Society of Open Innovation Technology, Market & Complexity

DGIST

World Capital Institute

PROGRAMME OF

SOItmC & KCWS 2015

Society of Open Innovation :

Technology, Market, and Complexity (SOItmC) &

Knowledge Cities World Summit (KCWS) 2015

June 14 ~ 18, DGIST, Daegu, Korea

TABLE OF CONTENTS

Welcoming Remarks by the President of DGIST

- SOItmC and KCWS 2015 -

Distinguished invited speakers, Honorable guests, Ladies and Gentleman,

It is my pleasure and privilege for me to welcome all of you on the Society of Open Innovation: Technology, Market, and Complexity (SOItmC) and the Knowledge City World Summit (KCWS) 2015 Conference to be held on June 14~18 at DGIST.

DGIST is a research-oriented university founded by the Korean government. DGIST started as a research institute in 2004 and grew dramatically into a research-oriented university by opening graduate program in 2011 and undergraduate program in 2014. The vision of DGIST is to become a 'world-leading convergence research university' by nurturing the global leaders of knowledge creation and creating future convergence technology. As mentioned in the vision, 'Convergence' is the key word of DGIST. We believe that a breakthrough and innovation could be made more effectively though convergence research among various fields.

Considering that DGIST pursues academic excellence through knowledge creation and convergence, it is appropriate for DGIST to host SOItmC and KCWS 2015 to be held under the themes of Open Innovation, Knowledge City, and Creative Economy. Various topics such as Entrepreneurship, Start-ups, Smart Technology, City of Future, Smart Mobility, and Creative City will also be covered in the conference.

Among the seven strategic plans I suggested in my inaugural speech in March this year when I began my second term as DGIST President, four are 'strengthening and completing our innovative undergraduate program,' 'serving as a vanguard of the Creative Economy Model,' 'development of Innovation & Entrepreneurship (I&E) Zone,' and 'development of our unique spirits and advanced culture.' I believe that this SOItmC and KCWS 2015 will contribute for us to carry forward our plans.

I take this opportunity to express sincere appreciation to distinguished scholars who take time to share their ideas and knowledge at this conference, and members of the Organizing Committee, as well as Dr. JinHyo Joseph Yun, Chair of the committee.

I believe that this conference will serve a forum for all experts from all over the world to share their experiences and knowledge, and hope all participants truly enjoy the academic excellence of the conference. Thank you.

June 15, 2015

Shin Sung-chul
President of DGIST

Congratulatory Speech by the Mayor of Daegu Metropolitan City

Hello, I am Kwon Young-jin, Mayor of Daegu Metropolitan City Government.

I welcome all of you, professors, researchers, students, businessmen, and start-up entrepreneurs from 20 countries, who have come to Daegu to participate in the Society of Open Innovation: Technology, Market, and Complexity (SOItmC) and the Knowledge City World Summit (KCWS) 2015 Conference. First, I would like to express my deep gratitude to Shin Sung-chul, President of DGIST; Yun Jin-hyo, President of SOItmC; and Javier Carrillo, President of the World Capital Institute, for their efforts to hold this academic conference in Daegu today.

I do agree with and share the three themes of this conference: Open Innovation, Knowledge City, and Creative Economy. As it was “Happy People, Creative Daegu” that I suggested as a vision for Daegu when I took office as the 33rd mayor of Daegu, I expect that this conference will serve as a driving force that makes the industrial city of Daegu develop into a knowledge-based information city by proposing specific tools and methods for the realization of “Happy People, Creative Daegu” through diverse discussions on the themes of this occasion.

I proposed six strategies when I was inaugurated as the mayor of Daegu. One of them was to make Daegu a leader of the creative economy of Korea. I am paying close attention to the fact that this conference is preparing sessions and presentations according to the themes of Knowledge City, Start-ups, and Creative Economy. I anticipate various ideas and policies necessary for making Daegu as a creative economy leader.

Another strategy for future Daegu was to transform it into a prosperous culture city. I believe that diverse and open cultures will provide the main impetus for a sustainable development, so I would like for novel ideas to be generated from sessions and presentations on this occasion so that Daegu will be able to play a role as a melting pot. It is Daegu that produced Lee In-sung, who is called an “Asian van Gogh” and formed a cultural hub of modern Korean art history. Moreover, Daegu was where Great Master Wonhyo and Master Ilyeon established the roots of a creative spirit, and where the egalitarian spirit of the Donghak Revolution stemmed from. What is our alternative for constructing the innovative and future city Daegu where culture is still alive? I hope that this conference will give us an answer to this question.

I also pledged that I would do my best to make Daegu a city of communication and good governance. Communication and governance are top priorities for Daegu to grow as a creative city through open innovation. To this end, I expect that this academic conference will lay out different ideas based on an

open innovation culture.

Again, I would like to welcome all of you today here in this SOItmC and KCWS 2015 Conference. I sincerely hope that you will take time out of your busy schedule to enjoy the picturesque nature and night view of Daegu. Thank you.

June 15, 2015

Kwon Young-jin
Mayor of Daegu Metropolitan City Government

Welcome Speech by the President of World Capital Institute

Professor Sung-Chul Shin, President of DGIST
Young-Jin Kwon (Mayor of Daegu Metropolitan City)
Professor JinHyo Joseph Yun, President of SOItmC and Co-hoster of SOItmC and KCWS 2015
Colleagues and friends associated to the World Capital Institute,
Faculty and students of DGIST
Participants from Korea and the City of Daegu

On behalf of the World Capital Institute, I celebrate the occasion of the 8th Knowledge Cities World Summit being hosted by the City of Daegu and the prestigious Daegu Gyeongbuk Institute of Science and Technology, as a joint conference with the 1st Society of Open Innovation: Technology, Market, and Complexity. After a substantial effort by all parts, we are able to meet for enjoying a most appealing scientific program. This program might be just the starting point of new or renewed collaboration amongst those interested in furthering the Open Innovation and Knowledge-based Development agenda.

Regarding innovation and the Knowledge Economy, South Korea has set an international example by the way in which it focused its development policies in a systematic strengthening of education and the institutional base for science and technology. No doubt, South Korea has accomplished a major upgrade of its industrial platform by consistently moving towards technology-intensive production. My Korean friends, you may feel proud of these achievements as these are well documented and admired throughout the world.

But that might be just a starting point. The transition from the Industrial to the Knowledge Society involves a deeper transformation of the social value base, a disruption of the entire economic culture. The understanding and mobilization of the intangible capital that makes the distinctive base of knowledge-based production and life, calls for a major transformation of institutions, practices, roles and underlying values. It also calls for a redefinition of socio-economic agents and the way they engage in value creation, distribution and consumption.

The future of South Korea is now open to the possibility of an upgrade in human life, one where collective capitals such as national and regional identity, sense of belonging, social cohesion, economic equality, human rights, gender balance, political transparency, citizen engagement, public accountancy, etc., become the focus of policy and accountability. A society centered not only on economic growth, but also on sustainability, quality of life, subjective well-being and the discretionary use of time. One where

getting what one wants is balanced by choosing what one does.

I wish you all a most productive conference. I also take the opportunity to thank our gracious hosts the city of Daegu and the DGIST. I am particularly grateful to Professor JinHyo Joseph Yun, President of SOItmC and Co-hoster of SOItmC and KCWS 2015, for his leadership in making this event happen. I am also grateful to his entire team, as well as to all the faculty who co-sponsored the keynote speakers participation. I regret the absence this year of the WCI Executive Director for Events, Prof. Tan Yigitcanlar and look forward to see him back at KCWS 2016. Finally, I welcome Profs. Tommi Inkinen and Katri-Liis Lepik as WCI representatives, as well as Dr. Blanca García, WCI Executive Director for the MAKCi Awards.

Thank you and congratulations to you all.

June 15, 2015

Dr. Francisco Javier Carrillo Gamboa
President
World Capital Institute

Welcome Speech by the President of SOItmC

Hello! I am Yun Jin-hyo, President of the Society of Open Innovation: Technology, Market, and Complexity (SOItmC).

I would like to express my heartfelt gratitude to Shin Sung-chul, President of DGIST, and Kwon Young-jin, Mayor of Daegu Metropolitan City Government, for their full financial and emotional support to make the SOItmC and KCWS 2015 Conference successful. I would also like to thank Javier Carrillo, President of the World Capital Institute, for his efforts to hold the joint international academic conference with SOItmC in spite of difficult circumstances.

Beginning with the publication of "Capital in the 21st Century" written by Thomas Piketty, academic and economic circles have suggested a variety of methods to grapple with the limits of capitalism without growth. Against this backdrop, the global academic organization Society of Open Innovation: Technology, Market, and Complexity (SOItmC) was founded in DGIST on October 27, 2014 (http://www.openinnovationtmc.org). This organization is designed to establish a new growth paradigm for the modern capitalist economy, featuring complex systems by researching on creative and open innovation relationships between technologies and markets and by developing business models on the creative combinations of technologies and markets.

SOItmC is based on the engagement of professors, researchers, businessmen, and start-up entrepreneurs from diverse fields ranging from economic management to ICT and robot engineering. Approximately 300 people participate in SOItmC. Specifically, they are renowned scholars from 25 countries, including the United States, China, Japan, the United Kingdom, Australia, and Finland; domestic professors of major universities, such as KAIST, POSTECH, Seoul National University, Korea University, Yonsei University, and Sungkyunkwan University, and major local universities, such as Keimyung University and Kyungpook National University; DGIST professors and researchers; and creative businessmen from all over the world.

Under the themes of Open Innovation, Knowledge City, and Creative Economy, SOItmC is going to co-host the SOItmC and KCWS 2015 Conference with the World Capital Institute in DGIST from June 14 to 18 this year. The SOItmC and KCWS 2015 Conference will provide a momentum to explore theoretical and practical alternatives for building creative relationships and combinations between technologies and markets to construct a creative economy not only for the knowledge-based city Daegu but also for Korea.

On June 15, under the theme of Open Innovation, this conference is composed of three keynote speeches delivered by Philip Cooke, Taeho Park, and yours truly; three special sessions led by KeeHeon Cho, MinHwa Lee, DongKyu Won, ChoongJae Im, and SanChul Park; and two general sessions. Moreover, there will be nine Open Innovation and Business Models contests where Wanjong Joo, Avvari Mohan, KyunbBae Park, and ChoongJae Im will participate as reviewers.

On June 16, under the theme of Knowledge City, it will begin with keynote speeches delivered by Francisco Javier Carrillo, Tan Yigitcanlar, Tommi Inkinen, Katri-Liis Lepik, and Keun Lee. Then, there will be five sessions with Jaehoon Rhee, Eunnyeong Heo, WooSung Jung, SangHo Lee, KwangHo Jung, and SangOk Choi..

On June 17, under the theme of Creative Economy, Fumio Kodama, Blanca Garcia, Venni Krishna, and KongRae Lee will deliver keynote speeches first. Then, there will be 3 sessions with KyunbBae Park, YoHan Kim, and KwangHo Jung.

This academic conference has already achieved a big success, with 100 theses or OI and BM cases received and 150 applicants registered.

I hope that this SOItmC and KCWS 2015 Conference will serve as a new motive for conquering the growth limits of capitalism through open networks between technologies and markets and creative combinations of technologies and markets. To end my speech, I would like to quote Robert Schuller:

“Winning starts with beginning.”

“Failure doesn’t mean you are a failure; it just means you haven’t succeeded yet.”

June 15, 2015

Jin-hyo Joseph Yun
President of the Society of Open Innovation: Technology, Market, and Complexity
Co-host of the SOItmC and KCWS 2015 Conference

Conference Schedule (Updated on 06. 10, 2015)

Sunday, 14th June 2015 ※ Presider: Prof. KyungBae Park (SangJi University) Director: Prof. DooSeok Lee (DGIST)	
16:00 ~ 19:00 Venue: Lobby on the 2nd floor	Registration
17:00 ~ 18:00 Venue: Lobby & R#: 203 on the 2nd floor in B/D. R1	Welcome Reception ※ **Appendix 4. Transportations to DGIST** ※ **Appendix 6. Campus Map**
18:10 ~ 19:00 Venue: Lobby & R#: 203 on the 2nd floor in B/D. R1	Meeting with Keynote Speakers, Special Session Chairs, and World Capital Institute Members
Monday, 15th June 2015 (Open Innovation Day) ※ Presider: Prof. KiSeok Kwon (Hanbat National University) Director: Prof. DooSeok Lee (DGIST)	
08:00 – 14:00 Venue: Lobby on the 2nd floor	Registration
09:00 – 09:15 Venue: Auditorium (B/D: R1, R#: 204)	**Welcome Speech by the President of SOItmC** **Welcome Speech by the President of KCWS**

<table>
<tr><td>09:15 – 10:15

Venue:
Auditorium
(B/D: R1, R#: 204)</td><td colspan="2">Keynote Speech
· Philip Cooke (Bergen University College, Norway)

Presentation Theme: “The Future of Innovation: Challenges, Complexity & Crossovers”

· Taeho Park (San Jose State University, USA)

Presentation Theme: “Open Innovation in Supply Chain Management for Creative Economy”

· JinHyo Joseph Yun (DGIST, Korea)

Presentation Theme: “How do we conquer the growth limit of capitalism: Schumpeterian Dynamics of Open Innovation Economy System”</td></tr>
<tr><td>10:15 – 10:45

Venue:
Auditorium
(B/D: R1, R#: 204)</td><td colspan="2">Welcoming Remarks by the President of DGIST

Congratulatory Speech by the Mayor of Daegu Metropolitan City</td></tr>
<tr><td>10:45 – 11:00

Venue: Lobby on the 2nd floor</td><td colspan="2">Coffee Break</td></tr>
<tr><td>11:00 – 12:30</td><td>Venue: R# 202 (Conference Room)

Special Session 1: “The Importance of Valuation and Big Data as a Source of Technology Commercialization in Open Innovation Era”

· Session Chair: KeeHeon Cho (Korea Valuation Association)

· Honorary Discussant: Keun Lee (Seoul National University)

✓ Paper 1: "Valuation using royalty data in Life Science area-Focused on Anticancer and cardiovascular therapies" by JeongHee Lee(Digital Science Co., Ltd.), Youngyong In(Digital Science Co., Ltd.), Il-Hyung Lee(KISTI), JoonWoo Lee(KISTI)</td><td>Venue: R#: 203 (International Conference Hall)

General Session 1: “Creative Economy & Open Innovation”

· Session Chair: MinHwa Lee(KAIST)

· Discussant: TBD

✓ Paper 1: “The Platform Business Model and Business Ecosystem: Quality Management and</td></tr>
</table>

	✓ Paper 2: "Review of the New Product Development Strategy and Corporate's Competition" by JaeMan Joo (Duksung Women's University) ✓ Paper 3: "Open Innovation of Knowledge Cities" by JinHyo Joseph Yun(DGIST), EuiSeob Jeong(KISTI), SangChul Lee(DGIST), JeongHo Yang(DGIST) ✓ Paper 4: "Technology Valuation by Collective Intelligence" by YoungGi Kim(Gisang Co., Ltd.), Taehoon Kwon(KISTI), TaeJong Jang(KISTI) ✓ Paper 5: "The Economic Value of Brands and Patents in Manufacturing Firms of South Korea" by SoJin Lim(Korea Institute of Intellectual Property) ✓ Paper 6: "Schumpeterian Analysis of Catch-up and Catch-up cycles" by Keun Lee(Seoul National University) and Franco Malerba(Bocconi University)	Revenue Structures" by Junic Kim(University of Manchester, UK) ✓ Paper 2: "A Case Study on the Motivational Effects of Platform Systems based Hardware Startup on Open Innovation" by So-Young Lee, Ph.D.(KCERN), MinHwa Lee(KAIST) ✓ Paper 3: "Fintech, the Open Innovation to Unbundling Financial Industry and the Next" by Myungho Lee(KCERN) ✓ Paper 4: "A Study on the Direction of Korea's Open Innovation Technology Market" by Ae-Sun Kim(KCERN), MinHwa Lee(KAIST) ✓ Paper 5: "O2O Convergence trend and Gamification that stimulates open innovation: Focused on crowd souring" by Kyungju Choi(KCERN), MinHwa Lee(KAIST)
12:30 – 14:00	**Lunch Break** Venue 1 (Cafeteria) : B/D R1, 1st floor Venue 2 (Family Restaurant, "Okon") : B/D E7, Lobby Venue 3 (Cafeteria) : B/D E7, 2nd floor	
13:30 – 16:00	Venue: International Conference Hall (B/D: R1, R#: 203) **The Contest for Global Innovative Cases of Open Innovation and Business Model** Reviewers: WanJong Joo(Lawyer of TAEBAEK, Inc.), Avvari V. Mohan(Prof. of University of Nottingham, Malaysia), KyungBae Park (Prof. of SangJi University), ChoongJae Im (Prof. of KeiMyung University), ChangHwan Shin (Prof. of Kyungpook National University) ✓ "Parking lot information sending on real time system and their method" by Jaeho Yoon (Senior Researcher at BOKJU CO., LTD.) ✓ "Story Make A City" by SangGoo Kwon (Institute of Time & Space) ✓ "Smart Social Library System Business Plan" by SangHyun Lee (CEO of Sntec, LTD.) ✓ "Smart phone Photo based Smart Length Measuring System and Method" by JinHyoung Kim (L-Line) ✓ "Feedback public-relations server and method of manufacturing homepage using thereof" by Ki-dong Baek ✓ "Lumicrew, Smart Group Lamp System" by SuYeon Cho(KAI Spring Co.,Ltd.) ✓ "Smart panel system construction and management method for mobile and online survey" by Kyounghun Kim(Neo Economy Society Institute) ✓ "A business model about an online based real estate brokerage service" by SeokHyun Moon ✓ "Adjustable Walker" by Shalini Kumari Shalu (National Innovation Foundation, India) ※ Presider: Prof. ChangHwan Shin (Kyungpook National University)	

15:30 – 16:00 Venue: Lobby on the 2nd floor	**Coffee Break**		
16:00 – 17:30	Venue: R# 202 (Conference Room) **Special Session 2** "Complexity, Open Innovation & Knowledge City" · Session Chair: DongKyu Won(KISTI) · Honorary Discussant: JinHyo Joseph Yun(DGIST) ✓ Paper 1: "How do we conquer the growth limit of capitalism: Schumpeterian Dynamics of Open Innovation Economy System" by JinHyo Joseph Yun(DGIST) ✓ Paper 2: "How Do Academics Engage in Technology Transfer Activity? An Exploratory Study of the San Diego Biotechnology Community" by SangTae Kim(Small & Medium Business Administration of Korea), Yongll Jeong(KISTI) ✓ Paper 3: "Measuring the easiness of diffusion in social networks through the agent-based modeling" by HyoungSun Yoo(KISTI), TaeEung Sung(KISTI), SunHi Yoo(KISTI), DongKyu Won(KISTI) ✓ Paper 4: "Simulation of Weak Signals of Technology Innovation in Complexity" by SunHee Yoo(KISTI), DongKyu Won(KISTI) ✓ Paper 5: "Complex Adaptive Systems Approach to Sewol Ferry Disaster in Korea" by DongKyu Won(KISTI), HyungSun Yoo(KISTI), SunHi Yoo(KISTI)	Venue: R#: 203 (International Conference Hall) **Special Session 3** "Start-ups, Open Innovation, and Knowledge City" · Session Chair: ChoongJae Im (Keimyung University) · Honorary Discussant: Taeho Park (San Jose State University, USA) ✓ Paper 1: "Open Innovation in Supply Chain Management for Creative Economy" by Taeho Park (San Jose State University, USA) ✓ Paper 2: "The Study on the Innovation of SMEs Affecting on Corporate" by HyeMi Oh (ChungAng University), WooJin Lee(Kookmin University), ChoongJae Im(Keimyung University) ✓ Paper 3: "Study on the effects of open innovation ability to the growth of the company" by WooJin Lee(Kookmin University), ChoongJae Im(Keimyung University) ✓ Paper 4: "Study on the establishment of start-up marketing strategy through social network analysis" by Byoung-Kug Kim(Keimyung University), ChoongJae Im(Keimyung University) ✓ Paper 5: "The cases of open innovation in the Roman era" by Jeong-Hwan Jeon(Gyeongsang National University) and Sung-Kyu Kim(Gyeongsang National University)	Venue: R#: 201 (Conference Room) **General Session 2** · Session Chair: SangChul Park (Korea Polytechnic University) · Honorary Discussant: Philip Cooke (Bergen University College, Norway) ✓ Paper 1: "The Future of Innovation: Challenges, Complexity & Crossovers" by Philip Cooke (Bergen University College, Norway) ✓ Paper 2: "Growth Strategy for Finnish Science Parks under External Economic Crises" by SangChul Park (Korea Polytechnic University) ✓ Paper 3: "Promotion of university students' skills and behaviours topical for open innovators" by Karine Oganisjana(Riga Technical University, Latvia) ✓ Paper 4: "The scope of coaching in the context of organizational change" by Angelina Rosha(Riga Technical University, Latvia), Natalja Lace(Riga Technical University, Latvia) ✓ Paper 5: "Research Ethics Education for Overcoming Differences in Culture and Value System" by Hwan-jin NHO(DGIST)

17:30 – 18:30	Venue: International Conference Hall (B/D: R1, R#: 203) **Editor Board Meeting of *Journal of Open Innovation: Technology, Market, and Complexity* (JOItmC)** with Springer Publisher (Springer Booth to be prepared on the 2nd floor in B/D R1 from 15 to 17, June) **(※ Appendix 5)**
18:30 – 19:30	**General Meeting of SOItmC (※ Appendix 1)**
19:30 – 21:30 Venue: Convention Hall (E1), DGIST	**Gala Dinner** Welcome Speech with Cheers by Jeon Il Moon (Vice President of DGIST for Convergence Research Institute) Welcome Speech with Cheers by Sukjoon Hong (General Director of Medical Industry Division, Daegu Metropolitan City) **(※ Appendix 2)**

Tuesday, 16th June 2015 (Knowledge City Day)

※ Presider: Ph.D JinWon Kang (KISTEP)
Director: Prof. HeungJoo Ahn (DGIST)

08:00 – 14:00 Venue: Lobby on the 2nd floor	**Registration**
09:00 – 10:50 Venue: Auditorium (B/D: R1, R#: 204)	**Keynote Speech** · Francisco Javier Carrillo (Monterrey University of Technology, Mexico) Presentation Theme: "Knowledge-Based Development as Cultural Disruption" · Tan Yigitcanlar (Queensland University of Technology, Australia) Presentation Theme: "Incentivising innovation: insights from Australian and Brazilian incentive schemes"

<table>
<tr><td></td><td colspan="2">· Tommi Inkinen (University of Helsinki, Finland)
Presentation Theme: “Reflections on the innovative city: examining three innovative locations in a knowledge bases framework”
· Katri-Liis Lepik (Tallinn University, Estonia)
Presentation Theme: “Strategic management for public sector innovation in knowledge societies”
· Keun Lee (Seoul National University, Korea)
Presentation Theme: “Schumpeterian Analysis of Catch-up and Catch-up cycles”</td></tr>
<tr><td>10:50 – 11:00

Venue:
Lobby on the 2nd floor</td><td colspan="2">Coffee Break</td></tr>
<tr><td>11:00 – 12:30</td><td>Venue: R# 202 (Conference Room)

Special Session 4 “Open Innovation and Creative Entrepreneurship from Gyeongbuk TP and University Entrepreneurship Center”

· Session Chair: Jaehoon Rhee (Yeungnam University)

· Honorary Discussant: Francisco Javier Carrillo (Monterrey University of Technology, Mexico)

✓ Paper 1: “Knowledge-Based Development as Cultural Disruption" by Francisco Javier Carrillo (Monterrey University of Technology, Mexico)
✓ Paper 2: "Organizational Slack and Managerial Practices for Open Innovation: Moderating Effect of Social Capital" by Hoyoung Bae(Woosong University), Jaehoon Rhee(Yeungnam University)
✓ Paper 3: "A conceptual framework for coalescent and innovative public services in the context of reducing public sector resources (UK)" by David Parks(The Skill Mill Limited, UK), Paul Brownlee(The Skill Mill Limited, UK)
✓ Paper 4: “Assessment of Knowledge-Based Urban Development Potential of Turkish Provinces” by</td><td>Venue: R#: 203 (International Conference Hall)

General Session 3: “Open Innovation in Energy”

· Session Chair: Eunnyeong Heo (Seoul National University)

· Discussant: TBD

✓ Paper 1: "Learning Networks for Energy Efficiency in Industry as Open Innovations" by Wolfgang EICHHAMMER (Fraunhofer Institute, Germany)
✓ Paper 2: "Smart Home and Smart Energy – potentials and limits for innovation" by Christoph WEBER (Duisburg University, Germany)
✓ Paper 3: "Global energy trend and KIER's R&D portfolio" by Seongkon Lee(Korea Institute of Energy Research)
✓ Paper 4: “A study on the Accountability of the Regional R&D Program: The Case of APCTP” by Jinwon Kang(KISTEP)
✓ Paper 5: “A study on the R&D investment and financial performance: Focused on existing and potential competitors” by Dongphil Chun(KRICT), Youngjoo Ko(KRICT), Yanghon Chung(KAIST)</td></tr>
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	Sinem Metin(Istanbul Technical University, Turkey), Ferhan Gezici Korten(Istanbul Technical University, Turkey) ✓ Paper 5: "A conceptual approach to the relationships between the social economy, social welfare, and social innovation" by ChangHwan Shin(Kyungpook National University) ✓ Paper 6: "Learning Organization Activities and Innovativeness of Tech-based SMEs in Technopark: The Mediating Role of Learning Transfer" by Junghyun Yoon(POSTECH), Jaehoon Rhee(Yeungnam University), Sunghoon Hwang(Yeungnam University)	
12:30 – 14:00	**Lunch Break** Venue 1 (Cafeteria) : B/D R1, 1st floor Venue 2 (Family Restaurant, "Okon") : B/D E7, Lobby Venue 3 (Cafeteria) : B/D E7, 2nd floor	
14:00 – 15:30	Venue: R# 202 (Conference Room) **Special Session 5** "Open Innovation for Smart Mobility & Complexity" · Session Chair: WooSung Jung (POSTECH) · Honorary Discussant: Tommi Inkinen (University of Helsinki, Finland) ✓ Paper 1: "Reflections on the innovative city: examining three innovative locations in a knowledge based framework" by Tommi Inkinen(University of Helsinki, Finland) ✓ Paper 2: "Measuring Thematic Causality for Public Research Institutions" by HyeonChae Yang(POSTECH), WooSung Jung(POSTECH) ✓ Paper 3: "The impact of graduate students on research productivity in Korea" by KiSeok Kwon(Hanbat National University), SeungHwan Han(National Research Foundation of Korea), Duckhee Jang(Korea Institute of Ocean Science & Technology) ✓ Paper 4: "Predicting Future Issues with the Keyword Network of National Policy Research", by Hyunuk Kim(POSTECH), Taekho You(POSTECH), SangJin Ahn(KISTEP), WooSung Jung(POSTECH) ✓ Paper 5: "Does the knowledge economy growth encourage clustering of knowledge workers in	Venue: R#: 203 (International Conference Hall) **Special Session 6** "City of Future, Future of City: Open Innovation and Ubiquitous City" · Session Chair: SangHo Lee (Hanbat National University) · Honorary Discussant: Tan Yigitcanlar (Queensland University of Technology, Australia) ✓Paper 1: "Incentivizing innovation: insights from Brazilian innovation support programs" by Tan Yigitcanlar(Queensland University of Technology, Australia), Eduardo Moreira da Costa(Federal University of Santa Catarina, Brazil), Jamile Sabatini Marques(Queensland University of Technology, Australia) ✓ Paper 2: "Human Interaction and Perceptions to Media Facade" by JungHoon Han(University of New South Wales, Australia) and SangHo Lee(Hanbat National University) ✓ Paper 3: "Designing ICTs Aided Community Center for Neighborhood Residents" by Fan Qiangqiang(Northeastern University, China), Seyun An, Soyeon Kim, Hannah Ju, Ho Kim(Hanbat National University) ✓ Paper 4: "Smart City as an Urban Innovation Platform: What's next?" by JungHoon Lee(Yonsei University) ✓ Paper 5: "Can ICTs Contribute to Urban Renewal for Deprivated Cites?: Recent ICTs-base Urban Planning and

	metropolitan cores and subcenters of metropolitan areas? A comparative study of Barcelona and Helsinki" by Juan Eduardo Chica(University of Helsinki, Finland) ✓ Paper 6: "Network analysis for the Korean national R&D development" by MinWoo Ahn(POSTECH), WooSung Jung(POSTECH)	Design Cases of Korea and Japan" by YounTaik Leem(Hanbat National University), Seiji Sato(Oita University, Japan) ✓ Paper 6: "Location Allocation and Use Characteristics of Bounded Carsharing Service for Urban Public Housing Residents" by Jungbeom Lee (Daejeon Development Institute), Wanhee Byun, Hoyoung Kee (Land and Housing Institute), Myungsik Do(Hanbat National University) ✓ Paper 7: "How Does IT(Information Technology) and ET(Environment Technology) makes New Innovative Urban and Architecture Model" by JuHyung Han(Hanbat National University) and SangHo Lee(Hanbat National University) ✓ Paper 8: "Can CSR be a platform for open innovation to support a creative city development?" by Avvari V Mohan(University of Nottingham Malaysia Campus, Malaysia), Naga Lakshmi Chelluri(University of Hyderabad, India)
15:30 – 16:00 Venue: Lobby on the 2nd floor	**Coffee Break**	
16:00 – 17:30	Venue: R# 202 (Conference Room) **Special Session 7** "Smart Technology for Good Governance" · Session Chair: KwangHo Jung (Seoul National University) · Honorary Discussant: Fumio Kodama (University of Tokyo, Japan) ✓ Paper 1: "Corporate and Public Policies for Open Innovation: Demand Articulation in the Open-Innovation Paradigm" by Fumio Kodama (University of Tokyo) ✓ Paper 2: "The Impact of 'Pay-As-You-Throw(PAYT)' on Waste Disposal" by EunHyung Park(Seoul National University), Jonghwan Eun(Seoul National University), Kwangho Jung(Seoul National University) ✓ Paper 3: "An Empirical Analysis of Food Waste Disposal Systems: RFID, Pay-as-throw system, and Block-Payment", by Kwangho Jung(Seoul National University), EunHyung Park(Seoul National University), Jonghwan Eun(Seoul National University) ✓ Paper 4: "The influence of need for touch and gender on Internet shopping attitudes" by SeungHee	Venue: R# 203(International Conference Hall) **Special Session 8** "Technology Policy for Open Innovation & Knowledge City" · Session Chair: SangOk Choi (Korea University) · Honorary Discussant: Katri-Liis Lepik (Institute of Political Science and Governance, Estonia) ✓ Paper 1: "On the Way Towards a Knowledge City" by Katri-Liis Lepik(Tallinn University, Estonia), Merle Krigul(Brainport Living Lab, Estonia) ✓ Paper 2: "How to interact within science parks in order to improve industrial performance? - comparing research park and industrial park through social network analysis" by Injeong Lee(KAIST), Wonjoon Kim(KAIST) ✓ Paper 3: "The Factors affecting to 'Basic Research' Performance Funded by Government: 'Creative Research Program' Case in South Korea" by Youngsoo Ryu(KISTEP), Kwangseon Hwang(KISTEP), Sangok Choi(Korea University) ✓ Paper 4: "The Effect of Product Innovation on R&D Activities and Government Support Systems: the Moderating Role of Government Support Systems" by Si-jeoung Kim(KOFST), Eun-mi Kim(GSTEP), Yoon-kyo

