ATTACHMENT A - NEEDS IDENTIFICATION FORM

Living Lab / Test Bed – Lombardy Region

Agile Piloting Programme – European project "UNITE – European Digital Health Valleys"

NEED 1

1. Innovation Challenge

Digital innovations to battle the health workforce crisis

2. Specific Needs Challenges

Challenge: Digitisation of the Regional Health Service Access Process

Need to be met: optimise and streamline the entire process of choosing and revoking a general practitioner (GP/PLS) and related procedures (ticket exemptions, activation of healthcare for Italians and foreigners). The current process is characterised by a high degree of manual work, obsolete tools, long waiting times and numerous 'non-value-added' activities, with a significant impact on both operators and citizens.

Area of interest/context of application: Social and healthcare area, Functional Department of Primary Care. North Milan Social and Healthcare Agency, model applicable, once tested, in a few months in all Lombardy Social and Healthcare Agencies (possible project proposal to Lombardy Region) and related Health Protection Agency, potentially exportable to other Italian regions.

2.1 Description of the need:

- Detailed description of the problem/need

In the North Milan Health and Social Care Trust, the process:

- is based on outdated and non-digitised operational procedures;
- often requires multiple accesses and long waiting times;
- does not have structured digital channels or multilingual systems;
- generates a high workload for front and back office staff;
- causes a significant number of complaints from citizens, particularly vulnerable users and foreigners;

– involves redundant administrative tasks (paper checklists, emails, visits to the counter).

Objectives of the structure:
– To streamline the entire process for citizens to activate/modify healthcare and any exemptions.
– Digitise front/back office processes and tools.
– Improve the traceability and monitoring of activities through digital systems.
– Reduce management times and lighten the workload of staff.
– Enhance the management of foreign citizens through language and information support tools.
– Build a model that can be replicated in other ASSTs.

Expected impact:
– Reduction in response times to citizens and complaints.
– Reduction in the manual workload of administrative staff.
– Increase in overall service productivity.
– Simplification of user pathways, with fewer steps involving different institutional interlocutors.
– Better management of foreign citizens.

2.2 Current workflow ('AS IS'):
Description of the current process
Citizens must:
– go to the counter in person or
– send requests by email (unstructured).
Operators manage the files:
– in person (front office) or
– via back office by email
– using paper checklists and non-digital tools.
There is a dedicated telephone number, but the answering machine does not allow for direct interaction or bookings.
Institutional entities involved: ASST: Primary Care Functional Department, staff at the choice and revocation counters, some departments for protected discharges, MMG/PLS affiliated with ASST Nord Milano, ATS Milano,

Patients: potentially all citizens residing in the ASST Nord Milano territory, specifically for exemption processes for chronic patients, low ISEE, etc.

Pain points observed

- Lack of digital information and operational channels (booking, multilingual instructions, document uploading, etc.)
- Complex procedures for citizens (up to 3 interlocutors at different times for a single procedure)
- Manual internal processes that are not digitally tracked
- Operational difficulties in managing foreign citizens
- No dashboard or activity monitoring system
- Waiting and congestion at counters

Indicators already monitored

Number of counters open; number of emails received; number of relevant staff; number of daily visits to counters.

2.3 Objectives of the trial ('TO BE'):

Specific objectives

- Detailed mapping of processes and elimination of non-value-added activities.
- Identification and co-design of digital solutions for the main pain points.
- Digitisation of part of the choice/revocation flow and exemptions.
- Digital tools to support foreign citizens (multilingual/virtual assistant/digital guides).
- Operational proposal that can be replicated in other ASSTs.

Expected changes

- Digitisation of the 'choice and revocation' system
- Reduction in paperwork processing times
- More streamlined and linear process for citizens
- Reduction in front office workload and increase in back office capacity
- Introduction of digital tools for monitoring activities

Improvement targets

- Reduction in case handling times ≥ 20%
- Reduction in front office staff required

- Increase in cases processed in the back office
- Improvement in citizen satisfaction ≥ 80%

2.4 KPI of the trial:

Clinical KPIs: /

Technological KPIs:

- Number of cases handled via digital channels
- Percentage reduction in errors in document completion

UX KPIs:

- Citizen user satisfaction ≥ 80%
- Front/back office operator satisfaction ≥ 70%
- Reduction in requests for clarification from citizens (-15%)

Efficiency KPI:

- Reduction in number of complaints (-20%)
- Increase in cases processed per week (+15–30%)
- Percentage of digitised cases
- Reduction in average case processing time (-20%)

2.5 Expected duration of the trial

4 weeks (due to the complexity of the process and the need to involve multiple institutional actors)

2.6 Resources made available:

Staff: experienced counter staff and organisational position managing this area.

