



European Health Data Space for Secondary Use @CY - CY-EHDS-2ND

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D3.1 Report on the performance monitoring indicators framework

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Abbreviations

CA	Consortium Agreement
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CY-EHDS-2ND	European Health Data Space for Secondary Use @CY - CY-EHDS-2ND
DAAMS	Data Access Applications Management System
DBCs	Digital Business Capabilities
EC	European Commission
EHDS	European Health Data Space
EHDS2	European Health Data Space for the secondary use of health data
GA	Grant Agreement
HDAB	Health Data Access Body
KPIs	Key Performance Indicators
M	Month
NeHA	Ethniki Archi Ilektronikis Igeias
nHDsC	National Dataset Catalogue for health data
SPE	Secure Processing Environment
UCY	University of Cyprus
WP	Work Package
WPL	Work Package Leader

EXECUTIVE SUMMARY

The CY-EHDS-2ND project will establish a Health Data Access Body (HDAB) in Cyprus and lay the national foundations for European Health Data Space for the secondary use of health data (EHDS2) – it is a co-funded action under the European Union’s EU4Health (2021-2027) programme. It aims to develop the necessary infrastructure, network and core components to enable secure access to high-quality health data for research, medical innovation and health policymaking for secondary use of health data in Cyprus. This effort will drive the technical implementation of the HDAB, marking a significant milestone in advancing the use of health data, ultimately enhancing healthcare delivery and strengthening the national health system.

To support the technical implementation of the HDAB in Cyprus and in alignment with the European Health Data Space (EHDS) regulation, the CY-EHDS-2ND project includes technical Work Packages (WPs) 5-9. These WPs focus on designing, developing, and implementing five mandatory key digital capabilities: WP5 – a data application management system to be fully operational, a publicly accessible National Dataset Catalogue for health data (nHDsC), the deployment of a Secure Processing Environment (SPE), the cross-border gateway, and data quality labelling of the datasets.

The goal of WP 3 Evaluation is twofold: (a) to confirm that the project meets its expected objectives, and (b) to evaluate the project’s impact. Deliverable D3.1, Report on the performance monitoring indicators framework, sets out a framework for measuring the success and impact of the CY-EHDS-2ND project. The document begins with an introduction that provides background information on the action being evaluated, as well as dependencies and links between WP3 and other WPs. This introductory section establishes the foundation for the evaluation by offering context, connecting it to other project components, and preparing the groundwork for understanding the objectives and goals of the evaluation process.

A key component of the project is the Performance Monitoring Indicators Framework, developed to systematically track and evaluate progress. The framework aims to keep the project aligned with its objectives, enabling continuous performance assessment, compliance monitoring, and risk mitigation. The CY-EHDS-2ND framework is designed to measure the implementation and effectiveness of the project’s Digital Business Capabilities (DBC), which include:

- A Data Access Applications Management System (DAAMS) for streamlined and secure data request processing.
- A nHDsC for structured and standardized datasets.
- An SPE to facilitate protected data processing.
- A Cross-border Gateway to connect Cyprus with HealthData@EU for seamless data exchange.
- Implementation of data quality enhancement tools to maintain high standards for data usability.

The CY-EHDS-2ND project is groundbreaking for health data governance in Cyprus, reinforcing its role in the EHDS. Through systematic monitoring, risk management, and stakeholder engagement, the project enables Cyprus to benefit from enhanced research capabilities, policy-driven decision-making, and improved healthcare services. Through a structured KPI framework, the project would not only comply but also advance innovation and long-term sustainability in health data management.

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1 INTRODUCTION

In project management, success depends on meticulous planning, execution and comprehensive evaluation. An evaluation plan serves as a strategic instrument to track progress, assess objectives and measure impact, ensuring the project remains on course and achieves long-term sustainability. The significance of an evaluation plan is evident in the CY-EHDS-2ND project, where the evaluation team, in collaboration with Work Package Leaders (WPLs).

The CY-EHDS-2ND project aims to create the national framework for the secondary use of health data. The HDAB will be responsible for several core functions to ensure secure, transparent, and efficient access to electronic health data for secondary use.