	Lee(Southern Illinois University), Jane Workman(Southern Illinois University), Kwangho Jung(Seoul National University) ✓ Paper 5: "Factors influencing consumers' fashion M-Commerce" by Marcella Smith(Southern Illinois University), SeungHee Lee(Southern Illinois University)	Suh(Korea University), ZeKun Zheng(Korea University) ✓ Paper 5: "Perceived innovation barriers, open innovation and its performance" by Daehan Jung(Korea University), Youngmi Kim(Korea University), Yoonjung Kim(Korea University), Yoonkyo Suh(Korea University) ✓ Paper 6: "Affecting Structure on the Performances of University-Industry Cooperation : Mediating Effects of the Government & Enterprise Supported R&D Projects" by Hue-kyung Lee(National Research Foundation), Hyun-duk Youm(Korea University), Si-jeoung Kim(KOFST), Yoon-kyo Suh(Korea University) ✓ Paper 7 "An Empirical Study on the Determinants of Innovative Activity in Korean Manufacturing Firms: Focusing on the Firms' Perception of Innovation " by SungChan Yeom(Korea University)
17:30 – 18:30	Venue: International Conference Hall (B/D: R1, R#: 203) **MAKCi Awards Ceremony, moderated by Blanca C. Garcia**	
18:30 – 19:00	Venue: International Conference Hall (B/D: R1, R#: 203) **Declaration of KCWS 2016, moderated by Francisco J. Carrillo**	
19:00 – 19:30	Venue: International Conference Hall (B/D: R1, R#: 203) **WCI Extended Meeting (Only invited members)**	
19:30 – 22:00	**Dinner (only invited)** hosted by JinHyo Joseph Yun (SOItmC President) & Francisco Javier Carrillo (WCI President)	

Wednesday, 17th June 2015 (Creative Economy Day)

※ Presider: Ph.D. YoungJoo Ko (Korea Research Institute of Chemical Technology)
Ph.D. SangCheol Lee (DGIST)

08:00 – 14:00 Venue: Lobby on the 2nd floor	**Registration**
09:00 – 10:30 Venue: Auditorium (B/D: R1, R#: 204)	**Keynote Speech** · Fumio Kodama (University of Tokyo, Japan) Presentation Theme: "Corporate and Public Policies for Open Innovation: Demand Articulation in the Open-Innovation Paradigm"

	· Blanca C. Garcia (Northern Borderlands Research College, Mexico) Presentation Theme: "Knowledge Cities Benchmarking: The case of Daegu, Korea" · Venni V. Krishna (Jawaharlal Nehru University, India) Presentation Theme: "Globalization of R&D and Open Innovation: Linkages of Foreign R&D centers in India · KongRae Lee (DGIST, Korea) Presentation: "Sectoral differences in convergence innovation: implications for open innovation"
10:30 – 11:00 Venue: Lobby on the 2nd floor	**Coffee Break**
11:00 – 12:30	Venue: R#: 203(International Conference Hall) **Special Session 9** "Open Innovation: Technology, Society & Dynamics" · Session Chair: KyungBae Park (Sangji University) · Honorary Discussant: Venni V. Krishna (Jawaharlal Nehru University, India) ✓ Paper 1: "Globalization of R&D and Open Innovation: Linkages of Foreign R&D centers in India" by Swapan Kumar Patra(Jawaharlal Nehru University, India), Venni V. Krishna(Jawaharlal Nehru University, India) ✓ Paper 2: "Open Innovation Effort, Entrepreneurship Orientation and Their Synergies on Innovation" by JinHyo Joseph Yun(DGIST), KyungBae Park(Sangji University), JangHyun Kim(Sungkyunkwan University) ✓ Paper 3: "The Philosophy of Open Innovation: Historical Development of Philosophy of Open Innovation and Its Reflection from Taoism" by JinHyo Joseph Yun(DGIST), KyungBae Park(Sangji University), JeongHo Yang(DGIST), WooYoung Jung(DGIST) ✓ Paper 4: "How User Entrepreneurs Succeed: The Role of Entrepreneur's Caliber and Networking Ability in Korean User Entrepreneurship" by JinHyo Joseph Yun(DGIST), KyungBae Park(Sangji University) ✓ Paper 5: "A Study on the Dynamics of Platform Business Models" by JinHyo Joseph Yun(DGIST), DongKyu Won(KISTI), KyungBae Park(Sangji University), JeongHo Yang(DGIST) ✓ Paper 6: "Autonomous learning model in closed and open innovation condition" by DooSeok Lee(DGIST), JinHyo Joseph Yun(DGIST), HeungJu Ahn(DGIST), KyungBae Park(Sangji University), JeongHo Yang(DGIST)
12:30 – 14:00	**Lunch Break** Venue 1 (Cafeteria) : B/D R1, 1st floor Venue 2 (Family Restaurant, "Okon") : B/D E7, Lobby Venue 3 (Cafeteria) : B/D E7, 2nd floor

14:00 – 15:30	Venue: R# 202 (Conference Room) **Special Session 10:** "Daegu Techno-Park, Open Innovation and Creative City" · Session Chair: YoHan Kim (Daegu Techno Park) · Honorary Discussant: KongRae Lee (DGIST, Korea) ✓ Paper 1: "Sectoral differences in convergence innovation: implications for open innovation" by KongRae Lee(DGIST), Guktae Kim(Kyungpook University) ✓ Paper 2: "Healthcare IT growth strategies for Daegu" by JinWoo Lim (DGIST) ✓ Paper 3: "The Study for Network Structure between intellectuals and urban innovation" by HeeDae Kim(DIP), ChangYong Mun(Daejeon Metropolitan City), DukHee Lee(KAIST) ✓ Paper 4: "The Case of R&D Intermediate Organizations in Daegu Technopark" by YoHan Kim & Hyojin Kwon(Daegu Technopark)	Venue: R#: 203(International Conference Hall) **General Session 4:** · Session Chair: KwangHo Jung (Seoul National University) · Honorary Discussant: Blanca C. Garcia (Northern Borderlands Research College, Mexico) ✓ Paper 1: "Knowledge Cities Benchmarking: The case of Daegu, Korea" by Prof. Blanca C. Garcia (Northern Borderlands Research College, Mexico) ✓ Paper 2: "What Knowledge Activities Promote Creativity?" by Kwangho Jung(Seoul National University), SeungHee Lee(Southern Illinois University), Jane Workman(Southern Illinois University) ✓ Paper 3: "Determinants of RFID Adoption: A Meta-egression Analysis" by Sabinne Lee(Seoul National University), Kwangho Jung(Seoul National University) ✓ Paper 4: "Exploring Reasons for Illegal Use of Software: An Application of Q-Methodology" by ChanWoo Kim(Seoul National University), Kwangho Jung(Seoul National University)
15:30 – 16:00 Venue: Lobby on the 2nd floor	**Coffee Break**	
16:00 – 17:30	**Closing Ceremony of SOItmC & KCWS 2015** · Certificate of Merit of SOItmC & KCWS 2015 · Appreciation Plaque Ceremony of SOItmC & KCWS 2015 · Awards Ceremony of the Contest for Open Innovation Cases and Business Model · Paper Awards Ceremony ※ There could be no Paper Awards Ceremony if papers are judged not qualified. · **Declaration Speech of the SOItmC 2016** **※ By Prof. Taeho Park (San Jose State University, USA)**	
17:40 – 18:30	Dinner (Only invited)	

Society of Open Innovation Technology, Market & Complexity

DGIST

World Capital Institute

Thursday, 18th June 2015	
10:00 – 16:00 ※ Participation Fee: $50 - The price includes: round-trip bus service (Daegu to (from) the site), lunch, guidance, and souvenirs	Historical & Cultural Tour **(※ Appendix 3)** ✓ Andong Hahoe Village (UNESCO designated World Heritage Site) 

June 15 (Monday)

R# : 204 Auditorium

Keynote Speech

Philip Cooke (Bergen University College, Norway)
Presentation Theme: "The Future of Innovation: Challenges, Complexity & Crossovers"

Taeho Park (San Jose State University, USA)
Presentation Theme: "Open Innovation in Supply Chain Management for Creative Economy"

JinHyo Joseph Yun (DGIST, Korea)
Presentation Theme: "How do we conquer the growth limit of capitalism: Schumpeterian Dynamics of Open Innovation Economy System"

The Future of Innovation: Challenges, Complexity & Crossovers

Philip Cooke

Abstract of Contribution

The Future of Innovation: Challenges, Complexity & Crossovers
Prof Phil Cooke, Center for Innovation, UC Bergen, Norway
Progress has been made of late on understanding that the core process of innovation is 'knowledge recombination'. This implies not a "closed" but an "open" perspective on how innovation occurs. From an economic geography perspective, which is taken in this presentation, this raises interesting issues for the economics of knowledge. First it makes the need to pay serious attention to questions of 'proximity' imperative, suggesting not that knowledge is easily appropriable for ('open') innovation but that it may be excessively difficult to identify because it lies hidden in possibly neighbouring - but different - industries and firms. Thus, second, it makes the notion of 'knowledge spillovers' problematic because the spillovers may come in unrecognisable forms. Hence, third, this means that firms likely need more than usually expected intermediation (including knowledge transfer services) to avoid market failures of innovation. The complexity theory notion of 'transversality' has been advanced to capture the 'emergence' of novelty out of contexts of difference, unifying a solution to the three conceptual problem-issues raised in the paper.

Open Innovation in SCM for Creative Economy

Taeho Park
(San Jose State University)

Abstract

Since the concept and terms were introduced by Henry Chesbrough, open innovation has been widely spread out in a variety of industries. Open innovation has received increasingly attention by companies which aim for launching innovative products, reducing R&D cost and product introduction cycle, and improving product quality. It has been evolved throughout a supply chain in a company beyond just R&D for product development innovation. This study discusses activities in the supply chain which can be innovated/improved through open innovation, and stakeholders involved in the supply chain who can participate in the open innovation.
iding products and services in open innovation.

How do we conquer the growth limits of Capitalism? - Schumpeterian dynamics of an open innovation economy system

JinHyo Joseph Yun PhD

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Abstract

The purpose of this study is to answer the research question, "How do we conquer the growth limits of capitalism?" Based on existing studies on growth limits of capitalism by Marx and Schumpeter as well as the recent discussions of Drucker, Rifkin, and Piketty, the dynamic model of an open innovation economy system (OIES) is proposed as an answer to this research question.
OIES consists of an open innovation economy, closed innovation economy, and social innovation economy. The dynamics of OIES occurs from the positive interaction among the open innovation economy, closed innovation economy, and social innovation economy. The dynamics of the OIES circle are from an open innovation economy, through a closed innovation economy and social innovation economy, and back to an open innovation economy again. In addition, the validation of the model for the dynamics of OIES is improved by simulating the life cycle of the dynamics of OIES, low-level OIES dynamics, and high-level OIES dynamics, and by inquiring about a practical economic system corresponding to each simulation situation. Next through a comparative discussion between the linear steps of Schumpeter 1 and 2, and Socialist Democracy, and the dynamics of an open Innovation economic system, the practical and theoretical characteristics of the dynamics of OIES are clearly defined. Finally, the limits of this study and a follow-up research project are presented in addition to a summary of the discussion.

Keywords: open innovation economy system, dynamics, open innovation, closed innovation, social innovation.

June 15 (Monday)

R# : 202 Conference Room

Special Session 1

"The Importance of Valuation and Big Data as a Source of Technology Commercialization in Open Innovation Era"

■ **Session Chair: KeeHeon Cho** (Korea Valuation Association)

- Paper 1: "Valuation using royalty data in Life Science area- Focused on Anticancer and cardiovascular therapies" by **JeongHee Lee(Digital Science Co., Ltd.), Youngyong In(Digital Science Co., Ltd.), Il-Hyung Lee(KISTI), JoonWoo Lee(KISTI)**
- Paper 2: "Review of the New Product Development Strategy and Corporate's Competition" by **JaeMan Joo (Duksung Women's University)**
- Paper 3: "Open Innovation of Knowledge Cities" by **JinHyo Joseph Yun(DGIST), EuiSeob Jeong(KISTI), SangChul Lee(DGIST), JeongHo Yang(DGIST)**
- Paper 4: "Technology Valuation by Collective Intelligence" by **YoungGi Kim(Gisang Co., Ltd.), Taehoon Kwon(KISTI), TaeJong Jang(KISTI)**
- Paper 5: "The Economic Value of Brands and Patents in Manufacturing Firms of South Korea" by **SoJin Lim(Korea Institute of Intellectual Property)**
- Paper 6: "Schumpeterian Analysis of Catch-up and Catch-up cycles" by **Keun Lee(Seoul National University) and Franco Malerba(Bocconi University)**
- Paper 7 : "Empirical Study and Analysis on the Technology Valuation of Promising Technologies" by **Tae-Eung Sung(KISTI)**
- Paper 8 : "Analysis and Model Validation of Patent Value Drivers based on its Transaction Real Data" by **Tae-Eung Sung(KISTI)**

Valuations using royalty data in life science area - focused on anticancer and cardiovascular therapies

Jeong Hee Lee*

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Il-Hyung Lee, PhD

Principal Researcher, Korea Institute of Science and Technology Information (KISTI)

Joon Woo Lee, PhD*

Principal Researcher, Korea Institute of Science and Technology Information (KISTI)

Abstract

Purpose: This research seeks to answer the basic question, "How can we build up the formula to estimate the proper royalty rate and upfront payment by using data I can get simply as input?" This paper suggests the way to estimate proper royalty rate and upfront payment by using the formula derived from the regression of historical royalty dataset.

Design/methodology/approach: This research analyzes the dataset including the royalty-related data running royalty rate (Backend Payments), Upfront Payment (Up-front fee + Milestones) regarding drug candidates for specific drug class like anticancer or cardiovascular by regression analysis. And then we derive the formula to predict royalty-related data by using the attrition rate for the corresponding development phase of the drug candidate for the license deal and the revenue data of the license buyer (Licensee). And then we investigate the relationship between the formula to predict royalty related data and e-NPV.

Findings: For the drug class of anticancer(antineoplastics) & cardiovascular, the formula to predict the royalty rate &Upfront Payment is as follows:

Review on new product development and related competency of the company

JaeMan Joo
(Duksung Women's University)

Companies should pursue future-oriented growth and development through ongoing revenue and benefit. To do this, companies should strengthen innovation activity and develop and perform a variety of strategies and tactics according to their retention capacity.
The strategy and implementation of more effective management activities for new product development is essential to ensure financial stability and growth potential and the company's competitive advantage due to changes in the business environment.
However, high-tech, banking system, laws and regulations, due to the dynamic changes in the external business environment of rapid change, such as consumer behavior on a newly-market products are not all that successful.
Urban & Hauser(1993) has noted that about 25% to 30% of the new product to be introduced into the market failed.
The various paradigms and changes in trends by country, industry and management activities of the company with intensified competition between companies is making it more difficult. As a result, greatly shorten the life cycle of the company(CLC).
The shortening of the technology life cycle(TLC) and product life cycles(PLC) with the development of advanced science and technology needs, and that the rapid reduction of strategic decisions on investment in new product development and recovery period, the company generated revenue.
Only the establishment and execution of the highly thorough analysis in relation to consumer behavior, marketing strategy can lead to the existence and survival of new enterprises in the market.
Companies with limited resources under global competitive environment, it is necessary to strengthen innovation activities.
Companies save time and money ranging from idea generation to market surveillance and the development of new products in order to perform effectively and efficiently and should improve profitability. To do this, companies are required to build and operate a structured system that can establish and run a new development strategy for retention capabilities.
The increase of sales due to new product development of the company can be found that the CEO's will, and corporate R&D investment is held depends on the capacity of the tangible & intangible.
However, previous research on the relevance of new product development and most of the reserves at the results of the research capability and new product development company were not. In addition, the type of paper on the development of new products strategically selected according to the retention capacity of the company were not.
In this study, investigate and suggest appropriate with respect to new types of skills required by a look at the new competence with respect to the type of business or enterprise product development strategies of the retention capacity of the company not covered in previous studies.

Open Innovation of Knowledge Cities

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Abstract

Purpose: This research seeks to answer the basic question, "As a city evolves from an industrial city to a knowledge one, are its open innovation activities vitalized?"

Design/methodology/approach: In this research, we compare the total number of patent applications, the number of joint applicants of each patent, and the ratio of patents jointly applied, in four Korean cities—Daegu, Kwangju, Cheonann total, top 10 percent patent applicants group among total patent applicants, and the lower 70 percent patent applicant group among total patent applicants. The research included 144,625 patents submitted to the Korea Patent Office from 1981 to 2010.

Findings: As knowledge-based urbanization proceeds, the size of a knowledge city increases. The lowest 70 percent of patent applicants (rather than the top 10 percent) apply for more patents, and the breadth and depth of open innovation rises.

Research limitations/implications (if applicable): This research is limited to mutual patent applications as a target of open innovation. In the future, additional research will need to be conducted on various open innovation channels such as patent citation, intellectual property right transfer, licensing, and M&A.

Practical implications (if applicable): To maximize the beneficial characteristics of a knowledge city in a large city, the improvement of open innovation across the city is essential.

Social implications (if applicable): If strengthening open innovation by SMEs or start-ups is set as a corporate strategy or a government policy, it will be a source of development of knowledge-based urbanization and continued economic development of a knowledge city, as well as of the total knowledge assets.

Keywords: Knowledge City, Open Innovation, Power Law, Long Tail

Technology Valuation by Collective Intelligence

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Abstract
This study attempts to compare the valuation of technology by collective intelligence of crowd with by professional. Based on the review of related literature, typical technology valuation methods of income approach, market approach, and cost approach, all of these are performed by professionals, but the values cannot reflect the real market situation. Ideal value can be given in real time market by ideal crowd. We uses a new concept for measuring the value of technology using collective intelligence to improve the credibility and objectivity on the valuation. These results are compared to the valuation result by professional to analyse the effect of open innovation on valuation.

Keywords: open innovation; knowledge based economy, collective intelligence, crowd, valuation

The Economic Value of Brands and Patents in Manufacturing Firms of South Korea

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Abstract

This study measures the monetary value of patents and brands as an intellectual capital using the information in balance sheet of South Korean manufacturing firms (8,315 firms) in the period of 2005~2011.
The results show that the average ratios of value of patents and brands in firm's intellectual capital are 13.7% and 30.7% respectively. By industries, the electronic and medical & precision instrument have much higher ratio of patent value (30.5% and 31.7%) than other industries. On the other hand, the value of brands take large part in firms' intellectual capital in food, clothes industries (50.7% and 41.3%).

Keywords: Brand, Patent, Intellectual Capital, Knowledge Capital Earnings

Schumpeterian Analysis of Catch-up and Catch-up cycles

Keun Lee and Franco Malerba

Many industries have witnessed numerous changes in industrial leadership and successive catch-up by late entrants. The incumbent fails to maintain its superiority in production or market shares, and a latecomer catches up with the incumbent. The latecomer, who gains leadership, then loses to another latecomer. We call these phenomena of successive changes in industrial leadership as 'catch-up cycles', where catch-up means a substantial closing of the gap in market shares between firms in a leading country and those in a latecomer or follower country. This paper attempts to explain these phenomena in six sectors of cell phones, memory chips, camera, steel, mid-sized jets, and wine. These cases were analysed in view of the common theoretical framework on successive changes in the industrial leadership and a catch-up cycle proposed by Lee and Malerba (2015a) which is based on the notions of sectoral systems and the evolution of these systems over time (Malerba, 2002).

Several discontinuities may occur during their evolution, which we call as 'windows of opportunity' which was first used by Perez and Soete (1988) to refer to the role of the rise of new techno-economic paradigms in generating leapfrogging by the latecomers who take advantage of a new paradigm and thereby surpass the old incumbents. We broaden the notion of windows of opportunity by consider more dimensions, and identify three windows, namely, technological, demand and institutional windows (Lee and Malerba, 2015a). With the notion of 'windows of opportunity', this study uses the concept of 'response' by firms and systems. A few firms from emerging countries and the sectoral system that supports them may respond to the opening of windows and rise to global leadership, whereas the falling behind of the current leaders from a certain country may be due to a lack of effectiveness in the response, often due to an 'incumbent trap' (Chandy and Tellis, 2000), by firms and by their sectoral system leading to misalignments to the new window. In sum, the gist of our theory is that diverse combinations of windows of opportunity and the responses of firms and sectoral systems of latecomers and incumbents determine the pattern of successive catch-ups that will most likely emerge in a sector.

While we consider all these 'three windows' of opportunity, the final emerging picture is quite 'Schumpeterian' because we confirm the supremacy of technological innovation as the critical interface connecting the three windows. While the demand-related windows are important, they tend to have an influence on the forging-ahead stage primarily because they lead to demand-driven innovation and new investment or demand-driven adoption and diffusion of new technologies. Similarly, while the role of the institution and government window is 'significant' during the forging-ahead stage in several cases (such as Japanese steel), its actual impact is realized through the adoption or diffusion of new innovations. However, we have also proposed to qualify and specify the subtle nature of technological windows along the different dimensions of exogenous versus endogenous innovation and of competence-enhancing versus destroying innovation. However, the aforementioned distinctions must be complemented with the nature and types of capabilities and strategies of the incumbents and latecomers, as well as their sectoral system adequacies, alignment and responses.

Empirical Study and Analysis on the Technology Valuation of Promising Technologies

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Abstract

In this study, by performing technology valuation on KISTI promising technologies selected and announced officially every year, promising business opportunities for SME support, and outstanding technologies patented and registered by Korean Intellectual Property Office (KIPO) and Korean Invention Promotion Association (KIPO).

We analyze the correlation between the value of the technologies selected and the actual sales performance for directly commercialized technologies.

In addition, this study targets 85 technologies (items) discovered through the three support programs in the 2009-2012, in order to demonstrate statistical significance by comparing and analyzing the actual revenues in 2-3 years after valuation and the resulted value of promising technologies at the selection year.

Keywords: Technology Valuation, Promising Technologies, STAR-Value System

Analysis and Model Validation of Patent Value Drivers based on its Transaction Real Data

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Abstract

The purpose of this study is to extract the determinants affecting the quantitative value of patents by their transaction data based on real trading practices. To attain the goal, we examine 15 national and international patent valuation models to date for this purpose by selecting 11 value drivers to explain the determinants of good market performance.
The collection of patent technology trading data has been completed by the favorable cooperation of public institutions (Korea Invention Promotion Association , Technology Guarantee Fund) and private trade organizations (12 companies), so that we have a total of 250 patents, technology, industry classification for trade practices, transaction date, transaction prices, the title of the invention, application number and degree of innovation, stage of commercialization, type of technology, etc. The patent information and specific details associated have been obtained from patent-related websites (WINTELIPS) based on patent application number and its title. Also, the identifiable information has been confirmed through online patent trading market websites (http://www.idea.kr) to disclose the patent bargain prices.
To perform screening the value drivers from the data collected in this study, we have verified categorical variables and continuous variables via logistic regression analysis, where the classifications appear as a mixture of order. In addition, we conducted variable MF (Model Fit) test and TPL (line parallelism) verification, in order to see how much well the models assumed explain dependent variables, and classified into significant patent factors (value determinants) by the preceding observation and hypothesis.

Keywords: Patent Value Drivers, Transaction Real Data, Logistic Regression Analysis

June 15 (Monday)

R# : 202 Conference Room

Special Session 2

"Complexity, Open Innovation & Knowledge City"

■ **Session Chair: DongKyu Won**(KISTI)

- Paper 1: "How do we conquer the growth limit of capitalism: Schumpeterian Dynamics of Open Innovation Economy System" by **JinHyo Joseph Yun(DGIST)**
- Paper 2: "How Do Academics Engage in Technology Transfer Activity? An Exploratory Study of the San Diego Biotechnology Community" by **SangTae Kim(Small & Medium Business Administration of Korea), YongIl Jeong(KISTI)**
- Paper 3: "Measuring the easiness of diffusion in social networks through the agent-based modeling" by **HyoungSun Yoo(KISTI), TaeEung Sung(KISTI), SunHi Yoo(KISTI), DongKyu Won(KISTI)**
- Paper 4: "Simulation of Weak Signals of Technology Innovation in Complexity" by **SunHee Yoo(KISTI), DongKyu Won(KISTI)**
- Paper 5: "Complex Adaptive Systems Approach to Sewol Ferry Disaster in Korea" by **DongKyu Won(KISTI), HyungSun Yoo(KISTI), SunHi Yoo(KISTI)**

How do we conquer the growth limits of Capitalism? - Schumpeterian dynamics of open innovation economy system

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Abstract

The purpose of this study is to answer the research question, "How do we conquer the growth limits of capitalism?" Based on existing studies on growth limits of capitalism by Marx and Schumpeter as well as the recent discussions of Drucker, Rifkin, and Piketty, the Schumpeterian dynamic model of an open innovation economy system (OIES) is proposed as an answer to this research question.
OIES consists of an open innovation economy, closed innovation economy, and social innovation economy. The Schumpeterian dynamics of OIES occurs from the positive interaction among the open innovation economy, closed innovation economy, and social innovation economy. The Schumpeterian dynamics of the OIES circle are from an open innovation economy, through a closed innovation economy and social innovation economy, and back to an open innovation economy again. In addition, the validation of the model for the Schumpeterian dynamics of OIES is improved by simulating the life cycle of the dynamics of OIES, low-level OIES dynamics, and high-level OIES dynamics, and by inquiring about a practical economic system corresponding to each simulation situation. Next through a comparative discussion between the linear steps of Schumpeter 1 and 2, and Socialist Democracy, and the Schumpeterian dynamics of an open Innovation economic system, the practical and theoretical characteristics of the Schumpeterian dynamics of OIES are clearly defined. Finally, the limits of this study and a follow-up research project are presented in addition to a summary of the discussion.

Keywords: open innovation economy system, Schumpeterian dynamics, open innovation, closed innovation, social innovation

How Do Academics Engage in Technology Transfer Activity? An Exploratory Study of the San Diego Biotechnology Community

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Abstract

Technology transfer and academia-industry collaboration have emerged as a growth engine for the knowledge-based economy, thus drawing much attention from scholars and policymakers. This study explores how academics at a research university and non-profit research institutions in San Diego have developed their practice and relationships to transfer and commercialize knowledge by drawing on a qualitative approach. By tracing academic researchers' trajectories and experience in transferring technology using 43 in-depth interviews and historical archives, this paper argues that academics learn to be comfortable with and capable of translating basic research into products by participating in companies as senior staff and by interacting with their entrepreneurial colleagues. Learning by doing and interacting helps academics to venture into entrepreneurial activity. Based on these observations, this research suggests that universities and governments seeking to facilitate technology transfer need to motivate and encourage academics to embark on development efforts. Similar to the strategies used to stimulate entrepreneurship, the focus must be on individuals and their learning experience.

