



# 2nd International Conference on Innovation through Knowledge Transfer: InnovationKT2010

7 & 8 December 2010  
Technocentre, Coventry Science Park  
Coventry, UK



## Conference Digest

## InnovationKT'2010 Chairs and Keynote Speakers

Prof Ian Oakes



Sir Brian Fender



Prof Robert Howlett



Dr Nathalie Gartiser



Dr Jean Renaud



Dr Iain Gray



Mr Gus Desbarats



Dr Jarmila Davies



Mr Michael Smith



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## Chair's Welcome Message

I am pleased to extend a warm welcome to all delegates and speakers at the Second International Conference on Innovation through Knowledge Transfer, InnovationKT'2010, organised jointly by KES International and the Institute of Knowledge Transfer, and sponsored by the University of Wolverhampton.

Featuring world-class invited speakers and contributions from a range of backgrounds and countries, the InnovationKT'2010 Conference provides an excellent opportunity to disseminate, share and discuss the impact of university-business interaction through knowledge transfer in all its forms.

There were two main motivations in initiating the Innovation through Knowledge Transfer conference series. The first was to provide a chance for publication on a subject where few opportunities exist already. While there would be advantages to learning of the experiences gained through knowledge transfer projects, the stories to be told often do not fit the profile of papers accepted for conferences and journals, which are focussed more on research. The successes of knowledge transfer therefore often go unreported.

The second motivation was to foster the development of a community from the diverse range of individuals practicing knowledge transfer. This is the second conference on Innovation through Knowledge Transfer and I believe we are forming an interesting community of practice. Those who are able to offer papers and presentations on the joint and related subjects of innovation and knowledge transfer are not all from an academic background. Certainly academics can provide welcome and insightful contributions, but there is expertise, knowledge, skills, and experience of significant importance, to be drawn from the considerable number of knowledge transfer professionals. These people can relate lessons learned, best practice, what works and what does not, from experience gained through setting up and running real knowledge transfer projects. InnovationKT'2010 has succeeded in bringing together contributions from both the academic and practitioner sections of the knowledge transfer community.

The conference called for both short papers and full papers. Full papers of 10 pages in length, written in a conventional academic style, are presented orally at the conference, and will be published in the conference proceedings by Springer-Verlag as book chapters in the KES Smart Innovation, Systems and Technology series. In addition a summary of each full paper is published in the conference digest. Short papers of one or two pages in length are presented orally at the conference and published in the conference digest, but not in the conference proceedings. The programme contains seven invited keynote talks, 40 oral presentations grouped into eight sessions, and one interactive workshop. The proceedings will contain about 30 chapters drawn from this material. There are 80 registered delegates drawn from 10 countries of the world, showing that there was truly international participation.

Thanks are due to the many people who worked towards making the conference a success. I would particularly like to thank the Honorary Conference Chair, Professor Ian Oakes from the University of Wolverhampton, and the Honorary Conference Series Chairs, Sir Brian Fender of the IKT and Dr Iain Gray of the TSB, for their support. I would also like to thank the invited keynote speakers, the members of the International Programme Committee, and all others who contributed to the organisation of the event.

I hope you find InnovationKT'2010 an interesting, informative and useful event. I hope and intend that future conferences in the InnovationKT series will continue to serve the knowledge transfer community and act as a focus for its development.

Robert J. Howlett  
Executive Chair, KES International  
InnovationKT'2010 General Chair

## Organisation

### **Honorary Conference Chair:**

**Professor Ian Oakes**

Pro-Vice Chancellor Research and Enterprise  
University of Wolverhampton, UK

### **Honorary Conference Series Co-chairs:**

**Sir Brian Fender CMG**

Chairman and President of the Institute of Knowledge Transfer

**Dr Iain Gray**

Chief Executive, Technology Strategy Board

### **General Conference Chair:**

**Professor Robert J Howlett**

Executive Chair, KES International  
Bournemouth University, UK

### **IKT Liaison Chair:**

**Mr Russ Hepworth-Sawyer**

Institute of Knowledge Transfer

### **Conference Administration:**

**Peter Cushion, Shaun Lee, Alastair Stewart, Nadia Zernina, Adrianna Koziarkiewicz-Hetmanska**

KES International

**Claire Passmore**

Institute of Knowledge Transfer

**Innovation through Knowledge Transfer** is organised and managed by **KES International** in partnership with **the Institute of Knowledge Transfer**.

## International Programme Committee

Name	Affiliation
Prof. Raffaele de Amicis	Centre for Advanced Computer Graphics Technologies - GRAPHITECH, Italy
Dr Geoff Archer	Teeside University, UK
Dr David Brown	Inst. of Industrial Research, Portsmouth University, UK
Prof. Francisco V. Cipolla-Ficarra	ALAIPO and AINCI (Spain / Italy)
John Corlett	Oxford Brookes University, UK
Prof. Sir Brian Fender	Institute of Knowledge Transfer, UK
Dr Paola Di Maio	University of Strathclyde, Scotland, UK
Dr. Paul Donachy	The Queens University of Belfast, UK
Ms Kim Dovell	Institute of Knowledge Transfer, UK
Ms Charlene Edwards	Kingston University, UK
Ms Carolin A. Fiechter, Dipl.-Kffr.	Universität der Bundeswehr München, Germany
Mr Marc Fleetham	University of Wolverhampton, UK
Dr Philip Graham	Executive Director AURIL, UK
Ms Sue Gunn	City University, UK
Mr Iain Gray	Technology Strategy Board, UK
Prof. Christos Grecos	University of the West of Scotland, UK
Mr Mike Hall	Association of Universities in the East of England, UK
Prof. Owen Hanson	University of Middlesex, UK
Prof. Ileana Hamburg	University of Applied Sciences Gelsenkirchen, Germany
Mr Russ Hepworth-Sawyer	Institute of Knowledge Transfer, UK
Prof Robert J.Howlett	Bournemouth University / KES International, UK
Prof. Noel Lindsay	University of Adelaide, Australia
Prof. Eva-Maria Kern	Universität der Bundeswehr München, Germany
Dr Jens Lønholdt	Technical University of Denmark
Prof. Ignac Lovrec	University of Zagreb, Croatia
Ms Debbie Lock	Kingston University, London, UK
Olivera Marjanovic	University of Sydney, Australia
Dr.-Ing. Maik Maurer	Technische Universität München, Germany
Mr Martin May	Aston University, UK
Prof. Maurice Mulvenna	TRAIL Living Lab, University of Ulster, UK
Prof. Ian Oakes	Pro-Vice Chancellor Research and Enterprise, University of Wolverhampton, UK
Mr Hamed Rahimi Nohooji	Iran University of Science and Technology, Tehran, Iran
Dr. Vladimir Stantchev	Berlin Institute of Technology, Germany
Ms Val Wooff	Durham University, UK
Dr Cecilia Zanni-Merk	INSA-Strasbourg, France
Shangming Zhou	Swansea University, Wales, UK

## Keynote Invited Speakers

### Sir Brian Fender CMG MInstKT

Chairman and President of the Institute of Knowledge Transfer

### Welcome and opening remarks

### Professor Ian Oakes

Pro Vice-Chancellor Research and Enterprise  
University of Wolverhampton, UK

### The Role of University - Business Collaboration in Influencing Regional Innovation

**Abstract:** The capability to produce and use knowledge through strong systems of innovation is now regarded by many as critical to the success of countries, regions, firms and individuals. In the UK, Higher Education Institutions are widely seen as key contributors to regional economic development and a fundamental part of the knowledge economy.

