

Digital Twin Smart Hospital: A Guide for Implementation and Improvements

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Abstract : This study investigates the application of Digital Twins (DT) in Smart Hospital Environments (SHE), through a bibliometric study and literature review, including comparison with the principles of Industry 4.0. It aims to analyze the current state of the implementation of digital twins in clinical and non-clinical operations in healthcare settings, identifying trends and challenges, comparing these practices with Industry 4.0 concepts and technologies, in order to present a basic framework including stages and maturity levels. The bibliometric methodology will allow mapping the existing scientific production on the theme, while the literature review will synthesize and critically analyze the relevant studies, highlighting pertinent methodologies and results, additionally the comparison with Industry 4.0 will provide insights on how the principles of automation, interconnectivity and digitalization can be applied in healthcare environments/operations, aiming at improvements in operational efficiency and quality of care. The results of this study will contribute to a deeper understanding of the potential of Digital Twins in Smart Hospitals, in addition to the future potential from the effective integration of Industry 4.0 concepts in this specific environment, presented through the practical framework, after all, the urgent need for changes addressed in this article is undeniable, as well as all their value contribution to human sustainability, designed in SDG3 - Health and well-being: ensuring that all citizens have a healthy life and well-being, at all ages and in all situations. We know that the validity of these relationships will be constantly discussed, and technology can always change the rules of the game.

Keywords : digital twin, smart hospital, healthcare operations, industry 4.0, SDG3, technology

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