

2nd European Conference on Entrepreneurship and Innovation

Utrecht University, Utrecht School of
Economics
The Netherlands
8-9 November 2007

Edited by

Dr Dan Remenyi
Trinity College Dublin, Ireland

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Contents

Paper Title	Author(s)	Guide Page	Page No.
Preface		iv	iv
Biographies of Conference Chairs, Programme Chair, Keynote Speaker and Mini-track Chairs		v	vi
Biographies of contributing authors		viii	viii
Moving From Management to Entrepreneurship: A Case Study About Training Science Students for the Business World	<i>Arie Buijs and Judith Beugels Utrecht School of Economics, Utrecht University, The Netherlands</i>	1	1
Creating University Spin-offs: A Science-Based Design Perspective	<i>Elco van Burg, Georges Romme, Victor Gilsing and Isabelle Reymen Eindhoven University of Technology, The Netherlands</i>	2	9
Cognition and Innovation: Entrepreneurship and the Autopoietic Approach: The Cases of Aer Lingus and FIAT	<i>Chiara Demartini Faculty of Economics, University of Pavia, Italy</i>	3	19
Cross-Country and Cross-Industry Patterns in the Determinants of Innovation Output: Evidence for 12 EU Countries Based on CIS 3 Micro Data	<i>Martin Falk Austrian Institute of Economic Research (WIFO), Vienna, Austria</i>	4	29
Opportunities and Challenges Facing Entrepreneurs in an Environment of Mass Customization and Open Innovation	<i>Khaled Hamid Virginia Commonwealth University, VA, USA</i>	5	41
An Innovative Approach to Incorporating Student-Centred Learning in Innovation and Entrepreneurship Education	<i>Saskia Harkema^{1,2} ¹The Hague University of Professional Education, The Netherlands ²University Utrecht, The Netherlands</i>	6	47
The Institutional Organisation of Knowledge Transfer and its Implications	<i>Sjors van der Heide, Peter van der Sijde and Cees Terlouw University of Twente, Enschede, The Netherlands</i>	7	57
The Roles of Scientists in Starting-up Research-Based Spin-off Companies	<i>Harmen Jousma¹ and Victor Scholten² ¹Leiden University, The Netherlands ²Erasmus University, Rotterdam, The Netherlands</i>	8	67
On a Distance-Learning Approach to 'Train the Trainers' in Entrepreneurial Education in Greece. Theoretical Considerations Supported by Students' Response as Observed from the Career Office of the University of Athens.	<i>Alexandros Kakouris Career Office, National and Kapodistrian University of Athens, Greece</i>	9	75
Too Much R&D? – Vertical Differentiation in a Model of Monopolistic Competition	<i>Jan Kranich Leuphana University of Lueneburg, Germany</i>	10	81

Paper Title	Author(s)	Guide Page	Page No.
Teaching Entrepreneurs Continuous Adaptation	<i>Codrin Kruijne Utrecht University, The Netherlands</i>	11	91
An Analysis of Differences in new Firm Formation and Employment Growth Between the IT and non-IT Sectors in Bangalore	<i>Kothandaraman Kumar Indian Institute of Management Bangalore, India</i>	12	99
Strategy and Innovation: Making the Right Strategic Decision and Developing the Right Innovative Capabilities	<i>Lawrence Loughnane CETYS Universidad Mexicali, Mexico</i>	13	109
Prior Tacit Knowledge and First-Year Sales: A Study of Technology Entrepreneurship	<i>Matthew Marvel and Leo Simpson Western Kentucky University, Kentucky, TX, USA</i>	14	115
On the use of e-Learning in Divergent Education and Innovation	<i>Ali Moeini, Elnaz Ketabchi and Mohamadreza Mortazavi Informatics Centre, University of Tehran, Iran</i>	15	125
The Compilation of Math Pattern for Quality of Staff's Working Life Based on Higher Education Managers' Entrepreneurship in Islamic Azad University	<i>Fattah Nazem Islamic Azad University, Roudehen Branch, Iran</i>	16	131
Contextual Innovation	<i>Roland Ortt and Patrick Van der Duin Delft University of Technology, The Netherlands</i>	17	141
Entrepreneurship and Innovation within Creative Industries: Case Study on the Finnish Games Industry	<i>Mirva Peltoniemi Tampere University of Technology, Finland</i>	18	149
Dynamic Capabilities and Change: A Study on Factors Affecting Change and Innovation Efforts of Greek SMEs	<i>Apostolos Rafailidis¹ and Giannis Tselekidis² ¹Technological Education Institute of Patras, Greece ²Greek Ombudsman, Athens, Greece</i>	19	157
Coaching Academic Entrepreneurship: How to Overcome the Knowing-Doing-Gap?	<i>Cord Siemon¹ and Nils Otter² ¹University of Marburg, Germany ²German Research Institute for Public Administration, Speyer, Germany</i>	20	167
Cooperation in Innovation Practices Among Portuguese Firms: Do Universities Interface Innovative Advances?	<i>Maria José Silva and João Leitão University of Beira Interior, Portugal</i>	21	177
Do Planning and Preparation Predict Success in SME-Transfers?	<i>Lex van Teeffelen Utrecht Business School, Hogeschool van Utrecht, The Netherlands</i>	22	185
Intellectual Capital Practices in Small Technology-Intensive Enterprises: A Regional Comparative Study	<i>George Tovstiga and Ekaterina Tulugurova Henley Management College, Henley-on-Thames, UK</i>	23	193

Paper Title	Author(s)	Guide Page	Page No.
Family Orientation, Strategic Orientation and Innovation Performance in SMEs: A Test of Lagged Effects	<i>Lorraine Uhlaner¹, Sita Tan² and Joris Meijaard²</i> <i>¹Nyenrode Business Universiteit, Breukelen, The Netherlands</i> <i>²EIM BV, Zoetermeer, The Netherlands</i>	24	201
Technological Innovation in the UK Police Forces: A Smooth Process?	<i>Georgios Vardaxoglou¹, David Allen¹, Tom Wilson² and Karl Prince¹</i> <i>¹The University of Leeds, UK</i> <i>²The University of Sheffield, UK</i>	25	211
A Theory of Entrepreneurial Rents in Endogenous Growth	<i>Zoltan Acs¹ and Mark Sanders²</i> <i>¹George Mason University, USA</i> <i>²USE/TKI and MPI, The Netherlands</i>	26	Abstract only
Post Merger Innovative Patterns in Small and Medium Firms	<i>Elena Cefis and Mihaela Ghita</i> <i>Bergamo University, Italy and Utrecht University, The Netherlands</i>	27	Abstract only
Innovation Over the Industry Life Cycle: From Quality to Efficiency	<i>Claire Economidou, Jaap Bos and Mark Sanders</i> <i>Utrecht School of Economics, The Netherlands</i>	29	Abstract only
Valuation of a Pharma R&D Licensing Opportunity Using Compound Option Pricing	<i>Peter-Jan Engelen, Danny Cassimon, Marianne De Backer and Martine Van Wouwe</i> <i>Utrecht University, The Netherlands</i>	30	Abstract only
Entrepreneurship and Social Innovation: Muslim Women Entrepreneurs in Uzbekistan	<i>Angeline Low and Jock Collins</i> <i>University of Technology Sydney, Australia,</i>	31	Abstract only
Is There a Link Between Advisory Boards in and the Performance and Tradability of Medium Sized Family Firms?	<i>Ilse Matser and Lex van Teeffelen</i> <i>Utrecht School of Economics and the Utrecht Business School, The Netherlands</i>	33	Abstract only

Preface

Welcome to the second European Conference on Entrepreneurship and Innovation hosted this year by the Utrecht School of Economics, Utrecht University, The Netherlands.

The opening keynote address is given by Salem Samhoud. On the second day of the conference the keynote address is to be given by David B. Audretsch from Indiana University, USA..

A key aim of the conference is sharing ideas. The topics covered by the papers illustrate the wide range of topics that fall into this important and growing area of research. To further enhance the conference experience Professor Dan Remenyi from Trinity College Dublin will run a knowledge café to encourage networking and debate.

With an initial submission of 60 abstracts, after the double blind, peer review process there are 25 papers published in these Conference Proceedings. These papers represent research from Austria, Finland, Germany, Greece, India, Iran, Italy, Mexico, Netherlands, Portugal, UK, and USA.

Utrecht University is currently working on expanding its scope in entrepreneurship education from the Utrecht School of Economy to all branches of science. The focal point is the Utrecht Centre for Education in Management and Entrepreneurship (UCEME), which organizes courses in entrepreneurship, business venture planning, business-economics, and investment analysis. The staff of UCEME is also involved in various research projects in entrepreneurship. In the faculty of Science of Utrecht University the courses for entrepreneurship education are conducted in a virtual company Netherware. The students enter the course with a business concept based on a scientific idea, and produce in the course a prototype of the product or service with an accompanying business plan. Furthermore, the students perform all roles to run the Netherware company, e.g. finance, marketing, hrm, etc, in order to get acquainted with being part of an entrepreneurial experience. This educational model has proven to be very successful in educating entrepreneurs, but has already spun of several dozens of new ventures led by students or alumni of Utrecht University.

It is in this entrepreneurial spirit that Utrecht University offered to host the second European Conference on Entrepreneurship and Innovation. We welcome all participants to share their experiences with us, to present research results, learn from each other, and enjoy the beautiful city of Utrecht.

We hope that you have an enjoyable conference.

