The Tele-homecare approach in Italy

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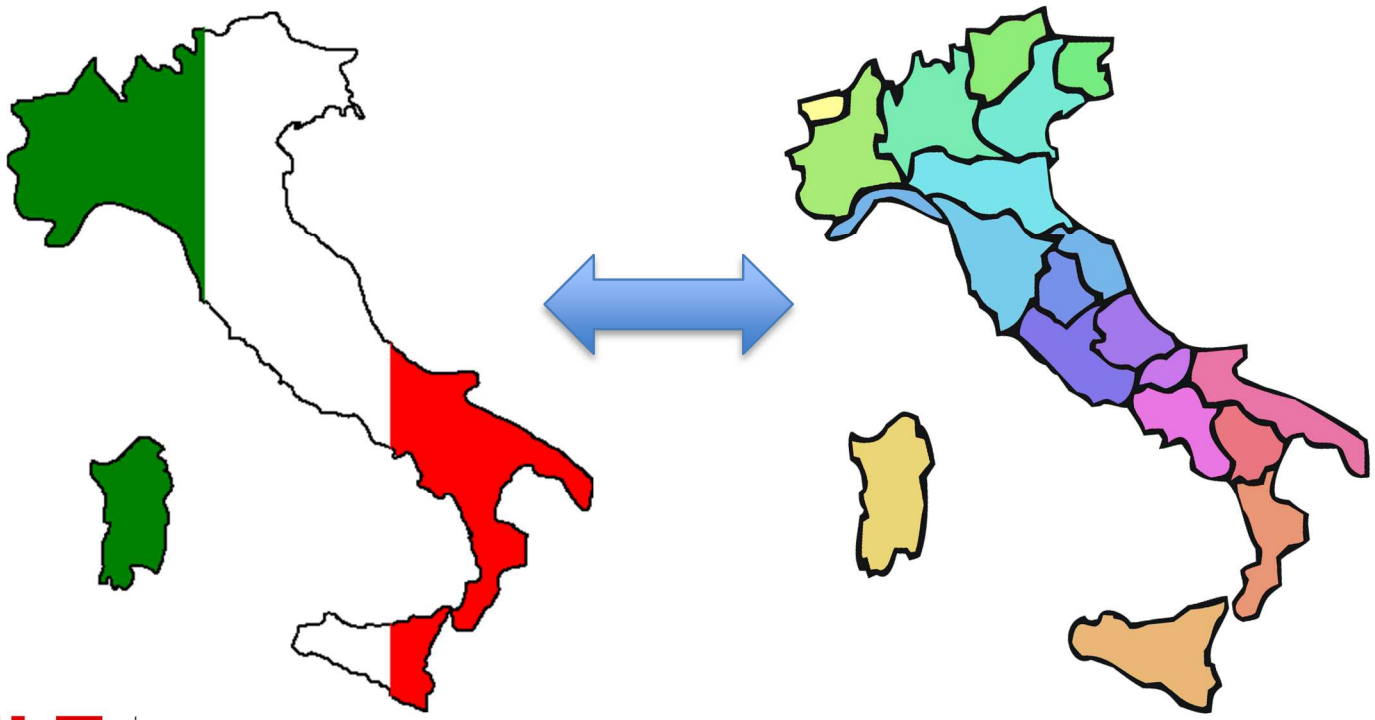
Shaping the Future of FHIR® in Europe

