finally, the Report contains information on the governance of the Project, and an overview of potential Project implementation risks as well as measures for their mitigation.

1. Introduction

1.1 Project background

The Latvian health system is currently suffering from a lack of health professionals that places a huge strain on the system which is undergoing several reforms and moving to a more patient-centred provision of care with new competency and skill requirements for all involved health professionals. For example, Latvia has one of the lowest proportion of nurses per 1000 capita as the EU27 average (4,4 nurses per 1000 capita in Latvia compared to 8,2 nurses per capita in EU27) and the ratio of nurses to doctors is also significantly lower than EU27 at 1,3 vs 2,3[1]. Health system in Latvia is **heavily dependent on the nursing profession** with nurses assisting general practitioners, being employed in social care centres, and being involved in the proposed model for patient-centred integrated care.

Several attempts have been made to improve the organisation and education of the nursing profession, for example, **the conceptual Report "On the further development of the nursing profession"**[2] that was approved in 2019 considers a shift in nursing profession and the appropriate competence requirements. However, **Latvia is expecting future difficulties with many other health professionals**, with rapidly aging health workforce (for example general practitioners) and outdated skills and competencies. For this purpose, the Latvian Healthcare Facilities **Master Plan 2016-2025[3] was developed by the World Bank** that showcases detailed shortcomings of the Latvian health system and provides an estimation on future health workforce gaps and predictions on the necessary health professionals on a regional basis and by specialisations.

Recent reforms in the health sector that promote the use of telemedicine, integrated care, digitalisation of medical data and a wider collaboration of medical institutions have highlighted the need to provide appropriate professional development and lifelong learning for health professionals that are currently employed in health professions as well as the need to adjust the content of health professional formal education. Currently there is no single instrument that can enable the Latvian authorities to identify, plan and organize competence development of health professionals that is crucial in the light of rising demand for high quality health services and emerging health technologies. For this reason, **a detailed health workforce strategy with a clearly defined organizational model should be developed**, based on a sturdy information system that encompasses all relevant data of health workforce, including their skills and competencies and development needs that will emerge during a health professional's career. To foster the development of the aforementioned strategy all of the deliverables will be designed bearing in mind their interlinked nature within the strategy framework. The data will be analysed in accordance with the list of healthcare professions classification provided by Cabinet Regulation No. 317 that was agreed upon with the MoH representatives to be included in Project scope. The classifications chosen to be analysed within this Project are available in Appendix C. "List of professions of health workforce". To allow for better planning of future health workforce needs, **a prediction model is needed to foster data-driven decision making behind the health workforce strategy**, that will provide national authorities with clear predictions on future workforce needs and allow them to plan their education and training accordingly. The evolution and effective skill acquisition of the health workforce could be facilitated by Ministry of Health and other stakeholders by gathering and exchanging data on skills and competencies of health professionals along their careers. In combination with an effective governance model, the usage of this information and insights gathered from it, would enable to devise effective, timely and appropriate training strategies, and action plans – feeding workforce planning models to prepare in due time health professionals, who will be equipped with the right skills and competencies to tackle future challenges.

1.2 Project objectives

By implementing this Project, we plan to develop a data-driven model to project future health workforce needs in combination with necessary skills and competencies as well as to address the previously stated shortcomings of Latvian health workforce education and training organization and provision. The aim of the Project is to support Latvian authorities by providing a sound data-driven health workforce planning model to reinforce policy

[1] OECD, 7 July, Available at: https://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-europe-2020_82129230-en

[2] Cabinet of Ministers, 7 July, *Conceptual Report "On the further development of the nursing profession".* Available at: https://likumi.lv/ta/id/310369-par-konceptualo-zinojumu-par-masas-profesijas-turpmako-attistibu

[3] World Bank, 5 July, Available at: https://www.vmnvd.gov.lv/lv/media/285/download.

planning and strategic decision making. The model is further supported by the development of technical specifications for an integrated database of health professionals and a sustainable education and training (including continuous professional development) organisational model and linked with the skills and competencies that Latvian health workforce currently possesses and should improve in regard to future healthcare service organisation. All of the Project Deliverables are fully aimed to support the main Project objective.

To achieve the overarching Project objective, we plan to carry out three main interlinked tasks, including their appropriate Deliverables (a more detailed development methodology is described within corresponding chapters for each Project Deliverable):

- Developing a prediction model for health workforce planning and obtaining health workforce predictions for the upcoming 5, 10 and 15 years that will support data-driven decision making within the MoH.

Development of the prediction model will be supported by the results of Deliverable 2 where a comprehensive as-is analysis of the current health workforce situation in Latvia will be carried out in regard to current number of health workforce, regional division, efficacy of delivering healthcare services, etc. The as-is analysis and the model will be based on comprehensive data encompassing the number and regional coverage of health workforce, their division by profession and specialisation, education data, number delivered healthcare services, health workforce workload in FTE, healthcare providers where health workforce is employed, etc.

- Developing a sustainable health workforce training and development organisational model.

The organisational model will be developed based on weak points of current health workforce education and training provision system identified as part of Deliverable 2 and further supplemented by best international practice examples and descriptions of their potential adoption or adaptation to the Latvian context.

- Drafting technical specifications for an integrated database of health professionals, including the evaluation of possible integration between the currently existing databases or development of a new database.

During the implementation of this Deliverable, we shall establish a cooperation mechanism with all stakeholders involved in health workforce related databases to ensure a smooth assessment of current situation. The current situation analysis shall be further supplemented by market research on currently existing database solutions to determine the best approach for developing the technical specifications in regard to either developing or purchasing a new database solution or successfully integrating the existing databases.

The proposed Project methodology for developing as-is analysis of health workforce and workforce prediction model assumes that all necessary data shall be obtainable. If EY identifies, during Project implementation, that some of the necessary data are unavailable, the Project methodology will be adjusted accordingly to provide the most accurate as-is state analysis of current health workforce and workforce prediction model. The proposed changes to Project methodology regarding data availability shall be elaborated and agreed upon with the MoH.

Although subject to other contributing factors, the tasks and Deliverables of the contract and the associated outcomes should contribute over the longer-term towards the following impact – Latvia's ability to plan, attract, develop and retain human resources in the healthcare system in accordance with the projected demand for medical services.

As the Project is divided into 6 Deliverables, each of them has its own objective to achieve the outcome specified in the Project. For specific objectives please see section 3. Project activities.

2. Project approach and workplan

2.1 Project approach

We will use a phased Project delivery approach that will in turn facilitate a structured and timely achievement of the main Project goals in a clear flow with Project Deliverables building upon previous research and key-lessons learnt (see Figure 1). Specific Project Deliverables for each Project phase and the methodology for implementing them are summarized in section 3. Project activities.

Deliverables	1.Inception report	2. Analysis of health workforce and training system	3. Technical specifications for an integrated database on health professionals	4. Health workforce planning model	5. Action plan on health workforce training and skills development	6. Final project report
Tasks	Task 1.1 - Kick-off meeting Task 1.2 - Draft the Project inception report	Task 2.1 - Mapping of health workforce Task 2.2 - Assessment of the current system of education of health professionals Task 2.3 - International exchange of good practice	Task 3.1 - Draft technical specifications for a database of health professionals	Task 4.1 - Policy dialogues on future health scenarios Task 4.2 - Development of a model for health workforce planning Task 4.3 - Stakeholder consultation on health workforce projections Task 4.4 - Finalization of the model and capacity building	Task 5.1 - Design of a sustainable model for the training of health professionals Task 5.2 - Definition of a coordination mechanism for health workforce training Task 5.3 - Proposal of an action plan on health workforce training	Task 6.1 - Draft the final Project report
Initial Time-line	TO + 2 month	TO + 6 months	TO + 8 months	TO + 10 months	TO + 14 months	TO + 16 months
Updated Time-line	TO + 3 month	TO + 10 months	TO + 9 months	TO + 13 months	TO + 13 months	TO + 16 months

Figure 1 Project implementation approach

During the Project kick-off phase an agreement between EY, representatives of MoH and DG Reform was reached to make the following changes to the initial Project workplan:

- Submission of the Deliverables 1, 3, was extended by one month.
- Submission of Deliverable 2 was extended by three additional months (four in total).
- Submission of Deliverable 4 was extended by two additional months (three in total).
- Submission of the Deliverable 5 was shortened by one month.

The agreed changes to Project Deliverable submission dates do not affect the total length of the Project.

2.2 Project workplan

The total duration of the Project is 18 months (including a 2-month buffer zone after handing in the Final Project Report). A detailed Project workplan has been developed that includes activities performed during all 6 Project phases and allows to track the progress of all Project activities at the same time.

For the detailed workplan, including each of the Project Deliverables, see section 5.4 (Appendix D).

3. Project activities

3.1 Deliverable 1 - Inception Report

Objectives

- Building a solid foundation for the overall success of the Project through reaching a mutual understanding with involved stakeholders on the expected results and goals of the Project, its intended further use, value to be created and tangible outputs.
- Creating a platform for dialogue, establishing clear agreements with involved stakeholders on the division of responsibilities, Project governance structure, implementation methodology and Project delivery timeline.
- Developing in-depth understanding of the current situation regarding health workforce and the provision of relevant education and training in Latvia, and issues to be solved by Project implementation that will be agreed upon and validated with stakeholders.
- To discuss proposed best practices to be analysed during the Project in order to have a clear understanding of the direction the stakeholders have envisaged to follow with continuous professional development of health professionals and health workforce planning.

3.1.1 Task 1.1. – Kick-off meeting

A kick-off meeting was organized to ensure that key stakeholders are informed on the initiation of the Project, its objectives, and planned activities. During the kick-off meeting several points were raised by Project stakeholders and appropriate agreements were made:

- Particular attention shall be paid to the accuracy of statistical data, in particular the location of the private or public health institution and the type of contract between the health institution and the health professional.
- Some concerns were raised on the indicatively proposed time horizons for the health workforce predictions (10-, 20- and 30-year period). Bearing in mind that the health sector is rapidly evolving and transforming, the appropriate predictive accuracy for 30- or even 20-year period is unlikely to be reached. It was suggested and later agreed upon with the MoH to shorten the time horizons for health workforce predictions to represent the future projected state for 5-, 10- and 15- year period.
- At times sufficient attention has not been paid to private healthcare in similar systematic analysis, thus the Project shall ensure appropriate and thorough research on the private health sector as well.

3.1.2 Task 1.1. – Draft the Project Inception Report

During this task Project Inception Report was drafted based on conducted desk research and kick-off meeting results. The Project Inception Report includes:

- A detailed update on the work plan with clear milestones as agreed upon with the Latvian authorities.
- An updated description of all Deliverables and their methodological approach, as agreed upon in the Project kick-off meeting.
- A clear representation of the Project governance model with the roles and responsibilities of all involved parties.
- An updated map of all Project stakeholders as agreed upon in the Project kick-off meeting.
- Background information collected during the Project kick-off meeting.
- An amended list of possible risks to Project implementation and mitigation measures.
- Project kick-off meeting minutes sent to MoH as a separate document are an integral part of the Project Inception Report.

3.2 Deliverable 2 - Analysis of health workforce and training system

Objectives

- To find data-driven and scientifically accurate answers for the main policy questions that consider health workforce, including the number of health workforce, efficiency of healthcare delivery and factors influencing

the stock of health workforce. The main result of this Deliverable will be a comprehensive as-is state mapping on current health workforce, including employment in different healthcare providers and levels of care; current workload; regional coverage; age structure; division of professions and specialities, etc. The analysis will be further used to support both the development of health workforce prediction models and enabling the MoH to employ appropriate health workforce policy planning.