Equipment:

- Portal used for processing applications
- Access to the case management portal
- Computer workstation
- Meeting/briefing room, if applicable

2.7 Initial information assets:

Specify the data:

Type

- Administrative data relating to the choice/revocation of MMG/PLS
- Ticket exemption data (codes, reasons, expiry dates)

- List of GPs/PLS
- No clinical data

Format (FHIR, HL7, DICOM, etc.)
- Exportable CSV/XLS
- PDF of files
- Management application database (non-standard HL7/FHIR)

Accessibility (anonymous, pseudonymised, real)
- Real pseudonymised data
- Read-only access
- Data use in accordance with company policies

2.8 Privacy and IT security
Indicate:
- DPIA requirement: to be assessed at the start of the project
- GDPR constraints: processing in accordance with company policies; profiled access
- IT security measures: to be agreed with company IT systems in compliance with ASST regulations

2.9 Organisational prerequisites
- Access to facilities permitted between 8:00 a.m. and 6:00 p.m.
- Company badge required for visitor/supplier identification
- Authorisation from ATS/ASST management required for any pilot tests

2.10 External stakeholders:
None

2.11 Minimum start-up requirements:
Technical standards required: ability to propose digital solutions, including through AI
- Minimum TRL: 4 and above
- Ability to analyse a process in its complexity and propose innovative solutions in order to overcome weaknesses.
- Appropriate use of soft skills for managing the information to be obtained from professionals associated with the company.
- Proposal of user-friendly digital solutions for citizens and operators

– Ability to co-design administrative flows

2.12 Expected benefits for the Lombardy Region:
– Complete streamlining of the 'Choice and Revocation' area
– Scalable model for all Lombardy ASSTs
– Reduction in complaints and waiting times at regional level
– Integration with standardisation of regional pathways (ATS – ASST)
– Potential adoption of the model by other Italian regions

3. Additional notes: none

NEED 2

1. Innovation Challenges
Digital Innovations Advancing Personalised Remote Care

2. Specific Needs Challenge
Challenge: Feasibility study for the full implementation of level 1 telemonitoring through the regional telemedicine infrastructure (IRT)

Need to be met:
Analyse, model and test the level 1 telemonitoring process, as defined by DGR 3671/2024, with particular attention to device logistics and the functional integration of the Regional Telemedicine Infrastructure (IRT).
The objective is to identify a scalable operating model, verify the compatibility of regional devices and evaluate any alternative solutions that are interoperable with the RTI.

Area of interest/context of application:
The interest is that of the entire ASST Nord Milano, considering that level 1 telemonitoring can be activated in different settings (hospital, emergency room, specialist outpatient clinics throughout the territory, etc.) and provided in many care settings (specialist outpatient clinics, community homes, community hospitals, home care, palliative care). The model could be used by other ASSTs in Lombardy for the management of level 1 telemonitoring and proposed to the Region for the systematisation of the logistics part not yet covered by regional regulations.

2.1 Description of the need:

- Detailed description of the problem/need

Telemonitoring is a telemedicine service that allows the remote detection and transmission of vital and clinical parameters, both continuously and in a targeted and timely manner, using devices provided to the patient. This service is provided in the Lombardy Region through an IT platform (IRT) that allows interaction with the

patient via audio/video connections over the internet, as well as to share data, reports and images in addition to those already present in the Electronic Health Record and the computerised medical record. Regional regulations describe the provision of the activity by healthcare professionals but do not specify the logistical model. Therefore, the systematisation of this minimum telemedicine scenario within the ASST Nord Milano finds a gap in the logistical phase. A further need, identified by the ASST Nord Milano, is to carry out a feasibility study on the devices entrusted by the Region to the individual ASSTs for the appropriate provision of 'Remote Care' and, if necessary, to bring in alternative solutions that are interoperable with IRT.

