

The Proceedings of the 4th European Conference on Entrepreneurship and Innovation

The University of Antwerp, Belgium
10-11 September 2009

Edited by
Johan Braet
University of Antwerp
Belgium

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Many thanks to the reviewers who helped ensure the quality of the full papers.

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ISBN: 978-1-906638-42-9 CD

Published by Academic Publishing Limited
Reading
UK
+44-(0) 118-972-4148
www.academic-publishing.org

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Preface

These proceedings represent the work of contributors to the fourth European Conference on Entrepreneurship and Innovation hosted this year by the University of Antwerp in Belgium. The Conference Chair is Dirk Van Dyck, and the Programme Chair is Johan Braet, both from the University of Antwerp, Belgium

The opening keynote is given by Magnus Klofsten from Linköping University, Sweden on the topic of "*Managing the early development of ventures – key aspects*". The second day will be opened with a keynote from Paul Verhaert of Verhaert Space, Belgium. Paul will address the topic "*Integrated product development: a step stone that makes or breaks the valorisation of new findings*"

ECEI has grown and evolved over the past four years, but the key aim remains the opportunity for participants to share ideas and meet the people who hold them. The scope of papers will ensure an interesting two days. The subjects covered by the papers illustrate the wide range of topics that fall into this important and growing area of research.

With an initial submission of 172 abstracts, after the double blind, peer review process there are 78 papers published in these Conference Proceedings. These papers represent research from Australia, Belgium, Brazil, Finland, France, Germany, Greece, India, Iran, Italy, Japan, New Zealand, Poland, Portugal, Republic of San Marino, Saudi Arabia, Singapore, Spain, Sweden, Taiwan, The Netherlands, Turkey, United Arab Emirates, UK and USA.

I hope that you have an enjoyable conference.

**Johan Braet, Programme Chair
Faculty of Applied Economics
University of Antwerp, Belgium
September 2008**

Conference Executive

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Dr Catherine L. Wang, Royal Holloway, University of London, UK

Conference Committee:

The conference programme committee consists of key people in the entrepreneurship and innovation community, both from the UK and overseas. The following people have confirmed their participation:

Amiruddin, Ahamat (Multimedia University, Malaysia); Nigel Adams (University of Buckingham, UK); Zafer Acar (Okan University, Istanbul, Turkey); Senguttuvan Annamalai (Madha Engineering College India); Robert Atkinson (The Information Technology and Innovation Foundation, Washington, USA); Omid Askarzadeh (Plad Saab Shargh, Tehran, Iran); Ashwini Awasthi (MLSM College, Sundernagar India); Tabarak Ballal (University of Reading, UK); Alan Barrell (Centre for Enterprise Learning, University of Cambridge, UK); Eric Bodger (University of Winchester, UK); Benjamin Botchway (American University of Nigeria, Nigeria); John Bourne (Olin College, Massachusetts, USA); Alexander Brem (VEND consulting, Nuremberg, Germany); Sheryl Buckley (University of Johannesburg, South Africa); Arie Buijs (Utrecht University, Netherlands); Cagri Bulut (Yasar University, Izmir, Turkey); Kevin Burt (University of Lincoln, UK); Elias Carayannis (George Washington University, USA); Carreto Chadwick (Instituto Politecnico Nacional, Mexico DF, Mexico); Yanto Chandra (University of Amsterdam, Netherlands); Collin Clark, (University of Aberdeen, UK); Paulo Rupino Cunha (University of Coimbra, Portugal); Leo-Paul Dana (University of Canterbury, Christchurch, New Zealand); Charles Depres (Conservatoire des Arts et Metiers, Paris, France); Vasco Eiriz (University of Minho, Portugal); Alea Fairchild (Vesalius College, Vrije Univ Brussels, Belgium); Joao Ferreira (University of Beira Interior, Covilhã, Portugal); Maria Joao Ferreira (Universidade Portucalense, Porto, Portugal); Heather Fulford (Aberdeen Business School, UK); Brendan Galbraith (University of Ulster, UK); Guido Giebens (University of Antwerp Management School, Belgium); Andrew Goh (University of South Australia, Australia); Khaled Hamid (Virginia Commonwealth University, Richmond, USA); Saskia Harkema (The Hague University of Applied Sciences, The Netherlands); Charles Hofer (University of Georgia, USA); Paul Jones (University of Glamorgan UK); Alexandros Kakouris (University of Athens, Greece); Yusniza Kamarulzaman (University of Malaya, Kuala Lumpur, Malaysia); Trish Kernan (University of Winchester, UK); Fred Kiesner (Loyola Marymount University, USA); Gyeong-Min Kim (Ewha Womens University, Seoul, Korea); Marko Kolakovic (Faculty of Economics and Business, Zagreb, Croatia); Sam Kongwa (Walter Sisulu University, Mthatha, South Africa); Codrin Kruijne (Utrecht University, Netherlands); Kothandaraman Kumar (Indian Institute of Management Bangalore, India); Jonathan Lean (University of Plymouth Business School, UK); João Leitão (University of Beira Interior, Covilhã, Portugal); Loykie Lominé (University of Winchester, UK); Angeline Low (University of Technology, Sydney, Australia); Sam Lubbe (University of South Africa); Neil Marriott (University of Winchester, UK); Juan Martínez (Universidad Politécnica de Cataluña, Spain); Ian McLoughlin (University of Newcastle upon Tyne, UK); Zoran Mitrovic (Cape Peninsula University of Technology, Cape Town, South Africa); Jens Mueller (Management School, Waikato University, New Zealand); Maurice Mulvenna (University of Ulster, Newtownabbey, UK); Jan Nab (Utrecht University, Netherlands); Desai Narasimhalu (Singapore Management University, Singapore); Chetsada Noknoi (Thaksin University, Songkhla, Thailand); Mohand-Said Oukil (King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia); Jatin Pancholi (Middlesex University, London, UK); Shaun Pather (Cape Peninsula University of Technology, Cape Town, South Africa) Dean Patton (University of Southampton, UK); Catarina Ramalho (University of Lisbon, Portugal); Cheryl Rodgers (University of Portsmouth, UK); Enrico

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Biographies of Conference Chairs, Programme Chair and Keynote Speaker

Conference Chair



Professor Dirk Van Dyck (1948) is full professor in physics and honorary Vice-Rector for research of the university of Antwerp. He teaches theoretical physics, image processing and information theory. Dirk Van Dyck is codirector of the EMAT center for electron microscopy at the University of Antwerp with an infrastructure of 7 electron microscopes and 20 scientists and director of the Vision lab (30 scientists). He is known for his work on electron microscopy and microtomography. He is the codeveloper of the first desk-top X-ray microtomograph that is now commercialised by the spin-off company Skyscan. (www.skyscan.be). Dirk Van Dyck published about 300 scientific papers and several books. He has been promotor of 30 PhD Theses and holds 4 patents. In 2002 Dirk Van Dyck received the prestigious Francqui Chair from the university of Leuven for his scientific work in electron microscopy and holography

Programme Chair

Professor Johan Braet is a Professor of innovation, entrepreneurship and environmental economics at the University of Antwerp. He received his PhD in physics at the Catholic University of Leuven (Belgium). Prior to his appointment as a professor, he had several entrepreneur, management and consulting positions in industry. His research interests are the fuzzy front end of innovation, the management of early stage innovation and entrepreneurship processes and environmental economics.



Keynote Speakers

Professor Magnus Klofsten is a professor and founding director of Centre for Innovation and Entrepreneurship (CIE) at Linköping University, Sweden. He is also professor at division Project, Innovations and Entrepreneurship (PIE). His research is oriented towards the early growth and development of technology-based firms, financing young ventures and university-industry relations. Klofsten is research leader at the Helix Centre of Excellence and member of Agora Link Centre for researcher mobility and commercialization of life science technologies. As a director of CIE and member of the board of SMIL (a foundation of small technology-based firms), which provides support in business development for the member firms, has given him extensive experience of planning and implementation of different growth and development programs for technology-based firms.



Paul Verhaert founded the Verhaert Company in 1969 to support other companies in developing new products. Over 400 innovative products have been created ever since for different industrial sectors. To fuel the product development activities with top knowledge and state of the art technologies, the company started activities in the space sector in 1984. Today “Verhaert Space” is a prime contractor to the European Space agency to design and build their most advanced small satellites for earth observation and research. Paul is a Member of the Federal Council for Science Policy of Belgium; Founder of Verhaert New products & services nv and Verhaert Space NV. He also serves as Director of: AGORIA Belgian technology industry association, and several companies devoted to or highly depending on new products development and as Lecturer at UAMS University Antwerp Management School



Biographies of contributing authors (in alphabetical order)

Manuel da Rocha Armada is Full Professor of Finance at the Department of Management, School of Economics and Management of the University of Minho, where he is the Scientific Coordinator and responsible for the Finance area and Director of MSc (Master) in Finance. He got a degree in Management from ISEG (Technical University of Lisbon), a Master degree in Management Science from the University of Kent - UK and the PhD degree in Business Administration from the Manchester Business School - UK. He has published, among others, in the European Journal of Finance, International Journal of Business, Finance India, European Financial Management Journal, Multinational Finance Journal, Global Finance Journal and The International Journal of Finance.

Omid Askarzadeh had B.S. degree in industrial engineering and He is currently study EMBA at collage of management, Islamic Azad University, Central Tehran Branch, Iran. His research and master dissertation focus on small business and entrepreneurship in general, with specific expertise within the metal industry sector. He has recently authored papers in the areas of operation research, entrepreneurship and decision making.

Sinem Aykol is a lecturer of management and organization at Marmara University, Department of Business Administration (in English). She completed her PhD in management and organization from the same department. Her research interests are entrepreneurship, family businesses and small business management.

Christiaan Baelus graduated in '81 as an industrial designer in Antwerp. He worked for 15 years in industry before taking up a full engagement in education and research at the department design sciences of the Artesis University college of Antwerp. He is academic coordinator of the Master program and responsible for design methodology and business related aspects in the course. This Master course is based on the integrated approach in product development with a special interest in the early stages of innovation.

Julia Balycheva, bachelor, is a minor research associate of the Central Economics and Mathematics Institute of Russian Academy of Sciences, student of Faculty of

Innovation and High Technology, Moscow Physics and Technique Institute of Moscow Physics and Technique Institute, Moscow, Russia.

Ulla Bard is a doctor of science in Economics and Business Administration and holds the position of director of the Education and Research Centre for Business Administration for HAMK University of Applied Sciences in Finland. Some of her research interests are SME marketing, entrepreneurship, learning in small firms, university and enterprise co-operation

Liselore Berghman is an assistant professor of Strategy at the VU University Amsterdam. She holds a PhD in marketing management from the Erasmus University Rotterdam and worked as a strategy consultant with BCG. Her research on intra- and inter-organizational aspects of radical, non-technological innovation appeared eg. in *Industrial Marketing Management*.

Raymond Boyle is a senior lecturer in media and cultural policy at the Centre for Cultural Policy Research at the University of Glasgow. He is the principal investigator on a two year AHRC funded project *Public Understanding of Business: Television, Representation and Entrepreneurship*. The project began in January 2009.

Johan Braet is Professor of innovation, entrepreneurship and environmental economics at the University of Antwerp. He received his PhD in physics at the Catholic University of Leuven (Belgium). Prior to his appointment as a professor, he had several entrepreneur, management and consulting positions in industry. His research interests are the fuzzy front end of innovation, the management of early stage innovation and entrepreneurship processes and environmental economics.

Tina Bratkovič is Young Researcher and Assistant of Entrepreneurship at the Faculty of Management Koper at the University of Primorska in Slovenia. Her main research interests include entrepreneurship, entrepreneurial networks and small business growth. She is a doctoral student at the Faculty of Management Koper.

Christopher Brown is a Sector Partner Champion and senior lecturer at University of Hertfordshire, having completed his research doctorate at Middlesex University Business School (MUBS) in 2006, and a Masters degree in Psychology in 2009. He has over thirty years experience in the engineering industry, in various roles as marketing, product, design engineering and Research & Development manager.

Matilde Martínez Casanovas is doing a Ph.D. at BES, La Salle, Ramon Llull University, and has a Psychology Degree from Barcelona University. At the moment she is a Senior Consultant in Orbita97 Innovation Company, consulting group specialized in developing people Innovation competencies and implementing Innovation processes in companies. She has more than 15 years in training activities and 8 years managing Innovation projects.

Sérgio André Cavalcante is a doctoral research student at University of Aarhus, Aarhus School of Business (ASB), Department of Management (MAN), Centre for Organizational Renewal and Evolution (CORE), Denmark, during the period 2008-

2011. His research project focuses on the decision-making challenges regarding business model change.

Greg Clydesdale lectures in Creativity, Innovation and Entrepreneurship at Massey University, New Zealand. His book *Entrepreneurial opportunity: The right place at the right time* was released in August and identifies how market and industrial evolution creates opportunities for entrepreneurs to exploit. He believes that successful education in entrepreneurship requires giving students a strong understanding of industries and markets.

Sven De Cleyn is connected to the Faculty of Applied Economics at the Antwerp University as an assistant. He is currently working towards a PhD in the modelling of risk assessment of early stage academic spin-off ventures. With his Master thesis, the jury of the Council for Industrial Research and Innovation Management awarded him the Innovation Prize 2005 of the University of Antwerp. Since 2007 he received of scholarship as PhD Fellow of the Research Foundation Flanders. He is (co-) author of 21 papers in the broader domain of innovation and (academic) entrepreneurship.

Paulo Rupino da Cunha is an Assistant Professor at the University of Coimbra and the head of its Information Systems Group. He is a Visiting Associate at Brunel University, UK. He holds a Ph.D. and an M.Sc. in Informatics Engineering – Information Systems.

Arcott Desai is the Director of the Institute of Innovation and Entrepreneurship and Practice Professor of Information Systems at the Singapore Management University. Desai has created or directed the creation of several innovations and has successfully monetized them. He has thirty five years of innovation and innovation management experience at all levels. He is advisor to a number of startup companies. Desai directs and manages innovation promotion, innovation sandbox, business incubation, business acceleration, training, joint research and development and IP Management office functions in his capacity as the Director of the Institute of Innovation and Entrepreneurship.

Peter Dorrington is a mature PhD student. Having completed his undergraduate degree in Product Design he spent a number of years in industry as a design engineer. Further work as Research Officer with the Manufacturing Advisory Service followed, before being awarded an EPSRC doctoral training grant to study at Cardiff Business School. He is now in the last year of his doctoral studies investigating how aspects of innovation management influence the success of emerging technologies in different organisational settings.

Alan Fitzgerald originally qualified as a Chartered Engineer, and spent many years in Industry as an engineering designer before transferring into the Information Technology sector, in the mid- 1970's, where he spent 20 years in senior Management and Consulting roles for US and UK based companies. This was followed by 10 years Marketing and M&A experience before joining academia in 2004 in the Enterprise Education area, where the development of these experiential games began to assist in the training of non-business undergraduates.

Helena Forsman has a D.Sc. (Tech) degree in Engineering and Technology Management. Additionally, she has a M.Sc. in Economics. Dr Forsman is working as a Senior Researcher at Lappeenranta University of Technology. Her research interest focuses on business development and innovation management in small business context. The researcher gratefully acknowledges the financial support from the Association of Private Entrepreneurs of Finland (Yksityisyrittäjien säätiö).

Heather Fulford is Reader in Entrepreneurship and Academic Director of the Centre for Entrepreneurship at Aberdeen Business School, The Robert Gordon University, Scotland. Her research interests include social enterprise start-up and governance and social entrepreneurship education. She is currently lead academic on a funded project with a social enterprise in Aberdeen. Her lecturing commitments included postgraduate and undergraduate modules on new venture creation.

Paolo Giacon obtained a “Laurea” Degree in Telecommunication Engineering at the University of Padua, Italy in 2004. During 2004-2006 he worked as research assistant at the Department of Engineering of the University of Ferrara, Italy. He is actually Ph.D candidate in Management Engineering at the University of Padua, Italy. His research interests include high-tech entrepreneurship, innovation management, technology management.

Guido Giebens is the managing director of ANTRIM BVBA, management consultant. In his consulting work he helps organisations and businesses with the implementation of innovation management and change processes, associated with innovation in products, processes or procedures. He has a long professional experience as a manager in a multinational company and in local and international consulting projects. In 1993, Guido was one of the founding fathers of the business incubator of Antwerp University (UBCA) where he acted later as the managing director, and where he also coached young starting high-tech businesses. He is also the Belgian representative in the Board of Directors of T.I.I., a European organisation for innovation consultants and knowledge institutions, based in Luxemburg. He is part-time guest lecturer at the Institute for Product Development of the Artesis College of Antwerp and at the UAMS University of Antwerp Management School. He holds a masters degree in chemical engineering from Leuven University (KUL), and a degree in environmental sciences from the University of Brussels (VUB).

Alan Gillies has been Professor of Information Management at the University of Central Lancashire since 1994. He graduated from The Queen's College, Oxford in 1984 in Chemistry. His PhD, probably the first to be awarded by the University of Central Lancashire after gaining its charter in 1992 was in problem solving methodology.

Oleg Golichenko, Doctor of Economic Sciences, economist and specialist in the field of national innovation system, is currently a main research associate of the Central Economics and Mathematics Institute of Russian Academy of Sciences, professor of the Chair of Intellectual Property Economics of Moscow Physics and Technique Institute and professor of the Chair of Institutional Economy of New Russian University, Moscow, Russia.

Marcos Gómez Jiménez is doing a Ph.D. at BES, La Salle, Ramon Llull University, while having a Telecommunications Engineering Degree from UPC University. He is a MBA and Associate Professor at Esade Business School and a Senior Consultant in Orbita97 Innovation Company, consulting group specialized in Innovation competencies and Innovation processes implementation. He has more than 10 years in training activities and 20 years managing Innovation projects.

Jukka Hallikas is a Professor of Supply Management at the Lappeenranta University of Technology, School of Business. His research interests focuses on the management of value networks, risk management in supply networks, and learning in inter-firm relationships. He has published several scientific articles, books, and book chapters on inter-firm relationships and supply management.

Mohd Hizam Hanafiah is a PhD candidate in entrepreneurship at Essex Business School, University of Essex. Previously, he was a lecturer at Universiti Kebangsaan Malaysia. He has written and co-authored of more than 40 academic papers, 13 books, and attended/presented papers in more than 30 conference. He had consultancy projects with public and private agencies, particularly in management and entrepreneurship field.

Naciba Haned is currently part of the Economics and Management faculty of the University Lumière Lyon 2 and is also an assistant professor at the ESDES business School of Lyon University. Her research topics are innovation, intellectual property assets and corporate performance, corporate social responsibility and institutional regulations.

Saskia Harkema is Professor of Innovation & Entrepreneurship at the The Hague University of Applied Sciences. In 2005 she set up the Center of Innovation & Entrepreneurship where applied driven research is carried out and educational programs are developed in which students, lecturers and companies participate. She is also Senior Consultant of BMC Management & Advice, one of the top-consultancy firms for the public sector. Her main area of attention is entrepreneurship in education.

Megan Hill has been conducting research and extension for 20 years with the Department of Primary Industries. For the last five years Megan has been linking her knowledge of the wine grape industry with her skills as a researcher by studying how and why growers adopt technical innovations.

Takashi Hirao was born in Tokyo 1973. He received his B.A. and M.Phil. in Economics from Kanagawa University, Japan and Ph.D. in Commerce from Hitotsubashi University, Japan. He has assumed his current post of lecturer of Tokyo University of Science, Suwa to teach innovation management since 2006. His research interesting is innovation and competitiveness, labour management, and networking.

John Howard is a senior lecturer at UCLAN in health informatics. John's research interests include open systems data models and training needs analysis. He was the main researcher on the development of the EQOMM, the maturity model developed

by the Unit to analyse and improve equal opportunities policies, and on the TNAMM training needs tools.

Amy Hsiao is an associate professor in the Faculty of Engineering and Applied Science at Memorial University of Newfoundland. She heads the Masters in Engineering Management Program and is cross-appointed with the Faculty of Business Administration. Her research focus is in the area of strategic management, technology entrepreneurship, organizational behavior of tech-based ventures, and materials science and engineering.

Dessy Irawati is an enthusiastic and dynamic professional with experience of teaching and research in the UK and business practice in Indonesia. My research interests lie in knowledge, innovation, networks, and technology. My research interest are: innovation and technology management, organization studies, regional economic development and learning regions, cluster based policy, industrial dynamics and knowledge creation in networks, automotive industry: its complexities and the global-local value chain management.

Alexis Jacoby is a PhD student at the Artesis University College of Antwerp. He owns a master degree in product development and worked as an industrial designer in industry. He has been lecturer on product development methodology for several years.

Alexandros Kakouris studied Physics at the University of Athens (1990). He also received a Ph.D. in Physics from the same University (1997) and a postgraduate certificate on "Distance Education" from the Hellenic Open University (1999). He has been the coordinator of the Career Office at the University of Athens since May 2004, and he presently teaches innovation and entrepreneurship at the same university. His research interests concern entrepreneurship education.