- Evaluating the roles and responsibilities of organisations involved in organising and providing CPD to health workforce to gain insights on how the needs of the health workforce are identified and if CPD provision is aligned with them; how CPD providers are motivated to participate in health workforce education and training, what is the overall organisational model of CPD in Latvia, how the quality of CPD is monitored, etc.
- To elaborate which horizontal skills and competencies are crucial for health workforce and what improvements should be made to the CPD organisational and coordination model to guarantee that health workforce is able to obtain them.

3.2.1 Task 2.1 – Mapping of health workforce

During this task we shall carry out extensive analysis on the current situation of Latvian health workforce. The analysis shall cover the three main points of health workforce cycle and aim to identify problems and imbalances within the current system. The aforementioned three focal points included in the as-is state analysis and the consequent prediction model will be: producing health workforce; health workforce inflow and outflow and maldistribution/inefficiencies within the current system. A more detailed mapping of the main health workforce cycles is displayed below in Figure 2.

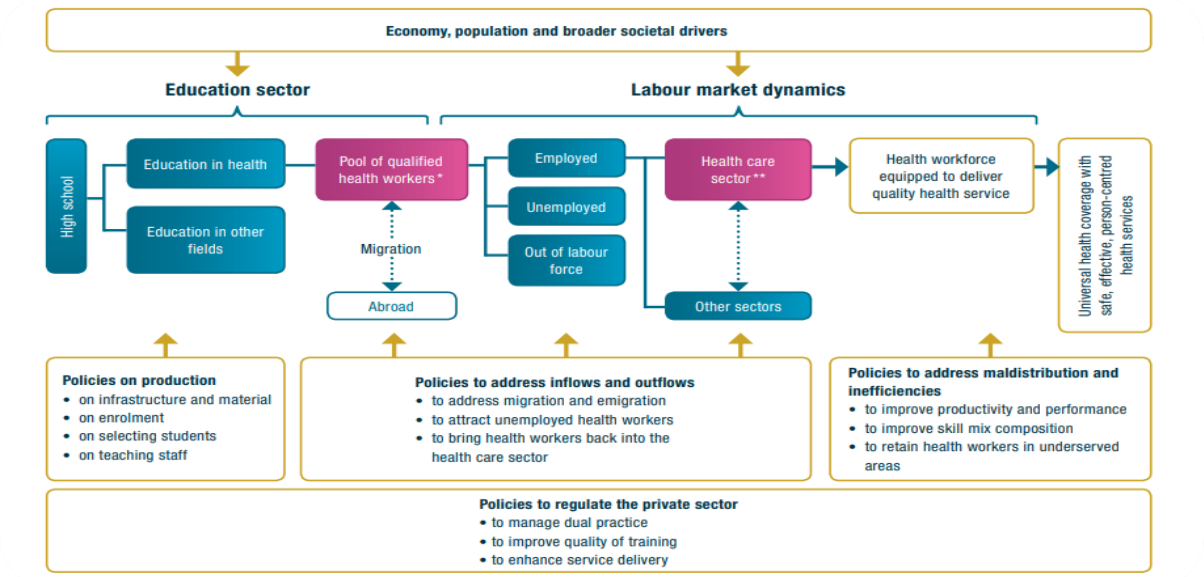

Figure 2 Main Cycles of Health Workforce (by WHO)

During the as-is analysis the research shall focus on policy questions developed by EY and validated by the MoH that cover main points of interest for data-driven health workforce policy planning. The policy questions shall also be covered by the health workforce planning model developed as part of Deliverable 4 (detailed policy questions and their associated data sources are available in Appendix E. Policy Questions). In accordance with the policy questions the as-is analysis will cover at least:

- The current number of health workforce, including research on if there is insufficient or excess number of workforce in relation to population's healthcare needs and/or international standards; distribution of health workforce regionally and between different employment sectors; skill-mix of health workforce. We envision that the main data sources for this analysis will be SRS, NHS and ROMP data as well as international reports (indicatively by WHO, OECD, WB, JRC and other similar organisations) on optimal healthcare service delivery and future skills needs for health workforce.
- Inefficient/imbalanced healthcare delivery focusing on the regional coverage and fragmentation of healthcare services as well as if the current capacity of health workforce is used to its full potential. This

research will be supported by data from the NHS on provided inpatient and outpatient services as well as NHS and ROMP data.

- Potential health workforce stock influencing factors such as the salaries of health workforce, incentives to employ skilled health workforce regionally and the number of health workforce not working in healthcare related professions. In this context we plan to analyse data from SRS, ROMP, MoH policy planning document and international reports on health workforce influencing factors.

During the implementation of this Deliverable the quality and pertinence of World Bank research on health workforce carried out in 2016[4] and the Conceptual report "On healthcare system reform"[5] developed in 2017 based on the findings of World Bank research will be evaluated. This assessment will identify if any information is lacking in the previously used methodologies to map Latvian health workforce needs and we shall further evaluate if any additional variables need to be taken into account when carrying out the as-is analysis (such as task-shifting, skill-mix, service reconfiguration, exchange patterns within hospital cooperation agreements, etc.).

Mapping of the as-is Latvian health workforce state will represent a snapshot of the current status in Latvia in regard to health workforce regional distribution, types of employment, age structure, total numbers per profession and specialisation and the skills and competencies associated with different health workforce types. The final format of the mapping (for example: Excel, Database, Power BI visualisation, interactive map, etc.) will be agreed upon with the MoH to ensure the best possible fit for their policy planning needs. Data obtained as part of as-is state mapping shall be further used when developing the health workforce prediction model by supplementing it with research on health workforce supply and demand.

3.2.2 Task 2.2 – Assessment of the current system of education of health professionals

During this step an in-depth analysis of the current supply of education and training will be carried out. Furthermore, evaluation of the current organization and governance of the health education and training system will be carried out. Considering the crucial role of CPD in developing skills and competencies of health professionals as well as the current fragmentation of the CPD and training system, our approach for this task will mostly focus on assessing the current supply of training, as well as the organization and the governance of the health professional continuous professional development (recertification) system.

The main goals behind the assessment of health professional current system of education of health professionals are:

- Evaluating the roles and responsibilities of organisations involved in organising and providing CPD to health workforce to gain insights on how the needs of the health workforce are identified and if CPD provision is aligned with them; how CPD providers are motivated to participate in health workforce education and training, what is the overall organisational model of CPD in Latvia, how the quality of CPD is monitored, etc.
- To elaborate which horizontal skills and competencies are crucial for health workforce and what improvements should be made to the CPD organisational and coordination model to guarantee that health workforce is able to obtain them.

The current system analysis will be carried out through the following steps:

- To gain insights on organising, managing and monitoring CPD for health professionals numerous interviews and working groups shall be carried out with the involved stakeholders. The parties involved in interviews and working groups will include at least: MoH, Riga Stradins University, University of Latvia; colleges providing healthcare education; clinical hospitals; Latvian Nurses Association; Latvian Medical Association; Latvian Association of Professional Organisations of Medical Practitioners; other organisations involved in providing healthcare CPD. During this task we will pay in-depth attention to analysing the role of MoH in coordinating and organising CPD, including the current procedures in place, respective workloads and capacity as well as collaboration practices with external stakeholders.
- To evaluate the number of organised CPD courses and their thematical areas (in turn gaining an overview on what knowledge and skills are gained through currently organised CPD courses) we shall request and analyse data from the registries of institutions involved in accrediting CPD courses (Latvian Nurses Association;

[4] https://www.vmnvd.gov.lv/lv/media/285/download

[5] https://likumi.lv/ta/id/292718

Latvian Medical Association; Latvian Association of Professional Organisations of Medical Practitioners). For similar purposes, additional data on undergraduate and postgraduate education programmes shall be requested from the Ministry of Education and Science (information shall be requested from universities providing the education programmes if it is deemed necessary).

- In order to evaluate which horizontal skills and competencies (not including clinical skills) are crucial for health workforce, we shall evaluate international health workforce competence frameworks (including but not limited to the "WHO-ASPHER Competency Framework for the Public Health Workforce in the European Region") and organise working groups with healthcare employers (hospitals, outpatient facilities, etc.) and Latvian Nurses Association; Latvian Medical Association; Latvian Association of Professional Organisations of Medical Practitioners. After obtaining a clear vision of international standards for horizontal health workforce skills and labour market requirements we shall carry out a gap analysis by comparing them with skills and competencies provided by the current Latvian healthcare education and CPD system to highlight the critical areas in need for improvement. Furthermore, we shall develop appropriate learning pathways that will display how health workforce can attain the necessary horizontal skills and competencies.

3.2.3 Task 2.3 – International exchange of good practice

In close cooperation with international experts, the best international practices and opportunities will be analysed for future adoption or transfer to the Latvian context. The research of best international practices will mainly focus on:

- The development and implementation of health workforce databases, including analysis on what type of information is available in the database, how it is collected, what the sources of data are, functional and technical architecture of the system, integration with other information systems, tools used for data analytics and legal environment.
- Planning and organization of healthcare education and training, including how CPD is coordinated, organised and financed in the chosen countries; division of roles and responsibilities between the organisations providing, organising and coordinating healthcare education and training, how is the demand for healthcare education and training calculated, how education and training needs of health workforce are tracked, use of simulations for healthcare education and training, etc.
- Health workforce planning including prediction model, including how the model functions, which data are used for the prediction model and how they are obtained, who is the authority responsible for running and maintaining the prediction model, how regularly are the data updated, etc.

The review of best international practices will consist of:

- Desk research to identify best international practices on organising healthcare education and training, workforce prediction models and health workforce databases. The research shall consider reports at least from the following organisations: WHO, OECD, WB, World Medical Association, Standing Committee of European Doctors, European Union of Medical specialists, European Federation of Nurses Associations.
- Establishment of a list of potential countries for international best practice analysis depending on the multiple proposed criteria.
- Analysis of the existing databases for health workforce, developed health workforce prediction models and CPD training systems (organizational models, roles and responsibilities of involved institutions, legal framework and funding) in the selected countries.
- Identification and in-depth analysis of specific cases.
- Gap analysis between the situation in Latvia and the identified best practice countries to identify potential areas for improvement.

The good international practice review will be focused on the following EU-28 Member State examples, however additional countries may be added if deemed necessary by the MoH or other Project stakeholders.

