

CREATING A SUSTAINABLE FUTURE THROUGH THE INTEGRATION OF MANAGEMENT, DESIGN, AND TECHNOLOGY

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Sustainable Development Goals (SDGs) are the collection of global sustainability goals set by the United Nations General Assembly and they are widely drawn on and paid particular attention to by three main stakeholders (the triple helix): governments, industries, and higher education institutions (HEIs). Governments play a key role in achieving development goals and targets through, for instance, setting and implementing water quality policy frameworks and standards, regulating the discharge of pollutants into the environment, as well as managing wastewater, recycling, and reuse of water (UNDESA, 2015). The ninth goal of the SDGs (or Goal 9) points out that industry, as it develops, drives an increase of value addition and enhances the application of science, technology, and innovation; consequently, industries are challenged to invest in skills and education and thus to provide the resources necessary to meet broader, inclusive, and sustainable development objectives (UN, 2018). Many universities attempt to articulate the processes relationships embedded in the educational model, leading to the alignment of the HEI strategy with the SDGs (Fleacă et al., 2018). In summary, the main idea of integrating the triple helix is to enhance the production of research at universities that is based on the most critical demands or market needs, accelerated and supported by relevant industries, and ultimately implemented by governments as a favorable policy.

In order to achieve sustainable development (environmental, social, and economic equity), three basic elements—management, design, and technology—are very important and play significant roles. Environmentally sound design (i.e., green building for sustainable building construction) is a must and is becoming a principle criterion for new building construction projects. Innovative and higher-level design is making critical improvements to components that are expected to function properly in order to contribute to high performance products (Berawi, 2014). On the other hand, the quality of products as output of design is increasingly dependent on highly innovative design and technology. Technology innovation plays a critical role in expediting a transition to a sustainable mode of development and it is becoming an important instrument used to increase the flow of new ideas and next-generation products (Berawi, 2015). The very success of the process of creating valuable products is greatly determined by how seriously management is taken or implemented. For example, good construction project performance can contribute to increasing the resource efficiency and reducing the impact on the environment during the construction lifecycle (Berawi et al., 2013).

In this special edition of IJTech, we are pleased to present twenty selected papers from the fifth International Conference on Soft Science 2018 (ISSC, 2018) that focus on areas related to the field of “soft science” in management. The conference was organized by the Research and Innovation Management Centre (RIMC) of the Universiti Utara Malaysia and created for students, researchers, and professionals, such as media, to discuss and share research and ideas in order to strengthen field management in relation to “soft science”, thus contributing to the creation of a sustainable future for the community.

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The first paper, written by M.A.A. Pozin, M.N.M. Nawi, A. Lee, M. Yaakob, and M.H. Hanafi, determines project managers' perspectives on the causes of communication failure in the management of Industrialized Building System (IBS) projects. The authors argue that the current, ineffective, traditional procedure requires more collaboration, updates, and integration.

The second paper, written by I.M. Ali, M.A. Zaidi, K. Ismail, and M.I.M. Ariff, investigates the impact of knowledge sharing on improving the performance of Facilities Management (FM). The authors argue that working culture, staff attitude, motivation, and opportunity to share have a significant impact on improving the performance of FM operation.

The third paper, written by A. Bakri, I.H. Zakaria, R. Kassim, and A.N.A. Ahmad, presents an adoption of the systematic facilities management approach to achieve a sustainable performance of mosque institutions. The authors argue that appropriate programs, followed by performance monitoring and improvement, would enable mosque management to develop better FM operations.

The fourth paper, written by T.C. Keng, N.N.A.M. Nor, and Y.K. Ching, examines the turnover intention and job satisfactions among quantity surveyors. The authors argue that most of the employees are not satisfied with the reward system in the workplace, including the salaries, bonuses, benefits, and promotion opportunities that are provided by the firms.

