Guest editorial

Digital economy and the role of technologies, people and processes in society

Don Tapscott's wrote in 1997 the best-seller titled *The Digital Economy: Promise and Peril in the Age of Networked Intelligence*. In the Digital Economy, three key aspects emerge – technologies, people and processes. This special issue aims to address technologies (i.e. Information Systems/Information Technologies, digital smart technologies), people and processes within Digital Economy initiatives, such as e-Business, e-Learning and e-Society Developments. The three key aspects mentioned – technologies, people and processes – are crucial for the development and growth of the current and future Digital Economy. Information and Communication technology is being deployed to assist people and entities to cooperate more meaningfully within and across different fields. Its disruptive potential transforms the core of central areas of society and provides them with unprecedented opportunities for reinvention and improvement. As the Digital Economy evolves via innovation and progressive thinking, it finds answers to the challenges that arise in a society that is a permanent state of change.

This special issue of the *Journal of Information, Communication and Ethics in Society* entitled "Digital Economy and the role of Technologies, People and Processes in Society" comprises a collection of five papers that depict forward-looking research on the various facets of technology and its impact on several areas of society, namely business and education. The guest editors selected these papers from the Internet Technologies and Society 2017 Conference (ITS 2017) and the International Conference on Educational Technologies 2017 (ICEduTech 2017), which were both held in Sydney, Australia. The selection of the papers was based on their conference version's reviews and their suitability to the purview of the journal. The original conference papers have been extended significantly and resubmitted to peer review to ensure a high publication standard.

The first contribution "Framework for enhancing online working- together relations", by Ana Hol, Mousa Abu Kashef and Athula Ginige proposes a novel framework to identify the effectiveness of existing technological applications in the context of working-together relations. Collaborative work is central for the operational routines of private, public and non-profit institutions. As technology evolves to facilitate innovative approaches to communication and collaboration, it is important to assess how successful they are in serving the users collaborative practices and needs. With the aim of identifying the characteristics that determine the success of online applications in supporting users to work-together, the authors performed an inductive analysis of pertinent literature and 21 working-together online applications. Their findings highlighted four categories of working-together relations: networking, coordination, cooperation and collaboration. Those categories were then organised in view of nine characteristics (relationship style, time commitment, primary focus, mutual sharing of resources, sharing of turf, level of trust, risks and responsibilities, rewards and achieving a common purpose) and four primary processes (exchanging information, altering activities, sharing resources and enhancing the capacity of another). The authors further determined that three characteristics were particularly influential for working-together relations: trust, risk and rewards. The successful applications for collaboration showed that mechanisms for risk minimisation assumed a predominant role until the moment where trust was established. At the same time, high rewards are likely to cause users to take higher risks. Reflecting about the interaction among these three

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characteristics can result in an improved design of online applications for the support of working-together relations.

The second paper titled "Mapping and visualization: chosen examples of international research network results", by Eugenia Smyrnova-Trybulska, Nataliia Morze, Olena Kuzminska and Piet Kommers elaborates on one of the popular trends in international networks, the mapping of scientific domains and the visualisation of research findings. Mapping and visualisation of scientific domains can be regarded as a research methodology, which is growingly attracting interest from scientists of the information field and various disciplines. Contemporary science is benefiting from the transformative potential of new information and communication technologies that focus on the promotion of cooperation between researchers and scientists and on supporting their collaborative efforts. The authors presented an example of the application of the "Test-Operate-Test-Exit" (TOTE) model, used to monitor the network interaction of scientists as well as the performance of the participants of the IRNet international project, involving representatives of 10 universities from different countries. Bibexel, Pajek and VosViewer are programs employed to process and visualise bibliographic and bibliometric data, which were analysed by the researchers with the intent to present intermediate outcomes of the publication activity of the participants of the project and depicted various examples of visualisation. The outcomes of the evaluation resulted into two sets of indicators: network cooperation, which pertains to the publication activity and cooperation, and the degree of elaboration of the subject field, which concerns the topics of publication.