This presentation will investigate the relationship between knowledge, innovation and competitiveness in a regional context and explore the contributions made by universities in supporting regional innovation systems including an examination of the most common models of university-business partnership in use. It will review the role played by the UK Government in encouraging universities to respond to the needs of business and the wider community through 'third stream' funding programmes and examines the appropriateness of the metrics used to evaluate the effectiveness of this type of activity.

Finally the presentation draws some conclusions on the effectiveness of 'third stream' activities undertaken by UK universities and attempts to demonstrate how research intensive and non-research intensive universities can undertake differential yet complementary roles in supporting regional economic development through 'third stream' activities in the future.

**Biography:** Professor Oakes is responsible for promoting the University's research agenda and developing the growing knowledge transfer arena at regional, national and international levels.

He was educated at the Universities of Aston and Bath and has held a number of senior management posts in higher education. He has been involved in an extensive programme of technology transfer activities, both national and transnational, operating across a range of sectors and has led the development of a number of initiatives focusing specifically on the transfer of technology from academia to both large and small firms.

He has published widely in the field of innovation and technology transfer in the small firm manufacturing sector.

**Dr Nathalie Gartiser & Dr Jean Renaud**

Institut National des Sciences Appliquees (INSA)  
Strasbourg, France

**Knowledge Transfer in France - From Academic Research to Companies: Organization and Research Examples**

**Abstract:** The French system of academic research is based on an important transfer system from universities to companies. Based on different organizations and helped by different transfer tools, one important political aim is to develop the fertilization of the industrial world by academic knowledge.

The valorization system is mainly based on two dimensions. The first one is based in universities and academic schools with the aims to help laboratories to identify appropriate knowledge and relevant partners to realize transfers from the academic world to the industrial world. The second dimension is based on public organizations, focused mainly on SMEs. It aims to increase dialogue between partners and to accompany the partners in connecting them, to identify the expertise and to help the partners in the first steps of negotiation and eventually contractualization.

After presenting the general mechanism of knowledge transfer between the academic research and the industry in France, and giving some examples of organizations and tools, we will give some examples of study and research partnerships with the aim to illustrate this way of doing.

**Biographies:**

Nathalie Gartiser is Assistant professor in business sciences at INSA Strasbourg - Graduate School of Science and Technology (France). Dr Gartiser has been working on organization and industrial innovation management for 10 years. As master degree in innovative design, she has also developed research on problem solving in non technical fields during the last years. Her recent research on this topic has been developed on the Field of Environment and Land Use Planning. Involved in entrepreneurship activities on INSA Enterprises department, she is familiar with valorization activities and knowledge transfer between INSA Strasbourg and industrial partners.

Jean Renaud is a Professor of Innovation and Conception at INSA Strasbourg - Graduate School of Science and Technology (France). He holds a PHD degree in Industrial Engineering. His research focuses on knowledge management and multi-criteria analysis. Dr. Renaud currently serves as an innovation expert in French firms and heads a French national association on project management.

**Dr Iain Gray CEng**

Chief Executive

Technology Strategy Board

Swindon, UK

**Connect and Catalyse to Stimulate Innovation**

**Abstract:** In the dictionary definition, a catalyst is something that acts as the stimulus in bringing about or hastening a result; it is something which modifies and increases the rate of a reaction.

Since it was created just three years ago, the Technology Strategy Board has established a key position within the UK as a true catalyst for innovation and knowledge exchange; it has demonstrated that funding alone is not sufficient to facilitate true engagement between different communities, whether business, academia or government, to achieve measurable, sustainable outcomes but that, by recognising the barriers to collaboration and devising the appropriate mechanisms for overcoming them, challenges can be met with truly innovative solutions and remarkable results can be achieved.

By drawing upon examples from the Technology Strategy Board's portfolio, Iain Gray will illustrate some of the mechanisms which have been successfully employed to stimulate and enhance collaboration between businesses and academia across the UK, to stimulate and support innovation, bring about strategic commercial developments and to address some of the major societal challenges of our time.

**Biography:** Iain Gray joined the Technology Strategy Board as Chief Executive in 2007, following its establishment as an executive non-departmental public body.

Prior to joining the Technology Strategy Board, Iain was Managing Director and General Manager of Airbus UK, whose Bristol operation he joined when it was still part of British Aerospace.

Iain Gray completed his early education in Aberdeen, culminating in an Engineering Science honours degree at Aberdeen University. In addition, he gained a Masters of Philosophy at Southampton University in 1989 and has received Honorary Doctorates from Bath, Bristol and Aberdeen Universities in 2005, 2006 and 2007 respectively.

Iain is a Chartered Engineer, a Fellow of the Royal Academy of Engineers, a Fellow of the Royal Aeronautical Society and in 2007 was awarded the Royal Aeronautical Society Gold Medal. He is Chairman of the Business and Industry Panel of The Engineering and Technology Board (ETB), a Governor of the University of the West of England, a Board Member of SEMTA and a Board Member of Energy Technologies Institute.

As Chief Executive of the Technology Strategy Board, Iain is the operational head of the new organisation as it assumes its leading role in driving the UK's technology and innovation strategy.

Iain is married to Rhona and has four children.

**Mr Gus Desbarats MDesRCA, D.I.C , B.Eng, FCSD**

Chairman TheAlloy: experience led design

Chairman British Design Innovation

Champion: Experience Led Innovation - TSB KTN (Creative Industries)

**Completing the journey from IP ownership to IP return: why and how KT collaboration between Universities and Professional Industrial-Designers benefits everyone involved**

**Abstract:** The UK University sector is extremely rich in ideas, but is being challenged like never before to commercialise this intellectual property. There are many different journeys from IP to commercialisation; all are long, complex and full of opportunities for failure. Yet these journeys follow clear patterns that innovation professionals, like the members of BDI, know how to recognise and avoid. In his talk the author will use case studies from his 28 years of continuous innovation as well as selected case studies from other BDI members to explain some of the main risk patterns and explain how KT collaboration with BDI members is a cost effective method of increasing the return on IP held in the university sector. The talk will also present UDIP: a University Design Innovation Partnership in which BDI and a select group of universities are piloting a collaboration forum specific to design and the universities.

**Biography:** Originally from Canada, Gus is an RCA trained Industrial Designer, also qualified in mechanical and systems engineering.

