Editorial

Sang M. Lee* and Silvana Trimi

University of Nebraska-Lincoln,
Management Department, 209 CBA,
Lincoln NE 68588-0491, USA
Fax: (402) 472-5855
E-mail: slee1@unl.edu
E-mail: strimi@unlnotes.unl.edu
*Corresponding author

Biographical notes: Sang M. Lee is currently the University Eminent Scholar, Regents Distinguished University Professor, and Chair of the Management Department at the University of Nebraska-Lincoln, USA. He is a widely known scholar in the fields of production and operations management, management information systems, multiple-objective decision-making, and strategic innovation. He has published over 60 books, 270 journal articles, and chaired 35 international conferences. He served as President of Decision Sciences Institute (DSI) and is currently serving as President of the Pan-Pacific Business Association. He is a fellow of the Academy of Management, DSI, and Pan-Pacific Business Association. He is the Editor-in-Chief of *Service Business: An International Journal*. He has received four honourary degrees for his contribution to global business education.

Silvana Trimi is an Associate Professor of Management Information Systems at the University of Nebraska – Lincoln. Her research interests include: e-government, M-government, Web 2.0, social networking, internet-based organisational innovation, digital convergence, security and privacy, ERP, organisational justice, and knowledge management. Her studies have been published in a number of journals including *Communications of the ACM*, *International Journal of Production Research*, *Communications of the AIS*, *Information and Management*, *Industrial Management and Data Systems*, *International Journal of Public Administration*, *International Journal of Knowledge Management*, and others.

Open-source innovation (OSI) represents a revolutionary process of horizontalising R&D efforts for value creation where the participants are novices/experts, collaborating without any meaningful organisational structure and motivations for participation are complex. New business models that bring benefits to both participants and the organisation are the real core value of OSI.

Referred to as collective intelligence or wisdom of the crowd, the reservoir of knowledge created by volunteers of open communities can be used:

1 within the organisation (across departments and geography) – the goal is to collect, maintain, and share the discrete bits of knowledge scattered throughout departments, branches, geographically scattered locations for value creation

2 across organisations/experts – the goal is innovation for new business model development, which is the focus of this special issue.

While these communities are becoming important sources of new knowledge and innovation, it is a challenge to create business value out of such innovation because of structural, behavioural, managerial, risk, and technology issues.

Based on the types of business model, the degree of 'openness' regarding intellectual property (IP) and the economic impact, there are three archetypes of 'socio-technical systems' of open innovation communities:

1   online communities and social networks which have the primary goal for connection and collaboration with others having similar interests or viewpoints

2   open-source communities for open-IP innovation whose primary goal is developing new technologies or solving technical problems

3   closed-IP virtual organisations with primary objective of developing knowledge that is owned by the organisation.

Online communities are for voluntary social networking purposes, where reasons and motivations for participation may include social relations, sources for mutual understanding and protection, sharing common interests and beliefs, fun and entertainment, career enhancement, explicit financial benefits, etc. Collaborative channels (blogs, online forums, Wikipedia, etc.) and collaborative technologies such as social bookmarking also provide powerful tools to organisations for sharing information and sustaining relationships across geographic borders and industry silos.

Free open source software (FOSS) communities are organisations that leverage the distributed knowledge of software developers, mostly volunteers, to produce new software which is freely distributed under specifically devised copyright licenses that state and regulate its public nature. From the traditional organisation's perspective, open-source communities are socio-technical systems of volunteers that use cyber-infrastructure for a variety of motivational reasons for participation. Many organisations are embracing and supporting FOSS for radical and incremental innovation. FOSS communities offer an alternative approach to innovation, both cheaper and sometimes more effective than proprietary systems. They offer transparent and standard-based development, cutting the complexity and risks of custom coding for integration or niche needs. However, it is challenging for organisations to simultaneously satisfy their business goals and FOSS goals, extract value, and produce marketable innovations from FOSS projects. They need to build business models that successfully take advantage of the innovative potential of FLOSS projects; and find and build knowledge networks connecting developers that are most efficient for innovation.

Thus, it is important for both academicians and practitioners to explore innovative approaches to exploiting:

1   the value of collaborative open-source communities for developing new business models and value creation - foster knowledge creation and sharing, capture opportunities for developing new products and services, redesign the value chain for efficiency improvement, reinvent the concept of customer value, and expand the customer base

2   motivations for participation and effective collaboration – combining both formal reward systems and informal incentives for recognising knowledge contributors and users

3   identify strategic contingencies and critical success factors (CSFs) that influence effective OSI for business model development.

