DT4HEALTH – Digital twin platform for intelligent and sustainable management of hospital facilities

The **DT4Health** project, supported by EEA and Norway Grants, has successfully concluded, marking a significant step forward in the digital transformation of Facilities Management (FM) within the healthcare sector. Through strong collaboration between Instituto Superior Técnico (Portugal) and the Norwegian University of Science and Technology (NTNU), the initiative focused on mapping FM processes and conducting an extensive literature review to develop guidelines for implementing the Digital Twin concept in healthcare facilities.

The project proposed a structured roadmap for the adoption of Digital Twin technology in hospitals, following these steps:

Initial Assessment – Diagnosis of hospital infrastructure and data management processes.
Pilot Implementation – Development of an initial model to test the technology's efficiency in a specific department.
System Expansion – Integration of the solution into other hospital departments.
Continuous Optimization – Use of Artificial Intelligence for constant process improvement.

The DT4Health framework is based on five pillars:

Visualization – Graphical representation of hospital infrastructure with real-time data.
Technology – Integration of IoT, Artificial Intelligence, and Machine Learning.
Processes – Workflow mapping and operational optimization.
Information – Structuring and standardization of hospital data.
Actors – Involvement of healthcare professionals, hospital managers, and IT specialists.

DT4Health included organizational mapping tools to understand the relationship between different hospital sectors and optimize resource allocation. The use of correlation matrices enables:

Intelligent Data Filtering – Eliminating redundancies and improving information exchange efficiency.
Improved Decision-Making – Optimizing patient flow and resource utilization.
Reduced Data Overload – Preventing excessive transmission of information between systems.

The insights gained from **DT4Health** will provide a foundation for future research and innovation in digital FM. The developed guidelines can be adapted for other sectors, including healthcare, contributing to more sustainable, data-driven, and efficient facility management practices in Portugal and throughout Europe.

By effectively bridging the divide between research and practical application, **DT4Health** has minimized technological disparities and strengthened bilateral collaboration between Norway and Portugal, promoting ongoing partnerships for digital transformation in the built environment.

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