Italian Healthcare Service

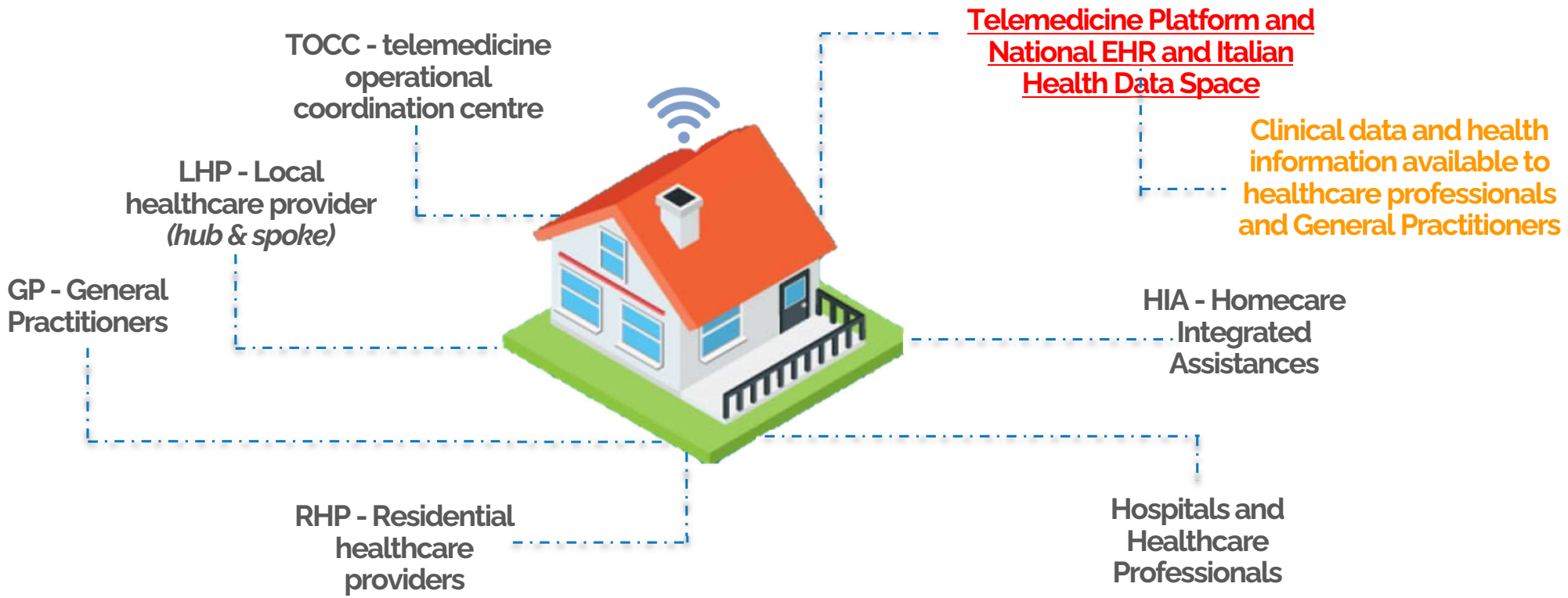
The Italian National Health Service (I-NHS) serves over 60 million people, but it is structured into 21 regional healthcare systems that operate in a federated structure.



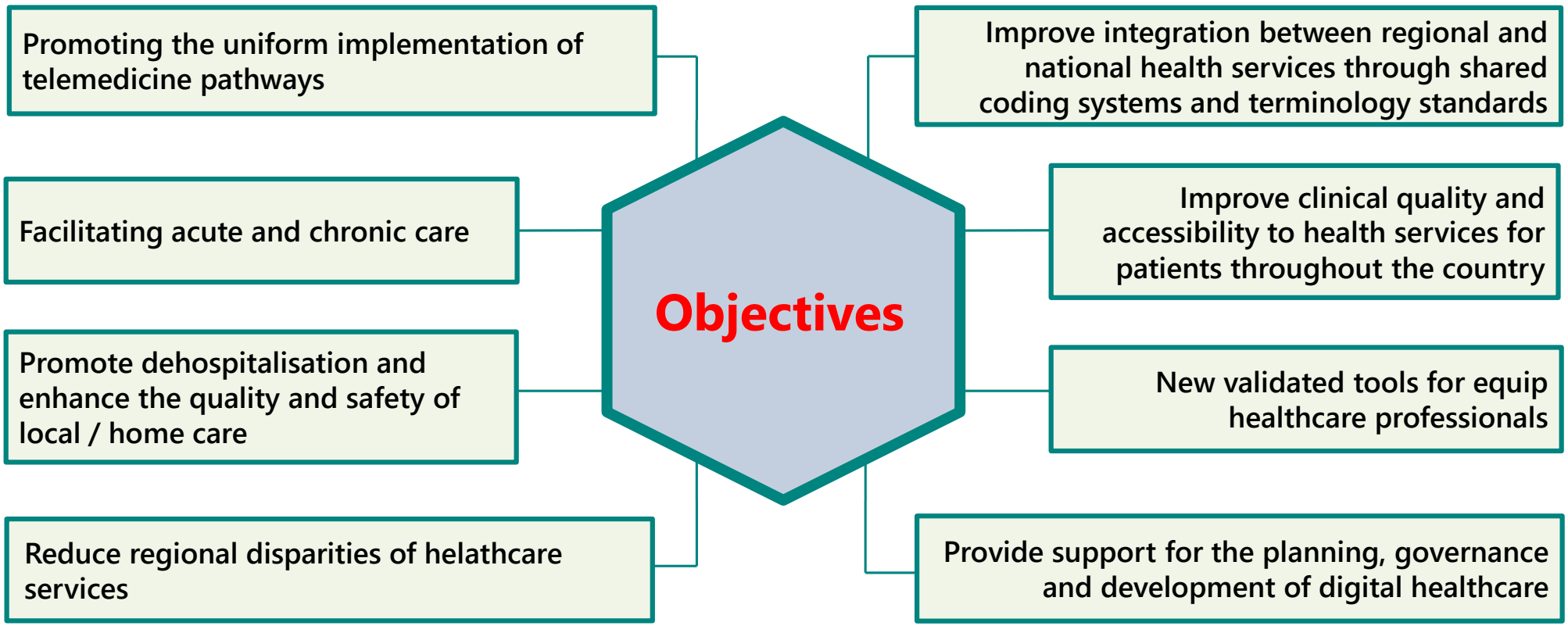
Healthcare service are managed and governed at regional level, supported by overarching national regulations, operational and technological guidelines, and a limited set of centralised information systems (EHR, digital ID, ePrescription, citizen registry, etc.)