Keywords: Technology (knowledge) transfer, academic entrepreneurship, San Diego biotechnology cluster, organizational learning

Measuring the easiness of diffusion in social networks through the agent-based modeling

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Abstract

We have suggested the concept of the expectation time for equilibrium of a network(ETEN) as a crucial parameter of social networks, which would tell how fast the diffusion occurs in a certain social network. The ETEN can be simply measured by the agent-based modeling suggested in this study. It is expected that the effects of the structural changes or diffusion conditions on the easiness of diffusion could be more effectively investigated by adopting the ETEN in the social network analysis.

Keywords: social network, diffusion, agent-based modeling

Simulation of Weak Signals of Technology Innovation in Complexity

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Abstract

It is indispensable in predicting the future, especially, new business or new industry, to predict the innovation of new technologies. This requires a understanding of the complex process of innovation, that comprises more efficient products, processes, services, technology or ideas is adopted and diffused in the market, government and society. And detecting “weak signals” of changes in science and technology is also very important, because it foretell big events associated with innovations in technology. So I explored the weak signals' dynamic behavior of a specific technological innovation using agent-based simulating tool such as the NetLogo. This study is to provide a deeper understanding of the early stages of complex technology innovation. And The models are capable of analysing initial complex interaction structures, between components of technologies, between agents engaged in collective invention.

Complex Adaptive Systems Approach to Sewol Ferry Disaster in Korea

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Abstract

This paper aims to introduce the concept and characteristics of natech disaster (Natural hazards triggered Technological disaster) and to explore the policy issues in complex disaster management in Korea. This study is to apply the risk management or policy for improving effective public acceptance and to investigate the changing factor analysis of the risk communication with dynamic characteristics using the the model of complex adaptive systems.
Based on the results of analyzes, this research concludes with a few policy suggestions. First, the natech (natural-technological) complex disaster management needs to be approached in complex adaptive perspective. By psychological, social network analysis, linking reaction after the disaster, we could cope with the physical disaster similar in the future. Third, the perception of vulnerability as a "psychological event" implies that the vulnerability as well as the disaster has periods of onset, development and finally an end.
In conclusion, complex adaptive systems approach to the vulnerability could cause us to change our focus on preparing for the impact of events, and perhaps it should induce us to widen our horizon concerning the dynamics and implications of the natech disaster.

Keywords: Sewol ferry disaster, Natech disaster, disaster management, complex adaptive systems, bowtie model, social network model, ABM (Agent-Based Model)

June 15 (Monday)

R# : 203 International Conference Hall

Special Session 3

"Start-ups, Open Innovation, and Knowledge City"

■ **Session Chair: ChoongJae Im**(Keimyung University)

- Paper 1: "Open Innovation in Supply Chain Management for Creative Economy" by **Taeho Park (San Jose State University, USA)**
- Paper 2: "The Study on the Innovation of SMEs Affecting on Corporate" by **HyeMi Oh (ChungAng University), WooJin Lee(Kookmin University), ChoongJae Im(Keimyung University)**
- Paper 3: "Study on the effects of open innovation ability to the growth of the company" by **WooJin Lee(Kookmin University), ChoongJae Im(Keimyung University)**
- Paper 4: "Study on the establishment of start-up marketing strategy through social network analysis" by **Byoung-Kug Kim(Keimyung University), ChoongJae Im(Keimyung University)**
- Paper 5: "The cases of open innovation in the Roman era" by **Jeong-Hwan Jeon(Gyeongsang National University) and Sung-Kyu Kim(Gyeongsang National University)**

Open Innovation in SCM for Creative Economy

Taeho Park
(San Jose State University)

Abstract

Since the concept and terms were introduced by Henry Chesbrough, open innovation has been widely spread out in a variety of industries. Open innovation has received increasingly attention by companies which aim for launching innovative products, reducing R&D cost and product introduction cycle, and improving product quality. It has been evolved throughout a supply chain in a company beyond just R&D for product development innovation. This study discusses activities in the supply chain which can be innovated/improved through open innovation, and stakeholders involved in the supply chain who can participate in the open innovation.
iding products and services in open innovation.

The Study on the Innovation of SMEs Affecting on Corporate Innovation(Product/Process/Organization)

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Abstract

In order to respond to rapidly changing environment, the technology and ability of a single corporate is not enough. Therefore recently the open innovation becomes the major topic in relation to the R&D strategy. Accordingly, the various technology departments of ventures and SMEs can take advantage of increasing the opportunity and the open innovation has become more key condition.

In the process of corporate innovation, the advantage of a variety of knowledge appeared a significant effect on the innovation(Laursen and Salter, 2006).
Earlier studies of corporate innovation in product or service that focuses on the studies are mainly, but the corporate innovation is a newly launched service and product innovation, as well as the new systems, policy, programs such as Organizational Innovation and Process Innovation of the various aspects should also included the change(Zaltman, Duncan, and Holbek, 1973; Daft, 1982; Damanpour and Evan, 1984; Damanpour, 1991).

The objective of this study is to examine the impact on the SMEs of the products, organization, process of innovation through Open Innovation.

Study on the effects of open innovation ability to the growth of the company

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Abstract

In the era of the creative economy of the 21st century, corporate innovation process should be innovative on market analysis, feasibility assessment, idea development planning, substantial design and test, production, distribution, marketing, and pre/post service even though corporate innovation process of the 20th century stayed in the development of a simple product.

Open innovation is defined as to utilize inside and outside knowledge with having the purpose of promoting internal innovation, linking outside innovation to inside, and broaden the market.

Thus, depending on the open innovation ability of entrepreneur, entrepreneurial company is intended to be displayed different performance and growth of the company. Open innovation is composed of Inventive Capacity, Absorptive Capacity, Transformative Capacity, Connective Capacity, Innovation Capacity and Descriptive Capacity.
Therefore, in this study we investigated the relationship between entrepreneurs of open innovation ability and corporate growth.

Keywords: open innovation, entrepreneur, innovation, open innovation ability

Study on the establishment of start-up marketing strategy through social network analysis

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Abstract

The success factor of start-up is based on the profitability, marketability, technology excellence, but clear information on trends can provide important implications for the preliminary start-up founders to prepare. Previous research about marketing strategies of start-up is based on most research on traditional marketing techniques and study on language relevant information analysis among humans in social communities was not found.
This study defines the language relevant information in social communities as degree keyword, betweenness keyword, closeness keyword. We identify the nature of the relationship between language based on the extracted language relevant information and propose to establish a useful direction for marketing in start-up companies.
The methodology of this study will be applied to discover the business opportunities by finding the useful information on trend analysis and marketing strategy establishment from start-ups to a variety of businesses category.

The cases of open innovation in the Roman era

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Abstract

As a result of the open innovation dissemination, the necessity of open innovation is being magnified in the theory of national innovation. Nevertheless, research on the relationship between the open innovation and national innovation system is insufficient so far. Therefore, this research aims to grasp the relationship between the open innovation and national innovation system by analyzing the Roman era. We discovered and analyzed the case of Roman era such as In-sourcing, Collaboration, Purchasing and Opening type among the several type of open innovation. We expect that this research can help the establishment of future national innovation policy.

Keywords: Open innovation, case, Roman era

June 15 (Monday)

R# : 203 International Conference Hall

General Session 1

"Creative Economy & Open Innovation"

■ **Session Chair: MinHwa Lee**(KAIST)

- Paper 1: "The Platform Business Model and Business Ecosystem: Quality Management and Revenue Structures" by **Junic Kim(University of Manchester, UK)**
- Paper 2: "A Case Study on the Motivational Effects of Platform Systems based Hardware Startup on Open Innovation" by **So-Young Lee, Ph.D.(KCERN), MinHwa Lee(KAIST)**
- Paper 3: "Fintech, the Open Innovation to Unbundling Financial Industry and the Next" by **Myungho Lee(KCERN)**
- Paper 4: "A Study on the Direction of Korea's Open Innovation Technology Market" by **Ae-Sun Kim(KCERN), MinHwa Lee(KAIST)**
- Paper 5: "O2O Convergence trend and Gamification that stimulates open innovation: Focused on crowd souring" by **Kyungju Choi(KCERN), MinHwa Lee(KAIST)**

The Platform Business Model and Business Ecosystem: Quality Management and Revenue Structures

Junic Kim[1]

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Abstract

A platform is a two-sided market. It is an environment established to allow multiple groups such as suppliers and consumers to participate in order to exchange the values that each group desires to obtain through fair transactions. On that account, it evolves through the connection and interaction of platform participants, and it has the intention of being an ecosystem of coexistence that can provide new values and benefits to all participants. Therefore, building the business ecosystem is very important to stabilise the platform business model successfully.
This research indicates how to complete the business ecosystem through the analysing the quality management and revenue structure, which are core elements in the platform business model having a distinct group of users on both sides. Through 21 strong case studies with 30 in-depth interviews and 2 strong focus group interviews, this research suggests the 12 different types of quality management and revenue structure strategies and triple helix formation. These will serve as the conceptual framework to build the platform business model ecosystem.

Keywords: platform business model, business ecosystem, quality management, and revenue structure

A Case Study on the Motivational Effects of Platform Systems based Hardware Startup on Open Innovation

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Abstract

Recent IoT, wearable, virtual reality, 3D printer market and technology trends, such as hardware-based intelligent robots are pouring out with positive prospects alongside the growth of the mobile market. Fifth generation communication and state of the art technology provides new opportunities for startup ventures by lowering the bar for production that was only possible with industry scale R&D, personnel, and manufacturing plants. The introduction of open source hardware and 3D printers offers huge advantages for hardware startups by cutting production costs and time and generating specialized hardware accelerators. These factors allow for business to increase efficiency, utilize two-sided market for consumers and producers, and enter a platform ecosystem that aims to lower costs and spur value creation. This study analyzes factors that amplify the Open Innovation effect in the context of hardware startups and platform systems. Ultimately, this study will become the bases for an innovative business model that addresses problems of imbalance between increasing R&D investment and price competition.

Keywords: Hardware Startup, Platfrom System, Open Innovation, Business Innovation Model

Fintech, the Open Innovation to Unbundling Financial Industry and the Next

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Abstract

This thesis researches the background for and significance of Fintech's emergence while exploring Fintech's future development directions. Fintech uses IT technology to improve the financial system, effectively merging finance and technology. However, Fintech's uniqueness is defined by its introduction of P2P (Peer to Peer) finance, or the democratization of finance rather than its application of IT technology to finance – a feat that has been made previously. A revolution in smart networks solved past financial problems arising from browsing and transaction costs. Be it providing mobile payment and transfer services that bypass existing financial institutions and P2P lending or crowdfunding intermediates collected investment funds from microfinance, Fintech is dominating existing and newly created markets. By focusing on mobile services amidst smart revolution and network innovation, Fintech is dismantling and restructuring existing financial industries.
This study will analyze in the context of P2P financial network open innovation and in the perspective of technology and business models Fintech's cases by types such as payments, transfers, lending, and investments. Finally, this study will focus the significance of the innovation and convenience that Fintech is bringing and suggest policies that further assist the restructuring of the financial system.

Keywords: fintech, network innovation, open innovation, finance industry, finance technology, smart revolution, mobile revolution

A Study on the Direction of Korea's Open Innovation Technology Market

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Abstract

In the 20th century, industries based on science and technology flourished, and consequently, people highlighted the importance of technological innovation. In no time, people came to regard the capacity of a firm's R&D department as a determining factor of the firm's competence. However, technological revolutions arising from isolated R&D efforts reached their limit towards the second half of the 20th century and such businesses faced stagnant growth. In contrast, leading multinational companies such as Google, Facebook, Cisco, Intel, MS, and Pfizer switched to an open innovation system whereby multinational companies merge via M&A with ventures that develop innovative and revolutionary technology. Open innovation helped these industries survive various crises.

Post 2009, domestic M&A trends have expanded, however, a vast majority of M&A are for purposes of restructuring rather than transferring technology. As such, the market for technology transfer is dormant. According to a mobile survey conducted on employees (CEOs, executive officers, startup members, and venture capitalists), 59.1% said 'establishing a corporate value assessment system', 43.0% said 'expanding government M&A support policy', 27.4% said 'educating M&A professionals and intermediaries' is necessary in order to foster a better environment for M&A of ventures.

Therefore, this paper suggests the following to cater Korea's corporate ecosystem towards open innovation: establishing a specialized exchange organization to assist the merging of conglomerate dominated markets and revolutionary technologies developed by ventures; making policies to assist the elimination of transaction costs and the reaching of critical point at which technology trade is at its maximum. This special exchange as part of the market must grow and develop to become a part of the global market. This proposal will assist domestic corporations to adopt open innovation.

Keywords: open innovation, technology market, market-technology combinated M&A

O2O Convergence trend and Gamification that stimulates open innovation: Focused on crowd souring

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Abstract

After internet is invented, the convergence of Offline and Online sphere generates O2O environment that creates values. This environment fuels collective intelligence through game or elements of gamefulness which increase the cases using collective intelligence as the drive to innovate.
In the past, it was almost impossible to acquire innovation from the worldwide public before internet is appeared. However, the internet made countless brains connected and this inspires the environment that collective intelligence can be created. As some of organizations start to realize that the revelation of collective intelligence can be stimulated and applied intentionally through game or elements of gamefulness, the age of crowdsourcing is now open.
In fact, there is a case listed in 'Nature Structural & Molecular Biology 2011' which sixty thousands of gamers solve the problems in 10 days that wasn't solved for 10 years by several scientists. We can see that several factors of gamefulness are applied in most of open innovation platforms based on online sphere.
In this study, we predict how the future of crowdsourcing enhanced as the merge of O2O becomes highly enhanced and plans for gamification that fits in expected crowdsourcing by analyzing IoE(Internet of Everything), augmented reality, virtual reality, new recent technologies that expedites the convergence of O2O, existing crowdsouring platforms and the successful cases from the perspectives of gamification.

Keywords: *gamification, O2O, crowd sourcing,* open innovation, *mobile revolution*

June 15 (Monday)

R# : 201 Conference Room

General Session 2

■ **Session Chair: SangChul Park**(Korea Polytechnic University)

- Paper 1: "The Future of Innovation: Challenges, Complexity & Crossovers" by **Philip Cooke (Bergen University College, Norway)**
- Paper 2: "Growth Strategy for Finnish Science Parks under External Economic Crises" by **SangChul Park (Korea Polytechnic University)**
- Paper 3: "Promotion of university students' skills and behaviours topical for open innovators" by **Karine Oganisjana(Riga Technical University, Latvia)**
- Paper 4: "The scope of coaching in the context of organizational change" by **Angelina Rosha(Riga Technical University, Latvia), Natalja Lace(Riga Technical University, Latvia)**
- Paper 5: "Research Ethics Education for Overcoming Differences in Culture and Value System" by **Hwan-jin NHO(DGIST)**

The Future of Innovation: Challenges, Complexity & Crossovers

Philip Cooke
Draft Presentation:

14 – 18 June, 2015
Venue: DGIST (Daegu Gyeongbuk Institute of Science & Technology), Daegu, Korea

1st Society of Open Innovation: Technology, Market, and Complexity (SOItmC)
& (8th Knowledge Cities World Summit) 2015

Abstract

The Future of Innovation: Challenges, Complexity & Crossovers

Prof Phil Cooke, Center for Innovation, UC Bergen, Norway

Progress has been made of late on understanding that the core process of innovation is 'knowledge recombination'. This implies not a “closed” but an “open” perspective on how innovation occurs. From an economic geography perspective, which is taken in this presentation, this raises interesting issues for the economics of knowledge. First it makes the need to pay serious attention to questions of 'proximity' imperative, suggesting not that knowledge is easily appropriable for ('open') innovation but that it may be excessively difficult to identify because it lies hidden in possibly neighbouring - but different - industries and firms. Thus, second, it makes the notion of 'knowledge spillovers' problematic because the spillovers may come in unrecognisable forms. Hence, third, this means that firms likely need more than usually expected intermediation (including knowledge transfer services) to avoid market failures of innovation. The complexity theory notion of 'transversality' has been advanced to capture the 'emergence' of novelty out of contexts of difference, unifying a solution to the three conceptual problem-issues raised in the paper.

Growth Strategy for Finnish Science Parks under External Economic Crises

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1. Introduction

A new economic order based on globalization and localization processes has changed the fundamental economic systems that caused in the global financial crisis in 2008 and the EU's sovereignty debt crisis in 2011. Particularly, the Finnish national economy was affected by the reformation of the two global and regional economic crises in the beginning of the 2010s. This resulted in a severe economic recession in the beginning of the 2010s. In fact, the suffering from the economic recession started with the collapse of the former Soviet Union in the early 1990s, which was one of the largest trade partners for Finland. However, Finnish economy recovered rapidly in the end of 1990s since it found East Asian markets as substitutes. However, two external economic crises in 2008 and 2011 influenced negatively that made the national economy worse.

Finland has not recovered fully yet from the two external economic crises and led to the loss of a significant part of nation's economic base. Particularly, the structural crisis in the manufacturing is widely reflected its economy and prospects It is extremely important to understand that the present crisis is completely different from the recession in the 1990s. In fact, the present crisis is even more difficult, because productivity growth has halted in an unprecedented way. It is even worse that there is a lack of ideas to improve the situation because achieving new economic growth requires exceptional efforts. (Holström et. Al. 2014)

In the Finnish economy, the electronics industry had played significant roles in generating economic growth, new employment, value added etc. since the economic crisis in the 1990s. In fact, the success of Nokia-led ICT cluster known as Technopolis Plc maintained favorable economic growth for a long time. As a result, the budget surpluses were large and new employment was created continuously. These conditions were able to generate an economic structure in which wages rose rapidly and public spending grew faster than was desirable in term of sustainable development.

In 2012, the electronics industry started to be collapsed along with Micro Soft's merging Nokia Mobile Phone. Since then, exports and output have declined sharply. At the same time, the contraction of paper industry has continued and metal processing has suffered from low prices in global markets. These factors caused a deterioration of profitability in manufacturing sectors. Due to the structural problems and global economic conditions, there is no single and

Promotion of university students' skills and behaviours topical for open innovators

Dr. Karine Oganisjana
Riga Technical University, Latvia

It is argued that the participation in open innovation processes requires from people a specific set of thinking, skills and behaviours founded on the willingness and readiness to exchange, accept, encourage, cooperate and co-create based on trust and collaboration. The paper presents the results of a study conducted in Riga Technical University with 85 bachelor students within the course "Economics of Entrepreneurship" in the autumn semester of 2014. The course was organised in an open environment, in which students worked in teams for solving real life problems in order to create new products and services being encouraged to: unite theory with practice; learn both from intra-team and inter-team cooperation; collaborate with teachers, entrepreneurs and specialists from different fields topical for each concrete case. In order to explore the challenges faced in the course of the promotion of the university students' skills and behaviours typical for open innovators, both qualitative and quantitative content analyses of the texts of the students' reflection on the course and their activities within that were conducted. They revealed certain barriers conditioned both by individual peculiarities of students and specific characteristics of the culture of individualism such as not willing to: open to others, work in team, co-create, etc.

The scope of coaching in the context of organizational change

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Abstract.

Purpose
The aim of this paper is to explore the scope of coaching in the context of organizational change considering peculiar issues associated with the use of coaching in Latvia and Lithuania.

Design/methodology/approach
A two-stage study seeks to answer the following research questions. How is coaching defined? What is the aim of coaching? Who are involved in coaching? What coaching outcomes are expected? During the first stage, the definitions of coaching are extracted from the literature and analyzed to identify the distinctive features of coaching. During the second stage, the experts are interviewed to explore the views of practitioners in coaching about a place of coaching in organizations. Literature review, content analysis and comparative analysis are used for the purposes of this study. Triangulation of research results is obtained through cross verification from two sources.

Findings
41 general definitions as well as definitions of executive and business coaching were extracted from the literature and taken for analysis. Based on the established criteria for selection, 7 experts from Latvia and Lithuania took part in the interview. The list of participants was extended with 2 experts from Germany and Poland with the aim to trace the tendency of the development of coaching in the countries that might have influence on the development of the subject matter in the Baltic countries.
Based on commonly used characteristics, coaching is defined as a regular, synergic, learning and development, goal-oriented process. Content analysis and comparative analysis of definitions reveal that facilitation is a primary aim of coaching. Coaching is more beneficial for people who provide decisions. In organizations coaching should be started from the top management and then gone down to lower levels. Achieved results and personal growth is considered as the key expected coaching outcomes. In respect to organizations, coaching provides greater goal clarity, better alignment with the role in organization that facilitates change in the style of management. However, the experts marked the possible threats and challenges such as stereotype and misunderstanding, lack of systematic approach to ensure that coaching engagements are in line in organizational change needs. It is also difficult to explain how effective coaching can be because coaching is not homogeneous and it is difficult to measure the results of coaching.

Originality/value
The findings of the study are expected to use for promotion of coaching in EU New Member States and for the further research on organizational coaching.

Keywords: coaching, organizational change, EU New Member States

Research Ethics Education for Overcoming Differences in Culture and Value System

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ABSTRACT

Although ethical standards and procedures for research in Korea have become closer to the global standards, significant conflicts have been found to take place widely due to cultural differences. In Korea where relationship-centered East Asian values prevail, it is difficult for "internal whistle-blowing" and "management of conflicts of interest" to function well enough. At university, it is difficult to form a relationship of free discussion and equality between professor and student. In addition, the research community has been influenced by such side effects as "respect for quantity and speed," "excessive competition," and "mammonism" which have permeated Korean society during its process of modernization. Students have taken such values for granted too.

Under these circumstances, how can we educate students to have them get familiar with the global standards as well as deal wisely with cultural conflicts? It is proposed that the overarching principle of research ethics education should "not be delivery of knowledge but be to change the way of thinking." Five-stage education is proposed, and discussion of dilemma cases is recommended as a method of education. It is advised to avoid education through the Internet, and to lead the whole teaching work by one educator in case of team teaching. It is also asserted that classroom instruction can change the way of thinking of students only with social education.

Efforts of universities and operational modes of research laboratories are two most important aspects of social education. The government is asked to establish legislation and to expand financial support for the facilitation of change in this direction. It is, in particular, held that national development can be made only if universities play the role of a fountain which pours clear water into society.

Society of Open Innovation
Technology, Market & Complexity

DGIST

World Capital Institute

SOItmC & KCWS 2015
June 14 ~ 18, DGIST, Daegu, Korea

June 15 (Monday)

R# : 203 International Conference Hall

Open Innovation & Business Model Contest

■ **Presider: Prof. ChangHwan Shin** (Kyungpook National University)

- "Smart phone Photo based Smart Length Measuring System and Method" by **JinHyoung Kim (L-Line)**
- "Parking lot information sending on real time system and their method" by **Jaeho Yoon (Senior Researcher at BOKJU CO., LTD.)**
- "Lumicrew, Smart Group Lamp System" by **SuYeon Cho(KAI Spring Co.,Ltd.)**
- "A business model about an online based real estate brokerage service" by **SeokHyun Moon**
- "Smart Social Library System Business Plan" by **SangHyun Lee (CEO of Sntec, LTD.)**
- "Story Make A City" **by SangGoo Kwon (Institute of Time & Space)**
- "Smart panel system construction and management method for mobile and online survey" by **Kyounghun Kim(Neo Economy Society Institute)**
- "Feedback public-relations server and method of manufacturing homepage using thereof" by **Ki-dong Baek**
- "Adjustable Walker" by **Shalini Kumari Shalu (National Innovation Foundation, India)**

Smart phone Photo based Smart Length Measuring System and Method

JIN-HYOUNG KIM (L-LINE)

Using the smartphone camera and an infrared sensor, and measures the exact distance ,and measuring the exact size. through the ratio of the object to be displayed on the screen of the smartphone. You are SMART! But, your hand has a ruler.

Parking lot information sending on real time system and their method

JAEHO YOON(BOKJU CO.,LTD.)

Lumicrew, Smart Group Lamp System

SuYeon Cho(KAI Spring Co.,Ltd.)

A lamp system which contains communicatable smart lamps.
In this system one lamp represents one person. Once building up a group of several lamps, every change of topology can be treated as member's change in a small group such as riding and climbing.

A business model about an online based real estate brokerage service

SeokHyun Moon

Real estate development Information intermediate method and system
IPC : G06Q 50/30 G06Q 50/16
Applicant: DGIST
Applicant No: 1020120012973
Applicant Date: 2012.02.08
Registration No: 1013891450000
Registration Date: 2014.04.18
Unex. Pub. No: 1020130091581
Unex. Pub. Date: 2013.08.19

Traditionally, the real estate brokerage service was one of the hardest business areas to leverage on IT. Today, there are lots of businesss which become more efficent using IT, however, most of real estate brokers hasitate to use IT for their business. In the presentaiton, we'll review the characteristics of the business that makes it hard to use IT and present service models to make it more efficient.

Smart Social Library System Business Plan

SangHyun Lee(Sntec)

Smart social library service method and system
IPC : G06Q 50/26
Applicant: SangHyun Lee
Applicant No: 1020120010317
Applicant Date: 2012.02.01
Registration No: 1013363800000
Registration Date: 2013.11.27
Unex. Pub. No: 1020130089006
Unex. Pub. Date: 2013.08.09

Different from the existing library that keeps books in a specific space based on the spatial concept, this is a user participation–based library that connects privately owned books in a smart manner.

Story Make a City

Sang Goo Kwon(Institute of Time & Space)

Re-discovery of Daegu, urban renewal project (2001-2015)

Smart panel system construction and management method for mobile and online survey

Kyounghun Kim

TIME AND LOCATION BASED SURVEY MARKETING SERVICE PROVIDING SERVER, AND METHOD THEREOF
IPC : G06Q 30/02 G06Q 50/30
Applicat : DGIST, Kyounghun Kim
Application No: 1020120010027
Application Date: 2012.01.31
Registration No: 1013124210000
Registration Date: 2013.09.23
Unex. Pub. No: 1020130100814
Unex. Pub. Date: 2013.09.12

Feedback public-relations server and method of manufacturing homepage using thereof

Ki-dong Baek

IPC : G06Q 30/02
Applicant : JeongSuk Moon, DGIST
Application No: 1020130069705
Application Date: 2013.06.18
Registration No: 1015093110000
Registration Date: 2015.03.31
Unex. Pub. No: 1020150000004
Unex. Pub. No: 2015.01.02
Unex. Pub. Date: TAEBAEK

Adjustable Walker

Shalini Kumari Shalu

(National Innovation Foundation, India)

Abstract:

The walker has spring-loaded self-locking front legs, looking at the normal 'walker'. When the user pushes the front legs on the upper stairs and the rear legs rest on the lower stairs legs become adjustable instead of fixed which could be used to climb stairs. It also has a foldable seat that can be pulled out for resting and is fitted with a horn and a light. The walker is stable enough for climbing stairs.

A walker to help the physically weak climb stairs and can take up to 100 kg and can be adjusted to different environments.

Following pic illustrates the real life implementation of this innovation.

Inspired by her Grandfather's Pain

My grandfather loved to plant. He had a beautiful garden on the roof where he took his daily walk. Sadly, he had an accident after which he had to use a walker for support. He could walk on an even surface but it was not flexible enough to be used on stairs.

Because the walker could not support him on stairs, her grandfather could no longer walk to the roof to enjoy his garden. I noticed his helplessness and wanted to help him. Looking over the walker, she realized that if the front legs were adjustable instead of fixed, they could be used to climb stairs. And that's how she got this idea.

On Winning IGNITE

She first shared this idea with the IGNITE competition, where NIF got a prototype made based on it. Seeing her idea translated into reality and receiving an award from Dr Kalam has made me feel extremely proud of her achievement.

Society of Open Innovation
Technology, Market & Complexity

DGIST

World Capital Institute

June 16 (Tuesday)

R# : 204 Auditorium

Keynote Speech

Francisco Javier Carrillo (Monterrey University of Technology, Mexico)
Presentation Theme: "Knowledge-Based Development as Cultural Disruption"

Tan Yigitcanlar (Queensland University of Technology, Australia)
Presentation Theme: "Incentivising innovation: insights from Australian and Brazilian incentive schemes"

Tommi Inkinen (University of Helsinki, Finland)
Presentation Theme: "Reflections on the innovative city: examining three innovative locations in a knowledge bases framework"

Katri-Liis Lepik (Tallinn University, Estonia)
Presentation Theme: ""Strategic management for public sector innovation in knowledge societies"

Keun Lee (Seoul National University, Korea)
Presentation Theme: "Schumpeterian Analysis of Catch-up and Catch-up cycles "

KNOWLEDGE-BASED DEVELOPMENT AS CULTURAL DISRUPTION[1]

Francisco Javier Carrillo

GIEE Knowledge Society, Tecnológico de Monterrey, México

& The World Capital Institute

Keynote presentation at the Joint Conference *1st Society of Open Innovation: Technology, Market, and Complexity (SOItmC) & 8th Knowledge Cities World Summit 2015*. DGIST, Daegu. South Korea, 14-18 June, 2015[2].

Abstract

Purpose: to make the case for the cultural evolution underlying the transition from industrial to knowledge societies.

Category: conceptual paper.

