

Special Issue: Daegu Gyeongbuk International Social Network Conference (DISC)

Interaction among Networks in the age of “Big Data”: Social, Knowledge, Innovation, and Triple-Helix Networks

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This special issue features a collection of outstanding papers carefully selected from the Daegu Gyeongbuk International Social Network Conference (DISC) held in December, 2013. (see <http://asia-triplehelix.org/DISC2013>.) The selected papers cover emerging research topics and practical challenges in pursuing continuous scholarly growth and the building of university-industry relations. As the key host of the DISC, the Asia Triple Helix Society (ATHS) has developed various research projects that adopt TH (i.e., Triple Helix) and WSI (i.e., Webometrics, Scientometrics, and Informetrics) issues in Asian countries by engaging researchers, academia, industry, and government. To share its research activities and accomplishments with the wider public, the ATHS has hosted and participated in various public events including regular lecture series, seminars, and an annual conference. The DISC was the first international conference on big data and social innovation, and knowledge network areas in South Korea, and the ATHS achieved incredible success with distinguished speakers and presenters stimulating active discussions in panel sessions.

This special issue aims to promote the intellectual merits for extending conceptual and methodological frameworks and to illustrate the broad practical implications for the era of big data, which help diverse stakeholders understand complicated social phenomena. This special issue consists of six selected papers, which were presented in the DISC. Two of them, by Ke Jiang and Kyujin Jung et al. respectively, were awarded as outstanding original works from the DISC, and four papers were selected as critical pieces by the DISC committee. Specifically, Fred Phillips and Wha-Joon Rho detail the application of the Triple-Helix model in extending understanding of theoretical innovation diffusion and social innovation in South Korea. PitambarGautam, Kota Kodama, and Kengo Enomoto and Ke Jiang examine social network analysis and suggest an innovative approach to the mapping of large-scale collaborative industry-university-government projects in Japan and the relationship among networks of international student flows in the United States. Lastly, Jose Fadul and Kyujin Jung, Won No, and Ji Won Kim propose new roles for social media platforms by identifying elements that enhance productivity in knowledge generation in Philippine Tertiary Education and examine the diverse group who advocate on social media issues for Australian nonprofit organizations. Beyond the research issue of big data and social network analysis, the selected papers in this special issue

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significantly contribute to fostering the marriage between theory and practice. The special issue editors would like to express our thanks to the reviewers for their substantial efforts to ensure the quality of the papers and to the journal editor-in-chief for guidance and patience with the review procedures.

Fred Phillips addresses the Triple-Helix (TH) as a meso-level notion, an epicycle in a grander circle of technological change, institutional change, and psychological change. As a critical aspect of these several kinds of change, speed is proposed as a high-level system metric, implying that bridging agencies or facilitators, such as lawyers and incubators, are better called buffering agencies, which facilitate the engagement of entities changing at different speeds. The basic assumption is that the buffering agencies can utilize human judgment as well as Information Communication Technology (ICT) to choose feasible timing for these engagements. This research carries critical implications for thinking about innovation diffusion, indicating that, from the TH perspective, the grand cycle of socio-technical change leads to innovation reinforcement or a circle of innovation. For Information Technology designers, the implications have to do with meeting users halfway, and relying on computer-aided (rather than computerized) means of achieving engagement with users. Managers should map out engagement plans for each constituency, taking into account the unique characteristics of each. The implication for policy makers is that once such innovations are undertaken, previous practices and approaches are no longer tenable.

Wha-Joon Rho undertakes a case study of the Rural Saemaul Undong (RSU), a movement that was driven by the South Korean government during the 1970s. The purpose of this research is to examine and develop the Triple Helix model for social innovation to eradicate pervasive poverty in developing countries by exploring and analyzing the RSU. To understand why the RSU was a successful social innovation, this study analyzes the roles and activities of three distinct actor groups: (1) the chief policymaker and his aides who presented the vision and purpose, or the “why” of the Saemaul Undong; (2) central and local government officials who were the planners and managers who showed “how” to plan and drive it; and (3) village Saemaul leaders as the drivers and coaches showing rural villagers “what” to do. Based on this analysis, the study advances an actor-based Triple Helix model for social innovation to explain how the RSU successfully eradicated the severe poverty that pervaded rural Korean communities during the 1970s through the construction of well-functioning and beautiful villages. By contributing to the attainment of one of the most important Millennium Development Goals adopted by the United Nations, this study presents new insights into developing a Triple Helix model for social innovation to eradicate poverty worldwide.