The reform of local and digital healthcare

New digital health tools for integrated and personalised care



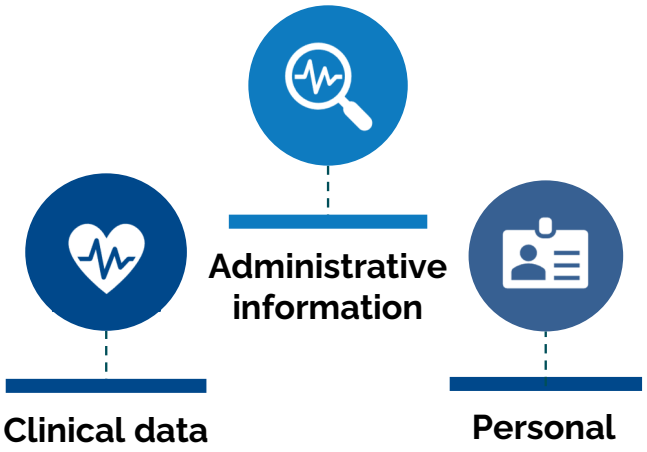
National Telemedicine Project

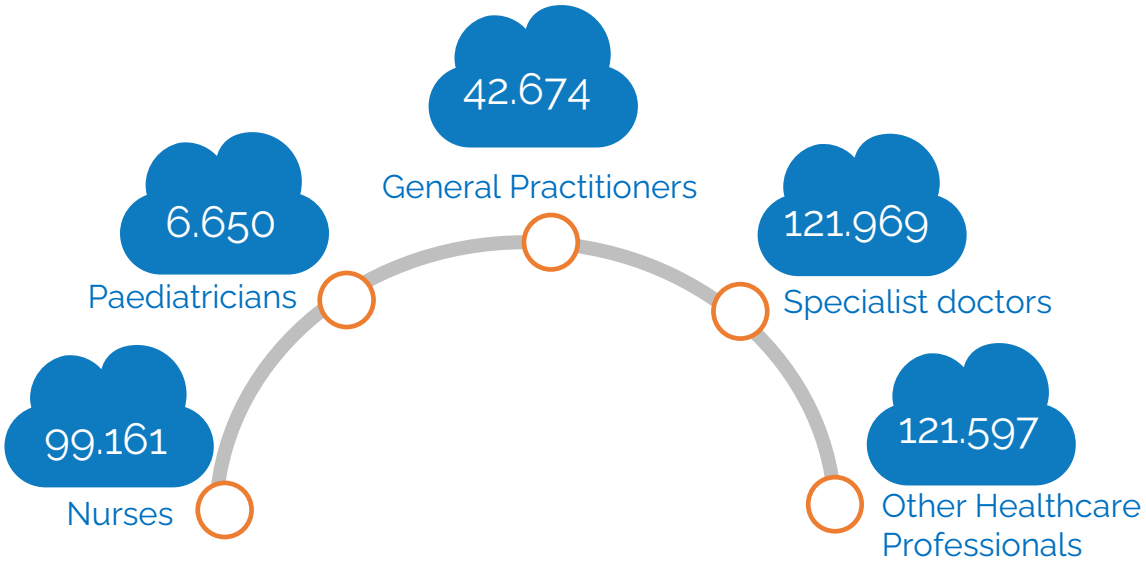


National Telemedicine Project

National Telemedicine Projects supports, with National Recovery and Resilience Plan funds, updating EHR v2.0, developing Italian HDS and National Telemedicine Platform, acquiring Regional Telemedicine Platform and upgrading Hospital and Territorial Information Systems

