
Editorial

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Biographical notes: Lorna Uden is the Professor Emeritus of IT systems in the Faculty of Computing, Engineering and Technology at Staffordshire University. Her research interests include technology learning, HCI, activity theory, knowledge management, web engineering, multimedia, e-business, service science and innovation, semantic web, software as a service (SaaS) and problem-based learning.

Welcome to V6N4 issue of IJWET. This issue covers some papers from the service computing sectors. We are grateful to Vincenzo D'Andrea, G.R. Gangadharan, Renato and Michael Weiss for their contribution in soliciting and editing these papers.

The first paper is by Tobias Kowatsch and Wolfgang Maass. In their paper, 'A design model for knowledge-based pricing services in the retail industry', they talk about the benefits of dynamic pricing strategies in the retail industry. According to these authors, today's retailers are limited to applying them in real-time to customer needs as corresponding pricing services provided by smart product infrastructures have not been adopted. In addition, dynamic pricing strategies rely on a business service ecosystem of retailers, suppliers, customers and regulatory bodies and thus, interoperability is required.

In order to overcome these limitations, these authors have proposed, implemented and evaluated a design model for pricing services that relies on explicit semantics and rules, denoted as knowledge-based pricing services (KPSs). In their work, they have proposed a design model for KPSs and empirically evaluate their utility from a customer perspective with the help of a web-based application. Further evaluation of the model is needed to validate its effectiveness.

The second paper is 'Strategic objectives affecting the structure of service innovation partnerships in technology- and knowledge-intensive sectors' by Adamantia Pateli. The author of this paper argues that pursuing and achieving service innovation is of utmost importance for firms operating in technology- and knowledge-intensive sectors. The lack of market consolidation combined with the environment uncertainty – due to both market volatility and technology unpredictability – require the formation of partnerships to produce innovation in ever-shorter service life cycles. Recent research in partnerships has suggested that some governance structures are inherently more likely than others to be associated with high opportunity to cheat, obtain new competence, adjust to changing environment conditions, and finally expand.

This paper elaborates on the impact of firms' individual objectives on the structural mode (organisational form) of strategic partnerships aiming at service innovation, under the analysis of a three-perspective theoretical framework (transaction cost economics, resource- and knowledge-based view of the firm, *Real Options*), which embodies

considerations of resource acquisition, opportunism minimisation, flexibility and commitment to innovation and growth. The proposed strategic objectives that are hereinafter analysed prescribe alternative considerations that motivate not only the formation, but mainly the structural mode of service innovation partnerships.

The model was tested with data from 99 strategic partnerships, 65 of which aimed at service innovation, in the Greek information and communication technology market. The empirical findings generally supported the need for a greater focus on transaction costs and *Real Options* arguments in the study of service innovation partnerships. Future empirical research are needed to collect an even greater and more representative sample of partnerships, extend the scope of this empirical research to other type of partnerships and towards identifying the relationship between the achievement of the firms' above strategic objectives and the partnership's estimated performance.

The third paper is titled 'Service-oriented system evolution taxonomy and metrics derived from complex adaptive systems theory' by Ghada Alaa. According to the author, service-oriented architecture (SOA) is designed to enable integration of heterogeneous business components, and thus is argued to improve enterprise evolution and agility. In order to identify a service-oriented system evolution taxonomy, the author suggested building on complex adaptive systems (CAS) theory that interprets phenomenon of evolution and emergence of new properties. In this paper, she has identified four major categories of service-oriented system evolution:

- a service structural properties, e.g., flexibility of service, loose coupling, re-usability, etc.
- b enterprise enabling factors, e.g., enterprise architecture, organisation structure and management style
- c evolution dynamics, e.g., interactions within the enterprise and with users, prototyping, iterative and incremental development in SOA realisation, etc.
- d controlling factors, e.g., continuous reflection, learning and adjustment supported by formalised standards in SOA programming, SOA quality attributes and SOA governance techniques.

This has led to the author deriving a process model utilising these four categories to enable service-oriented system evolution. Metrics are suggested to benchmark system structural properties and controlling factors, including SOA flexibility, SOA quality attributes and SOA governance to ensure sustainable evolution and avoid disordered results in response to change. There is a need to verify the model by empirical studies.

The fourth paper is on web mapping. The paper 'A comparison of open source geospatial technologies for web mapping' is by Andrea Ballatore, Ali Tahir, Gavin McArdle and Michela Bertolotto. In their paper, they have developed an open source web platform for interoperable GIS services. In order to implement this architecture, 14 projects were selected and analysed, including the client-side libraries and the server-side components. Although other surveys have been conducted in this area, little feedback has been formally obtained from the users and developers concerning their opinion of these tools. A questionnaire was designed to obtain responses from the relevant online communities about a given set of characteristics. This article describes the technologies and reports the results of the survey, providing first-hand information about

open source web and geospatial tools. Further research and evaluation are needed to verify the results.

The final paper is ‘Using semantic web technologies for analysis and validation of structural markup’ by Angelo Di Iorio, Silvio Peroni and Fabio Vitali. The authors of this paper argue that while research effort is mainly towards adding semantic annotations around text, little attention is being paid to the possibility of expressing the actual structures of the documents in a form suitable for the semantic web. They have developed EARMARK, a model for explicitly expressing structural assertions of markup and documents, allowing a straightforward integration of the semantics of the markup and the semantics of the content of a web document. The well formedness of the hierarchy becomes an explicit assertion, and not a requirement of the markup syntax, and similarly the analysis of the validity of markup structures or the adherence to content model patterns become matter for further semantic analysis. In this paper, they present an exhaustive description of EARMARK and show a framework for using OWL ontologies that implement particular markup properties (such as markup schemas), to demonstrate the compliance of EARMARK documents with those properties. Work on EARMARK is far from being finished. Embedding and disembedding tools need to be generated, so as to be able to convert XML documents back and forth to EARMARK, and simple mechanisms for turning schema documents into TBox ontologies for EARMARK are yet to be delivered.