Sjaak Brinkkemper
Program Chair

Arie Buijs
General Chair

Utz Weitzel
Organizing Chair

University of Utrecht
November 2007

Conference Executive:

[Professor David B. Audretsch](#), Max Planck Institute in Jena, Germany; Ameritech Chair of Economic Development, Indiana University, USA

[Professor Arie Buijs](#), Utrecht University, The Netherlands

[Professor Sjaak Brinkkemper](#), Utrecht University, The Netherlands

[Professor Charles Despres](#), Ecole Polytechnique, France

[Paul Jones](#), University of Glamorgan, UK

[Sean Pather](#), e-Innovation Academy, Cape Peninsula University of Technology, South Africa

[Professor Dan Remenyi](#), Trinity College, Dublin, Ireland

[Dr. Utz Weitzel](#), Utrecht University, Utrecht School of Economics, The Netherlands

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; Senguttuvan Annamalai, Madha Engineering College, India; Ashwini K Awasthi, MLSM College, India; Arie Buijs, Utrecht University, The Netherlands; Benjamin Botchway, American University of Nigeria; Sjaak Brinkkemper, Utrecht University, The Netherlands; John Byrne, RMIT University, Australia; Elias Carayannis, George Washington University, USA; Paulo Rupino Cunha, University of Coimbra, Portugal; Leo-Paul Dana, University of Canterbury, New Zealand; Charles Despres, Ecole Polytechnique, France; Vasco Eiriz, University of Minho, Portugal; Maria Joao Ferreira, Universidade Portucalense, Portugal; Heather Fulford, Loughborough University, UK; Andrew Goh, International Management Journals, Singapore; Paul Jones, University of Glamorgan, UK; Gyeong-Min Kim, Ewha Womens University, Korea; Sam Kongwa, Walter Sisulu University, South Africa; Sam Lubbe, University of KwaZulu-Natal, South Africa; Juan Martínez, Universidad Politécnic de Cataluña, Spain; Zoran Mitrovic, e-Innovation Academy, Cape Peninsula University of Technology, Cape Town, South Africa; [Jens Mueller](#), University of Waikato, New Zealand; Desai Narasimhalu, Singapore Management University, Singapore; Mohand-Said Oukil, King Fahd University of Petroleum and Minerals, Saudi Arabia; Jatin Pancholi, Middlesex University, UK; Sean Pather, Cape Peninsula University of Technology, South Africa; Catarina Ramalho, University of Lisbon, Portugal; Dan Remenyi, Trinity College Dublin, Ireland; Namchul Shin, Pace University, New York, USA; Padma Srinivasan, ICFAI Business School, India; Thomas Thijssen, University of Amsterdam, The Netherlands; [Jennifer Whyte](#), Tanaka Business School, Imperial College London, UK.

Biographies of Conference Chairs, Programme Chair and Keynote Speaker

Conference Chair



Dr Arie Buijs (1949) studied Applied Mathematics and Natural Sciences at the University Utrecht. Afterward he was associated with the Economics Faculty of the University of Amsterdam and from 1975 with the Nyenrode Business University. He worked as visiting Professor in the USA, China and Zuid-Afrika. From 1994 to 1996 he was a full-time professor Business Management at the Nelson Mandela Metropolitan University (NMMU) in Port Elizabeth (South Africa). Currently he is still a guest lecturer and external examiner at the NMMU. Since 2001 he is Full Professor in Finance at the University Utrecht, and has the special task to develop en coordinate management education for students in natural sciences and biomedicine. Prof. Buijs wrote several books, inter alia *Statistiek om mee te werken* (in 7th edition, 2003) and *Kwantitatieve Toepassingen in de Bedrijfskunde* (in 4th edition, 2006). As director of Utrecht Center for Education in Management and Entrepreneurship (UCEME) his currently most important tasks are to expand entrepreneurship and management courses to all students of the Utrecht University.

Programme Chairs

Dr Sjaak Brinkkemper is full professor of organisation and information at the Institute of Information and Computing Sciences of the Utrecht University, the Netherlands. He leads a group of about ten researchers specialized in product software entrepreneurship. The main research themes of the group are methodology of product software development, implementation and adoption, and business-economic aspects of the product software industry. He is chairman of the Platform for Product Software, a knowledge exchange forum for product software companies in the Netherlands. He also established Netherware, the incubator supporting students to start their own software company. Before, he was a consultant at the Vanenburg Group and a Chief Architect at Baan Development where he conducted software process improvement initiatives in Requirements Management, Architecture and Design for various companies. Before Baan he held academic positions at the University of Twente and the University of Nijmegen, both in the Netherlands, and visiting positions at the University of Texas at Austin (USA) and Tokyo Institute of Technology (Japan). He served on the program committees of numerous conferences and workshops (CAiSE, ICsOC, ECIS, WITS, OOIS, REFSQ, WICSA). He is a member of the Editorial Board of the *Requirements Engineering Journal*, *Journal of Database Management*, and *Journal on Information Systems and e-Business Management*. He is a member of IFIP Working Group 8.1 on the "Design and Evaluation of Information Systems", of the ACM, of the Computer Society of the IEEE, and of the Netherlands Society for Informatics



Keynote Speakers



David Audretsch is the Ameritech Chair of Economic Development, Director of the Institute for Development Strategies at Indiana University, Director of the Entrepreneurship, Growth and Public Policy Group at the Max Planck Institute in Jena, Germany, and is a Research Fellow of the Centre for Economic Policy Research (London). Audretsch's research

has focused on the links between entrepreneurship, government policy, innovation, economic development and global competitiveness. He has consulted with the World Bank, National Academy of Sciences, U.S. State Department, United States Federal Trade Commission, General Accounting Office and International Trade Commission as well as the United Nations, Commission of the European Union, the European Parliament, the OECD, as well as, numerous private corporations, state governments, and a number of European Governments. He is a member of the Advisory Board to a number of international research and policy institutes, including the Zentrum fuer Europaeisch Wirtschaftsforschung (ZEW, Centre for Economic Research), Mannheim, the Hamburgisches Welt-Wirtschafts-Archiv (HWWA, Hamburg Institute of International Economics) and the Swedish Foundation for Research on Entrepreneurship and Small Business. His research has been published in over one hundred scholarly articles in the leading academic journals. He has published thirty books including, Innovation and Industry Evolution, with MIT Press. He is co-founder and co-editor of Small Business Economics: An International Journal. He was awarded the 2001 International Award for Entrepreneurship and Small Business Research by the Swedish Foundation for Small Business Research

Utz Weitzel obtained a Bachelor in Economics and Business Administration in Germany and a Master's degree in 'International Business and Economic Development' in the UK. He earned a PhD at the Humboldt University in Berlin and was a post-doc at the Kellogg Business School in Chicago. After that he worked as consultant for the Bayer AG together with The Boston Consulting Group, worked as a silent partner in a private research company, and participated in a management buy-out of a media service provider, of which he is still a shareholder and member of the board of directors. Since 2003 Utz is an Assistant Professor at the Utrecht School of Economics and since 2007 part of the UCEME team. He teaches 'Mergers and Acquisitions' as well as 'Introduction to Organization and Strategy' and does research in M&A, innovation, entrepreneurship and firm growth, as well as networks and alliances.



Biographies of contributing authors (in alphabetical order)

Arie buijs is the director of the Utrecht Centre for Education in Management and Entrepreneurship at Utrecht University. He is also a professor at Nelson MAndela Metropolitan University (South Africa) and at the Nyenrode Business University (The Netherlands)

Elena Cefis is Associate Professor of Applied Economics at Department of Economics, University of Bergamo and a research fellow at T.C. Koopmans Research Institute, Utrecht University. She obtained in 1995 her PhD degree in History and her PhD degree in Economics in 1999 at European University Institute, Florence. She has published in Industrial and Corporate Change, Research Policy, Small Business Economics and International Journal of Industrial Organisation.

Chiara Demartini graduated cum laude in Management Sciences, 2007, University of Pavia. Her research interests are focused on organizational models and knowledge management. She is actually assistant to the Management and Business Chair at the University of Pavia.

Claire Economidou is an assistant professor of Macroeconomics at Utrecht School of Economics. Her research interests include international economics, growth economics, and applied economics.

Peter-Jan Engelen holds a PhD in Applied Economics, a MSc in Finance and Tax Management, and a MA and BA in Applied Economics (with a major in Finance). He also went to Law School obtaining an LL.B. and LL.M. Currently, he is working as an Assistant Professor of Corporate Finance (Universitair Docent) at the Utrecht School of Economics, Utrecht University, the Netherlands. His research and publications are situated within the fields of corporate finance, securities regulation and law & economics.

Martin Falk is a Senior Researcher at WIFO (Austrian Institute of Economic Research). His research focuses on the economics of innovation, globalisation and industrial economics. Prior to joining WIFO, he was a research affiliate at the ZEW Mannheim (Germany). He received his Ph.d. from the University of Regensburg.

Khaled Hamid is an assistant professor at Virginia Commonwealth University in the USA. He has also lectured at the undergraduate to MBA level in Singapore and various parts of Asia in branding, entrepreneurship, and management. Himself an entrepreneur, he established private operations and worked with leading international organizations in franchising and brand management. Research Interests in innovation, branding, and marketing

Saskia Harkema holds the chair of Innovation & Entrepreneurship at The Hague University of Professional Education. She has several publications on her name on innovation, entrepreneurship and learning in innovation projects. Furthermore, she is a lecturer at the Institute of Natural Sciences and Innovation Management at the University of Utrecht where she teaches subjects like the management of innovation projects and innovation product and process management

Sjors van der Heide studied Industrial Engineering and Management at the University of Twente (MSc). His dissertation is about transnational university cooperation on knowledge

transfer activities. Currently, he is doing research in this field at the Dutch Institute for Knowledge Intensive Entrepreneurship [Nikos], University of Twente, The Netherlands.

