Special Issue

Data-Driven Digital Twin for Smart Manufacturing and Industry 4.0

Message from the Guest Editors

The convergence of industrial engineering, data science, and cyber–physical systems has enabled the rise of digital twins as transformative assets in Smart Manufacturing and Industry 4.0. This Special Issue focuses on the development and deployment of data-driven digital twins—dynamic, data-connected virtual counterparts of physical systems—designed to support decision-making, system optimization, and lifecycle management across industrial operations. Digital twins offer tools for industrial engineers to enhance productivity, quality, and sustainability through real-time analytics, simulation, and control. Integration with data collected from Industrial IoT devices, edge computing platforms, and cloud infrastructures opens new horizons for process optimization, intelligent automation, and condition-based maintenance. Topics of interest include, but are not limited to, the following:

- Data architectures for digital twins in manufacturing;
- Integration with Industrial IoT and edge/cloud systems;
- Predictive analytics and health monitoring;
- Applications in production logistics, asset management, and quality control.

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Deadline for manuscript submissions

30 July 2026

Applied Sciences

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.5

mdpi.com/si/245198

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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal *Applied Sciences* has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

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