Table 1 Databases and health workforce planning analysis by country

Country	Description[6]
Databases and health workforce planning	
EE	The Estonian Heath Care Professionals Register was created in 2009 with the aim to better tackle future workforce challenges and improve the evidence-based policy making. Registration for health professionals is mandatory. Annual planning process of training and residency positions is carried out by the Ministry of Social affairs, the University of Tartu and the Estonian Hospitals Association along with other employers from the medical field.
DK	Regression analysis and time-series monitoring is regularly applied. The model is quantitative and forecasted predictions are re-evaluated by qualitative assumptions. The planning process regulates residency positions as well as admissions to training and specialisation. Managing distribution and optimal health coverage is a constant challenge, which is one of the reasons the Danish Health Authority produces workforce planning Report predictions for short-term horizon (3-5 years) and long-term horizon of 25 years.
SE	Sweden has a medical density above the EU average and Swedish health system is organized by regional authorities. Main concern – medical professional availability in remote regions is tackled by a "close care" programme (reforming the way care is delivered) rather than through increases in medical density.
ES	Since 1978 has implemented a systematic health workforce planning for physicians. For the planning purposes prediction model is used – the Inter-territorial Council of the National Health System (CISNS) sets the targets. Registration in the State Registry of Healthcare Professionals is mandatory.
FIN	Has a multi-sectorial workforce planning approach which accounts for education capacity, future skill development, employment and supply for local needs. Data models are constantly updated, and the planning is run every 4 years developing a forecast of the next 15-year period. The level of practising nurses and midwives per 1.000 inhabitants is much larger than the EU average and with partiat5yu76^^^^^^t5l task shifting from physicians to nurses, the country is trying to account for the shortage of physicians.
LT	Lithuania established the 'Model for Forecasting the Demand of Health Workforce' in 2018 based on a 10-year timeline, for medical specialties, dental specialties, nursing and midwifery. The Model started to be systematically used to support policy-making and the identification of health workforce issues at national level with a focus on the demand of medical specialties. Lithuania is currently enhancing the Model with qualitative data and extending it to additional professions.
CPD and LLL	
EE	CPD is voluntary, but employers must provide the opportunity for it – 60 hours per year for their employees (costs are borne by the employer as well). All regulations apply to the private sector as well.
CZ	Is above the EU average in both number of practising physicians and practising nurses per 1.000 inhabitants and has a mandatory CPD system related to financial benefits within social security and health insurances. Currently assessment of training programs for health professionals is being carried out.
ES	Regulated mandatory CPD system, it is a right and an obligation for the health professionals.
SE	Provides opportunities for non-EU foreigners to follow a special training programme to acquire the qualification and licence to practice a health profession. CPD is mainly voluntary – system was rebuilt recently and does not require professionals to be re-certified.
FIN	CPD mandatory for the 5 regulated professions but is not linked to revalidation. To document CPD activities for physicians a digital tool "Taitoni" has been developed by national medical association. Finland invests in digital and virtual learning tools and methods to better prepare professionals for future challenges.
NL	Mandatory CPD is legally enforced. Ministry of Health and scientific organisations co-finance the development guidelines and training to implement them.
LT	Physicians, dentists, nurses, midwives and pharmacists are subject to a mandatory CPD system within a 5-year term revalidation. CPD is funded by health specialists, health institutions or the Ministry of Health.
Prediction models	
EE	Estonia managed to develop a comprehensive healthcare workforce supply and demand modelling system because of successful launch and deployment of fully integrated healthcare registries and information systems providing standardized and interoperable data which may help the country to tackle dramatic shortages of medical workforce in long term period. The model provides a combination of several supply/demand

[6] European Commission, 7 July, Available at: Mapping of national health workforce planning and policies in the EU-28 - Publications Office of the EU (europa.eu)

Country	Description[6]
	approaches, but on the other hand, there is a lack of sensitivity to address specific issues (aging population of patients and doctors, unbalanced doctor/nurse ratio) and both social and economic context
DE	Over the past decade Denmark has managed to develop sustainable and context responsive healthcare workforce planning and forecasting system for physicians and dentists. The main aim of the planning – to forecast the future supply of physicians based on different assumptions which mostly means to plan the right amount of medical training admissions in advance. The main methodology of the model is based on assumptions made by observing trends.
SE	Unlike other researched EU countries, Sweden does not intend to project and implement long term healthcare workforce forecast. The predictions are made for three years in advance. The main aim of the model is to balance the supply of medical workforce in the regions through consistent and planned medical training. As the predictions are made for relatively short term, the model is more based on service target methods combined with training approach for workforce supply. The methodology of the model – the combination service target and service demand methods is used to develop short term predictions which allow local governments to focus on specific healthcare programs, but on the other hand – universities and colleges are quite limited to correspond the demand of healthcare workforce proactively.
FIN	The main aim of healthcare workforce planning in Finland is to project economic factors which result in health service reforms and improved productivity in health care. The main driver of the demand model is GDP growth, with assessment of the trend in each sector and occupation. In short term the estimated GDP growth per year by 1,7 percent may increase the demand of healthcare workforce, but in long term it will become balanced or even decrease due to efficiently functioning healthcare network.
LT	The main aim of the planning – to forecast the future supply of physicians and nurses for a better performance of the existing public healthcare network through enhancing the cooperation of health care providers and more precise predictions in the intake of medical students. The main aim of the planning – to forecast the future supply of physicians and nurses for a better performance of the existing public healthcare network through enhancing the cooperation of health care providers and more precise predictions in the intake of medical students. The model, which is laid down on accessible and free Excel Spreadsheet, combines three alternative scenarios (basic, pessimistic, and optimistic)
AUST	Australian government is still highly focused on improving the balance between supply and demand of medical workforce through institutional, organizational, and financial reforms. This ambition is reflected in National Medical Workforce strategy 2021-2031, which is a synergy of various intersectoral measures dedicated to building a sustainable, dynamic and data- based workforce forecasting and management network. The main method is simulation modelling using a stock and flow approach, together with scenario analysis. The same methodology and modelling tools were applied across the doctor, nursing and midwifery workforces to generate the predictions. This consistency and coherence in application therefore allows for meaningful comparisons and policy considerations at a national level. Scenarios involve different economic estimations (the basic, optimistic and pessimistic increase of GDP alternative, reform and innovation impact), need of greater expenditure due to societal challenges) in order to explore the implications of possible alternative futures as well as to demonstrate the sensitivity of the model to various input parameters.

3.3 Deliverable 3 - Technical specifications for an integrated database on health professionals

Objectives

The main objective of developing an integrated database on health professionals is to identify, obtain and store information on a national level of all available health professionals, additionally, providing the opportunity to trace their skills and competences during their career. The database would enable better health workforce planning on a national level. The technical specification will consider that the database must be integrated with existing registries and co-exist with existing data storage and analysis tools to ensure that health IT ecosystem is coherent.

3.3.1 Task 3.1 – Draft technical specifications for a database of health professionals

During the implementation of this Deliverable, we shall assess and propose the best possible way to develop an integrated database on health professionals that will be interlinked with skills and competencies gained during their career. It is worth noting that some of the data which are important to health workforce planning are currently missing from ROMP are being stored in a decentralized way both in healthcare provider and education institution databases. Consequentially this Deliverable will assess the necessity to integrate health workforce databases with education sector IT infrastructure. The database is envisioned to provide coherent data on all crucial data for health workforce planning, including the prediction model developed as part of Deliverable 4.

The following steps will be taken through implementing this task:

- Step 1: Establishment of stakeholder structure and areas of involvement.
- Step 2: Assessment of current situation.
- Step 3: Market research for existing database solutions.
- Step 4: Designing technical specification.

A more precise work plan will be developed and agreed upon with the MoH and other key Project stakeholders after initial interviews with the HI (the manager of existing registers) and the NHS (IT system administrator). It is necessary to understand whether and what are the current plans for the modernization of the ROMP, Nurses' Register and Medical Institution Register.

A further decision between EY and the key Project stakeholders needs to be reached on a conceptual level on whether the framework of this work will be structured to support existing and future national initiatives and registries or formed on a conceptual future-state based on other countries' experiences, good practices and IT systems.

In either of the chosen scenarios the workplan will be structured in the following steps:

1. Defining future conceptual architecture and data exchange requirements.
2. Defining the main model for how the register should work properly (future data exchange and cooperation process between participants to enable automatic data exchange process).
3. Defining the main functional and non-functional requirements for the IT solution.
4. Understanding whether the development of such a solution will need to be programmed “from scratch” or whether there are ready-made solutions somewhere that could potentially be adapted to the Latvian situation.

For the purposes of this task the most effective way of organizing the data exchange will be identified – we will consider either implementing new functions for the current registers or the deployment of a new information system for registry purposes. As an important step the recommendations on future data management model will be designed, including data ownership and interoperability aspects.

After successfully drafting the technical specification, the final approvals for its design will be obtained from the Latvian authorities. Deliverable 3 will cover technical specification that will allow Latvian authorities to prepare detailed terms of reference for the public procurement of the service to set-up the database.

3.4 Deliverable 4 - Health workforce planning model

Objectives

During this phase we will develop and run a model, closely cooperating with the Latvian authorities and other involved stakeholders and in accordance with their feedback, to provide health workforce predictions to support workforce planning on a national level. The model will be based on future health scenarios, including different criteria and factors with impact on health sector, which will be previously validated by key stakeholders such as MoH, NHS, HI, etc. After running the model and obtaining preliminary results we will organise several rounds of discussions with all involved parties to validate and fine-tune the results. Lastly, we will organise capacity building for the key employees responsible for further use of the workforce prediction model as indicated by the MoH.

The health workforce prediction model shall be based on two main contributing factors: supply and demand. An overall vision of elements forming the prediction model is displayed in the picture below.

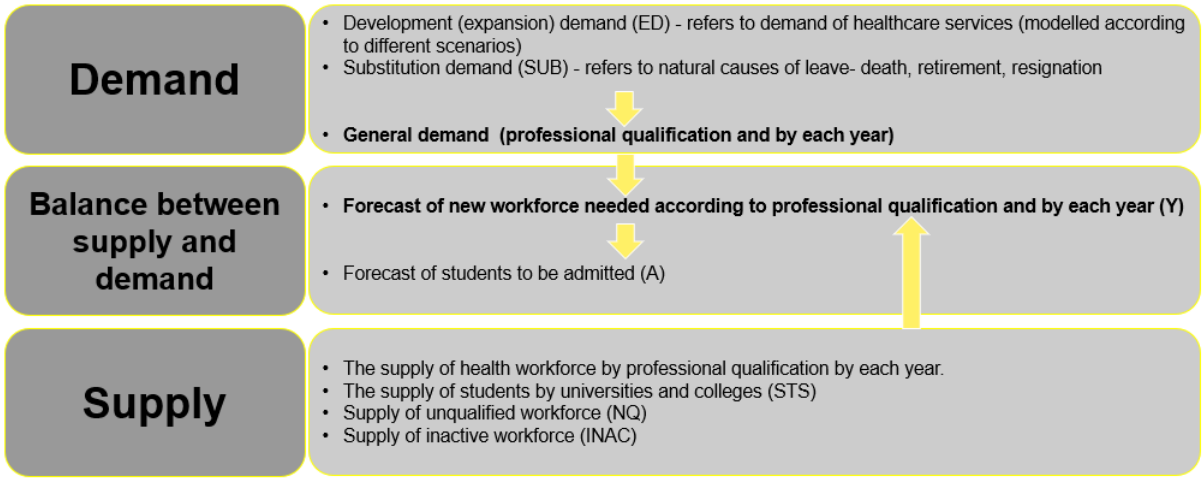

Figure 3 The Overall Vision of Elements Forming the Prediction Model

The model is based on maintaining balance between the flow of supply and demand. Health workforce demand is formed by both the demand for healthcare services and necessity to replace workforce that has left the healthcare system. The supply of health workforce is formed by both the actively practicing health workforce and university graduates. The balance between supply and demand is reviewed each year taking into account health workforce inflow and outflow.