Harmen Jousma is manager of the educational program Science Based Business and lectures on Technopreneurship at the Faculty of Mathematics and Natural Sciences of Leiden University, the Netherlands. He holds a PhD in Pharmaceutical Sciences, worked in various managerial capacities in research management and technology transfer, and was involved in the start-up of several university spin-off companies.

Alexandros Kakouris he studied Physics at the University of Athens (1990) and 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 working at the Career Office of the University of Athens as a counsellor since 1998 and as project coordinator since May 2004.

Jan Kranich: academic staff and Phd student at the Institute of Economics, dep. Innovation and Growth, cuurently working on a research project "Biotechnology and Internationalization".

Codrin Kruijne is a junior lecturer in business at the Utrecht Centre for Education in Management and Entrepreneurship, Utrecht University. He is interested in the development of entrepreneurial skills in particular and business incubation in general.

Kothandaraman Kumar is a part time Visiting Faculty at the N.S.Raghavan Center for Entrepreneurial Learning at the Indian Institute of Management Bangalore. He has a B.E degree in Electrical and Electronics Engineering (Madurai University) and a Post-Graduate Diploma in Management from IIMB. He is a Fellow of IIMB (equivalent to a Ph.D), with specialization in corporate strategy, and studied the corporate strategic planning practices in the Indian corporate sector for his fellowship dissertation. Kumar has over 16 years of experience in the industry in various capacities, including as CEO and consultant. His current research and teaching interests are in the area of entrepreneurship and strategic management of new ventures.

João Leitão is assistant professor at the University of Beira Interior (UBI), Covilhã, Portugal. His academic background includes a Ph.D. in Economics, UBI, 2004. He also participates in several editorial boards: International Review on Public and Non Profit Marketing, South African Journal of Information Management, The New Economics Papers (NEP) and Revista Portuguesa e Brasileira de Gestão. He is editorial coordinator of International Review of Management and Economics and referee for Applied Economics, Frontiers in Finance and Economics, Small Business Economics: An Entrepreneurship Journal, Frontiers of Entrepreneurship Research, Revista Economia & Sociedade, European Marketing Academy (EMAC), Academy of Management (AOM) and Advances in Business Education & Training (Springer). Research areas: Public Policies for Entrepreneurship, Technological Marketing and Economics of Sports.

Lawrence Loughnane recieved his docotorate in strategic management from the the University of Limerick, Limerick Ireland. He has taught in Ireland, Spain, Mexico and the US. He currently is working with CETYS Universidad, Mexicali, Mexico to establish a research program across all CETYS programs.

Angeline Low has a varied background, comprising careers in senior management, business and now academic research in entrepreneurship. Her current research focus is

on Muslim women entrepreneurs in different economies and with additional interest in women's change leadership, immigration and resettlement, gender, class and policies on social and economic inclusion.

Ilse Matser Education, organization and research are leading in my career. After she obtained her qualifications in academic teaching; training and coaching young lecturers also became part of her work. As a sign of appreciation the University of Utrecht allowed her to complete a prestigious course at the Centre of Excellence in University Teaching. Being part of the team that recently set up UCEME (Utrecht Centre of Education in Management and Entrepreneurship) has only increased her knowledge and hands-on experience in this area. A recent successful spin-off from UCEME is her installation as part-time managing director of the Centre of Family Businesses (CFB) in the Netherlands.

Ali Moeini is currently an assistant professor at the algorithms and computations department in the faculty of engineering, University of Tehran. He graduated with a PhD in computer aided nonlinear control system from University of Sussex, England in 1997. He has conducted active research in the area of software engineering, expert system, nonlinear system, e-Learning, mobile learning and knowledge-based system since 1990. He has published more than forty refereed journal and conference papers in the above area. He is head of informatics center, University of Tehran.

Fattah Nazem Associate Professor and Deputy vice-chancellor in Research Department. Publications: One book - 29 Articles in National, International Conferences and scientific-Research Journals. Supervisor for 5 researches work and assistant for 3 researches. Co-chair for 5 National and regional Conferences and also for 25 National and International Conferences as a Scientific Committee member. Chief Executive of Quarterly Journal of Educational Sciences. Guiding more than 175 MA Thesis (Master Degree). Cooperating with 100 Organizations for 343 different Seminars and Courses on the management

Roland Ortt studied economics and specialized in the analysis of high-tech markets. He was an assistant professor and received a phd at the faculty of Industrial Design Engineering of the Technical University of Delft. His thesis was devoted to developing market analysis methods for a breakthrough communication technology, the video telephone. He has worked as an R&D manager at the research institute of KPN (the incumbent Dutch telecom operator). Currently he is an associate professor in technology management at the faculty of Technology, Policy and Management of the Technical University Delft.

Mirva Peltoniemi graduated with a M.Sc.(Eng.) at Tampere University of Technology, Finland, in 2004. Since then she has been working as a researcher at the Institute of Business Information Management, Tampere University of Technology. Her research for Doctor of Technology degree concentrates on the development of the Finnish games industry from economic and management perspectives.

Apostolos Rafailidis is an assistant professor at the department of Business Planning and Information Systems of the Technological Education Institute of Patras, Greece. He mainly works in the fields of technology and innovation management, organizational learning, change management, interfirm technological cooperation and defence economics from an industry perspective.

Georges Romme (B.Sc., M.Sc., Ph.D.) is professor of Entrepreneurship and Innovation at Eindhoven University of Technology (The Netherlands). Romme obtained a master degree

in Economics from Tilburg University and a PhD degree in Business Administration from Maastricht University. He previously was on the staff of Maastricht University and Tilburg University. His current research addresses design methodology, innovation and technology entrepreneurship. Georges Romme currently serves on the editorial boards of Organization Studies and Organization Science.

Cord Siemon. 1989-1992 bank employee. 1992-1998 study of economics at Philipps University Marburg. 1998-2002 research assistant at Philipps University Marburg. 2004 Ph.D. in economics. since 2002 employee at the Marburg Center for Entrepreneurship

Peter van der Sijde is senior project manager, researcher, and teacher at Nikos, University of Twente. His research interests are in student entrepreneurship, high-tech and international entrepreneurship as well as the interaction between knowledge institutes and industry.

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, 2004. She is coordinator of the post graduation course of Technological Entrepreneurship. She participates in the editorial board of the Revista de Gestão e Economia and she is member of the CAIE project – Innovation and Entrepreneurship Support Centre. She is a research fellow in NECE – “Núcleo de Estudos em Ciências Empresariais”. Research interests: Innovation and Technological Entrepreneurship.

Lex van Teeffelen is both programme manager and research leader on consultancy and SME business transfers at the Faculty of Economics and Management of the Educational University of Utrecht. Since 1990 he combines consultancy, research and training as an active business and management consultant.

George Tovstiga is Associate Professor of Strategy and Innovation Management at Henley Management College, School of Growth, Innovation and Enterprise. His research is in the field of strategic innovation management and capabilities management; areas in which he has published extensively.

Patrick Van der Duin. He is an assistant professor at Delft University of Technology, Faculty of Technology, Policy and Management, Section Technology, strategy and entrepreneurship. He receives his master in economics from the University of Amsterdam. He was a researcher and senior advisor at KPN Research where he participated in future studies research on use of telecommunication services and products. In 2006 he finished his PhD on the use of qualitative methods of futures research in innovation processes in large corporations.

Lorraine Uhlener is a faculty member at Nyenrode Business Universiteit. (As of June 24, 2007, the nomination to full professorship is in process). She has published in a number of major entrepreneurship journals including Journal of Business Venturing, Journal of Small Business Management and Small Business Economics and a variety of other publications in the fields of entrepreneurship and family business.

Georgios Vardaxoglou is a PhD candidate at Leeds University Business School. His current research is focused on finding out how technological innovations arise, and how emergency services engage with relevant stakeholders during the innovation process. Georgios's professional background includes working for the Northern Leadership Academy and Motorola Inc.

Moving From Management to Entrepreneurship: A Case Study About Training Science Students for the Business World

Arie Buijs and Judith Beugels

Utrecht School of Economics, Utrecht University, The Netherlands

Abstract: This paper argues for a new approach to the study of business in the science curricula. During the last decade the academic programmes in The Netherlands for bachelor's and master's degrees in science have become more flexible than before. Traditionally, most curricula in fields like physics, chemistry, biology, and biotechnology were truly mono-disciplinary, with a strong emphasis on research skills as graduates from these programmes were expected to pursue a career in the research sector.

Already in the nineties an analysis of the labour market for science graduates indicated that there is a broad spectrum of jobs available for them, ranging from teacher, researcher, consultant, policy maker in the public sector to manager in the corporate sector.

In the year 2000 a new type of curriculum for science students started at Utrecht University, the so-called M-profiles. The M-symbol indicates an orientation on society and management. Such programmes were presented in different versions. Some of these could be characterised as typically a built-in minor in an existing science master, others had a more integrated approach so that we can consider these as multidisciplinary programmes. An example this last category is the Fundamentals of Business Economics (FBE) program at Utrecht University. Quite recently a new approach of the M-profiles emerged, putting much more emphasis on Entrepreneurship. Interestingly this shift in field of study also has a number of interesting implications for the educational approach, leading amongst other things to a more project oriented way for transferring knowledge and for skills development.

In this paper we will address three issues. In the first place we will discuss the necessity that a university offers programmes with an M-profile character. The need for this comes from the labour market as well as from the aspirations of incoming students. Secondly we would like to present our views on the content of the business oriented part of the curriculum as well as the educational principles of the entrepreneurship programme. In the third place we would like to share our ideas on introducing entrepreneurial training and working on an entrepreneurial attitude and the debate about balancing the cognitive part of the programme and the skills part. This debate is supported with the aid of theories and research results from the science of education.

