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*IFIP is the global non-profit federation of societies of ICT professionals that aims at achieving a worldwide professional and socially responsible development and application of information and communication technologies.*

IFIP is a non-profit-making organization, run almost solely by 2500 volunteers. It operates through a number of technical committees and working groups, which organize events and publications. IFIP's events range from large international open conferences to working conferences and local seminars.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

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.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

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# Advances in Production Management Systems


The Path to Intelligent,  
Collaborative and Sustainable  
Manufacturing


IFIP WG 5.7 International Conference, APMS 2017  
Hamburg, Germany, September 3–7, 2017  
Proceedings, Part II

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Hamburg University of Technology  
Hamburg  
Germany

Ralph Riedel   
Chemnitz University of Technology  
Chemnitz  
Germany

Klaus-Dieter Thoben   
University of Bremen and BIBA  
Bremen  
Germany

Gregor von Cieminski   
ZF Friedrichshafen AG  
Friedrichshafen  
Germany

Dimitris Kiritsis   
EPFL  
Lausanne  
Switzerland

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# Preface

We live in exciting times. The technological revolution in information and communication technology has been going on for several decades already and there seemingly is no near end in sight. The possibilities for industrial companies are enormous, but so are the challenges.

The globalized economy has done its fair share in reducing extreme poverty levels. The United Nations report that the target of reducing extreme poverty by half was met five years ahead of the 2015 deadline: more than 1 billion people have been lifted out of extreme poverty since 1990.

The environmental burden humankind puts onto our planet is becoming bigger and bigger, threatening eco-systems and our own well-being in the future. Industrial companies are affecting, and affected by, all three environments. In fact they contribute significantly both to poverty relief by employing hundreds of millions of people but also to the ecological challenges we are confronted with by exploiting natural reserves and by their emissions to the environment.

Thus, the question of how to find the path to intelligent, collaborative and sustainable manufacturing is of eminent importance.

We invited experts, academics, researchers, and industrial practitioners from around the world to the Advances in Production Management Systems Conference 2017 in Hamburg, Germany, to contribute with ideas, concepts and theories. A large international panel of experts reviewed all the papers and selected the best to be presented and to be included in these conference proceedings.

In this collection of papers, the authors share their perspectives as well as their concepts and solutions for the challenges industrial companies are confronted with and the great opportunities new technologies, collaboration and the developments described above offer.

The chapters are organized in two parts

- Smart Manufacturing (Volume 1)
- Collaborative and Sustainable Manufacturing (Volume 2)

We hope that our readers will discover valuable new ideas and insights.

The conference was supported by the International Federation of Information Processing and was organized by the IFIP Working Group 5.7 on Advances in Production Management Systems.

We would like to thank all contributors for their research and for their willingness to share ideas and results. We are also indebted to the members of the IFIP Working Group 5.7 for their support in the review of the papers.

September 2017

Hermann Lödding  
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