Announcement

Industry 4.0 SCIENCE

Hybrid Decision Support in Product Development

Industry 4.0 opens up new possibilities for overcoming the performance limitations of product development using data-driven methods. The central question is how extreme volumes of data and artificial intelligence can be used to support development and production decisions more intelligently while simultaneously closing material loops. Hybrid decision support, which combines human experiential knowledge with data science methods, plays a central role here.

The focus is on the early phases of the product life cycle, during which the course is already set for resource efficiency, circularity, and sustainability. Digital twins, data science, and AI can help better understand complex decision-making situations, improve predictions, and optimize development processes in a targeted manner. At the same time, new requirements are emerging regarding data quality, metadata, interoperable datasets, and the shared use of research and industrial data.

This issue of Industry 4.0 Science (www.industry-science.com) highlights current approaches at the intersection of data science, artificial intelligence, product development, and the circular economy. The focus is on technologies and methods that enable hybrid decision-making processes and thus open new paths toward a more sustainable and data-driven Industry 4.0.

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Editors of the Issue

Prof. Iris Gräßler
Paderborn University

Prof. Rainer Stark
Technical University Berlin

Prof. Klaus-Dieter Thoben
University of Bremen

Prof. Petra Wiederkehr
TU Dortmund University

Prof. Peter Nyhuis
Leibniz University Hannover

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