Keywords: Applied science, business management, education in entrepreneurship

Creating University Spin-offs: A Science-Based Design Perspective

**Elco van Burg, Georges Romme, Victor Gilsing and Isabelle Reymen
Eindhoven University of Technology, The Netherlands**

Abstract: Academic entrepreneurship by means of university spin-offs commercializes technological breakthroughs, which may otherwise remain unexploited. However, many universities face difficulties in creating spin-offs. This article adopts a science-based design approach, to connect scholarly research with the pragmatics of effectively creating university spin-offs. This approach serves to link the practice of university spin-off creation, via design principles, to the scholarly knowledge in this area. As such, science-based design promotes the interplay between emergent and deliberate design processes. This framework is used to develop a set of design principles that are practice-based as well as grounded in the existing body of research on university spin-offs. A case-study of spin-off creation at a Dutch university illustrates the interplay between initial processes characterized by emergent design and the subsequent process that was more deliberate in nature. This case study also suggests there are two fundamentally different phases in building capacity for university spin-off creation: first, an infrastructure for spin-off creation (e.g. including a collaborative network of investors, managers and advisors) is developed, that then enables support activities to individual spin-off ventures. This study concludes that, to build and increase capacity for creating spin-offs, universities should:

- create university-wide awareness of entrepreneurship opportunities, stimulate the development of entrepreneurial ideas, and subsequently screen entrepreneurs and ideas by programs targeted at students and academic staff
- support start-up teams in composing and learning the right mix of venturing skills and knowledge by providing access to advice, coaching and training
- help starters in obtaining access to resources and developing their social capital by creating a collaborative network organization of investors, managers and advisors
- set clear and supportive rules and procedures that regulate the university spin-off process, enhance fair treatment of involved parties, and separate spin-off processes from academic research and teaching
- shape a university culture that reinforces academic entrepreneurship, by creating norms and exemplars that motivate entrepreneurial behavior.

These and other results of this study illustrate how science-based design can connect scholarly research to the pragmatics of actually creating spin-offs in academic institutions.

Keywords: Technology transfer, university spin-offs, science-based design

Cognition and Innovation: Entrepreneurship and the Autopoietic Approach: The Cases of Aer Lingus and FIAT

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Abstract: By now it is an accepted fact that firms are *autopoietic* systems; that is, systems capable of self-reproducing and regenerating the typical network of processes – organizational, economic and financial – in the environment they operate in.

The capacity to self-reproduce comes from the ability of firms to adapt and co-evolve in their environments, thereby coming up with innovative solutions through processes involving the acquisition and creation of knowledge; this depends on the firm's capacity to find factors that facilitate the accumulation of *dynamic capabilities*.

The *fitness* of the organization, defined by the degree of its success in adapting to the environment – measured by its capacity to produce an adequate positive performance over time – depends on the type of innovation produced, and thus typically on the entrepreneurship that characterizes the firm over time.

Whenever the firm's performance is not satisfactory – and there are low levels of fitness – and, in order to avoid the break-up of the organization, there is an increase in the propensity toward risk, then the greater are the incentives to search for *disruptive* innovations; in fact, the organization will be forced to undertake profound changes in its structure or *business model*, while maintaining its identity intact.

On the other hand, organizations showing satisfactory performance – which have high *fitness* levels – will feel that it is preferable to search for *incremental* innovations in the framework of a conservative strategy; the lesser uncertainty of results obtainable through such a strategy of continuity is preferable to the uncertainty from the introduction of wide-ranging innovations.

After having clarified these concepts, this paper will examine the cases of Aer Lingus and FIAT to empirically show how economic organizations, with a lower fitness, are able to maintain their autopoiesis in situations that require a high degree of environmental adaptation and that provide the impetus for innovation.

Keywords: Autopoietic systems, disruptive innovations, incremental innovations, fitness theory

Cross-Country and Cross-Industry Patterns in the Determinants of Innovation Output: Evidence for 12 EU Countries Based on CIS 3 Micro Data

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Abstract: In this paper we investigate the cross-country and cross-industry heterogeneity in the determinants of product innovations measured as the share of new products as well as the share of market novelties in total turnover. In particular, we study the link between innovation input and output by pooling CIS 3 micro-aggregated data for 12 European countries (i.e. Belgium, Spain, Germany, Greece, Norway, Portugal, Czech Republic, Estonia, Hungary, Lithuania, Latvia and Slovakia) using 11400 firm observations. The empirical model used in this study is the fractional logit model introduced by Papke and Woolridge (1996) that accounts for the fact that the dependent variable is bounded by definition between 0 and 1. We also provide sectoral estimates of the innovation production function for broad industry groups and for the sample of newly founded firms. The results pooled over countries and industries show that given the level of input into the innovation process innovation output depends significantly on firm size, innovation strategy, use of innovation sources (i.e. use of clients, fairs & exhibitions) and sector affiliation. Internal R&D activities, training, acquisition of new machinery and innovation activities directed to market introduction of products are crucial factors for the firm's innovative success. The use of clients as an source of information for innovation activities is of more importance for innovation performance than any other innovation source. However, for newly founded firms universities are the most significant source of innovation. The share of innovative sales is significantly higher for young firms and for firms with successful merger & acquisitions activities. In the New Member states foreign-owned firms have a significantly higher share of new products and market novelties. Furthermore, country effects are more important than sector effects in determining innovation performance. In general, the effects differs across country groups, industries and type of innovation output. In particular we find that effects of innovation intensity on innovation output is higher in business services and investment manufacturing than in the remaining industries. Internal R&D activities are more important for radical innovations and in the investment goods industry.

Keywords: Product innovation, innovation performance, innovation strategy, innovation sources, fraction logit estimator

Opportunities and Challenges Facing Entrepreneurs in an Environment of Mass Customization and Open Innovation

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Abstract: New Technologies were always instrumental in the creation of new business models (and cultures) which in return redefined the relationship between organizations and consumers. Recently, mass-customization and open innovation have emerged as new models that reinforce this trend. The new concepts suggest a new paradigm that has a strong impact on production and the traditional product development process. But the implications go beyond that aspect as they reposition consumers as partners directly involved in the creative and development process of products and services. The result is an equally strong impact on marketing principles and other business issues that is worth questioning, for example:-

- How would we define a “brand” under the new model? And who owns it?
- How does the new role of consumers redefine the role of producers as well?
- What are the economic implications of the new model?
- How could entrepreneurs develop new competitive brands? What marketing strategies entrepreneurs need to develop in order to stay competitive? Are classic “mass-marketing” theories applicable here or do we need to customize and open source the marketing process as well (a step beyond direct marketing)?

It seems apparent that “old school” marketing and branding theories need to be re-examined and redefined under the new model. Under this framework of “open sourced branding” entrepreneurs and small business owners have a lot of new opportunities to examine and benefit from. Yet they obviously face new challenges as well, that demand different strategies for market positioning and the creation of competitive advantages.

The paper aims at looking into the “brand” concept under mass-customization and open innovation while exploring some of these new challenges and opportunities for entrepreneurs and new business owners who are in the process of developing new brands

Keywords: Technology, entrepreneurs, brands, marketing, mass-customization, innovation

An Innovative Approach to Incorporating Student-Centred Learning in Innovation and Entrepreneurship Education

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Abstract: Innovation and entrepreneurship are vital for economic growth as was already asserted by Schumpeter in 1934. In a recent survey carried out by the Ministry of Economic Affairs in The Netherlands a picture emerges of The Netherlands as lagging behind when it comes to starting a company, whereby start-ups of students coming directly from an educational institution score even worse (Sijde *et al*, 2006). The average age of start-ups in The Netherlands is around 38 years (Thijssen, 2005). Against this background the Ministry of Education and the Ministry of Economic Affairs defined the stimulation of entrepreneurship and innovation as a policy item in 2005. Entrepreneurship and innovation are closely linked, according to Schumpeter who regarded the entrepreneur as the driver for innovation. Through innovation a process of creative destruction is set in, which alters the institutional context and context of companies in several ways. In The Netherlands ambitions to improve entrepreneurial behavior among students and the starting up of new companies are high. During the Lisbon meeting held in 2003, The Netherlands voiced the ambition to be among the top 10 of European knowledge economies in 2010. Students of universities of professional education and to a lesser extent of scientific universities are the agents of change when it comes to making the choice to become an entrepreneur or innovation manager within a company. With the growing importance of knowledge as an economic asset (see e.g. Prusak, 1997) students more and more are becoming knowledge workers besides learning a certain profession. And educational organizations are becoming knowledge institutions involved in knowledge creation, sharing and transfer. This has important consequences for the pedagogical climate at universities and the methods used to teach students entrepreneurship and innovation. Whilst teaching methods based on an instruction-based approach of learning prevail, at The Hague University of Professional Education we have introduced a learner-centered approach, in which the student is the driver of his individual learning process. In this paper we discuss the advantages and disadvantages of such an approach and the pitfalls and potentials when it comes to stimulating innovative entrepreneurial behavior among students.

Keywords: Innovation, entrepreneurship, learner-centred approach

The Institutional Organisation of Knowledge Transfer and its Implications

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Abstract: Universities usually have a knowledge transfer office (KTO), to execute and manage the knowledge transfer (KT) activities. The first section of this article studies how universities organise their knowledge transfer activities. Three different organisation types are distinguished: (a) centralized office, inside the university, (b) KT activities decentralized, inside the university and (c) centralized office, outside the university. Four exploratory cases of European universities with distinctly organised KTOs form the basis for analysing the institutional organisation of knowledge transfer. The four universities appear to have different strategies towards knowledge transfer and bring out various interpretations of the KT activities, which is reflected in the way KT is organised. The university strategy towards KT, linked to (regional) contextual factors and the type of KT activities carried out, is advocated to be subject of further research.