Approach: Knowledge-based development relies as much in the re-definition of production factors as in the output variables to characterize and measure social worth. The 'knowledge' attribute of knowledge cities relies on the capacity to balance all societal values into an equitable and sustainable dynamic equilibrium.

Scope: an economy and culture where not just financial and material capital, but all worthy value dimensions, are given due attention.

Results: knowledge-based value is characterized through represented experience. The nature of k-based as opposed to material-based economics is discussed. Knowledge-based urban development is then defined.

Conclusions: a new economic culture shall evolve in parallel to the emergence of knowledge cities.

Keywords

Knowledge, value, material-based, industrial culture, knowledge-based, knowledge-based value systems, capital systems, knowledge city, knowledge-based development (KBD), knowledge culture, knowledge society, knowledge economy

[1] Keynote presentation of this work at SOItmC & 8th Knowledge Cities World Summit 2015 was possible thanks to a sponsorship by Professor Rhee, President of GyeongBuk Techno Park and Senior Professor of YeongNam University; Prof. Junghyun Yoon of Entrepreneurship Center, POSTECH and Prof. JinHyo Joseph Yun of DGIST, President, Society of Open Innovation: Technology, Market and Complexity and conference Co-Chair.

[2] Elements of this work were first included in Chaper 1 of *Knowledge and the City* by F. J. Carrillo, T. Yigitcanlar, B. Garcia and A. Lönnqvist (Routledge, 2014). This version was prepared specially as a keynote for this conference. This paper needs to be further re-worked in order to be published as a distinctive paper.

Incentivizing innovation: insights from Brazilian innovation support programs

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Abstract

Innovation is the transformation of knowledge of any kind into new products or services in the market. Its importance as an important production factor is widespread today. In the age of the knowledge-based economy innovation it became critical for any company or even country to compete globally. Many countries are encouraging innovation through various mechanisms, and one of the most widely used is the provision of special incentives for innovation. This paper investigates incentive systems for the growth of technology companies as a strategy to promote knowledge-based economic development. As for the case investigations the study focuses on an emerging economy, Brazil. The research is based upon the available literature, best practices, government policy and review of incentive systems. The findings provide insights from the case study country context and some lessons learned for other countries using incentive systems to boost the innovation capabilities of their technology companies.

Keywords: Innovation; incentive programs; technology companies; knowledge-based economy; knowledge-based economic development; Brazil.

Reflections on the innovative city: examining three innovative locations in a knowledge-bases framework

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Abstract

This paper combines three location-based cases with literature background focusing on knowledge-bases and cities. The paper considers the regional context of the city of Helsinki and its surrounding area (HMA). Analyzed cases include three specific locations highlighting urban form, connectivity and knowledge-intensive production. Conceptually innovative cities are experiencing extensive change as they transform and change in order to become competitive providers of first class living for highly skilled global work-force. The integration of spatial characteristics into analyses of knowledge intensiveness of cities brings forth new theoretical openings for urban analysis setting platforms for open innovation and economy. The paper focuses on extensive material resources collected in numerous projects. The data gives more reliable picture of the knowledge-intensive locations compared to single interviews or survey studies. The total data includes company surveys, stakeholder interviews and observation field work. Provided reflections are classified according to key issues presented in urban studies and economic geography.

Strategic management for public sector innovation in knowledge societies

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Merle Krigul
Brainport Living Lab
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Abstract

Purpose –
The purpose of this article is to analyse the knowledge-based urban development (KBUD) policy approach for the purpose of profiling Tallinn city as a knowledge city in the KBUD context.
Design/methodology/approach –
We propose desk research methods as well as expert interviews. Knowledge-based urban development (KBUD) policy approach has four broad policy domains—i.e., economic, societal, spatial, and institutional development-and KBUD is described as the new urban development policy of the knowledge era that aims to bring economic prosperity, environmental sustainability, a just socio-spatial order and good governance to cities. KBUD is used as a framework for benchmarking knowledge cities. For specific purposes of analysing the capital city of Estonia, Tallinn, as a potential knowledge city, theoretical model of the generic knowledge capitals system is used. Tallinn is analysed according to the knowledge capital system theory.
Originality/value – Knowledge-based development performance analysis of knowledge cities is still an understudied area.
Profiling of a city as a knowledge city and benchmarking it according to the knowledge cities' criteria is still a novel concept in order to assist policy makers in assessing, compiling and implementing strategies that would aim at balancing the city's economic prosperity and citizens' wellbeing.
Practical implications – The outcomes of the analyses assist the city planners, developers, policy makers and strategist in assessing the weaknesses and strengths of the city in its pursuit towards a knowledge city and provide insights of which aspects need to be improved and which strategies require reformulation. The policy makers and practitioners tend not to be fully aware of the possibilities of how the methods and theories of knowledge city could be utilized for the development of the city. It includes awareness raising on the knowledge city concept and its practical implications for citizens.

Keywords : knowledge city, knowledge-based urban development

Schumpeterian Analysis of Catch-up and Catch-up cycles

Keun Lee and Franco Malerba

Many industries have witnessed numerous changes in industrial leadership and successive catch-up by late entrants. The incumbent fails to maintain its superiority in production or market shares, and a latecomer catches up with the incumbent. The latecomer, who gains leadership, then loses to another latecomer. We call these phenomena of successive changes in industrial leadership as 'catch-up cycles', where catch-up means a substantial closing of the gap in market shares between firms in a leading country and those in a latecomer or follower country. This paper attempts to explain these phenomena in six sectors of cell phones, memory chips, camera, steel, mid-sized jets, and wine. These cases were analysed in view of the common theoretical framework on successive changes in the industrial leadership and a catch-up cycle proposed by Lee and Malerba (2015a) which is based on the notions of sectoral systems and the evolution of these systems over time (Malerba, 2002).

Several discontinuities may occur during their evolution, which we call as 'windows of opportunity' which was first used by Perez and Soete (1988) to refer to the role of the rise of new techno-economic paradigms in generating leapfrogging by the latecomers who take advantage of a new paradigm and thereby surpass the old incumbents. We broaden the notion of windows of opportunity by consider more dimensions, and identify three windows, namely, technological, demand and institutional windows (Lee and Malerba, 2015a). With the notion of 'windows of opportunity', this study uses the concept of 'response' by firms and systems. A few firms from emerging countries and the sectoral system that supports them may respond to the opening of windows and rise to global leadership, whereas the falling behind of the current leaders from a certain country may be due to a lack of effectiveness in the response, often due to an 'incumbent trap' (Chandy and Tellis, 2000), by firms and by their sectoral system leading to misalignments to the new window. In sum, the gist of our theory is that diverse combinations of windows of opportunity and the responses of firms and sectoral systems of latecomers and incumbents determine the pattern of successive catch-ups that will most likely emerge in a sector.

While we consider all these 'three windows' of opportunity, the final emerging picture is quite 'Schumpeterian' because we confirm the supremacy of technological innovation as the critical interface connecting the three windows. While the demand-related windows are important, they tend to have an influence on the forging-ahead stage primarily because they lead to demand-driven innovation and new investment or demand-driven adoption and diffusion of new technologies. Similarly, while the role of the institution and government window is 'significant' during the forging-ahead stage in several cases (such as Japanese steel), its actual impact is realized through the adoption or diffusion of new innovations. However, we have also proposed to qualify and specify the subtle nature of technological windows along the different dimensions of exogenous versus endogenous innovation and of competence-enhancing versus destroying innovation. However, the aforementioned distinctions must be complemented with the nature and types of capabilities and strategies of the incumbents and latecomers, as well as their sectoral system adequacies, alignment and responses.

June 16 (Tuesday)

R# : 202 Conference Room

Special Session 4

"Open Innovation and Creative Entrepreneurship from Gyeongbuk TP and University Entrepreneurship Center"

■ **Session Chair: Jaehoon Rhee** (Yeungnam University)

- Paper 1: "Knowledge-Based Development as Cultural Disruption" by **Francisco Javier Carrillo (Monterrey University of Technology, Mexico)**
- Paper 2: "Organizational Slack and Managerial Practices for Open Innovation: Moderating Effect of Social Capital" by **Hoyoung Bae(Woosong University), Jaehoon Rhee(Yeungnam University)**
- Paper 3: "A conceptual framework for coalescent and innovative public services in the context of reducing public sector resources (UK)" by **David Parks(The Skill Mill Limited, UK), Paul Brownlee(The Skill Mill Limited, UK)**
- Paper 4: "Assessment of Knowledge-Based Urban Development Potential of Turkish Provinces" by **Sinem Metin(Istanbul Technical University, Turkey), Ferhan Gezici Korten(Istanbul Technical University, Turkey)**
- Paper 5: "A conceptual approach to the relationships between the social economy, social welfare, and social innovation" by **ChangHwan Shin(Kyungpook National University)**
- Paper 6: "Learning Organization Activities and Innovativeness of Tech-based SMEs in Technopark: The Mediating Role of Learning Transfer" by **Junghyun Yoon(POSTECH), Jaehoon Rhee(Yeungnam University), Sunghoon Hwang(Yeungnam University)**

KNOWLEDGE-BASED DEVELOPMENT AS CULTURAL DISRUPTION[1]

Francisco Javier Carrillo
GIEE Knowledge Society, Tecnológico de Monterrey, México
& The World Capital Institute

Paper submitted to the Joint Conference *1st Society of Open Innovation: Technology, Market, and Complexity (SOItmC) & 8th Knowledge Cities World Summit 2015*. DGIST, Daegu. South Korea, 14-18 June, 20152.

Abstract
Purpose: to make the case for the cultural evolution underlying the transition from industrial to knowledge societies.
Category: conceptual paper.
Approach: Knowledge-based development relies as much in the re-definition of production factors as in the output variables to characterize and measure social worth. The 'knowledge' attribute of knowledge cities relies on the capacity to balance all societal values into an equitable and sustainable dynamic equilibrium.
Scope: an economy and culture where not just financial and material capital, but all worthy value
dimensions, are given due attention.
Results: knowledge-based value is characterized through represented experience. The nature of k-based as opposed to material-based economics is discussed. Knowledge-based urban development is then defined.
Conclusions: a new economic culture shall evolve in parallel to the emergence of knowledge cities.

Keywords
Knowledge, value, material-based, industrial culture, knowledge-based, knowledge-based value systems, capital systems, knowledge city, knowledge-based development (KBD), knowledge culture, knowledge society, knowledge economy

Organizational Slack and Managerial Practices for Open Innovation: Moderating Effect of Social Capital

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Abstract

This research is designed to analyze the moderating effect of social capital between organizational slack and managerial practices for open innovation. After controlling the firm size, firm age, and environmental uncertainty, we test two hypotheses. First, we test the hypothesis that organizational slack has a positive effect on managerial practices for open innovation. Especially we focus on the managerial innovation and open innovation because recently managerial innovation and open innovation are more and more important. Second, we test the moderating role of social capital between organizational slack and managerial practices for open innovation. Because social capital is a kind of networking activity, we assume that social capital can contribute to managerial practices for open innovation through the networking activity.

For this research, we administered the questionnaire surveys, and got the 250 effective data (companies) in Korea. Then we used the validity, reliability, correlation and multiple regression analysis by means of SPSS 18.0.

As a result, we can find the two meaningful results. First, organizational slack, especially not absorbed slack but unabsorbed slack, has positive effect on managerial practices for open innovation. It is because absorbed slack such as excessive facilities, machines, or employees is not useful in managerial practices for open innovation. On the other hand, unabsorbed slack is useful in managerial practices for open innovation because unabsorbed slack such as excessive money or securities is very flexible and active. Taken together, the relationship between managerial practices for open innovation and unabsorbed slack is proven in terms of flexibility. Second, social capital has moderating effect between organizational slack, especially not absorbed slack but unabsorbed slack, and managerial practices for open innovation. A prior study related to the relationship between managerial practices for open innovation and social capital doesn't exist yet, so this analysis result is very meaningful in academic respect.

But this research has some limitations. First, this research is analyzed by limited region (Korea) and samples (250 companies), so more region and samples are recommended in the future. Second, we focus on managerial practices for open innovation in this paper, so the studies about technological practices for open innovation are recommended in the future.

Keywords: Organizational Slack, Managerial Practice, Open Innovation, Social Capital, Moderating Effect

A conceptual framework for coalescent and innovative public services in the context of reducing public sector resources (UK)

Davie Parks BSc (Hons), PG Dip, ADPED (Social Work)

Davie grew up in Glasgow, Scotland and has worked in Community Development and Young People's Services in Glasgow, Belfast and Newcastle upon Tyne. He currently manages a range of multi-disciplinary services for young people at risk at Newcastle upon Tyne Youth Offending Team, specialising in Court Work, Restorative Justice, and Education, Training and Employment support initiatives. David has developed a network of pan European partners sharing practice and ideas across a range of criminal justice activities and leads the academic research partnership between Newcastle Youth Offending Team and Northumbria University. He qualified in the Advanced Diploma in Practice Education and Development (Social Work) in 2003 and has a strong commitment to Social Work education and training, teaching on a number of Criminology, Law and Social Policy modules. Davie is an Associate Partner of the Centre of Offenders and Offending at Northumbria University and a founding Director of The Skill Mill Limited a Social Enterprise dedicated to the employment and training of young people in environmental work.

Paul Brownlee CQSW, Dip HE Social Work, DMS

Since qualifying as a Social Worker in 1993 Paul Brownlee has worked in a number of Social Work Departments in the North East of England. He has spent the majority of his career delivering, managing and leading services for young people involved in the Criminal Justice System. Paul has worked as an advisor and improvement consultant to the Youth Justice Board of England and Wales developing best practice models at both local and national levels. Recently Paul has focused on implementing innovative partnership responses to juvenile justice issues and has spoken on the subject at international events. Paul is currently responsible for Youth Justice Services, Young People's Substance Misuse Services, Multi-Systemic Therapy, Youth Work Services, Young Carers and Vulnerable Young People in Newcastle upon Tyne. Paul is an Associate Partner of the Centre for Offenders and Offending at Northumbria University and a founding Director of The Skill Mill Limited a Social Enterprise dedicated to the employment and training of young people in environmental work.

Abstract:

This paper will draw from research and the evidence based practice of developing new services for youth at risk in the UK using a knowledge based design approach which delivers multiple benefits to the individual, the local economy, the community and the environment. The authors will explore the model in detail including the success criteria and propose a conceptual

framework for the sharing of practice whilst preserving intellectual property and programme integrity. This case study will be of interest to those involved in the field of open innovation, especially where there is a significant statutory and legal requirement for services and will address the tensions that arise where fidelity to a model is paramount without prohibiting scale-up and replication. Taking the example of social enterprise as an catalyst for change, the evidence from the study will show that a new business model which combines ethical business practice, social innovation and a methodology for measuring social impact provides a compelling argument to policy makers and leaders. The research takes account of shrinking public sector resources and the need for cities to respond to societal challenges in new and creative ways and engage the broadest possible group of stakeholders. The authors will provide qualitative and quantitate evidence of impact over a 5 year period.

ASSESSMENT OF KNOWLEDGE-BASED URBAN DEVELOPMENT POTENTIAL OF TURKISH PROVINCES

Sinem Metin[1], Ferhan Gezici Korten[2]
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Cities and regions have begun to re-shape upon Knowledge Economy (KE) since the late 20th century and the concept of Knowledge City (KC) arose accordingly. Many scholars agree that Knowledge-Based Urban Development (KBUD) strategies draw the path to become a knowledge city and several cities have already started to adopt these strategies to support economic development and to be able to compete in knowledge economy. Turkey as one of the developing countries that has developed the strategies for increasing knowledge worker capacity, strengthening institutional leadership and providing an efficient platform for innovation, is facing a challenge to re-shape the cities to become knowledge-based. Although there are some actions listed in strategic plans of Ankara and Istanbul to become knowledge-based cities, spatial planning towards becoming a knowledge city seems to be the missing link so far. The purpose of this paper is to determine which province(s) are strategically more appropriate to adopt KBUD strategies in Turkey. The study will, first, summarize the actions taken in the country to become knowledge-based and, second, will propose the assessment model used specifically for Turkish provinces. After presenting the results of the assessment model, the study aims to end with a note on which provinces have higher potential to adopt KBUD strategies for a balanced and sustainable economic development.

A conceptual approach to the relationships between the social economy, social welfare, and social innovation

ChangHwan, Shin
(Kyungpook National University)

Abstract

With the aim of finding a balance between social and economic benefits, the social economy has reemerged in the crisis of the welfare state. The Fordistwelfare state can be characterized by state-provided welfare, the mediation of paid work and welfare by the labor market, and redistributive policies. Globally, neoliberalism and the market have given rise tosocial exclusion; in this context,the social economy is emerging as an alternative to the market domination of societies. In the social economy, reciprocity, democracy, self-help, and social capital at the local level are emphasized; with this reemergence, this emphasiscan be expected to affect the welfare provision system and the social relations surrounding welfare. Building thesocial economy requiresa shift in focus:because the spirit of the social economy lies in the solidarity between communitiesand autonomy of communities,micro policy at the local levelshould be emphasizedrather than focusing on macro policy at the national level. Without such a shift, the social economy is likely to become oriented toward the state or the market, obviating self-governance. Local civil society and local politics arenecessary tobalance the needs of social actors and sectors.

Learning Organization Activities and Innovativeness of Tech-based SMEs in Technopark: The Mediating Role of Learning Transfer

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Abstract

Developing talented human resources through learning entails nurturing innovation and improving competitiveness; to achieve innovation, SMEs must undertake learning organization activities (LOAs). Our results demonstrate that six dimensions of the LOA model have more validity or a better model fit than the previous seven dimensions of the LOA model. Furthermore, three important sub-variables of LOAs (i.e., creating continuous learning opportunities, establishing systems to capture and share learning, and providing strategic leadership for learning) have a positive and significant effect on learning transfer. Finally, transferring LOAs was found to mediate the relationship between LOAs and innovativeness by creating continuous learning opportunities (and future directions) and by providing strategic leadership for learning.

Keywords: LOAs, transfer of learning organization activities, innovativeness, six dimensions of the learning organization activity model

June 16 (Tuesday)

R# : 202 Conference Room

Special Session 5

"Open Innovation for Smart Mobility & Complexity"

■ **Session Chair: WooSung Jung** (POSTECH)

- Paper 1: "Reflections on the innovative city: examining three innovative locations in a knowledge based framework" by **Tommi Inkinen(University of Helsinki, Finland)**
- Paper 2: "Measuring Thematic Causality for Public Research Institutions" by **HyeonChae Yang(POSTECH), WooSung Jung(POSTECH)**
- Paper 3: "The impact of graduate students on research productivity in Korea" by **KiSeok Kwon(Hanbat National University), SeungHwan Han(National Research Foundation of Korea), Duckhee Jang(Korea Institute of Ocean Science & Technology)**
- Paper 4: "Predicting Future Issues with the Keyword Network of National Policy Research", by **Hyunuk Kim(POSTECH), Taekho You(POSTECH), SangJin Ahn(KISTEP), WooSung Jung(POSTECH)**
- Paper 5: "Does the knowledge economy growth encourage clustering of knowledge workers in metropolitan cores and subcenters of metropolitan areas? A comparative study of Barcelona and Helsinki" by **Juan Eduardo Chica(University of Helsinki, Finland)**
- Paper 6: "Network analysis for the Korean national R&D development" by **MinWoo Ahn(POSTECH), WooSung Jung(POSTECH)**

Reflections on the innovative city: examining three innovative locations in a knowledge-bases framework

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Abstract

This paper combines three location-based cases with literature background focusing on knowledge-bases and cities. The paper considers the regional context of the city of Helsinki and its surrounding area (HMA). Analyzed cases include three specific locations highlighting urban form, connectivity and knowledge-intensive production. Conceptually innovative cities are experiencing extensive change as they transform and change in order to become competitive providers of first class living for highly skilled global work-force. The integration of spatial characteristics into analyses of knowledge intensiveness of cities brings forth new theoretical openings for urban analysis setting platforms for open innovation and economy. The paper focuses on extensive material resources collected in numerous projects. The data gives more reliable picture of the knowledge-intensive locations compared to single interviews or survey studies. The total data includes company surveys, stakeholder interviews and observation field work. Provided reflections are classified according to key issues presented in urban studies and economic geography.

MEASURING THEMATIC CAUSALITY FOR PUBLIC RESEARCH INSTITUTIONS

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Abstract

Scientific systems have undergone an evolution that involved a variety of disciplines interacting each other. To effective govern the research effort of the system, we need to be able to interpret the interwoven disciplines of science. However, it is a problem that a causality in such complex systems is hard to interpret. To address the problem, this paper adopts an information-theoretic indicator, called transfer entropy, for measuring causality between disciplines of an organizational research portfolio. It is known that transfer entropy is suited for detecting causality in nondeterministic and nonlinear systems. We also investigate into structural characteristics of a network, which aggregates causal relations into. The analysis for thematic causality of an organization is applied to public research institutions, i.e., the Korean Government-funded research Institutes (GRIs), the Max Planck Gesellschaft (MPG) in Germany, and the National Laboratories (NLs) in the United States (US), and its structural properties improves our understanding of evolutional features in organizational research. Major findings indicate that distinctive areas significantly attract thematic causality across organizations, which means organizations have own disciplines that dynamics of their research stem from and affect. Moreover, in order to further examine the concentrative causality, we score the disciplinary significance according to being influenced by the development of other areas based on the causal structure. In case of the GRIs, a sub-discipline within math and physics tends to be most influenced by other areas. The development of chemistry in the MPG shows the tendency of greatly following others, whereas infectious disease includes the most consequential sub-discipline in the scientific development of the NLs. Revealing the causality concentrated sub-disciplines is important in that the research dynamics toward those selected areas occur in overall subordinates at the same period. This study suggests the necessity for identifying developmental sources and recipients among research themes when making a plan for research organizations.

Keywords: public research, causality, transfer entropy, information theory, network analysis

The Impact of Graduate Students on Research Productivity in Korea

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Abstract

Even though graduate students are critical for carrying out research, they havenot been treated as important inthe existing literature on research productivity. Accordingly, this paper focuses on whether the number of graduate studentshas a significant impact on their supervisors' research productivity. In order to address this question, we have collected a large scale data on Korean academics' research performance. According to the results of the analysis, first, male researchers were found to have more graduate students than female researchers. Second, we found significant differences in the total number of graduate students employed by senior and junior researchers. Third, researchers from the capital were also found to manage more graduate students. Last,as we found the number of graduate students to correlate with significant differences in researchers' productivity, we put forwardsome suggestions for ways to support researchers who are female, young, and located in non-capital areas.

Keywords: the relationship between teaching and research, academic productivity, graduate students, economics of science, South Korea

Predicting Future Issues with the Keyword Network of National Policy Research

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Abstract

Policy research on social issues has usually been led by the national government. Recently, the Korean government launched National Knowledge Information System (NKIS) which enables people to find national research papers easily. We construct a keyword network of research papers in NKIS and successfully recognize social issue trends through centrality measures such as eigenvector centrality, betweenness centrality, and closeness centrality. Moreover, although we just implement a simple clustering algorithm, cliques in the keyword network reflect the Korean society well. Network analysis on the keyword network of national policy research proposes an approach not only to detect significant social issues but also to predict the future of our society.

Keywords: Network analysis, Keyword network, Prediction, Complexity, Policy research

Does the knowledge economy growth encourage clustering of knowledge workers in metropolitan cores and subcentres of metropolitan areas? A comparative study of Barcelona and Helsinki

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Abstract

Many contributions on the analysis of employment growth in knowledge-based industries focus on values found in the centres of large cities, arguing that they are the preferred locations for knowledge workers (KWs) in housing location choices. Physical proximity as well as amenities and innovative and liveable environments found in metropolitan centres are factors that encourage this process. In addition, the location of companies in those industries stresses the values of face-to-face contacts that are provided in the centres of cities. This paper studies how proximity to metropolitan cores and other large employment areas of metropolitan areas encourage spatial clustering of KWs. To do this, we analyse commuting flows and residential density patterns of KWs in the Barcelona (BMA) and Helsinki (HMA) metropolitan areas. In addition, through a regression model, we examine, in Barcelona´s case, the effects of the distance to the metropolitan core and subcentres in KWs location patterns. Results show that metropolitan cores in both metropolitan areas retain a large amount of commuting; although, physical proximity to the metropolitan core becomes a key factor for spatial clustering of KWs in Barcelona´s case. In Helsinki, spatial clustering of KWs follows both concentration and suburban spatial patterns; in that sense, short and long commutes to the metropolitan core happen.

Keywords:
Knowledge workers' spatial clustering; commuting patterns; Helsinki; Barcelona

Network analysis for the Korean national R&D activity using keyword of research project

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Abstract

R&D activity is one of important factor for the national development of Korea. Thus, the size of national R&D activity (the size of investment, the number of projects, and so on) has been annually increased. However, it is hard to understand the current state of R&D activity as the size of R&D activity gets bigger and bigger. In this context, mapping can contribute for understanding the whole structure of R&D activity and for managing R&D activity for efficient investment. In this research, we employ network analysis for mapping national R&D activity from the data. We used NTIS database from 2006 to 2010 as information of national R&D activity, which contains information about research projects such as keyword, title, research program and science technology classification (such as 6T classification). From the data, we considered two kinds of networks. First, keyword network was employed to identify current trends of national R&D activity. Second, research program network is used to observe relationship among research programs. We expect to figure out the underlying structure of the national R&D activity and to manage R&D process more efficiently from these two networks.

Keywords: Network analysis, R&D activity, NTIS database, Keyword network, Research program network

June 16 (Tuesday)

R# : 203 International Conference Hall

Special Session 6

"City of Future, Future of City: Open Innovation and Ubiquitous City"

■ **Session Chair: SangHo Lee** (Hanbat National University)

- Paper 1: "Incentivizing innovation: insights from Brazilian innovation support programs" by **Tan Yigitcanlar(Queensland University of Technology, Australia), Eduardo Moreira da Costa(Federal University of Santa Catarina, Brazil), Jamile Sabatini Marques(Queensland University of Technology, Australia)**
- Paper 2: "Human Interaction and Perceptions to Media Facade" by **JungHoon Han(University of New South Wales, Australia) and SangHo Lee(Hanbat National University)**
- Paper 3: "Designing ICTs Aided Community Center for Neighborhood Residents" by **Fan Qiangqiang(Northeastern University, China), Seyun An, Soyeon Kim, Hannah Ju, Ho Kim(Hanbat National University)**
- Paper 4: "Smart City as an Urban Innovation Platform: What's next?" by **JungHoon Lee(Yonsei University)**
- Paper 5: "Can ICTs Contribute to Urban Renewal for Deprivated Cites?: Recent ICTs-base Urban Planning and Design Cases of Korea and Japan" by **YounTaik Leem(Hanbat National University), Seiji Sato(Oita University, Japan)**
- Paper 6: "Location Allocation and Use Characteristics of Bounded Carsharing Service for Urban Public Housing Residents" by **Jungbeom Lee (Daejeon Development Institute), Wanhee Byun, Hoyoung Kee (Land and Housing Institute), Myungsik Do(Hanbat National University)**
- Paper 7: "How Does IT(Information Technology) and ET(Environment Technology) makes New Innovative Urban and Architecture Model" by **JuHyung Han(Hanbat National University) and SangHo Lee(Hanbat National University)**
- Paper 8: "Can CSR be a platform for open innovation to support a creative city development?" by **Avvari V Mohan(University of Nottingham Malaysia Campus, Malaysia), Naga Lakshmi Chelluri(University of Hyderabad, India)**

Incentivizing innovation: insights from Brazilian innovation support programs

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Abstract

Innovation is the transformation of knowledge of any kind into new products or services in the market. Its importance as an important production factor is widespread today. In the age of the knowledge-based economy innovation it became critical for any company or even country to compete globally. Many countries are encouraging innovation through various mechanisms, and one of the most widely used is the provision of special incentives for innovation. This paper investigates incentive systems for the growth of technology companies as a strategy to promote knowledge-based economic development. As for the case investigations the study focuses on an emerging economy, Brazil. The research is based upon the available literature, best practices, government policy and review of incentive systems. The findings provide insights from the case study country context and some lessons learned for other countries using incentive systems to boost the innovation capabilities of their technology companies.

Keywords: Innovation; incentive programs; technology companies; knowledge-based economy; knowledge-based economic development; Brazil.

Human Interaction and Perceptions to Media Façade

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SangHo Lee
(Hanbat National Univ., Korea)

Abstract

The aim of this paper is to investigate human interaction and perceptions to the media skin/façade newly built in Sydney, Australia. Recently the digital media façade/skin has been increasingly applied to new building design in public place in Australia. This significant change in smart digital technologies and public perceptions remains largely ignored in recent studies. This paper will conduct a random sampling survey to the people who live or visit such place and evaluate the impact of the new digital technologies adapted in media skin/façade on public interaction and perceptions to its safety, communications, public engagement, and building design and environment. The research outcomes will contribute to fill our knowledge gap between emergent digital technologies and human interactions.