Esther Klee is Research Assistant at the Endowed Chair for Entrepreneurship, Carl von Ossietzky University Oldenburg (Germany). Her research is oriented towards entrepreneurship education, business incubators and the rigor and relevance of management science. Her studies in Economic Education, Management and Entrepreneurship are the stimulus for her scientific orientation.

Magnus Klofsten is a professor and founding director of Centre for Innovation and Entrepreneurship (CIE) at Linköping University, Sweden. He is also professor at division Project, Innovations and Entrepreneurship (PIE). His research is oriented towards the early growth and development of technology-based firms, financing young ventures and university-industry relations. Klofsten is research leader at the Helix Centre of Excellence and member of Agora Link Centre for researcher mobility and commercialization of life science technologies. As a director of CIE and member of the board of SMIL (a foundation of small technology-based firms), which provides support in business development for the member firms, has given him extensive experience of planning and implementation of different growth and development programs for technology-based firms.

Matjaz Koman is a researcher at the Faculty of Economics, Ljubljana, and a member of the Institute for South-Eastern European Studies. He holds a Ph.D. from

the University of Michigan. His research is in the field of economics of transition, mainly in are of firms' behavior in countries of the South East Europe.

Astrid Lange, born in 1980 in Bernau, Germany, studied Psychology (Diploma) at the University Potsdam. After her engagement at an international project at the University Ulm she started as Scientific Assistant in two government-funded entrepreneurship projects (MoblUP, EXIST-III) at the Brandenburg University of Technology Cottbus in October 2007.

Mikko Laine is a researcher and project manager at the Software Business Laboratory at Helsinki University of Technology (TKK). He has graduated from, and is a doctoral candidate at the Department of Industrial Engineering and Management and is pursuing his doctoral thesis on virtual community strategies.

Kiefer Lee is a Principal Lecturer in marketing and Programme Leader for the undergraduate Business and Management courses at Sheffield Hallam University, UK. He has a strong interest in developing and delivering innovative learning experiences that engage students in the process of developing their own knowledge. He is the lead author of Global Marketing Management published by Oxford University Press.

João Leitão is an invited Assistant Professor at the IST - Technical University of Lisbon, Portugal. He holds a Ph.D in Economics – Market Dynamics and Entrepreneurial Pricing. He is a member of the board of Directors of the European Council of Small Business and Entrepreneurship. He is on the editorial boards of the International Journal of Entrepreneurial Venturing, the International Review on Public and Non Profit Marketing, the South African Journal of Information Management, the New Economics Papers (NEP), the Portuguese Marketing Journal, and Portuguese and Brazilian Management Review.

Nnamdi Madichie is Assistant Professor of Marketing at the College of Business Administration, University of Sharjah, UAE. He is Associate Editor of the African Journal of Business Management and International Journal of Business & Emerging Markets. His papers have been published in the Journal of African Business; Management Decision and The Marketing Review.

Matthew Marvel is an Assistant Professor of Management at Western Kentucky University. He received his PhD from the University of Illinois at Urbana-Champaign. His research interests include opportunity recognition, new venture creation, small business management and innovation.

Philip McClenaghan is Deputy Director of the Centre for Design in the Digital Economy (DLAB) located in the Institute of Digital Innovation at Teesside University. Philip comes from a creative and commercial background having worked as a design consultant in London and Munich before co-founding a design practice in Germany. Philip's research interests lie in exploring the new opportunities for design and commerce created by the growing interest in and sophistication of the 3D Web.

Karri Mikkonen studied Cognitive Artificial Intelligence and Philosophy at the University of Utrecht in Netherlands, and holds MSc from Industrial Management from Tampere University of Technology (1992-2000). Karri has worked in TeliaSonera Corporate Strategy since the establishment 2003. He continues Ph.D. studies on strategy, with the research focus in customer value and timing of integrated offerings.

João Leitão is an invited Assistant Professor at the IST - Technical University of Lisbon, Portugal. He holds a Ph.D in Economics – Market Dynamics and Entrepreneurial Pricing. He is a member of the board of Directors of the European Council of Small Business and Entrepreneurship. He is on the editorial boards of the International Journal of Entrepreneurial Venturing, the International Review on Public and Non Profit Marketing, the South African Journal of Information Management, the New Economics Papers (NEP), the Portuguese Marketing Journal, and Portuguese and Brazilian Management Review.

Norbert Morawetz is Research Fellow at the Centre for Innovation and Enterprise at the University of Hertfordshire (UH). He holds an MA in Strategic Management from the Karl Franzens University Graz and a PhD in Economics from UH. His research interests are the economics of creative industries, film financing, economic geography, industrial organization and entrepreneurship.

Isabel Mota is an assistant professor at the Faculdade de Economia, Universidade do Porto and researcher at the Center for Economics and Finance at UP (CEF.UP). Her current research interests include location choice, spatial competition, R&D cooperation, entrepreneurship, innovation policy.

Félix-Fernando Muñoz (Madrid, 1969) is PhD in Economics (Universidad Autónoma de Madrid, Spain), with a dissertation on entrepreneurship and endogenous economic growth. His main research interest is on Economic Change, Evolutionary Economics, the relationship between Economics and Knowledge, and Entrepreneurship. He has published a variety of articles in academic journals, chapters in books and edited three books. His is Member of the Institute of Economic and Social Research Francisco de Vitoria.

Jan Nab is researcher and consultant at the IVLOS Institute of Education at Utrecht University in the Netherlands. His field of research is entrepreneurship education for science students. In his consultancy emphasis is on curriculum and course development, educational design, and interdisciplinary learning. He is preparing a PhD thesis on education on opportunity recognition by science students.

Ana Naia is a lecturer of Curricular Development at Faculty of Human Kinetics (Department of Education Sciences), in Lisbon, since 2005. Her doctoral thesis and research are oriented towards entrepreneurship education in higher education, studying former student's life courses, aiming to understand how entrepreneurship can be promoted during undergraduate education in Portugal.

Joanna Nestorowicz is a PhD student at the Faculty of Economics (Development Economics Department), Warsaw University. Her doctoral reserach project aims at exploring correlations between economic growth and entrepreneurial migration.

Apart from holding a master's diploma in economics, she also has a BA in cross-cultural relations obtained at the Oriental Institute, Warsaw University. Joanna is also a member of the Economics of Migration Research Unit at the Center for Migration Research, University of Warsaw.

Alexandra Sofia Nunes majored in Management at the University of Beira Interior (UBI), Covilhã, Portugal. Her professional carrier has taken her through very different areas such as quality management, accountancy and assistant manager in a major Portuguese firm. Last year she decided to increase her studies by taking a Master Degree in Management in the same college that saw the first steps of her academic life, UBI. Meanwhile, she is developing some scientific papers concerning her research interest: Innovation.

Ozlem Ozdemir is an associate professor of business administration at Middle East Technical University, Turkey. She obtained her PhD in economics from Texas Tech University in 2000. Her research interests focus on entrepreneurship, firm and consumer behaviour, and managerial economics.

Hosein Piranfar (PhD, MSc, and BSc) is a Senior Lecturer in Operations Management, and programme leader of MSc Risk Management, Business School, University of East London. Prior to UEL, he worked as a researcher on Complexity and Organisational Learning in Kingston Business School. He has published widely in the fields of Foreign Direct Investment, Finance, Operations Management, Logistics, Social Capital (Networking), Corporate Reputation, Risk, and Organisational Learning.

Sanna Puha, M.Sc. (Eng.), is a Doctoral Candidate in Tampere University of Technology in the Department of Industrial Management. She has background in telecommunication industry as she has worked for Nokia Corporation for 10 years. Her research interests include systemic evolution of echnology and product ecosystems.

Srinivasan Raghavan is Associate Professor of Corporate Strategy & Policy at the Indian Institute of Management Bangalore, Bangalore, India. He earned his PhD from the IIM Ahmedabad, and has taught at IIM Lucknow before joining IIM Bangalore in 2006. His teaching, research and consulting interests include management of rapid growth entrepreneurial firms, mergers and acquisitions strategy, and innovation in emerging economies. He has published several cases and papers in journals including the New England Journal of Entrepreneurship, Journal of Knowledge Management Practice, Asian Case Research Journal, Asian Journal of Management Cases, Vikalpa, and the IIMB Management Review.

Sudhanshu Rai is currently a faculty member at the Department of Informatics, Copenhagen Business School. His research interest can be broadly categorized into five groups; Institutional logics, Innovation in information systems, ICT for Development, Indian reasoning and negotiation. His interest in Institutional logics aims to understand how reasoning traditions that are geographically embedded influence information systems innovation. Sudhanshu received his PhD from the Copenhagen business school in Information systems. He has been a visiting research fellow at the London school of economics, the information systems group.

Prior to his academic career, Sudhanshu has worked in a number of private and government of India positions for instance, in the IT industry in New Delhi, first as a director systems development for a health insurance company. He was a senior economist at the Tata Economic consultancy services and prior to that he was the economic advisor to the department of Tourism, government of Sikkim in India.

Anita Rawtani has been an active part of the innovative, cutting-edge Research and Development arm of Wipro Consultancy Services for the past 6 months, with a specialist focus and attention on several key vertical industries within Europe. Her current responsibilities are broad and extensive but include client evaluation, analysing and monitoring industry trends and providing a macro-economic snapshot or a business strategy for specific companies within her field. Prior to this, Anita worked in the Business Process Management space and developed highly specialised skills in process modelling, mapping and simulation, acquiring and augmenting a rigorous, process-oriented business approach. Anita is an MBA from the University of Technology, Sydney and has a BA in Engineering from Pune University in India. She has a wide array of interests that include adventure sports like rock climbing, mountain trekking, abseiling and rafting and is currently learning both yoga and the piano.

Andrei Rikkiev is the member of Center for Innovation and Technology Research (CITER) at Tampere University of Technology and holds MSc in Engineering. His work experience includes several R&D and sourcing management positions in a multinational telecommunication corporation. In current research he focuses on technology and collaboration management. Andrei Rikkiev is the corresponding author.

Cristina Rocha is a food engineer with extensive experience and quality management skills. She is finishing the degree of Master of Science in Food Engineering. The research carried out was about Management of Research, Development and Innovation. She started to work in 1993 in the town hall of Oporto. In 2000 she joined the National Veterinary Research Laboratory as Quality Manager and was involved in research projects. Currently, she also works as consultant and auditor in several companies

Irina Savitskaya is a PhD student at Lappeenranta University of Technology, Finland. She has a Master Degree in International Technology and Innovation Management from Lappeenranta University of Technology, Finland and St. Petersburg State University, Russia. Her research interests focus on national and regional innovation systems, technology and innovation management, and specifically on open innovation concept implementation practices.

Simone Domenico Scagnelli is assistant professor of Business Administration at the University of Turin, Faculty of Economics, Italy. His main field of research, teaching and writing concerns ICT governance and Corporate Social Responsibility. In addition to this, he practices these disciplines by supporting companies as a public certified accountant and as an independent auditor.

Chaminda Senaratne is a doctoral researcher in Corporate Entrepreneurship at the School of Management , Royal Holloway, University of London. Before starting his

doctoral studies he worked as a Senior Lecturer at the University of Kelaniya, Sri Lanka. His research interests are corporate entrepreneurship, dynamic capabilities, and exploration and exploitation.

Chin-Chung Shih (Brian), Ph. D. Candidate of Graduate School of Business Administration in National Sun Yat-Sen University. The project manager of the SME training and educational center in NSYSU. The fields of research in strategic management, entrepreneurship, narrative inquiry and qualitative research methods. Published in Journal of Entrepreneurship Research (In Chinese).

Eric Shiu is Lecturer in Marketing at the University of Birmingham, England. He teaches Marketing Research as well as Product and Innovation Management. His major research areas are in innovation and creativity. He has published widely in quality journals, such as Technovation, The Service Industries Journal, and Journal of Marketing Management. His most recent output is a textbook on Marketing Research published by McGraw-Hill.

Maria José Silva is assistant professor at the University of Beira Interior (UBI), Covilhã, Portugal. Her academic background includes a Ph.D. in Management, specialization in Innovation, UBI. She is Vice Director of Doctoral Program in Management at UBI and coordinator of the post graduation Technology Entrepreneurship Course. She participates in the editorial board of the Revista de Gestão e Economia and she is referee for Management Research News (Emerald Publishing). She is member of the CAIE project – Innovation and Entrepreneurship Support Centre. She is a research in Studies in Enterprise Sciences: NECE -“Núcleo de Estudos em Ciências Empresariais”. Research interests: Innovation and Technology Entrepreneurship.

André Spithoven is senior researcher at the Belgian Science Policy where data on R&D and innovation are collected and analyzed. He has published several papers on the regional dimension of R&D and innovation, on collaboration and networking, and on public R&D funding. He is preparing a PhD on open innovation.

Kambeiz Talebi has a PhD. and MSC. in Industrial Management from the University of Poona and is currently an Assistant Professor of faculty of the Entrepreneurship school of management at the University of Tehran. He is a member of the strategic plan committee of Iran's petrochemical cal corporation, Strategic Entrepreneurship studies (ministry of lab our and welfare), Knowledge Management Association and the International society of Small Business (ISSB).

Peter Teirlinck has a PhD in applied economics at the Universiteit Antwerpen. He works as advisor at the Belgian Science Policy Office, Unit for Production and Analysis of R&D indicators. He has been involved in OECD and EU projects on the internationalisation of R&D and on impact assessment of public funding for RTDI. His main research interest is on location factors for R&D and knowledge relations in innovation.

Aurora Teixeira is an assistant Professor with Aggregation at Faculdade Economia, Universidade do Porto; researcher at CEF.UP and INESC Porto. Researcher of the University Technology Enterprise Network (UTEN) of the Portugal – Texas Austin

Program. Recent works have been published in international journals such as, Regional Studies, European and Planning Studies, Higher Education, Journal of Evolutionary Economics, Structural Change and Economic Dynamics.

Tony Thistoll's professional background is in the development and marketing of Information and Communication Technology (ICT)-based innovation within New Zealand and internationally. He has worked in a variety of marketing management and business development roles within the Telecommunications industry, and more recently the education sector. Tony is currently a PhD student at Victoria University.

Timo Einari Toivonen has been working as a researcher in Turku School of Economics for over fifteen years with a special emphasis on media business. Toivonen has conducted numerous commissioned studies for individual firms, business organisations, ministries, and European Commission. Toivonen is currently working as a researcher in Business Innovation and Development unit of Turku School of Economics.

Michel Trépanier is full professor at Institut national de la recherche scientifique and the Institut de recherche sur les PME (UQTR). Since 1990, he studies innovation in SME, particularly their relations with other firms and scientific organizations and the impacts these interactions have on their product development process.

Virginia Trigo is assistant professor at ISCTE Lisbon University Institute, Portugal. She holds a PhD in Management with a specialization in Entrepreneurship and a postdoctoral fellowship at the Lester Center for Entrepreneurship and Innovation, University of Berkeley, California. She lived and worked in Asia for 14 years and at ISCTE is the Director for China Programs. She is also part of the editorial board of the journals EuroAsia Journal of Management and Global Economics and Management Review. Her research interests are: Entrepreneurship and Chinese Economic Culture.

Dirk Van Dyck is full professor in physics and honorary Vice-Rector for research of the university of Antwerp. He teaches theoretical physics, image processing and information theory. Dirk Van Dyck is codirector of the EMAT center for electron microscopy at the University of Antwerp with an infrastructure of 7 electron microscopes and 20 scientists and director of the Vision lab (30 scientists). He is known for his work on electron microscopy and microtomography. He is the codeveloper of the first desk-top X-ray microtomograph that is now commercialised by the spin-off company Skyscan. (www.skyscan.be). Dirk Van Dyck published about 300 scientific papers and several books. He has been promotor of 30 PhD Theses and holds 4 patents. In 2002 Dirk Van Dyck received the prestigious Francqui Chair from the university of Leuven for his scientific work in electron microscopy and holography

Dieter Van Nuffel is currently working on a PhD at the University of Antwerp (Belgium). His research topic consist of engineering a methodology to design organization's business processes in order to obtain evolvability. His research interests include business process modelling/engineering, enterprise agility and information systems' architecture.

Paul Verhaert founded the Verhaert Company in 1969 to support other companies in developing new products. Over 400 innovative products have been created ever since for different industrial sectors. To fuel the product development activities with top knowledge and state of the art technologies, the company started activities in the space sector in 1984. Today “Verhaert Space” is a prime contractor to the European Space agency to design and build their most advanced small satellites for earth observation and research. Paul is a Member of the Federal Council for Science Policy of Belgium; Founder of Verhaert New products & services nv and Verhaert Space NV. He also serves as a Director of: AGORIA Belgian technology industry association, and several companies devoted to or highly depending on new products development and as Lecturer at UAMS University Antwerp Management School

Elli Verhulst is a research assistant at the Artesis University College. Her research is at the intersection of two main topics: new product development and sustainable design implementation. The theoretical bodies underlying her research are sustainable product development and change management. Moreover, she coaches Bachelor and Master students in both design and research assignments.

Karen Venturini graduated from Bologna University with a Bachelor’s Degree in Economics in 1993. She is a research fellow in the field of Technology Innovation Management at the Department of Economics and Technology, San Marino University. She is also a doctoral student of Management Engineering.

Pedro Videira is currently a researcher at DINÂMIA/ISCTE where he has been collaborating since 2006 in numerous projects in the area of innovation economics and technology-based entrepreneurship. He has a degree in Sociology at ISCTE (Lisbon), a Master in Sociology of Economic and Social Development at the Sorbonne (Paris) and is currently developing his PhD research on scientific mobility and knowledge circulation, at the ISCTE doctoral programme in Sociology.

Bernhard Vollmar is Assistant Professor at the Endowed Chair for Entrepreneurship, Carl von Ossietzky University Oldenburg (Germany). His research is oriented towards trust theory and practice in business contexts, epistemology in management studies and entrepreneurship education. His studies in Management (MBA and PhD, University of Göttingen), his expertise in business consulting and his activity as an entrepreneur are the stimulus for his scientific orientation.

Tim Vorley is a University Lecturer in Economic Geography at the University of Cambridge. His current research interests focus on entrepreneurship and higher education, and specifically how the entrepreneurial turn has affected the organisational dynamics of universities in Europe.

Catherine Wang is a Senior Lecturer in Strategy at the School of Management, Royal Holloway, University of London, and a Co-Editor of the European Journal of Innovation Management. Her research interests are in the areas of entrepreneurship, innovation and strategic management. Her work has been published in Entrepreneurship Theory and Practice, European Journal of Information Systems, International Journal of Management Reviews, and International Journal of Technology Management, etc. Prior to joining academia, Catherine worked in

industry for over seven years in the UK and China, in the areas of international trade and investment, and small business support and consultancy.

Sujuan Xie, born in 1986, China, is a current Mphil student in Modern Society and Global Transformations at the University of Cambridge. She got a B.A in Law from China's University of Political Science and Law. Her current research is around the development of China's entrepreneurship and its transitional economy.

Kiyohori Yamazaki is a Lecturer at the Chukyo University. Before joining Chukyo University, I graduated from the Tohoku University and received my Ph.D. from the Department of Management at Kobe University. My research focuses on strategy and management of technology.

Resource Network Factors and Small Firm Growth

Boštjan Antončič and Tina Bratkovič
University of Primorska, Koper, Slovenia

Abstract: Through personal networks entrepreneurs have access to many valuable resources, information, advice and moral support. Social networks have the quality to facilitate or constrain the actions of entrepreneurs who are embedded in them, therefore the accurate management of personal networks can transform an entrepreneur's personal network into an effective tool for achieving a firm's good performance. The present empirical research is focused on the entrepreneurs' resource acquisition network, and is based on quantitative methods of data analysis. The study comprehends an exploratory factor analysis of the network elements and a multiple regression analysis linking the derived network factors to firm growth. The principal goals of the study are the identification of network factors, and to provide evidence about the impact of the entrepreneur's network factors on firm growth. The exploratory factor analysis indicated three network factors (Business, friendship, frequency). We found that firm size can be an important moderator in the regression analysis. Findings of the multiple regression analysis indicated that the entrepreneurs of micro firms tend to achieve higher growth when they have lower network factor scores for friendship, perhaps higher for business, and higher, but just slightly over the threshold, for frequency. The study provides significant contributions to entrepreneurship network theory and important implications for theory and practice.

Keywords: Entrepreneurship, personal network, resource acquisition, information acquisition, growth, small firms

Does the Presence of Academic People in Companies' Boards Influence Economic Performances? Evidence From Companies Grown in University Incubators (UIs)

Bruno Armano and Simone Domenico Scagnelli
Business Administration Department, Turin, Italy

Abstract: Universities' role in relation to entrepreneurial development has been investigated by different points of view. In particular many researches analyze the links between university and business with the aim to explain the determinants of success of companies grown in university incubators (UIs). In our opinion, there is a lack of research about the governance of entrepreneurial science-based companies; in particular about the effects of the composition of the related boards of directors and the characteristics of the people involved. Hence, we investigate the role played by academic personnel in the governance of companies grown in university incubators. The arising effect could be positive (i.e. due to advanced technology availability and continuous knowledge flows) or negative (i.e. due to lack of management experience and lack of time because of maintenance of academic commitments, etc.). We attempt to fill this gap studying 49 start-up companies graduated from I3P, the incubator of the Polytechnic of Turin (Italy). From our

findings, it seems that the presence of academic people has a negative influence over financial performance of analyzed companies.