Key objectives of the project CY-EHDS-2ND are five DBCs:

- DAAMs: A system for processing data access applications and data requests.
- nHDsC: to publicly be available to register and facilitate the discovery of health datasets available for secondary use.
- An SPE infrastructure to provide a secure, privacy - preserving processing environment as a service to data users.
- A digital gateway to connect with other authorized participants and with the federation services in the EHDS2 infrastructure.
- Data quality enhancement to improve the accuracy, consistency, and discoverability of health datasets, ensuring that data users can efficiently locate and utilize relevant resources.

1.1 Objective of the Deliverable

To ensure that the activities within CY-EHDS-2ND project align with its objectives a structured monitoring framework has been established. This framework facilitates the assessment of the project's implementation and progress while tracking the timely and successful achievement of its planned goals. Accordingly, a Key Performance Indicators (KPIs) framework was developed during the project's initial phase to serve as a roadmap for evaluation and ongoing monitoring within WP3 "Evaluation". This framework provides a systematic approach to assessing whether the implementation of CY-EHDS-2ND DBCs are advancing as anticipated, enabling the early identification of potential deviations that could hinder the project's overall objectives. As a result, it serves as a critical tool for defining corrective actions when necessary, ensuring that the project remains on course toward successful completion. As outlined in the Consortium Agreement (CA), this report on the KPIs framework is specifically designed to monitor the progress of the DBCs of the HDAB. Accordingly, this document presents a comprehensive framework for evaluating the progress of WPs 5-9, which will be further detailed in Section 2.

2 CY-EHDS-2ND KEY PERFORMANCE INDICATOR FRAMEWORK

The SMART framework provides a structured method for setting goals that enhances clarity, relevance, and accountability. This framework is a fundamental tool in project management and strategic planning. The acronym SMART represents five key principles [1].

1. **Specific** – Goals should be clearly defined and precisely targeted, focusing on a specific area with a well-detailed description.
2. **Measurable** – Objectives must include quantifiable criteria to track progress and assess success, ensuring both continuous monitoring and verification of task completion.
3. **Achievable** – Goals should outline the necessary actions, assign responsibility to a specific individual or team and ensure that the required steps are feasible.
4. **Realistic** – Objectives must be practical and attainable, considering available resources, constraints and potential challenges.
5. **Time-bound** – Goals should be set within a clear timeframe, establishing deadlines to facilitate timely progress and accountability.

The selected approach ensures that the indicators are logically linked to the project's objectives (O.1–O.3), its critical milestones (M.1–M.5) and related indicators as reported in the Grant Agreement (GA). Each indicator is assigned attributes reflecting its objective alignment, reporting frequency, data collection responsibility, evaluation timeframe, and primary data source. This framework is designed with sustainability and extensibility in mind, such that post-project continuation by the National eHealth Authority (NeHA) is fully supported. The framework's governance model incorporates continuous improvement cycles, supporting future data-driven public health policy development in Cyprus. Table 1 presents the full indicator set, as extracted and expanded from the GA. It includes traceability to objectives and milestones, measurement frequency, responsible entities, expected evaluation period, and the primary source of data. Indicators that are expected to be measurable only during the designated evaluation period (M46–47) are clearly flagged to the title Evaluation Timing (Realistic, Time-bound) and their final values will be reported in the closure report based on actual system usage. In the list shown below, we explain the titles in each column of Table 1:

- **KPI no:** a unique numerical identifier assigned to each KPI for tracking and reference.
- **Indicator Description (Specific):** a precise definition detailing the specific aspect being measured to ensure clarity and reference.
- **Project Objective:** the specific objectives that were defined during the project's duration as per GA / Part B / Chapter 1.2.
 - **O.1 Establishing National Services and Infrastructures:** This involves setting up one or more operational health data access bodies and developing the necessary services and infrastructures to facilitate interactions among health data access bodies, data holders, and data users. These services and infrastructures shall:
 - Enable HDAB to receive, process and respond to data access requests.
 - Provide data users with access to discoverable and accessible metadata catalogues of health datasets.
 - Ensure access to SPEs for data analysis.
 - **O.2 Establishing Cross-Border Services and Infrastructures:** This involves creating a digital gateway to enable HDAB to participate in the cross-border infrastructure for the secondary use of health data HealthData@EU once available. This includes:
 - Connecting the HDAB with entities authorized to engage in the cross-border infrastructure for secondary use of health data.

