

## EDITORIAL PREFACE

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In this issue of the *International Journal of Information Technology and the Systems Approach (IJITSA)*, we deliver four research papers to our international research and professional community interested in addressing IT problems, opportunities and challenges found in organizations using the Systems Approach.

In the first paper entitled *An Innovative Approach to the Development of an International Software Process Lifecycle Standard for Very Small Entities*, Rory V. O'Connor at the Lero - the Irish Software Engineering Research Centre, Dublin City University, Ireland, and Claude Y. Laporte at the École de technologie supérieure, Montréal, Canada, report the important research findings and insights gained during their participation in the development of a new international ISO/IEC standard: the ISO/IEC 29110. This standard has been released as a software process lifecycle standard for very small entities. ISO/IEC 29110 standard has emerged from the contributions from several international software groups located in India, Ireland, Canada, Mexico, Thailand, and Brazil

between others. Thus, authors propose that while the technical side can be adopted by entities in any country, the contextual economic and cultural differences can avoid a successful implementation. Authors use the Roger's 6-stage innovation-development process model and systemic lenses, to describe and analyze the realized implementation efforts lead by the ISO/IEC JTC 1/SC 7/WG 24 Working Group focused on SDLC Profile and guidelines for VSE (very small entities). Authors, thus, contribute to the Software Systems Engineering research stream providing important and updated insights gained in a systemic action research mode for successful adoptions of software process standards in VSE.

In the second paper entitled *Implications of Pressure for Shortening the Time To Market (TTM) in Defense Projects*, Moti Frank at HIT-Holon Institute of Technology, Israel, and Boaz Carmi at IMI-Israel Military Industries, Israel, address a contemporaneous relevant problem found in large-scale systems engineering industries: organizational pressure for the reduction of the Time to Market (TTM)

performance indicator. Authors report that with the emergence of agile systems engineering approaches, many international organizations working as contractors for other international organizations might consider such approaches as an adequate solution. For gaining insights on it, authors conduct a laboratory experimental design to contrast the effects of using classic rigorously systems engineering methods versus agile proposals. Results obtained from experiments, according to authors, suggest that agile methods are not adequate when a long-term perspective of benefits is considered. A hybrid approach is finally recommended. Thus, this paper contributes to the Systems Engineering research stream related with the short and long-term effectiveness and efficiency views of using agile and traditional Systems Engineering methods for developing products and services.

In the third paper entitled *Towards a Conceptual Framework for Open Systems Developments*, James Cowling, Christopher Morgan, and Robert Cloutier, at Stevens Institute of Technology, USA (first and third co-authors) and at PA Consulting Group, UK (second co-author), identify a highly relevant real problem which has been implicitly overlapped by current research literature in software systems engineering: successful replication of open system development process. Authors elaborate a thoroughly analysis of the theoretical underlying plausible models for describing the behaviors and interrelationships in open projects where a traditional organizational hierarchical and accountability management structure is missing. Authors propose that open projects are characterized by: *engagement of a diverse community, establishment of democratic governance structures, and an evolutionary or iterative development process*. Using such characteristics, authors investigate three usual domains (software development, book co-writing, and open manufacturing) for identifying shared project management

principles. Finally, authors propose an Open Systems Development Conceptual Framework, which can be used as a high-level research model which guides to its quantification (e.g. a research model with measurable constructs and interrelationships) for further research. With it, authors contribute to the Systems Engineering domain bringing to the research community the need for conducting more investigation on the openness phenomenon and lately for achieving successful replications of its utilization.

In the last fourth paper entitled *An Agile Project System Dynamics Simulation Mode*, Anthony White, emeritus Professor at Middlesex University, UK, uses a Systems Dynamics method for studying and comparing an agile vs a classic Waterfall software project management model. In particular, the volatility of requirements data is considered in both models as a key uncontrolled simulation parameter of analysis of scenarios, which leads to expected and non-expected results. In the former case, author finds that the undiscovered rework is less for the agile project and that shorter time-box iterations yield a shorter overall project completion. In the latter case, author finds that for the same productivity and fraction of errors that are satisfactory, the overall development staff costs are similar for agile and waterfall projects. With this research, author contributes to the Software Engineering area reporting new insights on the plausible effects on productivity and costs metrics of software projects regarding the type of software development approach (agile vs classic) and the extend of uncontrolled requirements volatility parameter. These results are also useful for software project managers to estimate the performance of planned agile projects.

These four high quality research papers constitute the *IJITSA 7(1)* issue. Hence, we consider that the 13<sup>th</sup> IJITSA issue contributes –as past issues- to advance our scientific and practical knowledge of structures, mechanisms,

and plausible solutions on relevant theoretical and real problems found in the fields of Information Technology, Software Engineering, Systems Engineering and Philosophy of System Sciences, from an interdisciplinary systems paradigm. High quality research papers that contribute to this aim are asked in this journal.

Finally, IJITSA Editorial Team recognizes the invaluable academic contribution from Emeritus Professor Frank Stowell, at University of Portsmouth, UK. Professor Stowell served as Editor-in-Chief in IJITSA from 2010 to 2013 years. During its administration IJITSA advanced in its academic path for being recognized as an international scholarly journal respected by research community interested in the Systems Approach in the disciplines of Information Systems, Software Systems En-

gineering, and Systems Engineering. IJITSA Editorial Team thanks to Professor Stowell his academic leadership.

*Manuel Mora*  
*Editor-in-Chief*  
*IJITSA*

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