
Editorial

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Biographical notes: Manuel Mora is a Professor in the IS Department at the Autonomous University of Aguascalientes (UAA), Mexico. He received his BS in Computer Systems Engineering, and his MSc in Computer Sciences from Monterrey Tech (ITESM), and his EngD in Engineering from the National Autonomous University of Mexico (UNAM). He has published over 80 research papers in international top conferences, research books, and research journals, and he is an ACM senior member, SNI Level I, and EiC of *IJITSA* journal. He serves also in the ERBs of several international journals focused on DMSS and IT services.

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Service systems have been defined as “dynamic configurations of people, technologies, organizations and shared information that create and deliver value to customers, providers and other stakeholders” [Spohrer et al., (2007), p.72]. Service science aims “to discover the underlying logic of complex service systems and to establish a common language and shared frameworks for service innovation” [IfM and IBM, (2008), p.1]. A service system is an emergent and relevant construct (Mora et al., 2009) which can be operationalised as: universities in higher education sector, hospitals in healthcare sector, mobile companies in telecom sector, banks in financial sector, sport leagues in entertainment sector, among multiple other examples. In all of these service systems, the participation of teams is inherent for knowledge and decision intensive tasks.

Specialised information technology (IT) called group-based decision support systems (GDSS) (Gray et al., 2011) and knowledge management systems (KMS) (Alavi and Leidner, 2001) have been posited, developed and studied respectively for supporting a team decision-making process (through support for intelligence, design, and choice phases) and team-based or organisational-based knowledge preservation, dissemination and utilisation processes (supporting mainly the implementation and learning phases of an extended decision-making process). Both IT technologies have reached a mature stability level.

However, current mutual literature on GDSS/KMS and service system is scarce. Nevertheless, there are contributions provided by GDSS/KMS in several domains (Mora et al., 2014), and the needs for group-based decision-making and team-based knowledge management process are present also in the service systems domain. Thus, in this special issue we pursue the goal to advance on the scientific knowledge of service systems through the support provided by GDSS/KMS to work teams. Exploratory, theory building, theory testing or applied high quality research papers were solicited for this special issue in the following (but not limited to) topics:

- innovative applications of GDSS or KMS for services systems in core service sectors (education, healthcare, financial, telecom, entertainment, etc.)

- GDSS or KMS development methodologies including service sciences concepts
- GDSS or KMS value frameworks including service science concepts
- GDSS or KMS development tools useful for service systems (commercial or open source)
- surveys on GDSS and KMS applications for service systems.

We received a set of papers addressing these and other relevant topics on GDSS/KMS and service systems from researchers of North America, Europe and Asia regions. Each paper was examined and accepted (or rejected) based on its own merit and subject appropriateness using a double-blinded peer review process. Five high quality papers were finally accepted after the double-blinded peer review process conducted in two iterations.

In the first paper entitled 'Pattern-based knowledge management for e-government service systems', Apostolou addresses the problem of the dynamic changes occurring in the modern e-services provided by governmental organisations. These changes are fostered by new citizen demands and regulatory modernisations. Thus, managers of such e-services are faced with the problem of timely updates. The author presents a novel approach to enhance knowledge management of e-government service systems that is callable of dealing with dynamic circumstances by providing knowledge to deal with the extensions or modifications that these circumstances require. The author claims that this framework can enable a balanced e-service system on flexibility and reusability issues, and provides a timely knowledge-based response to dynamic changes.

In the second paper entitled 'A comparative analysis of fuzzy-based AHP derived MCDM methods to select the apt heterogeneous wireless network', Sasirekha, Ilangkumaran, and Sakthivel study the performance of three relevant MCDM methods: fuzzy analytic hierarchy process-VIKOR (FAHP-VIKOR), technique for order preference by similarity to ideal solution (FAHP-TOPSIS), and preference ranking organisation method for enrichment evaluation (FAHP-PROMETHEE), in the network heterogeneous wireless environment selection problem. The authors compare the three MCDM methods by evaluating five alternatives: wireless local area network (WLAN), general packet radio service (GPRS), universal mobile telecommunication (UMTS), code-division multiple-access (CDMA), and worldwide interoperability for microwave access (WiMAX). These evaluations are conducted by using ten criteria: bandwidth, latency, jitter, throughput, bit error rate, packet loss, re-transmission, cost, security and preference. The main aim is to preserve and increase the quality of service (QoS).