Keywords: digital technologies, media façade, human interaction, smart cities

Designing ICTs aided community center for neighborhood residents

An Seyun, Kim soyeon, Ju Hannah, Fan Qiangqiang, Kim Ho

Abstract

A community center is situated near the residential areas and is the public facility that acts as the core of local cultural activities. A community center, as the general cultural activities increases, is transforming into a facility that promotes the community restoration and living convenience such as welfare, sports, art activities, and education etc. beyond location of simple leisurely activities. As a part of developing experience zone in the residential area style U-city in Sejong city, this study considers local residents' accessibility through the renovation of preexisting community center. A particular interest is laid upon the provision of experience-oriented space to facilitate social coherence, and eventually recovery into a communicative and experiencing space that the U-city is intending.

This study offers a direction of developing community center into a communicative and experience-oriented facility in two major approaches: (1) Analyze the achievement, limitation and problems of this project against the previous cases. A particular evaluation will focus on the comparison with similar facilities available within Sejong city; and (2) As an effort to achieve an user-based space design, survey over actual Sejong city residents would help understanding the use pattern within the residential areas, contents of experience and local needs. It would allow to grasp an idea of managing programs and contents useful in the community center. This effort is highly useful since it provided a blueprint of bidirectional development, characterized by local residents' voluntary participation and experience, of the community center beyond simple one-way communication like viewing- or lecture style events. Another role of community center is use of the center as the core of community restoration as an alternative means applicable to the residential area style U-city service. The future studies shall include survey of the residents' satisfaction and preference of the renovated facilities to measure the sustainability of the project.

This research was supported by a grant(13AUDP-B070066-01) from Architecture & Urban Development Research Program funded by Ministry of Land, Infrastructure and Transport of Korean government.

Smart City as an Urban Innovation Platform: What's next?

JungHoon Lee
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Abstract

In recent years, Smart City is taking the center stage as a solution to tackle the problems that are arising with rapid urbanization. However, the concept itself is too comprehensive and unclear, that it is hard to apply in real practices. Furthermore, there are various Smart City initiatives which promote civic engagement to create new innovative services and infrastructures while there are lacks of coordination and control within the city. The complexity of Smart City initiatives often challenged by ineffective innovation activities. Therefore, this presentation attempts to make a holistic views on how smart city initiatives play as an urban innovation platform to support creative economy. Furthermore, we have analyzed various smart city initiatives and defined new typology based on open innovation literatures. Through these analyses, the research attempt to identify the main important components that form the typology of Smart City initiatives and also propose future trends to maintain successful Smart City initiatives.

Keywords: Smart City, New Innovative Service and Infrastructure, Urban Innovation Platform

Can ICTs Contribute to Urban Renewal for Deprivated Cites?: Recent ICTs-base Urban Planning and Design Cases of Korea and Japan

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Abstract

Urban spaces are becoming intelligent very rapidly. IT infrastructures and devices are spreading from the centre to the end of urban areas. However, lots of urban places over the whole world have deprivated and are becoming slum at the same time. In this paper, together with global trends, ICTs-base urban planning and development in Korea and Japan were investigated. The projects were grouped by the way on which the state-of-art technologies play a core role to overcome the current urban phenomenon.

At first, ICTs-based urban planning and development theories and practices were listed and philosophy and strategies of these ideas were reviewed. Concepts of IT-based urban planning and management – e-City, ubiquitous city, pervasive space and smart city - and national or regional strategies such as INTELCITY Roadmap (EC, 2003) were analysed. Both in Korea and Japan, living, working, recreation and transportation (including communication) were the most important aspect to be considered in the usage of ICTs in urban region. Even they are pursuing the balance, communication and sharing via ICTs (Lee et. al., 2008), the implementation in each projects shows different aspects.

As a case study, 3 projects in Japan including Kashiwanoha, Shinjuku in Tokyo, and Kitakyushu were analysed while 4 cities of Busan, Youngju, Anayang, and Yangsan in Korea. The situation of deprivation of the place, goal and strategy of each project are descripted. For the projects where the planning was implemented, the impact of the ICTs-based planning was described simultaneously. In Japanese cities, the projects were focused to settle the problems of the place. However, comprehensive planning to revitalize a certain deprivated area in the cities were common in Korea.

For the policy suggestion, the effect of ICTs-base urban planning and process to evaluate current situation, select suitable technologies and services, plan and design urban spaces for their own goal and manage them as a part of urban system were discussed briefly.

Keywords: ICTs-based urban planning, Urban renewal, deprivation of city, Korea, Japan

Location allocation and use characteristics of bounded carsharing service for urban public housing residents

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ABSTRACT

Research practices and the introduction of the shared transport have been performed in recent year. Carsharing service locations have been arranged unspecified customers to easily access a location. However, the car-sharing service in this study enforced through the agreement of the residents within the House of Commons is operated as a closed service that the user is limited to public housing residents. This closed carsharing service in the House of Commons is different from the typical car sharing. Users return a carsharing vehicle to the same parking location after using it. In addition, the general carsharing locations are determined based on the profit of the service operator and the service can be stopped because there are plenty of other alternatives for mobile. However, if the closed carsharing service in the House of Commons is designated canceled, there is no other alternative for existing users. Therefore, site selection for the initial introduction of the House of Commons in a closed carsharing service is a very important issue. This study used one month data of 22 complexes for location analysis of the closed carsharing services to public housing residents in urban areas. In order to analyze the relevance of the presence and use characteristics of the carsharing service, we considered transit supply characteristics of the target area, public relations and marketing, user income, regional differences as the main variables. On the basis of the regression analysis result, the number of households was adopted as an effective variable.

Keyword: carsharing, big data, location allocation of public service

How Does IT(Information Technology) and ET(Environment Technology) Makes New Innovative Urban and Architecture Model

JuHyung Han
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Abstract

This study aims to analyze how to create the new urban and architectural space through mechanism between IT(Information Technology) and ET(Environment Technology). As a study process, the concepts, trends and situations urban and architectural space of IT·ET are figured out by lots of theoretical reviews and references analysis in chapter 2. Urban and architectural index, components and methods are classified through IT, ET technologies and Fused to IT·ET urban and architecture cases in chapter 3. The index and component were developed through in-depth analysis such as correlation analysis in chapter 4. The methodology, mechanism and road-map are built up by various index and components in terms of changing, fusing and dividing aspects in conclusion and the result are listed below. First, the macroscopic key trend of ET and IT embedded urban and architectural space are classified as 4 types, "Eco-Friendly Development", "Energy Production from Eco Development", "Energy Saving Technology Development", "Wide Area IT Network Development" are evolving consistently. Second, Sang-Am DMC(Digital Media Center) has been developed and evolved by environmental protective and eco-friendly aspect in ET from Korean War to 1970 via case studied. Wide area IT network development has carried out and evolved from 1990 to 2000 rapidly. But, after 2010 years, urban and architectural space are developed by fused ET and IT, which are classified "Energy Harvesting and Creating by Natural components(ex, solar, water and wind power)", "Environmental Quality Improvement of Natural Components(air, water and wind quality)", "Simplification Compactification(ex. Urban Skin Design) of Urban and Architectural Mass"and " Communication Space between Human and Nature by digital, Analog and Digilog Technology". Third, the mechanism of evolution about urban and architectural space is evolved vis creation, extinction and fusion process. Finally, the future of new innovative urban an architectural space will be made by rotational pattern mechanism of IT and ET.

Keywords: IT(Information Technology), ET(Environment Technology), IT and ET Embedded New Urban and Architectural Space

"Can CSR be a platform for open innovation to support a creative city development?"

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Abstract

Open innovation and creativity in an urban environment are known to contributeto economic development. In this context, one can propose an argument that the creation of conditions for people in cities to think and act to harness imagination (applied creativity) can lead to the provision of solutions to several urban problems and to regional development. In this era of neo liberalism where changes due to the shrinking role of the State in delivering certain functions and some limitations for providing the necessary solutions to urban problems, evoked varied responses from populations (Hall and Lamont, 2013).The State is seen also as promoting contributions from non-state actors in providing some of the services and amenities to the populations, which were hitherto the State's responsibilities.This paper draws upon some of the CSR activity the south Indian city of Hyderabad. These cases show the contribution in offering space and certain solutions to the urban development which is increasingly getting excluded from the urban governance agenda. The paper tries to explore how these CSR programmes/activities and these models of CSR as partnership with other institutions are now gaining significance and popularity.

June 16 (Tuesday)

R# : 202 Conference Room

Special Session 7

"Smart Technology for Good Governance"

■ **Session Chair: KwangHo Jung** (Seoul National University)

- Paper 1: "Corporate and Public Policies for Open Innovation: Demand Articulation in the Open-Innovation Paradigm" by **Fumio Kodama (University of Tokyo)**
- Paper 2: "The Impact of 'Pay-As-You-Throw(PAYT)' on Waste Disposal" by **EunHyung Park(Seoul National University), Jonghwan Eun(Seoul National University), Kwangho Jung(Seoul National University)**
- Paper 3: "An Empirical Analysis of Food Waste Disposal Systems: RFID, Pay-as-throw system, and Block-Payment", by **Kwangho Jung(Seoul National University), EunHyung Park(Seoul National University), Jonghwan Eun(Seoul National University)**
- Paper 4: "The influence of need for touch and gender on Internet shopping attitudes" by **SeungHee Lee(Southern Illinois University), Jane Workman(Southern Illinois University), Kwangho Jung(Seoul National University)**
- Paper 5: "Factors influencing consumers' fashion M-Commerce" by **Marcella Smith(Southern Illinois University), SeungHee Lee(Southern Illinois University)**

Corporate and Public Policies for Open Innovation: Demand Articulation in the Open-Innovation Paradigm

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Abstract

In the marketing literatures, "articulation of demand" is quoted as an important *competency* of market-driving firms. In this paper, therefore, I will demonstrate how the concept of "demand articulation" was effective in formulating corporate policies for technology and market development, and also in government policies for accelerating the commercialization process of emerging technologies, including. a historical case in the area of the U.S. defense policy that had induced the emergence of the Integrated Circuits technologies.
Secondly, in order to comprehend empirically what really means "demand articulation," i.e., how "market-driving" is different from "market-driven," we will go to a quantitative analysis of market growth paths in three different kinds of product categories. Finally, we will go to the arguments of "business model" creation, which will bring the concept of "demand articulation" into a reality under an emerging business environment of open innovation.

The Impact of 'Pay-As-You-Throw(PAYT)' on Food Waste Disposal in South Korea

Eun-Hyung Park
(Seoul National University)

Jonghwan Eun
(Seoul National University)

Kwangho Jung
(Seoul National University)

Abstract

This study examines whether or not the Pay-As-You Throw(PAYT) waste management reduces food waste amount. Relying on 48 monthly food waste data at 31 municipalities(Cities:Si, Counties:Gun, Districts:Gu in Gyeonggi Province, Republic of Korea, we compare the amount of food waste disposal before and after the PAYT system. The impact of the PAYT system is analyzed between apartment areas and house areas. We find that the PAYT system significantly reduces food waste disposal, even after controlling the number of cars per capita, fiscal capacity(independence), and population. This suggests that market based instruments such as PAYT induce citizens to concerning their waste disposal behaviors through charging price for their actual food waste generation. Further study is required to explore how the PAYT system varies from municipalities and how they influence food waste generation.

Keywords: Food waste, Pay-As-You-Throw, Market incentives, Policy Instruments

An Empirical Analysis of Food Waste Disposal Systems: RFID, Pay-as-throw system, and Block-Payment in South Korea

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Eun-Hyung Park
(Seoul National University)

Jonghwan Eun
(Seoul National University)

Abstract

Municipalities introduce different types of the Pay-As-You Throw(PAYT) system. Three types of the PAYT system are common in South Korea: Block-Payment(BP), Pre-paid authorized plastic bag(PPB), and RFID. Relying on food waste disposal data from 31 municipalities (Cities:Si, Counties:Gun, Districts:Gu) between 2010 January and 2014 December in Gyeonggi Province, we examine how these three PAYT systems differ from reducing food waste amount. We test the impact of three types of the PAYT system between apartment areas and house areas. We find significant effects of PPB and RFID on reducing food waste, but no effect of BP. The BP system does not provide any incentives to reduce food waste due to no link between the actual costs for food waste disposal and individual food waste disposal. These findings suggest the importance of designing an effective food waste system. Further research is required to examine how PPB and RFID influence food waste reduction behaviors and whether or not they are different.

Keywords: Food waste, Pay-As-You-Throw, RFID, Block-Payment, Pre-paid authorized plastic bag

The influence of need for touch and gender on Internet shopping attitudes

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(Southern Illinois University)

Jane Workman
(Southern Illinois University)

Kwangho Jung
(Seoul National University)

Abstract

Recent research has indicated that touch plays an important role in consumers' product evaluation or decision making. Need for touch research has increased in marketing literature. Especially, a two-dimensional Need-For-Touch(autotelic and instrumental NFT) scale developed by Peck and Childers (2003) has been increasingly used in previous studies. However, there is little research which has examined NFT in other cultures or has adopted this NFT scale to Asian cultures such as Korea. Thus, it would be meaningful to check if the scale can be applied to Asian cultures such as Korea. Therefore, the purposes of this study were to investigate how need for touch is associated with gender and Internet shopping attitudes among a sample of adult Korean consumers, and to test if the Peck and Childers' NFT scale can be applied to Korean consumers. Based on literature review, nine hypotheses were proposed in this study. Three hundred twenty adults (160 women, 160 men) in South Korea were recruited from a Korean on-line survey company and participated in the study, using survey questionnaire. For data analysis, descriptive statistics, paired t-tests and MANOVA/ANOVA were used. Reliability of the scales was acceptable and ranged from .836 to .943. Results revealed that women differed from men in NFT, respectively the total level, autotelic NFT, and instrumental NFT. Also, women and men both had a higher instrumental NFT than autotelic NFT. There was no significant difference between women and men on Internet shopping attitudes. Individuals higher (vs. lower) in total NFT, autotelic NFT, and instrumental NFT differed in Internet shopping attitudes. Based on these results, retailing or marketing strategies would be provided for international companies and retailers as well as for Korean companies/retailers.

Keywords: Shopping attitudes, Need for touch, gender difference

Factors influencing consumers' fashion M-Commerce

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Seung-Hee Lee
(Southern Illinois University)

Abstract

Retail shopping websites have been reported to make up the largest part of online shopping revenue. Nowadays, with the growth of online shopping, mobile retail shopping has grown simultaneously and tremendously as a new retail service. Mobile Commerce (M-Commerce) can be explained as any transaction with a monetary value, employed by the development of wireless communication technology accompanied with the constant high penetration rate of the Internet. Although fashion mobile shopping has become very important when it comes to mobile commerce, there is little research that has examined the factors influencing consumers' fashion mobile shopping attitude. Therefore, the purpose of this study is to investigate what factors can promote fashion M-Commerce. Based on previous studies, four factors such as customer involvement, compatibility, perceived risk, and innovativeness were chosen for this study as antecedents of fashion M-Commerce attitude. Five hypotheses were proposed in the study. Two hundred and twenty-one college students in the Midwestern part of the U.S. participated in the survey, using a self-administrated questionnaire. For data analysis, descriptive statistics and simple or multiple regressions were performed. As a result, almost half of the respondents have purchased fashion products through M-Commerce. Also, out of four factors, three factors including perceived risk, customer involvement and compatibility were positively related to fashion M-Commerce attitudes. Perceived risk was negatively associated to fashion M-Commerce attitudes. These three variables explained 50.3 percent of the variances in fashion M-Commerce attitude. Consumer involvement showed the largest standardized regression coefficient, followed by compatibility, and perceived risk. However, innovativeness showed that it was not significantly related to fashion M-Commerce attitude. The result also revealed that fashion M-Commerce attitude was positively related to purchase intention of fashion M-Commerce. These results would provide fashion markers or retailers some M-Commerce strategies.

Keywords: Mobile Commerce, Shopping websites, Fashion mobile

June 16 (Tuesday)

R# : 203 International Conference Hall

Special Session 8

"Technology Policy for Open Innovation & Knowledge City"

■ **Session Chair: SangOk Choi** (Korea University)

- Paper 1: "On the Way Towards a Knowledge City" by **Katri-Liis Lepik(Tallinn University, Estonia), Merle Krigul(Brainport Living Lab, Estonia)**
- Paper 2: "How to interact within science parks in order to improve industrial performance? - comparing research park and industrial park through social network analysis" by **Injeong Lee(KAIST), Wonjoon Kim(KAIST)**
- Paper 3: "The Factors affecting to 'Basic Research' Performance Funded by Government: 'Creative Research Program' Case in South Korea" by **Youngsoo Ryu(KISTEP), Kwangseon Hwang(KISTEP), Sangok Choi(Korea University)**
- Paper 4: "The Effect of Product Innovation on R&D Activities and Government Support Systems: the Moderating Role of Government Support Systems" by **Si-jeoung Kim(KOFST), Eun-mi Kim(GSTEP), Yoon-kyo Suh(Korea University), ZeKun Zheng(Korea University)**
- Paper 5: "Perceived innovation barriers, open innovation and its performance" by **Daehan Jung(Korea University), Youngmi Kim(Korea University), Yoonjung Kim(Korea University), Yoonkyo Suh(Korea University)**
- Paper 6: "Affecting Structure on the Performances of University-Industry Cooperation: Mediating Effects of the Government & Enterprise Supported R&D Projects" by **Hue-kyung Lee(National Research Foundation), Hyun-duk Youm(Korea University), Si-jeoung Kim(KOFST), Yoon-kyo Suh(Korea University)**
- Paper 7 "An Empirical Study on the Determinants of Innovative Activity in Korean Manufacturing Firms: Focusing on the Firms' Perception of Innovation " by **SungChan Yeom(Korea University)**

On the Way Towards a Knowledge City

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Structured Abstract

Purpose –
The purpose of this article is to analyse the knowledge-based urban development (KBUD) policy approach for the purpose of profiling Tallinn city as a knowledge city in the KBUD context.

Design/methodology/approach –
We propose desk research methods as well as expert interviews. Knowledge-based urban development (KBUD) policy approach has four broad policy domains—i.e., economic, societal, spatial, and institutional development-and KBUD is described as the new urban development policy of the knowledge era that aims to bring economic prosperity, environmental sustainability, a just socio-spatial order and good governance to cities. KBUD is used as a framework for benchmarking knowledge cities. For specific purposes of analysing the capital city of Estonia, Tallinn, as a potential knowledge city, theoretical model of the generic knowledge capitals system is used. Tallinn is analysed according to the knowledge capital system theory.

Originality/value – Knowledge-based development performance analysis of knowledge cities is still an understudied area.
Profiling of a city as a knowledge city and benchmarking it according to the knowledge cities' criteria is still a novel concept in order to assist policy makers in assessing, compiling and implementing strategies that would aim at balancing the city's economic prosperity and citizens' wellbeing.

Practical implications – The outcomes of the analyses assist the city planners, developers, policy makers and strategist in assessing the weaknesses and strengths of the city in its pursuit towards a knowledge city and provide insights of which aspects need to be improved and which strategies require reformulation. The policy makers and practitioners tend not to be fully aware

of the possibilities of how the methods and theories of knowledge city could be utilized for the development of the city. It includes awareness raising on the knowledge city concept and its practical implications for citizens.

Keywords – knowledge city, knowledge-based urban development

Paper type – Academic Research Paper

Bibliographical Notes

Katri-Liis Lepik has Ph.D. in Management Science from Estonian Business School. She has experience from cross-border cooperation and international project management for the last 17 years having worked for public and private sector and non-profit organisations. She has been 8 years a manager of a non-profit organisation Helsinki-Tallinn Euregio focusing on cross-border regional development and strategies. She has lectured on EU and regional development topics in universities for last 10 years. Presently she is an associate professor of public management at Tallinn University. Her current research and business interests include knowledge management, strategic management, social innovation and innovation in the public sector.

Merle Krigul has Ph.D. in Management Science from the Estonian Business School, MBA (International Business Administration) from the Estonian Business School, MA from the Tartu University.
She has long experience in the public sector as a counsellor to the prime ministers, heading private and non-profit organisations and as a manager of development projects. She has been a lecturer in several universities, her main topic being communication and marketing in the public sector.
Her current research interests include inter-sectorial and cross-border co-operation and communication, knowledge regions, knowledge creation, management and sharing, intellectual capital.

How to interact within science parks in order to improve industrial performance? - comparing research park and industrial park through social network analysis

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Abstract

Korea has been shifting its paradigm of growth from a fast follower to a science park in various industries. Correspondingly, the role of a science park is becoming increasingly important and Korea's major science park, i.e. Daedeok Innopolis, has been consistently requested to transform its characteristics from Research Park to Industrial Park with expectations of more economic value creation rather than knowledge creation. However, with the limited number of studies on Korean science parks, our understanding and policy establishment has also been limited. Therefore, this study examines the network structural characteristics of Daedeok Innopolis through comparing them with a representative science park in Germany, i.e. Silicon Saxony, which has similar characteristics to Daedeok Innopolis, except its visible industrial performances. We find that the interactions among organizations regarding technological knowledge creation within clusters are much more active and diverse in Daedeok Innopolis, while they are more intense in Silicon Saxony. In addition, while the roles of universities in Daedeok Innopolis are diverse, in Silicon Saxony, the university functions primarily as a liaison facilitating information exchanges among industries and other organizations. However, in Silicon Saxony, companies more actively participate in mutual interactions with various entities of clusters, while those of Daedeok Innopolis remain limited. In particular, we find that that the networking within Daedeok Innopolis is more overlapped and constrained than that within Silicon Saxony, which indicates that Daedeok Innopolis is somehow less efficiently structured from the perspective of social capital theory. We also discuss some important policy implications based on our results.

Keywords: Science Park, Daedeok Innopolis, Silicon Saxony, Social Network Analysis

The Factors affecting to 'Basic Research' Performance Funded by Government: 'Creative Research Program' Case in South Korea

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Abstract

This study examines factors affecting to the performance of basic research in South Korea. "Creative research program", which is one of major basic research program, is a study target. The survey of N=120 researchers from universities and research institute was conducted in 2010. Basic research performance which is the dependent variable was measured by subjective survey questions. The data were analyzed using factor analysis and multiple regression. The result shows that leadership is the most important factor affecting the basic research performance based on the regression coefficient (Beta). Knowledge sharing, autonomy, collaboration, and creativity in sequence were also statistically valuable factors that impact on the performance of basic research in South Korea. Implications are discussed.

Keywords: R&D performance, Basic research, Efficiency, South Korea

The Effect of Product Innovation on R&D Activities and Government Support Systems: the Moderating Role of Government Support Systems

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Abstract

This study analyzes the effects of R&D activities and government support programs for the product innovation of service industry. With the advent of the knowledge based society, the technology innovation of the service industry has become an important source of national competitiveness. However, the studies on technology innovation have focused on manufacturing industry not the service industry. This study analyzes how differently R&D activities and the government support programs have influence on product innovation by the size of companies and how the government support programs have a moderate effect in the relationship between the R&D activities and the innovation.

The results of the study are as follows; first, in case of large enterprises, both the internal and external R&D activities were proven to be the important elements for product innovation. In case of SMEs, it was analyzed that only the internal R&D activities are significant. In other words, it was found that internal R&D activities are the important factors of product innovation for both big companies and SMEs. Second, only the direct financial support for SMEs had a positive effect on product innovation. This can be understood as a result relative to the effectiveness and necessity of direct financial support to SMEs' product innovation. Third, in the case of the moderating effect of the government support programs, the programs that provide indirect opportunity for innovation had the positive moderating effects only for SMEs. In conclusion, internal R&D activities were proved to be an important factor of product innovation for both large enterprises and SMEs. And government support programs have had a significant effect only in the case of SMEs. To have an impact on the moderated effect of the government support programs for SMEs, the internal R&D activities were confirmed. This study supports the direction of establishing SMEs support policies in the prospect of service sector innovation.

Keywords: service sector innovation, service product innovation, government support programs on innovation, logistic regression analysis

Perceived innovation barriers, open innovation and its performance

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Abstract

Technological innovation is recognized as a critical factor that determines a nation's and a company's growth potential. The innovation system is failing because of its structural problems, blocking the creation and spread of innovation. In order to overcome such systemic failures it is imperative that the existing system's shortcomings be analyzed and solved all the while creating new system and structure in which innovation actors can expedite innovation. Therefore this study aims to identify the factors that promote and inhibit innovation performance in Korean companies and suggest amendments to the existing policy and regulations. This study investigated the effect that awareness of factors that hamper innovation and innovation activities themselves have on the technological innovation performance of companies. This study calls for an environment and system where Korean companies can continuously grow its global business value by open innovation activities, creating a virtuous cycle. In conclusion, the result of this study should be taken into account for revising and ameliorating the existing environment. We suggests that the policy and law be amended as to allow support based on the size of business and create new infrastructure, policy institutions and structure that reduces the possibility of systemic failures in innovation.

Keywords: Open innovation, awareness of factors that hamper innovation, innovation activities, technological innovation performance

Affecting Structure on the Performances of University-Industry Cooperation : Mediating Effects of the Government & Enterprise Supported R&D Projects

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Abstract

This study is designed to find out the mediating effects on government-funded R&D projects in relationship between competence factors of the university and performances of university-industry cooperation. The majority of former researches on university-industry cooperation and its performances are focusing on research capacity of the university, competence of the TLO and traits of the university. Researches on the role of government and industrial supports in R&D projects for university-industry cooperation are relatively rare. This study is conducted to analyze mediating effects of government and enterprise funded R&D projects in consideration of performances from university-industry cooperative projects. In this study, 3-step analysis of mediating effects(Baron and Kenny, 1986) and Sobel Test is taken for the empirical analysis. In result, R&D funding from the central government partially mediates the performance of university-industry cooperation when the research capacity of full-time faculty and the size of TLO are taken as independent variables. The R&D funding from central government dose not mediate the university-industry cooperation when the size of the center for university-industry cooperation is an independent variable. On the other hand, the R&D funding from the local government does not mediate the performance of university-industry cooperative projects in any chosen independent variables.
Based on the results from this study, it suggests the direction of governmental funding in R&D projects to promote performances from university-industry cooperation. It is also required for the university to expand its research capacity and operation of TLO.

Keywords : university-industry cooperation performances, R&D capacity of the university, TLO(Technology Licensing Office TLO(Technology Licensing Office) is widely used in Korea instead of TTO (Office of Technology Transfer) as in the U.S), mediating effects, Sobel Test

An Empirical Study on the Determinants of Innovative Activity in Korean Manufacturing Firms: Focusing on the Firms' Perception of Innovation

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Abstract

In order to sustain the life of organization, it is important to answer the following questions: "why innovation is required in enterprise?" and "how innovation can be made?" Research of organization innovation has been carried out with three different topics, which are diffusion of innovation, process theory of innovation and organizational innovativeness, and these topics are applied for the innovation of company and government in Korea. Previous studies showed that leadership, R&D investment, and organizational and industrial structure were main factors affecting the change of organization not only in Korea but also in other countries. However, these studies were not fully taken into account the significance of employee's awareness about the necessity of organizational change because employees were considered not as a principal agent for innovation but as a passive actor. This study aims to identify the importance of the employee's awareness and its influence on innovation performance. In particular, the effect of the employee's awareness on product·process·organization innovation would be analysed from this study.

Keyword : Organization Change, Organization innovation, Product innovation, Process Innovation, Perception of innovation

June 16 (Tuesday)

R# : 203 International Conference Hall

General Session 3

"Open Innovation in Energy"

■ **Session Chair: Eunnyeong Heo**(Seoul National University)

- Paper 1: "Learning Networks for Energy Efficiency in Industry as Open Innovations" by **Wolfgang EICHHAMMER (Fraunhofer Institute, Germany)**
- Paper 2: "Smart Home and Smart Energy – potentials and limits for innovation" by **Christoph WEBER (Duisburg University, Germany)**
- Paper 3: "Global energy trend and KIER's R&D portfolio" by **Seongkon Lee(Korea Institute of Energy Research)**
- Paper 4: "A study on the Accountability of the Regional R&D Program: The Case of APCTP" by **Jinwon Kang(KISTEP), Seongsik Cho(KISTEP)**
- Paper 5: "A study on the R&D investment and financial performance: Focused on existing and potential competitors" by **Dongphil Chun(KRICT), Youngjoo Ko(KRICT), Yanghon Chung(KAIST)**

Learning Networks for Energy Efficiency in Industry as Open Innovations

Wolfgang Eichhammer
Fraunhofer Institute for Systems and Innovation Research

Abstract

Germany, as an important industrialized country, has set stringent targets in the frame of the „Energiewende“ (transformation of the energy system). This requires reducing greenhouse gas emissions by 2050 by 80-95% as compared to 1990, halving primary energy consumption and reaching renewable shares of 80% and more. In order to reach these targets radical changes have to occur in the energy system, requiring important innovations in many fields such as technical innovations, innovations in electricity market organization, innovations in policy instruments, innovations in business models etc. These innovations will be the more important, the earlier they include the main actors and the more they are able to create open innovation networks that are able to embrace actors in different development stage and with different interests. Energy efficiency improvements do occur in companies every day; however, there is not enough progress to achieve the ambitious energy and climate targets. Therefore, mechanisms need to be developed which enhance the existing innovation mechanisms for energy efficiency in companies. In the past regulation has been experienced to spur innovation in companies. This has, however, limits and mechanisms must be developed which make use of the daily development processes in companies.