Gus has been designing and directing award-winning, commercially successful, innovation, continuously, for the last 28 years, for some of the world's top brands: BT, HP, Toshiba, Grass Valley among many others. He has also helped many successful startups: his Lightworks Digital Editor design won an Oscar. Every day, tens of millions of people interact with the work created by Gus and his team at TheAlloy: experience-led design, a leading, employee-owned, design consultancy Gus founded in 1999, which does product, interaction and service design as well as innovation strategy.

Gus advises and speaks frequently on why and how organisations can use a human-centric innovation approach to achieve better results, especially when the technology and value chains are complex. He has a particular expertise accelerating the acceptance of new emerging technologies and in the creation of inclusive mass market solutions that work for young and old alike.

**Dr Jarmila Davies CEng**

Programmes Development Manager  
Department for the Economy and Transport  
Welsh Assembly Government, Cardiff, UK

**Breaking Barriers and Building Collaborations: Knowledge Transfer Development in Wales****Abstract:**

Knowledge transfer and innovation is high on the list of priorities for the Welsh Assembly Government (WAG). Creation of a dedicated support for KT dates back to 1997, when following the consultation paper 'An economic strategy for Wales', it became clear that an impartial facility for brokering KT opportunities should be established. The presentation will describe a chronological development of processes that grew from a small group of enthusiastic KT practitioners to a multimillion programme delivering versatile support for knowledge transfer activities in Wales.

Know-How Wales (KHW) launched in 1999 was a free all Wales business support service bringing businesses in Wales closer together with Institutions of Further and Higher education and acted as a gateway to knowledge transfer provision between the two.

A first of the EU funding in 2001 enabled the launch of the Knowledge Exploitation Fund (KEF) that dealt with supporting 3rd mission and capacity building for KT delivery within academia. The KEF funding laid the foundations to a 'KTP Mentoring project for the FE sector' aiming to encourage the spirit of collaboration between HEIs and FEIs.

The second tranche of the EU funding secured in 2007 enabled KT community in Wales to continue and strengthen collaborative activities and embed the spirit of CPD, innovation and enterprise.

**Biography:** Dr Jarmila Davies is a Programme Development Manager at the Department for the Economy and Transport of the Welsh Assembly Government.

Having graduated in Civil and Structural Engineering at Prague University Jarmila carried out research for the degrees of MSc at Cardiff University and PhD at the University of Glamorgan. She then pursued a successful career in higher education at the university where she led research programmes of international standing. Being a Chartered Civil and Structural Engineer, she gained considerable experience of collaboration projects working with the construction, manufacturing and engineering industries including a broad range of SMEs in Wales.

Jarmila has played prominent roles in the development of lifelong learning programmes for Welsh engineers and the promotion of the public understanding of science and engineering.

She is committed to establishing new forms of interface between businesses and academia and developing relationship and knowledge management as vital tools in the knowledge transfer process. She is a Fellow of the Institution of Civil Engineers, a Member of the European Federation of Engineering Associations, Honorary Fellow of the Chamber of Czech Engineers and a Member of the Institute of Knowledge Transfer and serves on several Boards concerned with education and promoting the public understanding of science and engineering.

**Mr Michael Smith**

Senior Innovation Manager

MidTECH - NHS Innovations West Midlands

**The Innovation Management and Knowledge Transfer Process Across NHS Trusts**

**Abstract:** Knowledge Transfer across NHS Trusts is slowly gathering momentum. The NHS are increasingly becoming aware of the importance of their IP and their relationships with academic institutions in IP creation.

MidTECH have been working with these Trusts trying to establish a culture where the protection of ideas is a high priority. This has come up against some resistance within the healthcare system but inroads have been made. MidTECH have adopted a system whereby projects are turned over very quickly and a priority is given to "quick-wins". This is showing Trusts that achieving a return from their IP is possible and case studies are feeding more ideas. This rapid turnaround has required an internal change in IP project management. Target-driven, internal competition, bonus schemes and a "hands-off" approach to the technology have all contributed to our model.

This presentation will look at that system and also look generally at how the NHS structure is changing and how that impacts on innovation.

**Biography:** Mike Smith has worked for various NHS Trusts and Universities in the West Midlands region for over five years, developing and commercialising new ideas and products. Previously, he has worked in the private sector licensing software technologies across the U.S. and Europe. Currently, he is the Senior Innovation Manager at MidTECH - NHS Innovations West Midlands and works directly with NHS staff to assist them in protecting and developing their novel ideas and innovation.

## Conference Timetable

### Tuesday 7 December 2010

<b>8.30-9.30</b>	<b>Registration</b>
<b>9.30-9.45</b>	<b>Conference Opening and Welcome : Room CC1.3</b> <b>Sir Brian Fender &amp; Prof Robert J. Howlett</b>
<b>9.45-10.15</b>	<b>Keynote Talk : Room CC1.3</b> <b>Prof Ian Oakes, University of Wolverhampton, UK</b> The Role of University-Business Collaboration in Influencing Regional Innovation
<b>10:15-10:30</b>	<b>Questions and Discussion</b>
<b>10.30-11:00</b>	<b>Coffee : Restaurant</b>
<b>11.00-13.00</b>	<b>Oral Paper Presentation Sessions</b> <b>Session A: Value Creation through Knowledge Processing : Room CC1.3</b> <b>Session B: Strategic and Organisational Approaches to Knowledge Transfer : Room CC1.1</b>
<b>13.00-14.00</b>	<b>Lunch : Restaurant</b>
<b>14.00-14.30</b>	<b>Keynote Talk : Room CC1.3</b> <b>Dr Nathalie Gartiser and Dr Jean Renaud, INSA Strasbourg, France</b> Knowledge Transfer in France: From Academic Research to Companies
<b>14.30-15.00</b>	<b>Keynote Talk : Room CC1.3</b> <b>Mr Michael Smith, Midtech NHS Innovations, UK</b> The Innovation Management and Knowledge Transfer Process Across NHS Trusts
<b>15.00-15.30</b>	<b>Coffee : Restaurant</b>
<b>15.30-17.00</b>	<b>Oral Paper Presentation Sessions</b> <b>Session C: Knowledge Transfer Models and Frameworks : Room CC1.3</b> <b>Session D: Insights into Knowledge Transfer : Room CC1.1</b>
<b>7.30 pm</b>	<b>Conference Dinner at the Technocentre</b>

