Editorial: Managing Science and Technology During Crisis and Emergency

Welcome to a New Age

WITH our most recent issue, I had welcomed all to a new decade not knowing what waits for all of us ahead. I am writing these lines under stay home orders. We have turned our homes into offices, schools, gyms, restaurants, and movie theatres. Technology helps us to achieve many things which, we were not able to do when we had a similar outbreak in 1918. We are witnessing information technology helping people in various ways. We are also seeing how science and technology are shaping national policies. We are yet to see how we will come out of this crisis. I am sure we will be much stronger. I also think that we will need to think what we need to change going forward.

As IEEE TEM, we are making every effort we can to help. In 2018, we had initiated a special issue on "Modeling & Simulation in Disaster & Emergency Management," which was led by Prof. Adriano Solis. The issue was recently completed. Most papers are available online now. We are pulling the publication of the issue to an earlier date so that any new finding can help. We are also working with several colleagues around the world to kick off a new special issue on "Overcoming Challenges for Humanity to Fight Global Outbreaks. How Technology Can Build Resilience to Achieve a Sustainable World," which will be led by Prof. Domingo E. Ribeiro Soriano.

About This Issue

There are 18 papers in this issue and are listed per the thematic areas of Technology and Engineering Management Society (TEMS) they match.

Mastering the Challenges of Regulations, Policies, and Standards

1. *Self-Driving Car Acceptance and the Role of Ethics:* S. Karnouskos explored what makes consumers think of buying a self-driving car. The findings of this research are already providing important information for a rapidly growing industry.

Integrating Technology for Capability and Productivity

2. *Architectural Convergence and Platform Evolution: Empirical Test of Complementor Moves in Videogames:* A. Srinavasan studied the convergence of videogames at the platform level. The results contribute to a multibillion dollar videogames market.

Moving Product/Services From Idea to Market

3. *Exploring Viral Phenomenon Methodology for Tangible Purchased Products: Case of iPod and iPad:* A. Boppolige and A. Gurtoo studied a market penetration phenomenon referred as Viral Phenomenon in the case of iPod and iPad. The results will help researchers and practitioners to differentiate between hype and a rapid market penetration.
4. *The Direct and Indirect Impact of Relational Ties on Innovation Performance: An Empirical Study in China:* Z. Wang, R. J. Jean, and X. Zhao explored how technological turbulence and dysfunctional competition; relations ties and innovation are related.
5. *Strategic Alignment of an R&D Portfolio by Crafting the Set of Buckets:* L. Santiago and V. Soares studied how companies manage their R&D portfolios through seven different case studies ranging from energy to manufacturing industry.
6. *Invest Heavily and Symmetrically: The Impact of Specific Investment on the Performance of R&D Collaboration:* H. Su and Y. Bao surveyed Chinese companies to focus on how companies collaborate on R&D and what could help the process.

Identifying and Implementing Successful Projects and Systems

7. *Analysis of the Implementation of a Lean Service in a Shared Service Center: A Study of Stability and Capacity:* F. Flores Sum, I. C. de Paula, G. Tortorella, A. Teixeira Pontes, and R. Tilemann Facó examined another strong growth sector: shared services as shared economy has established itself as a major sector in our lives.
8. *Multi-Attribute Framework for Requirements Elicitation in Phased Array Radar Systems:* M. Tompkins, J. Fosaceca, and R. Iaammartino brought us a case from the defense sector. They provided an application that improves project outcomes by matching system requirements with project goals and constraints.
9. *A Standard Description of the Terms Module and Modularity for Systems Engineering:* M. Efatmaneshnik,

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S. Shoval, and L. Qiao shed a light on modularity with several industrial examples.

10. *Study on Identification of Spurious Public-Private Partnership Projects in China:* Q. Liang and H. Hu developed a hierarchical decision model to evaluate public–private partnership projects.
11. *Let Scheduling for Funding Scenario Analysis of Highway Construction Projects With a Case of NCDOT:* C. Lim, S. G. Teng, M. Al-Ghandour, and F. Bowen presented a project funding analysis through scenarios and validated with a case from the highway construction sector.
12. *The Future of Economic Decision-Making in Project Management:* B. Galli contributed a review article on decision-making approaches in managing projects.
13. *A Data Envelopment Analysis Method for Finding Robust and Cost-Efficient Schedules in Multimode Projects:* K. Schmidt and O. Hazir used data envelopment analysis to identify the most cost-efficient schedules when scheduling multimode projects and validated it with a construction project.
14. *Predicting Completion Risk in PPP Projects Using Big Data Analytics:* H. Owolabi, M. Bilal, L. Oyedele, H. Alaka, S. Ajayi, and O. Akinade developed a very sophisticated model that used big data analytics to predict risks in projects.
15. *Repositioning Conflicting Partners Under Inventory Risks:* Y. Chen, W. Ho, H. W. Kuo, and T. Kao studied the inventory risks through the channels between retailers and manufacturers.
16. *Risk Minimizing Price-Rebate-Return Contracts in Supply Chains With Ordering and Pricing Decisions: A Multimethodological Analysis:* C. Chiu, H. L. Chan, and T. Choi developed a model minimizing any risks in contracts related to pricing, rebates, and returns for manufacturers.
17. *Pricing and Collection Rate Decisions and Reverse Channel Choice in a Socially Responsible Supply Chain With Green Consumers:* Y. Liu and T. Xiao presented a closed-loop supply-chain model for manufacturers to work with their socially responsible green consumers.
18. *Does Retailer Benefit From Implementing "Online-to-Store" Channel in a Competitive Market?* S. Yan, Z. Hua, and Y. Bian analyzed how an online-to-store channel would benefit a retailer.

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