Welcome message from the Editors-in-Chief

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Welcome to the inaugural edition of the EAI Endorsed Transactions on Energy Web Transactions! This journal is positioned at the forefront of the efforts related to the new generation of energy production and distribution as a forum for the most forward looking frontier research undertaken by the international scientific community to investigate the potential transformative role that ICT can have on the energy sector. We will publish original works reporting on prominent advances in the area of ICT-enabled energy systems that challenge traditional thinking to find solutions to the ongoing energy problems spanning from blackouts to green and alternative energy.

With ICT pervading everyday objects and infrastructures, the 'Future Internet' is envisioned to leap towards a radical transformation from how we know it today (a mere communication highway) into a vast hybrid network seamlessly integrating knowledge, people and machines as techno-social ecosystems whose behaviour transcends the boundaries of today's engineering science. From self-reconfiguring manufacturing plants and self-stabilizing energy grids to self-deploying emergency taskforces – such ecosystems relying on a myriad of mobile devices, software agents and human users will be spontaneously deployed through eNetworks on the sole basis of local rules and peer-to-peer communication. This trend is driving a much needed radical transformation of the energy sector metamorphosed into a pervasively adaptive ecosystem of hybrid energy providers in which local microgrids of prosumers (producers and consumers) will interact with large power providers in a coopetition-driven manner. Several technologies are currently racing to production to meet this dream, from 'smart dust' to hybrid networks capable to control the emergence of dependable and reliable green and energy-efficient ecosystems – which we generically term the 'energy web' – calling for major paradigm shifts highly disruptive of the ways the energy sector functions today.

This inaugural issue of the EnergyWeb Transactions presents two works, which are representative for the Energy Web research and development.

The paper by J. González et al. presents a comprehensive survey of international standards related to SmartGrid. This work attempts to unify different viewpoints on smart grids that exist in the US and Europe and focuses on what is understood as smart grids. One agreement of almost all approaches is the need for standardization to operate smart grids. It reviews several studies and roadmaps mainly dealing with smart grid standardization since these documents are focusing on different aspects of smart grid realizations and were developed independently from each other. To make reliable statements about the approaches the paper presents the Smart Grid Maturity Model (SGMM) a methodology enabling comparability and measurability. Moreover, a configuration approach based on several parameters representing significant characteristics, is suggested to meet all requirements for such assessments.

The work by A. Gheorghe and D. Vamu is devoted to a better understanding, monitoring and good governance of some of the complex security issues confronting contemporary energy systems via what they call 'serious games'. These are exercises involving stakeholders which

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explore various alternative policies and their effects on behavioural change, with the ultimate purpose to deliver a "Go change yourself - in a resilient fashion!" strategy, easily extensible to other areas prone to drastic changes based on substantial substitutions - hardware, software and mindware - under relatively short time horizons..

Mainly focused on standards and policies needed to support a smooth transition from today's centralized grid to tomorrow's Energy Web, we do hope this first issue of our Journal will raise your interest to both contribute to and read our articles in the futures to create together a cross-fertilization of ideas that will bring this dream to fruition sooner.

About Editors-in-Chief

Professor Mihaela Ulieru is a seasoned expert in ICT-enabled innovation and President of the IMPACT Institute for the Digital Economy, aiming to capitalize on her achievements as the Canada Research Chair in Adaptive Information Infrastructures for the eSociety which she held for five years since July 2005. Along her over 25 years carer Professor Ulieru led several large scale projects targeting the management of complex situations through more organic ways of governance, attacking very challenging problems from original perspectives which require a high level of interdisciplinarity. Among the highlights her large scale international collaborative projects aiming to make ICTs an integral component of policy making for a healthier, safer, more sustainable, and innovation-driven world are: Future of Medicine, Living Technologies and Emulating the Mind. In 2007 she was appointed to the Science, Technology and Innovation Council of Canada by the Minister of Industry, to advise the government and provide foresight on innovation issues related to the ICT impact on Canada's economic development and social well-being against international standards of excellence. In 2006 she was appointed to the Science and Engineering Research Council of Singapore, and in 2010 she was appointed Expert in ICT-Enabled Innovation at the Executive Authority for Scientific Research and Innovation of Romania, and as Adjunct Research Professor at Carleton University, in Ottawa. Frequent invited speaker at most prestigious venues, Professor Ulieru was on the Governing Board of IEEE-IES and on the Scientific Board of several EC Networks of Excellence in the Future and Emerging Technologies ICT Directorate. As a tenured professor at the University of New Brunswick (2005-2012) she founded the Adaptive Risk Management Laboratory with Canada Foundation for Innovation sponsorship, and led multi-million dollar projects with NSERC, NBIF, CANARIE and DRDC.

Professor Valeriy Vyatkin is an expert in advanced ICT for industrial applications. He is the Chair for Dependable Communication and Computation Systems at Luleå University of Technology, Sweden.

Through his international career in Russia, Japan, Germany, New Zealand and Sweden, Professor Vyatkin has been leading several milestone research endeavours in various areas of industrial informatics.

He has been leading research and education effort towards establishing software architecture for the next generation industrial automation systems which will be intelligent, collaborative, inherently secure and safe and open thanks to the compliance with international standards, such as IEC 61499 and IEC 61850.

His research interests are in the area of dependable distributed automation and industrial informatics, including software engineering for industrial automation systems, distributed architectures and multi-agent systems applied in various industry sectors: SmartGrid, material handling, building management systems and reconfigurable manufacturing.

Professor Vyatkin is also active in research on dependability provisions for industrial automation systems, such as methods of formal verification and validation, and theoretical algorithms for improving their performance.