Objectives of the structure

To implement the level 1 telemonitoring process within ASST Nord Milano, with particular attention to the logistics phase, in order to streamline the overall process and optimise its operating methods.

Test the IRT platform to ensure that the modular architecture of the Regional IRT is integrated with existing national and regional digital platforms (CCE, FSE, National Registry, Cup Unico, etc.).

Assess the suitability of regional devices and analyse compatible solutions available on the market.

Expected impact

- Strengthen continuity of care in treatment pathways through the systematisation of digital services.
- Reduce the number of home visits by doctors and nurses for patients in stable condition through remote monitoring.
- Early detection of clinically unstable conditions;
- Analyse new types of telemonitoring devices not yet identified by the Region (e.g. devices for therapeutic adherence);
- Implement new methods of service delivery that promote appropriate access and consequently reduce waiting times.

2.2 Current workflow ('AS IS'):

Description of the current process

The Regional Telemedicine Infrastructure (hereinafter 'IRT') is currently being implemented within the ASST Nord Milano, which will enable healthcare and social-healthcare professionals to provide services remotely.

The Regional Telemedicine Infrastructure (IRT), which is unique, integrated and centralised at regional level, provides a digital environment for multi-specialist clinical collaboration, facilitating communication between the various actors involved in treatment, prevention and care processes throughout the region. To date, processes have been defined for minimum scenarios of telemedicine and teleconsultation, but not for first-level telemonitoring. The platform will be operational for ASST Nord Milano in January 2026, so it has not yet been possible to test its integration with existing digital platforms at national, regional and local level, including the Electronic Health Record, the Electronic Medical Record, the National Register of Patients and the Digital Territory Management System (SGDT).

Institutional entities involved: ASST: telemedicine team; company telemedicine representative; all hospital and local facilities that will implement telemedicine; COT; MMg/pls.

Patients:

- Patients with a chronic condition in a phase of clinical instability;
- Patients recently hospitalised due to the exacerbation of a chronic condition (predominant condition that led to hospitalisation);
- Patients with chronic conditions whose social and care circumstances limit their mobility;
- Patients under the care of dedicated specialist services/clinics.

Pain points observed

- No regional definition of the logistical process
- No testing of the IRT platform
- Lack of unified coordination between different services
- Absence of assigned regional devices

Indicators already monitored: currently unavailable (service not yet active).

2.3 Objectives of the trial ('TO BE'):

Specific objectives

- Modelling the entire level 1 telemonitoring process.
- Test the IRT platform and verify its integration with company systems.
- Evaluate regional and alternative devices.
- Identify digital solutions for improving operational and logistical flows.

Expected changes

- Digitisation of operational flows.
- Structured use of telemonitoring by healthcare and social care professionals.
- Better management of clinical pathways distributed between hospitals and the community.

Improvement targets

- Telemonitoring tests with IRT on selected cases.
- Definition of the complete logistics model.
- Platform and device integration test report.
- Implementation of systematised remote procedures.

2.4 KPI of the trial:

Clinical KPIs:

- monitoring of parameters for chronic patients or discharged patients who have had a relapse, or patients with pathologies and/or social conditions that limit their mobility

Efficiency KPIs:

- decline in the first-level telemonitoring process
- Telemonitoring activation times on a limited number of test cases
- Device logistics management times
- Number of professionals trained to use IRT

Technological KPIs:

- Integration testing between IRT and company systems
- Service stability during the pilot

UX KPIs:

- Professional satisfaction
- Satisfaction of patients involved
- Reduction in technical support requests

2.5 Expected duration of the trial

6 weeks, considering that IRT will be delivered to our company in January 2026 and that regional devices have not yet been assigned by RL to individual ASSTs.