3.4.1 Task 4.1 – Policy dialogues on future health scenarios

During this task several future health scenarios will be developed, as discussed during the kick-off meeting, for the time horizons of 5, 10, and 15 years. The health scenarios for each of the time horizons will assess three possible outcomes – stable growth in demand for healthcare services increasing the necessary number of health workforce; acceleration of providing healthcare services in turn decreasing the need for health workforce; change in necessary numbers of health workforce by profession and speciality not impacting the total number of required health workforce. A series of policy dialogues will be held based on the developed health scenarios and they will serve as a baseline for discussion with all involved parties (including but not limited to MoH, CDPC, NHS, Health Inspectorate, health professionals, representatives of general practitioners, academics and various health professional and patient organisations). The preliminary scenario development process would entail at least the following steps:

- Evaluating international reports and recommendations (WB, OECD, WHO, etc.) on future healthcare trends and their impact on Latvian healthcare context.
- Evaluating the potential changes to future healthcare service demand (and in turn demand for specific healthcare professions) in relation to disease incidence and prevalence trends as well as developments within the healthcare sector (changes to healthcare organisation such as: restructuring the network of healthcare institutions, upgrading the infrastructure and equipment of healthcare institutions, introducing new service provision models, methodologies, guidelines and technologies, automating, and robotizing part of the processes).
- Organizing working groups with involved stakeholders (health professionals, patient organizations, academics, policy makers, NGOs, etc.) to validate and fine-tune the preliminary health scenarios.
- Identifying possible policy responses for each of the proposed health scenarios.

The policy dialogues and therefore the qualitative assumption side of the health workforce prediction model is envisioned to focus on three main hypothesis which may lead to different extent of demand for health workforce and services in the future:

- As the number of patients and healthcare services grows steadily, a stable growth in the number of health workforce is also expected.
- As part of restructuring the network of healthcare institutions, upgrading the infrastructure and equipment of healthcare institutions, introducing new service provision models, methodologies, guidelines and

technologies, automating, and robotizing part of the processes, an acceleration of providing healthcare services is expected that will in turn decrease the need for health workforce in the future.

- Increasing efficiency of healthcare institutions and services at a lower-than-expected pace, the growing demand for nursing services as the population ages, but at the same time the decreasing demand for pediatricians, midwives and the relatively large number of dentists, may lead to a redistribution of the number of health workforce by profession of specialists, but the total number will remain similar to the number of the analysis year.

As a conclusion to the previous activities a discussion with Latvian stakeholders and policy makers will be organised (mainly with high level representatives from MoH and its subordinate institutions, as well as main organisations representing health professionals, such as Latvian Nurses Association and Latvian Association of Professional Organisations of Medical Persons) to align and refine the identified scenarios.

3.4.2 Task 4.2 – Development of a model for health workforce planning

Based on the previously developed future health scenarios as well as the data obtained as part of the as-is analysis carried out in Deliverable 2, we shall develop a health workforce planning model. Concrete professions and specialities of health workforce that the model shall cover will be agreed upon with the MoH before starting the development process. The overall structure of the model will be built in a way that will allow the future responsible authority (MoH or any other institution as chosen by the MoH) to regularly update it in accordance with the most recently available data in turn enabling data-driven policy planning.

Preliminary architecture (available below in Figure 4) of the model has been discussed with the MoH envisions that the main data sources for it will be SRS data on health workforce places of employment and regional location, workloads, etc.; ROMP data on health workforce professions and specialities, age structure, etc. and NHS data on provided inpatient and outpatient services. Bearing in mind the sensitivity of the data stored within the model it will be hosted in an approved data centre (for example Riga Technical University' data centre or any other platform chosen by the MoH). The model is envisioned to use machine learning principles to deliver accurate health workforce predictions.

International experts on developing health workforce prediction models shall be involved in the development steps behind the model and previously researched best practices will be adopted and adapted to the Latvian context. As agreed upon with the MoH, all of the principles, algorithms and development steps of the model shall be described in-detail as part of this Deliverable to ensure transparency and easy uptake within the authority that shall be responsible for running the model in the future.

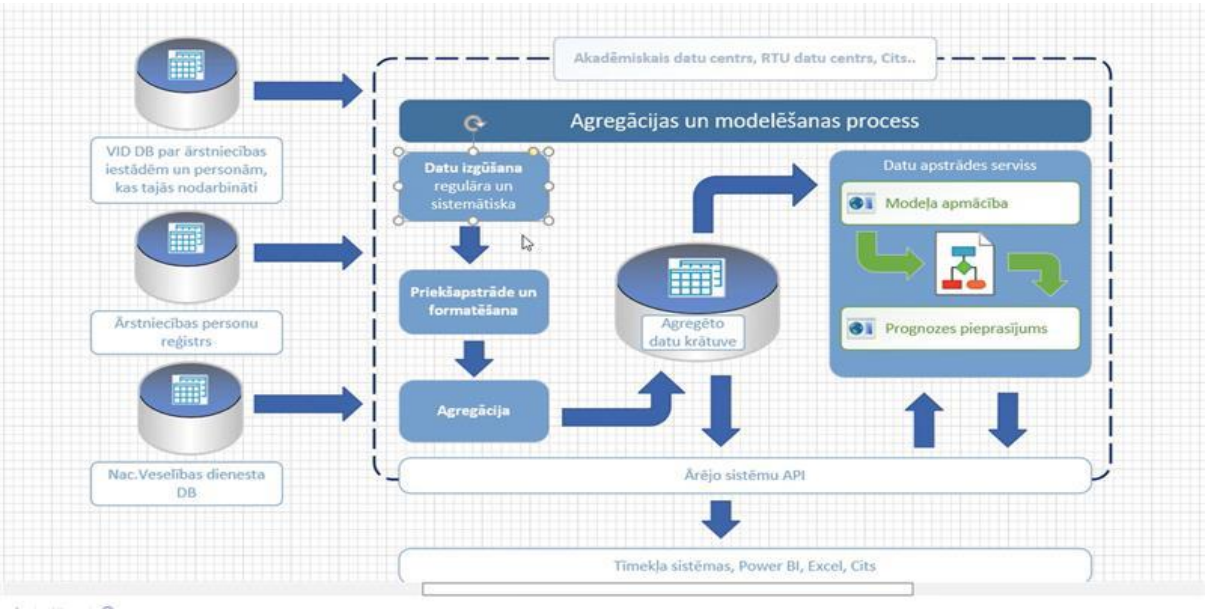

Figure 4 Preliminary data architecture of the prediction model

We envision that the calculations behind the model shall be conducted in two stages: the forecast of new workforce needed (Y) and the forecast of student admission places which is relevant to the need of new workforce (A).

The forecast of new workforce needed is calculated by subtracting the general workforce supply from general workforce demand. A positive number of new workforce needed indicates a shortage of workforce forecasted for the future, while a negative number forecasts a surplus of workforce.

Formula to calculate the need for new workforce comprises of the following elements:

$$Yts = \sum EDmst + SUBst - STSst - NQst - INACst$$

The elements included in the formula behind the abbreviations are:

Y: forecast of new workforce needed according to professional qualification and by each year.

ED: development (expansion) demand that refers to the demand of healthcare services. Several essential factors should be taken into account while conducting the forecast: dependence link between the need for healthcare services and indicators of an aging population; changes to the structure of healthcare services nomenclature; changes of workforce productivity due to technological and structural reforms.

SUB: substitution demand that refers to natural causes of leave (death, retirement and resignation). Substitution demand unifies the overall need to substitute currently employed health workforce due to various reasons.

STS: supply of students by universities and colleges. Student supply consists of all graduates for the analysed year and healthcare study graduates of 2 previous years, who acquired healthcare professional qualification and were employed as healthcare specialists.

NQ: supply of unqualified workforce. Depending on healthcare system requirements, the number of unqualified workforce is a variable which may not be included into the analysis if there are no medical professions which may be available for unskilled and unqualified workforce. As Latvian health workforce is precisely regulated area and no medical professional is allowed to work without a certain education, NQ should not be included into the calculations or included for specific specialties if deemed appropriate by Project stakeholders.

INAC: supply of inactive workforce. The supply of Inactive workforce of the year is estimated by taking into account persons, who have acquired healthcare professional qualification earlier than 2 years until the year of analysis and are not employed according to their acquired healthcare professional qualification for the last year. This number additionally includes persons who have acquired healthcare professional qualification but have been working non–healthcare jobs and are returning to work as healthcare specialists; health workforce returning from emigration; health workforce trained abroad; persons returning after professional break or maternity leave; persons in transition to another healthcare professional qualification. However, there are some limitations that the mainly data-driven health workforce prediction model cannot address: the data will not be able to demonstrate the reasoning behind why the health workforce is and/or has become inactive.

S: the specialization of analysed group of persons (profession/specialization).

m: municipality or other geographic parameter important to the supply of the workforce.

t: year of the prognosis.

As the data on inactive workforce is quite crucial in terms of potentially available resources for healthcare system, we have identified the potential sources to obtain information on:

Health workforce returning from emigration. There are two main possible ways for obtaining the data on this category. For Latvian citizens a declaration of place of residence in Latvia, which must be submitted to OCMA three months after moving back for a permanent residency to Latvia. Though the initial form of notice is not detailed and includes general data on a natural person and his/her siblings only, more explicit data on occupation are collected while processing the application. Further consultation with OCMA should be carried out on this matter. The other way includes gathering information from the HI on persons renewing their professional qualification that can partly be used to identify workforce returning from abroad.

Health workforce trained abroad. Every person aiming to practice healthcare in any of the EU countries has to pass the procedure of professional recognition. Despite the fact where the education was acquired (EU or non-EU) the procedures of submitting the documents are the same. In Latvia applications for the European

Professional Card are handled by institutions which issue certificates of recognition of professional qualifications and the necessary data can be obtained from them.

Persons returning from maternity leave. This category includes maternity leave and parental leave/holidays. We have identified that data can potentially be obtained from the State social insurance agency.

Persons in transition to another qualification. Universities are envisioned as the main providers of such data as in some cases in order to obtain additional medical license a person has to pass indicated extent of subjects, or in other cases they have to enter new medical residency from the very beginning.

When calculating the **prognosis of student enrolment**, an estimation is made on how many persons should be admitted to each specialty to reach a balance between supply and demand. The general assumption is that the coefficients of graduation and employment remain the same as in previous years. It is important to emphasize that this assumption is sensitive to many factors such as choices and motivation of future students, quality of studies, new study programs, conditions of labour market. Therefore, this assumption may be modelled and adjusted due to various future situations.

Formula to calculate the supply of newly employed healthcare graduates comprises of the following elements:

$$STS = \sum(AiQDRiQGRiQEMi)$$

The elements included in the formula behind the abbreviations are:

STS: number of graduates which are employed according to their acquired professional qualification.

i: study program.

Ai: number students admitted to the study program (i).

QDRi: probability coefficient of study program (i) drop out.

QGRi: probability coefficient of study program graduation (i).

QEMi: probability coefficient of study program graduates which were employed according to their qualification acquired.

3.4.3 Task 4.3 – Stakeholder consultation on health workforce predictions

Before initiating discussions with Project stakeholders, we will run the prediction model and develop three different health workforce predictions for time horizons of 5, 10 and 15 years as agreed upon in the Project kick-off meeting and in accordance with health scenarios developed as part of Task 4.1. The workforce predictions will outline expected gaps in health workforce compared to no-change scenario and will inform on sensitivity based on key assumptions and uncertainties both from a quantitative and qualitative perspective.
The stakeholder consultation will be carried out as multiple group discussion rounds. We propose to organize separate discussion rounds with healthcare sector stakeholders to discuss the health workforce prediction validity in light of stakeholder view on future health workforce needs. Furthermore, we shall discuss how the predictions could impact the involved stakeholders in the future and to discuss the impact on healthcare education and training provision necessity. We preliminary propose the following healthcare stakeholder grouping for the discussion rounds:

- State institutions: Ministry of Health, Health Inspectorate, National Health Service, Ministry of Economics, Centre for Disease Prevention and Control, State Emergency Medical Service of Latvia.
- Healthcare professional organizations: Latvian Medical Association, Latvian Junior Doctors Association, Latvian Nurses Association, Latvian Association Of Professional Organizations Of Medical Practitioners, The Latvian Trade Union of Health and Social Care Employees, Latvian Hospital Association, Latvian Association of Large Hospitals, Healthcare Employers' Association, Latvian Association of General Practitioners, Latvian Association of Rural General Practitioners.
- Healthcare providers: Riga East Clinical University Hospital, Pauls Stradins Clinical University Hospital, Children's Clinical University Hospital, Hospital of Traumatology and Orthopaedics, Riga Maternity Hospital, NRC “Vaivari”, regional hospitals (levels I-III).
- Healthcare education and training providers: Riga Stradins University, University of Latvia, Daugavpils University, P. Stradins Medical College of the University of Latvia, Riga First Medical College of the University

of Latvia, Riga Medical College of the University of Latvia, Red Cross Medical College of Riga Stradins University, Daugavpils Medical College.