The third contribution "Model for the enhancement of learning in higher education through the deployment of emerging technologies", by Pedro Isaias outlines a model for the selection and adoption of emerging learning technologies within higher education. This paper equally presents an overview of prospective learning settings to provide an understanding of the evolution of higher education. It explores the impact of technology in the redefinition of learning spaces and the challenges it causes. Learning technologies have become important allies of higher education institutions as they face the challenges of meeting the demands of the twenty-first century students and of maintaining their competitiveness. Despite the pervasiveness of educational technology, the higher education sector is still failing to maximise the full potential of technology to assist the entirety of the learning process. Simultaneously, the panoply of existing learning technologies, and their multiple possible applications, can constitute an impediment of its implementation. In view of these challenges, the author draws from relevant literature, in the field, to outline a model based on five core traits that define learning today: personalised, ubiquitous, collaborative, lifelong and authentic. The author posits that these characteristics of learning can be attained and supported by specific technology. Hence, the model associates personalised learning with adaptive learning technologies and artificial intelligence; ubiquitous learning with mobile technology; collaborative learning with social technology; lifelong learning with massive open online courses (MOOCs); and authentic learning with virtual and augmented reality, gamification and the Internet of Things.

The fourth paper "Interdisciplinary knowledge cohesion through distributed information management systems", by Daniel Kaltenthaler, Johannes-Y. Lohrer and Florian Richtern Peer Kröger proposed an innovative information management system that enables users, deriving from different disciplines, to register their data in a server application. The access to knowledge is a central aspect of learning. Despite the fact that data exist abundantly, obtaining relevant and valuable information can be an intricate process. The acquisition of knowledge greatly benefits from the use of adequate data retrieval techniques, which assist the swift progression of learning and help students to remain motivated. The retrieval of

pertinent information is even more challenging when diverse data sources are in question. Interdisciplinary subjects require interoperability among entities. While agreement exists on common data standards within the same discipline, it does not occur among different fields. This has repercussions at the level of data exchange and it hurdles the creation of new knowledge among different disciplines. In light of the need for a system that can manage an assortment of data sources, the authors present the information management system RMS Cloud. This system has an intuitive search interface and facilitates information retrieval by means of connecting various distributed data sources to help learners to find inter-domain knowledge. The authors used a category-based data source registration to link different data formats. The search results are gathered by deploying a joint-operation-like retrieval mechanism and the filter mechanism reduces the results to a manageable size. A search map empowers users from different disciplines to search for information without the need to know each data source. This system supports computer-assisted collaborative learning and content exchange, by enabling cross-connections of knowledge originating from diverse fields.

The fifth contribution, entitled "Towards formation of dynamic value chains to enhance competitiveness of commercial lighting industry", by Ashini Wesumperuma, Athula Ginige and Upul Gunawardana, examines the strategies that the commercial lighting industry in Australia can deploy to enhance its competitiveness, in view of the rising digital connection of its stakeholder community. The commercial lighting sector has two central stakeholders, a retailer entity, which has commercial lights and an installer organisation, which employs the electricians who can install the lights. The authors conducted a cross-sectional study based on interviews with various stakeholders: retailer, retailer and installer/electrician, government agent, independent installer, accredited certificate provider, industry group, consultant, manufacturer, wholesaler, lighting designer and customer. Several stakeholders expressed their interest in expanding their market, but were faced with several obstacles, namely, the lack of suitable value chain partners. The findings of the study observed the existence of the creation of value chains, namely, "Entrusted Circles", and its two types of formations, full and partial. Both formations' growth can be delayed by high transaction costs. As a strategy to decrease the transaction cost and to enhance competitiveness, the authors propose a platform to build dynamic value chains, among stakeholders, by using the rising digital connectivity leading towards agile formation of Entrusted Circles. The advancement of information and communication technology has provided organisations with ample opportunities and various routes to break with more conventional static value chains and embrace dynamic value chains to engage in digital collaboration.

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