



## 5G4PHealth

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Artech International BVBA, Belgium

Aparito Limited, UK

Brunel University London, UK

Horus ML, Spain

IDAVINCI, Spain

University of Essex, UK

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### Project Website

[www.celticnext.eu/project-5g4phealth](http://www.celticnext.eu/project-5g4phealth)

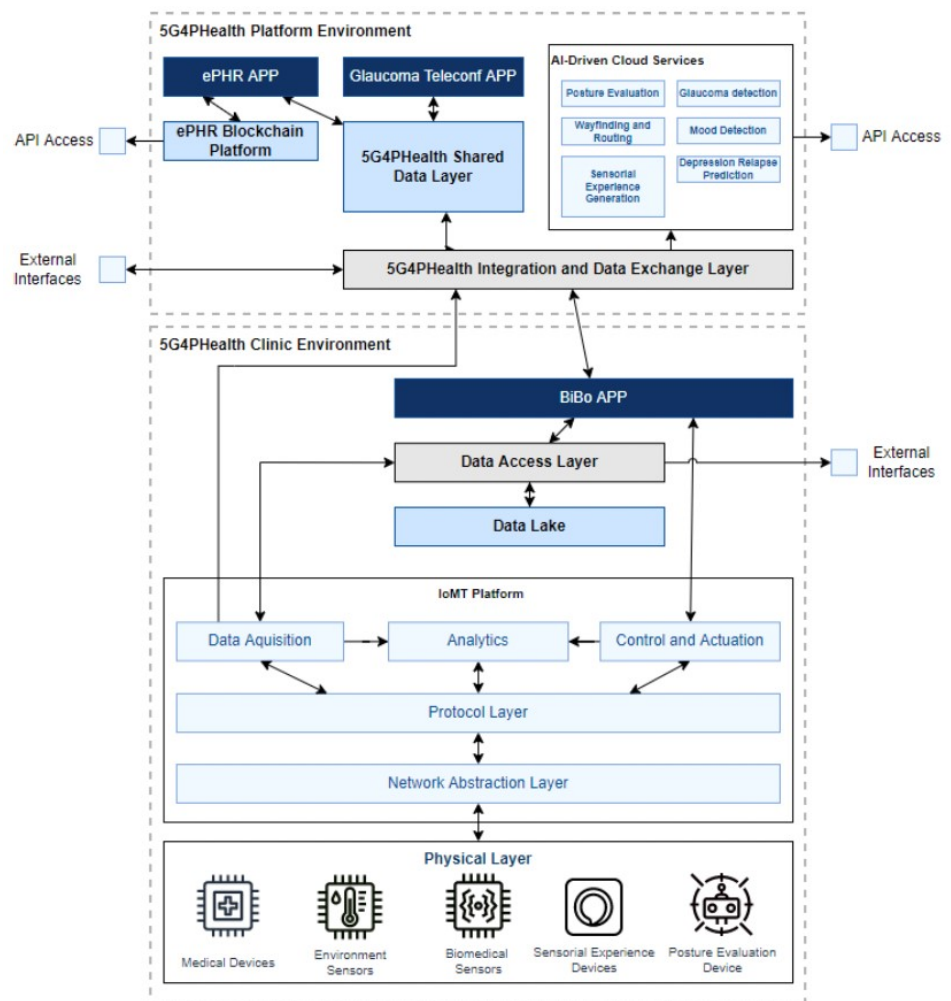
## Enhanced 5G Powered Platform for Predictive Preventive Personalized and Participatory Healthcare

The 5G4PHealth project develops a 5G-powered platform that enables connected P4-based healthcare services across multiple specialities. The project enhances the value creation of institutions and empowers patients through AI-driven intelligent systems by improving patient-clinician partnership and patient health literacy and pivoting to value-based care.

### Main focus

5G4PHealth helps bridge healthcare gaps by providing a comprehensive, 5G-

powered platform that integrates artificial intelligence for real-time monitoring, personalized treatment and participatory care. 5G4PHealth focuses on creating an interconnected, patient-centred healthcare ecosystem that enables real-time data sharing and advanced diagnostic support. The platform will deliver AI-driven tools for posture evaluation, early glaucoma diagnosis, depression relapse prediction, and multi-modal emotion recognition, all facilitated by fast, reliable communication with 5G-based context-aware protocols. Using 5G and AI, the project will address critical



5G4PHealth Software High Level Architecture

challenges like fragmented patient data, lack of interoperability, and inefficient healthcare pathways. It will ensure secure data management, patient empowerment, and a more proactive approach to healthcare, supporting healthier citizens in digitally connected communities.

