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GUEST EDITORIAL

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The 9th Conference on Management and Engineering of Healthcare Systems (GISEH) took place in Geneva in August 2018 and was co-organised by the Geneva University Hospitals and the Geneva School of Business Administration, University of Applied Sciences Western Switzerland. The main topic of the conference was the management and the improvement of the performances of Healthcare institutions and networks, taking into consideration societal, economic and environmental perspectives. More than 100 papers had been selected by the scientific and the organisation committees for oral presentation using a demanding and rigorous process. The papers were double-blind assessed by a group of experts composed of scientific committee members and external reviewers, selected on the basis of their expertise.

Among the papers that received high scores, twelve papers were selected. Their authors were invited to submit extended and value-added English versions of their works to this special issue of Supply Chain Forum: An International Journal. The papers underwent a rigorous evaluation process according to the journal's guidelines and rules. Finally, five papers were accepted for publication, with even three revision rounds for some of them, and included in the Special Issue. The papers address new topics in Healthcare with respect to their scientific contributions, taking into account applicability perspectives of the contents.

The paper titled 'Coopetition in healthcare: an analysis in terms of proximity', developed by Albert-Cromarias and Dos Santos, addresses new research gaps identified in the coopetition principle in Healthcare with a particular focus on cancer treatment. The authors conducted an analysis of coopetitive relationships through a reading grid consisting of five dimensions of proximity, i.e. cognitive, organisational, social, institutional and geographical dimensions. They found that not only territory matters in coopetition, but also that coopetition strengthens territory. They demonstrate that the territory undeniably acts as a catalyst for coopetition. Furthermore, the coopetitive relationships developed between the healthcare actors, as complex as they can be, activate the different dimensions of proximity and contribute to the existence of the territory and the regional space. This work constitutes an important step to identify the role of the territory in coopetition, which is an important element for healthcare organisations, regardless of their sizes.

With an extension to the territory to include supply chain problems, the paper titled 'Closed Loop Location Routing Supply Chain Network Design in the End Of Life pharmaceutical products' developed by Ahlaqqach, Benhra, Mouatassim and Lamrani proposes a multi-objective model to design a sustainable closed loop location routing supply network for the management of pharmaceutical products' life cycles. The multi-objective problem is a mixed integer linear programming model, which is solved using an exact solution method. Thanks to the multi-objective nature of the problem, the solution considers strategic and operational decisions as well as conflicting criteria.

They show that the impact of social responsibility on the design of closed loop routing supply chain networks can be addressed by multi-objective models, thus emphasising the sustainability perspective of pharmaceutical supply chains.

In their paper titled 'Study to analyze and optimize the transport for people with disabilities' written by Monteiro, Tellez, Daguet, Lehuédé, Osorio, Olivier, Péton and Vercraene addresses the issue of sustainability related to the transportation of people suffering from disabilities. In that context, the reconfigurability of the transportation means it is considered as a lever of action. They develop a comprehensive long-term approach based first on the identification of the different needs of the multiple stakeholders taking part in the Dial-a-Ride process, using a survey, and second on the development of an optimisation model that is both cost-effective and time-consistent. They solve the problem by using Large Neighbourhood Search and a Reactive Set Covering Problem for the first stage of the problem and an epsilon constraint method for the bi-objective optimisation problem. The results show that pooling the service and mutualising resources are both important ways to develop economic advantages in addition to societal benefits.

In their paper 'Sudoku puzzle approach for the drugs assignment in an automated dispensing

cabinets', by Chaker and Hachemi, addresses one well known problem in Healthcare, namely the assignment of drugs to different drawer compartments. To solve the issue, the authors establish analogies between the drug assignment problem and the SUDOKU grid-filling problem of corresponding sizes. The authors develop an optimisation model based on the minimisation of distances and flows between installations. The benefit of such an approach is that it reduces human errors due to adjacency and it accelerates drug check in their corresponding compartments. Moreover, the authors show that the simple heuristic developed to solve the problem is easily transferable to a wide audience of stakeholders in Healthcare networks, without any requirements for a technical background.

The paper 'Tools to measure, monitor, and analyze the performance of the Geneva University Hospitals (HUG)' developed by Bréant, Succi, Cotten, Grimaud, Iavindrasana, Kindstrand, Mauvais and Rorive-Feytmans, describes the latest development of information technologies and organisational procedures used to help decision-making in Healthcare institutions. In that context, the paper presents a Balanced Score Card that collects different input and provides several Key Performance Indicators with respect to a huge number of needs from different stakeholders taking place at hospitals. The authors discuss the impact of this development on the case of the Geneva University Hospitals. In particular, they show that due to the implementation of such an eco-system, the hospital managers have steered their main focus on studies and analyses, resulting in a noticeable efficiency gain. Nevertheless, they report limits that remain to be addressed with the use of Information Technology tools, related to the quality and the completeness of the source data.

The papers selected in this special issue present new problems that arise from the increasing complexity of the management of healthcare systems and supply chains. Apart from the uncertainty that characterises most of the Healthcare logistics and supply chain problems, the complexity is inherent not only to the coordination difficulty between different stakeholders, but also to the issues related to the information and the data handled by the management tools and support.

The new paradigms in the healthcare industry need to provide simple, applicable and replicable solutions for complex problems. There are at least two certitudes from the developments and the results of the papers collected in this Special Issue: 1- Multi-disciplinary solutions are by far the most adapted approaches to tackle such problems in comparison to the state of the art solutions and 2- The growing importance of sustainability within healthcare institutions and in healthcare supply chains with an important emphasis on economic, environmental and societal impacts.

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