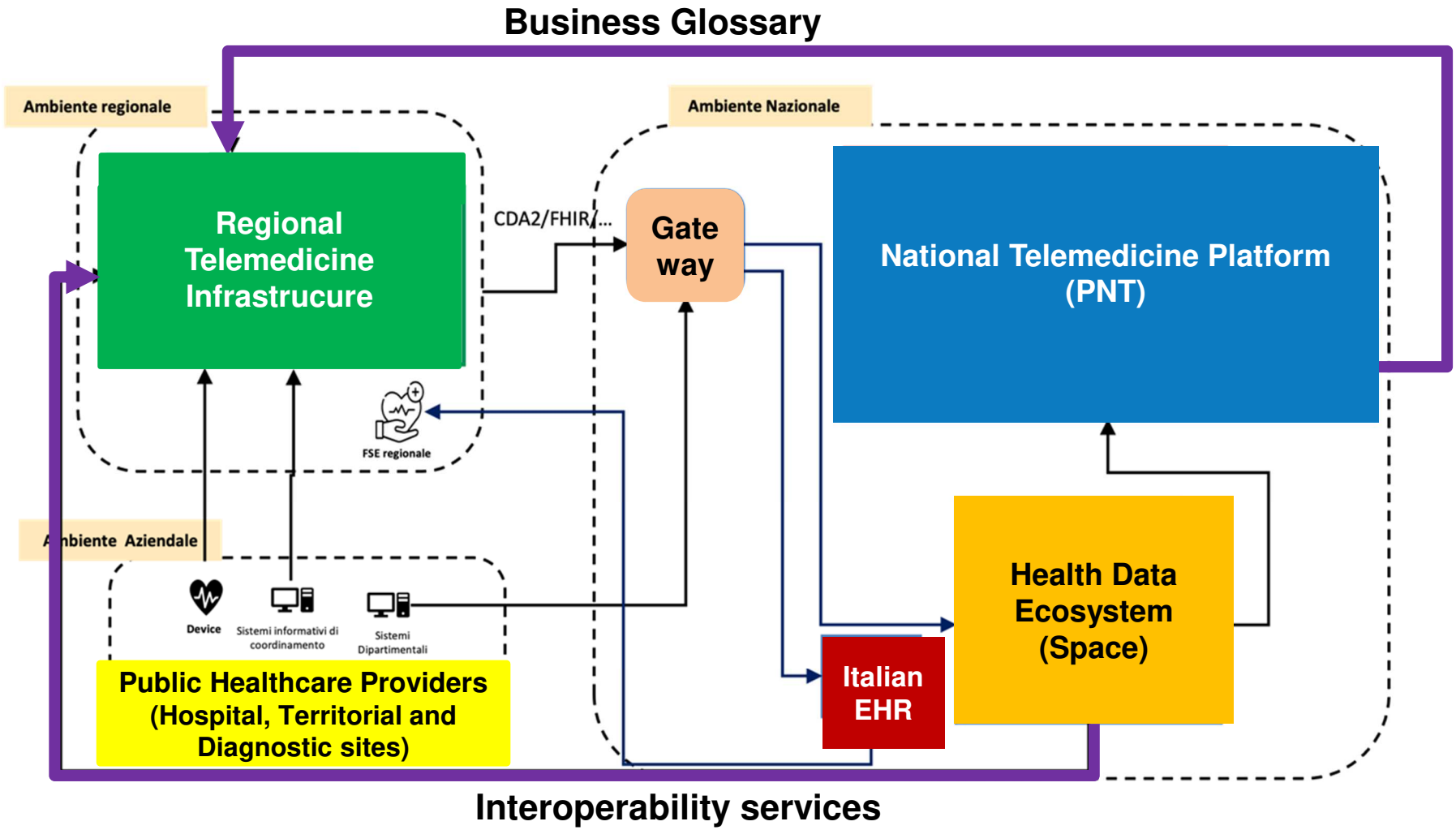
Improve sharing and accessing to whole patient health history by all health actors