The second section addresses the influence of the institutional organisation of KT activities on the kind of cooperation that universities want to establish on KT activities with other universities in another region. Questionnaire results suggest that the current extent of integration varies among the three organisation types, whereas the desired future extent of integration shows no remarkable differences. However, additional data is necessary to draw reliable conclusions. Further research is advised to focus on studying possibilities for cooperation on specific KT activities.

Keywords: Knowledge transfer, knowledge transfer office, university, cooperation, transnational, university strategy

The Roles of Scientists in Starting-up Research-Based Spin-off Companies

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Abstract: Recent research has confirmed that in academic, research-based spin-off companies the committed involvement of the scientist who performed the research is an important factor. Yet, opinions on the role of the scientist as entrepreneur differ. Where some will view a leading role of the scientist in the start-up company an important asset, others will consider this a liability and prefer a surrogate entrepreneur to take the lead.

In this working paper we report the results of a pilot study which consisted of 17 interviews with scientists who had recent involvement with starting up a company based on the outcome of research they did or supervised at the university. The interviews were structured to gain a comprehensive view of their role, in relation to the roles of others in this process. We found that not only between start-ups but also throughout the start-up process, this role can vary greatly.

Based on our results we tentatively propose the framework of academic versus surrogate entrepreneurship to include four distinct types of situations from the perspective of the scientist: Business Run By Scientist (BRBS), Business Run With Others (BRWO), Business Delegated To Others (BDTO) and Business Run by Others (BRBO). The applicability of the approach is discussed in the context of findings in other studies. We believe that the extended typology can be useful in further research on the relation between the nature of the opportunity, the traits of the scientists, the handling of the start-up process and the ultimate outcome of the start-up process. This may help create an evidence-based framework that can assist entrepreneurial scientists, tech transfer professionals, investors and business professionals, in optimizing the early stage management of academic, research-based companies on a case-by-case basis.

Keywords: Research-based spin off; university; start-up process; entrepreneur; typology

On a Distance-Learning Approach to ‘Train the Trainers’ in Entrepreneurial Education in Greece. Theoretical Considerations Supported by Students’ Response as Observed from the Career Office of the University of Athens.

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Abstract: In the present paper, we theoretically elaborate on advancing distance learning methods for a future ‘train the trainers’ phase in entrepreneurial education in Greece. This type of learning is highly accommodative to the interdisciplinary perspectives of the desired skills to be fostered (creativity, initiative, self-confidence, etc), to temporal/spatial restrictions, and it is usually suggested in various reports. It also supports ‘learning by doing’ tasks and ‘problem based learning’ usually adopted in higher and secondary entrepreneurial education. A good practice prototype in the field may also serve as a ‘merger’ for teachers and people with business experience who want to operate as educators. The previous goals were recently reported in the ‘Oslo Agenda for Entrepreneurship Education in Europe’.

In the first part of this work, we focus on emerging needs for entrepreneurial education in Greece. The encouragement of youth entrepreneurship has been an active project of the Career-Office at the University of Athens for the last two years. Funded by the Ministry of Education, the project observes the students' responsiveness to the information provided on our website (<http://career-office.uoa.gr>, ~6500 reads/day) and in seminars. These results, along with current entrepreneurial activity in Greece, indicate the current understanding on the topic in order to discuss effective learning approaches as to follow the Oslo agenda.

In the second part, we discuss distance learning as substitute of conventional entrepreneurial training. In order to meet minimum quality standards based on adult education, we discuss the crucial role of communication, the interaction between the teaching material and the trainee and the key role of tutors in distance learning support. We also suggest what educational guides should intervene between conventional material and distance learners. Methodologically, we propose that transformative learning and critical reflection techniques, in accordance with regional entrepreneurial practices, could act as a catalyst in the initial 'train the trainers' phase which is expected to consist of adult, disciplinary-diverse group of trainees.

Keywords: Entrepreneurial education, distance learning, adult education, transformative learning, Oslo agenda, entrepreneurialism

Too Much R&D? – Vertical Differentiation in a Model of Monopolistic Competition

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Abstract: This paper discusses a model of vertical and horizontal product differentiation within the Dixit-Stiglitz framework of monopolistic competition. Firms do not only compete in prices and horizontal attributes of their products, but also in the quality that can be controlled by R&D activities. Based upon the results of a general equilibrium model, the welfare implications of public intervention in terms of research promotion are considered. The analysis is completed by a numerical application to ten basic European industries.

Keywords: R&D, monopolistic competition, product differentiation

Teaching Entrepreneurs Continuous Adaptation

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Abstract: Business planning is a common element in entrepreneurship education. Research shows, however, that businesses that have spent considerable resources on planning do not necessarily have higher chances of survival and that a lot of start-ups became successful without much initial planning. Entrepreneurs start out with a set of assumptions and it is critical for the survival of the business that they adapt their actions based on achieved results and perceived opportunities. The question arises whether it is possible to teach entrepreneurs skills that help them with that necessary adaptation besides traditional planning.

This paper is an exploratory literature study investigating entrepreneurship education and business planning. It draws upon literature on entrepreneurship, innovation, education and small business change. The prevalent business planning approach in education is challenged and the importance of adaptation in entrepreneurship is reviewed, whether it is called change, adaptation or flexibility.

As a result three interdependent and iterative phases in adaptation are proposed that can be developed into a framework. First, the entrepreneur needs to perceive the current state of the business in relation to its history and objectives, as well as understand why certain things happen. This requires monitoring internal performance and the external environment. Challenges here can be facing facts that may contradict personal assumptions and interpreting them on time. Second, the entrepreneur needs to discern possible actions to take and choose among them. This processing of the gathered information and creating alternatives is under pressure because of the limited resources available. Entrepreneurs also face the usual psychological pitfalls of decision making that they should be aware of. Finally, entrepreneurs need to act and start monitoring again to see whether the action improved the situation. Change is not comfortable for most people and the entrepreneur needs to be able to inspire that change in others who are involved to ensure the execution of the proposed adaptation.

This paper is only a limited exploration but does encourage further investigation of teaching adaptation in addition to planning in entrepreneurship education.

Keywords: Entrepreneurship education, adaptation, business planning

An Analysis of Differences in new Firm Formation and Employment Growth Between the IT and non-IT Sectors in Bangalore

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Abstract: This paper focuses on Bangalore, which has gained prominence in the recent years due to its flourishing Information Technology sector. Based on an analysis of the data on new firm formation and employment growth in Bangalore over a five year period between 1998 and 2003, put together by tapping multiple sources, this paper presents the key differences between the IT and non-IT sectors in the patterns of new firm formation and growth in employment. Results indicate that the employment in non-IT sector grew predominantly through new firm formations, while the IT sector employment grew through expansion and growth of existing firms. Based on findings from this research and from earlier research that identified factors such as institutional shortcomings, deficient infrastructure, entrepreneurs' belief systems as those that held back Bangalore businesses and inhibited their growth, several explanations are advanced in this paper about the growth of IT sector. These explanations highlight the mitigating influence of the inherent characteristics of the IT business, market forces and purposeful policy interventions on those factors that inhibit the growth of Bangalore businesses, in the case of IT sector. The significant contribution of this paper is in assembling extensive firm level data and basing the findings on such data. The findings presented in this paper have implications for policy makers that include focusing efforts on areas where policy intervention is likely to mitigate the constraints inhibiting firm formation and growth.

Keywords: Entrepreneurship, firm growth, job creation, IT sector, policy

Strategy and Innovation: Making the Right Strategic Decision and Developing the Right Innovative Capabilities

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Abstract: All organizations must be innovative. Is this statement true or is innovation only another management practice that a company can employ in a search for superior performance? This paper suggests that innovation is a management practice and it is critical for an organization to decide if it is going to pursue innovation as a management practice. Despite the call for companies to be innovative, research indicates that it is not necessary for an organization to be innovative to be highly successful. Worse, it is problematic that few companies are capable of excelling at innovation. This is because it is a very difficult management practice and few senior leaders have a clear, well-developed model of what innovation looks like as an organizational capability within a company's specific context.

To examine the need for innovation and a company's capability to excel at innovation perhaps one starting point is to define innovation differently. There are two types of innovation: *upstream and downstream* innovation. *Upstream* innovation is development of new inventions and technologies. *Downstream* innovation is the process of turning the inventions and processes into economic value.

A company's vision drives the process of deciding to pursue innovation. Company leaders should be aware innovation exists in a context approaching chaos. It exists in a context where complexity is high and the unpredictable occurs far more frequently than predictable results.

Determining what management practices will lead a company to superior performance is the first step to becoming a leader in an industry. Companies that out-perform their industry peers excel at what are called primary management practices—strategy, execution, culture, and structure. Companies that out-perform their industry peers supplement their skill in primary areas with a mastery of any *two* out of *four* secondary management practices—talent, *innovation*, leadership, and mergers and partnerships.

A company that chooses to pursue innovation, as a management practice, must first recognize that being innovative is not a strategy. Strategy is also a management practice. Being innovative is a capability that is the result of a successful strategy. A company must choose to be very good at strategy and other management practices and the practices must be aligned and performed at the same time.