Keywords: Entrepreneurship, university incubator, governance, board, economic performances

The Impact of Social Intelligence and Sense of Humor on Entrepreneurial Intention: Evidence from Turkey

Sinem Aykol and Mujdelen Yener
Marmara University, Istanbul, Turkey

Abstract: The main objective of this study is to investigate the relationship between social intelligence, sense of humor and entrepreneurial intention. In this study it is assumed that social intelligence is an important factor of an individual's entrepreneurial intention and the impact of social intelligence on entrepreneurial intention is stronger when social intelligence is supported by sense of humor. In literature, several factors that influence entrepreneurial intention have been noted. In simple terms, "entrepreneurial intention" is one's willingness in undertaking entrepreneurial activity, or in other words become self employed. The previous studies on entrepreneurial intention mostly covers the personality factors, behavioral approaches, demographics and contextual elements. There are also various studies and research on social intelligence and humor independently. Social intelligence is a widely researched area in terms of personality factors and traits. It is mostly related to successful outcomes of human behavior. Sense of humor and the role of humor in organizations are becoming increasingly popular among the scholars. However, to the knowledge of the authors, these three concepts have not been combined in literature. A survey was used as a research instrument and was applied to 236 newly graduated university students, in Istanbul, Turkey. Results show a significant relationship between social intelligence and entrepreneurial intention. The explanatory power of our model increases when social intelligence is accompanied by sense of humor. Therefore, it can be concluded that entrepreneurial intention of an individual increases when social intelligence is supported by sense of humor. Although entrepreneurial intention is a widely researched area, our knowledge about its determinants is still limited. In addition, in researching entrepreneurial intention determinants, this study aims represent a different perspective by combining two concepts, social intelligence and sense of humor, which are not widely used in the field. This study also provides evidence to entrepreneurial intention and entrepreneurship field from a different cultural and economical setting.

Keywords: Entrepreneurial intention, social intelligence, sense of humor

How to Design for Strategic Innovation? Appropriate Forms of Ambidexterity

Liselore Berghman

VU University Amsterdam, The Netherlands

Abstract: In this paper we study one specific type of non-technological innovation: strategic innovation. Strategic innovation follows a Schumpeterian perspective entailing a deviation from the traditional competitive rules of the game with the aim of offering a new and superior value proposition. As companies creating strategic innovations show high revenue and profit growth a deeper understanding of the underlying organizational capabilities would be highly relevant to both researchers and managers. Therefore, and in contrast to prevailing research on strategic innovation, we do not study the phenomenon on an industry level but study the capabilities that a business unit needs for the systematic creation of strategic innovations. More specifically, we study structural design capabilities and focus on the concept of 'ambidexterity'. The central theme in this nascent research stream is which (if any) organizational design allows firms to be efficient and adaptive/innovative at the same time. We use a two-phase qualitative design to study business units' systematic creation processes of strategic innovations in five Dutch industrial sectors. Our findings add to the emerging academic discussion on ambidexterity by showing that the appropriate ambidexterity approach may not only differ by innovation type but also by the specific phase of the innovation project. Our data show that companies have to cope with different ambidexterity frictions in the initiation and commercialization phases of strategic innovation projects. More specifically, the initiation phase rests on 'contextual ambidexterity': the initiation of strategic innovation initiatives is interwoven with the normal core business operations. To this end, companies establish mechanisms that stimulate the recognition and assimilation of customer/market knowledge. In contrast, 'structural ambidexterity' is applied during the commercialization phase, meaning that strategic innovations are gradually separated from the core business. These findings are relevant to managerial practice as they suggest a limited value of isolated business development units for strategic innovation initiation.

Keywords: Strategic innovation, structural design, ambidexterity

Representations of Entrepreneurship on the Small Screen: How Programmes Such as *The Apprentice* work to Normalise and Encourage Entrepreneurial Activity in Society

Raymond Boyle and Lisa Kelly

University of Glasgow, Scotland, UK

Abstract: Over the last decade or so, the way in which business and entrepreneurship has been represented on British television has undergone a significant shift. While in popular drama and comedy programming, businessmen and entrepreneurs have tended to be presented as either suspect and untrustworthy or as figures of fun (Williams, 2004) the development of reality television has not only

widened the range of representations on offer but has also made the world of business and the notion of entrepreneurship more accessible to 'ordinary' viewers. In addition to this shift within the television industry, the emergence of the dotcom boom and the rise of creative and social entrepreneurship have similarly impacted on British attitudes towards money and wealth. With the increasing notion that anyone can start their own business and that profits and ethics need not be mutually exclusive, the United Kingdom had been experiencing an apparent upsurge in entrepreneurial activity which has been checked by the recent credit crunch and accompanying financial crisis. This paper will consider the impact that programmes such as *The Apprentice* and *Dragons' Den* have on helping to construct patterns of knowledge and levels of understanding among audiences about entrepreneurship and the role of the entrepreneur in society. Television is important because it is able to create a climate of opinion in which certain aspects of society become increasingly normalised and accepted as part of mainstream culture. This paper therefore seeks to highlight the complex relationship between television programming, social change and the rise of the British entrepreneur.

Keywords: Entrepreneurship; television; The Apprentice; Dragons Den; representation

Third-age Entrepreneurs Propensity to Engage in new Venture Creation and Development

Christopher Brown and Diane Proudlove
University of Hertfordshire, Hatfield, UK

Abstract: Increasingly the issues of entrepreneurship and new venture creation have become two of the most important drivers for future success of the UK economy, especially in the current climate of economic turbulence and uncertainty. The creation of an enterprise culture, one that depends on entrepreneurs, is one of the strategic goals of the UK Government's action plan for micro- and small-enterprises. The development of these enterprise cultures will naturally create a marketplace 'churn', one that stimulates both continuous and radical innovations, and as a consequence of this contribute to the overall UK's overall productivity and sustained economic performance. Yet research on entrepreneurs, and particularly third-age entrepreneurs, their abilities and motivation to start-up new enterprises within the environmental good and services sector is limited. Our research study utilizes qualitative data collection and analysis. We have engaged with 12 small enterprise entrepreneurs who are currently, or have already started-up a new enterprise in the EGS sector. Our research studies on how opportunities and threats influence third-age entrepreneurs' values, attitudes and practices suggested that both, sector-wide values and practices, as well as the strength of sector-based systems of innovations, significantly influence the effective prediction of venture creation, development and creative destruction practices. It is these third-age entrepreneurs mindset Business Models (BMs), how they perceive they can generate business value and align their business practices around EGS sector opportunities and threats, that both determines their propensity to create new ventures, and their motivation and success in driving new venture creation and development opportunities. A framework is proposed based on our limited entrepreneurial mindset analysis that links their values, vision and actions with a

more substantial evaluation of their overall mindset business model, and with this completed they then logically move on to take a more process-orientated perspective of their business. Further research is suggested on exploring these approaches to evaluating the impact of opportunities and threats within the EGS sector, and how this may be driven by both their personality traits, schooling and general experiences. The hope is to provide more help for this often neglected entrepreneurial group, in the way of developing more specific business tools – customized to their particular needs, approaches, and competencies.

Keywords: Third-age entrepreneurs, innovation, business models

Business Models: What They are and how to Change Them

Sérgio Cavalcante, Peter Kesting and John Uihøi

University of Aarhus, Aarhus School of Business (ASB), Denmark

Abstract: Recently, the topic business model has gained increasingly attention in the management literature. Although there is an enormous diversity of ideas regarding the topic, there is a general consensus that in times of continuous changes in the environment and high global competition, it is important for companies to search for and implement new ways of doing business. In that sense, there is a general consensus towards a dynamic perspective of business models, which means that organizations should be flexible enough to continuously change their business model in order to remain or gain competitive advantage in the market. This is a conceptual paper that aims to explore how it is possible to change a business model. One important question is: considering that a business model is a means used to stabilize and routinize business procedures, how can it contain at the same time sufficient flexibility to change? While there is an extensive literature on business models, the dynamics of a business model has not been object of deep investigation by current research. Starting with a definition of the term business model, this paper states that the core elements of a business model constitutes its borders, which are important in order to identify the class of change to be introduced. One important conclusion from this investigation is that a business model is flexible only to a certain extent: when a change initiative significantly impacts the business model, the business model is deconstructed and a new one takes its place. In that sense, a business model is, at the same time, flexible and static. The main contributions of this paper are: the definition of business model, the identification of different classes of business model change, and the introduction of business model change as a systematic approach to conceptualize the “status quo” of a company.

Keywords: Business models, change

Creativity and Discovery: Moving Beyond Market Equilibrium

Greg Clydesdale

Massey University, Auckland, New Zealand

Abstract: This paper argues that an emphasis on supply, demand and equilibrium has constrained entrepreneurial education. In reality, entrepreneurs may be involved

in substantial non-market activity to bring an opportunity into existence. In contrast to definition of opportunity and discovery which emphasizes supply and demand, a simple definition of opportunity creation and discovery is proposed that accommodates important non-market activity. Opportunity discovery is defined as finding a pre-existing opportunity to create a sustainable business. By contrast, with opportunity creation, the opportunity does not exist and environmental modification is necessarily to bring the opportunity into existence, after which a sustainable business can be built. An example of opportunity creation through non-market activity is provided, in particular management of government relations. Consistent with these definitions, two important concepts are developed. First is the Creativity/Discovery spectrum which recognises that each opportunity has its own particular combination of creation and discovery activities depending on the work an entrepreneur must do to bring the opportunity into an existence. The second is the concept of thresholds, the point at which an opportunity comes in to existence. An entrepreneur may have to develop necessary environmental forces past a threshold after which the environment will support the business. If the threshold is already passed, the opportunity is ready for discovery. Thresholds can partly explain phenomena such as Kirzner's errors of optimism and pessimism, and contributes to our understanding of timing, a much over-looked factor of entrepreneurship. Moving further away from notions of supply and demand, the Product Life Cycle is developed as an alternative to the equilibrium model in explaining the appearance of opportunities. It draws on previous research to illustrate the role of niche creation and closure for business opportunity.

Keywords: Opportunity, creativity/discovery spectrum, threshold, product life cycle, equilibrium

From "Knowledge Transfer Model" to "Entrepreneurial University" - the Case Study of the University of Hertfordshire

Nigel Culkin

University of Hertfordshire, Hatfield, UK

Abstract: As recent work by authors such Etzkowitz and Zhou (2007) suggests, 'The requisite for creating an entrepreneurial university is a "critical mass" of research with commercial potential.' In this model it is then the task of a team of knowledge transfer specialists to capitalize the university's research and disseminate findings into the business world. This approach is supported by government policy in the UK, which continues to concentrate public funding for universities on research, primarily through the Research Assessment Exercise (RAE). However, as will be demonstrated in this paper, this model has brought benefits only to a limited number of institutions in the higher education community, and is also an uneven fit for the rapidly changing demands of today's business environment. The aim of the paper is to present an alternative model and framework for developing an entrepreneurial university, that uses the University of Hertfordshire as a case study. The author will firstly give an overview of wider approaches to embed entrepreneurship in universities, highlighting common problems with how entrepreneurship is understood and interpreted in academic context. Secondly, it will be shown how a more inclusive

understanding of the entrepreneurship concept leads to a new approach that seeks to develop the entrepreneurial university through intra-organizational problem solving frameworks. Here the author will discuss how the gap between third stream policy and practice can be bridged, by facilitating a shift of mind in the way the institution engages with businesses. A six specific dimensions approach is suggested to illustrate all initiatives undertaken by the University and how these activities are impacting on students, academia and businesses. In addition, the meaning and importance of workplace innovation for business competitiveness is discussed, and it will be shown how companies can benefit from a multi-levelled partnership with a university. Thirdly the paper will discuss how this strategic view can be embedded in the curriculum, to encourage both students and staff to make an entrepreneurial difference. Finally, the University of Hertfordshire's Graduate Consulting Unit is presented as a best practice case study for bridging the world of academia and the world of work, that combines academic rigour with business pragmatism.

Keywords: Entrepreneurial university, University of Hertfordshire, entrepreneurship initiatives, entrepreneurship education

Institutional Entrepreneurship in China's Transition: Exploring Linkages Among Praxis and Institutional Change

Scott Droege¹, Matthew Marvel¹ and Leo Simpson²

¹Western Kentucky University, Bowling Green, USA

²Seattle University, USA

Abstract: A fundamental paradox of institutional entrepreneurship is that individuals embedded within and conditioned by institutions are also the very ones changing these institutions. Using qualitative and secondary data from China's institutional transition, we explore the mechanisms that facilitate institutional change in an emerging market context. Our findings expand upon existing institutional theory and provide two mechanisms necessary for institutional change to occur: diminished utility of administrative controls and negotiated boundaries of institutional space. These constructs provide critical linkages between praxis and institutional change, thus enhancing our understanding of the drivers of entrepreneur-initiated institutional transition.

Keywords: Institutional entrepreneurship, praxis, institutional change, emerging market

The Determinants of Entrepreneurship: the Case of Business and Innovation Centre in Portugal

Rosa Duarte¹ and Isabel Mota²

¹NET – Business Innovation Centre do Porto, Portugal

²Faculdade de Economia, Universidade do Porto, Portugal

Abstract: This research aims at studying the determinants of entrepreneurship, focusing on the special case of firms created within *Business and Innovation Centre* (BIC) in Portugal. We start by looking to the concept of entrepreneurship and its

main determinants and then proceed with a brief discussion over the relevance of entrepreneurship policies. Next, we proceed with a survey of the firms created within Portuguese BICs in order to evaluate the role of those entities in supporting start-up firms. Our results show that the respondent firms were quite different from typical Portuguese firms, as in our case, most firms have a medium or high level of technology and the entrepreneur has typically a higher education level. However, there is some parallel with most Portuguese firms, as in both cases there is evidence of an endogenous entrepreneurship, either spatial or functional. From our results, we were able to conclude that entrepreneurs welcome BICs' support when starting the firm and also during its growth. Additionally, new entrepreneurs appreciate BICs' support in areas such as the development of the business plan, personal assistance support and other infrastructures. Finally, most entrepreneurs classified BICs' services as being above their expectations.

Keywords: Entrepreneurship; entrepreneurship policies; business innovation centre; technology, spin-outs

The “Apprentice Entrepreneur” Game Series *DJ Life On Line* - a web-Based Entrepreneurial Learning Game

Alan Fitzgerald and David Stokes

Kingston University, Kingston upon Thames, UK

Abstract: After several years of success, by the WestFocus Entrepreneurship Centre, in encouraging young Entrepreneurs to innovate; and teaching basic business skills to both students and interested staff, we decided to develop a series of computer-based business ‘games’ to complement those teaching methods employed. The result is a series of Learning Games called “*The Apprentice Entrepreneur*”, which so far has developed two PC-based games and a ‘board’ game, *MarketPlace*. Conventional Business School learning games have been aimed at Business or MBA students, and have the simulation element appropriate to the levels of those students undertaking the course. We wanted to be different; firstly our target users were non-business students, and secondly we wanted the whole experience to have a more ‘fun’ approach. This was based on the premise that many of these basic ‘entrepreneurial skills can be best absorbed if users aren’t really conscious that they’re learning! Our original CD-ROM game, *E-trader*, established the viability of our approach, and encouraged us to be much more creative in designing the second game, *DJ Life*. This was again based on CD-ROM technology and *DJ Life* proved highly attractive to students and even some school children – as nearly every one of them claims to be a ‘budding’ DJ ! We were successful in getting Universities and Colleges to buy the games, and to begin incorporating them into some of their Entrepreneurship curriculum. However, the limitations of the CD-ROM technology adopted became increasingly apparent. Once the game is burnt to CD-ROM, any updates are difficult and cumbersome. Also, any improvements or desired new features became impossible to implement without burning fresh CD-ROMS. Discussions with potential purchasers also revealed that what was wanted was an *on line web-based* version of the game. Unfortunately, to re-develop the game using ‘Flash’ technology, virtually meant developing it again from the beginning - with all the attendant cost implications that brought. However, we were able to finance this and work began in the autumn of 2008. We were able to take advantage and

incorporate several new features not open to the CD-ROM based version e.g. access from anywhere, 'trial' version option, and greater control over user access. DJ Life *On Line* was launched at the beginning of 2009 and we have high hopes of even greater user acceptance than ever. Early experiences of the new on line version are discussed in the paper. We are convinced that the on-line version will allow sales from outside the UK to flourish.

Keywords: Entrepreneurship, undergraduate training, business start-ups

From Occasional Improvements Towards a Flow of Innovations

Helena Forsman

Lappeenranta University of Technology, Finland

Abstract: This study focuses on innovation development in small enterprises. It examines what kind of innovation development has been carried out in small enterprises and what kind of innovator profiles can be identified. In addition, it explores what the capabilities or the mixes of them are that predict successful innovation development in small enterprises. The empirical evidence is based on quantitative data gathered through an eMail questionnaire. It yielded 733 qualified responses from the representatives of small enterprises with less than 50 employees. The findings display four innovator profiles based on the scope and nature of innovation development in small enterprises: a Low Performer, an Incremental Performer, a Radical Performer and a High Performer. Innovation capabilities were examined based on seven factors. The quality of innovation capabilities differs significantly between the different innovator profiles. The findings support the view that the composition of capability factors explains the richness of innovation development. When innovation development expands and diversifies in enterprises, the requirements for innovation capabilities become higher regarding all the capability factors. A natural concept for the facilitation of innovation capability building is to integrate it with innovation development. As its best, this leads to a virtuous process in which challenging innovation goals demand a multi-faceted creation of capabilities for innovation development. In turn, improved capabilities enable adopting even more challenging development goals which stimulate a new level of capability creation. The study suggests a number of implications with regard to further research. This study is based on a cross-sectional data. A longitudinal study may be useful in order to gain a deep understanding of the progress of enhancing innovation activity in small enterprises. In addition, it may help to identify the factors that shape and predict the successful progress from occasional improvements to extensive innovation development in enterprises.

Keywords: Innovation capabilities, innovation development, small enterprises

Enterprise Culture, Universities, Business Schools, and Social Entrepreneurship

Heather Fulford

Aberdeen Business school,UK

Abstract: The paper outlines the design and development of a social entrepreneurship programme in a UK university for delivery to students both within and beyond the business school environment. The rationale for developing the programme is given, with a particular focus on the current UK government enterprise culture and social enterprise agenda. Some of the challenges associated with designing and delivering such a programme are highlighted.

Keywords: Social enterprise; social entrepreneurship; enterprise education; management education; business school

Economic Impacts of Public Subsidies on Young Innovating SME's Performances: the Case of The French National Competition for Creation of new Technology-Based Firms

Emilie-Pauline Gallié, Renelle Guichard and Sonia Ben Slimane
Université Paris-Dauphine, Paris, France

Abstract: Faced with the technological changes and with the rise of international competition, the competitiveness of firms is based more and more on innovation. In this context, the new innovating firms are regarded as source of competitive dynamism. However, these firms encounter difficulties to finance their activities; it is thus widely acknowledged that there is a need for public support towards these innovating SMEs. In this context, the French government launched in 1999 a National Competition for creation of New Technology-based Firms, which rewards some innovating projects in giving them a financial and managerial support to start and develop their activity. Ten years after the creation of the competition, we propose to evaluate its economic effects: How did the Competition winners grow and survive? We thus analyse the characteristics of the firms that have won the competition and focus our study on the factors of survival of these firms. To undertake our analysis, we use a database from the French ministry of research, composed of the prize-winning firms. This database is merged with the DIANE database, which gives financial information on firms. Our analysis is then based on three categories of indicators to characterise the survival rate and the factors of survival of new firms. We distinguish indicators related to the firms itself, the entrepreneur, and the environment of the firm. Our results show that the firms that won the contest have a higher survival rate than other firms. We also show that the indicators to explain the survival rate are similar to the one found in the literature.

Keywords: Innovation, new technology-based firms, public policy, competitiveness, France, survival rate

Gemination, Hybridization and Entrepreneurial Nature: Exploring new Models and Strategies of Business Incubation

Paolo Giacon
University of Padua, Italy

Abstract: New business incubators are populating the high-tech industrial landscape. The importance of business incubators as catalysts of the entrepreneurial process is widely recognized, in fact they accelerate the development of new ventures, helping potential entrepreneurs to exploit scientific and technological opportunities. This paper presents empirical evidence of incubation paradigms out of classical taxonomies, focusing on independent private incubators. Its aim is therefore, to highlight emergent strategies and models of such incubators, and to offer new suggestions for future research. The empirical base of the paper is composed by two paradigmatic cases of business incubation. The methodological approach of the paper is coherent with the suggestions given by Eisenhardt, Yin and Flyvbjerg. The exploratory nature of this study suggests the use of qualitative tools: the inductive research helps the possible emersion of new situations and behaviours of the economic and social actors. The first case study explores a strategy defined as “gemination”, while the second one presents a “hybrid” model of business incubation. From both cases emerge the entrepreneurial nature of the independent private incubators and the importance of the exploration of the strategic core inside every incubation process. From an academic point of view the paper offers new suggestions for future research on the phenomenon of private incubation. From a practical perspective, this paper is relevant 1) for scientists and inventors – potential entrepreneurs – who consider the opportunity of founding a new venture through an incubation process: they have to find the most suitable incubation environment, according to the nature of their entrepreneurial dream and the strategies adopted by the incubator, 2) for managers and entrepreneurs who run public or private incubators, in order to compare their strategies and eventually to improve their offer 3) for policy makers who can decide to finance public or private business incubators, creating in this case a private public partnership.