Based on previous experiences in Switzerland, Germany has set up open innovation networks in industry that shall spur the renewal of company development in the direction of increased energy efficiency. These so-called “Learning Networks for Energy Efficiency” consist in networks of 10-15 companies which set themselves energy efficiency targets for about 4 years. They meet regularly in structured and moderated processes in their different premises, discuss approaches, monitor achievements and learn mutually from their experience. These open learning processes induces organizational and technical innovations in the companies, lowering thus considerably transaction costs for energy efficiency improvement. The networks comprise network initiators, network moderators and other actors. During the last four years, Germany has introduced 30 pilot networks. Private actors, such as energy suppliers have initiated further networks with the intention to create new business models. The experience of the past four years from 600-700 companies has shown that the networks were able to double the path of energy efficiency in those companies. Given the success of this open innovation process, the German government has introduced in its recent National Action Plan for Energy Efficiency NAPE the idea to enhance the number of networks to 500 , comprising around 7000-10000 companies by 2020. This will spur substantial innovation processes in the German industry environment and anchor energy efficiency processes deeply into the companies.

Smart Home and Smart Energy – potentials and limits for innovation

Prof. **Christoph Weber**, University Duisburg-Essen

Abstract

The rapid developments in information and communication technologies together with the need of an in-depth transformation of the energy sector to cope with the global challenge of Climate Change are powerful drivers for innovations for a smart energy use in households. Yet the results of largescale demonstration projects in Germany ("E-Energy") have not met the initial high ambitions. The technical feasibility of smart energy solutions has been demonstrated, however the business cases are far from evident. The presentation therefore analyses systematically the key challenges to be addressed by successful smart energy and smart home innovations from an European perspective.

First a detailed look is taken at the relevant stakeholders for smart energy and smart home innovations. These include households, energy utilities, ICT companies, appliance manufacturers and the building sector. The broad range of potentially involved stakeholders constitutes a challenge in itself and gives rise to a number of questions surrounding integration and standardization of interfaces: To what extent will it be necessary? How will it be achieved? And who will be the driving forces behind? In order to explore potential answers to these questions, the variety of industry structures and standardization practices in the sectors involved have to be scrutinized.

The potential benefits of smart home and smart energy solutions for the core customer groups are a second key issue to be investigated. The methodology of the Business Model Canvas is useful here, even if in an open innovation context the focus is more on impact than on monetization of business models. The service promise to the customer is at the center of this methodology and therefore several potential key services are scrutinized: increased convenience through tele-control, improved security, improved possibilities for assisted living, monetary savings and energy consumption and emission reductions. The latter are at the core of the sustainability debate but might not be the key driving forces for smart home solutions.

Given their relevance for sustainability, the potential benefits of emerging smart home and smart energy solutions in an energy system and environmental perspective are investigated in a last step.

This requires an in-depth understanding of the key requirements in a future clean energy system. Flexibility of conventional producers, storages and consumers will be a core issue when it comes to integration of large amounts of intermittent generation from renewables like solar and wind. But

especially in the case of consumers, one has to consider in detail

Global energy trend and KIER's R&D portfolio

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We have been facing depletion of energy and natural resources and disruption of the energy demand-supply balance. Fossil fuels have faced the energy supply limits. Regarding to r/p(reserve/production) ratio of fossil fuels, Coal, oil, and gas are forecasted about 113 years, 53 years, 55 years respectively according to BP statistics in 2014. The advanced and advancing economies try to secure energy resources from around the world toward their sustainable development. The global energy demand will be increased around 40% in 2035 comparing with the 2009 level (Figure 1). The emerging developing economies including China, India, and Russia have led the increase on energy demand due to their rapid economic development. In case of China, oil consumption had more than doubled from 1997 to 2010. Energy consumption of fossil fuel-driven economies have accelerated depletion of global fossil fuels.

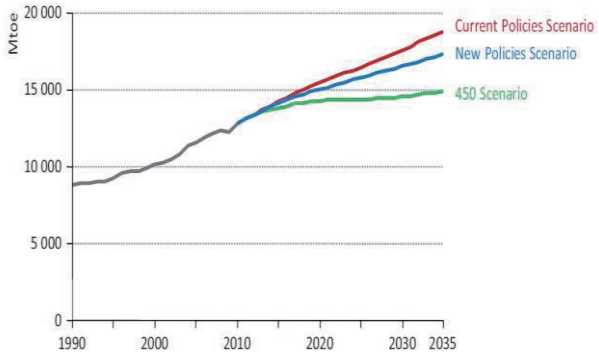

Fig.1 IEA World energy demand to 2035

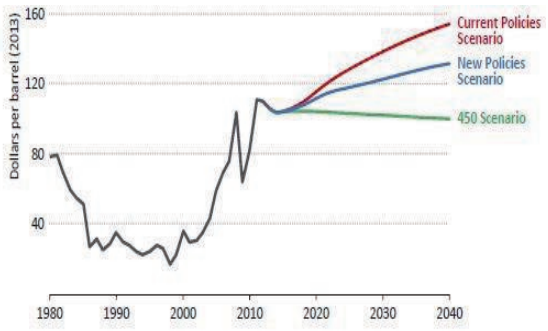

Fig.2 IEA WEO Oil prices forecast

The industrial development has also caused climate changes around the world. Energy crisis are getting worsen because of the growth of imbalance between supply and demand in the frame of energy system. In addition, increased and excessive use of fossil fuels is sharply increasing greenhouse gas emissions. The recent global average sea level rises 19cm for 110 years from 1901 to 2010. It will be 63cm until 2100 year. Average temperature was increased 0.85 ℃ from 1880 to 2012 and is forecasted to rise 3.7℃ to 2100 year. Obama administration changed its attitude for coping with the climate changes aggressively. The US announced the 2013 Climate Change Action Plan in this trend and is actively expressed willingness to set up such major response strategy accordingly. The US is expected to participate actively driving global climate change agreement negotiations

Concerning to nuclear power, which is the one of bridge and prominent energy technology in the transforming to the clean society based on new and renewables, advanced and advancing economies have the negative perception for developing and new construction of nuclear power plants after the Fukushima nuclear accident. Advanced economics including Korea have been focusing on strengthening nuclear security. On the other hand, the interest for developing and dissemination of new and renewables have increased. Energy resource from this current status is non-conventional oil such as oil shale. Specifically in recent years r/p ratio of shale gas are issued and it can be used around the world in 60 years (Figure 3).

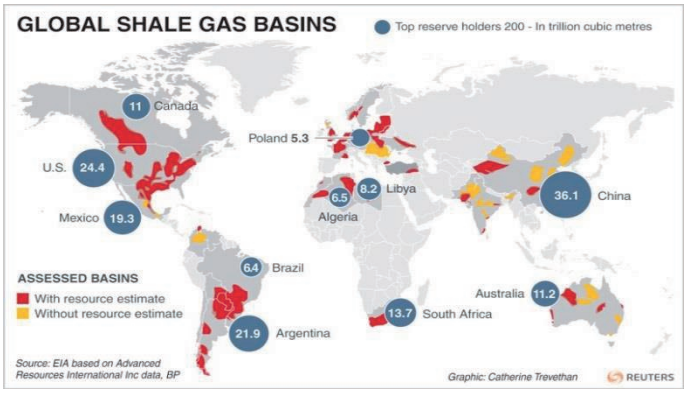

Fig.3 Global shale gas basin and forecasted reserve

The US tries to develop nonconventional oil including shale gas, oil sands. The US oil production has increased significantly and Obama administration plans to boost the US manufacturing industry by the nonconventional oil production. Although the current oil prices are lower but experts forecast these low prices are short-term phenomenon and eventually it will be increased.

Energy status is directly or indirectly influenced by growth of an economy and its efforts to achieve sustainable development. Energy technology is a crucial way for sustainable development and the new growth driving force. The advanced economies including the U.S.A, Japan, and Germany are taking the lead in the development of energy technology. Other high technologies such as IT, NT, and BT have matured. But Energy technology has emerged in the market and can accelerate economic growth of the developed and developing counties with conversion of other high technologies. McKinsey global institute analysis announced the estimated potential economic impact of technologies in industrial sector in 2025. 3 key technologies accounting for Internet of Things, Energy storage technology, and Renewable energy technology, out of 12 technologies are selected. In case of renewable energy technology, it will have 3.5 trillion dollars of potential economic impact substituting the present electric industry with the increase of renewables in electricity portion.

The interest in development of energy technology has been increasing. Developed and developing countries, led by their governments, have come up with strategic plans to develop energy technology aimed at helping economies cope with problems related with national energy

security, sustainable development, and creative economy. In case of Korea, Innovative energy technology development equals to the second energy resources acquisition.

KIER, the government supported research institute covering energy efficiency, new and renewables, climate changes, innovative energy material, and sea energy technologies, has been developing strategic energy technologies coping with the rapid change of energy circumstance. KIER implemented four strategic targets and performance indexes in 2014. First strategy focuses on increasing energy efficiency related to energy demand management technologies. The second strategy is ensuring the competitive new and renewables comparing with the fossil fuel energy technologies with acquiring the grid parity in the short-term. The third strategy is to promote the commercialization of CCUS for coping with the climate changes and clean fuel technology. The last strategy is to develop lead energy future fusion technologies. KIER pursues to create new value and markets through creative convergence energy technology. Specifically, KIER focuses on developing the 8 world top class energy technologies as shown in the figure 4.

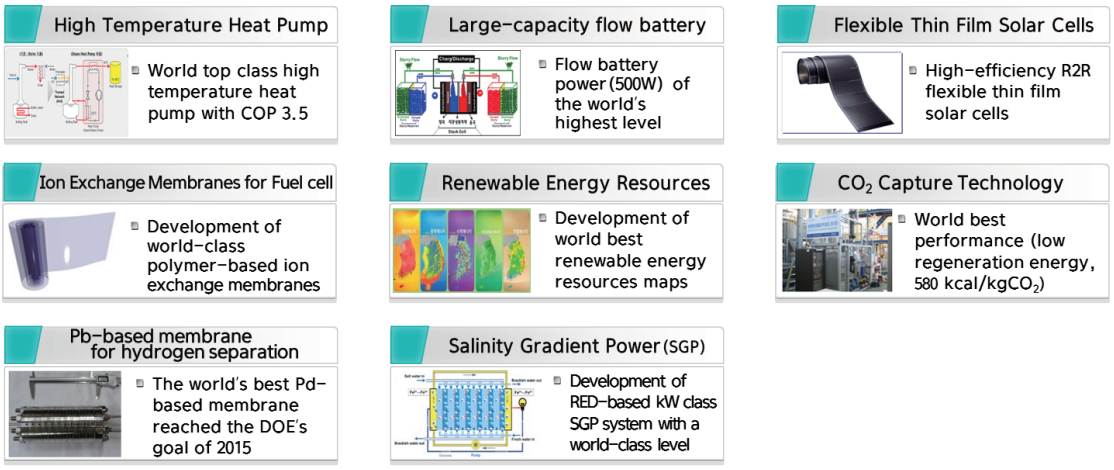

Fig.4 KIER's 8 world top class energy technologies within 3 years (2013-2016)

A study on the Accountability of the Regional R&D Program : The Case of APCTP

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Abstract

In order to develop Asia-Pacific Center for Theoretical Physics (APCTP), it is necessary to respond various kind of accountabilities around research environment as well as research capacity and international reputation. APCTP, the case of this research, has achieved its goal through proper handling of managerial and institutional problems. Simplifying complicated program structure and enhancing efficiency in the managerial level and the stable position of secretary being able to excise practical authority in the institutional level have been based for the sustainable development. While the lack of legal support limited to enhance international reputation, bottom-up building of APCTP and volunteer participations and efforts of researchers made good performance as a research platform considering its budget. The previous and present government's emphases on basic research and regional government's support took positive effects to the development of APCTP as international research institute and will provide real help for international reputation in the near future. This paper investigated difficulties around APCTP and their solutions for the sustainable development in terms of technical, managerial and institutional level.

Key word: regional R&D program, accountability, basic research, APCTP

A study on the R&D investment and financial performance : Focused on existing and potential competitors

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Abstract

The goal of this study is to examine the effects of capitalized and expensed R&D investment on the growth and productivity of the firms in competitive environment. Competitive environment is operationalized as the intensity of existing rivalry within an industry and barriers to market entry. Synthetically, the effect of R&D investment on firm performance is tested by considering competitive environment using a sample of KOSPI and KOSDAQ-listed firms. Binomial logistic regression was used for empirical analysis. The key findings of this study are as follows.
Firstly, capitalized and expensed R&D investment have a mixed effect on firm's growth and profitability. R&D investment of the year 2012 has a negative effect on firm performance of the same year. After extending the time frame and considering odds ratio, both capitalized and expensed R&D investment have significantly positive effects on firm performance.
Secondly, R&D investment is found to be an important factor for the enhancement of profitability when the intensity of existing rivalry is low and barriers to market entry is high. In contrast, high intensity of existing rivalry and low barriers to market entry lead us to observe the

role of R&D investment in enhancing the growth of the firms. Our results may be applied to formulate R&D investment strategies contingent on firms' competitive environment.
This study investigated the impact of R&D investment on firms' profitability and growth which is contingent on competitive environment. The measurement of competitive environment may also be replicated in future studies.

Key words: Competitive environment, Capitalized R&D expenditures, Expensed R&D expenditures, Growth, Profitability

Society of Open Innovation
Technology, Market & Complexity

DGIST

World Capital Institute

SOItmC & KCWS 2015

June 14 ~ 18, DGIST, Daegu, Korea

June 17 (Wednesday)

R# : 204 Auditorium

Keynote Speech

Fumio Kodama (University of Tokyo, Japan)
Presentation Theme: "Corporate and Public Policies for Open Innovation: Demand Articulation in the Open-Innovation Paradigm"

Blanca C. Garcia (Northern Borderlands Research College, Mexico)
Presentation Theme: "Knowledge Cities Benchmarking: The case of Daegu, Korea"

Venni V. Krishna (Jawaharlal Nehru University, India)
Presentation Theme: "Globalization of R&D and Open Innovation: Linkages of Foreign R&D centers in India

KongRae Lee (DGIST, Korea)
Presentation: "Sectoral differences in convergence innovation: implications for open innovation "

Corporate and Public Policies for Open Innovation: Demand Articulation in the Open-Innovation Paradigm

Fumio Kodama[1] **and Tamotsu Shibata**[2]

(Drafted on 5/29/2015)

Abstract

In the marketing literatures, "articulation of demand" is quoted as an important *competency* of market-driving firms. In this paper, therefore, I will demonstrate how the concept of "demand articulation" was effective in formulating corporate policies for technology and market development, and also in government policies for accelerating the commercialization process of emerging technologies, including. a historical case in the area of the U.S. defense policy that had induced the emergence of the Integrated Circuits technologies.
Secondly, in order to comprehend empirically what really means "demand articulation," i.e., how "market-driving" is different from "market-driven," we will go to a quantitative analysis of market growth paths in three different kinds of product categories. Finally, we will go to the arguments of "business model" creation, which will bring the concept of "demand articulation" into a reality under an emerging business environment of open innovation.

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Knowledge Cities Benchmarking: The case of Daegu , Korea

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Abstract

One of the difficulties in creating and sustaining knowledge cities is the lack of benchmarks to identify those cities and regions that are generating knowledge-driven initiatives, triggering development and collective value. One of such benchmarks is the value-based Generic Urban Capitals System (GUCS) taxonomy. The rigorous application of GUCS to cities in European, Asian, North and Latin American contexts has already yielded its initial fruits, providing a deeper perspective for different urban communities through the MAKCi (Most Admired Knowledge City) application of GUCS. In this paper, we are aiming to introduce the MAKCi Framework as an integrative system of capital analysis for the case of the Daegu city-region and its journey into developing its knowledge capitals. Depicted as the "Apple City" for its high quality apple production, Daegu is also known as a "Textile City" evoking its traditional core industry, and currently focusing on fostering its fashion and high-tech industries. Through Knowledge City capital system taxonomy (MAKCi), some of Daegu's intriguing systems of knowing are expected to emerge as a comprehensive regional meta-system articulated by the extensive knowledge-creating initiatives already in place in this Korean city, bearing the flag of knowledge-based development schemes.

Key words – Knowledge-City Capitals System, Social/Relational Capital, Social Norms, Borderland Knowledge Cities. Innovation Clusters, Networks, Creative Class, Brokers

Conference Theme – Open Innovation, Knowledge City & Creative Economy
Sub-themes – Knowledge-based Development

Globalization of R&D and Open Innovation: Linkages of Foreign R&D centers in India

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Abstract

In the new form of Globalization of R&D, Multinational (MNEs) firms have established their R&D units in emerging Asian countries, particularly in India and China. This trend causes a major concern for both home and host countries' perspectives. Generally firms choose to locate their R&D units in their country of origin and rarely go with their crucial R&D in the offshore location. However, in the recent years these trends of offshoring of R&D by MNEs are mainly because of emerging markets in developing countries. Beside this sourcing knowledge from globally dispersed knowledge hubs is also one of the major motives. In these foreign R&C centers, firms very occasionally work in isolation to build their assets, but they work association with the other actors of the host economy. This study has investigated the linkage patterns of foreign firms in India from an in-house developed database. The ICT sector has taken to investigate the linkages of foreign firms with the Indian entities. The study observed that most of the foreign firms are collaborating with the other foreign firms located in India. Firms are strongly attached with their parent unit or subsidiaries located in the other global locations. Indian firms are more preferable entity then the university or government research institutes. Foreign firms' embededness with the local innovation system is only by linking with the local firms. Also, most of the collaboration happens in peripheral (joint development) rather than core domain (joint R&D). Industry-academia linkages are weak in India. Many of the firms are going for 'Open Innovation' mode to build up their assets in India. Although, India has very strong government research laboratories, these are not playing important role in collaborating with the foreign entities. From the policy perspective, Industry academia linkages needs to be strengthen.

Keywords: Globalization of R&D, Linkages, Foreign R&D, Multinational, Open Innovation

Sectoral differences in convergence innovation: implications for open innovation

Lee, Kong-rae*[i] and Kim, Guktae**

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Abstract

Convergence innovation becomes a prevailing phenomenon in the modern innovation of the manufacturing industry as IT technologies began to be applied to vast areas of conventional technologies. This paper aims to measure the degree of convergence innovation and their trends at the industry level. The data set used is composed of 12 years in longitude and five industry types with 39 sub-industry sectors and comparisons of four countries having patent applications in the US: Japan, Korea, Taiwan and China. This paper measured intra-industry convergence and inter-industry convergence in the case of the Korean industries and made a convergence innovation matrix based on the results of the analysis. We hope that this study will provide a clue to exploring further the structure of convergence innovation at the meso and macro level. Innovation studies that focused on convergence innovation need to deepen their framework toward various perspectives in the future. Research performances achieved by open innovation studies and their research framework might provide many insights into the exploration and exploitation of future convergence innovation studies.

Keywords: convergence innovation, open innovation, inter-industry convergence, intra-industry convergence, convergence innovation matrix

June 17 (Wednesday)

R# : 203 International Conference Hall

Special Session 9

"Open Innovation: Technology, Society & Dynamics"

■ **Session Chair: KyungBae Park** (Sangji University)

- Paper 1: "Globalization of R&D and Open Innovation: Linkages of Foreign R&D centers in India" by **Swapan Kumar Patra(Jawaharlal Nehru University, India), Venni V. Krishna(Jawaharlal Nehru University, India)**
- Paper 2: "Open Innovation Effort, Entrepreneurship Orientation and Their Synergies on Innovation" by **JinHyo Joseph Yun(DGIST), KyungBae Park(Sangji University), JangHyun Kim(Sungkyunkwan University)**
- Paper 3: "The Philosophy of Open Innovation: Historical Development of Philosophy of Open Innovation and Its Reflection from Taoism" by **JinHyo Joseph Yun(DGIST), KyungBae Park(Sangji University), JeongHo Yang(DGIST), WooYoung Jung(DGIST)**
- Paper 4: "How User Entrepreneurs Succeed: The Role of Entrepreneur's Caliber and Networking Ability in Korean User Entrepreneurship" by **JinHyo Joseph Yun(DGIST), KyungBae Park(Sangji University)**
- Paper 5: "A Study on the Dynamics of Platform Business Models" by **JinHyo Joseph Yun(DGIST), DongKyu Won(KISTI), KyungBae Park(Sangji University), JeongHo Yang(DGIST)**
- Paper 6: "Autonomous learning model in closed and open innovation condition" by **DooSeok Lee(DGIST), JinHyo Joseph Yun(DGIST), HeungJu Ahn(DGIST), KyungBae Park(Sangji University), JeongHo Yang(DGIST)**

Globalization of R&D and Open Innovation: Linkages of Foreign R&D centers in India

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Abstract

In the new form of Globalization of R&D, Multinational (MNEs) firms have established their R&D units in emerging Asian countries, particularly in India and China. This trend causes a major concern for both home and host countries' perspectives. Generally firms choose to locate their R&D units in their country of origin and rarely go with their crucial R&D in the offshore location. However, in the recent years these trends of offshoring of R&D by MNEs are mainly because of emerging markets in developing countries. Beside this sourcing knowledge from globally dispersed knowledge hubs is also one of the major motives. In these foreign R&C centers, firms very occasionally work in isolation to build their assets, but they work association with the other actors of the host economy. This study has investigated the linkage patterns of foreign firms in India from an in-house developed database. The ICT sector has taken to investigate the linkages of foreign firms with the Indian entities. The study observed that most of the foreign firms are collaborating with the other foreign firms located in India. Firms are strongly attached with their parent unit or subsidiaries located in the other global locations. Indian firms are more preferable entity then the university or government research institutes. Foreign firms' embededness with the local innovation system is only by linking with the local firms. Also, most of the collaboration happens in peripheral (joint development) rather than core domain (joint R&D). Industry-academia linkages are weak in India. Many of the firms are going for 'Open Innovation' mode to build up their assets in India. Although, India has very strong government research laboratories, these are not playing important role in collaborating with the foreign entities. From the policy perspective, Industry academia linkages needs to be strengthen.
Keywords: Globalization of R&D, Linkages, Foreign R&D, Multinational, Open Innovation

Open Innovation Effort, Entrepreneurship Orientation and Their Synergies on Innovation[1]

Jinhyo Joseph Yun [*2], Kyungbae Park[**], JangHyun Kim[***]

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Abstract

While open innovation has become a popular strategy for enhancing innovation in firms, open innovation in the context of entrepreneurship is not yet well understood. This research focuses on the role of entrepreneurship in the open innovation process and its impacts on innovation performance. Our primary research question is: What are the impacts of entrepreneurship, open innovation and their synergy effects onto innovation performance, especially onto Korean IT SMEs? A survey was conducted about entrepreneurship, open innovation, business models and sales, and innovation performance for approximately 400 Korean SMEs in the Information Technology sector. Regression results are presented and discussed.

[1] The early version of this research was presented in 11th ASIALICS International Conference. The Authors have more improved and revised the article with the response and comment from the ASIALICS Conference.

The Philosophy of 'Open Innovation': Historical Development of Philosophy of Open Innovation and Its Reflection from Taoism

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Abstract

A knowledge paradigm based on free inflows and outflows is open innovation. In open innovation, open flows of new knowledge create paradoxes in certain firms or organizations. These paradoxes lead to new creativity, which results in innovation. Inflows of new knowledge and ideas boost diversity and promote collisions among ideas eventually bringing about creative innovation at a new level.

The aim of this study was to explore the ideological foundation of open innovation strategies and the open business model, which are appearing as new industrial paradigms based on information technology (IT).

First, we examined the ideological foundation of Deleuze, Whitehead, and Popper. Next, we scrutinized Taoism to discover concrete bases for open innovation. Taoism completely coincides with the logical basis of open innovation as such. The theory "the supreme good is like water " of Taoism means to vacate oneself and fill the space with others to create paradoxes thereby filling oneself with a more creative method. Taoism provides a way to present paradoxes

through the idea of vacating and opening in order to reach a creative stage of leaving nature as it is.

Key words: open innovation, “the supreme good is like water ”, paradox, Taoism, open business model

How User Entrepreneurs Succeed: The Role of Entrepreneur's Caliber and Networking Ability in Korean User Entrepreneurship

Jinhyo Joseph Yun [*1], **Kyungbae Park** [**]

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Abstract

User innovation is a new economic paradigm that is able to create a new engine for social and economic development. Furthermore, many users are not limited to their role as a user but evolve to business starters, thus becoming user entrepreneurs. This study aimed to reveal the important factors of successful user entrepreneurship by closely investigating two Korean successful user entrepreneurship cases. Based on the findings, the importance of an entrepreneur's caliber and networking ability was found. An entrepreneur's innovation ability from expert knowledge and great familiarity and experience with the business as a user coupled with strong will to entrepreneurship was the most important success factor at the early stage. In further developing the user innovation technologically and commercially, the most important factor was an entrepreneur's networking ability that can give access to complementary assets for successful development and commercialization. With this, the innovation community, composed of related users and producers, has played a crucial role in the successful entrepreneurial process.

KEY WORDS: User Innovation, User Entrepreneurship, Innovation Community, User-based Entrepreneurial Innovation, Open Innovation, User-based Open Innovation, User Network

A study on the Dynamics of Platform Business Models

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Abstract

Research Goal: This paper wants to analyze the dynamics of platform business models.
Research Question: What kinds of factors and structures give effects to the dynamics of platform business models? , How about the dynamics of platform business models in Appstore and hotel booking industries?
Research target: This research analyzes 2 firms such as Google Android store, and Apple Appstore in Appstore platform business model industry and 2 firms such as Hotels.com and Booking.com in hotel booking platform business model industry.
Research Methods: This study used interview methods, brainstorming, literature reviews, and simulation methods all together. Based on interview and literature review, simulation models were developed. The simulation models were fascinated by brainstorming and interviews, and received validation. The additional simulations were introduced to select future strategies for firms in weak situation, and these were received validation by comparing with interview results and literature reviews.
Research Results: First, Platform business models have three category factors such as: supplier open innovation platform, customer open business model platform, and characters of belonging industries. Second, according to the openness of platform between firms in the same industry, or industries, dynamics of platform business models are different each other.

Implication: According to our simulation, Google android market could follow up Apple Appstore market if it would close its customer business model platform. But, Hotels.com would survive longer than now as winner at competing with Booking.com if it opens up customer business model platform fully like Booking.com.
Additional Research goal: Our research boundary is restricted in Korea Market. Next, we have to expand the boundary to world market, and research global factors to fascinate our simulation models.

Keyword: Platform Business model, open innovation, open business model, system dynamics

Autonomous learning model in closed and open innovation condition

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Abstract

In the previous paper, we build up the interaction model between direct and autonomous learning (IMBDAL) from the human cognitive process in closed and open innovation condition. This process is different from the general machine learning processes where agents use data to create direct knowledge to maximize their utilities by predefined inference techniques. Whereas autonomous learning (AL) produces lots of indirect knowledge, say hypotheses, from recombining and extending the knowledge of direct learning (DL). These hypotheses are converted to confirmed knowledge or discarded as agents are getting more data by interacting with their environments. This paper examines this indirect learning model and its usefulness.

Key words: autonomous learning, open innovation, machine learning

June 17 (Wednesday)

R# : 202 Conference Room

Special Session 10

"Daegu Techno-Park, Open Innovation and Creative City"

■ **Session Chair: YoHan Kim** (Daegu Techno Park)

- Paper 1: "Sectoral differences in convergence innovation: implications for open innovation" by **KongRae Lee(DGIST), Guktae Kim(Kyungpook University)**
- Paper 2: "Healthcare IT growth strategies for Daegu" by **JinWoo Lim (DGIST)**
- Paper 3: "The Study for Network Structure between intellectuals and urban innovation" by **HeeDae Kim(DIP), ChangYong Mun(Daejeon Metropolitan City), DukHee Lee(KAIST)**
- Paper 4: "The Case of R&D Intermediate Organizations in Daegu Technopark" by **YoHan Kim & Hyojin Kwon(Daegu Technopark)**

Sectoral differences in convergence innovation: implications for open innovation

Lee, Kong-rae*1and Kim, Guktae**
*Management of Innovation Program, DGIST, Korea
*Department of Management, Kyungpook University, Korea

Abstract

Convergence innovation becomes a prevailing phenomenon in the modern innovation of the manufacturing industry as IT technologies began to be applied to vast areas of conventional technologies. This paper aims to measure the degree of convergence innovation and their trends at the industry level. The data set used is composed of 12 years in longitude and five industry types with 39 sub-industry sectors and comparisons of four countries having patent applications in the US: Japan, Korea, Taiwan and China. This paper measured intra-industry convergence and inter-industry convergence in the case of the Korean industries and made a convergence innovation matrix based on the results of the analysis. We hope that this study will provide a clue to exploring further the structure of convergence innovation at the meso and macro level. Innovation studies that focused on convergence innovation need to deepen their framework toward various perspectives in the future. Research performances achieved by open innovation studies and their research framework might provide many insights into the exploration and exploitation of future convergence innovation studies.
Keywords: convergence innovation, open innovation, inter-industry convergence, intra-industry convergence, convergence innovation matrix

Healthcare IT growth strategies for Daegu

JinWoo Lim (DGIST)

Abstract

The Study for Network Structure between intellectuals and urban innovation

Hee Dae Kim(DIP), Chang Yong Mun(Daejeon Metropolitan City), Duk Hee Lee (KAIST)

Abstraction

Due to the late capitalist industry and ICT -based convergence it has accelerated this global competition. Accordingly, the inter-city competitiveness was more important than competition between countries. City failed to adapt to changes in the global era, failed to have the urban competitiveness. To become sustainable city, it is required to have creativity and dynamism within each individual city.