Keywords: Innovation, entrepreneurship, creativity, business practice, strategy

Prior Tacit Knowledge and First-Year Sales: A Study of Technology Entrepreneurship

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Abstract: The first sale of a new venture represents an important entrepreneurial event and how to achieve sales sooner, rather than later, is an important question. This study investigates how the prior tacit knowledge of technology entrepreneurs relates to achieving sales in the first-year. Findings from a sample of 145 technology entrepreneurs operating within university-affiliated incubators suggest that differences in tacit knowledge at opportunity discovery are critical to making first-year sales. Achieving sales was positively associated with prior hands-on experiences with development of products or services as well as prior experiences within markets. I show how differences in tacit knowledge form knowledge configurations, or *gestalts*, useful for understanding *how* some entrepreneurs achieve sales sooner. The results shed light on the types and combinations of prior tacit knowledge that facilitate an early sales advantage. Recommendations for entrepreneurship education and research are provided.

Keywords: Tacit knowledge; technology entrepreneurship, first-year sales

On the use of e-Learning in Divergent Education and Innovation

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Abstract: Many managers and directors of companies realized that competitive advantages are highly depended on innovation. It is believed that the traditional education system based on convergent model has not direct provocation on innovation. On the other hand, education based on divergent model has promising signals on innovation.

In the paper, it is shown that e-Learning has potential of supporting divergent education and may be used in future to change the pedagogy of passive education toward active and innovative education. First, in the introduction innovation and creativity are discussed. In Section 1, divergent and convergent thinking are explained and compared. Then, the relationships of innovation and creativity with these ways of thinking are presented. Section two, are contained techniques and methods to stimulate divergent thinking. Features of Learning Management Systems (LMS), which correspond to techniques and methods to stimulate divergent thinking and innovation, are discussed. An example has been presented to support the idea.

Keywords: Divergent thinking, divergent education, innovation, e-Learning, creativity, LMS features

The Compilation of Math Pattern for Quality of Staff's Working Life based on Higher Education Managers' Entrepreneurship in Islamic Azad University

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Abstract: The main objective of the present study is to investigate the relationship between the managers' entrepreneurship and the quality of the staff's working life and determining math pattern for employee's quality of work life based on the managers' entrepreneurship. The research population of the study includes all managers of Islamic Azad University who are employed in different Branches of the university. Using the stratified and cluster random sampling, 474 managers, along with three employees under the supervision of each manager, that is, 1422 staffs were chosen from different branches of Islamic Azad University. Out of this sample, 456 managers and 1368 staffs under the managers' supervision completed the managers' and staff's questionnaires respectively. The questionnaires were then analyzed by the researcher. The assessment tools were the researcher-made questionnaires of entrepreneurship and the quality of work life. The questionnaire of entrepreneurship was administered to the managers, and the questionnaire of the quality of work life was administered to three staffs under the supervision of each manager. The result of the analysis of the multi-variation regression shows that, there is relationship between the managers' entrepreneurship and the quality of the staff's working life ($p \leq 0.05$ & $\beta = 0.10$), and the math pattern for the quality of the staff's working life based on the managers' entrepreneurship in the branches of Islamic Azad University is as follows:

The quality of the staff's working life = $0.10 \times$ the managers' entrepreneurship + 135.621

Keywords: Quality of work life, entrepreneurship, higher education

Contextual Innovation

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Abstract: Given the huge importance of innovations for the survival of companies, it is not surprising that many scientific studies focus on finding the best practices and success factors of innovation management. The recommendations based on this type of research are characterized by a one-size-fits-all approach in which the fact that companies operate in different contexts is often totally neglected. According to these types of research it almost seems that the factors governing success and failure apply to any company, whatever its organizational structure, the industry in which it is operating or the type of innovation it is developing.

However, empirical research has shown that companies do not adopt a single way of innovation, but that they adjust their innovation processes according to their context. Indeed, organizations that have a flexible innovation process, which they change from time to time, seem to be the best innovators. We call the process of adjusting the innovation process 'contextual innovation'. It appears that companies adapt their innovation to their specific context, in which there are four different layers: type of innovation, type of organization, type of industry and type of country or culture. The mechanism of contextual innovation is illustrated by two cases: Shell and Philips. These companies do not have a single corporate innovation process, but they change their innovation process depending on the specific context in which their business units operate. This has resulted in a broad range of innovation management approaches within both organizations, which contradicts the claim that there is only one way to innovate successfully. For instance, the concept of the lead user plays an important role in the innovation process in the business units of Philips that serve business-to-business markets. In business units of Philips which focus on developing new technologies greater emphasis is put on developing and maintaining business alliances and cooperating closely with technology incubators.

Keywords: Innovation, management, context, cases, contingency

Entrepreneurship and Innovation within Creative Industries: Case Study on the Finnish Games Industry

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Abstract: This paper explores entrepreneurship within the Finnish games industry. This topic is approached with the evolutionary framework where the entrepreneur is the driving force creating variation by introducing new firms and new products. The data for the case study has been collected through interviewing the representatives (CEO, MD or equivalent) of eight firms. The firms have been chosen to represent the industry as a whole and thus these firms are of different sizes, ages, platform strategies and positions within the value chain. The findings indicate that within such a creative industry most employees provide entrepreneurial services in terms of creating novelty, introducing new ideas and participating on deciding which ideas to follow. This means that entrepreneurship is a social and interactive process which entails both bargaining and learning. However, the space in which each employee may practise his discretion is limited and it seems that doing this allocation well is a crucial condition for the success of the firm. In order for novelty to be created there has to be both divergence and convergence within the firm. Even though managers and workers take different roles in this process, they both contribute to each of these. On the one hand managers create convergence by limiting the space where each employee may practise search. On the other hand, they create divergence by directing the search efforts to new areas. Employees create divergence by introducing ideas and convergence by offering a limited set of alternatives, and limited information on each, for the managers to choose from.

Keywords: Entrepreneurship, innovation, games industry, creative industries

Dynamic Capabilities and Change: a Study on Factors Affecting Change and Innovation Efforts of Greek SMEs

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Abstract: The dynamic capabilities approach has attracted considerable attention because competition is making firms enter a process of continuous and arduous change and transformation. Now, accelerating intra – firm change is vital for survival. In the current business environment change (especially innovation) is a prerequisite for pursuing and accomplishing strategic goals directed at creating strategic competitiveness and at performance improvements. It is the creation and development of suitable dynamic capabilities, however, that may actually enable and / or induce innovativeness in the long run.

Despite the importance of change and transformation within firms, there remain considerable conceptual difficulties that need to be addressed.

The paper is an attempt to review and synthesize relevant existing theory, so as to locate possible commonalities of dynamic capabilities of differing firms. Second, through ongoing empirical research, the paper draws on data from a sample of Greek SMEs.

The goal is to create construct variables – factors that will reflect possible existing commonalities between dynamic capabilities. These are statistically studied to see whether there are any statistically significant correlations with success in change and innovation efforts of the sample of firms. To this end, the non – parametric Kolmogorov – Smirnov Z test is used.

The paper focuses at examining dynamic capabilities in relation with innovativeness. Any relationship between dynamic capabilities and firm performance (mainly financial) is indirect with the intermediate step being efforts for change and innovation, since the latter is the main outcome of successful strategic business choices and resultant competitive advantage. In this way, the tautology pointed out in the literature between dynamic capabilities and competitive advantage can be bypassed.

Keywords: Dynamic, innovation, change, Greece, SMEs, commonalities

Coaching Academic Entrepreneurship: How to Overcome the Knowing-Doing-Gap?

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Abstract: According to Schumpeter and Kondratieff, society has developed through especially long-term business cycles to a system where information increasingly receives the status of a public good. But seen from an evolutionary standpoint the role of knowledge has to be reconsidered, because a large part of the knowledge that is created in science and business is not fully utilised. This is “dead knowledge” in economic terms. Thus, one main problem that is important for our discussion is the so-called “knowing-doing-gap”: Since the knowledge base of a modern economy becomes more and more grounded in science, those firms, regions and nations which take part in the Kondratieff-dynamics will be those who will be successful in reducing this gap. As a consequence entrepreneurial skills of “getting things done” (Schumpeter) are becoming necessary competence requirement for developing and managing academic knowledge in the forthcoming turbulent 6th Kondratieff cycle.

This contribution is dedicated to the question how academic entrepreneurship can be interpreted as an important cornerstone of economic development from an evolutionary standpoint. Furthermore, we ask if there is a necessity and possibility of coaching and supporting it effectively by entrepreneurial education in order to overcome the knowing-doing-gap. We cannot change the personality/character of potential entrepreneurs, but we can influence them by teaching, training and coaching them in such a way that they will be able to transform through their own endeavours into successful entrepreneurs. Coaching is meant to raise their entrepreneurial consciousness as well as their evolutionary capabilities of entrepreneurial learning. This implies a Schumpeterian model of entrepreneurial energy that combines three elements of successful entrepreneurial action: *rights* (law, culture, business charta, etc.), *competencies* (evolutionary skills, knowledge, "variety") and *motivation* (intrinsic motivation, internal locus of control, the so-called "need for achievement").

Keywords: Academic entrepreneurship, knowing-doing-gap, coaching, 6th Kondratieff, evolution and innovation

Cooperation in Innovation Practices Among Portuguese Firms: Do Universities Interface Innovative Advances?