Keywords: Private independent incubator, business incubation, entrepreneurial nature, gemination, hybridization, networked incubator

Using a Board Game to Introduce the use of Ideation Techniques Based on TRIZ

Guido Giebens
Artesis College and UAMS Management School, Antwerp, Belgium

Abstract: Based on the author’s personal experience in teaching, consulting and family education, a new board game (ANTRI3[®]) was created last year to facilitate the learning process and practical use of the “Theory of Inventive Problem Solving” (TRIZ). Deliberately kept away from the computer screen, this game follows the new wave of revival of social gaming. Each set is made for maximum four teams of two to

three players, and gives them access to the essence of an efficient creative problem solving method. Without requiring prior knowledge, it makes TRIZ easier to understand and more accessible to users who are eager to utilise the benefits of research on millions of patents over a long time. A major objective is to enhance company-wide (or even along an entire value chain) access and participation to the innovation process, making use of all available brainpower of the stakeholders in and around a company, thereby breaking out of the engineers' or marketers' office. With a proper mindset of a maximal manpower, the throughput time of innovation processes in industry can be reduced and produce a better output, resulting in better products, less waste and leaner processes. The main functionality of the game is to playfully instruct people with different backgrounds and experience how they can tackle innovation challenges and problem situations by joining thinking forces, stimulating combined innovative thinking, using available force fields and resources. Due to its modularity the game can be used in different ways, and adjusted to the background and experience of a variety of players, ranging from company employees, over students, to even scholar pupils. It introduces them to a systematic thinking process in small groups, by use of a selection from 15 model problems picked from daily life. People who have used the game feel better prepared to look at situations from a different, but context-relevant viewpoint, with the help of their team's own scientific and social knowledge.

Keywords: TRIZ, innovation, learning experience, creativity, idea generation

Performance Improvement in a Community Care Setting in Canada

Alan Gillies¹ and Diane Harris²

¹School of Public Health and Clinical Sciences, UCLAN, UK

²Diane Harris and Associates, Inc, Ontario Canada

Abstract: This paper describes the application of a theoretical approach to a practical problem and describes the tool that emerged from the study. The setting for the study is a Local Health Integration Network (LHIN) of community based agencies in Ontario, Canada. The theoretical approach combines a performance improvement (PI) model with work from maturity models of organizational development that has been deployed in other similar contexts (Gillies, 1998) and combined with a model of competency development (Dreyfus and Dreyfus, 1980; Benner, 1984; Gillies and Howard, 2002, 2003, 2007) to determine the learning needs of PI leaders. The output from this project is an on line tool to help agencies determine their current capacity in PI, the next steps to improve their capability, a facility to identify the learning needs of their leaders in the light of their organisational capability and to link them to appropriate learning resources. The article describes the theory behind the model, and the development and implementation of the model and tool. The article describes how the authors evaluated the tool using user feedback from pilot tests with 5 sites and incorporated lessons learnt.

Keywords: Performance improvement, maturity models, learning needs, leadership

Intellectual Property as a Tool of Market Strategy of Russian Enterprises

Oleg Golichenko and Yulia Balycheva

Central Economics and Mathematics Institute of Russian Academy of Sciences, Moscow Physics and Technique Institute, Moscow, Russia

Abstract: The purpose of the investigation consists in the analysis of an enterprise strategy choice for creating and using intellectual property (IP). As a result of the investigation the following conclusions are obtained. It was demonstrated that for Russian innovative enterprises there is increasing dependence of density, intensity and scale of IP creation on the class size of enterprises. The more the size of the class is, the greater the innovation activity determines the activity of IP creation. There are strong ties between the availability of the higher educated personnel and innovation activity of enterprises. At the same time efficiency of the IP creation process falls with the increase of enterprise size. The share of higher educated employees decreases at the transition from the smaller class to the greater one. The character and level of interactions between classes during the process of IP creation is different. The analysis reveals that these links correspond to the buyer-seller relations for small enterprises and rather big enterprises. The role of seller belongs to the small enterprises and the role of buyer pertain to the large enterprises. The middle size enterprises are limited by internal interactions and do not incline to search for partners outside of the group. In the paper it is ascertained that strategy of the IP creation depends essentially on whether the enterprise is the innovative active one. So the small innovative active enterprises prefer creating innovations on the basis of patents of industrial designs and utility models whereas the small innovative passive enterprises on the basis of inventions. The changeability of their strategic directives in comparison with large and average organizations is significant. The changeability of strategic directives is much less for the enterprises submitting applications for industrial property than for the enterprises submitting applications for software products. The productivity of the process of invention obtained has essential distinction for the innovative active and passive enterprises.

Keywords: Intellectual property, innovation activity, size class

Firm Positioning in an Industry: Characteristics From the ICT Sector

Jukka Hallikas and Lauri Lättilä

Lappeenranta University of Technology, Skinnarilankatu, Finland

Abstract: This paper focuses on the exploration of actor strategy characteristics and performance in the ICT (information and communications technology) industry. The strategic industry analysis provides a comprehensive set of tools for analyzing the performance of various actors within the ICT sector. The explorative analysis addresses the dynamics of industry development for example in terms of sales, R&D input, assets and growth variables. We use a sample data-set of 99 firms from 8

different industries within the ICT to investigate firms' strategic positioning and networking. Both firm performance data and various network and industry related data has been used in the study. The indicators of the firm positioning in the collaborative (alliance) and competitive networks of relationships were explored. The next step was to group the firms' industry positioning strategies based on the selected performance attributes. Finally, the differences of performance and industry attributes between clusters and industries were compared statistically. Our study shows that each positioning profile had clearly different strategies and differed between key variables but it was possible to earn equal profits with every strategy.

Keywords: Industry analysis, Network positioning

Goals Attainment and Franchisees' Intention to Remain in the Franchise Systems: a Study in Malaysia

Mohd Hizam Hanafiah and Jun Li
University of Essex, Southend-on-Sea, UK

Abstract: Conceptually and empirically, the motivation to continue with the business challenges will be dependent strongly whether a set of goals has been achieved during the entrepreneurial process. Using the essence of process theories of motivation and embedded with evidences in entrepreneurship studies, we propose that goals attainment would affect franchisees' intention to remain in the franchise system. Specifically, we intend that economic gain, perceived autonomy, intrinsic rewards and family concern are goals associated with franchisee venture in business. A survey of 204 franchisees in Malaysia had been done in 2008 to investigate the suggested proposition. The results suggest that franchisees' personal goals have affiliation with franchisees' intention to remain in the franchise systems except the proposition is partially supported. We find that goals of economic gain and intrinsic rewards are not the determinants of franchisees' intention. Moreover, perceived autonomy and family concern are empirically affected franchisees' intention to remain in the franchise system. Some discussions and implications are proposed.

Keywords: Goals attainment, franchising, intention to remain, franchisee, Malaysia

Economic Returns to Innovation: Between Efficiency and Effectiveness

Naciba Haned
Lyon University, France

Abstract: A large subset of studies estimated the economic value of the patent rights, as ex post R&D outcomes and quasi indicators of the innovation competence and their economic performances. Hence, recent approaches of innovation, particularly evolutionary theoreticians and patricians, described innovations as not linear but sequential and described through evolutionary learning how complex processes are filled with feedback circuits (Nelson and Winter 1982). In fact, innovation theory is dynamic, for instance, chain-linked models (Rosenberg, 1986)

and evolutionary approaches highlight the learning element within innovation process. Nevertheless, a few research inquiring intellectual property practices as a priori incentive of innovation competence, leading to corporate performance have been carried out. The basic aim of our study is to shed light on the existence of a positive relationship between the investment in intellectual property rights assets and the economic growth at the industrial firm level. The mechanisms underlying would be the following: the more a firm intends to protect its intellectual capital by patents, trademarks, and industrial designs, the more it protects its profits flowing from its innovation against its competitors, and the more it can fund its own future growth. Intellectual property practices are seen as a priori incentive of innovation competence, meaning R&D investments. We also intend to test the statistical significance between corporate performance of eventual patents grants to the firm (and not only the total amount of patent grants as a lot of previous studies did) and its growth. Each stage of this process is affected by various exogenous variables as firm size; the state of economy, and corporate performance. Hence, organizational capability is hard to outsource from the market, which is the reason why dynamic competences and intellectual property practices are measured by French survey proxies, made in 1997 up to the year 2000.

Keywords: Innovation, intellectual property rights, corporate performance, R&D

The Importance of Social Innovation in the Dutch Manufacturing Industry: Innovation as a Joint Effort Between Research, Education And Business.

Saskia Harkema

The Hague University of Applied Sciences, The Netherlands

Abstract: Innovation and entrepreneurship are so important in the realm of national economies because they hold the key to the continuity and growth of companies (e.g. Hage, 1999; Cooper, 1987; Van de Ven, 2007) and economic growth within a country. It is therefore obvious that national governments are spending a lot of money to enable and improve innovation management and entrepreneurial behaviour within organizations. This is also the case in The Netherlands who have voiced the ambition to become one of Europe's frontrunners in innovation and entrepreneurship by 2010. Given the importance of both phenomena, a lot of effort is geared towards implementing entrepreneurship and innovation as topics within curricula at universities. The objective is to stimulate innovative and entrepreneurial attitude and behaviour, and motivate students to start their own businesses and develop knowledge and competencies about how to do so. In The Netherlands there are several initiatives that purposefully try to embed entrepreneurship and innovation as a subject within a diversity of professions varying from industrial management to behavioural sciences and business students. Despite these efforts, effects so far are meagre and improvements need to be made. In addition, The Netherlands is still lagging behind when it comes to their position in comparison to European counterparts in meeting the so-called Lisbon objectives. The Ministries of Economic Affairs and Education in The Netherlands have joined forces on this issue and given top priority to the development of so-called innovation programs centred on partnership and co-operation between educational institutes and the practical world

of entrepreneurs. These partnerships should involve universities (education), companies (preferably SME's) and industrial associations (business) and representatives from governmental organizations (community) and should be geared towards: the development of sustainable networks, a contribution to regional economic growth within sectors, the development of learning communities in which best practices are shared, knowledge circulates and knowledge is created through applied research and last but not least sustainable relations are developed between universities and the business community. Universities of Applied Sciences (UAS) have a special role in responding to and addressing these changes. In comparison to traditional universities the education offered at UAS is more multidisciplinary and oriented to the solution of practical problems. The development of problem-solving capabilities has subsequently become a central dimension of professional education according to Weert & Soo (2009). Against this background professional education at the highest level, further training of professionals in the workforce and greater enterprise-academic collaboration are seen as prerequisites to meet the demands of the future. The function of research and development must be aligned with these demands, reason why in the knowledge landscape UAS have to develop into teaching and research institutes.

Within the Centre for Innovation and Entrepreneurship (CI&E) at The Hague University of Applied Sciences in The Netherlands we have taken the initiative to develop an innovation program for the manufacturing industry to help them make the leap from idea to implementation, while simultaneously professionalizing students and teachers. This industry holds a very important position within the Dutch economy but simultaneously is under heavy pressure as a consequence of fierce international competition and outsourcing of production to cheap labour markets. These threats are countered by opportunities such as the application of new materials and processes, the introduction of new products and services and strategic re-positioning in the supply chain. Given the economic importance of the sector the Ministry of Economic Affairs has allocated funds to the innovation program developed by our CI&E. In the first year of the program which started in September 2007, 22 companies have participated. The leading questions in our research are: how do SME's in this sector innovate and is the model we have developed which simultaneously tries to educate students, whilst stimulating innovation at company level and in second instance contributing to regional development, a viable model? In this paper the preliminary findings of our research so far are presented.

Keywords: entrepreneurship, innovation, learning

Knowledge to Innovate: Developing a Tool to Assess and Assist the Development of the Capacity to Innovate in Small and Medium Sized Enterprises

John Howard and Alan Gillies

University of Central Lancashire, Preston, UK

Abstract: Many small-to-medium sized enterprises (SMEs) have good ideas from which they could profit: others face a crisis because they have a narrow customer base, and their principal customer has either evolved or gone out of business. In

both cases, the SMEs need the capability and capacity to innovate both internally in terms of their business processes and externally in terms of developing new products, services and customers. This paper describes work carried out as a part of the Northwest Regional Development Agency, Knowledge to Innovate programme in the North West of England. The authors have developed the Excellence in Innovation Framework to enable SMEs to assess their current capability and prioritise investments in key areas. The framework is based upon principles first expressed in the Capability Maturity Model (Humphreys, 1989) and developed for other domains by the authors (eg Gillies and Howard, 2003). The Excellence in Innovation Framework assesses capacity for innovation across seven dimensions: Collaboration, Environment, Finance, Knowledge, Senior Management, Risk, and Staff assessed against five maturity levels: 1.Commitment, 2.Putting a process in place, 3.Monitoring activity, 4.SMART goals and improving performance, and 5.Continuously improving performance. The Framework has been encapsulated within an on-line tool which is available to SMEs via the Internet. The tool is delivered using industry standard technology based on MySQL and PHP and provides explanation, an on-line audit and a comprehensive reporting facility. The paper describes the theoretical basis for the Framework, its structure and content, its implementation as a tool, and describes a case study of its use with SMEs. The paper concludes with lessons learnt and possible future developments including links to staff development via competency modelling aligned with organisational maturity.

Keywords: Innovation, Small Medium-sized Enterprise (SME), capability, maturity MODEL, Northwest England

Strategic Risk Management in New Product Development

Amy Hsiao and Mark Ploughman

Memorial University of Newfoundland, St. John's, Canada

Abstract: Product development for technology-based, small-and-medium enterprises (SMEs) reflects their most significant efforts in the innovation process in the industry in which their product competes. Competitive advantage is often determined by how well these entrepreneurial ventures “innovate” and manage the associated risks with innovation. Research pertaining to risk in new product development appears to be divided between project “selection” and project “execution”. Project selection is often analogized to financial models used for capital investment decisions while project execution is founded in project management principles. The management of risk in project management has, for a long time, been given a great deal of consideration in research. Interestingly, the dichotomy of project selection versus execution has the potential to induce myopia in decision making. If a project has been approved through a rigorous selection process, the decision to continue or terminate the project at various stages is not normally revisited as the organization slips into project management mode. There can be a general assumption that because the project was selected, due consideration of risk had already been made and the focus should now be on the “management” of the project. This paper explores strategic risk management in new product development for an SME in a technology-intensive industry. Specifically, the paper analyzes the current risk management process for a small, Canadian-based design and manufacturing company that uses an open systems model to discuss how a formal

approach to risk management can be implemented. From the initial evaluation of the risk appetite of the company to applying a risk reference framework, it is shown that a more formal strategic risk management approach can be integrated into the current product development infrastructure of the company. The Product Development and Priorities Committee (PDPC) at the company has existing process for both selecting projects and monitoring their progress. A discussion of the gradual adjustments to these processes to incorporate a real options approach is also presented. A real options approach includes a comprehensive set of inputs from related stakeholders that the PDPC would use to categorize each innovation project and to better understand related organizational constraints. While an integrated product development approach incurs higher risks due to risk interdependencies, the advantage is that more of the organization is involved in the process. Thus, a new model of strategic risk management in new product development for an SME, as concluded from this case study, is presented in this work.

Keywords: Innovation, risk analysis, strategy, integrated product development

Technology and Knowledge Capability in the Global Automotive Production Network: the Case Study From Indonesia

Dessy Irawati

Newcastle University Business School, UK

Abstract: Clusters have been said to have the discreet charm of obscure of desire (Malmberg *et al.* 1996, Steiner 1998, Malmberg and Maskell 2004). This charm lies in the statement that regional specialisation on the interlinked activities of complementary firms in production and service sectors, and their cooperation with public, semi-public, and private research and development institutions creates synergies, increases productivity, and leads to economic advantages. Therefore, regions should specialise and policy should create, develop, and support such clusters (Benneworth and Charles 2001, Caniëls and Romijn 2005, Feldman 2005, Asheim and Coenen 2006). Nevertheless, little is known about the critical success factors that determine economic development of cities and regions and empirical studies that draw lessons for policy are scarce (Tichy 1998, Nijkamp 1999, Ernst 2000, Romjin 2002, Metcalfe and Ramlogan 2006), particularly in cluster studies for developing countries in the Southeast Asian region, specifically for Indonesia (Kuncoro 2002, Gammeltoft. and Aminullah 2004). According to OECD studies (1999), the clustering of firms providing complementary webs of activity in the same sector can improve a region's competitiveness and boost jobs, Policies aimed at sustaining such clusters, thus promoting local-global co-operation and safeguarding the environment are necessary. The aim of this paper is to investigate what is happening in Indonesian automotive cluster (i.e. the process) and in what way the global-local production accelerates Indonesian automotive cluster. Consequently, this research has been undertaken based on the above case study. Fieldwork involving semi-structured interview with relevant actors has underpinned the data collection and analysis.

Keywords: Automotive cluster, technology and knowledge capability, organizational learning, network

Online Platforms for Entrepreneurship Education: an Instructional Design Approach

Alexandros Kakouris

National and Kapodistrian University of Athens, Greece

Abstract: The rise of systematic provision of entrepreneurial courses in European higher education enforces the need of development of specialized online platforms in order to efficiently support entrepreneurship education. The inherently experiential nature of entrepreneurial learning, demands action learning and therefore support of working groups beyond the traditional teaching in class. Online platforms can serve either blended learning methods of courses or as learning environments in trainers' training or communities of practice. In accordance to the theory of Kolb on experiential learning, the current paper deals with the design of online platforms that accommodate the needs of entrepreneurship education. In the first part, the four learning environments (affective, symbolic, perceptual and behavioural) that correspond to the Kolb's learning styles are introduced. The experiential learning mode of *reflection* is highlighted as a key-mode for influential teaching through the online services under consideration. Apparently, we argue that the structure and the content of an online platform should opt reflection for participants especially in entrepreneurial trainers' training. Such platforms can be presumed as potent to transform in a common basis the diverse beliefs and assumptions of heterogeneous groups of trainees that enter training phases in entrepreneurship. In the second part of the paper we focus in online environments that host trainers' training. An instructional design approach is adopted in order to model functional educational platforms. An ADDIE-type model (Analyze, Design, Develop, Implement and Evaluate) is followed as a prototype in scheduling online entrepreneurial training. We discuss the crucial role of online guidance in the presentation, access and interaction with the available material in a way to promote reflection and active participation of the trainees. A basic obstacle of optimal instructional design in entrepreneurship education is the lack of a coherent theoretical framework. The platform should allow, and indirectly lead participants into, learning community methods as a final stage in their learning. Platforms adequately equipped with communication tools (e.g. WEB 2.0 concepts) facilitate the emergence of learning communities which is the ultimate goal towards fostering entrepreneurial mindsets in accordance to the European Oslo agenda perspectives. The current work attempts to contribute towards a compact educational framework for the development of the forthcoming online facilities in entrepreneurship education.

Keywords: Entrepreneurship education, trainers' training, online education, instructional design, learning communities, Oslo agenda

Fictions and Facts About Entrepreneurship Education at German Universities – Results of an International Comparative Study

Esther Klee and Bernhard Vollmar

Carl von Ossietzky Universität Oldenburg, Germany

Abstract: According to empirical studies, the development of entrepreneurial competences depends on far more than theoretical expertise. As a *conditio sine qua non*, it asks for active and experimental learning environments, from which creative-constructive performances can accrue (Klandt 1999). It is a moot point whether the specific academic curriculum with its teaching and learning offers is suitable for supporting authentic experimental learning environments (Chen et al. 1998). Therefore, we want to critically question and discuss, whether or not there is a wide divergence between fictions and facts in entrepreneurship education. Are standard-programmes sufficient or do they occasionally represent logical reasoning facets and operative fictions whose degree of suitability is not questioned precisely enough? At this point of time, the academic offers of entrepreneurship education can be described as manifold. Nevertheless, a more precise analysis of the academic basic education shows that the offered arrangements and education measures often remain on a level of simulation and neglect experimental as well as application-oriented learning. Against the background of a holistic and lasting encouragement of entrepreneurial independence and overall pedagogic consensus the almost invariable focus of the entrepreneurial education on non-applied-learning forms of knowledge mediation and knowledge generation is astonishing. In order to shed light on the existence of real-life-projects, a target-performance analysis of German universities' curricula and additionally an international comparison study will be employed. In this regard, the analysis rests upon an extensive internet research. The plain existence of a curriculum or teaching programme is no indication for the factual success of entrepreneurship teachings. One decade after the introduction of the first entrepreneurial chair at a German university, the stage of development and the efficiency of success from a pedagogical perspective are to be questioned critically. Moreover, the potential needs for action with reference to the teaching and learning arrangements ought to be investigated.

