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## Editorial

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**Biographical notes:** Patrick C.K. Hung has been an Assistant Professor at the Faculty of Business and Information Technology since July 2004. He is currently collaborating with Boeing Phantom Works (Seattle, USA) and Bell Canada's Privacy Center of Excellence on security- and privacy-related research projects, and he has filed one US patent application 'Mobile network dynamic workflow exception handling system' with Boeing. Before that, he was a Research Scientist with Commonwealth Scientific and Industrial Research Organization (Canberra, Australia) and a Visiting Assistant Professor at the Department of Computer Science in the Hong Kong University of Science and Technology. He is an executive committee member of the IEEE Computer Society's Technical Steering Committee for Services Computing, and an Associate Editor/Editorial Board Member/Guest Editor in several international journals such as the *International Journal of Web Services Research*.

Terry Wu is a Professor of Business and Director of the Management Development Centre at the University of Ontario Institute of Technology (UOIT) in Canada. Prior to joining UOIT, he was a Professor in the Faculty of Administration at the University of Regina. His research interests include international business, trade policy, NAFTA, international marketing, and information technology. His current research focuses on international trade policy, globalisation, and e-commerce. His research has been published and cited in many academic journals. He has received numerous research and teaching awards, including the Teaching Excellence Award at the University of Regina in 1999. He has had visiting positions in several universities, and lectured in Japan, Mexico, and the USA.

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When two enterprise systems come to talk with each other, one of the biggest challenges is the issue of interoperability in the context of languages, protocols, and technologies. Business Services Networks (BSN) are IT infrastructure intermediaries where business services can be securely published, reused, and invoked based on Service Oriented Architecture (SOA) standards. They allow providers to sell their service and offer

requestors a secure network to compose complex business processes. With proper permissions, requestors can automate several Business Service Management (BSM) functions such as:

- analyse their requirements and match them to network resources
- model their business processes in a complete architecture
- define key operational conditions for processes
- execute their processes on the grid
- monitor and manage processes in real-time.

In addition, BSN's extend the Enterprise Service Bus (ESB) of each network participant by providing reliable Business-to-Business (B2B) transaction management, Business-to-Government (B2G), and Business-to-Customer (B2C) with Service Level Agreements (SLAs). An SLA is a formal contract between a services requestor and provider guaranteeing quantifiable issues at defined levels only through mutual concessions. In general, an SLA is used to specify the service level parameters that describe both enterprise systems' guarantees and obligations. Given the complex IT environment, an SLA is designed to specify the level of IT service and support options that the service provider is obligated to provide to the service recipient.

The theme of this special issue is 'Business service management and service level agreement'. All the five papers in this issue have deep research results to report the advance of BSM and SLA. In the first paper 'Supporting the design of service contracts with interaction models', Rittgen presents a procedure to derive service contracts with interactions between service provider and client. The procedure focuses on the alignment of both parties in the context of behavioural semantics to the contract. In the second paper 'Business grid services', Bell *et al.* describe ontology to enable business grid services that can be utilised by SLA. The ontology presented is derived from and validated using a collection of web services taken from leading investment banks. In the third paper 'Service-level agreement-based QoS analysis for web services discovery and composition', Yang *et al.* present a formal model for web services-based auctions with SLA documents for analysing services. In addition, Yang *et al.* propose a basic service requestor risk preference elicitation algorithm, as well as a historical databased service requestor risk preference prediction model. In the fourth paper 'Fairness concerns in digital right management models', Bouganim and Pucheral present a technical infrastructure for developing fair business models. The model is based on the use of tamper-resistant SLAs to store securely sensitive data and to perform the computation required by licence activation. In the last paper 'Web-based digital shop floor: implementation of business service management and managerial implications', Zhang *et al.* present a web-based collaborative framework called Wise-ShopFloor (web-based integrated sensor-driven e-ShopFloor) for distributed manufacturing. A proof-of-concept prototype system is developed on top of the framework to demonstrate one of its potential applications on shop floor monitoring and control.

In conclusion, the five papers of this Special Issue provide rich evidence of the potential and technical viability of BSM and SLA. These contributions shall be helpful in guiding future research on BSM, and how to leverage them in deploying the SLA.