

Tentative Outline

Special Thematic Issue for The Open Civil Engineering Journal

Industrial Revolution 4.0 (IR4.0) in Construction Industry: Current Challenges and Future Opportunities

Guest Editors: Dr. Wesam Salah Alaloul

Aims & Scope:

The growth of the construction industry is a subset of the universal set of the value of economic extension, and thus, IR 4.0 has a direct effect on the construction industry. The construction industry stakeholders realized the impact of IR 4.0 in terms of the adopted technologies and productivity improvement, due to its impression in the other industries. The construction industry should go through a major change with adopting IR 4.0 innovative technologies and pushing for industry penetration to update and upgrade the current situation.

Comparing the progress among the different industries, the construction industry is reluctant in incorporating these technologies into its practices despite the drastic developments achieved by the other industries. The construction industry is facing numerous challenges from multiple aspects which prevent the adopting of IR 4.0. Therefore, the construction industry is lagging behind the other industries in the application of IR 4.0 and did not gain benefits as other industries.

The proposed thematic issue aims to evaluate the concept of IR 4.0 applications from the perspective of the construction industry. Like the growing trends in the IR 4.0 technologies such as Autonomous Robot, Big Data Analytics, Cloud Computing; Internet of Things (IoT), Additive Manufacturing (3D printing), System Integration, M2M, and Augmented Reality. Since then, the current challenges will be identified and the future improvements can be strategized. This thematic issue strives to review the development and the key applications of IR 4.0 and will accept only review papers with necessary tracking and using bibliometric analysis and systematic reviews. The thematic issue will serve as a valid reference for the application of IR 4.0 to construction industry challenging and future opportunities.

Keywords: Construction industry, IR 4.0, Big data analytics, Robot; Cloud computing; Internet of Things (IoT), System integration.

Subtopics:

In this thematic issue, we intend to consider the following topics. Potential topics include but not limited to:

➤ Smart Facilities

- Automated equipment (M2M)
- Robotics applications
- Additive construction (3D printing)
- Modularization and prefabrication

➤ Simulation and Modeling

- Simulation tools and models
- Building Information Modelling BIM
- Automated progress monitoring
- Big Data Analytic

➤ **Digitalization and Visualization**

- Internet of Things (IoT)
- Cloud and mobile Computing
- Augmented reality and Virtual reality
- Unmanned aerial vehicle (UAV)

Schedule:

- ✧ **Call for papers: June, 2020**
- ✧ **Manuscript submission deadline:** November, 2020
- ✧ **Peer Review Due:** October 2020 - December, 2020
- ✧ **Revision Due:** January, 2021
- ✧ **Announcement of acceptance by the Guest Editors:** February, 2021
- ✧ **Final compilation and submission of Editorial/Introduction:** February, 2021
- ✧ **Publication of the special issue:** March 2021

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