The discussion rounds will be organised in a structured manner, firstly presenting the health scenarios, assumptions on which the predictions are based, followed by a discussion of the developed health workforce predictions. The principles and main discussion points of the discussion rounds shall be agreed upon with MoH.

Additionally, after organising the discussion rounds, we plan to integrate stakeholder inputs into the final prediction model to the maximum possible extent, considering possible data source limitations and possible limitations to the functionality of the model.

3.4.4 Task 4.4 – Finalisation of the model and capacity building

In accordance with the recommendations of the parties involved, the final version of the model will be developed, as well as capacity building training will be organized to ensure further application of the model. We shall prepare all of the training materials beforehand and take on a leading role for the trainings. The trainings will be organised for key stakeholders as identified by the MoH and we envision that they will be carried out by showcasing practical use of the model as well as allowing the trainees to test the model themselves based on different scenarios.

Training methods will include:

- Presentations.
- Discussions and Q&A's.
- Group tasks and presentations.
- Demonstrations of prediction model.
- Hands-on approach to using the prediction model.
- On-the-job training and practical examples.

Throughout the planning and realization of the trainings, experienced trainers (facilitators) from EY side will develop the training materials as well as realize them. Trainings will employ multiple practical methods adapting them to the group size, and format (virtual or face-to-face (f2f)). EY will monitor the Covid-19 related restrictions and adapt training format, being ready to deliver trainings virtually or to restrict the number of participants, as appropriate. Our facilitators are experienced in carrying out trainings in both physical and virtual environments, ensuring interactive and high-quality delivery regardless of format.

After finalising the model and carrying out the trainings we will organise an event to present the model and other related Deliverables to the steering committee and involved stakeholders as identified by the steering committee.

3.5 Deliverable 5 - Action plan on health workforce training and skills development

Objectives

To develop an action plan on health workforce training and skills development, building upon desk research, lessons learned and policy dialogues carried out during the previous Project implementation steps.

3.5.1 Task 5.1 – Design of a sustainable model for the training of health professionals

The model for the training of health professionals will be developed closely following policy dialogues on health scenarios and policy response obtained from the main Project stakeholders. The main elements of the sustainable training model for health professionals will include:

- Learning pathways focusing on horizontal skills and competencies (not including clinical skills and competencies) important to all health workforce professions and specialities, that will additionally describe the skills and competencies that are important only to specific health workforce professions.
- Recommendations on improving continuous professional development and lifelong learning of health professionals in short, medium and long term with an aim to ensure health professionals are ready to deal with expected challenges in health system and external forces influencing demand for high-quality,

personalized and efficient services. Recommendations will include practical instructions on the suggested content, delivery and sequence of training courses and technical infrastructure (equipment and facilities: simulation material, virtual reality setting, robotics, etc.) as a prerequisite for quality training content delivery by considering the role of online learning.

- Recommendations on the roles and responsibilities of institutions involved in health workforce education and training on ensuring that all health workforce training needs are met, planning CPD in accordance with health workforce skills needs, attraction of training providers, organising and measuring the quality of CPD.

3.5.2 Task 5.2 – Definition of a coordination mechanism for health workforce training

To ensure increased stakeholder buy-in and increased awareness from all involved Project stakeholders and the MoH we will focus on a hands-on workshop-based approach that will be structured in the following order:

- An ideation session with MoH and key training providers (including universities, clinical university hospitals, regional hospitals and other medical institutions) will be organised to serve as a baseline to define the vision and mission of the coordinating mechanism.
- Development of a mapping on the end-to-end processes for planning, delivery and monitoring of training quality in order to increase visibility of what processes must be coordinated and where clear roles and responsibilities must be set. The mapping will be developed in close cooperation with the same stakeholders whom we will have defined the vision and mission with. Additional focus will be put on how to ensure that the planning process is driven by data on the training needs of health professionals that are envisioned to be available in the new upgraded database of health professionals.
- After clearly identifying the responsibility and accountability of each organization during end-to-end processes drawn during the previous step, we will develop an organizational model and governance structure. The model will include the lines of reporting, ways and channels of communication, frequency of interaction, and alignment and decision-making process. During this step we will clearly define the functions and authority of the coordinating mechanism. Close stakeholder engagement will be ensured during this step to discuss and validate the proposed organizational model and governance structure.
- For quality monitoring purposes of training delivery and to ensure continuous improvement of the training system, we will define specific and measurable indicators for monitoring of the quality and clear monitoring procedures – including data to be used for measuring the indicators, data sources, frequency of measuring the indicators, responsibility division and tools.

3.5.3 Task 5.3 – Proposal of an action plan on health workforce training

The health workforce training action plan will be developed based on clear and precise expected outcomes. The development process will include active engagement of Project stakeholders to ensure ownership of the expected outcomes and to provide motivation to carry out the tasks and measures contained within the action plan. The development of the action plan will include the following steps and considerations:

- Defining the results to be achieved and associated KPIs. Clear and achievable results for implementing changes in the CPD and workforce training system will be developed in close cooperation with Project stakeholders. Appropriate KPIs will be established in accordance with expected results.
- Defining all relevant stakeholders, their roles and responsibilities through a plan which will include:
  - The sequential and practical activities to be carried out to implement the proposed changes and institutions responsible for implementing those activities.
  - Institutions involved in implementing the activities.
  - The deadlines for activity implementation.
- After developing the draft action plan, it will be discussed with Project stakeholders in 1-2 working groups, where we will agree on the final list of activities, responsible institutions and set deadlines.
- Carrying out risk assessment and proposing appropriate mitigation measures that will include the risks associated with implementing the action plan, assessment of their probability and impact.

- Once the list of activities to be included in the action plan has been agreed, we will prepare cost estimates for the implementation of the activities (including investments needed in infrastructure, e.g. simulation environment, virtual reality setting, robotics, etc.) as well as indicative financial sources to cover the costs (considering also previous financial programming efforts of the MoH). Upon refinement a ready action plan with cost estimates as well as the identified risks the action plan will be discussed once more with the stakeholders to validate the final version.

3.6 Deliverable 6 - Final Project Report

Objectives
During the final phase of the Project EY will prepare a Final Project Report to present the results, key lessons learnt and the main conclusions in a clear and concise manner. The Report will include an executive summary to address non-experts of the health sector such as policy-planners and the public.

3.6.1 Task 6.1 – Draft the Final Project Report

As the final implementation step, we will develop a Final Project Report that will include all of the main conclusions and lessons learnt from previous implementation steps and incorporate the feedback and opinions conveyed by key Project stakeholders. The target audience for the Final Project Report will be the MoH, DG Reform, MES, Health Inspectorate, NHS, universities that provide medical education, hospitals, outpatient clinics, general practitioners and professional organisations and associations. In the Report we will provide a concise and clear message on the current challenges and as-is situation regarding health workforce planning, education, CPD and LLL of health professionals as well as the suggested reforms and practical steps for their implementation.

The Final Project Report will include:

- Key results and main lessons for each Deliverable.
- Main conclusions of the Project and good practice that can be replicated.
- Risk analysis on implementing the solutions and recommendations developed as part of the Project.
- Lessons learned from the Project implementation, including success factors, problems encountered, strategies to overcome them.
- A concise roadmap for future actions by the Latvian authorities to follow-up on the outputs of the Project, including qualitative or quantitative indicators to monitor the implementation of policy measures (this will be closely linked with the action plan on health workforce training developed as part of Deliverable 5 and provide MoH with clear KPIs and expected results to monitor the implementation and efficacy of the reform).
- An executive summary in clear language for non-experts of the health sector, including international policy makers and the general public.

4. Project governance

4.1 Project governance structure

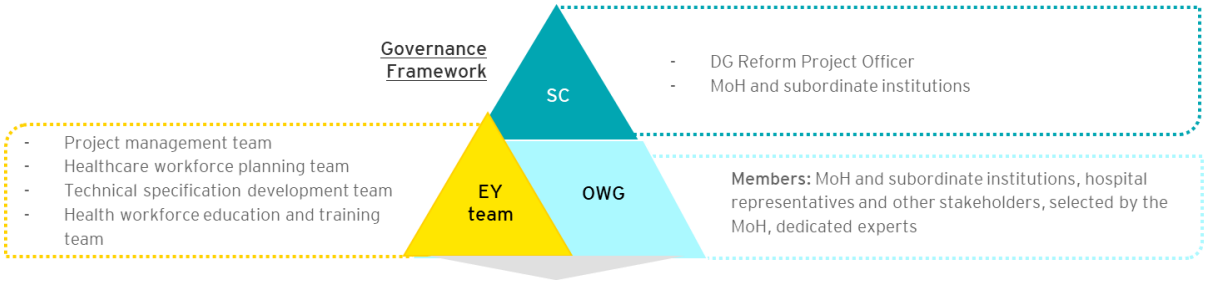

Figure 5 Governance Framework

	Role	Composition	Meetings
SC	• Providing direction and consistency to the project; • Overseeing, monitoring and guiding the strategic and technical aspects of the project; • Giving the final approval to deliverables.	MoH and subordinate institutions, hospital representatives and other stakeholders selected by the MoH	• Kick-off meeting • Status meetings as per agreed frequency • Decision-making meetings
OWG	• Working closely with EY to deliver planned outputs • Providing support in the development and approval of selected methodologies/ approaches	Dedicated experts in healthcare workforce planning, healthcare education and training provision as well as information system technical specifications	• Validation and review of methodologies, results and deliverables
Project team	• Working closely with EY to deliver planned outputs • Providing appropriate venues and related facilities for meetings during the project	Dedicated Project leader (MoH)	• Kick-off meeting • Status and project planning meetings

Figure 6 Organisational structure roles

The structure above represents the Project's governance framework. All the participants are divided into the three major groups:

- Steering committee (SC).
- EY Team.
- Operational working group (OWG). For a mapping of additional health sector stakeholders that will be invited to participate in the OWG please see section 5.2 (Appendix B).

The main responsibilities are described below:

Table 2 Organisational structure roles

	Role	Responsibility
1	SC	SC is responsible for overseeing, monitoring and guiding the strategic aspects of the Project. The SC will also be responsible for making decisions with an impact on Project outcomes, costs and timeline.
2	OWG	OWG has been established in alignment with Project management structure to ensure dedicated stakeholders to guide and participate in each of the Project activities. Operational working group is a Project structure with which EY will validate the observations made, conclusions reached, and the recommendations developed. Participants of the OWG are expected to take an active role in the organized meetings and discussions as well as to review and provide feedback about the Reports and Deliverables prepared by EY.
3	Client Project team	Client Project team consists of Project Coordinator and dedicated Project leader (MoH), who will oversee the implementation of the Project.

