Editorial Notes

Welcome to International Journal of Technology

Theme: Improving System Performance through Design and Technological Advancements

Organizations that deliver the advancement of design and technology to their end users realize the significant value of innovation, productivity and growth. Due to the design and technological advancements, many organizations are moving towards the use of a more sophisticated solutions allowing for maximum achievements and capabilities to improve products/projects performance. The introduction of new design and improved technology have allowed for the development of new highly effective business models. These, in turn, create an increase in demand for better and more efficient technologies to cope with the stakeholders' expectations and increasing the organization's competitive level. The need to constantly improve the performance and quality of product or project bring forth the need of advanced design and technologies.

Furthermore, a strong relationship among the government, universities and industries plays an important role affecting the design and technological development. Such collaborative efforts exploit the existing and supporting the development of new resources, facilities, knowledge, and skill in the hope of stimulating innovative performance. On top of that, design and technological advancements are important because they provide economic benefits and business growth and new ways to provide services or products that increasing the society's living standards.

This season, we are pleased to present ten selected papers dedicated to improving system performance through design and technological advancements. This issue is aimed to promote innovative processes of creating and delivering value-added products or projects to stakeholders.

The first paper, written by B. Pieprzyk and U. Lahl, discusses the correlation between the development of agricultural production and the change in land use. They argue that the main driver of land use change in the past is due to agriculture growth, which can be used for indirect Land Use Change (ILUC) predictions and prevention policy. ILUC predictions mainly depend on the assumption how additional agricultural demand for biomass production is produced. As a consequence, the authors argue that the government has a central influence on the development of land use. Therefore, supported instruments have to be developed and implemented in order to regulate the land use sophistically in accordance with the country's policy on land usage.

The second paper, written by Y. Shibata, investigates the utilization and maintenance of abandoned urban farmland in Kansai, Japan. This paper discusses on the amount and the distribution of farmlands in the urban area and the characteristics of urban farmland conservation efforts by new utilizations with new entities. The findings show that in the Kansai metropolitan area, 8,393 hectares of farmland exist in 167,805 hectares of the urbanization promotion area and the ratio of the farmland is 5.0%. Furthermore, based on 9 types and 268 cases of the new utilizations of urban farmland studies, the author argues that the role of the intermediary organization is important to entrust the utilization and maintenance of abandoned farmlands by new entities.

The next paper, written by Y.A. Yatmoand P. Atmodiwirjo, presents various spatial strategies for domestic service activities in urban *kampung* houses, through the development of dwelling typology based on spatial organization of domestic service space. The spatial arrangement of domestic service activities might be problematic in dwellings with limited size of space, as found in housings for low income occupants. The findings suggest various spatial strategies in allocating domestic service activities within the available space, including the use of front area of the house, the outdoor extension area of the house, as well as collective use of space for certain domestic service activities.

The fourth paper, written by M. Elfani and N.K. Putra, discusses on the potential of biomedical engineering on jobs creation in Indonesia. The paper presents statistical analysis of the latest biomedical engineering employment in Indonesia and the comparison analysis with the government standard and counterpart countries: United Kingdom, Japan and Malaysia. This paper concludes that biomedical engineers as high-skilled professionals with advanced qualifications are required to fulfill the future needs in health and medical expertise in Indonesia.

The fifth paper, written by M.A. Berawi, B. Susantono, H. Abdul-Rahman, M. Sari, Sesmiwati, and H.Z. Rahman, discusses on the integration of quality management and value management methods to create added-value for building projects. Stimulating innovation using value management through the addition of new functions in a

building can be seen as a way to optimize the investment cost. Meanwhile, the quality management method is applied to ensure the performance of a building project with added value that is systematically managed during the lifecycle of a project. As the significant findings indicate, the paper evaluates how the quality processes and the identification of additional functions can be applied to deliver efficiency and more added-value in building construction projects, e.g. energy efficient buildings.

The next paper, written by M.A. Shoushtary**,** discusses on the effect of information communication technology (ICT) on workforce productivity. The statistical population of the study includes all managers and staff members working in different areas related to ICT of Iranian national oil company. The findings showed that office automation, intranet, and information management system had a considerable effect on managerial, organizational and human productivity of the company, mainly on reducing the information access time, reducing the costs to save information, and increasing the speed of works.

The seventh paper, written by Y. Latief, A. Wibowo, and W. Isvara, discusses on alternative approach of preliminary cost estimation model using regression analysis incorporated with adaptive neuro fuzzy inference system (ANFIS). Datasets of 55 low-cost apartment projects are compiled to demonstrate the advantage of the method. The authors argue that the mean absolute percent error (MAPE) of the data used in the test of the hybrid modelis 3.98% which claimed as having a better accuracy performance compared to other individual estimation method, such as regression analysis(6.92%) and neural network (10.12%).

The next paper, written by M. Mamat, E. Kusrini, A. Yahaya, M.Z. Hussein, and Z.Zainal, discuses on the synthesize of Nanocomposites of zinc-aluminium-anthranilate (ZAAN) at different concentrations of anthranilic acid by co-precipitation method for pharmaceutical research. These materials were examined in detail by powder X-ray diffraction (PXRD) which showed the expansion of the basal spacing from 0.89 to ca. 1.33 nm and the shifting of the 003 peak towards lower 2θ angle. The authors conclude that the ZAAN materials are successfully synthesized by intercalation of Anthranilate Ion into Zinc-Aluminium-Layered Double Hydroxide. The resulting nanocomposites show Type IV adsorption isotherms with Type H3 hysteresis loop indicating that the materials have slit-shaped pores.

The ninth paper, written by M.R.M. Perang, H. Nasution, Z.A. Latiff, A.A. Aziz, and A.A. Dahlan**,** examines the replacement of HFC-R134a with hydrocarbon mixture for automotive air conditioner. The performance characteristics of the current automotive air conditioning system is evaluated, including the power consumption, cabin temperature and coefficient of performance at various internal heat loads and engine speeds using hydro-chlorofluorocarbons refrigerant (HFC-R134a) and automotive hydrocarbon mixture refrigerant (AHCR) as the working fluid of the compressor. Both refrigerants are tested on the experimental rig and the results show that the performance characteristics of the AHCR indicate positive improvement of the system compared to HFC-R134a.

The last paper, written by F.H. Juwono, Y. Triprasetyo and D. Gunawan, analyses the use of low-density parity-check (LDPC) codes for improving the performance of clipped-orthogonal frequency division multiplexing (OFDM) system that been used as a multicarrier transmission technique in wireless high-data-rate transmission. This paper compares the effects of LDPC codes implementation as error correction coding (ECC) to three types of coding, namely classical clipping, deep clipping, and smooth clipping. The simulation results show that classical clipping gives the best performance in peak-to-average power ratio (PAPR) reduction and error probability.

I hope that this special edition of IJTech conveys some new insights in the way we conduct our research. I am pleased to accept and respond to any comment and enquiry you may have on the direction and content of IJTech and I invite you to join us in this venture by sending your work for consideration.

With warmest regards from editorial desk,

Dr. Mohammed Ali Berawi
Editor-in-Chief
International Journal of Technology (IJTech)