Keywords: Entrepreneurship education, real-life-project, curriculum

When do Firm's-Technology Intermediary Interactions Result in Cognitive Capacity Additionality?

Mirjam Knockaert¹ and André Spithoven²

¹University of Ghent, Belgium

²Vlerick Leuven Gent Management School and Belgian Science Policy, Brussels, Belgium

Abstract: Governments have increasingly become involved in stimulating cooperation for innovation and R&D and have become less focused on direct R&D subsidies. One set of initiatives is targeted at providing financial support for

technology intermediaries. In this paper, we shed light on when technology intermediaries contribute to learning or networking outcomes generated by the firms that call upon them. The results indicate that absorptive capacity of the collective research centre does not affect cognitive capacity additionality generated by the member firms for R&D activities, but higher levels of absorptive capacity tend to negatively affect cognitive capacity additionality generated by member firms engaging in R&D related activities. The absorptive capacity of the member firms does not directly affect cognitive capacity additionality generated by the member firms, but the results on mediation analysis show that member firms with higher levels of absorptive capacity use the services of the collective research centre more intensively, and generate higher levels of cognitive capacity additionality.

Keywords: Technology intermediary; absorptive capacity; cognitive capacity additionality

The Self-Employment Twist. Evidence From Kosovo

Matjaž Koman¹, Janez Prašnikar¹ and Gazmend Qorraj²

¹University of Ljubljana, Slovenia

²University of Pristina, Kosovo

Abstract: The self-employed are often equated with entrepreneurship since they fulfill the entrepreneurial function of being risk-bearing residual claimants. However, if one treats a self-employee as an individual who does not earn a wage or salary but who derives their income by conducting business on their own account and at their own risk (and does so by imitating and replicating), he or she is not performing basic entrepreneurial functions. We address the above dilemma by studying entrepreneurship in late transitional country (Kosovo) with very limited occupational choice. We show, that in case of very limited occupational choice, a decision for self-employment does not lead necessarily to the development of entrepreneurship. As such, self-employment in less developed transitional countries less likely to serve as a base for the development of entrepreneurship, or represents the source of future growth. Therefore it is apparent that the role of government is to foster the introduction of more occupational choices by providing the opportunity (support) to gain employment in large, medium or growing small companies.

Keywords: Self-employment, entrepreneurship

Examining the Literature on Innovation in Virtual Communities

Mikko Laine

Helsinki University of Technology, Espoo, Finland

Abstract: Virtual communities have become recently a very popular phenomenon. People interact socially, work and spend their free time in them on a daily basis without the restrictions of geographical boundaries. Virtual communities have also been asserted to offer considerable business benefits to companies that are able to successfully leverage them in their business. Very interestingly, innovation being

created in virtual communities has been claimed to be one of these novel benefits attainable. Terms such as open innovation and end-user innovation have surfaced and been recently used to describe these phenomena. However, what is in fact known about these new concepts that seem to have a buzzword-sound to them? Furthermore, what actual academic evidence is there about innovation in virtual communities? The goal of this paper is to explicate the current state of academic literature on innovation relating to virtual communities. To meet the requirements of this research setting, a bibliometric analysis methodology is selected to derive descriptive and relational indicators of the related body of literature. This is supplemented by a systematic review methodology to deeper examine the topical content of this literature body. Data is retrieved from the Web of Science using a specified search sting. The term virtual community is used synonymously with several other terms in the existing literature. As a wide breadth is desired, the final search string is formulated as: ("virtual communit*" OR "online communit*" OR "on line communit*" OR "web communit*" OR "e-communit*" OR "computer mediated communit*" OR "web based communit*" OR "cyber communit*" OR "internet communit*") AND ("innovat*") Data is retrieved from all available years and all three available databases to obtain as much coverage as possible. In addition, the search is allowed to hit in all searchable fields. The search initially results in 50 publications. Applying the systematic review inclusion and exclusion criteria, a number of papers are dropped from the analysis because of invalid topical coverage. The remaining valid literature is analyzed using various software tools, and several resulting bibliometric indicators are presented in tabular and graphical format. Systematic review is performed on the publications to analyze the publication contents. Descriptions of the researched areas are provided. The key finding of the paper is that the academic evidence on innovation in virtual communities is still scarce and dispersed although the number of yearly publications has been growing along with citations to the publications. The main limitation of the study is that it is merely descriptive in nature in illustrating the characteristics of the literature. However, communicating these characteristics helps researchers depict the current state and nature of the academic evidence in this area, and also indentify opportunities for future research in the under-researched areas or gaps in the literature. The paper concludes with a discussion of directions for future research.

Keywords: Innovation, virtual community, bibliometric analysis, systematic review

Gender-Specific Beliefs About Entrepreneurship: Specifications and Implications

Astrid Lange

Brandenburg University of Technology Cottbus, Germany

Abstract: Demographic and societal changes alter labour markets as well as individual life and career paths (e.g., Baruch 2004; Lupart et al. 2004). According to Settersten (2007), new individual and environmental resources are necessary, including for instance adaptive, multiplied self-concepts. With this in mind, gendered occupational choices become even more important for individual life paths as well as for economic development. The present study investigates the subjective background of one specific occupational choice, i.e., entrepreneurship, where multifaceted gender differences were observed (e.g., Allen et al. 2007; Baughn et al.

2006). Thus, we will concentrate on the subjective beliefs German students connect with entrepreneurship, and we will execute a gender-specific analysis to deduce some assumptions that may lead to further research. This approach is based on the Theory of Planned Behavior (Ajzen 1991), which fits very well into the current process perspective on entrepreneurship (e.g., Baron 2007; Davidsson 2007). A qualitative elicitation study using a sample of 41 students resulted in a category-system of behavioral beliefs, normative beliefs, and control beliefs. The quality of the categories was tested by four independent raters. Supplemented with answers from 17 additional students, the answers of all 58 students were analysed in terms of category-specific frequencies. This was executed for each gender; thus, gender-specific lists of category-frequencies were produced. This must be discussed if the resulting frequency-orders mirror significant differences between men and women. The discussion of the results will compare the present categories with the categories of previous investigations (cf. Kolvereid 1996a; Tegtmeier 2006). The breadth of the resulting categories indicates a differentiated offer of training and education opportunities as well as supportive structures for students. Although this investigation is limited due to the qualitative data and some sample-based restrictions, it indicates some detailed suggestions for further research.

Keywords: Entrepreneurship, subjective beliefs, gender, theory of planned behaviour

Business Clusters in the UAE: Does Supply Create its own Demand?

Nnamdi Madichie
University of Sharjah, UAE

Abstract: Business clusters present a unique and highly flexible combination of business development processes, infrastructure and people, designed to nurture and grow new and small businesses, products and ideas. They may also be viewed as the fusion of physical space and facilities, entrepreneurial ideas and management support geared towards the promotion of businesses at the embryonic stage of development. In the 1980s USA, there were approximately 12 of such programmes in operation, despite the fact that the region was described as the '*cradle of business incubation*'. Since then, business clusters have sprung up in many parts of the world. Recently, there are an estimated total of 4,000 incubators worldwide of which approximately 1,000 each are located in North America and Western Europe with the rest of the world accounting for the remaining. This paper evaluates cluster development from the perspective of the United Arab Emirates (UAE) - a less discussed emerging market outside the usual suspects [i.e. the BRIC countries: Brazil, Russia, India and China]. The paper is primarily based on a documentary analysis, drawing insights from the experiences of Jamaica, Nigeria, South Africa and Wales (UK) in order to highlight the inherent mismatch between supply and demand for business clusters. Whilst noting the skewed supply-side (notably in two out of the seven emirates that constitute the UAE: Abu Dhabi - the political capital, and Dubai - the commercial capital) technology clustering in the UAE, the paper suggests how universities especially from Sharjah (the acclaimed cultural capital & seat of higher education) can contribute to the demand side. Obviously the supply

side of the equation seems already well grounded with the plethora of business clusters, but one key question remains – where is the demand?

Keywords: Business clusters, business incubation, demand and supply, universities, UAE

Adapting 3D Virtual World Technologies for Real World Applications: Case Study Paper

**Philip McClenaghan and Nayyera Aslam
Teesside University, Middlesbrough, UK**

Abstract: The 3D Web technologies known as Virtual Worlds can be characterised as combining the global reach of the internet with the ability to experience geometrically complex 3D environments in real-time simultaneously with other visitors. Visually and functionally rich virtual environments can be created which can closely approximate physical world environments and activities thus enabling innovative ways of delivering teaching and training. This provides an opportunity to fundamentally re-define user engagements and educational offerings. This paper reports on a functionally and visually rich virtual 3D landscape, 'Financial Services Island', designed to enable 'accelerated learning experiences' in the financial sector for young students. The highly interactive, immersive and multi-modal virtual landscape exploits the potential for personal experiential interactions and stimulating learning experiences in financial services within the digital realm. This paper presents, in the form of a case study, the key stages of developments and associated methodology, the challenges of adapting new 3D internet technology to education and reflections on the encouraging response of teaching professionals and students.

Keywords: Financial literacy, Virtual Worlds, Financial Services Island

Internationalization of High-Tech SMEs: The Crucial Role of Knowledge

**Issam Mejri
Nice Sophia Antipolis University,
ATER - CoActis, Saint Etienne University**

Abstract: Our communication examines the internationalization of high-tech SME. Its enterprises are characterized by their high degree of knowledge and innovation. Our work is based on the theoretical foundation of enterprise internationalization process, as described by the Uppsala model and the Network model, and the flow of international entrepreneurship. The objective is to provide a conceptual contribution to enrich the literature on the internationalization of SME and knowledge management. As a first step, we present an analysis of the literature review on the theories of internationalization. In a second step, we present the evolution of the knowledge concept in theories of internationalization.

Keywords: Internationalization, Born global, high-tech SME, international entrepreneurship, international knowledge.

Revisiting Entrepreneurship: Goal Dynamics, Intentionality and Self-Transformation Systems

Félix-Fernando Muñoz¹, María-Isabel Encinar² and Carolina Cañibano³

^{1,2}Universidad Autónoma de Madrid, Spain

³Universidad Rey Juan Carlos. Madrid, Spain

^{1, 2,3}Instituto de Investigaciones Económicas y Sociales “Francisco de Vitoria”. Madrid, Spain

Abstract: What is the role played by entrepreneurship within self-transformation processes? To what extent is entrepreneurship self-transforming in the sense that it generates novelty? Do entrepreneurship and self-transformation lead to a substantive explanation of economic development? In order to answer these questions, we offer a revision of the concept of entrepreneurship from the point of view of an economic theory of human action. Although the importance of intentional action has been recognised in the evolutionary literature, the evolutionary tradition has mainly focused on the role of knowledge to explain entrepreneurial behaviour. Other contributions accord also an important role to entrepreneurs' imagination and creativity, etc. These approaches are compatible with the recognition of the role played by entrepreneurs' intentions, with their tendency towards transforming goals and agents' spaces of action. Recognition is made possible thanks to a more systematic analytical integration of these elements into a theory of entrepreneurial action.

Keywords: Entrepreneurship, intentionality, goal dynamics, action plans, self-transformation

Design Principles to Foster the Competence of Science Students to Recognize Business Opportunities

**Jan Nab, Astrid Bulte, and Albert Pilot
Utrecht University, Netherlands**

Abstract: The recognition of business opportunities is one of the most important competences of entrepreneurs and therefore should be part of entrepreneurship education. A pedagogical theory for education on opportunity recognition has not yet been defined, and this study uses educational design research for the development of such a theory. Two design principles were developed with the aim to foster the competence of science students to recognize business opportunities by education. For each design principle several strategies were argued, that were implemented in an educational design. For each strategy expected outcomes were formulated and each strategy was evaluated using various instruments: class room observations, questionnaires, interviews, field notes or analysis of students' output. The first design principle to “*Stimulate the practising and conceptualizing on opportunity recognition*” proved partly effective. Expectations to let students conceptualize opportunity

recognition were fulfilled. The expected outcome of the strategy to let students practice idea generating techniques was partly fulfilled as were the expectations of the strategy to let students apply their concepts on opportunity recognition in assignments and tasks. Students are able to recognize opportunities as shown in their output: they recognized opportunities by others and were able to create business opportunities based on their own knowledge and skills. However measurements by questionnaires of students' perception of their own competence did not confirm this. The second design principle to "*Create a positive and open learning environment to foster opportunity recognition*" was partly effective. Expectations on giving students freedom to organize their work, and giving them free choice to select their peers were fulfilled. The expected effects on autonomy & responsibility were partly fulfilled, as were expectations on avoiding competition, avoiding extrinsic restraints and on teachers as role models. The expectations on creating a working atmosphere similar to that in a starting company were not fulfilled. Finally the findings are discussed which may contribute to further refinement of the design principles.

Keywords: Education development, competence of opportunity recognition, pedagogy, design principles

Impact of Undergraduate Training on the Development of Entrepreneurship in the Faculty of Human Kinetics: a Case Study of Former Students

Ana Naia¹ and Pedro Rodrigues²

¹Technical University of Lisbon, Portugal

²University of Lisbon, Portugal

Abstract: The aim of this study was to ascertain the role that undergraduate training can play in entrepreneurship. We conducted a multiple case study using semi-structured interviews and content analysis as core research techniques. Triangulation was used by gathering data not only from the participants' curriculum vitae, but also from several other sources such as informal contacts with some of the participants' acquaintances and former participants' teachers and field specialists. The sample consisted of seven entrepreneurs, who were former students of different undergraduate courses aged between 37 and 52. The results showed several entrepreneur profiles, depending on the features highlighted by the participants regarding their entrepreneurial lives and their relationship with training. Different factors were referred to as influencing the participants' entrepreneurial life course (entrepreneurial attributes, family, contact with professional settings, social/contextual factors, undergraduate training and continuing education, such as postgraduate courses and self-education), revealing the importance of their education experience, which allowed them to develop technical, scientific and management skills. Subjects, teachers, fellow students and activities/projects proved to be important during undergraduate training for most entrepreneurs/former students. The Erasmus student network was considered important due to the intercultural experience and intellectual growth it allowed. Most participants had looked to continuing education to update their knowledge in fields related to their companies' services and purposes, in order to satisfy customers' needs more

effectively. In conclusion, we can argue that, besides training (and if possible, within it), knowledge of and contact with the entrepreneurial and professional fields, professional experience and tasks and activities that require initiative (e.g. student associations) will enable people to understand, foresee, plan and then take the risk of setting up businesses and choose and create their own professional reality. Finally, we make recommendations on the promotion of entrepreneurship in higher education settings. Most of these recommendations have been adapted from entrepreneurs' suggestions, based on their life experience and factors with which they came into contact and found relevant, and also aspects that they felt were lacking in their curriculum as students. These recommendations can be easily adopted in other higher education contexts for those who want to promote this characteristic. Contact with entrepreneurs of different areas sharing their experiences with the students, study visits to companies in different fields, contact with working environments and entrepreneurial skills in curriculum, are some of the recommendations for undergraduate courses in order to promote entrepreneurship.

Keywords: Entrepreneurship education; undergraduate training; continuing education; management skills; technical and scientific skills; professional experience

A Method for Monetizing Technology Innovations

Arcot Desai Narasimhalu

Singapore Management University, Singapore

Abstract: Technology innovations from most universities and research institutes are generally created with no clear path to commercialization in mind. This is largely due to the culture in academic institutions and research institutes whose mission it is to explore the creation of innovations that promise long term benefits. This culture of academic freedom leads to a stockpile of technology innovations at their technology transfer offices (TTOs). These offices are often in a dilemma on how best to monetize the technology innovations that are in their custody. While there have been many social science research methodology based studies on this subject under the broad umbrella of "Technology Management", there is still no method available to help TTOs manage the commercialization of their IP better. A clearly articulated method for translation of technology innovations into business innovations will certainly help move accumulated IP at the TTOs to the markets. Such a method should help identify the best commercial application of technology innovations. This paper is based on action or practice research. This approach uses empirical data and experiential observations derived from several years of commercialization experience to derive and define a method. The method will present a framework for capturing the properties of technology innovations. A heuristic algorithm is used to achieve a prioritized list of business innovations that can be generated from a set of technology innovations. The paper will use an example to illustrate the method. An early version of the algorithm is being used in a course on technopreneurship. This exercise is expected to both validate and refine the method presented in the paper.

Keywords: Technology innovation, business innovation, technology transfer office, commercialization, optimal

Do Networks do the Works? Indian Entrepreneurs in Poland and Belgium

Joanna Nestorowicz

University of Warsaw, Warsaw, Poland

Abstract: This paper deals with the notion of networks in the process of entrepreneurial migration. Indian businessmen settled in Poland and Belgium constitute a purposefully selected sample for an empirical study. The study was carried out by means of qualitative research methods and tools, which best suited the process of finding answers to the stated research questions. The sample selection both in terms of destination countries and ethnic origin was also determined methodologically. Such choices enabled cross-country comparisons and captured, otherwise unobservable, explanatory factors. Based on a theoretical analysis of previous contributions to literature on migration and entrepreneurship, this study develops a conceptual framework for analysis of entrepreneurial migration. It defines three areas of research on the topic: the migration decision making process, endogenous business-related factors and exogenous factors affecting business establishment. It also makes an attempt to combine theoretical approaches to the network theory from two economic subdisciplines in order to explain the phenomenon of entrepreneurial migration in a more holistic scheme. Further on, the analysis relates the findings to various kinds of networks, which may possibly be exploited by migrant entrepreneurs. So far, the divergent social relations have been denoted simply as migration networks. The decomposition of the latter into family and business relations brings significant insights into international mobility of entrepreneurs. Moreover, the types networks in question were analyzed in relation to each other, as that is what is commonly observed empirically. The exploitation of qualitative methods in the research enables probing into the topic in order to capture otherwise unmeasurable characteristics of network formation and utilization. The empirical part of the research consists of 30 semi-structured interviews with Indian entrepreneurs in Poland and Belgium. The paper analyzes the findings from this study, what leads to recognizing the main determinant of network functioning among immigrant businessmen.

Keywords: Migration, network theory, entrepreneurship, mixed embeddedness, innovation

Differences Between Being an Opportunity-Driven and Necessity-Driven Entrepreneur: Evidence From Turkey's GEM Data

Ozlem Ozdemir¹ and Esra Karadeniz²

¹Middle East Technical University, Turkey

²Yeditepe University, Turkey

Abstract: According to the literature, an individual becomes an entrepreneur with two types of motivations: taking advantage of a business opportunity or having no better options for work. The former ones are called opportunity-driven entrepreneurs

(ODE) and the latter is called necessity-driven entrepreneurs (NDE). This paper investigates the differences between them and further explore the factors that influence being ODE and NDE. For these purposes, we collected data in Turkey through using the national adult population survey based on the Global Entrepreneurship Monitor (GEM) project for 3 years (2006-2008). Results confirm that a Turkish entrepreneur that has started the business with the motive of opportunity significantly differs from the ones that have been motivated out of necessity. The possibility of being NDE is higher for the individuals with lower income level. However, the likelihood of being ODE is affected by age. Contrary to the literature, especially for the later years (2007 and 2008), younger people are more likely become ODE. Necessity and opportunity entrepreneurs differ also in terms of their perceptions. In 2006, while knowing someone personally who had started a small business i.e. networking is the main perceptual factor affecting being NDE, one perceiving herself/himself as a knowledgeable, skilled, and experienced person i.e. self-confidence seems to be the major perceptual determinant of taking opportunities to become an entrepreneur, being ODE. However, the picture is different for the following years (2007 and 2008). Both networking and self-confidence are found to influence the likelihood of NDE and ODE. Thus, no matter what the motivation is, one that has networking and self-confidence is more likely to start a new small business in Turkey. These findings are very insightful not only for enhancing the understanding the entrepreneurial environment in Turkey and that way is useful for international traders, but also for policy makers that try to find ways to increase entrepreneurial activities in Turkey.