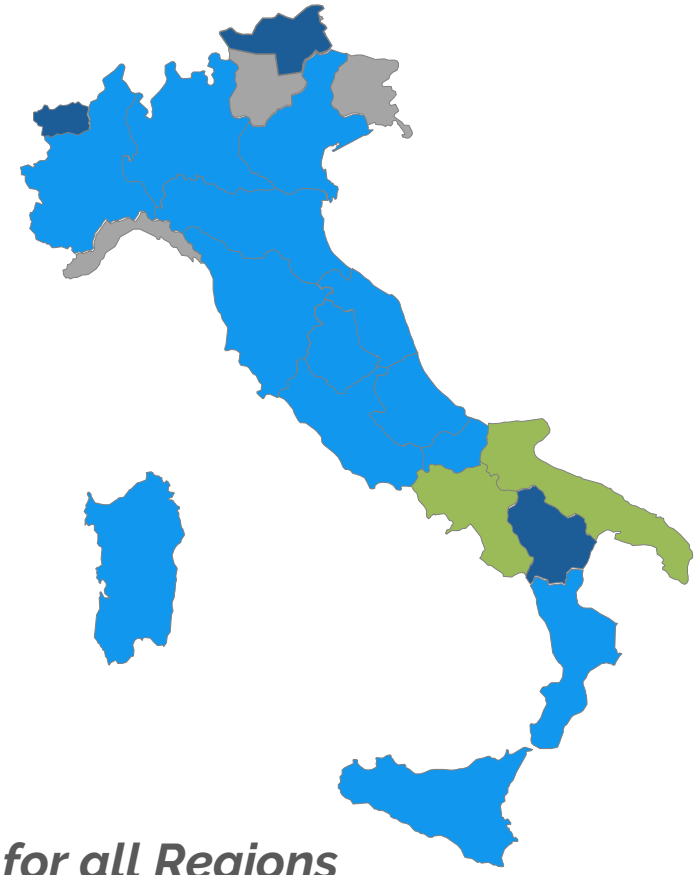
Healthcare professionals engaged in Telemedicine Project

Italian Telemedicine Architecture



Regional Plaftorms and Workstations

13	**Acquire a new regional platform** with all telemedicine services
5	**Acquire a new regional platform** with only some telemedicine services
3	**Integrate their regional platform** with some telemedicine services



Telemedicine workstations for all Regions

- **Computer all-in one**
- **Computer all-in one + monitor**
- **Notebook**

Regional Telemedicine Platform

- native cloud-based, microservices architecture and develop in HL7-FHIR
- privacy/security by design, privacy/security by default
- uniform and consistent user experience
- Standardisation and consistency of terminology, taxonomies, codifications (business glossary) sharing of services, information and data between regions
- neutrality with regard to interoperable telemedicine systems
- data collection, processing, analysis and dissemination (through event-driven architecture)
- verification process for third-part telemedicine platforms

Telemedicine Services

In this initial phase, the following telemedicine services have been implemented:

