EDITORIAL PREFACE

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In this issue of the *International Journal of Information Technology and Systems Approach* (IJITSA), we deliver four research papers which address Information Technology problems, opportunities and challenges found in organizations by using a Systems Approach and/or an interdisciplinary research in the disciplines of Information Technology, Software Engineering or Systems Engineering.

In the first paper entitled *Rural Intelligent Public Transportation System Design: Applying the Design for Re-engineering of Transportation eCommerce System in Iran*, Leila Esmaeili and Seyyed Hashemi at the University of Technology, Tehran, report the design of an Intelligent Public Transportation System in the rural sector (RIPTS). The concept of operations for RIPTS is defined as a system which offers services to different stakeholders (drivers, passengers, travel agencies, and regulatory agencies) as well as control and provision of its management through applying the integrated mobile communication (GPRS, RFID, NFC, WI-FI) and computing technologies (cloud, grid, GIS, GPS). Its design aim is to have a system with less pollution, less fuel consumption, and less cost and time and with increased safety and convenience. Authors report the RIPTS design, and a simulation model of a core sub-system of RIPTS: the Rural Public Transportation Electronic Commerce Systems (RPTECSs). The sub-system RPTECS must provide buying and selling rural transportation services (e.g. air tickets, train tickets, schedule information, and other usual ecommerce issues) through the Internet or mobile communication networks. For this aim, authors use Petri Nets and conduct several experiments for evaluating systems performance metrics resulting from several design decisions. This paper, thus, contributes to the Systems Engineering research stream on system design by simulation methods by reporting an innovative study on system design of rural transportation systems enhanced with modern Internet and mobile communication technologies in the context of developing countries.

The second paper is entitled *Autonomic Execution of Web Service Composition Using AI Planning Method,* and is co-authored by Chao-Qun Yuan and Fang-Fang Chua at Multimedia University, Malaysia. Authors use an interdisciplinary research approach combining design methods from the Artificial Intelligence discipline with design methods from the Software Engineering discipline for addressing the problem of keeping correct Web Service Composition configurations in high dynamic business requirements environments. As authors indicate *Web Service Composition is one of the technologies in Service Oriented Architecture which significantly increases the flexibility and reusability of developing service-oriented system.* Thus, its configuration maintenance is a *headache* for software engineers. Authors propose an automated system to intelligently and autonomously execute the web service

composition. For this aim they have embedded a *semantic engine and a Prolog inference engine in a C# program to automatically and dynamically discover, compose and execute web service composition*. Thus, this paper contributes to the Software Engineering research stream related with the design of Service Oriented Architecture systems with an innovative solution for a current and relevant problem.

The third paper is entitled *Productivity Measurement in Software Engineering: a Study of the Inputs and the Outputs*, and is co-authored by Adrián Hernández-López at the Universidad Carlos III de Madrid, Spain, Ricardo Colomo-Palacios at Østfold University College, Norway, Pedro Soto-Acosta at Universidad de Murcia, Spain and Cristina Casado-Lumberas at International University of the Rioja, Spain. In this paper, authors conducted an empirical interdisciplinary research where qualitative and quantitative methods are used for studying classic software productivity metrics, its utilization by different software engineering roles, and for identifying enhanced and more updated software productivity metrics. In the qualitative phase 15 software engineering professionals in Spain country were contacted through an email survey and interviews. In the quantitative phase, 158 software engineering professionals were contacted. Main findings from both studies are the identification of new and innovative software productivity metrics used in the practice, and the utilization of different metrics for each software engineering role. Thus, this paper contributes to the Software Engineering research stream on productivity metrics by providing empirical evidences on the need to update the classic software productivity metrics and on its customization for specific software engineering roles.

The last fourth paper entitled *An Extensive Review of IT Service Design in Seven International ITSM Processes Frameworks: Part II*, is co-authored by Manuel Mora at the Autonomous University of Aguascalientes, Mexico, Jorge Marx-Gomez at the University of Oldenburg, Germany, Rory O'Connor at Dublin City University, Ireland, Mahesh Raisinghani at Texas Woman's University, USA and Ovsei Gelman

at CCADET. Universidad Nacional Autonoma de Mexico, Mexico. In this paper, authors complete (part I of this research was reported in the IJITSA 7(2) issue) the systemic analysis of the IT service design processes included in seven international well-known IT Service Management (ITSM) frameworks. They used the ISO/IEC 15288 systems engineering standard as the theoretical lenses for the systemic analysis. Authors found that CMMI-SVC and ITUP are assessed in overall as the strongest frameworks from Systems Engineering view, MOF 4.0 and ITIL v3 as moderate, and ISO/IEC 20000, ITIL v2 and CobIT as the weakest frameworks. Authors also report several recommendations for ITSM academicians and practitioners for distinguishing their utilization according to the level of required detail of the IT service design process. This paper aims to advance our comprehension and understanding on the state of the art regarding what are IT services and how they can be designed. Thus, this paper contributes to the Systems Engineering and Information Technology disciplines with a thorough systemic analysis of the IT service design process reported in the most important ITSM frameworks.

These four high quality research papers constitute the IJITSA 8(1) issue. Hence, we consider that the 15th IJITSA issue contributes –like 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.

Sincerely, Professor Manuel Mora, EiC of IJITSA,
Autonomous University of Aguascalientes, Mexico

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ACKNOWLEDGMENT

We thank contributors, the integrants of the IJITSA ERB, the eminent scholars in the Honorific ERB, and the IGI editorial staff for their invaluable support for the successful realization of this issue.