Conaldi and De Vita, in 'At the core of innovation: network reconfiguration during radical and incremental innovation episodes in an open source software project', through a case study of Epiphany, assessed how knowledge networks change their configuration in accordance with the type of innovation (radical or incremental) they are pursuing, suggesting that organisations should promote the creation of both dense sub-groups and opportunities for brokerage. They also found that, contrary to the belief of practitioners and proponents of FOSS who describe FOSS projects as flat organisations of horizontal collaboration and egalitarian meritocracy, during radical innovations FOSS projects appear to have an egalitarian meritocracy only at the core of the knowledge network, where most active developers are dragged, while the overall structure remains hierarchical. Thus, the authors stress the need for organisations to activate a critical mass of individuals to catalyse the contribution of its members, especially when dealing with radical innovations. This is of particular relevance for firms interacting with environments like FOSS communities that do not rely on formal hierarchies and authority.

Lee, Trimi, Choi, and Rha in 'A comparative study of proprietary ERP and open-source ERP modules on the value chain', investigate ERP modules developed in an Open Source Software system (OSS), SourceForge.net (SF). OSS has been widely and successfully used for development of software such as Linux, Firefox, Apache, etc. They are increasingly being used for development of other types of software, one of which is the enterprise software or ERP. Until now, ERPs have been proprietary software, developed by big vendors such as SAP and Oracle, and affordable only by large organisations which have sufficient resources. OSS systems are creating opportunities for and are being used by smaller and medium sized businesses (SMBs) to develop ERP modules for their needs. Through a content analysis, the authors categorised 500 top ERP projects of SourceForge.net into 14 categories (along the value chain) used in previous studies of proprietary ERP. They found that, contrary to proprietary ERPs which focus on value-chain (main activities) modules, the primary focus of OSS ERP projects is on the support modules. Even though OSS is expected to be disruptive to the ERP market, they are still being very cautiously used by organisations, for only supportive modules of the value chain. This could be due to the fact that OSS systems are still very new to the ERP market. Organisations are just testing the waters through non-key/non-disruptive modules. There is also the compatibility issue with proprietary ERP modules as organisations have already invested much resource in those systems. As for now, it appears that organisations are using OSS ERP to experiment and complement, or support the mainstream ERP proprietary systems.

The phenomenon of OSI in the physical realm, usually referred to as 'open design', is analysed by Raasch and Herstatt in 'How companies capture value from open design'. In addition to software industry, other industries can leverage the benefits of OSI in their business models. Thus, some manufacturing companies are doing things never imaginable before: freely revealing information about their product design in order to collaborate with a dedicated community to generate innovative product improvements. In this paper, the authors found four types of business models in open design and explore how companies capture value from open design in each type. The types and value-captures are compared to OSS models, revealing advantages and disadvantages. Authors

suggest that for firms beyond the software industry, finding a balance between free revelation and the protection of IP can yield higher profits than a strategy based entirely on proprietary product offerings.

Lee, Yoon, Choi, and Park in 'Electronic word of mouth systems and user-generated content acceptance', study another usage of open source communities, that of electronic word-of-mouth systems (EWOMS) or electronic users ratings of products. EWOMS have become a very important marketing tool for organisations, as they influence consumer purchasing behaviour and decision. Therefore, effectiveness and efficiency of EWOMS, and how users process and accept information and recommendations from EWOMS are critical to organisations as there is tremendous online information to users, not all of it trusted. This research indicates that for EWOMS to be accepted, it is important that product information from EOMS is diagnostic (allows for a better judgment of the product). Informant trustworthiness is also a determining factor in EWOMS for acceptance.

Jeon, Kim, and Lee in their paper, 'Web 2.0 business models and value creation', present a broad overview of the new business environment created by the emergence of Web 2.0 as a key open source movement. This paper focuses on the following topics: key differentiating features of Web 2.0; five business models that are based on Web 2.0 applications; and three major areas where Web 2.0 business models can create value for organisations. This paper provides many real-world examples throughout the presentation to bridge conceptual aspects of OSI to actual application for value-creating opportunities. The paper also suggests some future empirical research directions which can further enrich the area of OSI and its applications for new business model development.