Tele-visit

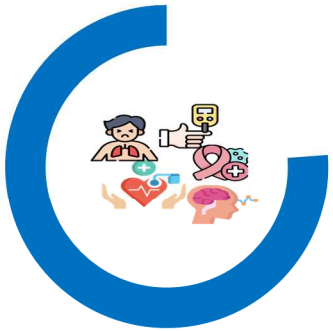
57%

Tele-consultation

67%

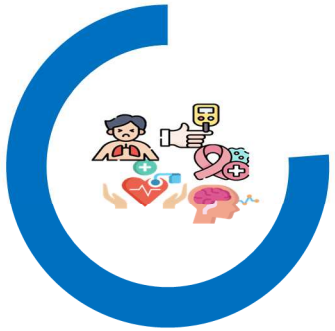
Tele-assistance

62%



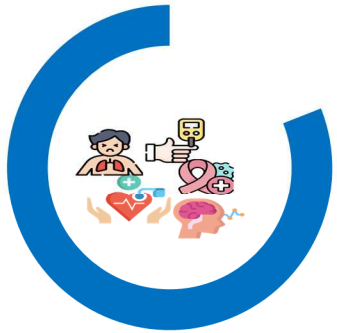
Tele-control

78%



Tele-monitoring 1st level

78%



Tele-monitoring 2nd level

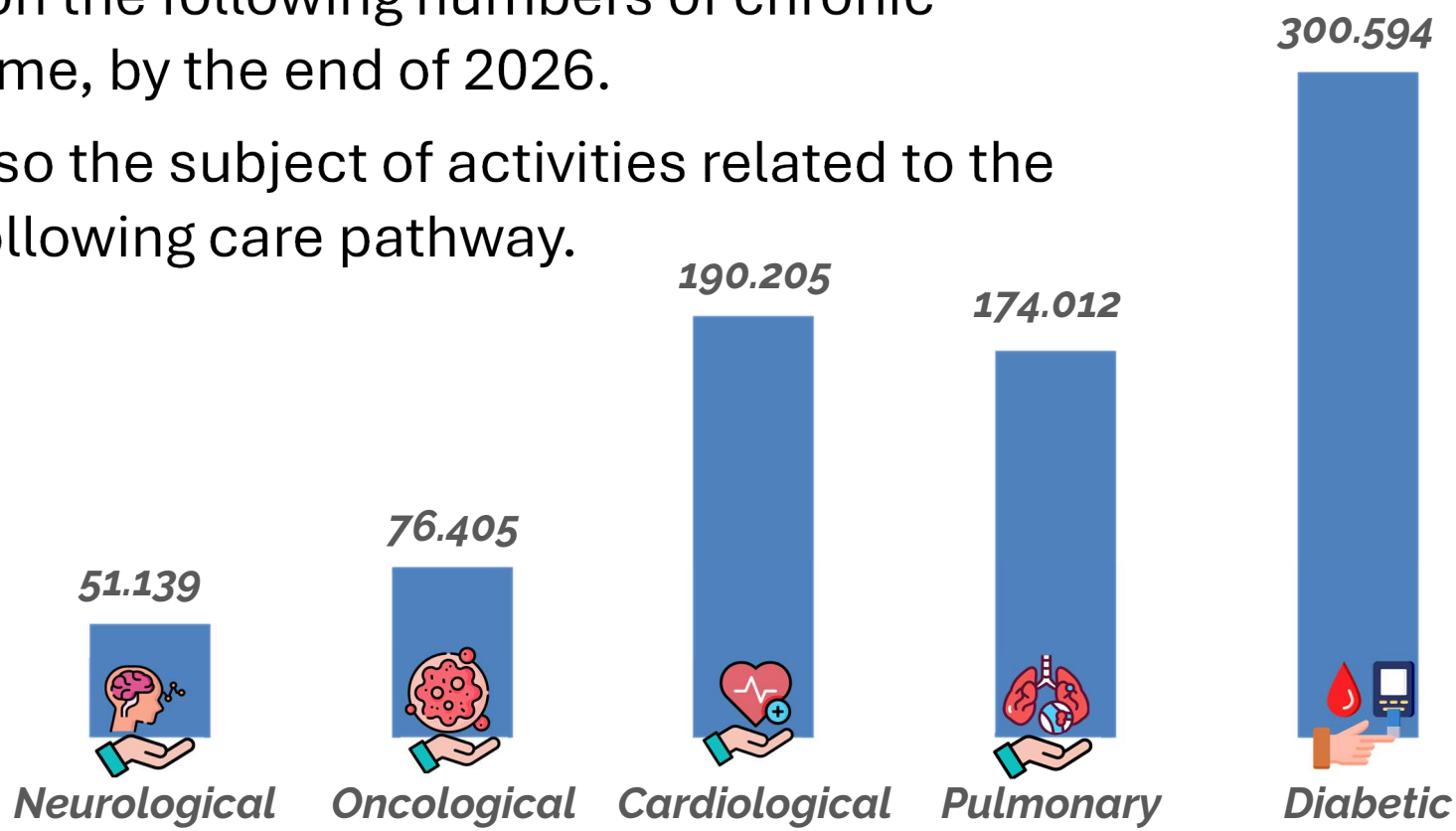
81%

Services used as Tele-homecare

Telemedicine Diseases

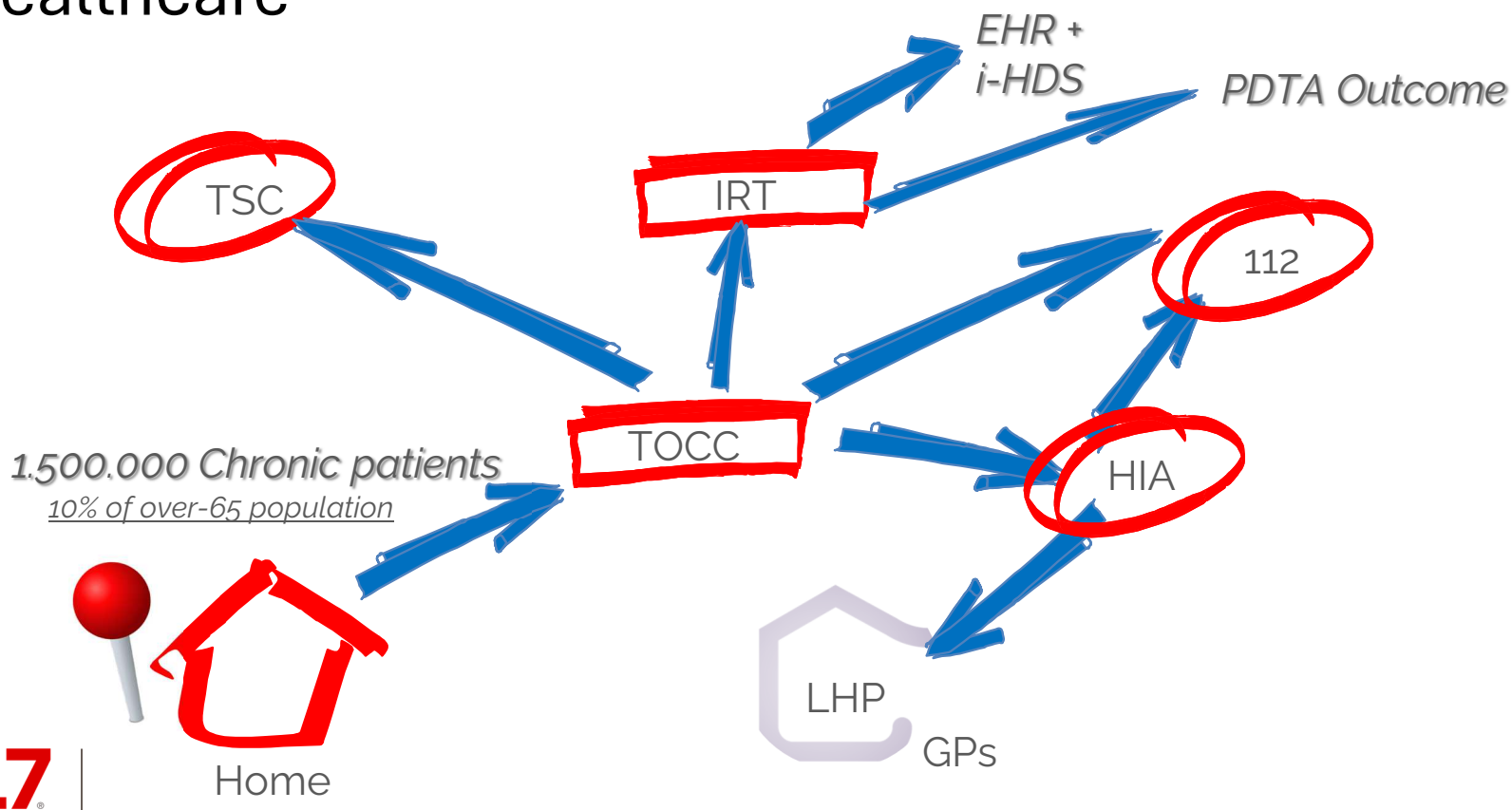
In the initial phase, five diseases were selected for which the I-NHS decided to take on the following numbers of chronic patients, mainly at home, by the end of 2026.

These diseases are also the subject of activities related to the management of the following care pathway.



Tele-homecare Services

Technological and organizational model through digital healthcare



TSC - Technology support centre
PDTA – Care Pathway for chronic patiens
112 – Emergency
IRT – Regional Telemedicine Platform
TOCC - telemedicine operational coordination centre
LHP - Local Healthcare Providers
HIA - Homecare Integrated Assistances

Care-Pathway in Telehomecare

Digital care pathway for chronic patients must also include the activation of one or more tele-homecare services to support and complement the pathway (based on national models) of diagnosis, treatment and personalised care for each patient.