	Role	Responsibility
		Responsibilities: • Main Contact point for the implementation of this Contract. • Plays an active role in the design and implementation of the Project. • Provides feedback on Deliverables.
4	EY team	EY team includes: • Engagement Partner, who is accountable for Project outcomes and progress. • Quality reviewer - accountable for quality assurance and quality review of Deliverables as well as FWC management. • Project Manager - accountable for Project management and supervision, coordination of the team, is the key contact point for the Client and beneficiaries. Plays active role in facilitating trainings, workshops, focus groups and interviews. • Project team, which is accountable for Project delivery and consists of, health workforce planning team, technical specification development team, health workforce education and development team.
5	Other stakeholders	Other stakeholders are social partner institutions, universities, education providers, health worker associations, both private and public healthcare providers, and play an active role in providing feedback through OWG and are informed about the results of the Project.

4.2 Project team

We outline below the overall team structure as well as the roles distributed across the experts. For Project execution, we have assembled a highly experienced and diverse team combining solid project management with purpose-led-transformation competences, together with experience in health workforce planning and education and training system.

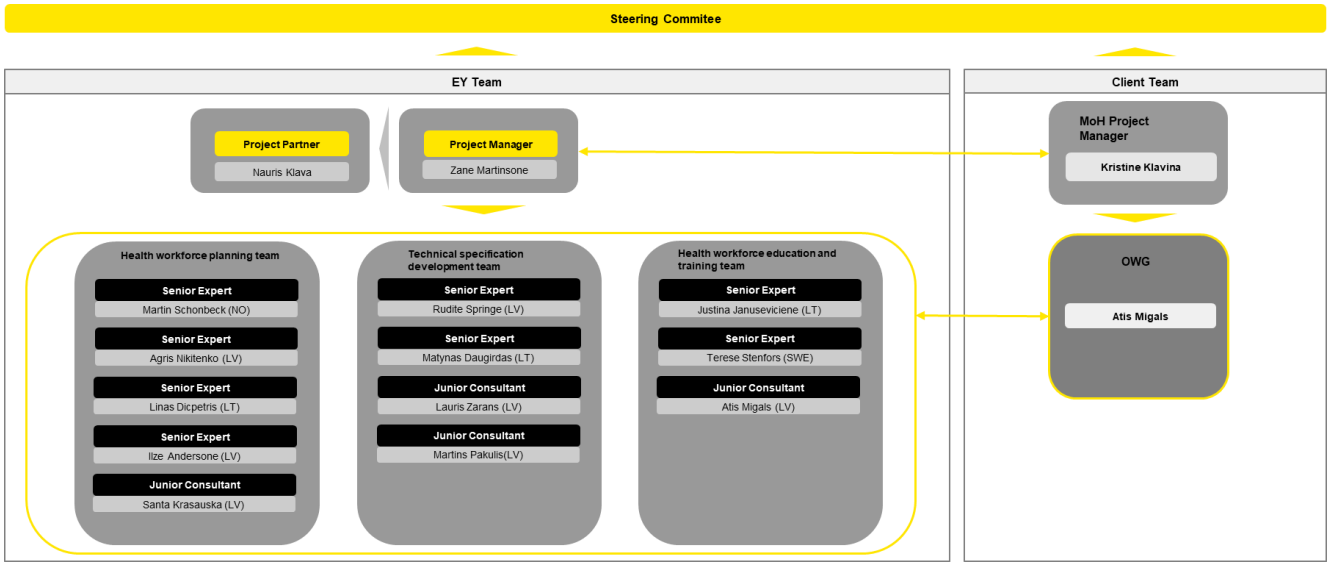

Figure 7 Project team structure

4.3 Communication plan

The key principles of communication will be:

- Status meetings organized once every two weeks between EY and MoH Project management teams.
- Other meetings/calls between EY, MoH and other involved stakeholders are organized throughout the Project based on necessity.
- SC meetings are organized after the completion of key Project Deliverables, indicatively at least once every three months.

- Comments on Deliverables from different stakeholders are consolidated by EY and sent to MoH.
- Prime communication language is Latvian.
- The working language for the meetings that are attended by DG Reform will be English.
- Language of the Deliverables will be either Latvian or English, as specified in ToR. Deliverable 1 Inception report and Deliverable 6 Final report shall be provided in English. Other deliverables shall be provided in Latvian and shall contain summary in English.
- Virtual meetings are primarily facilitated through Microsoft Teams.
- Deliverables are primarily submitted in electronic format (e-mail).
- Deliverables and other related documents may be submitted by any representative of the EY team.
- All SC and OWG meetings will be recorded, and meeting minutes will be documented. The meeting minute approval process shall be carried out by sending the minutes out to all parties involved in the meeting for approval. The timeline for approving the meeting minutes after receival is set at 3 working days, if no comments on the meeting minutes have been received after 3 working days they shall be deemed as approved.

The communication model also involves communication through social media, press-releases, informational articles about the project on MoH official web-page.

The approach for communicating the key events is summarized in Table 3.

Table 3 Communication plan

No.	Event	Frequency	Channel	Communicated to (participants)	Content
1	Status update meetings	Once every two weeks	Microsoft Teams	Project manager (DG Reform and MoH)	1.Deliverable completion status 2.Key topics, information on Project status 3.Risk/Issue log
2	Quarterly Reports	Once every 3 months	E-mail	Project manager (DG Reform/MoH)	1. Project status, next steps 2.Risk Management Plan and Risk Register
3	Workshops and OWG meetings	Based on the need, as specified in TOR	In person or virtual (Microsoft Teams)	OWG members, stakeholders, Project manager (MoH) based on the need	Discuss specific topics and agree on solutions
4	Steering Committee Meetings	Based on the need and after the close of Project phases (6 Deliverables)	In person or virtual (Microsoft Teams)	Steering committee members	Evaluate the progress and make decisions regarding strategic Project issues with an impact on Project outcomes, costs and timeline
5	Project Deliverable Reports	Based on the Deliverable calendar	Email or Microsoft Teams	Project manager (DG Reform/MoH)	Submit the final draft Deliverable for approval to contracting authority

4.4 Deliverable approval

The approval process of Project Deliverables will follow these steps:

- The Deliverables are prepared by EY.
- OWG will be responsible for Deliverable review and validation, if necessary – involving related stakeholders or their representatives.
- A commentary log template will be prepared by EY and sent together with each Deliverable.
- After finalising each Deliverable, it will be sent together with the commentary log template to MoH, OWG and DG REFORM for their approval.
- The Deliverables prepared in Latvian will include an English summary.
- EY will present a summary of the necessary amendments as suggested by the OWG and other relevant structures (consolidated comments) to MoH for discussion and approval purposes.
- Relevant structures who will receive the Deliverable for review are expected to provide the comments in the commentary log template within 30 days after receiving the Deliverable.
- DG REFORM and MoH are expected to comment on the Deliverables submitted within 30 days of the date of their receival.
- If both DG REFORM and the MoH have not reacted within the 30 day period, the Deliverable shall be deemed as approved. Additionally, the Deliverable shall be deemed as approved if either/or the MoH and DG REFORM have sent EY written approval of the Deliverable within the 30 day period.
- EY will make the necessary amendments as suggested by both the DG REFORM and/or the MoH within 10 working days after receival.

4.5 Information exchange

According to the non-disclosure agreement any information or documents that are not publicly available will be treated as confidential. During the service delivery EY shall:

- not use confidential information or documents for any purpose other than to perform its obligations under the Specific Contract, without the prior written agreement of the beneficiary Member State authority.
- ensure the protection of such confidential information or documents with the same level of protection as its own confidential information or documents and in any case with due diligence.
- not disclose, directly or indirectly, confidential information or documents to third parties without the prior written agreement of the beneficiary Member State authority.

4.6 Quality management

EY focuses on the delivery of Service Quality through the application of the following principles that guide how the quality will be managed and validated throughout the Project implementation:

- Adherence to the contract and technical offer.
- Review cycle of Deliverables - in order to ensure the Deliverable is of the highest quality multiple layers of review are set in place by the EY:
  - Deliverables are prepared by Project team under the supervision of Project manager.
  - Each Deliverable is further reviewed by the EY engagement partner before submission to the MoH or other parties.
  - The quality reviewer will review the final Deliverable versions before submission to the MoH or other parties.

4.7 Project risk management

Identification, management and monitoring of Project implementation risks and issues will be a central part of our approach on successful Project management. The team will focus not only on the prompt identification of the risks but also the application of a constructive approach to issue resolution and to the successful execution of the assignment. For an overview of the identified Project risks see Table 4.

Table 4 Summary of Project risks and issues

No	Risk Description	Owner	Due Date	Mitigation Plan	Status/ Priority
Strategic Risks					
1	Lack of clear vision of the MoH and subordinate institutions on expected outcome of changes in coordinated planning and financing of health workforce planning.	EY	Continuous	Organize strategic management workshop at the start of the Project and set clear expectations of the change. Continuous communication between EY and main Project stakeholders on implementation related questions.	High
2	Wavering government commitment / changes in beneficiary government priorities	EY	Continuous	Project management will follow up on any potentially relevant changes in the political environment, evaluate the consequences of likely scenarios, and escalate to the Steering committee if necessary.	High
3	Difficulty in accommodating the interests and priorities of various stakeholder groups	EY	Continuous	A stakeholder management matrix has been developed to map and identify all involved stakeholders and their expectations from Project implementation.	Medium
4	Lack of commitment to implement changes in health system	EY	Continuous	Facilitation of change management through design of change, involvement of key stakeholders throughout the Project implementation.	High
5	Institutions that provide health education and training are directly influenced by Project results and therefore considered interested parties	EY	Continuous	We have taken potential conflicts of interest into account when building our Project team and included only members from institutions that do not provide health education and training. However, all relevant health education and training providers will be included in stakeholder discussions.	Medium
Operational Risks					
6	Exceeding the time of execution allotted for the Project due to unforeseen problems, such as holdups caused by stakeholder disagreements, unforeseen	EY	Continuous	Strict supervision of Project execution, scope, deadlines and Deliverables.	Medium

No	Risk Description	Owner	Due Date	Mitigation Plan	Status/ Priority
	expansion of the scope of the Project or lack of internal coordination			Timely identification of disagreement matters, provision of extensive information to involved parties and proactive mediation towards decision taking. Issue escalation in the Steering committee.	
7	Delayed communication or disagreement between key stakeholders (MoH and subordinate institutions) on key findings and future state model.	MoH	Continuous	Regular progress meetings with OWG and Steering committee (as applicable) to discuss the progress of the Project and issues identified. Thorough communication between EY and Client team.	High
8	Lengthy decision-making process regarding the proposed changes, which results in delays of continuing work in other Project phases	MoH	Continuous	Clearly communicating the role and necessary involvement of the respective stakeholder, clearly defined Deliverable validation procedure.	High
Quality Risks					
9	The extent and quality of received information is insufficient to perform analysis at the desired level	EY	Continuous	Validation of information request (incl. information, data and sources) with the MoH and data holder institutions, discussion on the availability of information during the planning phase of the Project.	Low
10	No or limited access to quality primary data providers	EY	Continuous	Early identification of relevant primary or alternative data providers for successful analysis. Timely coordination of interviews, focus groups, field visits.	Medium
11	Relevance and implementation potential of Project findings	EY	Continuous	Involvement of experts in discussing and validating key findings and recommended future state model. Regular discussions with MoH and its subordinate institutions.	High
12	Some of the data on health professional possibly fall under GDPR and are not obtainable	EY	Continuous	Possible restrictions derived from GDPR and their impact on Project	Low

No	Risk Description	Owner	Due Date	Mitigation Plan	Status/ Priority
				Deliverables were discussed with MoH. The data needed for health workforce prediction model does not require information that is not available in the ROMP.	
13	Deliverables do not meet quality and clarity expectations of key Project stakeholders	EY	Continuous	Team members are experienced in preparing Reports for both national and European institutions. Deliverables will be reviewed by an independent quality reviewer.	Low
Organizational Risks					
14	Lack of involvement of the MoH representatives in Project activities	EY	Continuous	Communication on expectations about the necessity of involvement of the MoH representatives, clearly setting the roles and responsibilities of the MoH and EY.	High
15	Inability to agree on practical arrangements of Project meetings, workshops, focus groups	EY	Continuous	Adhering to the ToR of the Project. Timely communication on practical arrangements of the Project activities.	Low
16	Much of the Project work pre-assumes interaction with Project stakeholders (i.e. representatives of the MoH and subordinate institutions) which may be disturbed by COVID-related restrictions	EY	Continuous	All Project activities can also be performed remotely. EY will ensure all stakeholders are informed on the possibilities to make the interaction remotely.	Low
17	A key expert unexpectedly leaves the team	EY	Continuous	EY has a global structure with access to a wide range of health experts, allowing to request expert help according to Project needs. Most of the team members possess competencies that translate to other areas covered by the Project and can provide support when necessary.	Low
18	Misalignment of expectations for the content of Deliverables between national authorities and the contractor	EY	Continuous	The structure and methodology of Deliverables will be aligned with DG Reform and	Low

No	Risk Description	Owner	Due Date	Mitigation Plan	Status/ Priority
				national authorities during the kick-off meeting and frequent meetings will be organised to validate the chosen approach.	