**Wednesday 8 December 2010**

<b>8.30-9.15</b>	<b>Registration</b>
<b>9.15-9.45</b>	<b>Keynote Talk : Room CC1.3</b> <b>Dr Iain Gray, Technology Strategy Board, UK</b> Connect and Catalyse to Stimulate Innovation
<b>9.45-10.15</b>	<b>Keynote Talk : Room CC1.3</b> <b>Mr Gus Desbarats, British Design Innovation, UK</b> Completing the Journey from IP Ownership to IP Return: why and how KT collaboration between Universities and Professional Industrial-Designers benefits everyone involved
<b>10:15-10:30</b>	<b>Questions and Discussion</b>
<b>10.30-11.00</b>	<b>Coffee : Restaurant</b>
<b>11.00-13.00</b>	<b>Oral Paper Presentation Sessions &amp; Workshop</b> Session E: Knowledge Transfer Partnership Case Studies : Room CC1.3 Session F: Innovation and Enterprise : Room CC1.1 Workshop: A Readiness Assessment Tool for KTP - where will your KTP run aground? : Room CC1.2
<b>13.00-14.00</b>	<b>Lunch : Restaurant</b>
<b>14.00-14.30</b>	<b>Keynote Talk : Room CC1.3</b> <b>Dr Jarmila Davies, Welsh Assembly Government, UK</b> Breaking Barriers and Building Collaborations: Knowledge Transfer Development in Wales
<b>14.30-15.00</b>	<b>Exhibitor Presentations : Room CC1.3</b>
<b>15.00-15.30</b>	<b>Coffee : Restaurant</b>
<b>15.30-17.00</b>	<b>Oral Paper Presentation Sessions</b> Session G: Knowledge Transfer Case Studies : Room CC1.3 Session H: Knowledge Transfer with the Third and Public Sectors : Room CC1.1 Closing Ceremony

## Paper Presentation Schedule

### Session A: Value Creation through Knowledge Processing - Methodologies, Approaches and Case Studies

Tuesday 7 December 2010: 11.00 - 13.00

*Chairs: Dr. Carolin A. Fiechter, Universität der Bundeswehr München, Germany and*

*Prof. Eva-Maria Kern, Universität der Bundeswehr München, Germany*

*Dr Julia Boppert, Universität der Bundeswehr München / trilogIQa, Germany*

Inkt10-002	Can Knowledge be Transferred?	Prof Richard Ennals	Peter Totterdill and Robert Parrington
Inkt10-020	Structured Knowledge Transfer for the Implementation of a New Engineering Service Centre in India - Results from a Captive Offshoring Project in the Automotive Supplier Industry	Prof. Dr. Franz Lehner	Christian Warth
Inkt10-027	Supporting Cross-border Knowledge Transfer through Virtual Teams, Communities and ICT Tools	Dr. Hamburg Ileana	
Inkt10-038	What Knowledge? What Borders? What Boundaries?	Ms Anne Bowden	
Inkt10-043	Knowledge Management Can Be Lean: Improving Knowledge Intensive Business Processes	Ms Carolin Fiechter	Olivery Marjanovic, Julia F. Boppert and Eva-Maria Kern
Inkt10-044	Towards a Value Oriented Knowledge Management	Prof. Dr. Eva-Maria Kern	Dr.-Ing. Julia Boppert, Mr Wendelin Schmid

### Session B: Strategic and Organisational Approaches to Knowledge Transfer

Tuesday 7 December 2010, 11.00 - 13.00

*Chair: Dr. Wynand J.C. Grobler, North West University, South Africa*

Inkt10-047	A Conceptual Approach Towards Understanding Issues in the Third Stream: Conceptions of Valid Knowledge and Transfer in UK Policy	Miss Nicolette Michels	
Inkt10-006	Managing Knowledge in the Framework of the Organizational Evolution of SMEs	Dr Philippe Bouché	Dr Nathalie Gartiser, Dr Cecilia Zanni-Merk
Inkt10-016	Assessing Changes in University Knowledge Transfer Capability to Support Innovation: A Knowledge Intensive Business Service Perspective	Prof John Sparrow	
Inkt10-030	Defining Four Pillars for Successful Applied Knowledge Transfer	Dr David-Huw Owen	Mr Zach Wahl
Inkt10-034	Organisational Identification of Academic Staff and its Relationship to the Third Stream	Mr Trevor Brown	
Inkt10-048	The 4 'C's of Knowledge Transfer and Knowledge Based Working- Emerging Themes in Successful Knowledge Working and KTPs	Dr Steve Ellis	

**Session C: Knowledge Transfer Models and Frameworks**

Tuesday 7 December 2010, 15.30 - 17.00

*Chair: Prof. John Sparrow, Birmingham City University, UK*

Inkt10-031	The Cardiff University-Fusion IP Model for Technology Transfer	Dr Nick Bourne	Dr Dominic Griffiths
Inkt10-045	A Proposed Management Framework for Commercialisation of Expertise at Public Universities	Dr Wynand Grobler	Prof Frikkie Van Niekerk
Inkt10-050	Designing a new model for Expanded Knowledge Transfer Asset Development	Rachel Barton	Janet Shipton and Gail Wyman
Inkt10-035	Vademecum for Innovation through Knowledge Transfer: Continuous Training in Universities, Enterprises and Industries	Prof. Dr-Ing. Francisco Cipolla-Ficarra	Prof. Dr-Ing. Miguel Cipolla-Ficarra, PhD Emma Nicol

**Session D: Knowledge Transfer Insights**

Tuesday 7 December 2010, 15.30 - 17.00

*Chair: Mr Trevor Brown, Manchester Metropolitan University, UK*

Inkt10-025	Tri-partnerships in Knowledge Transfer: Changing Entrepreneurial Mindsets	Dr. Christopher Brown	Mrs Diane Proudlove
Inkt10-023	The Barriers to Academic Engagement with Enterprise: A Social Scientist's Perspective	Ms Linda Reichenfeld	
Inkt10-054	A Toolbox for ICT Technology Transfer Professionals: A Preview of an Online Toolkit Aiming at the Acceleration of the ICT Technology Transfer Process	Dr. Itxaso Del Palacio Aguirre	Ms Annelies Bobelyn
Inkt10-059	Knowledge Cloud and Text-Based Diffusion through Lexical Productivity	Prof. Dr. Kehal Mounir	

**Session E: Knowledge Transfer Partnership Case Studies**

Wednesday 8 December 2010, 11.00 - 13.00

*Chair: Prof. Owen Hanson, Middlesex University, UK (TBC)*

Inkt10-003	Case Study of Successful Knowledge Transfer Project: Maximising your KTP	Mrs Jill Walters	Mr Vic Davies, Mr Neil Hunter
Inkt10-019	Knowledge Exchange and Learning and Development in a Newly Formed SME: an example from the Knowledge Transfer Partnership Scheme	Dr Martin Wynn	Ms Erin Lau, Mr Peter Maryszczak
Inkt10-040	Providing e-business Capability on a Legacy Systems Platform: A Case Study from the Knowledge Transfer Partnership scheme	Mr Rizwan Uppal	Dr Martin WYNN, Mr Phillip Turner
Inkt10-042	“At the fuzzy front end” Introducing four stages of innovation to Solo Cup Europe A Knowledge Transfer Partnership with Teesside University	Mr Peter Reid	Mr Alex Brown, Mrs Anne Sutton
Inkt10-037	Planning a Meaningful Relationship: The Story of a Social Science and Traffic Engineering Knowledge Transfer Partnership	Dr Sue Hacking	Mr Neal Hudson