In the third paper entitled 'A semantic approach for XML document warehousing and OLAP analysis', Ben Meftah, Khrouf, Feki, and Soulé-Dupuy indicate that the WWW phenomenon has increased the utilisation of XML documents. However, their exploitation is reduced due to the logical structure weakness of these types of e-documents. Consequently, the need of an approach for determining a semantic structure for an XML document as well as the development of dedicated software tools to handle this structure reveals as an urgent requirement. Thus, the authors report a novel approach for determining a semantic structure for an XML document. This novel approach provides benefits for the decision-making process that should be enhanced with semantic-OLAP on documents.

In the fourth paper entitled ‘Decision support systems for IT service management’, Cater-Steel, Valverde, Shrestha, and Toleman use a narrative enquiry and reflective processes to review two recent DSS projects for IT service management. The project (the software mediated process assessment) is a GDSS to enable the selection of IT service management processes for assessment. The second project (the decision support recommendation system for IT service operation) is a KMS used for providing recommendations to specific IT service support problems. Both cases are exemplary success cases of GDSS/KMS used for supporting IT service management processes.

In the last and fifth paper entitled ‘A new trend for knowledge-based decision support systems design’, the authors Zaraté and Liu elaborate an integrative review on the characteristics, capabilities and challenges of knowledge-based decision support systems (KBDSS) for supporting service organisations. In particular, the authors identify three types of technologies for developing KBDSS: technologies for knowledge modelling, technologies for reasoning/inference, and web-based technologies for delivering decisional services. The authors analyse these types of technologies embedded in KBDSS for supporting diverse processes in relevant services sectors such as: healthcare, IT, public/governmental and customer support/care. Based on the examination of literature, future research directions are recommended for the development of KBDSS in general and in particular to support decision-making in service industry.

Hence, these five high quality research papers contribute to the aim of this special issue and help to advance on the scientific knowledge of service systems through the support provided by GDSS/KMS to work teams. We finally thank the authors, Professor Dr. John Wang – EiC of the *International Journal of Information and Decision Sciences*, anonymous reviewers, and Inderscience editorial staff for your academic collaboration on the completion of this special issue.

References

- Alavi, M. and Leidner, D.E. (2001) ‘Review: knowledge management and knowledge management systems: conceptual foundations and research issues’, *MIS Quarterly*, Vol. 25, No. 1, pp.107–136.
- Gray, P., Johansen, B., Nunamaker, J., Rodman, J. and Wagner, G. (2011) ‘GDSS past, present, and Future’, in Schuff, D., Paradice, D., Burstein, F., Power, D. and Sharda, R. (Eds.): *Decision Support: An Examination of the DSS Discipline*, pp.1–24, Springer.
- IfM and IBM (2008) *Succeeding through Service Innovation: Developing a Service Perspective for Education, Research, Business and Government*, University of Cambridge Institute for Manufacturing, Cambridge, UK.
- Mora, M., Phillips-Wren, G. and Wang, F. (2014) ‘An integrative evaluation framework for determining the value of group decision support systems’, *Engineering Management Journal*, Vol. 26, No. 2, pp.24–38.
- Mora, M., Raisinghani, M., O’Connor, R. and Gelman, O. (2009) ‘Toward an integrated conceptualization of the service and service system concepts: a systems approach’, *International Journal of Information Systems in the Service Sector*, Vol. 1, No. 2, pp.36–57.
- Spohrer, J., Maglio, P.P., Bailey, J. and Gruhl, D. (2007) ‘Steps toward a science of service systems’, *IEEE Computer*, Vol. 40, No. 1, pp.71–77.