5. Annex

5.1 Appendix A. Members of the Steering Committee

Table 5 Overview of Steering Committee members

No.	Name, surname	Position	Role
1	Kristine Klavina	Ministry of Health Head of the human resources development department	Member of the Steering Committee
2	Nauris Klava	Ernst & Young Baltic SIA Project Partner	Member of the Steering Committee
3	Zane Martinsone	Ernst & Young Baltic SIA Project Manager	Member of the Steering Committee
4	Federico Paoli	European Commission Policy coordinator	Project Coordinator from Client side, Steering Committee observer
5	Anita Slokenberga	Head of the Health Inspection	Member of the Steering Committee
6	Eliza Berzina	Ministry of Health Director of the Department for European affairs and international cooperation	Member of the Steering Committee
7	Kaspars Berzins	Ministry of Health Policy adviser to the minister of health	Member of the Steering Committee
8	Sanita Janka	Ministry of Health Head of the Department of health care	Member of the Steering Committee
9	Agnese Tomsone	Ministry of Health Head of Investment and European Union funds supervision department, Head of EU funds Implementation Department	Member of the Steering Committee

5.2 Appendix B. Members of the Operational Working Group

Table 6 Overview of Operational Working Group members

No.	Name, surname	Position	Role
1	Atis Migals	Ernst & Young Baltic SIA Senior consultant	Head of the OWG
2	Kristine Klavina	Ministry of Health Head of the human resources development department	Associate Head of the OWG
3	Santa Krasauska	Ernst & Young Baltic SIA Senior consultant	Member of the OWG
4	Daina Brante	Ministry of Health Senior expert of the Department of Human Resources Development	Member of the OWG
5	Ineta Bumane	Ministry of Health Head of Health Care Organization Department	Member of the OWG
6	Liga Gaigala	National Health Service Leading expert in health care	Member of the OWG
7	Svetlana Batare	Ministry of Health Deputy director of the branch budget planning department	Member of the OWG
8	Andzela Gudre	Health Inspection Head of the Registry Department	Member of the OWG
9	Lelde Ģiga	National Health Service Deputy director of the Department of medical services	Member of the OWG
10	Inta Jaunzeme	Ministry of Education and Science Senior expert of the Department of Higher Education, Science and innovation	Member of the OWG
11	Normunds Ozols	Ministry of Economics Senior economist at the analytics service	Member of the OWG

Mapping of key Project stakeholders was developed in close cooperation with the MoH and details main parties involved in Project implementation and their involvement in Project activities. This list is a part of a larger stakeholder-matrix that will be maintained by EY and updated throughout the Project depending on the attitudes and views of Project Stakeholders and the envisioned form of cooperation.

Table 7 Key Project Stakeholders

No.	Organisation	Type of Organisation	Type of Cooperation
1	Ministry of Health	Public authority	Participate in the development and approval of deliverables
2	Health Inspection	Public authority	Participate in the development and approval of deliverables
3	National Health Service	Public authority	Participate in the development and approval of deliverables
4	Latvian Medical Association	Social partner	Participate in the development and approval of deliverables

No.	Organisation	Type of Organisation	Type of Cooperation
5	Latvian Junior Doctors Association	Social partner	Participate in the development and approval of deliverables
6	Latvian Nurses Association	Social partner	Participate in the development and approval of deliverables
7	Latvian Association Of Professional Organizations Of Medical Practitioners	Social partner	Participate in the development and approval of deliverables
8	Ministry of Education and Science	Public authority	Participate in the development and approval of deliverables
9	Ministry of Economics	Public authority	Participate in the development and approval of deliverables
10	Latvian Health and Social Care Workers Trade Union	Social partner	Participate in the development and approval of deliverables
11	State Emergency Medical Service of Latvia	Public authority	Participate in the development and approval of deliverables
12	Centre for Disease Prevention and Control	Public authority	Participate in the development and approval of deliverables
13	Latvian Hospital Association	Social partner	Cooperate and consult
14	Latvian Association of Large Hospitals	Social partner	Cooperate and consult
15	Healthcare Employers' Association	Social partner	Cooperate and consult
16	Riga Stradins University	Education	Cooperate and consult
17	Latvian University	Education	Cooperate and consult
18	Daugavpils University	Education	Cooperate and consult
19	P. Stradins Medical College of the University of Latvia	Education	Kept informed
20	Riga First Medical College of the University of Latvia	Education	Kept informed
21	Riga Medical College of the University of Latvia	Education	Kept informed
22	Red Cross Medical College of Riga Stradins University	Education	Kept informed
23	Daugavpils Medical College	Education	Kept informed
24	Latvian Association of General Practitioners	Social partner	Cooperate and consult
25	Rural Family Doctors Association of Latvia	Social partner	Cooperate and consult
26	Pauls Stradins Clinical University Hospital	Health facility	Cooperate and consult
27	Riga East University Hospital	Health facility	Cooperate and consult
28	Children's Clinical University Hospital	Health facility	Cooperate and consult
29	Hospital of Traumatology and Orthopaedics	Health facility	Cooperate and consult
30	Riga Maternity Hospital	Health facility	Cooperate and consult
31	NRC “Vaivari”	Health facility	Cooperate and consult

5.3 Appendix C. List of professions of health workforce

Table 8 List of professions of health workforce

Nr	Specialization	Code
1	Medical Doctor	
1.1	Internist	P01
1.2	Rheumatologist	P56
1.3	Pneumonologist	P57
1.4	Endocrinologist	P58
1.5	Nephrologist	P59
1.6	Gastroenterologist	P60
1.7	Family (general practice) doctor	P02
1.8	Surgeon	P03
1.9	Neurosurgeon	P04
1.10	Thoracic surgeon	P05
1.11	Heart surgeon	P06
1.12	Vascular surgeon	P07
1.13	Urologist	P08
1.14	Plastic surgeon	P09
1.15	Pediatric surgeon	P12
1.16	Traumatologist, orthopedist	P13
1.16.1	Spine surgeon	A131
1.17	Gynecologist, Obstetrician	P14
1.18	Oncology gynecologist	A142
1.19	Pediatrician	P15
1.20	Neonatologist	A151
1.21	Pediatric infectologist	A152
1.22	Pediatric cardiologist	A153
1.23	Pediatric rheumatologist	A154
1.24	Pediatric pneumonologist	A155
1.25	Pediatric endocrinologist	A156
1.26	Pediatric nephrologist	A157
1.27	Pediatric gastroenterologist	A158
1.28	Pediatric hematooncologist	A159
1.29	Pediatric allergist	A1510
1.30	Oncologist chemotherapist	P16
1.31	Hematologist	P17
1.32	Anesthesiologist, reanimatologist	P18
1.33	Psychiatrist	P19
1.34	Pediatric psychiatrist	P64
1.35	Forensic psychiatry expert	A192
1.36	Neurologist	P20

1.36.1	Neurophysiologist	PP35
1.37	Ophthalmologist	P22
1.38	Otolaryngologist	P23
1.38.1	Phoniatrist	A231
1.39	Pediatric audiologist	A232
1.40	Infectologist	P24
1.41	Maxillofacial surgeon	P26
1.42	Dermatologist, venereologist	P27
1.43	Narcologist	P28
1.44	Laboratory doctor	P29
1.45	Radiologist therapist	P31
1.46	Radiologist	P32
1.46.1	Interventional radiologist	A321
1.47	Pathologist	P33
1.48	Forensic expert	P34
1.49	Sports doctor	P36
1.50	Emergency medicine doctor	P39
1.51	Psychotherapist	P42
1.52	Medical geneticist	P44
1.53	Clinical microbiologist	P47
1.54	Geriatrician	P48
1.55	Public health doctor	P49
1.56	Clinical pharmacologist	P50
1.57	Clinical physiologist	P51
1.58	Cardiologist	P52
1.59	Occupational Health and occupational diseases doctor	P53
1.60	Physician of physical and Rehabilitation Medicine	P54
1.61	Balneologist	A541
1.62	Allergist	PP01
1.63	Hepatologist	PP02
1.64	Immunologist	PP03
1.65	Homeopath	PP04
1.66	Cosmetologist	PP05
1.67	Dietician	PP06
1.68	Acupuncture doctor	P61
1.69	Sexologist, sexopathologist	PP11
1.70	Expert	PP13
1.71	Hypnotherapist	PP15
1.72	Algologist	PP16

1.73	Osteopath	PP17
1.74	Phlebologist	PP18
1.75	Transplantologist	PP19
1.76	Pediatric neurologist	P62
1.77	Health care management doctor	P63
1.78	Transfusiologist	PP24
1.79	Andrologist	PP25
1.80	Palliative care specialist	PP26
1.80.1	Manual medicine doctor	PP29
1.81	Combustiologist	PP30
1.82	Hand surgeon	PP31
1.83	Trichologist	PP32
1.84	Osteoreflex therapist	PP33
2.	Dentist	P25
2.1	Orthodontist	A251
2.2	Periodontologist	A252
2.3	Pediatric dentist	A253
2.4	Dental prosthetist	A254
2.5	Endodontist	A255
3.	Functional specialist	
3.1	Occupational therapist	T02
3.2	Occupational therapist's assistant	T07
3.3	Physiotherapist	T01
3.4	Physiotherapist assistant	T04
3.5	Technical orthopedist	T06
3.6	Optometrist	n114
4.	Midwife	n28
5.	Nurse (general care nurse)	n120
5.1	Nurse (general care nurse) in anaesthesia and intensive care	n122
5.2	Nurse (general care nurse) in pediatric care	n121
5.3	Nurse (general care nurse) in psychiatry and Narcology	n124
5.4	Nurse (general care nurse) in perioperative care	n123
6.	Other medical practitioners	
6.1	Assistant physician of outpatient service	n86
6.2	Medical assistant (paramedic)	n27
6.3	Biomedical worker	n76
6.4	Cosmetologist	n72
6.5	Masseur	n29
6.6	Art therapist	n91