**Session F: Innovation and Enterprise**

Wednesday 8 December 2010, 11.00 - 13.00

*Chair: Dr Jens Rønnow Lønholdt, Technical University of Denmark*

Inkt10-008	Firms' Nature and Characteristics and their Attitude Toward Publication. An Analysis of the Italian Biotech Sector	Mrs. Rosamaria D'Amore	Mr. Roberto Iorio
Inkt10-009	Networks of co-authorship in the Publications of the Italian Biotech Firms: The Role of Different Institutions	Rosamaria D'Amore	Roberto Iorio, Agnieszka Stawinoga
Inkt10-017	Stitching an Organisation's Knowledge Together - Communities of Practice as Facilitator for Innovations Inside an Affiliated Group	Prof. Dr. Marion Weissenberger-Eibl	Dipl.-Kfm. Dominik Ebert
Inkt10-026	Living Labs are Innovation Catalysts	Prof Maurice Mulvenna	Prof Birgitta Bergvall-Kåreborn, Mr Brendan Galbraith, Dr Suzanne Martin, Mr Jonathan Wallace
Inkt10-036	How to Transfer the Innovation Knowledge from Craft Art into Product Design - A Case Study of Character Toys	Dr. Yang-Cheng Lin	Miss Chun-Chun Wei
Inkt10-051	'Center for Global' or 'Local for Global'? R&D Centers of ICT Multinationals in India	Dr. Vigneswara Pandian	

**Workshop: A Readiness Assessment Tool for KTP - where will your KTP run aground?**

Wednesday 8 December 2010, 11.00 - 13.00

*Facilitator: Dr Steve Ellis, University of Chichester, UK*

This workshop showcases a research-based model which is designed to identify areas of potential strength and weakness (either at the programme level or organisationally) when it comes to instigating or managing a KT project. The model will allow you to develop a 'Knowledge Working Footprint' by using a self scoring assessment. This will be followed by a discussion about how the model's outputs and conclusions can be used to improve KT project implementation through targetting effort and resources more effectively to take into account the culture of the organisation.

**Session G: Knowledge Transfer Case Studies**

Wednesday 8 December 2010, 15.30 - 17.00

*Chair: Prof. Maurice Mulvenna, University of Ulster, UK*

Inkt10-005	How to Boost Innovation by Direct Use of University based Research - Case Studies from the Technical University of Denmark	Chief Consultant Jens Rønnow Lønholdt	
Inkt10-028	An Examination of an Innovation Intermediary Organisation's Methodology using Case Studies	Dr Ben Tura	Mrs Caroline Bishop
Inkt10-021	The ISSUES Project: An Example of Knowledge Brokering at the Research Programme Level	Ms Katarzyna Przybycien	Ms Katherine Beckmann, Ms Annabel Cooper, Ms Naeeda Crishna, Ms Kimberley Pratt, Prof. Paul Jowitt
Inkt10-018	Student Supported Consultancy to Address Market Needs: Leeds Source-IT, a case study	Dr Alison Marshall	Professor Roger Boyle, Dr Royce Neagle

**Session H: Knowledge Transfer with the Third and Public Sectors**

Wednesday 8 December 2010, 15.30 -17.00

*Chair: Ms Charlene Edwards, Kingston University, UK*

Inkt10-029	Using KTP to Enhance Neighbourhood Sustainability - a case study of Wulvern Housing Association's Sustainability Indicators (WINS)	Mr Paudie O'Shea	
Inkt10-032	The InterAct Project and TechLink: an Example of International Collaboration and Technology Transfer	Dr Louise Byass	Mrs Elaine Eggington, Dr Louise Sarup
Inkt10-004	Knowledge Transformation in the Third Sector: Plotting Practical Ways to have an Impact	Mrs Razia Shariff	
Inkt10-053	Problem-based Learning (PBL) and Knowledge Transfer (KT) Collaboration between a Derbyshire Market Town and University Knowledge-preneurs	Mr Mike Edwards	Mr Peter Wiltshier

## Summaries of Talks

### Session A: Value Creation through Knowledge Processing - Methodologies, Approaches and Case Studies

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#### Can Knowledge be Transferred?

Richard Ennals, Peter Totterdill and Robert Parrington

*Kingston Business School, Kingston University, Kingston KT2 7LB, UK*

The paper argues that conventional models of knowledge transfer are confused and mistaken. Knowledge can be transferred between people. Knowledge is more complex. Knowledge transfer is not a linear process managed by administrators. It is a matter of culture change, with knowledge as integral to the culture. Knowledge is socially constituted, and not simply held by individuals. Explicit knowledge is only the tip of the iceberg. We need to address implicit knowledge, and most importantly, tacit knowledge. Knowledge is acquired through shared experience, typically by involvement in a particular form of life, with distinctive language games.

On this basis, it is important to create environments in which experience can be shared, and where knowledge can be given practical meaning. In the context of innovation, we can seek to develop innovation systems, contexts in which new ideas can be developed and applied.

In the context of the workplace, we need to facilitate dialogue, and partnership arrangements which engage the local actors, as well as the social partners and external research resources.

The paper considers four new structures for work organisation which enable experience to be shared, ideas applied, and knowledge acquired: Students' Quality Circles, Senior Quality Circles, Forum Theatre, and Network Consultancy. Conclusions are presented from a feasibility study project based at Kingston Business School, and conducted in association with the UK Work Organisation Network.

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#### Structured Knowledge Transfer for the Implementation of a New Engineering Service Centre in India - Results from a Captive Offshoring Project in the Automotive Supplier Industry

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Organizations are continuously confronted with stress of competition. The search for lower operational costs is no longer limited to the manufacturing and information technology field and has been extended to engineering services as well. For comprehensible reasons more and more tasks in the engineering service sector are shifted towards India. Along with this, international companies plan at least partly to transfer firm-specific knowledge towards India so that knowledge management has become a key success factor for the performance of plants or subsidiaries in India. This contribution focuses on a research project dealing with the knowledge transfer processes of a global automotive tier 1 supplier to its joint venture in Pune, India. Knowledge transfer processes as part of a holistic knowledge management approach were essential for the success of these off-shoring activities. The major goal of this contribution is to show how this offshoring project was carried out from a knowledge management point of view. This provides deeper insights into the course of action related to knowledge transfer processes between the two locations in the US and India. An internally developed knowledge transfer model leveraged a combination of experienced resources from the joint venture, with task based training and documentation of knowledge and practical cross cultural orientation and assimilation of teams to quickly initiate the new operation. Finally the paper will demonstrate how an above average steady state level can be reached by progress tracking and

feedback mechanisms. Furthermore the paper will provide a brief overview of the existing theoretical dominant factors of successful knowledge transfer which were distilled out of empirical studies and prior research in this field.