Keywords: Entrepreneurship, motivation, necessity, opportunity, Turkey

Managing Risk in Innovation Projects

Hosein Piranfar

University of East London, UK

Abstract: Innovations, unlike the myth, are often practical activities conducted through well-organised projects. Sometimes a single project is involved but in most cases the project is part of a portfolio of projects adding new dimensions to the management of risk. Further complexity comes from aggregating project risks under the Enterprise Risk umbrella. For individual projects the paper aims to offer some practical tools that may prevent or mitigate risks in particular at the earlier stages of design. A typical risk assessment matrix is a popular approach in this context. There is also the possibility of using the quality management approach of QFD or Quality Function Deployment. For multiple projects, we need to deal with more complex theoretical issues. There are some purely financial issues such as portfolio management for optimal investment. However, financial considerations such as financing and transferring risks invite strategic approaches to risk management which may include ERM. ERM is risk management at organisational level. How does project risk fit in corporate or organisational risk management? Is there any scope for organisational learning? The paper will look at three areas of project risk management with particular attention to innovation projects plus some rough ideas of managing the risks: Single project, portfolio of projects, and projects shared by businesses The paper looks at innovation from a particular angle, risk management, which is a specialist aspect of innovation management. Although papers on

innovation risk are beginning to appear, the current paper explores a unique facet that tries to make innovation company-wide

Keywords: Innovation, risk, portfolio, shared projects, ERM, FEMA

Managing Innovation in Technology Systems to Deliver User Value

Sanna Puha and Saku Mäkinen

Tampere University of Technology, Finland

Abstract: This paper develops pleiotropy analysis further by discussing the integration of user survey into the analysis of technology system consisting of components and user perceived features built up with those components. The paper reports results of a user survey on iPod music player features designed in order to validate the previously used user perceived character set. User survey is conducted as web-based questionnaire that received 18 answers. The answer set is not quite large but considered enough for testing of the survey itself as well as testing of the previously developed improvements to the underlying theory. The questionnaire aims to find out the most used and important features of iPods that can be used as evidence for user perceived characteristics in pleiotropy analysis as well as in testing the improved version of pleiotropy matrix. The pleiotropy analysis combines the user perceived characteristics with the components building up the technological systems inside the iPod music player devices. Each component can be classified either as core or peripheral component depending on their pleiotropy level. The higher the pleiotropy level the higher the importance of the single technological component. The improvement of pleiotropy matrix takes into account also the user preferences as weights assigned to each component and feature. These weights are calculated from the user survey results as weighted means for each feature included in the questionnaire. The results of this study shows that weighted pleiotropy is usable tool in determining the relative importance of different components building up a product. The concrete improvement the weighted pleiotropy matrix gives in comparison to normal pleiotropy matrix is that it brings more granularity to the pleiotropy levels giving more accuracy to the determination of the importance of different technical components. In further research the user survey can be developed further by the improvement ideas given by this study to research the evolution of technology systems as case study of iPod development between different models of this music player.

Keywords: Pleiotropy analysis, technology systems, user survey, pretest

Narratives of ICT Innovation in India

Sudhanshu Rai and Mogens Kühn Pedersen

Copenhagen Business School, Frederiksberg, Denmark

Abstract: In theory definitional clarity is critical for framing the subject matter under inquiry, in studying ICT innovation we are confronted with a pervasive diversity of definitions of ICT innovation. In this paper we apply theoretical definitions of ICT innovation with empirical reflections of the same as articulated by non researchers in their writing about ICT innovation in popular media in India. Our focus is to generate conceptual patterns to better reflect the diversity in ICT development in practice. Without ex ante theoretical exclusivity we measure ICT innovation as the public record of ICT innovations in a wide range of publications. In innovation theory we find a gap between material and immaterial innovations that is partly reproduced in the field of ICT, thus, ICT innovation theory reflects hardware and network innovations, as they are closely related to traditional R&D and associated IPR. Our research question is, how do theoretically derived profiles of ICT innovation match the publically recognised ICT innovations? We have concentrated on publically recorded ICT innovations irrespective of whether they are material, immaterial or application-like in their nature. We surveyed leading journals, trade magazines, popular newspaper articles, specialist journals from 2003 to 2007 (both included). The sample includes 12 of the largest national and regional broadsheets, (newspapers) and 45 trade journals, magazines and websites. We have identified 340 different ICT innovations for the 5-years. We captured key words or synonyms from the popular press generating a set of grounded profiles of ICT innovation. We then contrast these profiles to those that we derived from the literature study of ICT innovation theory. This study suggests that ICT innovation for changing market condition, improving technology are notions hidden at the background and does not appear in the foreground of what is perceived as ICT innovation.. The focus seems to be towards expected impact of the ICT innovation first and foremost leaving the nature of the innovation and its appropriation out of immediate concern

Keywords: Information system innovation, knowledge mapping

Future Vopping: the Brave new Social World of e-Retail

Anita Rawtani

Wipro Technologies, Bangalore, India

Abstract: In the current economic climate, retailers, more than ever will need to innovate in order to survive. Online shopping globally is set to surge, despite proliferating fears about security, as consumers are now actively searching for the most competitive prices within the market. Those companies who can successfully integrate a cohesive and comprehensive multi-channel sales strategy into their business agenda will reap the rewards within this uncertain trading environment. Online spenders with the highest traction are also those that are significantly involved in social activities on the Net. They are increasingly turning towards discussion forums for advice and research before purchase. Retailers are also using online brand monitoring to track and evaluate the pertinent messages that

purchasers are being exposed to as well as using RSS feeds to facilitate purchasing online. Even though Social Shopping is still at an embryonic phase of development, the trend is certainly moving towards a sophisticated integration of different elements, including multi-channel exposure and delivery, mobile and online convergence and the merging of web technologies within a virtual environment. It is, in effect about redefining the shopping experience – making it more engaging and tangible whilst at the same time, more convenient and competitive. As web technology becomes increasingly ubiquitous, the differentiation lies in Creative Retailing by offering services and features that will distinguish from one's competitors. This is about going back to basics and to the heart of what drives both the consumer spirit and inherent human social behaviour and replicating this, online in an inter-connected 21st Century context. This is the new generation of interactive, virtual, social retailing that we call 'Vopping'. It will be these 'Voppers' or Retailing Evangelists that now shape the future direction of this global market. This document will look to make recommendations as to how to effectively combine Social, Virtual and networking technologies into the online retail environment.

Keywords: e-Retailing, social networking, Web 2.0, virtual world, consumer innovation

Successful Partnering In Convergent Environment: Product Complements Development Case

Andrei Rikkiev

Tampere University of Technology, Finland

Abstract: Convergence is an apparent trend in current technological and business environment bringing the need for fundamental changes in companies' innovation activities and operational practices. This paper focuses on product complements convergence type, which has general practical importance especially to technology and innovation management, and product development. Convergence in complements takes place when previously unrelated products become complementary and create greater value to the consumer if used in combination. Complimentary products come from different related industries, and companies enter new value systems to exploit technological opportunities. Often the key focus of collaboration is product interoperability and technical standards enabling products to work together. This type of cooperation is often called coopeitition, when cooperation and competition happens at the same time. Partners cooperate in setting industry standards and developing added value to customers but compete for created surplus in the value chain. In relation to ICT industry, the recent technological innovations, digitalization of media, de-regulation of markets and changes in consumer preferences have led technologies and markets that previously followed distinct trajectories, to mix and partially merge. Products embed features from related industries and enter new markets leading to market enlargement and new industry value ecosystems creation. To adapt to new technological and market conditions, companies need to increasingly innovate and develop new products often by means of collaborative arrangements to get access to new competencies and knowledge. Factors determining partnering success under convergence are different from other environments, studied in earlier literature. This paper contributes to existing body of knowledge on convergence and inter-company collaboration from operational

management level point of view by ranking collaboration success factors needed under product complements convergence type. Managers should pay particular attention to setting clear collaboration objectives and specifications, legal arrangements between parties, quality of the product, developing trust, ensuring management support and customer orientation.

Keywords: Collaboration, convergence, complementary products

Governmental Reforms for Innovation Systems in Emerging Economies: Case Russia

Irina Savitskaya and Marko Torkkeli

Lappeenranta University of Technology, Kouvola, Finland

Abstract: The transition from a natural resource-based economy towards an innovation economy in Russia requires rapid creation of a developed innovation system, which leaves no time for the system to be developed in western-like independent way driven by market forces. Russia, as well as other emerging economies need prompt adjustments to be made to catch up with the developed countries and their level of innovation development, and to become competitive at the global market. The importance of innovation system formation is incontestable for the competitiveness of companies and regions as well as the economy as a whole. The government plays a vital role in any national innovation system by formulating policies that may or may not be conducive to the business environment and may or may not reward entrepreneurial acts for innovative products. For emerging economies, the role of the government is of even higher importance: it involves substantial refining of the regulatory and institutional framework through state-initiated reforms of many aspects, such as education, science, legislation, IPR issues, etc. This paper discusses the governmentally initiated pace of innovation system creation in Russia, as well as the existing research on the pace of innovation system formation in emerging economies. It demonstrates how the innovation system in Russia is constructed through a set of reforms aimed at redeeming the remnants of the communist system, and creating favourable conditions for national and foreign innovation enterprises operating at the market. The paper adds to understanding of development paces of NIS, supplementing the numerous case studies with an overview of Russian NIS in its current under-reformation stage. The paper contributes to a better perception of the role of government in innovation system creation, and offers insight into how reformation of every element adds to this process. The paper also adds to current research on innovation system formation in emerging markets and confirms the existence of the specific path the emerging economies follow towards a healthy innovation system, regulated and initiated from the top.

Keywords: National innovation system, Russia, governmental reforms, emerging economy

Unpacking Organizational Competence Trap and Developing a Typology of Opportunity Exploration and Exploitation

Chaminda Senaratne and Catherine Wang
Royal Holloway, University of London, UK

Abstract: Opportunity exploration and exploitation are two heterogeneous activities of corporate entrepreneurship (Stevenson and Jarillo 1990; Brown et al. 2001; Ireland et al. 2001). Exploration entails 'search, variation, risk taking, experimentation, play, flexibility, discovery', while exploitation involves 'refinement, choice, production, efficiency, selection, implementation, execution' (March 1991:71). Given that exploration requires the development of new organizational competences whereas exploitation builds on existing competences, the role of 'competence trap' is instrumental to the understanding of firms' exploratory and exploitative capabilities, but remains under-researched. Accordingly, the objective of this paper is to further unpack the different components of competence trap as proposed by Ahuja and Lampert(2001): the familiarity trap (a tendency to favor the familiar over the unfamiliar); the maturity trap (a tendency to prefer the mature over the nascent); and the propinquity trap (a tendency to search for solutions that are near to existing solutions rather than search for completely new solutions). Furthermore, this paper goes beyond Ahuja and Lampert's (2001) study and develops an organizational typology to demonstrate how these traps influence exploratory and exploitative capabilities in different types of firms. Finally, three case studies based on qualitative data are presented to further illustrate the role of competence trap in opportunity exploration and exploitation in different types of firms. The paper intends to contribute to the corporate entrepreneurship literature through enhanced understanding of organizational competences as an influential factor of firms' exploratory and exploitative activities. The paper also has practical implications for managers who face the challenge of effectively steering their organizations to develop a portfolio of competences in line with their organizations' strategic orientation.

Keywords: Corporate entrepreneurship, competence trap, opportunity exploration and exploitation

Networking and Scientific Breakthrough in Semiconductor Laser Technology in the U.S. and Japan

Hiroshi Shimizu¹ and Takashi Hirao²

¹Hitotsubashi University, Tokyo, Japan

²Tokyo University of Science Suwa, Nagano, Japan

Abstract: By exploring the U.S. and Japanese engineers' networking and research outcome in semiconductor laser technology, this study aims to investigate how the central location in research networks among engineers influenced their research outcome. More concretely, exploring co-authored papers on semiconductor laser technology published in *Applied Physics Letters*, this study examines how structural

location could be advantageous for U.S. and Japanese engineers and how they used networks in their research. It presents that degree centrality, which is measured by the number of direct ties, is positively associated with the number of citations that an engineer obtained for both U.S. and Japanese engineers. It also observes that betweenness, which locates the geodesic paths between all pairs of engineers and counts how frequently each engineer falls in each pathway, does not show significant influence on research outcome for both U.S. and Japanese engineers. Even though this paper presents that being centrally located with direct ties plays an important role in U.S. and Japanese research networks, it shows different network formation between U.S. and Japanese engineers. It presents that U.S. engineers developed their networks beyond their organizational boundary, while Japanese engineers heavily relied on in-house networks.

Keywords: U.S. and Japanese engineers network, science, centrality, semiconductor lasers, external and internal networks

Exploring the Relationships Between Creativity, Innovativeness and Innovation Adoption

Eric Shiu

The University of Birmingham, UK

Abstract: This exploratory study attempts to explore the relationships between innovation adoption of blu-ray disc players and its potentially direct and indirect determinants including perceptions of innovation attributes, global innovativeness, domain specific innovativeness and creativity. Results show that this innovation adoption is related to relative advantage and complexity, and more related to domain-specific innovativeness than to global innovativeness, while domain-specific innovativeness, rather than global innovativeness, is significantly related to creativity.

Keywords: Creativity, innovativeness, innovation attributes, innovation adoption, innovation

Barriers to Innovation and Entrepreneurial Innovation Capability: Empirical Evidence From Portuguese CIS Data at the Product Innovation Level

Maria Jose Silva¹, Maria Isabel Mota Campos² and Alexandra Nunes¹

¹University of Beira Interior, Portugal

²University of Porto, Portugal

Abstract: This paper aims to identify and analyze the barriers to innovation that influence the innovation capability of Portuguese firms. The focus is on the study of entrepreneurial innovation capability, specifically the technological innovations made by the firm in relation to product innovation. It is nowadays recognized that while talking about competitive advantages of a firm, a region or even a country, the innovation subject occupies an important place. We live in an age of globalization and strong competitiveness in which firms more frequently need to make the

difference to their competitors, so innovation is the path to follow. The conceptual model that is proposed makes use of the system innovation approach, as well as the networks and inter-organisational relationships approach. The selection of these approaches is due to the adequacy they present for the study of the determinant factors of entrepreneurial innovative capability. In this research, the innovation concept is defined as a non-linear linear, evolutionary, complex and interactive process between the firm and its environment. Thus, it is intended with this essay to develop a theoretical support based on current reference approaches, corroborated by an empirical support which allows identifying and analysing the restraining factors of innovation activity and of entrepreneurial innovative capability. Nevertheless, it should be stressed that in the present study, the entrepreneurial innovative capability is associated with product innovation. The database is extracted from the Community Innovation Survey 4 (CIS 4). According to the data granted by the “Observatório da Ciência e do Ensino Superior” (OCES), that was conducted by EUROSTAT on distinct European countries. In order to identify the significant determinants of entrepreneurial innovative capability, a logistic regression is performed. The most important barrier perceived in the study is the economic factor: lack of external financial sources. Other confirmed barrier is reasons for not innovate: unnecessary because there isn't market/demand for the innovation. The analysis suggests that several barriers to innovation have influence on the innovation capability of Portuguese firms.

Keywords: Barriers to Innovation, system innovation, networks, Entrepreneurial Innovative Capability, CIS

Strategic Management Tool for Determination and Evaluation of Sustainable Innovations in Traditional Printing and Publishing Sectors

Dorotea Slimani

STFI-Packforsk AB, Stockholm, Sweden

Abstract: This paper is going to present a new tool that can determine the area of necessary innovations, evaluate innovations as well as their impacts on companies' three sustainability pillars which has been developed within an international research project EFORWOOD with focus on traditional forest based industries. Study has been carried out in Sweden, Spain and Finland, and in four following sectors – furniture, pellets, printing and publishing, and packaging. However, this presentation is dedicated printing and publishing sector. The importance of consumption as an innovation-driver must be taken into account when investigating fields of innovation that can secure sustainability of printing and publishing industries. There is of highest importance for forest-based industries to become aware of needs, perceptions, attitudes and demands of the buyers of fibre-based products in order to recognise which innovations are necessary to implement. Companies should also have high quality information concerning how buyers' actions, behaviour, preferences and changing demands together with those innovations can influence three pillars of sector sustainability: economic sustainability, social sustainability and environmental sustainability. Studies recognized a great necessity to develop a tool that can convert traditional qualitative results into quantitative and measurable results giving

direct answer regarding required innovations and their impacts on sustainability. The tool is composed of three parts that can be used separately depending on stage of innovation process that company would like to carry out: Gathering information and data in a qualitative research process. This will give a description of buyers' actions, behaviour, preferences and changing demands Identifying "hot spots". This results in determination of necessary innovations areas and their linkage to sustainability pillars (quantitative result) Identifying required innovations and estimating their importance level and value of impact regarding sustainability pillars (strategic and sustainable result)

Keywords: Strategic tool, sustainable management, sustainable innovations, printing and publishing sector

CavinKare Private Limited: Sustaining Rapid Growth in Serving BOP Markets

Raghavan Srinivasan

Indian Institute of Management Bangalore, India

Abstract: This paper builds on the conceptual foundations of serving the bottom of the pyramid (BOP) markets and evolves three critical success factors for competing in BOP markets – opportunity identification and leverage; innovation in product development, and sustaining rapid growth. The paper uses a case on CavinKare Private Limited (CavinKare) that describes the entrepreneurial journey of the founder and Chairman & Managing Director, Mr. CK Ranganathan; highlights how CavinKare innovated on products and packaging to target rural bottom of pyramid (BOP) customers in India; demonstrates how a firm chooses, acquires, and sustains relevant capabilities, once the choice of its customer segment & source of competitive advantage are determined; and elucidates how the firm adds value with its capabilities as well as its ability to innovate on new product-market opportunities.

Keywords: CavinKare, entrepreneurship, India, innovation, bottom-of-pyramid consumers

Exploration of SME's Absorptive Capacity to Achieve Innovation and Growth

Kambeiz Talebi¹ and Renee van Geel²

¹Faculty of Entrepreneurship University of Tehran, Tehran, Iran

²Maastricht University, The Netherlands

Abstract: The purpose of this article is to explore the capacity of SMEs to absorb and manage knowledge as a prior condition to the successful adoption of innovations in order to achieve entrepreneurial growth. Drawing on the findings from previous large scale studies and data retrieved from SER Team Surveys, this article examines the effects of experiential and formal knowledge on the development of SME absorptive capacity. Significant age, educational and size effects have been found that influence SME acquisition and assimilation of knowledge. Primarily, it is the small firms of 15 employees that have the capacity to absorb and use new

knowledge – especially those entrepreneurs with higher educational levels that have clear growth objectives. These firms are not startups but they do tend to be the younger firms with younger founders. Given the fact that the main policy aim is to develop clusters and of knowledge-based firms, policy makers should focus on SMEs recently started by graduates or people with technical qualifications; educators need to develop technology and innovation management programmers for these firms. This article makes an important contribution to the identification of priorities for public SME development support and areas where business schools and enterprise trainers could maximize their economic and developmental impact.

Keywords: Innovation, entrepreneurialism, knowledge management, small enterprises

Fostering Industry-Science Cooperation Through Public Subsidies: Differences Between Universities and Public Research Centres

Peter Teirlinck and André Spithoven
Belgian Science Policy
Vrije Universiteit Brussel, Belgium

Abstract: This paper analyses the impact of public subsidies for research cooperation between industry and science. Use is made of firm level data provided by the OECD bi-annual business R&D surveys 2004 and 2006 for Belgium. Considering the full mix of external sources of financing for private R&D, and distinguishing between universities and public research centres as research partners, attention is drawn to the impact of public funding on research cooperation. The main result is that funding by regional governments fosters the instalment of industry-science research cooperation. However, the positive effect is only found in the case of cooperation with public research centres (and not with universities). The importance paid to the prerequisite of commercialisation of research in the case of funding by regional governments can explain this. From a methodological point of view, the comparison of different approaches to measure the impact of public funding on industry-science research cooperation revealed the outcomes of the analysis to depend on the measurement approach followed. In this respect, the use of lagged funding to explain research cooperation with public partners was found to favour the impact of public funding by the EU. This could be due the fact that EU funding is targeted at firms that are already cooperating and does not favour the set-up of cooperation by firms not engaged in cooperation before.

Keywords: Public funding; research cooperation; industry-science

Entrepreneurial Intents of Final Year University Students: a Multi-Course Investigation

Aurora Teixeira and Rosa Portela Forte
Universidade do Porto; Portugal

Abstract: Entrepreneurial activities are seen as key drivers of innovation, job creation, and economic growth. Recent efforts are being pursued by several entities, including governments to promote entrepreneurial skills amongst the youngest. However, to design effective programs, policy makers have to uncover the determinants of entrepreneurship. To avoid that such efforts would be fruitless we argue that a multidisciplinary account of entrepreneurial intents among students is mandatory, circumventing past biased analysis towards business and engineering areas. Thus, in this paper we present the results of a survey to all final year university students of the largest Portuguese university. It encompasses a sample of 2430 students enrolled in 60 different courses of 14 schools/faculties. Results evidence that the average entrepreneurial intents reaches a reasonable (by international standards) figure of 27%, with students enrolled in non-traditionally entrepreneurial focused areas – Humanities, Sports, Health and Sciences – and courses - Pharmacy, Veterinary, Law, Languages, History, History of the Arts and Archaeology, Sports, Biology and Chemistry, Dentistry - revealing higher entrepreneurial intents. Based on logit estimations, we further found that psychological factors, such as risk propensity, leadership profile, and creativeness, are the most important (positive) determinants of students' entrepreneurial intents. Contextual factors (e.g., family background and professional experience) failed to emerge as critical factors in explaining students' entrepreneurial intents - only business context emerged as important. Despite such results might at a first glance convey the idea that education policy for promoting entrepreneurship has limited application, we argue that it is not the case. What is required is different policy measures targeting students' attitudes and behaviors in both business and non business areas, avoiding the long-established mistake of confining entrepreneurial education related programs in business schools.