The fifth paper, written by M.N.M. Nawi, C.S. Abdullah, N.A. Ramli, M.H. Zalazilah, and A.Y. Bahauddin, identifies the success factors and challenges in implementing the use of Load-Bearing Masonry (LBM) Technology in the Malaysian construction industry. They find eight success factors of LBM technology that are identified as: organizational resources, good team collaboration, easier methods, skilled labor, continuous improvement of knowledge, good work coordination, improved efficiency of construction work, and environmentally-friendly construction method.

The sixth paper, written by M.F. Yusuf, H. Ashari, and M.R. Razalli, discusses the connections between environmental technological innovation (ET-innovation) and sustainable development implementation on firm level. The authors find that Malaysian firms need to be more market-oriented during the development of their products and technologies in order to relate to market needs. They also note that the successful involvement of firms in ET-innovation requires investment and proper management of resources.

The seventh paper, written by J.A. Shukor, M.F. Omar, M.M. Kasim, M.H. Jamaluddin, and M.A. Naim, reviews a range of assessment steps that are often designed to evaluate specific sustainability criteria (such as environmental, social, economic, and technical aspects) in organic waste management that are used for selecting the most suitable composting technologies using Multi-Criteria Decision Making (MCDM). The authors report that by using the MCDM, two or more alternative approaches can be proposed and various opinion angles based on the four key aspects or criteria, namely environmental, economic, social, and technical, can be gathered to achieve the assessment objective.

The eighth paper, written by A.H.A. Tharim, F.F.A. Munir, M.H.A. Samad, and T. Mohd, investigates the Thermal Comfort Parameter in Malaysian Green Building Index (GBI) Rated Office Buildings. The authors find that the thermal comfort performance of each case study

building was acceptable within the GBI Non-Residential New Construction (NRNC) Tools for Indoor Environmental Quality (IEQ) parameters.

The ninth paper, written by S.H. Ibrahim, N.I.A. Ibrahim, J. Wahid, N.A. Goh, D.R.A. Koesmeri, and M.N.M. Nawawi, investigate the impact of road pavements as the mitigating or intensifying factors of the urban heat island effect. The authors find that the construction of asphalt pavements can have numerous potential impacts on the environment that further contribute to air pollution and the urban heat island effect. Furthermore, concrete, permeable, and industrialized building system (IBS) 'StormPav' pavements retain lower heat in comparison to asphalt and can be implemented to mitigate the urban heat island phenomenon.

The tenth paper, written by N.H. Mahadzir, M.F. Omar, and M.N.M. Nawawi, presents the use of text mining to obtain meaningful information from social media platforms. Using a case study method, which involved the government affordable housing project known as Perumahan Rakyat 1Malaysia (PR1MA), this study performs a sentiment analysis on property in Malaysia that is based on twitter data, visualizing the results in the form of a dashboard. Using Naïve Bayes as a classifier, the results show that 53.93% of tweets convey a negative sentiment, especially concerning property prices.

The eleventh paper, written by Y. Ahmad, Z. Zain, and N. Aziz, analyzes the effects of different surgery types and the state of patients' survival from colorectal cancer using multistage logistic regression. The authors show that 28% of colorectal cancer patients die before a new tumor develops, while 5% die in the second year after the recurrence of a tumor that initially occurred during the first year. In two years following a tumor removal surgery, approximately half (57%) of the patients survive without a tumor recurrence.

The twelfth paper, written by A. Samsi, S.N.F. Samsuddin, N. Abdullah, S. Maamor, H. Abdullah, and S. Nayan, analyzes the pattern of job creation in different technology groups (high- and low-technology ones) during the transformation process in the Malaysian manufacturing sector using the Organization for Economic Co-operation and Development (OECD) classification of technology. They argue that the job creation pattern in the high technology industrial sub-sector is more dynamic, whereas in the low technology sub-sector it is more stable.

