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## **IFIP – The International Federation for Information Processing**

IFIP was founded in 1960 under the auspices of UNESCO, following the First World Computer Congress held in Paris the previous year. An umbrella organization for societies working in information processing, IFIP's aim is two-fold: to support information processing within its member countries and to encourage technology transfer to developing nations. As its mission statement clearly states,

*IFIP's mission is to be the leading, truly international, apolitical organization which encourages and assists in the development, exploitation and application of information technology for the benefit of all people.*

IFIP is a non-profitmaking organization, run almost solely by 2500 volunteers. It operates through a number of technical committees, which organize events and publications. IFIP's events range from an international congress to local seminars, but the most important are:

- The IFIP World Computer Congress, held every second year;
- Open conferences;
- Working conferences.

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 small and 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.

Any national society whose primary activity is about information processing may apply to become a full member of IFIP, although full membership is restricted to one society per country. Full members are entitled to vote at the annual General Assembly, National societies preferring a less committed involvement may apply for associate or corresponding membership. Associate members enjoy the same benefits as full members, but without voting rights. Corresponding members are not represented in IFIP bodies. Affiliated membership is open to non-national societies, and individual and honorary membership schemes are also offered.

Jan Frick Bjørge Timenes Laugen (Eds.)

# Advances in Production Management Systems

Value Networks: Innovation,  
Technologies, and Management

IFIP WG 5.7 International Conference, APMS 2011  
Stavanger, Norway, September 26-28, 2011  
Revised Selected Papers



Springer

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ISSN 1868-4238  
ISBN 978-3-642-33979-0  
DOI 10.1007/978-3-642-33980-6  
Springer Heidelberg Dordrecht London New York

e-ISSN 1868-422X  
e-ISBN 978-3-642-33980-6

Library of Congress Control Number: 2012948270

CR Subject Classification (1998): J.1, I.2.8-9, H.4.1, C.2, K.4.3

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*Typesetting:* Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

# Preface

This proceedings book from the APMS 2011 conference consists of papers modified and reworked from those presented at the conference.

The Advances in Production Management Systems conferences are the main way for the working group 5.7 of IFIP, International Federation for Information Processing, to develop and promote knowledge to improve production management worldwide.

“The aim of WG 5.7 is to promote and encourage the advancement of knowledge and practice in the field of Integrated Production Management and to maximize global dissemination of this knowledge. This broad aim is achieved by a continuous development and refinement of an industry-based research agenda, focusing on industrial excellence for assessing best practices and stimulating young researchers seeking career in production management. WG 5.7 aims at developing a research culture that nurtures research that addresses industrial need whilst maintaining academic excellence and disseminating R&D results and best practices globally to both academics and practitioners through the group annual conference and the activities of its special interest groups” (<http://www.ifipwg57.polimi.it/>).

IFIP WG 5.7 believes that improved production management systems may improve industry worldwide to create and deliver for an improved future. As such the topics of the yearly APMS conferences develop according to the focus and work of researchers each year.

In 2011 the annual APMS conference was organized by the University of Stavanger in Norway. In total 124 participants contributed by presenting and discussing research on production management. In total, 124 papers were presented.

At the conference the authors presented a combination of careful investigations of topics that have been studied for a long time, and more explorative studies of recent topics and novel approaches to operations management. We saw contributions on business modeling, lean management, supply chain management, and production planning and control. Some of these topics have been of interest for the APMS network for many years, but papers were also presented on topics like cloud computing, gaming, etc., and the use and relevance of such phenomena on production management systems.

The emergence of new themes, topics, and phenomena demonstrates that operations management is a field that is constantly changing. Companies regularly need to investigate and adopt new products, technologies, and processes in order to keep up with the developments in the industry and markets. Likewise, academia needs to stay in the forefront of the developments taking place, to be able to describe and explain the new practices and priorities, and (aiming at) to predict future developments and trends. For decades, the trend for a large part of the manufacturing and assembly sector is outsourcing or off-shoring activities to

companies located in emerging markets, either to get access to growing markets or to achieve cost reductions. For many companies, globalizing their value chain has proven more difficult than expected. Further, developments in technologies and processes have led to possibilities of replacing former labor-intensive operations with high technology. In particular, the interface between design and development and production is hard to manage when R&D and manufacturing are located far away from each other. The cost of labor is becoming less and less important for the total cost of many products, and further digitalization of manufacturing could lead to off-shored production being gradually moved back to developed countries. A recent article in the *Economist* labels such a development as “the third industrial revolution.” However, acquiring novel technology is hardly enough to achieve a competitive edge over competitors. To achieve that, companies need to develop a system of technologies, processes, and people, over able to integrate, coordinate, and manage these dimensions effectively. This is very much in line with the aim of the APMS network, and also links nicely with the theme of the APMS 2011 conference: “Value Networks: Innovation, Technologies, and Management.”

As organizers we were very pleased with the number and scientific content of the papers, and we believe that the APMS 2011 conference moved the knowledge on production management a step ahead.

The proceedings book is a selection of the papers submitted and presented at the APMS 2011 conference. Of the 124 papers presented at the conference, 66 were further developed and modified to be included in this book. The papers are significantly reworked and updated based on feedback from the editors and from comments and discussion at the conference.

The papers represent the breadth and complexity of topics in operations management, spanning from optimization and use of technology, management of organizations and networks, to sustainable production and globalization. In addition, the authors use a broad range of methodological approaches to study the topics of the papers, ranging from grounded theory and qualitative methods, via a broad set of statistical methods to modeling and simulation techniques. Thus, this book from the APMS 2011 conference gives a good overview and representation of the variety of the APMS network, both of topics and the way they are studied, as well as pin-pointing the challenges and difficulties managers need to cope with on a day-to-day basis. Operations management was never meant to be easy, but, hopefully, contributions in this book, and output from the APMS network, can make us all a bit wiser and, hence, better suited and prepared to take on and solve the challenges of the future.

We want to thank all who contributed to this book from the APMS 2011 conference. First and foremost, thanks go to the authors for their contributions and willingness to develop and share their ideas with the scientific community. Further, we are very thankful to the 33 reviewers and scientific committee for the efforts and engagement they invested to ensure the quality and relevance of the papers presented at the conference. Then we would like to thank the participants at the conference for providing important, valuable, and constructive comments

and suggestions for improving the papers, and for stimulating scientific discussions during the conference. These events of presenting, sharing, and discussing findings and ideas are very important for the development of the APMS network and the scientific community in general. We sincerely hope that this proceedings book from the APMS 2011 conference will convey the spirit of all who contributed to it in Stavanger.

July 2012

Jan Frick  
Bjørge Timenes Laugen

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**APMS 2011 conference was organized by the University of Stavanger (UIS), with support by the:**

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