There are some measures of the dynamism and creativity cities. R.Florida suggested three factors in his book <The Creative Class>; Technology, Talent, and Tolerance. Also, H.S.Lee said five factors to be creative city; Variety, Innovative Identity, Talent, Activity, Livability & Leadership. To simplify these measurements Index furthermore, It can be summarized into three factors; change-making culture (Beyond the path-dependency) Human Resource (Innovative People) and the Vision from the future (Vision Provider).

The lack of these factors result in the bottom of the corresponding local budgets matched to the Government Insufficient budget is prepared through issued municipal bonds The city under this vicious circle goes to a moratorium.

To avoid this phenomenon and be sustainable city, there should be done a completely different approach to previous policies. In other words, rather than going to create the future, the police have to establish to be drawn from the future. Urban design to be attracted from future can see current problems more clearly. Then, the things to go and what to cut current will be revealed. Through functional design through a multi-party participation and urban design of the retroactive manner from the future, the city can be transformed into a sustainable one.

The Case of R&D Intermediate Organizations in Daegu Technopark

YoHan Kim & Hyojin Kwon
(Daegu Technopark)

Abstract

June 17 (Wednesday)

R# : 203 International Conference Hall

General Session 4

■ **Session Chair: KwangHo Jung (Seoul National University)**

- Paper 1: "Knowledge Cities Benchmarking: The case of Daegu, Korea" by **Prof. Blanca C. Garcia (Northern Borderlands Research College, Mexico)**
- Paper 2: "What Knowledge Activities Promote Creativity?" by **Kwangho Jung(Seoul National University), SeungHee Lee(Southern Illinois University), Jane Workman(Southern Illinois University)**
- Paper 3: "Determinants of RFID Adoption: A Meta- egression Analysis" by **Sabinne Lee(Seoul National University), Kwangho Jung(Seoul National University)**
- Paper 4: "Exploring Reasons for Illegal Use of Software: An Application of Q-Methodology" by **ChanWoo Kim(Seoul National University), Kwangho Jung(Seoul National University)**

Knowledge Cities Benchmarking: The case of Daegu , Korea.

Blanca C. Garcia*
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Keynote Abstract for KCWS 2015

One of the difficulties in creating and sustaining knowledge cities is the lack of benchmarks to identify those cities and regions that are generating knowledge-driven initiatives, triggering development and collective value. One of such benchmarks is the value-based Generic Urban Capitals System (GUCS) taxonomy. The rigorous application of GUCS to cities in European, Asian, North and Latin American contexts has already yielded its initial fruits, providing a deeper perspective for different urban communities through the MAKCi (Most Admired Knowledge City) application of GUCS. In this paper, we are aiming to introduce the MAKCi Framework as an integrative system of capital analysis for the case of the Daegu city-region and its journey into developing its knowledge capitals. Depicted as the "Apple City" for its high quality apple production, Daegu is also known as a "Textile City" evoking its traditional core industry, and currently focusing on fostering its fashion and high-tech industries. Through Knowledge City capital system taxonomy (MAKCi), some of Daegu's intriguing systems of knowing are expected to emerge as a comprehensive regional meta-system articulated by the extensive knowledge-creating initiatives already in place in this Korean city, bearing the flag of knowledge-based development schemes.

Key words – Knowledge-City Capitals System, Social/Relational Capital, Social Norms, Borderland Knowledge Cities. Innovation Clusters, Networks, Creative Class, Brokers

Conference Theme – Open Innovation, Knowledge City & Creative Economy
Sub-themes – Knowledge-based Development

What Knowledge Activities Promote Creativity?

Kwangho Jung
(Seoul National University)

Seung-Hee Lee
(Southern Illinois University)

Jane Workman
(Southern Illinois University)

Abstract

Various types of knowledge generating activities induce creativity. However, little empirical research explored a positive link between knowledge activities and creativity. This study explores knowledge activities promote creativity. Knowledge activities include reading books, writing email, reading newspapers, searching internets, and watching TV. We use three types of creativity: (1) a propensity to pursue uniqueness, (2) a propensity to nurture imaginativeness, and (3) a propensity to propose and accept new things. We use a web based on-line survey (Gallup Korea) conducted with South Korean citizens from January 15th to 30th, 2013. We found reading books and newspapers and searching internet significantly increase creativity, but watching TV not. This suggests watching TV is not useful to promote the degree of creativity. Further research is required to not only why watching TV has no impact on creativity but also why and how reading books and newspapers stimulate creativity.

Keywords: Creativity, Knowledge activities, Literacy

Determinants of RFID Adoption: A Meta-regression Analysis

Sabinne Lee
(Seoul National University)

Kwangho Jung
(Seoul National University)

Abstract

This study explores keys factors that determine RFID adoption. Relying on quantitative meta-analysis, we calculate effect size of factors that Roger suggested in his innovation diffusion theory. Specifically we tried to compare mean effect size of technological, organizational, and environmental factors. And then we conducted SUR(Seemingly Unrelated Regression) analysis and meta-regression analysis using Fisher's standardized effect score. In mean effect size analysis, technological factor was the most powerful factor that affects RFID adoption among Roger's innovation diffusion factors. Also, South Asia and South America turned out to be affected most by environmental factors such as external institutional/market pressure and government support. In SUR and meta-regression analysis, South Asia and North America showed moderating effect that moderate the relationship between innovation factors and RFID adoption. Also, high ratio of chemistry and retail among survey responders had negative moderating effect on relationship between innovation factors and RFID adoption. These results show that the degree of the effects of innovation factors varies from regions and industries in RFID adoption.

Keywords: RFID adoption, Roger's innovation model, Meta-analysis

Exploring Reasons for Illegal Use of Software: An Application of Q-Methodology

Chan-Woo Kim
(Seoul National University)

Kwangho Jung
(Seoul National University)

Abstract

This study, relying on Q methodology, explores various perceptions regarding a widespread illegal use of software such as counterfeiting and piracy. This study developed thirty two Q-statements, borrowing policy ideas from relevant literature review of software piracy and expert interviews. Q sorts were collected from 30 respondents, including public officials, staffs of game company, graduate students, professors, and citizens. Our Q methodology provides four different Q factors from price-stick model, stick-punishment model, price-carrot model to moral model. All these models agree that the use of illegal software is wrong and that such illegal use is derived from social and cultural factors. These Q-methodology results suggest a consistent and structural reform in order to reduce the degree of illegal use of software.

Keywords: Software, Illegal Use, Counterfeiting, Q-Methodology

Appendix 1

Appendix 1. Agendas of the General Meeting of SOItmC

Agendas of the General Meeting of

Society of Open Innovation: Technology, Market, and Complexity (SOItmC)

President: JinHyo Joseph Yun (DGIST)

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Society of
Open Innovation
Technology, Market & Complexity

Agenda 1 (Report): The Signboard of SOItmC

Agenda 2 (Report): The Building History of SOItmC

Agenda 3 (Decision): Composition of SOItmC

Agenda 4 (Report): Special Issue Journals of SOItmC & KCWS 2015

Agenda 5 (Report): The Planning on SOItmC 2016 Conference

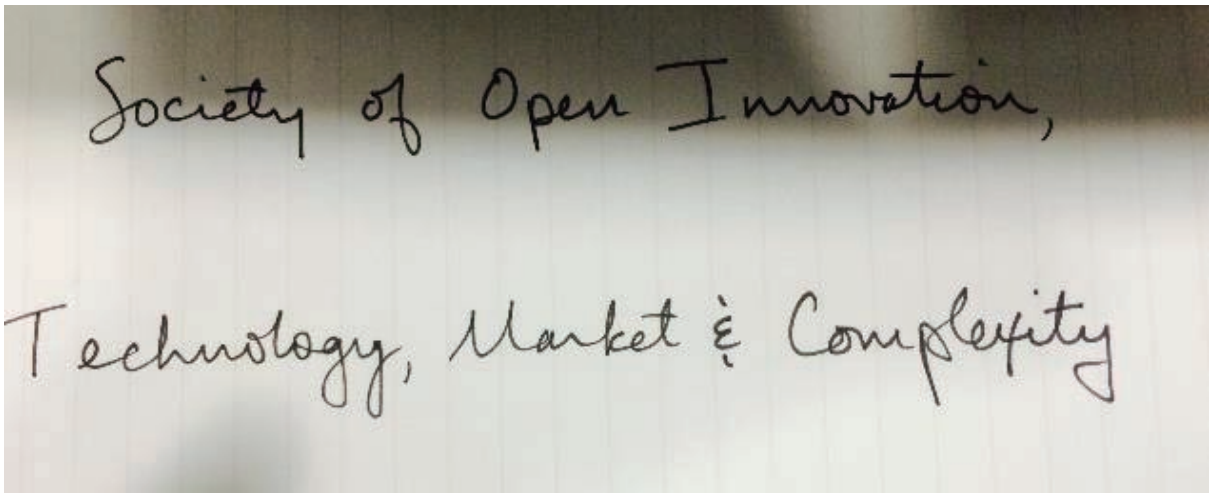
Agenda 6 (Report): The Course of Preparation

Agenda 7 (Report): Settlement of Budget

Agenda 8 (Decision): Proposal for Global Research Project with an International Organization

Agenda 1 (Report): The Signboard of SOItmC

※ Attached in front of the Secretariat



※ Written by Prof. Henry Chesbrough (UC Berkeley, USA)


오픈 이노베이션
창업정책 경영론

Agenda 2 (Report): The Building History of SOItmC

○ (12. 29, 2014) Submitted the required documents to Central Radio Management Office, the Ministry of Science, ICT and Future Planning of Korea

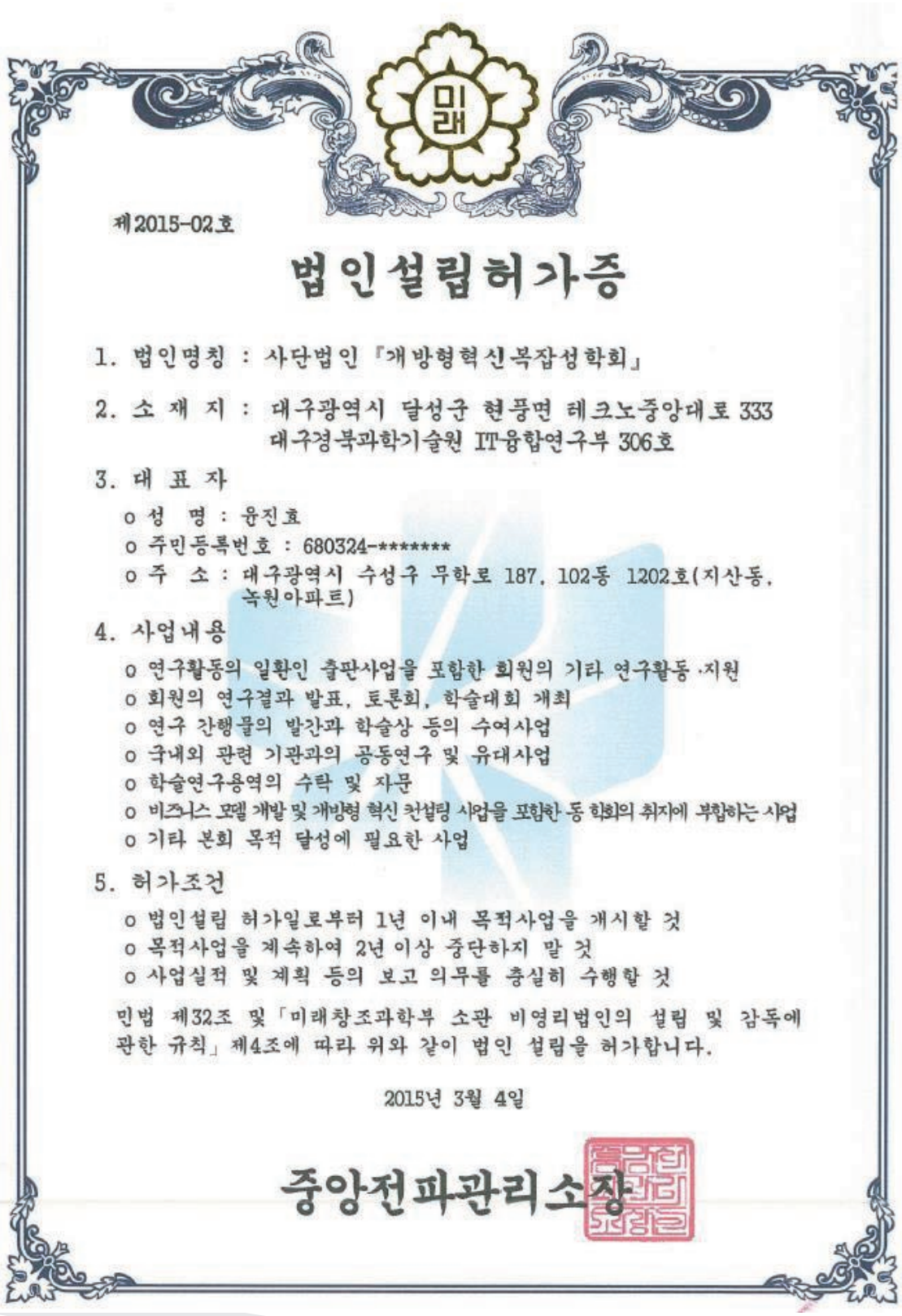
○ (2. 3, 2015) First revision of the documents after evaluation by the office

○ (3. 4, 2015) Foundation of SOItmC, allowed by the Ministry of Science, ICT and Future Planning of Korea

○ (3. 24, 2015) Registration of SOItmC

○ (3. 26, 2015) Business Registration Certificate, Issued.

※ SOItmC, registered under the Jurisdiction of the Ministry of Science, ICT and Future Planning of Korea



미래

제2015-02호

법인설립허가증

1. 법인명칭 : 사단법인 「개방형혁신복잡성학회」

2. 소 재 지 : 대구광역시 달성군 현풍면 테크노중앙대로 333
대구경북과학기술원 IT융합연구부 306호

3. 대 표 자
- o 성 명 : 윤진효
- o 주민등록번호 : 680324-*******
- o 주 소 : 대구광역시 수성구 무학로 187, 102동 1202호(지산동, 녹원아파트)

4. 사업내용
- o 연구활동의 일환인 출판사업을 포함한 회원의 기타 연구활동 지원
- o 회원의 연구결과 발표, 토론회, 학술대회 개최
- o 연구 간행물의 발간과 학술상 등의 수여사업
- o 국내외 관련 기관과의 공동연구 및 유대사업
- o 학술연구용역의 수탁 및 자문
- o 비즈니스 모델 개발 및 개방형 혁신 컨설팅 사업을 포함한 동 학회의 취지에 부합하는 사업
- o 기타 본회 목적 달성에 필요한 사업

5. 허가조건
- o 법인설립 허가일로부터 1년 이내 목적사업을 개시할 것
- o 목적사업을 계속하여 2년 이상 중단하지 말 것
- o 사업실적 및 계획 등의 보고 의무를 충실히 수행할 것

민법 제32조 및 「미래창조과학부 소관 비영리법인의 설립 및 감독에 관한 규칙」 제4조에 따라 위와 같이 법인 설립을 허가합니다.

2015년 3월 4일

중앙전파관리소장

※ Certified Copy of Register

등기사항전부증명서(말소사항 포함)[제출용]

등기번호	000393
등록번호	171821-0003933

명 칭	사단법인 개방형혁신복잡성학회	
주사무소	대구광역시 달성군 현풍면 테크노중앙대로 333, 대구경북과학기술원 이이티융합연구부 306호	

목 적

본 법인은 지식기반 경제사회의 도래로 인해 지식의 양 및 유통속도가 빠르게 증가하고 있는 현실 속에서 여러 학문 영역 간의 경계를 허물고 기술과 시장의 창조적 연결에 관한 개방형 혁신 연구 기술과 시장의 창조적 결합에 의한 새로운 비즈니스 모델 창출 그리고 기술 시장 및 환경의 진화적이고 복잡계적인 관계에 대한 새로운 다양한 연구와 실천을 통해서 거의 정체상태에 머물고 있는 현대 자본주의의 한계를 극복할 수 있는 학술적 현실적 제안을 인류에게 제시하고자 한다. 위 목적을 달성하기 위하여 다음의 사업을 행한다.
1. 연구활동의 일환인 출판사업을 포함한 회원의 기타 연구활동 및 조성지원
2. 회원의 연구결과 발표, 토론회, 학술대회 개최
3. 연구간행물의 발간과 학술상 등의 수여사업
4. 국내외 관련 기관과의 공동연구 및 유대사업
5. 학술연구용역의 수탁 및 자문
6. 비즈니스 모델 개발 및 개방형 혁신 컨설팅사업을 포함한 동 학회의 취지에 부합하는 사업
7. 기타 본회의 목적달성에 필요한 사업

임원에 관한 사항

이사 윤진효 680324-******* 대구광역시 수성구 무학로 187, 102동 1202호(지산동, 녹원맨션)
대표권제한규정 이사 윤진효 외에는 대표권이 없음.
이사 최상옥 680218-*******
이사 최종인 640831-*******
이사 노환진 571010-*******
이사 김경훈 660824-*******
이사 이상현 770830-*******
이사 신창환 710818-*******
이사 안홍주 680712-*******
이사 이두석 670810-*******
이사 권기석 700901-*******
이사 원동규 640206-*******
이사 정광호 650803-*******
이사 박경배 731019-*******

기 타 사 항

1. 자산의 총액
금 0원
~~1. 해산~~
~~정관 제1조의 규정에 의한 목적의 달성 또는 그 목적의 달성불능 등으로 법인을 해산하고자~~

[인터넷 발급] 문서 하단의 바코드를 스캐너로 확인하거나, 인터넷등기소(http://www.iros.go.kr)의 발급확인 메뉴에서 발급확인번호를 입력하여 위·변조 여부를 확인할 수 있습니다.
발급확인번호를 통한 확인은 발행일부터 3개월까지 5회에 한하여 가능합니다.

0000521033194320300051120821270 1B9DABFEBC1F819670917 4 발행일:2015/03/24 발급확인번호 3936-AAPL-GYRJ

- 1/2 -

등기번호	000393

~~할 때에는 총회에서 재적회원 3분의 2이상의 찬성을 얻어야 한다. 다만, 회원이 없게 된 경우에는 총회의 결의 없이 해산한다.~~
2015 년 03 월 24 일 착오발견 2015 년 03 월 24 일 등기

1. 설립인허가연월일
2015년 3월 4일

1. 존립기간 또는 해산사유

정관 제1조의 규정에 의한 목적의 달성 또는 그 목적의 달성불능 등으로 법인을 해산하고자 할 때에는 총회에서 재적회원 3분의 2이상의 찬성을 얻어야 한다. 다만, 회원이 없게 된 경우에는 총회의 결의 없이 해산한다.
2015 년 03 월 24 일 착오발견 2015 년 03 월 24 일 등기

법인성립연월일 2015 년 03 월 20 일

등기기록의 개설 사유 및 연월일
설립
2015 년 03 월 20 일 등기

수수료 1,000원 영수함 --- 이 하 여 백 ---
관할등기소 : 대구지방법원 서부지원 등기과 / 발행등기소 : 법원행정처 등기정보중앙관리소

이 증명서는 등기기록의 내용과 틀림없음을 증명합니다. [다만, 신청이 없는 분사무소에 관한 사항의 기재를 생략하였습니다]

서기 2015년 03월 24일
법원행정처 등기정보중앙관리소 전산운영책임관

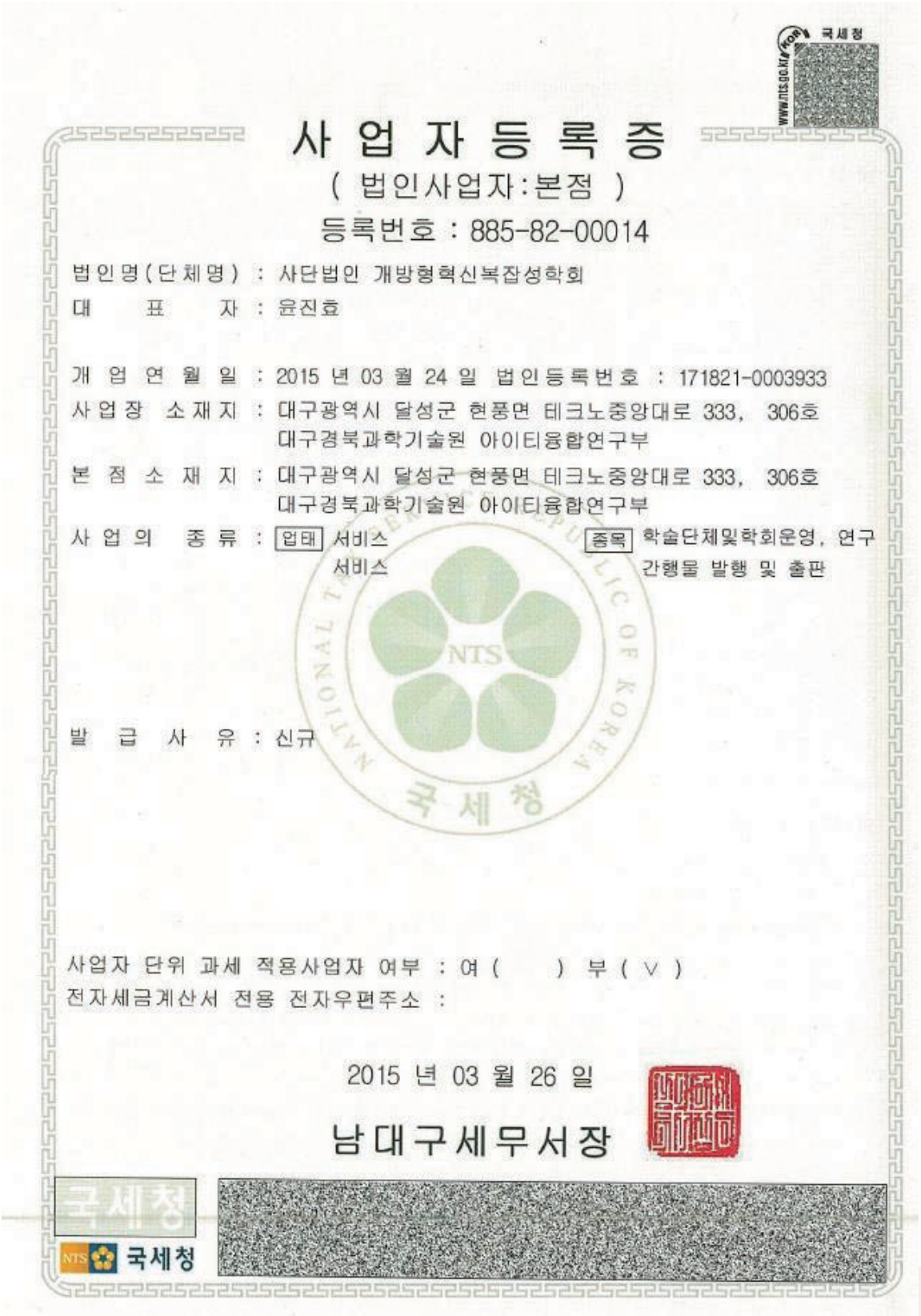
* 실선으로 그어진 부분은 말소(변경,경정)된 등기사항입니다. * 등기사항증명서는 퀄러로 출력 가능함.

[인터넷 발급] 문서 하단의 바코드를 스캐너로 확인하거나, 인터넷등기소(http://www.iros.go.kr)의 발급확인 메뉴에서 발급확인번호를 입력하여 위·변조 여부를 확인할 수 있습니다.
발급확인번호를 통한 확인은 발행일부터 3개월까지 5회에 한하여 가능합니다.

발급확인번호 3936-AAPL-GYRJ

0000521033194320300051120821270 1B9DABFEBC1F819670917 4 발행일:2015/03/24 - 2/2 -

※ Business Registration Certificate



국세청

사 업 자 등 록 증

(법인사업자:본점)

등록번호 : 885-82-00014

법 인 명 (단 체 명) : 사단법인 개방형혁신복잡성학회

대 표 자 : 윤진효

개 업 연 월 일 : 2015 년 03 월 24 일 법인등록번호 : 171821-0003933

사 업 장 소 재 지 : 대구광역시 달성군 현풍면 테크노중앙대로 333, 306호
대구경북과학기술원 아이티융합연구부

본 점 소 재 지 : 대구광역시 달성군 현풍면 테크노중앙대로 333, 306호
대구경북과학기술원 아이티융합연구부

사 업 의 종 류 : 업태 서비스
서비스

종목 학술단체및학회운영, 연구
간행물 발행 및 출판

NATIONAL TAX SERVICE REPUBLIC OF KOREA
NTS
국 세 청

발 급 사 유 : 신규

사업자 단위 과세 적용사업자 여부 : 여 ( ) 부 (V)

전자세금계산서 전용 전자우편주소 :

2015 년 03 월 26 일

남대구세무서장

국세청

NTS 국세청

Agenda 3 (Decision): Composition of SOItmC

Position	Number
President	1
Honorable member	10
Advisory member	12
Vice President	47
Director	61
Auditor	2
Member	Approximately, 300

	Title	Name	Term (Years)	Affiliation
1	President & Executive Director	JinHyo Joseph Yun	3	Senior Researcher, Division of IoT and Robotics Convergence Research, DGIST Professor, Management of Innovation, DGIST

	Title	Name	Term (Years)	Affiliation
1	Honorable member	Loet Leydesdorff	N/A	University of Amsterdam
2	Honorable member	Fumio Kodama	N/A	University of Tokyo
3	Honorable member	Francisco Javier Carrillo	N/A	Tecnologico de Monterrey
4	Honorable member	Ulrich Witt	N/A	Max Planck Institute of Economics
5	Honorable member	KongRae Lee	N/A	DGIST
6	Honorable member	Keun Lee	N/A	Seoul National University
7	Honorable member	Keld Laursen	N/A	Copenhagen Business School
8	Honorable member	Venni V. Krishna	N/A	Jawaharlal Nehru University
9	Honorable member	Philip Cooke	N/A	Cardiff University
10	Honorable member	Fred Phillips	N/A	Stony Brook University

	Title	Name	Term (Years)	Affiliation
1	Advisory member	TaiYoo Kim	N/A	Seoul National University
2	Advisory member	JeongRo Yoon	N/A	KAIST
3	Advisory member	MinHwa Lee	N/A	KAIST
4	Advisory member	JeonIl Moon	N/A	DGIST
5	Advisory member	BongJin Cho	N/A	Keimyung university
6	Advisory member	GeunWoo Ryu	N/A	Keimyung university
7	Advisory member	SungSoo Seol	N/A	Hannam University
8	Advisory member	SunYang Chung	N/A	Konkuk University

9	Advisory member	ByungKeun Kim	N/A	Korea University of Technology and Education
10	Advisory member	JooHan Kim	N/A	National Science Museum
11	Advisory member	Taeho Park	N/A	Director & Professor of School of Global Innovation and Leadership, San Jose State University
12	Advisory member	MunCho Kim	N/A	Emeritus Professor of Sociology, Korea University
	Title	Name	Term (Years)	Affiliation
1	Vice President & Executive Director	KiSeok Kwon	3	Professor, Public Administration, Hanbat National University
2	Vice President & Executive Director & Head of Awards Committee	KyungBae Park	3	Professor, Business Administration, Sangji University
3	Vice President & Head of Awards Committee	Glenn S. Banaguas (Philippines)	3	Professor of De La Salle Araneta University (DLSAU)
4	Vice President & Executive Director & Head of Open Innovation Index Development & Evaluation Committee	DooSeok Lee	3	Professor of School of Basic Science, DGIST
5	Vice President & Executive Director & Head of Open Innovation Index Development & Evaluation Committee	ChangHwan Shin	3	Professor of Social Welfare, Kyungpook National University
6	Vice President & Head of Open Innovation Index Development & Evaluation Committee	Tim Minshall (UK)	3	Director of Manufacturing Engineering Tripos (MET), Cambridge University
7	Vice President & Executive Director & Head of Consulting Committee	KyoungHun Kim	3	Head of Neo Economy Society Institute, Inc.
8	Vice President & Head of Consulting Committee	YeongWha Sawng	3	Professor of Management of Technology, Konkuk University
9	Vice President & Head of Consulting Committee	Penghui LYU (China)	3	Professor of Wuhan University, School of Information Management
10	Vice President & Executive Director & Head of Open Innovation Platform Development Committee	Heungju Ahn	3	Professor of School of Basic Science, DGIST
11	Vice President & Head of Open Innovation Platform Development Committee	WooSung Jung	3	Professor of Industrial and Management Engineering, POSTECH
12	Vice President & Head of Open Innovation Platform Development Committee	Robert Huggins (UK)	3	School of Planning and Geography Cardiff University

