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The working conferences are structured differently. They are usually run by a working group and attendance is generally smaller and occasionally by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is also rigorous and papers are subjected to extensive group discussion.

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Advances in Production Management Systems

The Path to Digital Transformation
and Innovation of Production
Management Systems


IFIP WG 5.7 International Conference, APMS 2020
Novi Sad, Serbia, August 30 – September 3, 2020
Proceedings, Part I


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ISSN 1868-4238 ISSN 1868-422X (electronic)
IFIP Advances in Information and Communication Technology
ISBN 978-3-030-57992-0 ISBN 978-3-030-57993-7 (eBook)
<https://doi.org/10.1007/978-3-030-57993-7>

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The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

We live in a time where just one factor (i.e., COVID-19) could change the game plan for the global manufacturing economy. Digital transformation has been going on in the last decade, and it seems that not all the countries and companies are utilizing all the opportunities that it could provide to build new digital capabilities such as ‘digital resilience.’ A digital transformation path towards Industry 4.0 in manufacturing is more important than ever. Yet, how to approach the development and scaling of digital technology is a question that keeps executives awake at night and academics in a constant quest. The current digital transformation of manufacturing has so far mostly been studied from the perspective of the cyber-physical production system as drivers of change. However, there are several other enablers, including artificial intelligence; additive and hybrid manufacturing; 5G-enabled manufacturing; digital assistance systems based on augmented, virtual, and mixed reality; industrial, collaborative, mobile, and software robots; advanced simulations; cloud and edge technologies; and data-driven product-service systems. These are the key components of a digital transformation and the main research thrusts in the production management systems research community. Thus, the question of how to find the path to the digital transformation and innovation of production management systems is of eminent importance.

The International Conference on Advances in Production Management Systems (APMS 2020) in Novi Sad, Serbia, brought together leading international experts from academia, industry, and government in the area of digital transformation and innovation to discuss globally pressing issues in smart manufacturing, operations management, and supply chain management in the Industry 4.0 era. Under influence of COVID-19, the event was also digitally transformed: For the first time in its history the APMS conference was organized in a ‘hybrid mode,’ meaning face-to-face as well as online conference sessions. A large international panel of experts reviewed all the papers and selected the best ones to be included in these international conference proceedings. The topics of interest in APMS 2020 included Digital Supply Networks, Data-Driven Production Management, Sustainable Production Management, Cloud and Collaborative Technologies, Smart Manufacturing and Industry 4.0, Data-Driven Services, Digital Lean Manufacturing, and Digital Transformation Approaches in Production Management.

The proceedings are organized into two parts:

- The Path to Digital Transformation and Innovation of Production Management Systems (Volume 1)
- Towards Smart and Digital Manufacturing (Volume 2)

The conference was supported by the International Federation of Information Processing (IFIP) and was organized by the IFIP Working Group 5.7 on Advances in Production Management Systems and University of Novi Sad, Faculty of Technical Sciences, Department of Industrial Engineering and Management. We would like to

thank all contributors for their high-quality work and for their willingness to share their innovative ideas and findings. We are also indebted to the members of the IFIP Working Group 5.7, the Program Committee members, and the Scientific Committee members for their support in the review process of the papers. Finally, we appreciate the generous support from both the Ministry of Education, Science and Technological Development and Provincial Secretariat for Higher Education and Scientific Research of the Republic of Serbia.

August 2020

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