Nowadays supply chains face market, industry and organizational challenges. To cope with them, operational planning must employ suitable decision-making approaches along with information systems, leveraging new capabilities derived from the digitalization of production, operations and logistics. Information systems include data acquisition and data processing, as well as communication capability embedded in technological devices. Big Data has affected business intelligence and new trends such as fast analytics and data science have emerged (Larson and Chang 2016, Kumar et al. 2018). These trends have motivated new initiatives by leading companies (Gandomi and Haider 2015) with potential impact across firms and organizations (Wamba et al. 2017; Gunasekaran et al. 2017; Chae 2019). Indeed, proper decision-making approaches can employ optimization, simulation, data analytics or hybrid methods and models, e.g., digital supply chain twins. A digital supply chain twin is a data-driven model that represents the state of the network in real-time (Ivanov 2018).

Growing computational power along with the evolving capability of decision-making methods will support an integrated monitoring and steering of manufacturing systems and supply chains (Monostori et al. 2016) within and across industrial companies. An increased use of information and communication technology, which connects physical and information flows in cyber-physical systems allows suitable data exchange, in terms of frequency and scope. The cyber-physical vision push forward the possibility of acquiring real-time system state data to support better decisions (Ivanov et al. 2018).

Industry 4.0, digital production and digital operations constitute a full stack of methods and technologies to materialize both the agility and efficiency performance targets. Technological evolution pushes the boundaries of supply chain decision making towards an integrated vision. Technology and proper decision-making approaches create new possibilities for coping with the challenges of modern supply chains. The combination of intelligent methods and information systems allows for the emergence of adaptive supply chains (Monostori et al. 2016; Frazzon et al. 2018a, 2018b).

In terms of barriers, the capability of monitoring and decision-making methods to properly consider production, transport, inventory, and supply data stands out. This capability is paramount to take advantage of industrial digital twins representing the production system (Rosen et al. 2015; Schleich et al. 2017; Uhlemann et al. 2017; Senyo et al. 2018; Kshetri et al. 2018). The development of data-driven real-time approaches has challenged researchers and practitioners alike. There is a need for an integrated and convergent vision addressing the questions on how to plan and control supply chains in the future, as well as on relevant drivers fostering new opportunities to develop supply chain digital twins.

As fostered by IJIM, there is greater focus on fostering behavioral changes in the way people use information to engage in knowledge-focused activities. Technologies foster data-driven processes with real-time (and progressively automated) decision-making capabilities. Big data analytics offers

decision-making capabilities that are, in fact, more evidence-based. Combining this with the availability of information and data, a future supply chain will be capable to react flexibly on changes imposed by the system environment.

The Special Section of IJIM focus on research papers which make new contributions to theory, methodology *and* empirical results on Intelligent Methods and Systems supporting Supply Chains Decision Making and Digital Supply Chain Twin Design. It seeks to attract high quality, high-impact research, state-of-the-art developments building upon supply chains data-driven decision making. Submitted papers have to comply with the philosophy of the journal.

This special issue is targeted towards, but not restricted to, the 9th IFAC Conference MIM 2019 that will take place on August 28-30, 2019 in Berlin. The general theme for the 9th MIM Edition is "Digital, resilient, and sustainable manufacturing 4.0". The MIM 2019 conference papers submitted to this Special Issue must make an additional contribution: they must cite the relevant conference paper and explicitly state what the additional contribution is.

The proposed Special Section is targeted at (but not restricted to) the following topics:

- technology-based integration of supply chain planning and control
- data-driven production planning, scheduling and control
- digital supply chain twins
- data-driven transportation and logistics planning
- new frontiers for manufacturing supply chains, operations and technologies
- information management in learning organizations across supply chains
- business intelligence and knowledge management applied to supply chains decision making
- information design and delivery in supply chains
- information for knowledge creation across organizational frontiers

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Important Dates

Manuscript submission deadline: 31-Dec-2019
Notification of Review: 30-Mar-2020
Revision due: 31-Jun-2020
Notification of 2nd Review: 1-Aug-2020
2nd Revision [if needed] due: 1-Sep-2020
Notification of Final Acceptance: 30-Sep-2020
Expected Publication: 4th Quarter 2020

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Submission Guidelines

All submissions have to be prepared according to the Guide for Authors as published in the Journal website at: https://www.elsevier.com/journals/international-journal-of-information-management/0268-4012/guide-for-authors

Authors should select **"SI: Towards Digital SC Twins",** from the "Choose Article Type" pull- down menu during the submission process. All contributions must not have been previously published or be under consideration for publication elsewhere. Link for submission of manuscript is: https://www.evise.com/evise/jrnl/IJIM

A submission based on one or more papers that appeared elsewhere has to comprise major value-added extensions over what appeared previously (at least 50% new material). Authors are requested to attach to the submitted paper their relevant, previously published articles and a summary document explaining the enhancements made in the journal version.

All submitted papers will undergo a rigorous peer-review process that will consider programmatic relevance, scientific quality, significance, originality, style and clarity.

The acceptance process will focus on papers that address original contributions in the form of theoretical, empirical and case research, which lead to new perspectives on Intelligent Methods and Systems supporting Supply Chains Decision Making. Papers must be grounded on the body of scholarly works in this area (exemplified by some of the references below) but yet discover new frontiers so that collectively, the Special Section will serve communities of researchers and practitioners as an archival repository of the state of the art in Intelligent Supply Chain Decision Making.

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