2.6 Resources made available:

Personnel: personnel belonging to the telemedicine team, personnel from the facilities that will be trialling this type of telemedicine

Equipment:

- Regional Telemedicine Platform (activated at ASST Nord in January 2026) (IRT) integrated with the National Telemedicine Platform (PNT).
- Computer workstation
- Possible meeting/briefing room

2.7 Initial information assets:

Specify data:

Type

- Clinical and socio-demographic data of eligible patients
- Administrative data relating to territorial flows
- Technical specifications of regional devices

Format (FHIR, HL7, DICOM, etc.)

- CSV / XLS
- PDF
- Management databases

Accessibility (anonymous, pseudonymised, real)

- Real pseudonymised data
- Read-only access
- Data use in accordance with company policies

2.8 Privacy and IT security

- DPIA requirement: to be assessed at the start of the project
- GDPR: processing in accordance with company policies; profiled access
- IT security measures: to be agreed with company IT systems in compliance with ASST regulations

2.9 Organisational prerequisites

- Access to facilities permitted between 8:00 a.m. and 6:00 p.m.
- Company badge required for visitor/supplier identification
- Authorisation from ATS/ASST management required for any pilot tests

2.10 External stakeholders:

- Lombardy Region
- Engineering (IRT parent company representative)

2.11 Minimum start-up requirements:

Technical standards required:

- TRL ≥ 4
- Ability to analyse a process in its complexity and propose innovative solutions to overcome weaknesses. Appropriate use of soft skills for managing information obtained from professionals associated with the company.
- Proposal of user-friendly digital solutions for citizens and operators
- Ability to co-design administrative flows

2.12 Expected benefits for the Lombardy Region:

- Complete model of the level 1 telemonitoring process
- Standardisation of device logistics
- Support for the regional definition of organisational models
- Testing of alternative interoperable solutions

3. Additional notes: None

NEED 3

1. Innovation Challenges

Digital innovations to battle the health workforce crisis

2. Specific Needs Challenges

Challenge: Digital innovations to battle the health workforce crisis

Need to be met: Digitise and optimise healthcare staff shifts (doctors and healthcare professionals)

Area of interest/context of application: Health Management, Healthcare and Social Professions Management and Operational Management

2.1 Description of the need:

Detailed description of the problem/need

A particularly burdensome task for healthcare companies is organising the shifts of healthcare professionals in order to meet production needs in compliance with regulatory and contractual constraints. This task, made even more burdensome by the structural shortage of professionals, is particularly time-consuming, occupies healthcare professionals in planning and can often lead to sub-optimal scheduling.

Shift planning is very time-consuming and is often based on partial information, making it impossible to balance three fundamental elements: the workload, organisational and contractual constraints, and the distribution of the professional skills necessary to ensure the safety and quality of care.

Objectives of the facility

To develop a digital solution, including one based on AI algorithms, that facilitates the scheduling of healthcare professionals' shifts with a view to efficient use of resources and compliance with current regulations. Preparation of a set of configurable parameters: staffing and contract data, company rules and regulations, indicators of care complexity and workload, staff skills matrix. The objective is to achieve planning that complies with regulations and is appropriate to clinical and care needs.

Expected impact

Optimisation of healthcare staff shifts and reduction in the time spent on planning.

2.2 Current workflow ('AS IS'):

Description of the current process

Currently, the various operating units are responsible for scheduling the shifts of medical and healthcare personnel (in the roles of Unit Director and Healthcare Coordinator). Scheduling must take into account operational requirements, regulatory and contractual constraints, and the professional development of staff. The information available is partial and not integrated. Subsequent revisions and corrections are frequent. Manual or

semi-artisanal tools are used (Excel spreadsheets, matrices created independently).

Pain points observed

- High amount of time spent by professionals on planning.
- Low consistency of the process between different UOs.
- Limited fairness in the distribution of the workload.

Indicators already monitored

Verification using 'handcrafted' matrices and formulas that only check shift coverage.

2.3 Objectives of the trial ('TO BE'):

Specific objectives

Develop a technological solution that allows, with the inclusion of appropriate parameters, the scheduling of healthcare personnel activities. The system must produce a shift schedule that systematically integrates care, organisational and professional aspects. Once fully operational, the solution must support the operator responsible for drawing up the shift schedule by means of a calculation algorithm that automatically verifies compliance with regulations, workload balance and the presence of the necessary skills.

