

Grijalvo, Mercedes; Maheut, Julien; Mula, Josefa

Article

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Special Issue:

Ensuring Sustainability. New Challenges for Organizational Engineering

Mercedes Grijalvo ¹, Julien Maheut ², Josefa Mula ³

¹Universidad Politécnica de Madrid, Departamento de Ingeniería de Organización, Administración de Empresas y Estadística (Spain)

²Universitat Politècnica de València, ROGLE, Departamento de Organización de Empresas (Spain)

³Universitat Politècnica de València, Research Centre on Production Management and Engineering (CIGIP) (Spain)

mercedes.grijalvo@upm.es, juma2@upv.es, fmula@cigip.upv.es

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1. Introduction

This special issue of the Journal of Industrial Engineering and Management is dedicated on the most recent and relevant research, theories and practices in Industrial Engineering and Operations Management presented at the 14th International Conference on Industrial Engineering and Industrial Management and XXIV Congreso de Ingeniería de Organización - CIO 2020.

The CIO 2020 was held on 9th and 10th July 2020 in Leganés - Madrid and was organized by the Universidad Politécnica de Madrid (UPM) and Universidad Carlos III de Madrid (UC3M). This conference is promoted by ADINGOR (Asociación para el Desarrollo de la Ingeniería de Organización) and AIM (European Academy for Industrial Management).

251 authors from 13 countries contributed a total of 99 communications, which were presented in oral presentations, posters, doctoral symposiums and workshops. 6 of the best communications were selected to be published in this special issue.

We gratefully acknowledge the authors and particularly the reviewers, whose valuable comments have improved the quality of the selected papers, which were extended and reviewed after the conference in order to be published in this Special Issue.

2. Overview of the Papers

The papers chosen for this special issue were selected for their quality and their scientific rigor. They embody the multidisciplinary character of the conference as well as its international vocation. The topics are diverse, but all refer to problems related to the CIO's scope: "Ensuring Sustainability. New challenges for Organizational Engineering".

Three papers recommend actions in areas such as knowledge management (KM), organizational competence and cultural change in organizations to address these issues on the current globalized economy, including some specific research on small- to medium-sized enterprises (SMEs), looking for a more sustainable path.

First, the paper **Evaluation of a Strategy-Oriented Method to Identify and Prioritise Knowledge Management Initiatives in SMEs**, presented by Juan Ignacio Igartua López, Jabier Retegi Albisua, Maria Ruiz and Maitane Mindegia, creates a method, which is developed and supported in a prototype tool, to help SMEs quickly determine and prioritise the actions for better KM initiatives in accordance with company strategies. Since, management practices are usually designed for medium- and large-sized companies, the research helps SMEs to address an important socio-economic issue.

Then, the second paper **Building and Development of an Organizational Competence for Digital Transformation in SMEs**, presented by José Manuel González Varona, Adolfo López-Paredes, David Poza and Fernando Acebes, develops a model of organizational competence for digital transformation that allows SMEs to identify and develop the digital capabilities necessary to advance in the digital transformation. It will enable SMEs to adapt to the new competitive environment generated by digital technologies and characterized by innovation and constant change while they advance in their digital maturity.

Finally, the third paper **Organizational Culture Transformation Model: Towards A High Performance Organization**, presented by Asier Ipinazar, Enara Zarrabeitia, Rosa Maria Rio Berver and Itziar Martinez de Alegria, develops an organizational culture transformation model prototype as a reference framework for those companies that wish to conduct an in-depth re-structuring of their operations, focusing it on their human capital. Its design acquires relevance and significance in the current progressively globalized framework, where markets are increasingly competitive, dynamic, aggressive and changing.

Besides, two of the selected articles focus on the development potential of digital technological advances, their implications and opportunities. First, the paper **Trends and Applications of Machine Learning in Water Supply Networks Management**, presented by Alicia Robles Velasco, Jesús Muñuzuri, Luis Onieva and María Rodríguez Palero, describes the trends and applications of machine learning systems in the management of water supply networks. The research discusses thirteen studies which contain real cases from around the world, in order to define the advantages and disadvantages of different methods to process data from water supply networks, as well as to train and validate the models. Machine learning has shown as a field in constant development, and it has a great potential and capability to attain improvements in the industry because of its independency and accuracy. Ultimately, the second paper **Fleet Management System for Mobile Robots in Healthcare Environments** presented by Eduardo Guzmán Ortiz, Beatriz Andres, Francisco Fraile, Raul Poler and Ángel Ortiz Bas proposes a novel fleet management system (FMS), which consists of integrated tools to support the mobile multi-robot dynamic path planning in a real-world hospital environment. Dynamic path planning of mobile robots is acquiring relevance, due to new technological developments in mobile robots. It should be pointed out that this FMS research has been developed under the scope of ENDORSE project which has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement.

To conclude, the paper **Theory of Constraints Case Study in the Make-to-Order Environment**, presented by Aitor Orue, Aitor Lizarralde, Itxaso Amorrotu and Unai Apaolaza analyses the drum-buffer-rope (DBR) implementation carried out by Lizarralde et al. (2020) with the objective to identify the key factors of the implementation on the third TOC step and compare the results with the existing literature to advance the proposed systematic decision-making process. The TOC-DBR could provide superior performance and an easy-to-use approach in companies working in MTO environments.

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