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### **Supporting Cross-border Knowledge Transfer through Virtual Teams, Communities and ICT Tools**

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Many multinational organisations support work collaborative practices like virtual functional or project teams within cross-border business. Cross-border knowledge transfer within virtual teams or communities may face an extra challenge of cross-cultural hurdles. In this paper, after a short presentation of virtual teams and communities and the problem of cross-border transfer in this context, some methods and tools for achieving intercultural competence and tools supporting knowledge transfer as well as activities of an on going European innovation transfer project about Lifelong learning in SMEs are given.

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### **What Knowledge? What Borders? What Boundaries?**

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This paper describes the efforts of TAFE NSW - New England Institute (the Institution), in conjunction with a number of industries to provide an efficient and effective knowledge transfer platform in a widely dispersed geographical area. The Institution is located in an area where fewer than 140,000 people reside in more than 100,000 square kilometres. The unique needs of such a sparsely populated area were a driver for the provision of services to industry using a new methodology.

### **The New Methodology**

Methodology of this knowledge transfer system is two-fold:

1. Web-conferencing technology to share cross-enterprise, industry-wide knowledge; combined with
2. Workplace learning.

This methodology has been used by the Institution since 2007 and has been expanded to many industries.

### **How Is It Innovative?**

Workplace learning has been a feature of knowledge transfer in many industries for a long time. Its strengths and weaknesses are well documented in many publications. The introduction of web-conferencing has overcome some of the weaknesses of that knowledge transfer system as it allows for transfer across a large variety of enterprises, and dispersed geographical areas. Both elements of this methodology are equally valued.

This is much more than an online learning system. Professional discussions are enabled, in real time, between industry experts (invited), teachers and trainees. Formal and informal knowledge is able to be transferred via an intuitive communication process – conversation, enhanced by visual and other technical aids.

## Possible Knowledge Management Research Challenges

Further research

- to quantify how effectively this methodology prepares the workforce to use ICT innovation platforms;
- to determine effectiveness in overcoming isolation of innovative practices in one enterprise; and
- to develop knowledge management techniques for managing 'assets' created

will assist in increasing the informed expansion of this methodology.

### Examples From Three Industries

In the Health Care industry, an industry with significant skills shortages throughout Australia, one very successful program is a Health Care Assistance Certificate III program. This program targets participants who are in their senior years of high school and aspiring to a career in the health industry. The participants attend a weekly online lesson. They are employed on a traineeship basis in local acute care health facilities where they develop their skills and knowledge in clinical practice.

In the Veterinarian Care industry, participants in an Animal Care Certificate II program attend online lessons once per week. In some cases they are employed on a traineeship basis in local veterinarian surgeries. In other cases, they undertake unpaid (though compulsory) employment in veterinarian surgeries.

In the Construction industry, participants attend sessions on an irregular, as demand is identified, basis. The participants currently hold a Building Contractor's Licence. They may be people who conduct their own businesses, or they may be senior managers in an enterprise. These participants use this method of knowledge transfer to maintain their Continued Professional Development status as prescribed by the licensing body in the State of New South Wales.

Although there are many more examples of this two-fold methodology, the three highlighted give a good indication of the groups involved in, and the outcomes of this program. A value-added feature of the methodology is the knowledge and skills being developed for imminent innovations in each of these industries. In health care and veterinarian care industries telemedicine is in an embryonic phase. In the construction industry technology enabling collaborative drafting tools is being introduced. The participants in these programs will be well placed to adopt these, and other ICT innovations with relative ease.

### What Knowledge?

The needs of entry-level, employment-ready groups requiring a fundamental industry-wide knowledge base are met. The needs of these same groups for fundamental enterprise-specific knowledge are met as workplace learning is incorporated into the model.

At the other end of the learner characteristics' spectrum, the needs of SME owners and senior managers are met. Industry-wide knowledge is shared by this group. The methodology benefits all of industry and encapsulates the Open Innovation Principles<sup>1</sup> model of sharing and using existing IP. "Content" is no longer king including IP, rather the leveraging of unique enterprise strengths provides the competitive edge. As suggested by Shaprio and Varian, "When managing intellectual property, your goal should be to choose the terms and conditions that maximize the *value* of your intellectual property, not the terms and conditions that maximize the protection"<sup>11</sup>.

### What Borders?

Australia has moved to a nation-wide base of qualifications and federalism is apparent in many spheres of the country's operations. Vocational education and training is very actively pursuing a national agenda. Local jurisdictional needs, as well as national needs are met. Participants come from across the nation and from international sites. Since national qualifications, which align to international accrediting standards, are

<sup>1</sup> Chesbrough, H. (2003), "*Open Innovation: The New Imperative for Creating and Profiting from Technology*", Harvard Business School Press Referred to at: <http://www.openinnovation.eu/openinnovatie.php>

<sup>11</sup> Shaprio, Carl and Varian, Hal R (1999), "*Information Rules: A Strategic Guide to the Network Economy*". Harvard Business School Press, Boston, Massachusetts, USA, page 5

awarded for programs which use the methodology, the physical jurisdictional and international borders are meaningless.

**What Boundaries?**

As the internet allows for access to equitable knowledge sharing there are few boundaries to this methodology. There are, of course, issues of equal quality of access to the technology and, in some parts of the world, equal unfiltered access to the technology.

The Institution has been part of national best-practice projects over a number of years. Such projects, for example the cross-jurisdictional, nationally funded “Access to Bandwidth” project, have developed the expertise of our staff. These previous projects, together with current programs, have had some impact on the National Government’s commitment to a hugely expanded and upgraded bandwidth program, the National Broadband Network (NBN). As part of NBN the Vocational Education Broadband Network (VEN),<sup>i</sup> which is aimed at improving industry and community experiences of using the internet, will be funded at \$80 million.

**Summary**

The use of web-based conferencing technology combined with work-based learning has seen the expansion of a very successful knowledge transfer platform for the Institution and the industries it serves. Interestingly, whilst the platform was originally intended to meet the particular needs of a geographically-dispersed population, participants from metropolitan-based areas often find this experience much preferable to more traditional methodologies for developing their industry knowledge.

As knowledge will be transferred using such platforms in the future, those who are enabled to use this methodology now will be at a significant advantage in terms of innovation in industries in the future.

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<sup>i</sup> <http://www.deewr.gov.au/Schooling/Programs/VEN/Pages/Overview.aspx>

## Knowledge Management Can Be Lean: Improving Knowledge Intensive Business Processes

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The main objective of this paper is to analyse the knowledge dimension of a repetitive, but highly complex business process in a case organisation. The paper illustrates that in this particular example of BP, a sustainable source of competitive advantage does not come from process automation, but is related to the experiential knowledge of decision makers. Also, in order to improve this type of process, our research shows that it is necessary to consider human-centred process knowledge rather than process structure, as it was typically done in the past, in the case of highly structured BPs. Concurrently, this paper demonstrates the application of the framework for business process management (BPM) and knowledge management (KM) on a real case at a logistics service provider, and presents a possible approach for operationalizing the term “knowledge intensiveness”.