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Abstract: This paper aims to identify the nature of the relationships that are established amongst agents who co-operate in terms of innovation practices. It analyses whether the entrepreneurial innovation capability of firms is stimulated through the relationships developed with external partners. The theoretical approach developed in the framework of the innovation systems supports the basic idea that innovation is an evolutionary, non-linear and interactive process established between the firm and the environment. Together with the firm's assets, a wide range of agents contribute to acquire external resources, knowledge and crucial information for developing productive and innovative activities. It is the systemic combination of those internal and external resources that contributes to the improvement of innovation capability (Bayona, *et al.*, 2001; Fritsch and Lukas, 2001; Tether, 2002; Hagedoorn, 2002; Silva, *et al.*, 2005; Veugelers and Cassiman, 2005; and Schmidt, 2007). The data of the 2nd Community Innovation Survey of EUROSTAT is used in a logistic model. In the estimation process of the Logit function, the entrepreneurial innovation capability is considered as the answer variable. The paper considers both supply-chain and science partners that are expected to have an impact on innovation capability. Co-operation for innovation with the suppliers, customers, competitors, universities, research units, consultants, and others organisations, are tested as the determinant factors of the innovation capability. The results reveal that scientific agents who cooperate in terms of innovation activities impact, positively, on the propensity to engage in innovative advances revealed by the firms, at the level of product innovation. The universities and Other Higher Education Institutions (OHEI) assume a central role in promoting cooperation in innovation practices, especially at the product innovation level. This way, universities stimulate a higher number of innovative advances, than the one that are obtained through the cooperation established between industrial firms and other science partners. Thus, the universities should be considered as the development lever of multidisciplinary knowledge clusters, which should be linked to their fundamental and applied research activities. The universities should be participated, in an active way, by entrepreneurs, and industrial or commercial associations, in order to promote open innovation networks. The original contribution of this paper lies in the fact that it uses a set of external partners, and it considers both supply-chain and science partners as determinants of innovation capability of firms, in terms of the propensity for engaging innovative advances in product innovation. The paper presents policy implications, which may be used in the design of public policies for fostering open innovation networks between scientific agents and firms.

Keywords: Innovation, networks, entrepreneurial innovation capability

Do Planning and Preparation Predict Success in SME-Transfers?

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Abstract: This study (re)tests the relationship between planning and preparation and transfer effectiveness and personal experience measures. The last two decades many authors stress the importance of long term planning and preparation in SME transfers. Previous studies show relations to personal experience measure like satisfaction and assume relations with emotional attachment, but find no or only weak relations to transfer effectiveness or performance measures.

76 Dutch SME business owners, who succeeded in the transfer, were surveyed randomly. To improve on previous studies a reliable scale for planning and preparation was constructed, differences between family and non-family transfers were checked for and social desirable answering and non-response were controlled for. Multi regression analyses indicate that the level of planning and preparation does relate to experience measures (satisfaction and emotional attachment) but has no relation with performance (needed transfer time, acquired selling price) at all. To predict effectiveness of SME transfers both the market and capital situation and entrepreneurial abilities of the buyer seem more appealing.

Keywords: Business transfers, strategy, planning

Intellectual Capital Practices in Small Technology-intensive Enterprises: A Regional Comparative Study

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Abstract: The findings of an empirical study that examines the impact of intellectual capital on enterprise performance in small innovative enterprises (SIEs) are presented in this developmental paper. The study examines the impact of effective intellectual capital exploitation against the background of key external (socio-political, technological, and economic) factors. This research reported in this study is part of a greater effort that is examining intellectual capital practices in regions of high-technology clusters including St. Petersburg (Russia), the so-called “Medicon Valley” of Denmark, the Silicon Valley in the USA, and German “Mittelstand” clusters in Southern Germany are compared and analysed for common patterns, similarities and differences.

The key questions of this research address the relative impact of intellectual capital practices (internal factors) and prevailing socio-political, economic, and technological factors on the performance of small innovative enterprises. This work seeks to provide new insights in several areas: (1) While a number of studies have looked at the impact of intellectual capital on enterprise performance per se, relatively little work to date has focused on the specific case of intellectual capital deployment in small innovative enterprises (SIEs); (2) Very little, if any, work has focused on the impact of intellectual capital and its implications for private enterprise performance in *transitional economies* (Bruton and Rubanik, 2002). This study provides empirical evidence suggesting that internal factors have a greater impact on enterprise performance than external ones – even in the transitional economy of Russia.

In this paper the notion of the knowledge-based theory of the firm forms the conceptual basis of a framework that is developed to relate intellectual capital (*human capital and structural capital*) and key external factors (*socio-political, economic and technological*) to enterprise performance in SIEs. A survey instrument designed on the basis of this model was applied in the field research involving SIEs in the various regions. The research data was subjected to exploratory and confirmatory factor analysis using standard and advanced statistical analysis based on regression, correlation analysis.

Keywords: Intellectual capital, innovation practices, external factors, small innovative enterprises, cross-regional comparative study

Family Orientation, Strategic Orientation and Innovation Performance in SMEs: A Test of Lagged Effects

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Abstract: Past research suggests a negative effect of family orientation on innovation performance. However, many past studies have certain limitations that this study is designed to overcome. In particular, this study estimates *lagged* effects of family orientation on innovation performance while *controlling for organization context variables* and the mediating effect of strategic orientation. It also uses a multidimensional approach to measure family orientation while testing for common method bias.

This study makes use of a sample of 343 Dutch small and medium size firms. Innovation performance, being the dependent variable, was collected in 2005. All independent variables, i.e. strategy, family orientation and context variables, are collected in previous time periods, with lags ranging between 3 and 4 years. Family orientation is measured according to five independent dimensions including family power, family culture, overlap of ownership and management and intentions to keep the firm in the family.

Controlling for differences in organization context, strategic orientation variables positively predicting innovation performance at a $p < .01$ level of significance include risk orientation, a focus strategy, and strategic writing. A total effect of family orientation (based on family power) explains only about one percent of total variance in the dependent variable of innovation performance. Even this small effect disappears when strategic orientation is also included in the multiple regression model, suggesting that effects of family orientation on innovation performance are indirect, if any. In summary, this study concludes therefore that there is little basis for presuming that family-owned and managed firms are less entrepreneurial or innovative than their nonfamily counterparts, at least amongst Dutch SMEs.

Keywords: Innovation, family orientation, strategic choice, strategic orientation

Technological Innovation in the UK Police Forces: A Smooth Process?

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Abstract: The aim of this study is to explore the process of innovation in a British emergency service. The interconnection of new technologies and organisation design, process, strategy and external relationships is an important issue, but current research explains relatively little about whether and how services in general (and public service in particular) innovate. This gap in the literature has arisen because our understanding of innovation and innovation process is derived from studies of manufacturing and services are often considered to be non-innovative or supplier-dominated recipients of technologies. We argue that the combination of Social Construction of Technology (SCOT) with the “meta-theory” of Activity Theory (AT) has much to offer for an understanding of the innovation process in a critical-safety organisation. We report on two in-depth case studies of Police Forces, which were conducted in a manner that reflects the principles of the interpretative paradigm and employs a variety of qualitative techniques. Drawing on SCOT and AT, we consider the “negotiations” of meanings and the tensions developed among the stakeholders, depict the dynamics of the process of innovation and recognise the contextual nature of innovation. The paper concludes that gaining a holistic and in-depth understanding of the interdependence of the innovation stages can actually support the work of non-engineering academics, practitioners in the emergency services, technology developers and government agencies that oversee the implementation of technologies in other public organisations.

Keywords: Technological innovation process, emergency services, activity theory, social construction of technology, location technologies

A Theory of Entrepreneurial Rents in Endogenous Growth

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Abstract: This paper challenges a key assumption in recent models of “idea based growth”. Such models assume that the generation of the new knowledge underlying innovations is motivated by rents. In modern capitalist economies the agents that commercialize new ideas receive the bulk of the entrepreneurial rents and are generally the residual claimants to any venture. This leaves no rents for financing or motivating knowledge creation. Still knowledge creation can be modeled as an economic activity. To do so we develop a model that separates invention from innovation. In our model new commercial opportunities are a costless spillover from corporate R&D that aims for improvement of existing production processes. Corporate R&D in final goods production generates both wanted productivity enhancements at the final goods stage and the ideas for new intermediate goods as a pure externality. We then put the entrepreneur and the commercialization of that “waste” knowledge centre stage in our model and show that the interplay between knowledge creation and commercialization generates similar growth dynamics. The public policy implications of the model are, however, that corporate R&D should be stimulated because it creates a spillover to the entrepreneurs and entry should be facilitated to optimize the commercialization of that knowledge spillover.

Keywords: Entrepreneurship, endogenous growth models, innovation

Post Merger Innovative Patterns in Small and Medium Firms

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Abstract : Both innovation and M&As represent major means of corporate strategy development. Studying the interplay between the two helps identifying the extent to which firms use M&As as viable growth and innovation strategies. Nevertheless, when innovation effects deriving from M&A activities are directly targeted, previous literature is not able to provide accurate answers: the empirical results are quite diverse succeeding in feeding rather than settling the current debate. The complexity of M&As and innovation makes it difficult to derive patterns or configurations meant at fully explaining their beneficial impact on firm-level innovativeness or to the contrary, the lack of such benefits. Trying to account for these contrasting results requires acknowledging that not all M&As are the same, and their impact depends strongly on size classes and other firm-level characteristics. Recent literature stresses the importance of technological vs. non-technological driven M&A transactions, arguing that if M&As involve technological components, being motivated by reasons like technological renewal and diversity, enlargement of firms knowledge bases, they are more likely to have a positive impact on firms' post M&A innovative performance.(Cassiman et al.2004) The aim of this study is breaking the effect of M&A activities along size classes, questioning whether M&As allow small and medium firms to engage more often in innovative activities. SMEs seem to rely more on horizontal mergers and networking to face the challenges of acquiring sufficient capital, scientific, technological and managerial resources for becoming successful firms. Starting from these premises, we analyze whether the innovation effect of an M&A involvement differs for SMEs compared to large companies, helping them bridge the gap between where they are and what they want to achieve in terms of innovative performance.