The thirteenth paper, written M.G. Hassan, M.D. Akanmu, and R.Z. Yusoff, determines the relationship between the integration of technology and sustainable performance, focusing on Malaysian Standard (MS) ISO (International Organization for Standardization) 14001 certified manufacturing firms in Malaysia. The authors argue that technological integration is found to have a positive relationship with three dimensions of sustainable performance (the economic, environmental, and social).

The fourteenth paper, written by H. Ashari, Y.M. Yusoff, S.N.M. Zamani, and A.N.A. Talib, analyzes the relationship between market orientation (MO), supply chain management, and the supply chain performance (SCP) of the Malaysian automotive industry's supply chain performance. The authors find that the relationship between the MO and SCP is insignificant due to: (1) the lack of political promotion for a high challenge-high support environment; (2) the low technological and marketing capabilities; and (c) the limited participation in the global value chain.

The fifteenth paper, written by N. Hami, F.M. Yamin, S.M. Shafie, M.R. Muhamad, and Z. Ebrahim, determines the extent of the implementation of sustainable manufacturing practices (SMPs) among small and medium enterprises (SMEs) in Malaysia. The authors found that the SMPs is proactively adopted in operational and business activities but is at a low to moderate extent of implementation. In addition, the lack of resources, organizational management, and financial stability in micro and small manufacturers may explain the reasons for the insufficient implementation of pollution prevention approaches, such as cleaner production and eco-efficiency, as well as socially responsible practices related to employees, customers, and suppliers.

The sixteenth paper, written by S.R.M. Riazi and M.N.M. Nawi, discusses the current delay scenario by taking the “pathogen” approach in identifying the very root of the causes of project delay in the Malaysian public sector using the Supply Chain Management (SCM) approach. The authors provide the framework for an overview of delay factors and pathogens versus the SCM tools for overcoming the delays, which should lead to better time management in future Malaysian public sector construction projects.

The seventeenth paper, written by S.M. Shafie, Z. Othman, and N. Hami, investigates the biomass blending life cycle assessment of paddy residue, cash crop, industrial crop, and garden waste in electricity generation. The authors find that the environmental and cost assessment shows a range for greenhouse gas emissions that varies from 0.02 kg CO_{2EQ}/kWh to 6400.04 kg CO_{2EQ}/kWh, while the cost varies from RM0.01/kWh to RM16.10/kWh. The transportation process is a most critical process that needs extra extension due to the high GHG emissions and cost consumption.

The eighteenth paper, written by S.H. Ibrahim, Q. Roslan, R. Affandi, A.W. Razali, Y.S. Samat, and M.N.M. Nawi, examines the important role of a roofing system in house design, which contributes 70% of the total heat gain. The authors find that there is a lack of a ventilation system available at the top part of the house. The optimum roof type is tested on a small-scale model and verified by using the Computational Fluid Dynamic (CFD) simulation software, proving that a roof opening (passive design) reduces the indoor temperature by up to 7°C and helps to reduce overheating inside a house.

The nineteenth paper, written by N.K.M. Isa, M.Y.M. Yunus, M.H. Ibrahim, K. Ismail, and M. Marzuki, explores the delivery process of green building project from the perspective of the developers. The authors attempt to identify the factors that encourage the housing developers to conduct green building projects, as well as the strategies to promote green building project delivery. They find that social and cultural factors are important drivers for green building and that, therefore, these factors should represent a main consideration for green building development strategies.

The twentieth paper, written by N.M. Russ, M. Hanid, and K.M. Ye, conducts an extensive literature review to identify the elements that contribute to the green cost premium in building construction. The authors find that there are seven categories of elements and factors that contribute to the green cost premium and that these elements all need to be considered in order to develop strategies to minimize the sustainable building construction project cost.

We hope that this special edition of IJTech provides useful information and knowledge and conveys new insights into the methods with which we conduct our research. We are pleased to

accept and respond to any comments or inquiries that you may have regarding the direction and content of IJTech, and we invite you to join us in this venture by sending your work for future consideration.

Warmest regards,



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