6.7	Nurse’s assistant	n70
6.8	Emergency medical assistant (paramedic)	n74
6.9	Podologist	n92
6.10	Assistant radiologist	n85
6.11	Radiographer	n94
6.12	Beauty specialist (cosmetology)	n96
6.13	Nutritionist	n93
6.14	Dental assistant	n71
6.15	Dental hygienist	n11
6.16	Military paramedic	n109
6.17	Dental technician	n12

5.4 Appendix D. Project workplan

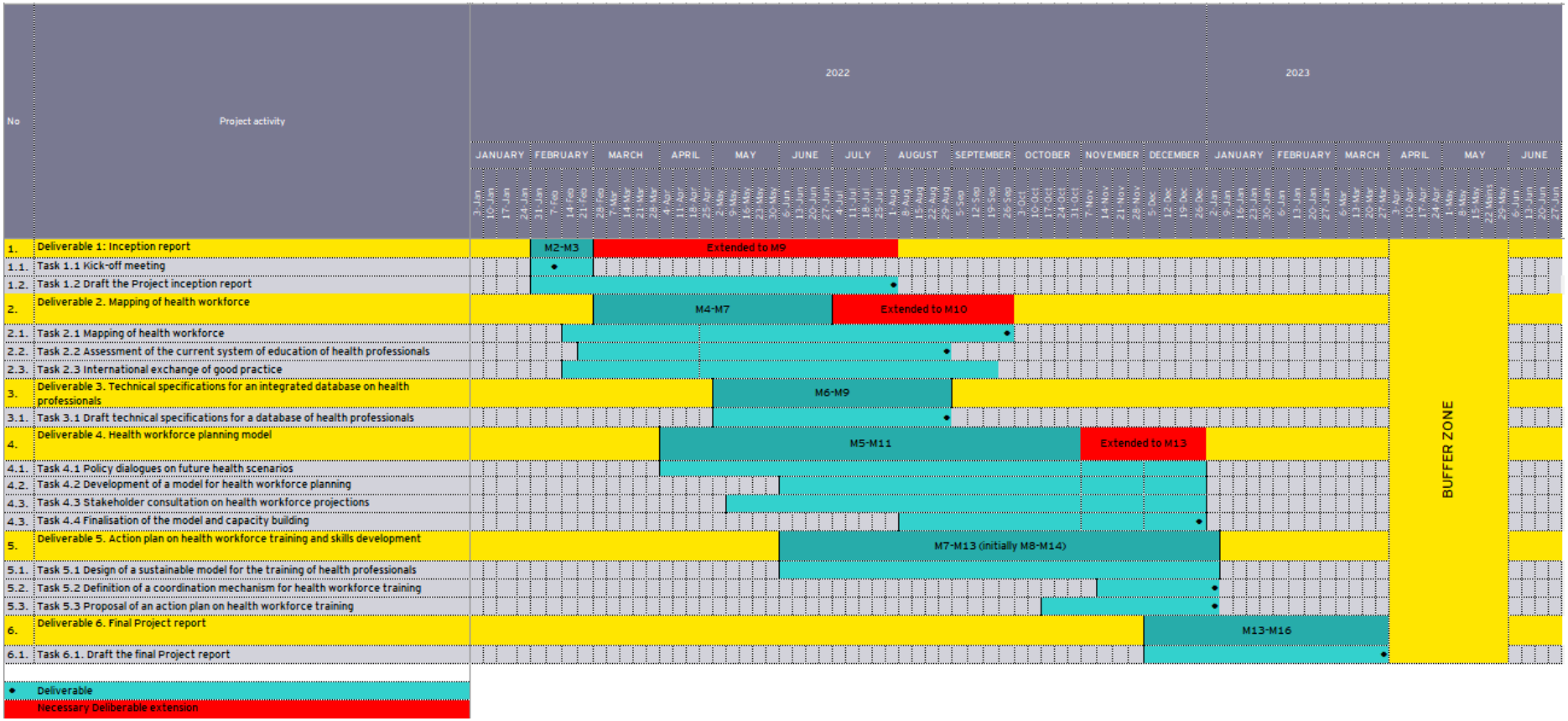

Figure 8 Project workplan

5.5 Appendix E. Policy Questions

Table 9 Policy Questions

	Hypothesis	Necessary data	Data sources	Likelihood of gaining concrete results
Current number of specialists	1. There is an insufficient or excess number of healthcare professionals in relation to population's healthcare needs and international standards.	• Data on the total number of health workforce by profession and specialisation. • Data on practicing specialists by levels of care. • Reports on optimal health workforce per population ratio.	• ROMP data on currently practising health workforce and their professions/specialisations. • NHS[‡‡] data on the level of care where each individual healthcare professional provides services (in each of his/her workplaces). • OECD/WHO reports and standards on optimal health workforce ratio per 1000 population including but not limited to: "Global strategy on human resources for health: Workforce 2030"; "Health Workforce Requirements for Universal Health Coverage and the Sustainable Development Goals". • International and local clinical guidelines detailing the suggested ratio of health workforce per specific disease group.	High
	2. The regional distribution of health workforce is uneven, and several specialties are lacking the necessary workforce.	• Data on practicing specialists and their main place of practice (geographically).	• ROMP data on the number of currently employed health workforce and their main place of practice, including geographical location. • SRS data on all workplaces (including their geographical location) of each healthcare professional and their FTE	High

‡‡ Hospital-level data might be necessary depending on how NHS collects information on provided services

			spent in each workplace to evaluate main places of work.	
	3. Distribution of health workforce between public and private employers displays imbalances.	• Data on practicing specialists and their place of practice (public or private). • Data on FTE division per public and private employers if the individual health professional is employed in both types of employment.	• ROMP data on all currently practicing health workforce. • SRS data on all workplaces of individual health professionals/their workloads as FTE/ type of employment by public or private entity.	High
	4. The current skill-mix of health workforce is not used to its full potential in some professions (for example nurses) and is not tailored to deal with emerging technologies and future healthcare challenges.	• Data on skills and competencies included in current curricula. • Data on current health workforce roles. • Data on future health workforce skills needs.	• University and college data on healthcare program graduates and the competencies and skills included in their curricula. • Occupational standards listing the skills, competencies and attitudes of healthcare professionals. • International reports on health workforce future needs, including but not limited to: "Skills for the future health workforce: Preparing health professionals for people-centred care"; "Future Skills and Competences of the Health Workforce in Europe" and "WHO-ASPHER Competency Framework for the Public Health Workforce in the European Region". • Cabinet Order No. 268 listing health workforce competence in medical treatment, theoretical and practical knowledge.	Medium
Inefficient/imbalanced healthcare delivery	1. The delivery of healthcare services is fragmented and not evenly distributed in all regions.	• Data on services provided by healthcare institutions.	• NHS data on inpatient/outpatient services in all healthcare providers.	High

		• Data on practicing specialists and place of practice (geographically).	• ROMP data on all currently practicing health workforce and their places of employment. • SRS data on all healthcare professional workplaces and their regional location, including FTEs.	
	2. Health workforce capacity is not used to full potential due to partial employment.	• Data on all employment contracts per specialist. • Data on workload of practicing specialists	• ROMP data on all currently practicing health workforce and their places of employment. • SRS data on all healthcare professional workplaces and their regional location, including FTEs. • NHS data on inpatient/outpatient services in all healthcare providers.	High
	3. Some healthcare providers have an excess number of workforce in relation to provided services and international benchmarks.	• Data on services provided by healthcare institutions. • Data on practicing specialists and place of practice	• NHS data on inpatient/outpatient services in all healthcare providers. • ROMP data on all currently practicing health workforce and their places of employment. • SRS data on all healthcare professional workplaces and their regional location, including FTEs. • International reports on optimal healthcare service delivery in regard to healthcare specialists per patient/treatment type.	Medium
Potential influencing factors	1. The current level of remuneration of health workforce in public sector is not able to compete with private sector/ opportunities abroad.	• Data on remuneration of health workforce. • Data on all employment contracts per specialist.	• SRS data on all healthcare professional public/private earnings, including dividends and other sources of remuneration.	Medium
	2. Incentives to employ skilled health workforce regionally are insufficient.	• Data on remuneration of health workforce.	• SRS data on all healthcare professional public/private earnings, including	Medium

		• Data on all employment contracts per specialist.	dividends and other sources of remuneration. • MoH policy planning documents/international reports	
	3. The current organisation models in some healthcare providers are insufficient to ensure adequate healthcare delivery.	• Data on services provided by healthcare institutions.	• NHS data on inpatient/outpatient services in all healthcare providers. • SRS data on all healthcare professional FTE split per all employment places. • International reports on optimal healthcare service delivery in regard to healthcare specialists per patient/treatment type.	Medium
	4. Patient flow in some hospitals is insufficient to maintain professional qualification in some health workforce specialties.	• Data on services provided by healthcare institutions. • Reports on optimal healthcare delivery.	• NHS data on inpatient/outpatient services in all healthcare providers. • International reports on optimal healthcare service delivery in regard to healthcare specialists per patient/treatment type.	High

Table 10 Policy Questions – Demand and Supply

	Hypothesis	Necessary data	Data sources	Likelihood of gaining concrete results
Demand	1. Global and national trends in disease incidence and prevalence will increase/ decrease the need for specific healthcare professions/ specialties in the future	• Data on future disease incidence and prevalence. • Data on future healthcare trends and needs.	• CDPC data on predicted national disease prevalence, incidence, etc. • CSB data on predicted future demographic situation. • International reports on the future state of healthcare services. • MoH and its subordinate institution policy planning documents and legislative acts.	Medium

	Hypothesis	Necessary data	Data sources	Likelihood of gaining concrete results
	2. Emerging technologies (such as telemedicine and AI use in radiology) will increase/ decrease the need for specific healthcare professions/ specialties	• Data on envisioned future healthcare trends.	• International reports on the future state of healthcare services. • MoH and its subordinate institution policy planning documents and legislative acts.	Medium
	3. Future models of care delivery will impact the need for specific healthcare professions/ specialties (e.g., value-based care, multidisciplinary approach, hospital collaboration).	• Data on envisioned future healthcare delivery organisation. • Standards on optimal health workforce structure	• International reports on future models of care delivery. • MoH and its subordinate institution policy planning documents and legislative acts	Medium
Supply	1. The future demand of health workforce will be met by the currently practising specialists	• Data on practicing specialists by levels of care.	• ROMP data on currently practicing healthcare professionals and their age structure. • NHS data on the levels of care where each individual healthcare professional is involved at their place of work. • MoH and its subordinate institution policy planning documents and legislative acts	High
	2. Some of the currently practising specialists will need to be replaced due to natural causes of leave – death, retirement, resignation	• Data on health workforce age structure. • Historic data on outflows	• ROMP data on current health workforce age structure. • OCMA data on health workforce migration trends.	High
	3. Trends of outflow of specialists (both from public to private and emigration) will continue.	• Data on health workforce migration trends. • Data on practicing specialists and place of practice (public vs. private).	• ROMP data on all healthcare professional workplaces. • OCMA data on health workforce migration trends. • SRS data on all healthcare professional workplaces and their type.	Medium

	Hypothesis	Necessary data	Data sources	Likelihood of gaining concrete results
	4. Healthcare education providers will need to prepare specialists in accordance with future healthcare service demand.	• Demand data • Data on the current supply and outflows	• Predictions on future health workforce demand. • Data from universities and colleges that provide healthcare education on the number of graduates and currently enrolled students. • Data from MoES Graduate Registry.	High

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