## Approach

5G4PHealth will fulfil its objectives through a multi-phase approach designed to leverage 5G technology and AI-driven solutions to enhance healthcare systems. The first step involves developing a robust 5G infrastructure to support real-time data exchange, enabling seamless connectivity between healthcare providers, patients, and devices across borders. This will be complemented by the integration of AI-powered diagnostic tools and advanced data analytics, allowing healthcare professionals to access and analyse patient data efficiently.

One of the key innovations of this project is the use of predictive analytics and machine learning models to enhance early diagnosis and personalised treatment plans. The project aims to create more accurate and individualized patient care pathways by applying these technologies to vast datasets.

Furthermore, the project will introduce telemedicine solutions, allowing remote monitoring and consultations, particularly critical in underserved and rural areas. This will also support a more efficient allocation of healthcare resources, reducing strain on physical facili-

ties and enabling timely interventions.

Another distinctive approach in 5G4PHealth is the cross-border collaboration between healthcare systems of different countries, establishing a standardised, interoperable healthcare framework. This will ensure that best practices and innovative healthcare models can be adopted across various regions, contributing to the European Union's digital health agenda.

The project's phased implementation ensures that it tackles immediate healthcare challenges while also building a foundation for long-term, sustainable improvements in healthcare delivery and management.

## Main results

The 5G4PHealth is expected to deliver several key achievements. First, it will establish a scalable 5G infrastructure capable of supporting real-time healthcare data exchange across borders, leading to improved healthcare connectivity. Second, the project will implement AI-powered diagnostic tools and predictive analytics, enabling more accurate and timely diagnoses, personalised treatment plans, and remote patient monitoring. These innovations will significantly improve access to healthcare, especially in remote and underserved areas.

Additionally, the project will introduce telemedicine solutions, facilitate remote consultations and resource allocation, reduce the burden on physical healthcare facili-

ties, and enhance patient outcomes. The cross-border collaboration will also promote a standardised, interoperable healthcare system across participating countries.

The expected value of these results includes enhanced healthcare efficiency, reduced costs, and improved patient care through real-time monitoring, personalised treatments, and early intervention. By advancing digital health solutions, 5G4PHealth positions Europe as a leader in innovative, patient-centred healthcare delivery.

## Impact

5G4PHealth is poised to significantly impact the business, R&D, and healthcare industries. Integrating 5G technology in healthcare will open new market opportunities for tech companies, especially in telemedicine, medical device manufacturing, and health data management. Businesses will benefit from the development of innovative solutions such as AI-driven diagnostics, remote monitoring, and predictive analytics, which can be commercialised and adapted across various sectors.

In the R&D domain, the project will catalyse further research into personalised medicine, AI, and machine learning applications in healthcare. Cross-border collaboration will enhance knowledge-sharing and foster new partnerships between academic institutions, healthcare providers, and industry leaders.

For the healthcare industry, the project will lead to the adoption of more efficient, patient-centred models, ultimately reducing costs and improving the quality of care. Thus, it will shape the future of connected and digital healthcare systems.

## About CELTIC-NEXT

CELTIC-NEXT is the EUREKA Cluster for next-generation communications enabling the digital society. CELTIC-NEXT stimulates and orchestrates international collaborative projects in the Information and Communications Technology (ICT) domain.

The CELTIC-NEXT programme includes a wide scope of ICT topics based on new high-performance communications networks supporting data-rich applications and advanced services, both in the ICT sector and across all vertical sectors.

CELTIC-NEXT is an industry-driven initiative, involving all the major ICT industry players as well as many SMEs, service providers, and research institutions. The CELTIC-NEXT activities are open to all organisations that share the CELTIC-NEXT vision

of an inclusive digital society and are willing to collaborate to their own benefit, aligned with their national priorities, to advance the development and uptake of advanced ICT solutions.

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