

Guest Editorial Preface

Special Issue on Technology and Performance Management for Knowledge-Based Organizations

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Technology and performance management are vital managerial issues for knowledge-based organizations. While performance management has emerged into a new consolidated discipline, which provides a direction for a large diversity of businesses in their track of sustainable growth, customer value and business growth through innovation and technological development, technology management has emerged into the specialty covering the use of technology in business operations, processes, politics and strategies to improve operational and organizational performance. Therefore, this special issue aims to contribute to technology and performance management literature by presenting novel research studies using various methods conducted at different areas and different management levels, ranging from organizational to national.

This special issue consists of one invited and three selected papers, which originally were presented and discussed at the 16th Production Research Symposium between the dates 12-14 October 2016 and subsequently extended, reviewed, and revised.

This study by Ece Gökpinar, Yusuf Tansel İç, Mustafa Yurdakul, titled as “Analysis of Performance Improvement Brought by the Application of an ISO 9001 Quality Management System with TOPSIS Approach” develops a performance analysis and measurement model for quantifying performance levels, based on a real-life case study of a company in oil drilling and distribution industry sector. The model considers various criteria for performance evaluation and, then translate them to a single overall performance score by using TOPSIS. The study also compares company’s performance over the years, before and during the ISO 9001 application, Nilay Yücenur, İpek Atay, Senem Argon and Eda Fulya Gül propose a risk assessment method in Failure Mode and Effect Analysis in their study titled as “Integrating Fuzzy Prioritization Method and FMEA in The Operational Processes of an Automotive Company.” The authors combine fuzzy prioritization method with FMEA method for a risk analysis and apply the Fuzzy FMEA in finance department of an automotive company.

The article, “Diffusion of 3D Printing Technology: An Evolutionary with Patent Mapping” by Başak Özdemir, Kemal Yayla, Serhat Burmaoğlu focuses on one of today’s disruptive technologies, 3D printing technology. The study constructs a patent network of 3D printing technologies from patent classification codes by using co-occurrence relationship information. The study demonstrates the historical evolution and current framework by using social network analysis on CPC codes of the related patents.

Dilay Çelebi provides a perspective on a holistic and integrated logistics performance management with her paper “An extended framework for national level logistics performance measurement “. Proposed framework enables the correct deployment of national strategies as well as providing a tool to study the design and operation of national logistics performance management systems by providing a template to help describe the key aspects of such systems. It suggests a number of issues be considered in designing and operating a control system, rather than adopting a prescriptive approach based on an ‘ideal model’. It aims to illustrate a broad view of the key aspects of logistics performance measurement and to form the basis upon which further investigations can be developed. It provides a means of quickly outlining the main features of logistics performance assessment system in a comprehensive manner, and the ways in which it is used in the context of understanding the drivers of logistics performance in a specific country.

We believe that this special issue will be a great help for the researchers, academicians, industrial professionals and students dealing with technology and performance management for knowledge based organizations and the results of various research papers presented in this issue will act as milestones to further high quality theoretical and practical research. We would like to express our appreciation to Prof. John Wang for giving us the opportunity to publish this special issue and to all reviewers for their voluntary and timely work, which significantly helped to improve the quality of the manuscripts.

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Gül T. Temur graduated from management engineering department of Istanbul Technical University in 2006 and she completed her Doctor of Philosophy at the same department. Gül T. Temur has worked as a Research Assistant between 2006-2013 in the Faculty of Management at Istanbul Technical University (ITU). She has been still working in Bahcesehir University in the Engineering Management department as an associate professor. Her main research interests are supply chain management, reverse logistics, decision making and artificial intelligence.

Bersam Bolat is an Associate Professor at the Istanbul Technical University Faculty of Management, Management Engineering Department. She has got a bachelor degree and doctorate degree from ITU Management Engineering Department and ITU Science and Technology Institute respectively. She gives various lectures in different universities in the field of operations management such as production planning, supply chain management, productivity and project management. Her main research areas are: supply chain and reverse logistic network design and advanced issues in project management.