- Establish a link between HDAB and the central services provided by the EC.
 - **O.3 Enhancing Data Quality:** This entails providing support and tools to improve the quality of health data shared by data holders with the HDAB. The objective is to make sure that the data is both semantically and technically interoperable across HDABs and data holders.
- **Specific Milestones as defined in GA / Part B / Chapter 1.2.** By the end of the project's implementation period, HDAB will have established the necessary infrastructure to support the secondary use of health data including essential DBCs.
 - M1 DAAMs: A system for processing data access applications and data requests.
 - M2 nHDsC: to publicly be available to register and facilitate the discovery of health datasets available for secondary use.
 - M3 An SPE infrastructure to provide a secure, privacy - preserving processing environment as a service to data users.
 - M4 A digital gateway to connect with other authorized participants and with the federation services in the EHDS2 infrastructure.
 - M5 Data quality enhancement to improve the accuracy, consistency, and discoverability of health datasets, ensuring that data users can efficiently locate and utilize relevant resources.
- **Baseline:** The initial reference point or starting measurement used to assess progress over time.
- **Target (Measurable):** The expected performance level or outcome to be reached within a defined period.
- **Frequency:** The scheduled intervals at which KPI monitoring and evaluation take place.
- **Responsibility (Achievable):** The designed individual/s or entity accountable for overseeing and ensuring KPI progress.
- **Evaluation Timing (Realistic, Time-bound):** The timeframe and approach used to assess progress and report findings.
- **Data Source (Realistic):** The origin of the data used to measure KPI performance for accuracy and reliability.

Table 1: CY-EHDS-2ND KPIs

KPI no.	Indicator / Description (Specific)	Objectives (GA / Part B / Chapter 1.2)	Milestone (GA / Part B / Chapter 1.2)	Baseline	Target (Measurable)	Frequency	Responsibility (Achievable)	Evaluation Timing (Realistic, Time-bound)	Data Source (Realistic)
1.1	The percentage completion of key project milestones and deliverables and their acceptance by the EC following the review process.	–	–	None	100% for each deliverable and milestone of the project is accepted on time.	Every 6 months	WP1	Month 48 (M)	All deliverables of the project
1.2	Meeting Participation and Engagement – Measures stakeholders' active participation and contributions in meetings	–	–	None	80% participation rate in meetings and collaborative sessions.	Every 6 months	WP1	M48	Minutes of meetings.

	and workshops.								
1.3	Financial Resources – Monitors budget use, funding, and financial alignment with project goals.	–		No	100% of financial resources are monitored.	Every 6 months	WP1	M48	NeHA's financial department.
2.1	Website Audience and Engagement	–	–	No	Page views: (10) per month (in average over the whole project) Number of pages visited: (1) page visits per session	Every 6 months	WP2	M1-48	Wix Analytics
2.2	LinkedIn Engagement	–	–	No	Profile Views: (100) Followers (Year 2): (30) Followers (Year 4): (50) Posts per year: (5) (from Year 2 onwards)	Every 6 months	WP2	M1-48	LinkedIn Insights

2.3	Press and Media Coverage	–	–	No	Press Releases: (2) for the entire project	Every 6 months	WP2	M1-48	Manually
2.4	Newsletter Engagement (Subscription growth, number of newsletters)	–	–	No	New Subscribers: (5) per year (from Year 2 onwards) Number of Newsletters: (1) per year	Every 6 months	WP2	M1-48	Manually
2.5	Event Engagement and Outcomes	–	–	No	Average Attendance per Event: (15) attendees Social Media Mentions per Event: (5) Events per Year: (1) (from Year 2 onwards)	Every 6 months	WP2	M1-48	Manually
5.1	HDAB implemented as a service by NeHA	O1	M1	No	YES (with four core EHDS2 digital business capabilities and at least one data quality enhancement tool)	Once	WP1-WP9	M47	D3.5: Overall evaluation report, including the action-level indicators
5.2	Ability of national HDAB	O1	M1	No	YES	Once	WP5	M46–47	DAAMs component, System logs