Keywords: Entrepreneurship; intentions; students; higher education; multi-course; Portugal

Entrepreneurship Design in Innovation Systems: Breaking Through the Missing Link

Emeran Nziali Teukam
CES – MATISSE, University Paris I Panthéon-Sorbonne, France

Abstract: There is an agreement on the fact that new knowledge creation cannot explain the advent of innovation by itself. Nevertheless, it can be considered as the starting point (or the corner stone) of the innovation journey. Therefore the focus is oriented on the conditions in which it operates and diffuses to all the economy - as one can see in the innovation system (henceforth IS) approach. The transformation of new (technological) knowledge into economically relevant knowledge used to be

considered as trivial or something that automatically happens. It is not the case and a first evidence is that two countries supposed to produce the same volume of new knowledge can differ in their capacity to turn it into economic knowledge. Some recent contributions then consider it as a missing link in major economic domains' concern with innovation such as New growth Theory or IS. Furthermore there is a lack of empirical studies on this process identified as one of the specific domains of entrepreneurship. When dealing with IS it clearly papers that thinking only of technology diffusion is bounded and not practical on many points – for example when it comes to talk of policy aspects. Preferring the Functional approach – compared to institutional - can help in having friendly issues but does not make one free of conceptual and reluctant difficulties associated with the manipulation of entrepreneurship' concepts. In this paper we design - conceptualize, measure and test - some specific futures of this phenomenon. Paralleling those theoretical contributions on entrepreneurship considered as the missing link, and dealing with functional approach, we simplify the framework by considering two major functions of an IS: one which produces new knowledge and another devotes to its economical transformation and relevant usage. This helps to empirically break through the systemic framework by exploiting a new data base concerned with manufactures of European countries such as Germany, Denmark, Finland, France, Italy, Great Britain and USA, and asses the entrepreneurial performance of their systems in producing innovations. It has some policy implications. Among others variables, we use plants entries to proxy innovation and our small firms' share measures help to proxy entrepreneurial capacity which interact with given sources of new knowledge.

Keywords: Entrepreneurship, innovation system, knowledge, opportunity, firm size

Using NVivo to Conduct a Grounded Literature Review: an Application in Innovation and Entrepreneurship Research

Tony Thistoll¹, David Pauleen² and Val Hooper¹

¹Victoria University, Wellington, New Zealand

²Massey University, Auckland, New Zealand

Abstract: The use of qualitative research software, such as NVivo, when conducting a literature review is an emerging innovative practice. It can bring researchers closer to their data and allow them to benefit from tools such as coding, search and queries. In this paper we propose that using NVivo is consistent with a grounded theory approach to data collection and analysis, in that it relies primarily on the constant comparison of data with emerging categories and theoretical sampling. This paper reports on the use of NVivo to conduct a grounded literature review in the field of innovation and entrepreneurship research. The paper begins by exploring the concept of theoretical sensitivity, and makes the case that reading for ideas and for the generation of one's own ideas aids the development of a researcher's theoretical sensitivity. It is also proposed that the development of theoretical sensitivity is further aided by the use of computer enabled analytic tools when constructing a literature review. This practice enables a literature review that is grounded in the data, i.e. journal, articles, conference papers and books. The practice of developing a grounded literature review is defined, and a brief discussion is provided on the historical development of using qualitative software such as NVivo to code the extant literature. It is shown that such an approach can lead to developing a valuable

understanding of, and sensitivity to, the extant literature, and even result in the development of ‘grounded’ integrative diagrams. The development of theoretical sensitivity and an integrative diagram in the field of innovation and entrepreneurship research is depicted. The paper concludes that in developing a grounded literature review researchers can develop arguments and models that are firmly supported by the literature and that the use of analytic tools such as qualitative software can be an important aid to developing theoretical sensitivity for both novice and experienced researchers.

Keywords: Innovation, entrepreneurship, grounded theory, theoretical sensitivity, literature reviews

High-Impact Firms in the European Software Business

Timo Toivonen, Antti Paasio and Petteri Sinervo
BID Business and Innovation Development, Turku School of Economics, Finland

Abstract: Traditionally the research of the growth companies has concentrated on the growth of sales (for example Birch 1995, Murray 1996). The studies have identified growth companies and sectors based on the relative growth of net sales over a certain period of time, typically three to five years. However, during the recent years more and more attention has been given to the actual impact the growth companies have to the economy, mainly to the employment. The term “high-impact firms” has been introduced. Acs et al. (2008) define the term in the study “High-Impact Firms: Gazelles Revisited” as those whose sales have at least doubled over a four-year period and which have an employment “growth quantifier” (the firm’s absolute change in employment multiplied by the percent change) of two or more. This paper adopts the definition of Acs et al. The paper identifies the high impact firms in software business in eight European countries. The findings indicate that there are clear differences between the countries in occurrence of high impact firms. This research paper is a pilot study of a larger research project in which the European high impact firms will be analysed. The further research will include statistical analysis without industry limitations in order to reveal the high impact sectors and firms in different countries.

Keywords: High-impact firms, software business, growth

Developing new Products With Business Partners: the Effect of Embeddedness on Practice

Michel Trépanier¹ and Pierre-Marc Gosselin²

¹Institut national de la recherche scientifique, Montréal, Canada

²Université d’Ottawa, Canada

Abstract: More and more, enterprises feel the need to collaborate with partners such as suppliers, distributors and end-users, in order to develop new products on a regular basis. The economical logic behind this strategy is that it enables partners to pool their resources and capabilities in order to lower the cost of the development

while diminishing the risk of failure. In fact, some empirical evidences shows that integration of external partners in product development routines (called hereafter Co-PD) may contribute to a better performance in terms of time-to-market, cost and quality while improving chances of commercial success. Despite the fact that the idea of integrating different partners with different key knowledge and know-how inside a unique Co-PD team seems promising, other empirical results shows a more ambiguous picture like a very high failure rate for organizations that are new to this type of routine. In brief, while, theoretically, the capability to utilize Co-PD lets hope for better performances, the development and use of this routine looks risky and difficult in practice. Hence, there have been recent calls to look in a more detailed way at CO-PD in order to better understand the complexity of such dynamic capability. In this research, we will present results that describe and analyze the difficulties linked to the development of the capacity to utilize Co-PD in a manufacturing network. In the second part, we will give a brief critical review of the literature on Co-PD. Using the results from a 3 years participant-observation study that enabled us to accompany a production-network in the furniture industry, the third part will present an ethnographic account of the transformation observed in the relations between organisations and within teams in the network while they struggle to enhance their ability to realize in a more productive way CO-PD. The difficulties the network had with Co-PD are more than often strongly related to the “compatibility” of the Co-PD routine with the rules of interaction and exchange that prevail between organizations that are mobilized. In other words, the Co-PD routine is embedded in a structure of social relations that can act as a facilitator or a deterrent to its successful development and use.

Keywords: Co-development, network, embeddedness, socio-economy, innovation, practices

Addressing R&D Investment Decisions: a Critical Review and Comparison of R&D Project Selection Methods

Chiara Verbano¹, Anna Nosella¹, Karen Venturini² and Federica Turra¹

¹Università degli Studi di Padova, Vicenza, Italy, ²Università degli Studi di San Marino, Repubblica di San Marino

Abstract: A large number of methodologies for R&D project selection have been developed and reported in literature over the last few decades, and it has become a very popular research topic since the 1960s. The aim of this paper is to classify and characterize the determining aspects behind the research and development project selection process. The authors have identified the key issues for the comparison of the existing techniques used to evaluate alternative projects and portfolios of R&D projects. This paper discusses the strengths, weaknesses, limitations and practicality of the methods with the aim of providing a set of guidelines to help managers to choose the project evaluation and selection model appropriate for their specific problems. It concludes with the suggestion about some integrated models (hybrid approach) and the latest solutions which could fill the gaps in existing selection methods.

Keywords: Technology selection; portfolio selection; project management; management of technology; decision process

Implementing Sustainability Criteria in Product Innovations: a Human Process

Elli Verhulst¹, Casper Boks² and Henri Masson³

¹Artesis School of Higher Education, Antwerp, Belgium

²Norwegian University of Science and Technology, Trondheim, Norway

³University of Antwerp, Belgium

Abstract: In the last decades, product innovations have become more important for companies to gain competitive advantages. Different studies indicate that successfully integrating new product development processes strongly supports a firm's overall performance. In addition, worldwide growing attention for ecological and social issues drives companies to implement sustainability issues in their organisations, including new product development departments. Several companies have successfully incorporated and managed to consider sustainability as a driver for (product) innovation instead of seeing it as an extra burden, e.g. Philips, Nokia, Atlas Copco, etc. However, previous research and experiences in design firms have shown that the introduction of sustainability criteria in design, directed specifically to research and development departments of companies, does not always lead to successful recurrent implementation of these new criteria. Several authors examined critical success factors, revealing that a multitude of cross-disciplinary factors affect the course, progress and results of such implementation processes. The insights on these issues can be made more profound by considering knowledge on the field of organisational change and development. In a literature review, possible influencing factors on change processes have been gathered and interpreted in the case of sustainable design implementation. In addition, four propositions were formulated out of these critical success factors, combining the knowledge from the research fields of organisational change and development with the area of sustainable design. To check the validity of these propositions, a qualitative research was carried out focusing on firms that have experience with the first stages of the implementation process of sustainability criteria in design. It was also determined which factors distinguish such a sustainable design implementation process from a generic organisational change. Deeper insights in this topic might support companies to successfully implement sustainability criteria in their design process. Moreover, a better integration of sustainability in new product development may lead to novel insights and inventive drivers for product innovation within firms.

Keywords: Sustainable product innovation, new product development, change management

Social Networks and Early Resource Mobilisation by Science-Based Firms

Pedro Videira¹, Margarida Fontes^{2,1} and Cristina Sousa^{2,1}

¹DINAMIA, Lisboa, Portugal, ²INETI, Lisboa, Portugal

Abstract: This paper addresses the way entrepreneurs' social networks affect the opportunity identification and the access and mobilization of resources in a science-based field – biotechnology - facilitating the founding of new firms. Adopting an analytical framework that combines contributions from the technological entrepreneurship and the social network literature we propose that: (i) entrepreneurs' social networks are critical to access the wide range of resources required for firm creation; (ii) different networks configurations (in terms of composition and structure) are associated with the access and mobilisation of different types of resources. The paper presents a methodology that combines several methods usually applied separately and which permits to assemble a vast array of data capturing the origin, nature and contents of the relationships through which key resources and competences flow into the new firm. A central aspect of this methodology is the reconstruction of the firm social networks, encompassing the mapping of the personal networks of the entrepreneurial team, built along their academic and professional trajectories (potential networks); and the identification of the members of these networks who were *mobilised* by the firms during the formation process, as well as the new relationships, informal or formal, intentionally built already having the new firm as a goal (mobilisation networks). Different “mobilisation networks” are reconstructed, according to the nature of the inputs being searched: network of opportunity and access (tangible resources, such as capital, human resources and facilities); network of innovation (scientific and technological knowledge); network of power and influence (credibility and mediation into relevant sources). The structure and composition of these networks are then analysed and compared, using social network analysis methods, with a view to assess whether the nature of different types of resources is associated with different networks configurations. This methodology is applied to the most science-based sub-set of the Portuguese biotechnology industry – the molecular biology firms (23 firms and 61 entrepreneurs). In this paper we present preliminary results based on the analysis of four cases that enabled us to test the viability and robustness of the methodology and to evaluate its effectiveness in answering to your research questions. The results are therefore still exploratory, being focused on regularities that could be identified and that might reflect modes of behaviour that are shared by this category of firms. They confirm that entrepreneurs, in their search for key resources, select only some of the members of networks derived from their previous trajectories, but also add new members, purposefully chosen because they fulfil some important function in the new firm. In addition, the comparison of the composition and structure of different “mobilisation networks”, provides some confirmation that access to different resources entail different types of actors and relations, thus being associated with different network configurations. But it also uncovers the presence of “multiplex ties” that provide access to more than one type of resource, as well as the central role of some type of actors, associated with the entrepreneurs trajectory.

Keywords: Social networks; technological entrepreneurship; resource mobilisation; network re(construction); biotechnology

Gone Corporate? The Changing Face of Entrepreneurship in Contemporary Universities

Tim Vorley¹ and Nelles Jen²

¹University of Cambridge, UK

²University of Toronto, Canada

Abstract: Universities are widely cited as the engines of the knowledge based economy, although the exacting nature of their engagement is more complex. This new function of universities has been interpreted as requiring an entrepreneurial orientation, however it has been ambiguously couched in debates of academic and university entrepreneurship. The paper contends the entrepreneurial activities of contemporary universities may be better understood through the lens of corporate entrepreneurship. The paper argues the entrepreneurial outlook of contemporary universities is a consequence of the formalisation of the Third Mission within both public policy and institutional strategy.

Keywords: Entrepreneurial universities, corporate entrepreneurship, academic entrepreneurship, university entrepreneurship

National Culture, Firm Culture and new Product Development: a Comparative Study of UK and Chinese High-Tech Firms

Catherine Wang¹ and Mohammed Rafiq²

¹Royal Holloway, University of London, Egham, UK

²Loughborough University, UK

Abstract: The question as to what extent national and firm culture respectively influences a firm's innovative outcomes remains under-researched. This paper aims to help address the above research gap by examining the respective role of two aspects of national culture (i.e. collectivism and long-term orientation) and two aspects of firm culture (i.e. organisational diversity and shared vision) on firms' new product outcomes. Drawing on quantitative data collected from 150 UK and 250 Chinese high-tech firms, we find that shared vision significantly contributes to speed-to-market, radical and incremental innovation in both UK and Chinese firms. Furthermore, collectivism has a significant impact on radical and incremental innovation outcomes in UK firms, whilst long-term orientation and organisational diversity significantly influences radical and incremental innovation in Chinese firms, respectively. These findings have important theoretical and practical implications.

Keywords: National culture, firm culture, new product development

Opportunity Exploration and Exploitation: The Roles of the Environment, the Entrepreneur and the Firm

Catherine Wang, Xiaoqing Li and Yu Zheng
Royal Holloway, University of London, UK

Abstract: The objective of this paper is to study the interplay among the environment, the individual entrepreneur and the firm in the opportunity exploration and exploitation process, as framed in the resource-based view of the firm as the overarching theory. Drawing on qualitative evidence from four Chinese companies operating in the pharmaceutical and medical devices industries in China, the findings of the paper highlight the important role of individual entrepreneurs in exploring opportunities arising from the imperfect resource market as brought about by the economic and regulatory reforms in China. Furthermore, the findings reveal a striking difference between state-owned and private enterprises in terms of entrepreneurial orientation and innovative capability.

Keywords: Market dynamism, entrepreneurial orientation, opportunity exploration and exploitation, Chinese high-tech firms

Political Connection and Financial Performance: Evidence from Chinese Small-and-Medium Enterprises

Sujuan Xie¹, Liang Guo^{1 2} and Lawrence King¹

¹University of Cambridge, UK

²Groupe Sup de Co La Rochelle, France

Abstract: During the current economic transition, China's private entrepreneurship continuously serves as the main driving force behind China's new economy. It strengthens market forces by creating jobs, supplying consumer goods, mobilizing savings and breaking up the monopolies of state firms. The rise of this new private entrepreneurship raises several questions about the way in which China's entrepreneurship has developed. One of these is whether there is a Chinese style of entrepreneurship, which differs from entrepreneurship in capitalist economies. Having grown up in a period of social and economic transformation from a formerly socialist system, China's entrepreneurship has different features from those in traditional capitalist countries. The development of private firms in China also follows a distinctive approach that differs from that followed in economies characterised by orthodox capitalism. Resource-based theory demonstrates that in a typical capitalist, free market, firms create a sustainable competitive advantage primarily in three ways: cost leadership, differentiation and focus. However, given the transitional nature of China's capitalistic system, property rights are weak, and the product and capital markets are far from liberalized. The differences in the ways in which entrepreneurship has developed in these two types of economies have led me to embark on research project concerning the performance of these firms. This article investigates whether firms with political connection will outperform others in China. Our sample firms are the 100 constituent companies of the ShenZhen SME-100 Index, listed on China's Shenzhen stock exchange. We will use a multilevel model to

combine two levels of factors -- the firm level focusing on CEO and directors' political connectivity, and the industry level, i.e. the level of industry competition, measured by the Hirschman Herfindahl Index for each industry. The rapid progressing multilevel models applied in entrepreneurship studies will offer us a great opportunity to understand fully the role of political connection plays in the growth of entrepreneurship, through combing the firm level and the industry level into one analyzing model. Not only does this article will provide the latest evidence that is useful to emerging economies around the world that have weak legal systems and weak property rights protection., but also devote to the theoretical debate on China's economic transition. Generally, there are two major perspectives towards the characteristic of China's transitional economy. The first one is that market force will bring China a fully developed Capitalist economy. And the other maintains that China's transitional economy is largely intervened by the communist party and the government, and therefore the market force play less role in shaping China's transitional economy. The results of this study will shed more lights into the debate between market transition theory and state-centred theory on the economic transition process in post-communist states.

Keywords: China, small and medium enterprises, political connectivity, financial performance

A Logic of the Firm Without Center Technology a Case Study of Casio Computer Co., Ltd in the Digital Camera Industry

Kiyohiro Yamazaki
Chukyo University, JAPAN

Abstract: The purpose of this study is to examine how the firm without center technology to gain the competitive advantage. Many researchers insist the firm which has core competence gains the competitive advantage. In contrast, Leonard-Barton (1995) investigated the possession of the core technology prevents the firm from gaining the competitive advantage occasionally. However, many firms without center technology succeed in a variety of industries lately. Therefore, the logic of the firm without center technology needs to be examined in detail now, and this study takes Casio in the compact digital still camera industry in Japan as an object of study. In this study, the center technology is defined as the technology which plays the basic function. The CCD and optical lens provide basic function of the digital camera. Moreover, the center technology is recognized as the center role of the product by product makers. Consequently, this study defines the center technology as knowledge and the production equipments of the CCD and optical lenses. Casio does not hold these technologies. In this situation, Casio could develop slim and light digital camera EXILIM in 2002. Although this had only 1.3 mega pixels CCD and optical lenses without zoom, it developed under new concept "wearable camera". Casio increased its market share in the digital camera industry. In the development process, Casio procured the center devices --the CCD and optical lens- from several device makers. At that moment, Casio was able to choose either advanced device or cheap device, and change the device makers when others provided more advanced and cheaper devices. Furthermore, Casio developed EXILIM under new product

concept. It omitted the optical zoom and auto focus. Moreover, HCLi (Hyper CCD-Lens integration) and MCM (Multi Chip Module) were developed especially for EXILIM. Both devices saved space and contributed toward downsizing. This study examines that the logic of the firm without center technology in forcing an economical advantage and an organizational advantage. The economical advantage means that the firm can choose either advanced or cheap device out of several device makers, and change the alternatives cheaply and quickly. The uncertain technological environment forces the firms which have center technology encourage the technological development and pump money into development in order to follow the technological progress. Conversely, the firm without center technology is not under the necessity of investing the money in technological development. Moreover, the organizational advantage means that the firm without center technology is not restricted by organizational inertia and cognitive restraint, and exercises the characteristic strength. First, the firm without core technology is free from cognitive restraint on the product concept and technology. Second, it could not differentiate the product in the same respect as the product of the firm with center technology. Since it would pursue the differentiation on the different points, its decision-makings and organizational behaviors would differ from other firms and could create new competitive advantages.

Keywords: Center technology, product development, device procurement, new concept creation, Casio Computer Co., Ltd

Research in Progress Papers

Research in progress papers The Expectations and Needs of Small Firms for University - Enterprise Co-operation

Ulla Bard

HAMK University of Applied Sciences, Hämeenlinna, Finland

Abstract: The social and economical importance of small firms is evident and increasing their competencies and competitiveness is the main point in small business policy. However, small business owners have a reluctance for training and a sceptical attitude to universities as a source of business knowledge. Previous research has demonstrated that there is a mismatch between the offerings of universities and the needs of small firms. In order to better match the services to the needs of small firms 187 telephone interviews were conducted with owner managers of SMEs in the Häme region in Finland. The results of the quantitative study show that small firms have reasonable expectations for the quality and the delivery time of the business services implemented by university students but the quality expectations varied significantly according to the type of business or were dependent on the growth orientation or export orientation of an enterprise. Small firms were not willing to pay market prices for the services. Most enterprises were ready to cover

direct costs but many expected funding from outside sources. Results differed significantly in different types of business, in export companies and in growth oriented enterprises. The study demonstrates that small firms should be contacted using different marketing channels. The most popular way was to receive emails from the university but there were significant differences in opinions depending on the type of business, the amount of employees or turnover. Export companies should not be treated in the same way as home market companies. The empirical results indicate that small firms wanted to have more marketing training and services than those connected to accounting or IT. The most popular training and business service topics were identified. However, the interest to co-operate with the university was in general quite low but background variables caused significant differences, particularly the type of business. The preliminary results demonstrate that growth orientation and export orientation increase interest in training and business services. The implications of this study for universities are that small firms are not a homogenous group and universities should target their offerings and differentiate them.