- **Tele-assistance**
- **Tele-control**
- **Tele-monitoring 1st level**
- **Tele-monitoring 2nd level**

Care-Pathway in Telehomecare

- **Tele-assistance** is a service that allows healthcare professionals to provide remote support and guidance to patients or caregivers through technological tools such as video calls, apps, and monitoring devices. Its main purposes include remote monitoring of vital signs, home-based support, and the management of care pathways, ensuring continuity of care even after hospital discharge.
- *Tele-control*
- *Tele-monitoring 1st level*
- *Tele-monitoring 2nd level*

Care-Pathway in Telehomecare

- *Tele-assistance*
- **Tele-control** refers to remote monitoring used to track the progression of a generally stable clinical condition, as is typical in chronic diseases, through periodic activities based on a personalised care pathway. Data can be collected in various ways, preferably through certified medical devices or Internet of Things (IoT) systems. The service does not require real-time data transmission or immediate responses, since the monitored conditions do not change rapidly. In addition to optimising time and resources, remote monitoring offers the operational advantage of collecting a greater amount of meaningful data, thereby improving objectivity, measurement accuracy, and the overall assessment of the patient's clinical, psychological, and social condition.
- *Tele-monitoring 1st level*
- *Tele-monitoring 2nd level*

Care-Pathway in Telehomecare

- *Tele-assistance*
- *Tele-control*
- **Tele-monitoring 1st level** is intended for conditions that have already been diagnosed and are at risk of rapid progression. It requires real-time data transmission and management, as well as digital devices capable of operating offline to ensure patient safety under all circumstances. In addition to reducing the need for patient travel, the operational advantage of remote monitoring is that it enables clinicians to assess the patient's condition and provide appropriate therapeutic and care responses remotely, with greater objectivity, accuracy, and timeliness.
- **Tele-monitoring 2nd level** is intended for already diagnosed conditions at risk of rapid progression and requires real-time data transmission and management through implantable medical devices.

Interoperability and standardisation

Business Glossary
(Terminology server)

Care pathway
Workflow Engine

Telemedicine
Governance
Dashboard

Test environment for
third-part telemedicine
systems

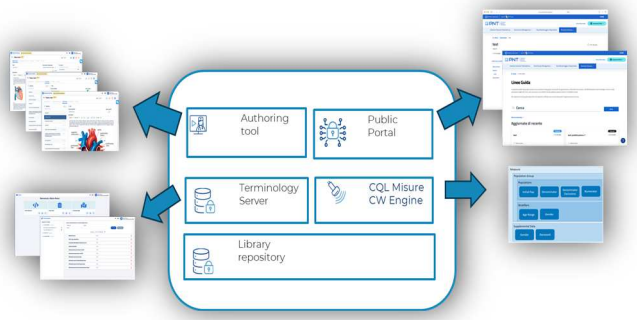
Business Glossary

The Business Glossary manages FHIR terminology resources (CodeSystem, ValueSet, ConceptMapper) in accordance with the required HL7-FHIR interoperability standards.

The Terminology Server provides updated national catalogues and terminologies for Regional Telemedicine Platforms (RTP). The aim is to promote the uniform use of vocabularies and ontologies in RTP and Hospital or Territorial Information Systems, in order to ensure semantic interoperability and support the uniform provision of Telemedicine Services.

Care-pathway Workflow Engine

Care-pathway Workflow Engine is a tool capable of describing guidelines, PDTA (Diagnosis-Treatment-Assistance Pathways) and healthcare protocols in a structured format.



The general objectives are:

- promote uniformity in telemedicine service delivery processes;
- creation and dissemination of guidelines, PDTA and healthcare protocols with telemedicine;
- encourage the use of standard and shared terminology and codification.

With the collaboration of the scientific societies and national associations of the health professions involved, documents detailing the care pathways have already been drawn up, including the use of tele-homecare services for the above-mentioned selected diseases.

Their digitisation will use HL7 - Clinical Quality Language (CQL), an international standard that offers the advantage of being human-readable and processable by digital tools.

Telemedicine challenges

Conclusions

Innovations and developments always begin with a construction site.

Project and plan are complete and good, so we must be quiet while waiting for the upcoming benefits and advantages.

Thank you for your attention