	(NeHA) to process national data access applications								
5.3	Number of national data access applications processed/M	O1	M1	None	2 simulated national data access applications: One data permit application and One data request application	Once	WP5	M46–47	System logs
5.4	Average processing time for national data access application	O1	M1	No	2M	Once	WP5	M46–47	DAAMs component, System logs
6.1	Publicly available nHDsC	O1	M2	No	YES	Once	WP6	M47	nHDsC accessibility and publication check
6.2	Number of datasets in nHDsC	O1	M2	None	4 (one per project's use case)	Once	WP6	M46–47	nHDsC records count
6.3	Standardised metadata records in HealthDCAT-AP for every	O1	M2	No	YES	Once	WP6	M46–47	nHDsC metadata dataset records conformance checks

	dataset in nHDsC								
7.1	Secure processing environment available to users	O1	M3	No	YES	Once	WP7	M46–47	SPE accessibility and availability to data permit users check
7.2	Time to set up secure processing environment	O1	M3	No	1M	Once	WP7	M46–47	SPE workflow logs
8.1	HDAB connected to HealthData @EU infrastructure	O2	M4	No	YES	Once	WP8	M46–47	Connection test and audit logs
8.2	HDAB can process cross-border and multi-country applications	O2	M4	No	YES	Once	WP8	M46–47	Pilot testing logs, simulated requests
8.3	Number of cross-border requests processed/M	O2	M4	None	1	Once	WP8	M46–47	System access logs

9.1	List of available means and/or tools for data quality enhancement	O3	M5	No	YES	Once	WP9	M47	Tool/Mean for data quality assessment scoring
9.2	Incorporate the quality level of each dataset into its description within the nHDsC	O4	M5	No	YES	Once	WP6 and WP9	M47	nHDsC publication of data quality scoring in its records

2.1 Methodological Approach

The project follows a structured WP approach, so that each component aligns with the overarching EHDS objectives. Key WPs include:

- WP1 – Project Management and Coordination: Establishing governance structures and adherence to EHDS standards.
- WP2 – Dissemination, Training, and Support: Increasing awareness and capacity-building efforts.
- WP3 – Evaluation: Implementing the Performance Monitoring Indicators Framework, tracking progress through SMART KPIs.
- WP4 – Sustainability and Business Continuity: Allowing for long-term operational viability of digital health data infrastructures.
- WP5 to WP9 – Technical Implementation: Deploying core DBCs that form the foundation of the HDAB.

Step 1: Establishing Baselines and Targets

To monitor progress effectively, baseline measurements are established at the start of the project. Targets are defined for each KPI, aligning them with the anticipated project milestones and deliverables.

Step 2: Continuous Improvement

A continuous feedback loop is established to identify risks, implement corrective actions, and enhance project efficiency so that Cyprus remains on track with EHDS integration while addressing national challenges.

3 CONCLUSION

This structured KPIs Monitoring Framework, aims to advance the transparent, data-driven decision-making, and to advance the long-term sustainability in Cyprus's participation in the EHDS.

The CY-EHDS-2ND project represents a transformative step for Cyprus in integrating with the EHDS and in promoting the effective secondary use of health data. The structured KPI framework aims to promote systematic performance monitoring, compliance with regulatory standards, and long-term sustainability.

The implementation of DBCs, along with a comprehensive evaluation framework, would deliver tangible benefits to stakeholders across the healthcare, research, and policymaking sectors. It involves continuous monitoring, feedback loops, and periodic assessments, so that Cyprus can be well-positioned to enhance data accessibility, improve interoperability, and strengthen healthcare innovation at both national and EU levels. Ultimately, this initiative aims to contribute to a more efficient, data-driven healthcare ecosystem, supporting evidence-based decision-making and promoting technological advancements in the health sector.

REFERENCES

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