Expected changes

Improve the efficiency of scheduling and reduce the time spent on this activity.

The trial aims to transform the current, highly time-consuming process into a planning system that takes into account the factors outlined above.

Improvement targets

The expected change is twofold:

- a significant reduction in the time needed to schedule shifts and a decrease in ex post revisions and corrections, with a consequent improvement in the overall efficiency of the process.
- greater fairness in the distribution of workloads, a better match between skills possessed and activities performed, and greater protection of organisational well-being through more balanced management of high-intensity care shifts.

2.4 KPI of the trial:

Clinical KPIs: the percentage of shifts in which staffing levels are adequate for the expected workload

Efficiency KPIs: reduction in the average time required to schedule shifts for an operating unit, measured before and after the introduction of the digital solution. Average number of revisions/corrections to the shift plan per month and per unit, as well as the percentage of shifts that, on balance, violate regulatory or contractual constraints.

Technological KPIs: average calculation time for generating or updating a shift proposal, in order to verify that the tool is usable in daily practice

UX KPIs:

- Satisfaction of coordinators and directors (target ≥ 75%).
- Perception of shift fairness (survey).

2.5 Expected duration of the trial: 4 weeks

2.6 Resources made available:

- Staff: personnel belonging to the operational structures concerned
- Equipment: computer workstations

2.7 Initial information assets:

ASST Nord Milano is willing to make its information assets available in anonymised form for the purpose of building the model.

Type

- Anonymised data relating to shift work
- Data relating to activities
- Data relating to regulations

Format (FHIR, HL7, DICOM, etc.)

- Exportable CSV/XLS
- Management application database (non-standard HL7/FHIR)
- Pseudonymised real data
- Read-only access
- Data use compliant with company policies

2.8 IT compliance and security requirements:

- DPIA requirement: to be assessed at the start of the project

- GDPR: processing in accordance with company policies; profiled access
- IT security measures: to be agreed with company IT systems in compliance with ASST regulations

2.9 Organisational prerequisites:
- Access to facilities permitted between 8:00 a.m. and 6:00 p.m.
- Company badge required for visitor/supplier identification
- Authorisation from ASST management required for any pilot tests and use of company data

2.10 External stakeholders: /

2.11 Minimum startup requirements:
- TRL ≥ 4
- Expertise in optimisation algorithms/AI
- Ability to configure complex regulatory constraints
- Experience in co-design with healthcare professionals
- User-friendly digital proposal

2.12 Expected benefits for the Lombardy Region:
- Model replicable in other ASSTs
- Overall reduction in organisational pressure on staff
- Better compliance with regulatory and contractual constraints
- Standardisation of a currently heterogeneous process

3. Additional notes: none

NEED 4

1. Innovation Challenges
Digital innovations to battle the health workforce crisis

2. Specific Needs Challenges

Challenge: Digital innovations to battle the health workforce crisis
Need to be met: Digitise and optimise the surgical patient pathway from waiting list registration to surgery scheduling.

Area of interest/context of application: Operational management of a public healthcare company

2.1 Description of the need:

Detailed description of the problem/need

Surgical scheduling in healthcare organisations is a highly regulated and widely studied area. Due to the high costs of operating theatres, research and organisational solutions have traditionally focused on optimising this single phase. In reality, the surgical scheduling process involves a complex and interdependent sequence of activities: monitoring overall waiting lists, assigning operating sessions to different specialities, pre-admission anaesthesiological assessments, and operating theatre scheduling, taking into account subsequent bed occupancy.

In light of increasing waiting times, it has become essential that all these phases are integrated and synchronised in order to ensure that schedules are met and the entire process runs smoothly. The goal is no longer to optimise individual segments by achieving 'local excellence', but to pursue **overall excellence**, balancing the efficient use of resources with the overall efficiency of the surgical flow.

The trial therefore aims to identify digital solutions and organisational models that improve the **management of surgical flows**, optimising workloads, reducing downtime and increasing the overall effectiveness of the perioperative pathway.

Objectives of the facility

To develop a model for optimising the surgical pathway as a whole, taking into account the synchronisation of the various phases.

