
Editorial

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Biographical notes: Tomayess Issa is a Senior Lecturer at the School of Information Systems at Curtin University, Australia. Her PhD research was mainly about web development and human factors. She has vast experience in Australian tertiary education, teaching in information systems area. She has published several journal and conference papers in her research interest. Currently, she conducts research locally and globally in information systems, usability and human-computer interaction, social network (including Web 2.0 and Web 3.0), sustainability and green IT, cloud computing, networking and operating systems. She is a member of ISRLAB, and project leader in the international research network [IRNet-EU (January 2014 to December 2017)].

Theodora Issa is a Senior Lecturer at Curtin University, Australia. Her PhD thesis on ethical mindsets was the recipient of the 2010 EFMD/Emerald Outstanding Doctoral Research Award. She also holds three Master's degrees in Business Administration, Electronic Commerce and Management Research. In August 2011, she was awarded 'The New Researcher of the Year' prize of the Curtin Business School, Australia. In 2013, she was awarded the prize for Highest Return on Performance Index points for Early Career Researcher in Curtin Business School. She had published and continues to publish several peer-reviewed journals, books, edited books and book chapters.

Pedro Isaias is an Associate Professor at the Universidade Aberta (Portuguese Open University) in Lisbon, Portugal, responsible for several courses and former Director of the Master degree programme in electronic commerce and internet. He is the author of several peer-reviewed publications in the

information systems area and he has headed several conferences and workshops. He has also been responsible for the scientific coordination of several EU funded research projects. He is a member of the editorial board of several journals and program committee member of several conferences and workshops. He is an Adjunct Professor at the School of Information Systems, Curtin University.

The jury is still out on a definite decision as to whether academics and practitioners in universities and businesses might be playing a positive role in raising fostering the awareness amongst of their stakeholders concerning in relation to their responsibilities towards the world. This seems to be vital especially with the ongoing the uncertainty, the ever-changing, dynamic globalised and contemporary business world. It is anticipated that higher education has a responsibility towards their main stakeholders (i.e., students) in raising their awareness towards sustainability, corporate social responsibility, stewardship, the triple bottom line, and the likes just to name a few. Indeed, those academics in higher education and in liaison with practitioners in the business world are in need for to develop better strategies to assist in shifting the mindsets of the future generation of managers' mindsets managers or the workforce as a whole to ensure that those in positions of responsibility maintain a thorough understanding that of and appreciate the fact that the current resources will need to last and to serve not only this generation but the seventh generation. To achieve this, the issue of 'sustainability' must be addressed at all levels: economic impact, social dimension and environmental aspects is ensuring that these three dimensions are should be integrated in higher education curriculum and pedagogy. Such inclusion and ongoing cooperation between academia and businesses will might assist and allow the shift in missions, visions, value systems and strategies, to incorporate sustainability, corporate social responsibility, the triple bottom line, and stewardship. These changes might be implemented through training, communication, collaboration and interaction among management and staff. This special issue might provide some humble assistance as it aims at articulating recent trends from the businesses and higher education in the methods and tactics for recruiting new sustainable IT leaders for the 21st century.

This special issue of *World Review of Science, Technology and Sustainable Development*, entitled Tomorrow's IT leadership for sustainable development comprises five papers that provide cutting edge information and knowledge of sustainability development for business and education as well. The guest editors selected these papers from the International Conference on Sustainability, Technology and Education 2013, that was held in Kuala Lumpur, Malaysia (<http://sustainability-conf.org/>). The papers have been extended significantly and peer-reviewed further to achieve a final high publication standard.

The first paper is entitled 'Total design control within the sustainable engineering design process' authored by Anthony D. Johnson. This paper reviews sustainability principles and enhances the design and manufacture model to encompass the whole life of the product from sourcing to disposal. The life cycle approach is well known but the novel sustainability approach presented considers six 'life phases' applying the principles of engineering design to each phase. The management concept has been developed of 'total design control' where it is the design function which controls and specifies all six life phases.

The second contribution is entitled 'Design education for sustainability: a case study for an inclusive approach to design in India' by Shruti Hemani and Ravi Mokashi Punekar. This paper showcases a case study for 'Envisioning a sustainable Guwahati Railway Station Complex of the future' undertaken by students of the Department of Design at the Indian Institute of Technology, Guwahati. The paper highlights the importance of participatory design, systems thinking and collective group learning when engaged in the design of complex public systems such as a railway station. It makes the case for design education for sustainability in the rapidly urbanising Indian context and concludes that design education should include approaches and methods that sensitise the students to the parameters of sustainability which are contextually relevant, inclusive and socially acceptable.

The third contribution is entitled 'Scientific research support in developing sustainable transport in Romania', in Romania by Laurentiu David and Frantz Daniel Fistung. This study aims to reveal the present level of scientific research in Romania, to identify the obstacles that have caused low support research and development for sustainable transport development in Romania, as well as to bring into discussion the measures that have been suggested for improving the existing situation, particularly the production and use of biofuels which are considered an important chapter in greening of transport. The research investigated, first the targets, mechanisms and supporting tools for transport scientific research by comparing the situation in Romania with those in some other EU member states, as well as, provided an analysis of the intensity of scientific research in Romania and the requirements for improving the quality and volume of transport using 1990 as the reference year for changing of the national economic system before presenting a set of recommendations for improvement of the transport.

The fourth contribution is entitled 'E-learning sustainability: creation of a new platform for designing new community identity through lifelong learning' by Dalia Gallico. Creating a new e-learning platform is an important way of building a new design community identity through lifelong learning, a significant meeting space for not only professionals, but also for people working outside established enterprises to assess and make improvements in sustainable supply chain management. The e-learning platform launched by University S. Raffaele Roma is now raising awareness and opening new markets for the green economy by spreading a positive vision, bringing effective tools to people's attention, putting players in touch, creating systems, highlighting good practices, and improving good models. A design observatory organises research and events that run parallel to the big Milan shows all year round. The objective is to create a permanent place for meetings and exchanging knowledge, for spreading throughout the world of design and business the idea that sustainable development is an opportunity not to be missed (Italian design as a value, innovation and strategy -not only for product but also process!). It provides rigorous product development and service consistent with the needs, models of fruition and the symbolic/emotional expectations of users, but also is attentive to the process and production costs and sensitive to environmental themes (minimisation of pollution, ease of waste disposal and the possibility of recycling).

The last contribution, entitled 'International market competitiveness of Japanese green innovation technologies: an analysis using patent data' by Kenichi Imai. This study investigates whether there actually is a gap between the international market competitiveness and the strength of green technological innovation in Japan. An analysis

of patent data of 2006 and 2012 from the Japan Patent Office on green technologies of Japan, Europe, the USA, Korea, and China shows that both in 2006 and 2012, the overall international market competitiveness of Japanese green technologies was low in relation to the pace of technological innovation in Japan. In contrast, the international market competitiveness of European and US green technologies was higher overall in relation to the pace of innovation in these countries. This study also found that the gap between international market competitiveness and technological innovation in Japanese green technologies narrowed between 2006 and 2012, due to a significant decline in Japanese technological innovation.