### Towards a Value Oriented Knowledge Management

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Especially in consideration of the current global economic crisis, the revealing and efficient use of organisational knowledge is increasingly recognized as critical success factor for companies across all industries [Hexelschneider, 09].

In the middle of the 1990s, also due to the papers of Nonaka/Takeuchi [95] and Probst/Raub/Romhardt [99], the awareness of the interdependency between employees' knowledge and sustainable business success grew larger. The consequence was quite an euphoria about knowledge management (KM) in conjunction with the commercialization of a multitude of approaches. A lot of them have been merely IT based (e.g. document management, wikis, intranets etc.). While many enormously expensive investments in IT solutions were done, the expected success wasn't met. Since that time there is a cautious attitude towards knowledge management concepts, even though the awareness of knowledge as a resource still exists. After a phase of disillusionment within the companies KM is now – to use Gartner's terminology – “on the path of enlightenment”.

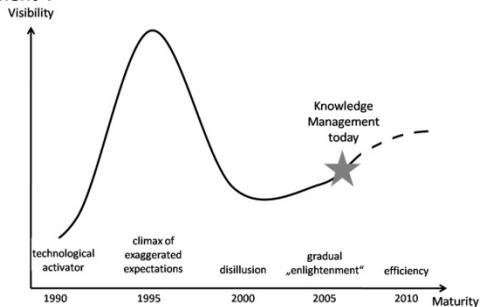


Figure 1: Gartner's hype-cycle of Knowledge Management (based on [Bullinger et. al., 09, p.701])

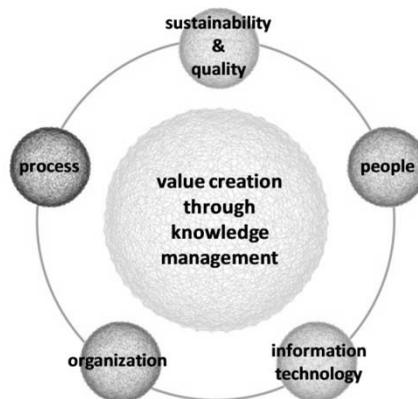
The current knowledge management discussion is affected by the understanding of the advantages, the challenges within the practical implementation and the limits of the underlying concepts. Companies are now searching well directed and at the same time critical for effective, efficient and sustainable knowledge management solutions.

To tackle these requirements an alignment of KM to the basic principles of value creation is conducive: Firstly, these principles include the alignment to both existing and potential future customer requirements. Secondly, they include the transformation of available resources into products and services of higher benefit for the customer and therefore higher value [Woll, 08, p.815].

The origin of this philosophy is the development of the Toyota Production System, beginning at the end of World War II. Today this philosophy is also well-known as Lean Production or Lean Management [Ohno, 88]. Its results significantly accounted for the growth and success of the Japanese car manufactures. This is and was the decisive factor for German and European companies of different industries to rethink their business processes on the basis of these proven principles [Womack/Jones, 03, p.9]. In doing so, the focus is not only on holistic process orientation, but above all on the stringent alignment of all activities to the customer needs and requirements. This is attended by the consistent avoidance of waste as the fundamental concept of creating lean and efficient processes as well as a demand-driven utilization of resources.

In consideration of the previous efforts in KM (often resulting in disillusioning experiences), these goals also seem to fit very well into this context. Customer focus, holistic process view and the reduction or avoidance of waste have to become the basis for knowledge management in the future, as well as the important topic of sustainability. Sustainability in terms of knowledge preservation for not yet foreseeable contexts as well as the conservation of latitude and potential for creativity are strategic aspects, which also have to be considered necessarily within the scope of further knowledge management efforts.

For generating short term profits while preserving long term success it is necessary to bear in mind that KM comprises heterogeneous fields of activities, namely: people, information technology, organisation (in terms of structure as well as culture), process orientation and finally sustainability and quality.



*Figure 2: Different aspects of knowledge management*

In this model, people play a significant role as they are seen as knowledge carriers and at the same time as customers of knowledge management. Information technology acts as an enabler for the other aspects, so here research also has to address the overall benefit and feasibility of IT-based solutions. The organisational structure has to be built in a way that assures legal and process requirements are fulfilled and at the same time knowledge management is facilitated. The characteristics of the specific business processes, especially the different levels of knowledge intensity and creativity, have to be considered when deciding on standardization or latent support. As these four aspects may entrap to focus on short-term (and maybe short-sighted) goals which result from the stringent emphasis on waste reduction or avoidance, the field of sustainability and quality explicitly has to be incorporated in knowledge management activities not only

from an operational, but also strategic point of view. Thereby, an anticipatory course of action can be assured, and thus the preservation of knowledge not actually needed but with a potential of become highly valuable in the future.

The main research challenges deriving from this comprehension are the development of methods to evaluate and to depict the quality of knowledge on the one hand, and of approaches for personalising KM systems and tools on the other hand, especially in terms of context awareness in the broadest sense. That also makes KM an interdisciplinary topic, with the need to integrate engineers and computer scientists well as psychologists and business administration specialists.

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**Session B: Strategic and Organisational Approaches to Knowledge Transfer**

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**A Conceptual Approach Towards Understanding Issues in the Third Stream: Conceptions of Valid Knowledge and Transfer in UK Policy**

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The value of academic knowledge and knowledge transfer (KT) as part of the third stream activity within HE (Higher Education) has for some years now been regarded as important for global competitiveness and consequently a key feature of UK HE policy-making. However there remain some issues for achieving a fully-fledged third stream. Few meaningful conclusions exist regarding the issues of mismatch between policy trajectory and achievement. More in-depth understanding of how and if third stream policy is meaningful in the interpretation by various stakeholders, is argued as important for understanding policy implementation issues. This conceptual paper seeks to establish a more meaningful approach to investigating the KT policy domain. Problematizing the coherency and clarity of UK policy discourse, the paper questions how valid knowledge and knowledge transfer is conceptualised? A model for analysis and investigation of such issues is developed. Drawn from conceptions in the academic and wider literature a 'Four Metaphor Framework' categorises valid knowledge and the transfer process as: 'Transfer', 'Exchange', 'Partnership'; 'Beyond a Capitalist Transaction'. The usefulness of the framework is assessed through its application to the discourse of key documents from UK policy. The mixed metaphors revealed in policy discourse are potentially significant in the light of the gap between government aspirations and achievement. For those concerned with the issues of effective design and implementation of KT policy, this paper provides an analytical model for subsequent empirical studies.

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**Managing Knowledge in the Framework of the Organizational Evolution of SMEs**

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This article describes the research project MAEOS. MAEOS is a project about the modelling of the support to the organizational and strategic development of SMEs. The main objective of MAEOS is to improve the efficiency and performance of business advice to SMEs. To achieve this objective, a multi-disciplinary team was created. Two main research areas are represented: artificial intelligence and management sciences. This work aims at establishing a set of methods and software tools for analysis and diagnosis of SMEs. We address three main questions: how to extract knowledge from experts but also practical knowledge from consultants, how to formalize it and how to use it to help a consultant or an entrepreneur.