Pitambar Gautam, Kota Kodama, and Kengo Enomoto propose comprehensive evidence-based methods to assess the R&D performance of cross-disciplinary projects in the case of Japan’s commercialization performance. In this research, a bibliometric analysis of both patents and publications was conducted for two industry-university-government collaborative projects, which aimed at commercialization: (1) Hokkaido University Research & Business Park Project (2003-2007; 63 inventors; 176 patents; 853 papers) and (2) Matching Program for Innovations in Future Drug Discovery and Medical Care – Phase I (2006-2010; 46 inventors; 235 patents; 733 papers). In addition to the output indicators for each five-year period and citations from publications up to the end of 2012, science maps based on the network analysis of key words and co-authorship relations identify the prominent research themes and teams most involved with Japan’s commercialization performance. The findings, derived from publications and patents, yield objective and mutually complementary information, which provides insights into the research

and commercialization performance of the collaborative projects. This research shows the potential for using bibliometric analysis together with science mapping of patents and publications data from large-scale industry-university-government collaborative projects to evaluate the performance of such projects around the world.

Ke Jiang presents social network analysis of the international flow of students among 23 Asian countries, and Australia and Russia, and the factors determining the structure of this flow. In this research, the flow network of international students was predicted from physical distance, common borders, total hyperlink connections, the number of telephone minutes, and the amount of trade between countries. By examining communication as a significant factor in predicting the flow network of international students, this paper makes an important contribution to research on international student flows. In the era of globalization, advancements in satellite networks, smart phones, and the internet challenge the meaning of physical borders in the process of international interaction. That is, a holistic global system, which binds people together, is being created as the result of these rapid developments in communication technology. This research highlights the notion that patterns of complex interdependence have been reshaped on a global scale, making communication a significant factor in predicting international interactions. The paper presents a new methodological approach by employing network analysis to examine the relationship among the networks of international student flows, internet hyperlink connections, and international telecommunication.

Jose Fadul investigates the use of a computational knowledge engine and social networking sites at De La Salle-College of Saint Benilde in the Philippines by 200 students, their “friends” and their “friends of friends” during the 2009 through 2013 school years, and how this appears to have added value in knowledge generation. This case study sought to identify what enhances productiveness in knowledge generation in Philippine Tertiary Education. General features and problem types identified from literature are integrated to provide a proposed framework of inclusive (friendly) and innovative social networks. Through the integrated framework, this study asserts four implications: (1) in tertiary education in particular, close friends, and friends of close friends are an educational resource; (2) aside from explicit knowledge, tacit knowledge can flourish when those possessing the knowledge join a network or a community of practice with friendships of various degrees; (3) individuals suffer from information and knowledge overload when they receive more than they can handle, and/or get tired and satiated of the same sets of information, prompting them to disengage; and (4) an ideal tertiary education teacher is someone who is able to connect with various types of learners and who broadens the student’s world without causing information and knowledge overload.

Kyujin Jung, Won No, and Ji Won Kim focus on the relevance and impact of leading actors on structuring diverse patterns of information sharing and communication through social media. Building nonprofit advocacy is a complicated process for a single organization to undertake, but social media applications such as Facebook and Twitter have helped nonprofit organizations and stakeholders to effectively share information and communicate with each other in identifying their missions. By using the Australian Marine Conservation Society (AMCS)’s Twitter networks emerged from the period from April 1 to 20, 2013, this research examines diverse patterns of nonprofit advocacy and the roles of leading actors in building the advocacy. Based on the webometric approach, analysis shows that nonprofit advocacy through social media is structured by dynamic information flows and intercommunications among participants and their followers of the AMCS’s Twitter account. Also, the findings indicate that the news media and international and domestic nonprofit organizations have a leading role in building nonprofit

advocacy by clustering with their followers. This research highlights the intellectual merit that “bridging actors” bring to the information dissemination process, implying that primary organizations play a less central role and that other actors in the advocacy networks of nonprofit organizations are emerging as more active advocacy agents on social media.