13	Vice President & Executive Director & Head of Academic Committee	DongKyu Won	3	Chief Researcher, Analysis Division of Industrial Market, KISTI
14	Vice President & Head of Academic Committee	Avvari V. Mohan (Malaysia)	3	Professor of University of Nottingham, Business School
15	Vice President & Auditor	ByungJoon Choi	6	CEO of IGSP, Inc. ※ For the reason that an auditor is not allowed to take a position of executive director simultaneously, after the term as auditor, ByungJoon Choi will be added, as initially commissioned, to Executive Director Committee.
16	Vice President & Auditor	ByungTae Kim	6	Head of Creative Industry Division, Daegu Gyeongbuk Development Institute ※ For the reason that an auditor is not allowed to take a position of executive director simultaneously, after the term as auditor, ByungJoon Choi will be added, as initially commissioned, to Executive Director Committee.
17	Vice President & Executive Director	SangOk Choi	3	Professor of Public Administration, Korea University
18	Vice President & Executive Director	SangHyun Lee	3	CEO of Sntec, Inc.
19	Vice President & Executive Director	HwanJin Nho	3	Professor of School of Basic Science, DGIST
20	Vice President & Executive Director	JongIn Choi	3	Professor of Graduate School of Entrepreneurship, Hanbat National University
21	Vice President & Executive Director	KwangHo Jung	3	Professor of Graduate School of Public Administration, Seoul National University
22	Vice President	JungDong Lee	3	Professor of Technology Management Economics and Policy Program, Seoul National University
23	Vice President	SHI Lei (China)	3	Professor of School of Environment, Tsinghua University
24	Vice President	WiChin Song	3	Research Division of Social Technology Innovation, STEPI
25	Vice President	SangHo Lee	3	Professor of Urban Engineering, Hanbat National University
26	Vice President	YoungJoo Ko	3	Head of Future Strategies Center, Korea Research Institute of Chemical Technology
27	Vice President	Domingo Ribeiro (Spain)	3	Facultad de Economı´a, University of Valencia
28	Vice President	Guenter Koch (Germany)	3	Professor, associated with Technical University of Graz, Austria Danube University Humboldt Cosmos Multiversity

29	Vice President	JungHee Han	3	Professor of Management of Technology MBA, Chonnam National University
30	Vice President	EunNyeong Heo	3	Professor of Energy Resources Engineering, Seoul National University
31	Vice President	SangCheol Lee	3	Senior Researcher, IoT and Robotics Convergence Research, DGIST
32	Vice President	Glenn S. Banaguas	3	De La Salle Araneta University
33	Vice President	HeeSang Lee	3	SungKyunKwan University
34	Vice President	ChoongJae Lim	3	KeiMyung university
35	Vice President	Aino Kianto (Finland)	3	Professor of Lappeenranta University of Technology
36	Vice President	Andreas Braun (Germany)	3	Professor of BES Business School Berlin Potsdam
37	Vice President	Bettina Von Stamm (Germany)	3	Adjunct Professor, Hult Business School Gastdozent, TUM (Technical University Munich)
38	Vice President	Blanca C. Garcia (Mexico)	3	Professor of El Colegio de La Frontera Norte (Colef)
39	Vice President	Giovanni Schiuma (Italy)	3	Professor of Università degli Studi della Basilicata
40	Vice President	JangHyun Kim	3	Professor of Interaction Science SungKyunKwan University
41	Vice President	Paola Paoloni (Italy)	3	Professor of Niccolò Cusano University – Rome
42	Vice President	Stephen McLaughlin (Ireland)	3	Professor of National University of Ireland Maynooth
43	Vice President	Tan Yigitcanlar (Australia)	3	Professor of Queensland University of Technology
44	Vice President	Tommi Inkinen (Finland)	3	Professor of University of Helsinki
45	Vice President	SeungHee Lee	3	Southern Illinois University
46	Vice President	Xin Yi (Bangladesh)	3	Professor of School of Architecture, Southeast University
47	Vice President	Dominik F. Schlossstein (Germany)	3	Project Manager at ERGO Versicherungsgruppe AG

	Title	Name	Term (Years)	Affiliation
1	Director	WooYoung Jung	3	Director, Convergence Research Center for Future Automotive Technology, DGIST
2	Director	JoonWoo Son	3	Senior Researcher, IoT and Robotics Convergence Research, DGIST
3	Director	Natalja Lace (Latvia)	3	Professor of Riga Technical University

4	Director	MoonJong Choi	3	Senior Researcher, Wellness Convergence Center, DGIST
5	Director	EuiSeob Jeong	3	Chief Researcher, Seoul Team, KISTI
6	Director	ByungWoon Kim	3	ETRI
7	Director & Head of Consulting Committee	YounSeok Park	3	TECHNOVALUE, Inc.
8	Director	Yohan Kim	3	Daegu TechnoPark
9	Director	MyungSan Jun	3	SPICUS Service, Inc.
10	Director	SunAh Kim	3	Kumoh National Institute of Technology
11	Director	DongJin Park	3	2ver media, Inc.
12	Director	Pun-Arj Chairatana	3	Noviscape Consulting Group Co., Ltd
13	Director	ChiSoo Ahn	3	Director of Policy and Strategy, KBSI
14	Director	ByungHeon Lee	3	Kwangwoon University
15	Director	SunHi Yoo	3	KISTI
16	Director	Chengli Shu	3	Xi'an Jiaotong University
17	Director	Chia-Liang Hung	3	National Chi Nan University
18	Director	ByeongSun Lee	3	Omning Co., Ltd
19	Director	Ddembe Williams	3	KCA University
20	Director	YongSu Ko	3	KISTEP
21	Director	Deok Soon Yim	3	Korea Institute for Innovation Cluster
22	Director	SangMoon Park	3	Kangwon National University
23	Director	DongHwan Kim	3	ChungAng University
24	Director	Valentina Della Corte	3	University of Naples Federico Ⅱ
25	Director	DongWon Sohn	3	Inha University
26	Director	DongWuk Yim	3	Korea National University of Transportation
27	Director	HeeDae Kim	3	Daegu Digital Industry Promotion Agency
28	Director	Francisco Escribano E. Sotos	3	Titular de Universidad
29	Director	Guenter KOCH	3	Humboldt Cosmos Multiversity
30	Director	Yuri Sadoi	3	Meijo University
31	Director	YooJin Han	3	Sookmyung Women's University
32	Director	HyueSu Ha	3	Kyungpook national university
33	Director	SungSoo Hwang	3	Yeungnam University
34	Director	Ir. Januar Heryanto	3	Universitas Pelita Harapan Surabaya
35	Director	Isabel Pardo Garcia	3	Universidad de Castilla-La Mancha
36	Director	JaeHyun Lee	3	Daegu University
37	Director	Chih-cheng Lo	3	National Changhua University of Education

38	Director	JeongHwan Jeon	3	GyeongSang National University
39	Director	JeongHwan Lee	3	Myongji University
40	Director	JinHan Kim	3	Kumoh national university
41	Director	JongYeon Lim	3	KISTI
42	Director	JungTae Hwang	3	Hallym University
43	Director	Richard Hu	3	University of Canberra
44	Director	JinWon Kang	3	KISTEP
45	Director	Melih Bulu	3	Istanbul Sehir University
46	Director	NamChul Shin	3	Pace University
47	Director	EunHee Kim	3	Chonnam National University
48	Director	TaeWoon Kim	3	Keimyung University
49	Director	TaeHee Kim	3	National Research Foundation of Korea
50	Director	SukJae Jeong	3	KwangWoon University
51	Director	SunYoung Park	3	Konkuk University, Management of Technology
52	Director	SunWoo Kim	3	Science and Technology Policy Institute
53	Director	WonIl Lee	3	Hanbat National University, Business Administration
54	Director	YunBae Kim	3	SungKyunKwan University, Management of Technology
55	Director	ManHyung Cho	3	Hannam University
56	Director & Head of Awards Committee	WanJong Joo	3	TAEBAEK, Intellectual Property Law Firm
57	Director	YongHan Choi	3	Seoul Education Research & Information Institute
58	Director	JinWoo Im	3	DGIST
59	Director	YoungDuk Kim	3	DGIST
60	Director	TaeSoo Eom	3	Director of Time and Space LAB
61	Director	HoonSik Tak	3	Chairman of Korea Public Marketing Laboratory

※ Membership Application Form

Agreement to join as a member of

Society of Open Innovation : Technology, Market, and Complexity (SOItmC)

www.openinnovationtmc.org

1. Registration form

Name	First Name: Middle Name: Family Name:	
Phone Number	(Mobile)	
	(Office)	
Primary Email		
Institute & Division		
Position		
Address of the Office	(Please include Postal Code)	
Agreement for SOItmC member		(sign)

2. You can send the email with the form filled and any opinions through the address below

Email: openinnovationtmc@gmail.com (☎: +82-53-785-4411)

※ Membership fee for a year is included in the registration fee of SOItmC & KCWS 2015

※ This is as effective as joining the webpage as a member

Agenda 4 (Report): Special Issue Journals of SOItmC & KCWS 2015

○ Journal of Open Innovation: Technology, Market, and Complexity (JOItmC)

- · The papers from 12 keynote speakers of the conference will be invited to the JOItmC and processed in regular steps (No payment involved)
- · (The fee for JOItmC Special Issue is paid by Open Innovation & Business Model Research team, DGIST)
- · Outstanding papers chosen from the conference will be also invited for publication and processed in regular steps (Payment, not funded)

○ Science, Technology and Society (STS)

- · Best papers chosen from the conference will be invited to STS (No payment involved)
- · (The fee of $3,000 for STS Special Issue has been already paid by Open Innovation & Business Model
- · Research team, DGIST)

○ International Journal of Knowledge Based Development (IJKBD)

- · The papers of 'Encouraging Awards' will be invited to IJKBD (No payment involved)
- · (The fee of $2,000 for IJKBD Special Issue has been already paid by Open Innovation & Business Model
- · Research team, DGIST)

Agenda 5 (Report): The Planning on SOItmC 2016 Conference

○ Hosted by School of Global Innovation & Leadership at SJSU

○ Organized by School of Global Innovation & Leadership at SJSU, SOItmC, UCB (TBD) & World Capital Institute

○ Sponsored by SV Center for Operations & Technology Management, SV Center for Entrepreneurship & Others.

1. Date: May 31 (Tue.) – June 3, 2016 (Fri.)
2. Venue: San Jose State University (SJSU), California, USA
3. Theme: Open Innovation for Start-ups and Collaborative Supply Chain
4. Program Schedule

· 1st Day: Industry Tour (Cisco or Google) & Welcome Reception
· 2nd Day: Subtheme - Open innovation for starts-up (Or Technology collaboration), Open Innovation and Business Model Case Competition Session
· 3rd Day: Subtheme - Open innovation for collaborative supply chain
· 4th Day: Culture tour (Napa Valley Winery Tour)

※ Joint Research works of Professors and Undergraduate Students of DGIST could be added to the program, and, among them, best outputs will be selected for the special issues (Tentative)

5. Special Issue

· JOItmC: 12 papers (Editor-in-Chief: JinHyo Joseph Yun, DGIST, Korea)
· STS: 8 papers (Editor-in-Chief: Venni V. Krishna, Jawaharlal Nehru University, India)
· Journal of Supply Chain and Operations Management: 8 papers (Editor-in-Chief: Taeho Park, San Jose State University, USA)
· Planning to invite 10 - 20 papers from SCI Journals
· Planning to invite the special issue from Technology Forecasting and Social Change (Editor-in-Chief: Fred Philips, Stony Brook University, USA)

Agenda 6 (Report): The Course of Preparation

○ Steps forward SOItmC & KCWS 2015

· 10. 27, 2014: Inaugural General Meeting
· 20, 2015: 1st Preparation Seminar for the SOItmC & KCWS 2015
· 02. 06, 2015: 2nd Preparation Seminar for the SOItmC & KCWS 2015
· 03. 05, 2015: 3rd Preparation Seminar for the SOItmC & KCWS 2015
· 04. 03, 2015: 4th Preparation Seminar for the SOItmC & KCWS 2015
· 06. 14 – 06. 18, 2015: SOItmC & KCWS 2015

Agenda 7 (Report): Settlement of Budget

· Income (Approximate)

Sources	Amount
DGIST	\ 43,000,000
Daegu Metropolitan City Government	\ 6,000,000 ~ 7,000,000
Institutes(Or Chairs) of Special Sessions	\ 36,000,000 ~ 48,000,000
Conference Registration Fees (Target Amount)	\ 35,000,000
Total	\ 127,500,000

· Expense (Approximate)

Sources	Amount
Webpage Set-up	\ 35,000,000
Four Preparation Seminars	
Invitation for keynote speakers (Round-trip airfares, Accommodations, Honorariums)	\ 36,000,000 ~ 48,000,000
Advertising Materials (Placard, Banners, Souvenirs, etc)	\ 25,000,000
Printing (Poster, Proceedings, Name tags, etc)	
Postal Service Cost	\ 10,000,000
Gala Dinner, Tea & Snacks Table	\ 25,000,000
Art Performance	
Personnel for the SOItmC & KCWS 2015	
Appreciation Plaque & Awards	
Total	\ 138,000,000

Agenda 8 (Decision): Proposal for Global Research Project with an International Organization

○ Aim: What should we do to overcome the growth limits of capitalism forward?

○ Honorable Advisors: Loet Leydesdorff(University of Amsterdam), Fumio Kodama(University of Tokyo), Francisco Javier Carrillo(Tecnologico de Monterrey), Ulrich Witt(Max Planck Institute of Economics), KongRae Lee(DGIST), Keun Lee(Seoul National University), Keld Laursen(Copenhagen Business School), Venni V. Krishna(Jawaharlal Nehru University), Philip Cooke(Cardiff University), Fred Phillips(Stony Brook University)

○ The research project with an international organizations such as OECD, UN or EU will be on the subject of Schumpeterian Dynamics of Open Innovation Economy System in the pursuit of overcoming the Growth Limits of Capitalism.

· Anyone who hopes to join the research project can participate in.

· Please make sure the intention of participation by the end of September, 2015.

· (Email: openinnovationtmc@gmail.com)

· On behalf of SOItmC, the President (JinHyo Joseph Yun) plans to submit the proposal to the international organization in the December, 2015.

Appendix 2. Gala Concert with Dinner

SOItmC and KCWS 2015 Gala Program

1. Outline

When: June 15, 2015; 07:30–09:00 p.m.

Where: Daegu Gyeongbuk Institute of Science and Technology, E1 Convention Hall

Organized by: Korea Paparotti Culture Foundation

Person in charge: Park Gyeong-sik
010-2877-3491
barkspol@hanmail.net

2. Schedule

07:20–09:30 p.m.: Playing background music in the premier event venue

07:30–08:10 p.m.: Playing music for ceremonies and dinner

08:10–09:10 p.m.: Performances after dinner

3. Sequence of Performances

1) Karis String Quartet

Violin 1: Kim Mu-jin

Violin 2: Bae Hye-wan

Viola: Cho Jae-hyeong

Cello: Baek Seung-gyeong

- *Mozart's "Serenade in GM Eine Kleine Nachtmusik K. 525"*
- *Mozart's "Divertimento in DM, KV 136"*
- *Bach's "Serenade"*
- *Elgar's "Salut d'Amour"*

2) "Puriyeon," Korean Traditional Music Performance Group

Janggu: Kim Do-yeon
Gayageum: Jung Seon-yeong
Daegeum: Jang Seong-woo
Haegeum: Oh Mi-jin
Piri (pipe): Park In-yeong
Sori (singing): Woo So-hye

- *Cheonnyeonmanse*
- *Freestyle solo with daegeum*
- *Gangmaeul (River Village)*
- *Playing of Namdo folk songs (Seongjupuri, Namwonsanseong, and Jindo Arirang)*

3) Korea's Trumpet Prodigy

Kim Bu-geon

- *Trumpet in the Night Sky*
- *My Way*

4) "Puriyeon," Korean Traditional Music Performance Group

Janggu: Kim Do-yeon
Gayageum: Jung Seon-yeong
Daegeum: Jang Seong-woo
Haegeum: Oh Mi-jin
Piri (pipe): Park In-yeong
Sori (singing): Woo So-hye, Choi Hyo-Joo

- *Haegeum solo*
- *Ssukdaemeori*
- *Beautiful Country*

Appendix 3. Historical & Cultural Tour

Date: June 18, 2015
Place: Andong Hahoe Village (UNESCO designated World Heritage Site)

Participation Fee($50) includes round-trip bus service (Daegu to (from) the site), lunch, guidance, and souvenirs

Appendix 4. Transportations to DGIST

• First Step (From Incheon International Airport to DongDaegu Station)

From Incheon International Airport, there are three modes of transportation to the Daegu Metropolitan City where the DGIST is located.

1) Take a connecting flight to the Daegu International Airport Takes 55 min., Fare: around $80

2) Take a KTX express train to the DongDaegu Station Takes 3hrs., Fare: around $50

3) Take an express bus to the DongDaegu Station Takes 4hrs 30 min., Fare: around $30)

• Second Step (From DongDaegu Station to DGIST)

From DongDaegu station, there are two choices to reach the DGIST, the venue of the Conference

1) DongDaegu station → DGIST
   Take a taxi (40 mins., around $40)

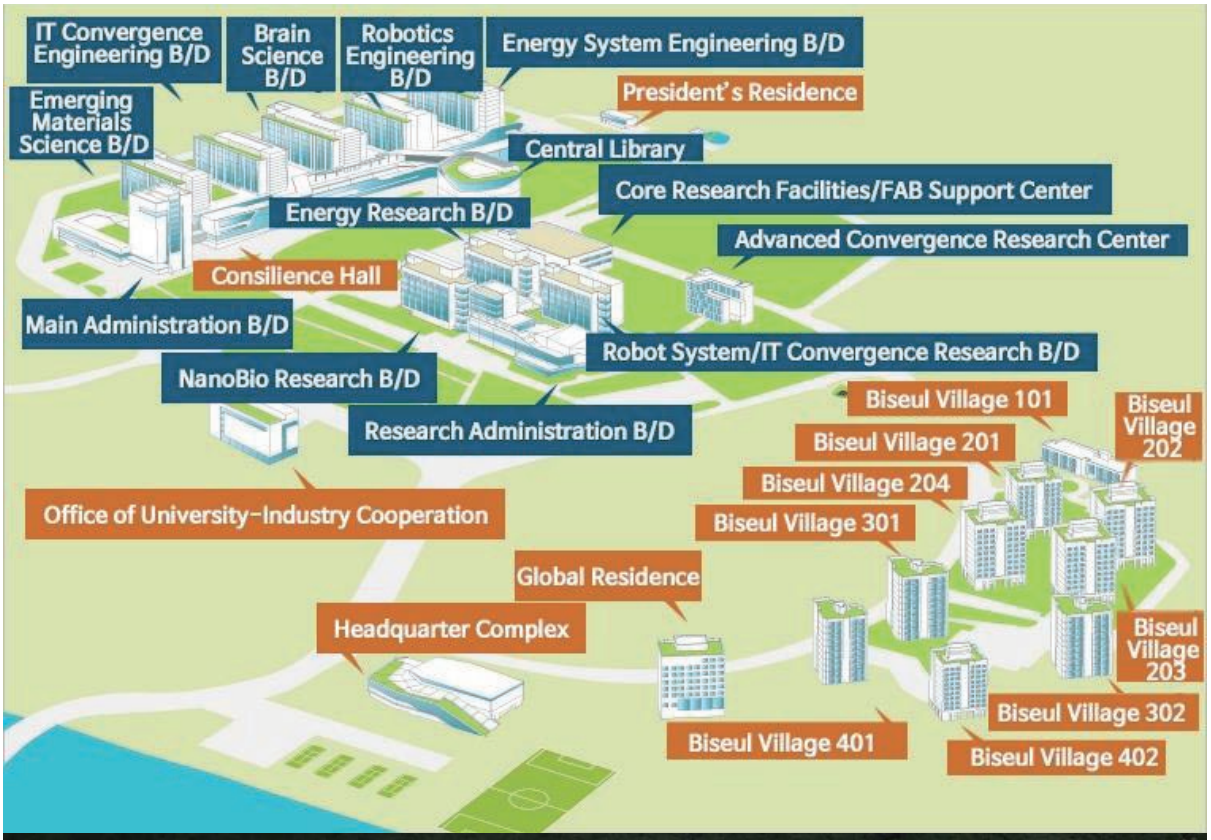
2) DongDaegu station → DaeGok subway station → DGIST (50 mins, around $15)
   You can take a subway from the DongDaegu station to the DaeGok subway station, and from the 3rd Exit of the DaeGok station, we recommend to take a taxi up to the DGIST. (You can tell or show the taxi driver the address of the DGIST)

※ Address:333 Techno Jungang-daero, Hyeonpung-myeon, Dalseong-gun, Daegu, 711-873. (Tel. +82-10-3429-2728, +82-10-6697-8355)

Appendix 5. Journal of Open Innovation: Technology, Market, and Complexity

(www.jopeninnovation.com)

Appendix 6. Campus Map



Appendix 7. Call for Paper

Society of Open Innovation Technology, Market & Complexity
DGIST
World Capital Institute

Call for Papers & Invitation

Society of Open Innovation: Technology, Market, and Complexity (SOItmC) &
Knowledge Cities World Summit (KCWS) 2015
June 14 – 18, DGIST (R1, Research Administration B/D), Daegu, Korea
(www.openinnovationtmc.org)

Open Innovation, Knowledge City & Creative Economy

Welcome anyone who is interested in the academic and practical topics
can **register the conference**

Full paper submission (until 06. 10, 2015)
Submission of Open Innovation Cases and Business Models (until 06. 10, 2015)

Keynote Speakers

Tan Yigitcanlar (Australia)
- A Professor, Queensland University of Technology, Australia
- An Associate Editor of the International Journal of Knowledge Based Development and International Journal of Environmental Science and Technology
- Presentation Theme: "Incentivising innovation: insights from Australian and Brazilian incentive schemes"

JinHyo Joseph Yun (Korea)
- Tenured Senior Researcher and Professor, Division of IoT and Robotics Convergence Research, DGIST
- Editor-in-Chief of Journal of Open Innovation: Technology, Market, and Complexity(JOItmC)
- Presentation Theme: "How do we conquer the growth limit of capitalism: Schumpeterian Dynamics of Open Innovation Economy System"

Philip Cooke (Norway)
- A Professor, Center for Innovation, Bergen University College, Norway
- Editor of "European Planning Studies" (SSCI)
- Presentation Theme: "The Future of Innovation: Challenges, Complexity & Crossovers"

Taeho Park (USA)
- Director & Professor, School of Global Innovation and Leadership, San Jose State University
- Editor-in-Chief, Journal of Supply Chain and Operations Management
- Presentation Theme: : "Open Innovation in Supply Chain Management for Creative Economy"

Blanca Garcia (Mexico)
- An Associate Professor, Northern Borderlands Research College, Mexico
- Executive Director at the World Capital Institute(Awards Program)
- Presentation Theme: "Knowledge Cities Benchmarking: The case of Daegu, Korea"

KongRae Lee (Korea)
- Professor at DGIST (Ph.D at Science and Technology Policy (SPRU), Sussex University (1994))
- Founder & President of ASIALICS (Asia Association of Learning, Innovation and Coevolution Studies)
- Presentation Theme: "Sectoral differences in convergence innovation: implications for open innovation"

Venni V. Krishna (India)
- A Professor, Jawaharlal Nehru University
- Editor-in-Chief, Science, Technology and Society (SSCI)
- Presentation Theme: "Globalization of R&D and Innovation: View from Asia"

Katri-LiisLepik (Estonia)
- Associate professor, Institute of Political Science and Governance
- Organiser of the KCWS 2014
- Presentation Theme: "Strategic management for public sector innovation in knowledge societies"

Tommi Inkinen (Finland)
- A Professor, University of Helsinki, Finland
- A Steering Group Member of the International Geographical Union's(IGU) Global Information Society Commission
- Presentation Theme: "Reflections on the innovative city: examining three innovative locations in a knowledge bases framework"

Fumio Kodama (Japan)
- A Professor Emeritus, the University of Tokyo and Shibaura Institute of Technology
- Ex Editor of Research Policy (1993 - 2009)
- Presentation Theme: "Corporate and Public Policies for Open Innovation: Demand Articulation in the Open-Innovation Paradigm"

Javier Carrillo (Mexico)
- A Professor, Monterrey University of Technology, Mexico
- Founder and President of the World Capital Institute (www.worldcapitalinstitute.org)
- Presentation Theme: "Knowledge-based Development as cultural disruption"

Keun Lee (Korea)
- A Professor, Department of Economics, Seoul National University
- Winner of 2014 Schumpeter Prize for his book on Schumpeterian Analysis of Economic Catch-up (CUP 2013)
- Presentation Theme: "Schumpeterian Analysis of Catch-up and Catch-up cycles"

Special Sessions

Special Session 1.
"City of Future, Future of City: Open Innovation and Ubiquitous City"
- Session Chair: Sanghro Lee (Hanbat National University)

Special Session 2.
"Complexity, Open Innovation & Knowledge City"
- Session Chair: DongKyu Won (KISTI)

Special Session 3.
"Start-ups, Open Innovation, and Knowledge City"
- Session Chair: Choong.Jae Im (Keimyung University)

Special Session 4.
"Daegu Techno-Park, Open Innovation and Creative City "
- Session Chair: YoHan Kim (Daegu TechnoPark)

Special Session 5.
"Open Innovation: Technology, Society & Dynamics"
- Session Chair: KyungBae Park (Sangji University)

Special Session 6.
"Technology Policy for Open Innovation & Knowledge City"
- Session Chair: SangOk Choi (Korea University)

Special Session 7.
"Open Innovation for Smart Mobility & Complexity"
- Session Chair: WooSung Jung (POSTECH)

Special Session 8.
"Smart Technology for Good Governance "
- Session Chair: KwangHo Jung (Seoul National University)

Special Session 9.
"Open Innovation and Creative Entrepreneurship from Gyeongbuk TP and University Entrepreneurship Center"
- Session Chair: Jaehoon Rhee (Yeungnam University)

Special Session 10.
"The Importance of Valuation and Big Data as a Source of Technology Commercialization in Open Innovation Era"
- Session Chair: KeeHeon Cho (Korea Valuation Association)

General Session

General Session 1.
"Open Innovation in Energy"
- Session Chair: Eunnyeong Heo (Seoul National University)

General Session 2.
"Creative Economy & Open Innovation"
- Session Chair: MinHwa Lee (KAIST)

General Session 3.
- Session Chair: SangChul Park (Korea Polytechnic University)

General Session 4.
- Session Chair: KwangHo Jung (Seoul National University)

Special Issue Journals
- Journal of Open Innovation: Technology, Market, and Complexity (Springer Press, Targeting Scopus in 2015)
  - Editor-in-Chief: JinHyo Joseph Yun (DGIST)
  - Up to 12 articles would be accepted to the journal
  - Apart from the 12 articles, additional 12 papers from keynote speakers are submitted to the journal
- International Journal of Knowledge Based Development (Scopus)
  - Guest Editor: JinHyo Joseph Yun (DGIST) & YounTaik Leem (Hanbat National University)
  - Up to 8 articles would be accepted to the journal
- Science, Technology and Society (SSCI)
  - Guest Editor: JinHyo Joseph Yun (DGIST)
  - Up to 8 articles would be accepted to the journal

Designated General Issue Journals
- Technological Forecasting and Social Change (SSCI)
  - Editor-in-Chief: Fred Phillips (Yuan Ze University, Taiwan)
  - Invited Nominator: JinHyo Joseph Yun (DGIST)
  - Top 3 ~ 5 articles will be selected by the nominator and recommended to the journal for publication.
- Journal of Science, and Technology, Policy, Management (Scopus)
  - Editor-in-Chief: Patricia Ordonez de Pablos
  - Invited Reviewers: KiSeok Kwon (Hanbat National University), WooSung Jung (POSTECH), JinHyo Joseph Yun (DGIST), KyungBae Park (Sangji University), DooSeok Lee (DGIST)
  - Up to 10 articles would be accepted to the journal
  - Based on a close tie with the journal, the organizing committee will do the best to make publications of papers selected.
- International Journal of Knowledge Based Development (Scopus)
  - Editor-in-Chief: Francisco J. Carrillo (Monterrey University of Technology)
  - Invited Reviewers: YounTaik Leem (Hanbat National University) & Tan Yigitcanlar (Queensland University of Technology)
  - Up to 8 articles would be accepted to the journal
  - Based on a close tie with the journal, the organizing committee will do the best to make publications of papers selected.

General Issue Journals
- Knowledge Management Research and Practice (SSCI)
  - Editor: Giovanni Schiuma (University of the Arts London)
- Measuring Business Excellence (Scopus)
  - Editor: Giovanni Schiuma (University of the Arts London)

For more information, please contact:

SOItmC & KCWS 2015 Secretariat
- E-mail: openinnovationtmc@gmail.com
- Ph: +82-53-785-4411, CP: +82-10-3429-2728, Fax: +82-53-785-4409
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SOItmC Chair
- JinHyo Joseph Yun (+82-10-6697-8355, jhyun@dgist.ac.kr)

KCWS Chair
- Francisco Javier Carrillo(fjcarrillo@itesm.mx)

Memo

Memo

Memo

Memo

Memo

Memo

Memo