- Digitise the perioperative surgical pathway (which includes the preoperative pathway before surgery, intraoperative during surgery and postoperative after surgery, until the patient returns to the ward).
- Highlight bottlenecks via a real-time operational dashboard.
- Improve the use of resources (rooms, equipment, teams).
- Reduce downtime, delays and cancellations.
- Increase the safety of the pathway and interprofessional communication.

Expected impact

- Better organisation of surgical team work.

- Greater predictability of operating times.
- Reduction in organisational stress for operators.
- Reduction in communication misalignments and duplicate communications.
- Optimisation of operating theatre throughput.

2.2 Current workflow ('AS IS'):

Description of the current process

The current stages in the management of the surgical process are:

- monitoring of waiting lists both in terms of patients due to be treated in the coming weeks and in terms of overall waiting list volumes for the various surgical specialities;
- allocation of operating sessions to the various specialities based on waiting lists and available production factors (anaesthetists, beds, available teams);
- allocation of pre-admission slots to different specialities based on the number of operating theatres assigned;
- weekly surgical scheduling for the various specialties with the aim of optimising the use of the various operating theatres.

Pain points observed

- Suboptimal communication between operating theatres and wards
- Difficulties in monitoring the actual status of procedures
- Delays in preparing operating theatres and transporting patients
- Downtime not detected in a timely manner
- No structured reporting to assess efficiency
- Reliance on individual skills for coordination

Indicators already monitored

- Indicators on waiting lists (total volumes, patients approaching the end of their priority class, status of patients within the surgical process);
- indicators on operating theatre occupancy (saturation, first patient admission, changeover times, number of undertime, number of overtime)

2.3 Objectives of the trial ('TO BE'):

Specific objectives

Develop a simulation model that allows the various parameters of the surgical process (pre-admission slots, operating sessions, surgical case mix, beds) to be adjusted, thereby optimising the entire surgical pathway and not just the individual stages of the process, with the risk of creating bottlenecks.

Expected changes

Improve the efficiency of the surgical process flow without reducing the operational efficiency of the various production factors.

Improvement targets

- Reduction in delays in starting surgery
- Greater reliability of daily scheduling
- Improved continuity of information between departments

2.4 Trial KPIs:

Clinical KPIs: increase in patients operated on within the expected time frame for the assigned clinical priority class

Efficiency KPIs: reduction in surgical patient throughput time; use of production factors

Technological KPIs: Development of a surgical process simulation model, including through the use of AI algorithms

UX KPIs:

- Surgical team satisfaction (target ≥ 75%)
- Personal satisfaction of departments (≥ 75%)
- Perceived ease of access to operational information

2.5 Expected duration of the trial

Four weeks

2.6 Resources made available:

- Staff: /
- Equipment: Computer workstations

2.7 Initial information assets:
ASST Nord Milano is willing to make its information assets available in anonymised form for the purpose of building the model.

Type of data
- Anonymised data relating to waiting lists
- Anonymised data relating to operating theatres
- Regulatory and contractual data

Format (FHIR, HL7, DICOM, etc.)
- Exportable CSV/XLS
- Management application database (non-standard HL7/FHIR)
- Pseudonymised real data
- Read-only access
- Data use compliant with company policies

2.8 IT compliance and security requirements
- DPIA requirement: to be assessed at the start of the project
- GDPR: processing in accordance with company policies; profiled access
- IT security measures: to be agreed with company IT systems in compliance with ASST regulations

2.9 Organisational prerequisites:
- Access to facilities permitted between 8:00 a.m. and 6:00 p.m.
- Company badge required for visitor/supplier identification
- Authorisation from ASST management required for any pilot tests and use of company data

2.10 External stakeholders: external suppliers of various company applications

2.11 Minimum startup requirements:
- TRL ≥ 4
- Experience in complex process optimisation
- Skills in digital workflows/operating theatres
- Quick-to-configure solutions
- Co-design approach

2.12 Expected benefits for the Lombardy Region:

- Replicable model for the optimisation of surgical pathways
- Reduction of inter-ASST organisational inefficiencies
- Transparency in operating theatre management
- Better use of resources compared to regional workload

3. Additional notes: None