Keywords: University -enterprise co-operation, business services, small firm training

Evaluating Academic Spin-off Potential in the Earliest Development Stages

Sven De Cleyn and Johan Braet
University of Antwerp, Antwerp, Belgium

Abstract: *Introduction.* Research organisations and academic institutions have gradually become more involved in commercialisation of their research results. Although the contribution of this direct deployment of economic activities (as opposed to the indirect involvement via education and publications) to regional economies has been the subject of many debates, the phenomenon is increasingly used as technology transfer mechanism. In recent years, scholar research on the subject has unremittingly grown. However, many subjects remain under-researched. *Aim.* Various scholars have described the evolution process of an entrepreneurial venture arising from academia. Others have focused on identifying critical success factors, especially in (early) growth stages. Few scholars, however, have researched the earliest development phases after foundation. This study aims at generating more in-depth knowledge on the factors at play in these first years after foundation, in which the spin-offs are highly vulnerable. The ultimate aim of the study is to create a (sector-specific) model to assess high-tech product-oriented spin-off ventures arising from European academic organisations (universities and other public research organisations) in their earliest development stages, allowing identifying where the spin-offs could benefit from support from technology transfer offices, incubators and other potential service providers. *Methodology.* The present research project is being executed in several phases, using a mixed-method approach. In first instance, 17 introductory case studies have been performed with spin-off in various industry sectors arising from Belgian universities (2004-2006), in order to acquire primary knowledge on the academic spin-off phenomenon and the main parameters influencing survival and performance in the early stages. In parallel, a large literature review has tried to identify those parameters identified by prior scholar research that are believed to be influential. The combination of both efforts has lead to a survey

development, which has been pre-tested in December 2008 - February 2009 with academic spin-off managers and other important stakeholders (TTO managers, financiers, other high-tech entrepreneurs). After some rework according to the comments and information obtained during this pre-test, the final survey has been launched in March 2009 for a large-scale empirical quantitative study. The results will be analysed using diverse multivariate statistical methods, such as Bayesian statistics, nominal and ordinal dispersion indices and t-tests. *Implications.* The results of this work-in-progress will mainly have implications for entrepreneurs and supporting service providers (such as financiers and TTO officers). For entrepreneurs this research highlights some major pitfalls to be avoided during the earliest development of their spin-off ventures. Substantial attention has to be drawn on other aspects than the technology development. Market development and marketing efforts are as important, just like composing a balanced team. For service providers, the implications differ according to their nature. Financiers should pay attention to other parameters than merely financial. Indeed, a spin-off with positive financial prospects but with weak technology or other aspects might be doomed to fail. In that case, their will be no financial return. Short term financial benefits might be sacrificed to obtain a bright long term future.

Keywords: Academic spin-off; technology transfer; academic entrepreneurship; new venture creation; start-up management; performance; support

Emerging into the Unknown

Peter Dorrington

Cardiff University, Wales, UK

Abstract: Radical or breakthrough innovation is increasingly relevant in today's technologically competitive environment for the growth, renewal and even long term survival of most firms. Such innovations are typically referred to as *emerging or disruptive technologies (EDTs)*. There is a wide body of literature concerning emerging and disruptive technologies. This collection of literature constitutes an eclectic mix, focusing on a range of organisations, mainly private, and predominantly concerning end products. A gap exists to investigate publicly-funded organisations developing EDTs, and compare these with private companies. The Taylor Report brought about a review of funding into nanotechnology within the UK, resulting in the commitment of £90m of funding for micro and nanotechnology (MNT). This funding has been allocated to 50 MNT projects between 2003 and 2007. Micro and nano technologies fall within the above body of literature, and organisations researching and developing these technologies have been selected as the focus of this research. This study adopts a processual view of emerging technologies focusing upon a number of key sensitising constructs; purpose, process, people, collaborations, context and outcomes. The motivation for this research is to understand the optimal routes of commercialising EDTs, and how each organisational setting has a bearing upon the innovation management processes when developing such new technologies. It is also anticipated that this research will add to existing gaps in the body of literature, that currently do not investigate these issues. This research employs the qualitative semi-structured interviewing approach, along with secondary data documentary analysis (e.g. Government reports, select committee responses and additional company documents). Key stakeholders within organisations are

interviewed around the key constructs. This research is ongoing research as part of the author's PhD study. Intermediate results and initial interpretation will be completed by the time of the full paper submission.

Keywords: Nanotechnology, emerging technology, innovation management, start-ups, cost-centres, universities, science parks

Logistics Service Providers in Clusters – Perils and Pitfalls for Service Innovations in China and Germany

Ralf Elbert¹, Gang Yang² and Saša Šarić²

¹Technische Universität Berlin, Berlin, Germany

²Tongji University, Shanghai, China

Abstract: Although a vast body of literature identified and confirmed the positive effects clusters have on the macro-level recent studies, however, question that they always hold true on the firm level. Instead clusters have been found to expose firms to higher congestion costs due to high density and rivalry as well as loss of knowledge through spillover effects thus threatening their innovativeness. This points to the fact that firms have to do more, than just to locate their activities within a cluster in order to profit from the proposed opportunities. In order to fill this gap we address the case of logistics service providers (LSPs) which have been often neglected in the conversation on industry clusters. By doing so, we fill a second gap in the literature because firms from service industries differ from manufacturing firms. As members of a knowledge and information intensive industry LSPs are both heavily threatened and benefited by spillovers within clusters. The resulting question is then: Do clusters promote or hinder innovations of entrepreneurial LSPs? We begin our arguments by using Porter's diamond of national competitiveness and the market- and resource-based view of the firm to develop understanding on how clusters influence the innovativeness of their member firms. By drawing from insights on strategic entrepreneurship theory we then show how innovative entrepreneurial firms are influenced in both positive and negative ways by clusters. To answer the underlying research question, we employ a comparative case study with a single entrepreneurial LSP in Germany and China.

Keywords: Cluster, logistics service provider, strategic entrepreneurship, Germany, China

Employee Creativity Behavior Based on National Cultural Dimensions: Observations From a Comparative Case Study

Marcos Gómez, Rafael García, Matilde Martínez and Francesc Miralles

DET La Salle, Universitat Ramon Llull

Abstract: Hofstede established cultural dimensions at a nation level that can help to distinguish between diverse management skills in different countries. He confirmed that management skills are culturally specific. As far as the authors know, it is under-

researched the way these cultural dimensions could be related with some factors of already validated employee creativity behaviour models; ie, it could exist a relationship between the cultural dimension 'uncertainty avoidance' in a nation, and the individual value 'self-direction' (of employees in that nation) that encourages the individual to take risks and break out of routine, developing an independent thought and action — choosing, creating, and exploring. So, a high value of national cultural dimension 'uncertainty avoidance' could have a negative relationship with needed 'employee empowerment' to encourage to take their own decisions and, as a consequence, diminish the creative behaviour of the employees of a company. The purpose of this study is to investigate how the Hofstede cultural dimensions of a concrete country have a relationship with the employee creativity behaviour in that country. It will be investigated relating three Hofstede cultural dimensions (power distance, uncertainty avoidance, and individualism) with concrete individual values and factors with validated influence on employee creativity behaviour (ie, individualistic value, openness to experience, tolerance of ambiguity or supervisor style). In this research-in-progress, two company cases are being developed to investigate the relationship between the Spanish cultural dimensions and the expected employee creativity behavior. It's investigated whether employees of these companies show creativity behaviours that could be expected from the individual level values and factors that emanate from values of their national cultural dimensions. The authors intend to answer the following research question: 'Are cultural background traits of Spanish people (based on Hofstede's dimensions) a good predictor of Spanish employee creativity behavior?.'

Keywords: Employee creativity behavior, national culture

Technology Development and Product Development in the Front-end of Innovation: a Review

Alexis Jacoby¹, Ann De Keersmaecker¹ and Johan Braet²

¹Artesis University College of Antwerp, Belgium

²University of Antwerp, Belgium

Abstract: In an industrial innovation context, practitioners often don't make a difference between technology development and product development. Both kind of activities are essential to innovation and they are organised in an integrated approach. New technology is often mentioned as one of the parameters that are important to define the innovation level of a new project. From a methodological point of view, however, there is a major difference between technology development and product development. Both kind of activities need a different approach and are often performed in a different time frame. There are a lot of interdependencies, though, between them. In many cases there is no product development without technology development and technological research, except for fundamental research, often needs to be applied into new products. Throughout the front-end of innovation, at very different stages, technology is integrated into the product development process. This integration occurs in two different directions. Either state-of-the-art-technology is integrated into a product development process. This is often referred to as technology transfer. Or, throughout a development process, the requirements for new technologies are being detected. These requirements can lead to a new technology development process with clear expected deliverables for

product development. This ongoing research focuses on the way technology development interfaces with the product development process in the early stages of innovation. Through case studies within larger and small to medium sized enterprises (SMEs), different aspects on the interface between technology development with product development are registered and analysed, in order to optimise and improve the integration. This leads to a model where the inputs from technology development and the requests for technology search or development are indicated at specific stages in the front-end of innovation. Ultimately, this model will provide the basis for implementing the appropriate methodological tools at the right moment in the early stages of technology driven innovation.

Keywords: Front-end of innovation, technology driven innovation, technology development, product development

Promoting and Evaluating Entrepreneurial Learning: Assessing the Effectiveness of an Enquiry-Based Approach

**Kiefer Lee, Sue Marriott and Robin Lowe
Sheffield Hallam University, UK**

Abstract: In the light of rapid social change in an increasingly complex world, it is widely recognised that graduates need more than academic attainment in order to transform such challenges into opportunities for change. They need to develop the entrepreneurial skills that enable them to seize and exploit opportunities, and make a difference in their communities. Higher education institutions are important agents of economic and social growth (Herrmann *et.al.*, 2008). Whilst there is pressure within higher education institutions to promote the 'enterprise culture', there is no substantive measure of agreement in literature as to what the appropriate pedagogical approaches should be that would encourage student enterprise and graduate entrepreneurship (Gibb, 2002, 2006). The promotion and evaluation of entrepreneurial learning is an acknowledged area of weakness in entrepreneurship education. A typical University setting is not conducive to entrepreneurial learning as traditional learning and assessment methods – e.g. lecture, examination etc. – do not promote entrepreneurship, whereas entrepreneurship education requires students to develop new ways of thinking and new modes of behaviour (Heinonen and Poikkijoki, 2006). This calls for pedagogical approaches that encourage 'learning by doing' and provide opportunities for students to proactively manage their learning. One such approach is enquiry-based learning, in which students are expected to construct their own knowledge and understandings by engaging in supported processes of open enquiries (Kahn and Rourke, 2008). Based on a case study of 80 students in a marketing innovation module of a Masters programme, this paper aims to explore how effective the enquiry-based learning approach is in promoting and evaluating entrepreneurial learning. The research emphasises on the entrepreneurial process and innovation - i.e. the processes involved in developing market innovations rather than new venture creation. The assessment is an integral element to facilitate and drive student learning. Enquiry-based approaches where students engage in an essentially self-determined process of enquiry (Hutchings, 2005; Savin-Baden, 2007) together with their integrated assessment strategies empower learners

to take more responsibility for their own learning thereby increasing their engagement in the learning process (Bandura, 1977; Feuerstein, 1991). The production of a learning portfolio in the form of learning logs was an integral part of the module's assessment, and these learning logs provided important information about their learning as well as about the student's approach to managing that learning process. The data used in this study analyses written student reflections of management learning and knowledge application between 6000-8000 words. This paper seeks to evaluate the effectiveness of such an approach in enhancing entrepreneurial learning. It concludes by drawing upon the implications on curriculum planning, assessment design and feedback strategy.

Keywords: Entrepreneurial learning, entrepreneurship education, enquiry-based learning, assessment, feedback, higher education

Improving Creativity in Organizations Using Creative Techniques With Experiential Learning

Matilde Martínez Casanovas¹, Francesc Miralles², Marcos Gómez³ and Rafael García⁴

Ramon Llull University, Barcelona, Spain

Abstract: The use of Experiential Learning techniques has been proposed as a highly effective educational approach. Research on experiential learning in management has used the Experiential Learning Theory to describe the process of learning by managers. In addition, teamwork is prevalent in organizations, and it has been widely accepted that team members are more effective if they learn from experience. Furthermore, a myriad of tools, techniques and strategies for improving idea generation can be found in the subject literature. Creative techniques have also been used to improve creativity processes. Thus, in this research-in-progress work, we propose combining creative techniques with experiential learning to increase effectiveness in idea generation experiences. As far as the authors are aware, the potential benefits that can be obtained from the use of Experiential Learning techniques to learn creative techniques in the process for idea generation has not been widely explored yet. There is substantial literature on Experiential Learning and Creativity. But there is a lack of references that deal with both terms. Moreover, there is also considerable literature on Learning Organizations, but it is not related to learning creative techniques. With this contribution we want to propose research on the relationship between experiential learning and creativity as a way to enhance creative behaviour in organizations. The authors intend to answer the following research question: 'Does learning creative techniques by Experiential Learning have a positive effect on the employees perception of their creative behaviour in organizations?' This research in progress follows a qualitative research approach with four teams in different organizations. All teams were focused on specific problems and team activity was recorded for further analysis. After the learning experience, some participants were interviewed to analyze their perception of idea generation improvement. Participants' managers were also interviewed to obtain their own perception. A control group was used to compare participants' perceptions. The potential contribution of this research ties in with the application of Experiential Learning techniques to foster the development of creative behaviour in organizations. Results of this research may help in the training process for idea

generation and creativity fostering by employees in organizations. These results may be used by human resources area staff to design new education programs based on experiential learning activities.

Keywords: Creativity group, idea generation, creativity techniques, experiential learning, organization

Building Theory for Systemic Customer Value: Case Apple

Karri Mikkonen¹, Marko Seppänen¹ and Mikko Pynnönen²

¹Tampere University of Technology, Finland

²Lappeenranta University of Technology, Finland

Abstract: One main management topic for telecom operators in the new services area in mature ICT markets relates to the combining of existing products in bundles. Major equipment vendors and operators are moving into areas of content and applications, some are establishing digital stores. They attempt to create advanced value systems, based on one or more devices that interoperate and are connected to Internet-based, value-added services. Recent studies on the customer preferences of Quad Play offering show that the ease-of-use, convenience and interoperability of devices produced in a total offering are as strong as or even stronger value components than price. These value components are not directly linked to any single source of value like a certain device or a service module. This phenomenon is referred to as 'systemic customer value'. It further suggests that a business developer enhance those value components in order to add new value for customers without a need to enter the discount game. Theories to explain the phenomenon were lacking, and thus, this paper examined how to combine different theoretical approaches. The consistency component from the SERVQUAL framework offered a way to treat ease-of-use and convenience from a time perspective. The field theory concept of the goal region combined with results from behavioural decision research about waiting time, delays and decision-making support the existence of systemic value creation in an ICT usage case when time is a scarce resource. Apple's total offering was investigated from these theoretical angles and some conclusions were drawn on how complex value systems in ICT may operate. Four propositions about the dynamics of systemic customer value creation were formulated and key management implications for capturing this value element were determined.

Keywords: Systemic customer value, consistency, ICT, integrated offering, theory building, case

Evaluating the Contribution of Belgian ICT Start-Ups to Innovation

Dieter Van Nuffel, Sven De Cleyn, Carlos De Backer and Johan Braet

University of Antwerp, Belgium

Abstract: *Introduction.* The ICT market is a quite dynamic industry sector regarding number of start-ups. Additionally, ICT is often named as important field for innovation

in Belgium. From a technology diffusion and adoption perspective, the ICT sector is important as many new applications are driven by or supported by ICT-related developments. However, knowledge and understanding of the innovativeness of these ICT start-ups and their contribution to technology development and diffusion is currently relatively limited. *Aim.* The aim of this study is to investigate if ICT start-ups contribute to the development and dissemination of new technologies and innovations, as it could be that the newly established ventures primarily aim at exploiting the founders' knowledge and expertise on their own account rather than developing and introducing new technologies and new knowledge. This difference could be revealed using different innovation parameters, measured by an empirical study. In addition, existing typologies of ICT innovations will be used to verify in which domain(s) newly established ICT ventures are active. In this sense, the innovativeness will be matched with needs in both the Belgian industry and the global ICT sector. Survival and performance of the starters will be included as control variables. *Methodology.* The research will be executed adopting a three-phase mixed-method approach. First, a literature review on the subject and an assessment of the Belgian policy and initiatives towards the enhancement of innovativeness is performed, with specific attention for the ICT sector. A second stage consists of a qualitative research. In this phase, the typology of ICT innovations and the innovativeness measures will be verified and tested within the industry using semi-structured interviews with managers of ICT ventures. Additionally, a round table discussion with industry experts will be used to select appropriate case studies for this phase. The final research phase will gather data on a larger scale using a quantitative survey approach, based upon the findings of the preceding qualitative and literature research. The sample consists of Belgian start-ups in the ICT sector established between 2000 and 2006. These limitations have been chosen because the similar geographical setting in which these ventures operate and because financial data are available for all companies of our sample using the Bel-First financial database. All companies for which no financial data are available will be excluded from our sample. *Implications.* Comparing the innovativeness of start-ups with the need for innovation in Belgium and a typology of ICT innovations, will assess the current innovation potential of Belgian start-ups. The results of this work-in-progress are useful for a number of stakeholders. First, the ICT industry in general, and the individual ICT organisations in particular, will be provided with an overview of the innovativeness of their industry. This can potentially indicate market opportunities for ICT innovations. Second, government can verify whether their policy and initiatives result in relevant ICT innovations. Third, researchers can expand the research setting to similar countries also focusing on innovation within the ICT industry.

Keywords: Innovation; ICT start-up; technology adoption; innovativeness; technology diffusion

Posters

The Perspective of Practical Theory in Entrepreneurship-- The Life Narrative of Chinese Clinic Director Fu

**Shih Chin-Chung Tsai Dun-Hou and Li Shang-Jen
National Sun Yat-sen University, Taiwan, R.O.C.**

Abstract: This paper uses a narrative approach to represent a life story of Chinese Clinic Director Fu, who is transitioned himself from being a professional doctor to be a clinic director and to be an entrepreneur. This process refuses a static viewpoint to study entrepreneurship, rather it goes beyond and suggests “entrepreneurial” ontology. The whole story is about a specific entrepreneurial process taking place in Fu’s three-stage life span- Chinese medical doctor, clinic manager and an entrepreneur in southern Taiwan. As a whole the story is a response to the shortcomings within the field of entrepreneurship to provide a process theory of entrepreneurship. Three findings are identified: 1) Entrepreneurship is not heritage from family but emerging from practicing. ; 2) the way to foster and cultivate entrepreneurship is to create problem-solving settings for practice. ; And 3) Diverse contextual stimulations are necessary to reinforce entrepreneurship.

Keywords: Practical theory, entrepreneurship, narrative inquiry

Innovation and Project Management in Portuguese State and University Laboratories

**Cristina Rocha
Universidade Católica Portuguesa, Porto, Portugal**

Abstract: Research, Development and Innovation (RDI) are now priority subjects in any industrialized country operating in the global economy. Good ideas are not enough, one must be able to manage knowledge in a systematic and planned manner and turned into added value and thus create wealth. In following European Union policy, Portugal, has been developing instruments to support Research and Innovation, which are considered to be crucial to achieve sustainable development. Innovation Management, although complex, is susceptible to being systemized and organized in ways that fulfil verifiable requisites and, thus, to being certified. A set of Portuguese RDI Standards have been drawn up with the aim of turning the RDI concept into structured, verifiable and certifiable one. The model which underpins RDI Management System is compatible and aligned with other established systems, allowing its integration into a single system. Adopting a process approach, according to the principles of continuous improvement, which derive from Quality Management methodology, it is possible to strengthen companies’ innovative performance, alongside other essential concerns, such as Quality, the Environment, Health and Safety and Social Responsibility. This present study employs these Portuguese standards as the starting point to evaluate the competitive strengths and weaknesses associated with the management of two specific RDI projects. One project was run in a State Laboratory and the other in a University Laboratory.

The results obtained reinforce not only the need to consider the planning phase, but also the risks foreseen for the project which can affect, in a real way, the execution, the results, the duration and the costs. Mitigation plans and action procedures are also relevant in case, needs change and unforeseen situations and unexpected results are identified in the course of projects. From observations of the attitude found in both institutions studied, it could be concluded that external financing sources themselves exert the necessary discipline to oblige the generation of project results and cost control. Even so, the value of the check-list of requisites became evident in the way it obliged the establishment of formal practices for internal follow-up of key management requisites. It was possible to identify that the Certification of RDI Projects gives credibility and transparency to the RDI outputs and allows the demonstration, both internally and externally (to the project's clients) of its effective RDI value, by evaluating the planned budget and the effective costs (giving substance to the evaluation of the investment suitability). From the research carried out it could be confirmed that the principles inherent in the Quality Management process permit the strengthening of innovative practices and that certifying the Innovation Management System can be a relevant step in the consolidation of these practices. It was concluded that the potential for innovation would be greatly enhanced when organizations establish a culture of continuous improvement, involving all employees in the pursuit of being creative in the endeavour.

Keywords: "Research, Development and Innovation - RDI"; "Innovation Management"; Creativity; "Continuous Improvement"; Certification