The issue is highly relevant from both theoretical and policy perspectives. From a theoretical point of view, it contributes to the existent literature underlying basic assumptions on firms' innovativeness - creative destruction vs. creative accumulation theories (Schumpeter 1934, 1942) or the existence of a threshold to innovate (Geroski et al., 1999; Cefis, 2003). From a managerial point of view, innovation activities are vital for strengthening competitiveness and ultimately for ensuring firms survival (Cefis and Marsili, 2006). Therefore, a right choice of innovational strategies becomes of crucial importance. Finally, the analysis can be of use to competition authorities in dealing with mergers scrutiny or to governments in designing innovation-stimulating policy measures.

The analysis is carried out at firm-level, covering the Dutch manufacturing industry over a period of eight years (1994-2002). Sectoral specificities are identified using a refinement of Pavitt's (1984) taxonomy proposed by Marsili (2001). The originality and the fit of such a taxonomy for our study is given by its inclusion of small and micro firms in mapping the relevant dimensions of technological regimes.

The study brings two main contributions. First, making use of transition probability matrices, we provide new evidence on patterns of entry and of persistence in innovative activities across size classes. We examine whether or not the observed innovation patterns differ for M&A active and non-active firms. The second contribution is to

empirically test, by means of probit models whether M&As act as incentive/determinant for firms to cross the “innovative threshold” and/or to remain persistent innovators. Our analysis makes use of an unique dataset combining innovation and economic firm-level data from two different sources: the 4 waves of Community Innovation Survey and the Business Register, for the Dutch manufacturing sector. The results show that both entry and persistence in innovative activities are fostered by M&A involvement. The effect is indeed higher for larger firms, but medium firms also show above average innovation entry and persistency levels. Micro and small firms are the two categories that do not fit this pattern, showing higher probability of exiting innovativeness after M&As. This effect progressively vanishes with an increase in firm size, medium sized companies deriving innovation gains from M&As and showing post-merger innovative patterns close to large firms.

Keywords: Mergers and acquisitions; innovation; small and medium enterprises; transition probabilities; probit models

Innovation Over the Industry Life Cycle: From Quality to Efficiency

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Abstract: In this paper, we present a model of the industry life cycle that is driven by R&D. In the model, firms have the option to improve the quality of their output or to invest R&D resources in productivity gains. Faced with this tradeoff, young firms are then starting to invest only in quality improvement, whereas mature firms will do both. This leads to two testable hypotheses, which are tested using stochastic frontier analysis. Our empirical results support both hypotheses for the European manufacturing sector.

Keywords: Life cycle, stochastic frontier, innovation, manufacturing

Valuation of a Pharma R&D Licensing Opportunity using Compound Option Pricing

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Abstract: Multi-staged pharmaceutical R&D projects are copy-book cases of compound real options. Although this is fairly well known in theory, documented real life applications are sparse. This article applies continuous-time compound real option analysis to a real-life project of a large pharmaceutical company. Traditional compound option models assume a constant volatility over the lifetime of the project. Building on the n-fold compound option model of Cassimon et al. (2004), we extend this model to allow for phase-specific volatility estimates, while preserving the closed-form solution of the model.

Keywords: pharmaceutical R&D, real options, compound option model, phase-specific volatility, real-life case

Entrepreneurship and Social Innovation: Muslim Women Entrepreneurs in Uzbekistan

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Abstract: In this climate of fear of Muslim terrorism and the marginalization of people of Islamic faith, a critical starting place for strategies for the social inclusion of Muslim communities is the pivotal role of women in general, and women entrepreneurs in particular. This study on Muslim women entrepreneurs and social innovation in Uzbekistan extend the boundaries of knowledge and challenges understanding of social leadership that is and can emerge through Muslim women's participation in business and in communities. This is important, as at the moment there is a void in scholarly work about Muslim women entrepreneurs. We do not know who they are and what they do. Muslim women entrepreneurs in Uzbekistan are invisible to the western world.

This paper is an empirical research that is work in progress and looks at Muslim women entrepreneurs in Uzbekistan, a country in transition. This qualitative research examines their entrepreneurship and leadership, both socially innovative and is a departure from their traditional housebound life and subservience to their husbands, fathers and mothers-in-law. Fewer women in Uzbekistan participate in economic activity compared to the predominance of men in the labor force. Moreover, little scholarly work is known about Muslim women's participation in the labor force and especially in self-employment in Uzbekistan.

This paper will present the profiles of the group of Muslim women entrepreneurs interviewed for the study and explore the various reasons for their entry into business as well as examined the features of social innovation in their entrepreneurship. What motivates this group of women in Uzbekistan in starting their own businesses and creating employment for others in an environment where the economic and political structures are underdeveloped? For most of these women, they were born during the Soviet occupation and had lived through the different waves of transitions. Why do these Uzbek women choose entrepreneurship against other career options? Did these women have any options in the first place? What are the barriers and blockages that drive them into seeking self-employment as well as the factors that support their entry? How are the reasons for and the outcomes of entrepreneurship and social innovation related? What are the policy implications to increase women's entrepreneurship in Uzbekistan?

The most appropriate method to acquire knowledge is to observe and talk directly with the Muslim women entrepreneurs, thereby adopting a feminist methodology of listening to the voices of women. Further, adoption of an ethnographic methodology will produce rich qualitative data to build understanding of the women and change leadership, their values, culture and family. Obviously a quantitative methodology will not be appropriate as it would be meaningless to reduce Muslim women's voices to just numbers. Twenty-five Muslim women entrepreneurs in Uzbekistan were interviewed in April 2007 for this study. In addition, leaders of business women associations and senior women in government were interviewed. Some family members, such as husbands and children of these women entrepreneurs were also interviewed to gain a better understanding of family dynamics and the women's entrepreneurship. These in depth interviews were semi-structured and

covered a range of research questions including their motivations for entrepreneurship, the subject of this paper.

Two reasons stand out to explain their motivation for entrepreneurial activity and these are the women's strong desire for self-actualization and caring for their families. Socially innovative, their entrepreneurship results in increased social capital and impacts on their families and communities in different ways. Consequently, there are wide policy implications for the economic inclusion and advancement in the status of Muslim women. To begin to build knowledge of Muslim women's entrepreneurship, the stories and voices of Muslim women entrepreneurs in Uzbekistan need to be heard and are captured in this paper.

Keywords: Social innovation, entrepreneurship, Muslim, gender, motivations, Uzbekistan

Is There a Link Between Advisory Boards in and the Performance and Tradability of Medium Sized Family Firms?

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Abstract: Recent research in the Netherlands showed the only a minority of medium size firms have a formal board. There is only limited research done on the function of governance boards in medium sized firms. This paper is an empirical test on the possible added value of an advisory board. If there is an added value of an advisory board than could these boards play a role in increasing the innovative capacities of a firm?

Theoretical background: the resource -based view of the firm

There are a growing number of studies that shows that family firms outperform non-family firms. The research done by Miller et al.(2007) is especially interesting because the focus is on relatively small family businesses (no more than 100 employees). Miller et al. (2007) tested the stewardship perspective as an opposite of the stagnation perspective. The stewardship is said to be manifested in family-owned businesses by “unusual devotion to the continuity of the company, by more assiduous nurturing of a community of employees, and by seeking out closer connections with customers to sustain business”. These critical success points could be viewed as specific resources that form the basis of the competitive advantage of family businesses. The relation between resources and competitive advantage is described in the resource-based view of the firm. Wernerfelt (1984) defines resources as everything that could be seen as a weakness or as strength of a firm. The resources that are valuable, rare, not easy to imitate and non-substitutable (Barney, 1991) can help firms to obtain sustainable competitive advantage. The availability alone is not enough the firm must also allocate these resources for strategic activities and deploy them effectively. Oliver (1997) argues that besides the resources, the social context in which the firm functions plays an important role. Network relations, the culture of the organization and business regulations are examples of building blocks of the social context.

Research done by Simon et.al (2003) and Eddleston et.al (2007) emphasize the importance of resources for family firms. In this working paper the focus is on one specific resource: the advisory board. The advisory board will be viewed as a specific resource on its one and as a method to improve the effectiveness of other resources.

In recent years, much attention was given to corporate governance. Many large companies had to change their governance structure since new codes have been implemented around the world. This lead to the installment of the Code Tabaksblat in The Netherlands. However the regulatory framework for small and medium sized firms did not change. A part of the corporate governance framework is supervision by a formal board. The supervision has two functions: control and advice. A vast majority of SME owners, as a consequence of the ownership structure, don't see the need for the control function of the board. This is probably an important explanation of the fact that there are only in a minority of the firms boards available. The advice function of a board is an aspect that's getting not much attention, but could probably an important resource. Blumentritt (2006) concludes for instance that there is a relation between advisory boards and planning.

These research focuses on the question if an advisory board could be valuable resource. Two hypotheses were tested:

H1: is there a difference in expected performance in medium sized family firms with a advisory board in comparison with medium sized family firms without an advisory board.

H2: is there a difference in expected tradability in medium sized family firms with a advisory board in comparison with medium sized family firms without an advisory board.

Research method:

The Centrum van het Familiebedrijf, a Dutch research centre undertook a study on the topics succession and governance. The owner-manager of firms with more than ten employees was asked to fill in a web-based questionnaire. In total 857 owner-managers filled in a complete questionnaire, which implies a response rate of 4%. The findings were controlled for non response. Hypotheses were tested by various statistical procedures, for example the ANOVA. Both hypotheses are supported by the data. The results will be discussed and recommendations will be made for further research. For family firms but probably also for non-family firm the results of the study gives a first indication that an advisory board could be a valuable resource for a firm.

Keywords: Advisory boards, governance, performance, family firms