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## Assessing Changes in University Knowledge Transfer Capability to Support Innovation: A Knowledge Intensive Business Service Perspective

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As universities increasingly engage with industry, the need for the management of knowledge transfer to draw upon appropriate measurement of activities is growing. There is little understanding of the relationship between strategy, infrastructure and capacity development, and alternative knowledge transfer activities. Much of the measurement of university knowledge transfer activity, emphasises basic 'output' assessment (e.g. number of patents, licenses, engagements, financial value etc.). This limitation is exacerbated when one seeks to support innovation above and beyond high technology-, science- and research-led initiatives, since innovation processes in service innovation spheres are more complex and diverse.

There are many ways in which knowledge transfer can be categorised. Whilst these frameworks provide some insights into activities, they are essentially (supply-led) 'product' categories and do not reveal the ways in which knowledge transfer activities meet the demands of users. Viewing knowledge transfer activities as knowledge intensive business services (KIBS), is one way to more fully understand the ways in which universities are supporting innovation in its broader sense.

Understanding the competence of a university in terms of its service capability allows a university to develop strategies, tactics and initiatives to develop infrastructure and capacity.

The current study examines developments in a case study university over a four year period in a structured assessment of knowledge intensive business services for regional innovation. A number of statistically significant changes in capability are identified which align to the strategic endeavour.

The study demonstrates value in assessing and managing KT activities for innovation in KIBS terms.

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### Defining Four Pillars for Successful Applied Knowledge Transfer

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Knowledge Transfer (KT) is a broad field with a myriad of applications, from academic to business focused initiatives intended to harness the knowledge individuals and organisations possess. However, without a true business focus, KT initiatives often suffer from a lack of direction, resulting in expended resources without measurable returns and benefits. With proper business goals, project management, and supporting use of technology however, KT programs can be managed to yield quantifiable investment returns. As a result, individuals and organisations can effectively benefit from, capture and share their knowledge, connecting the right people within an organisation to the knowledge and experts they need in order to be more effective. This paper outlines the key features of AEA's proven KT methodology and details AEA's Four Pillars to effective KT. The value of this approach is highlighted through a selection of brief case study examples.

## **Organisational Identification of Academic Staff and its Relationship to the Third Stream**

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This preliminary study seeks to add to the growing literature on knowledge transfer and the entrepreneurial university by establishing the identity of academic staff and their perception of how this identity is reflected by their organisation, referred to organisational identity. In addition, the study aims to establish the academics understanding of commonly utilised terms such as Academic Enterprise and Third Stream. These terms are frequently used in strategic and management documentation driving and defining the new entrepreneurial activities of a university. This understanding is explored in relation to the level of organisational identification, in order to develop a perspective of a universities third stream strategies from an Academic Identity standpoint. The study is undertaken within one faculty of Manchester Metropolitan University.

The findings show that organisational members understanding of the third stream is founded within the context of the Academics Identity. Core identity factors within Teaching and Research such as, Academic Autonomy, the Discipline, Obligations to the Learner and the Community are also reflected in the academic's definitions of Academic Enterprise and Third Stream.

The organisational members undertake third stream and knowledge transfer activities, due to their inherent links to their core identity, not due to managerial drivers such as income generation. The third stream and knowledge transfer activities are found to be a core part of their academic identity, not a separate adjunct.

The level of organisational identity is found to be low and where Third Stream activities exist they occur in spite of, or regardless of the organisation, they occur because of the nature of Academic Identity. There seems little evidence (given the limited scope of this small evaluative and qualitative study) that organisational members are engaging with TS as a result of the Organisations Strategy.

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## **The 4 'C's of Knowledge Transfer and Knowledge Based Working- Emerging Themes in Successful Knowledge Working and KTPs**

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This paper relates evidence obtained from an in-depth study involving detailed questioning of over 250 executives, during the period from 2000-2006, into the successes and challenges that those involved in KTP were experiencing. The analysis subsequently uncovered four fundamental themes (the 4 'C's of KTP) that will provide effective guidance to any future KTP, and more importantly, those responsible for them. The four themes outlined were Confusion, (what is KTP all about?), Convergence (how does the KTP fit with organizational or business strategy?), Commitment ( how much time, effort and resources do we put to the KTP?) and finally Culture, how does KTP activity fit with and ultimately change the culture of the organisation?

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## Session C: Knowledge Transfer Models and Frameworks

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### The Cardiff University-Fusion IP Model for Technology Transfer

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#### Introduction

There is little doubt that converting the outcomes of research into viable business opportunities is a long-term and challenging process for universities. A recent study published by the Russell Group of Universities (2010) revealed that the average time from concept to commercialisation was 9 years and a further 8.5 years was required before a commercial return to the university was realised. It is also a high-risk activity, as illustrated by the Wellings Review (2008) which found that in one US study only one in a thousand patents led to a royalty income of more than \$1M to the university, whereas filing a thousand patents costs around £3-5M. The report concluded that the main financial return from this activity is to the wider economy rather than to the university.

Nevertheless, many UK University Technology Transfer Offices can point to some impressive commercial success stories which have had a major impact on the UK economy, and in recent years we have seen some innovative approaches to technology transfer, particularly through the establishment of private sector partnerships.

#### The Cardiff University Experience

The aforementioned Russell Group study also demonstrated that 57% of case studies (of successful commercialisation) had access to proof of concept funding in the early stages, highlighting the importance of such funding to the commercialisation process. Cardiff University's experience with its own (£4M) proof of concept fund established in 2000 under the University Challenge Seed Fund (UCSF) initiative supports this observation. Although now almost totally committed, this Fund has proved invaluable in adding value to early stage discoveries and it is conservatively estimated that Cardiff's UCSF investments have to date levered >£46M in co-investments. Since the inception of the Fund, Cardiff University's research income has almost doubled leading to an inevitable increase in the demand for proof of concept funding. In response to this demand, and recognising the benefits of its UCSF, the University has made an additional commitment to this Fund of £1M over the next 5 years from internal resources. It has also been Cardiff's experience that inextricably linked to sources of funding to facilitate the exploitation of research (proof of concept funding) are sufficient resources for the protection of intellectual property.

Managing Cardiff's UCSF has provided an invaluable learning experience for the Technology Transfer Office, although it became apparent that if the University was to manage its future spinout company activity proficiently it needed additional expertise and access to investment capital. In order to meet these requirements, after an extensive search and selection exercise, Cardiff University and Fusion IP Plc signed a 10 year partnership agreement in January 2007.

#### Fusion IP Plc

Fusion IP is a UK-based public company that was formed in 2002 in partnership with the University of Sheffield to work with universities as a partner to take intellectual property to the marketplace via spinout companies and out-licensing. The Fusion IP model is predicated on establishing relationships with a small number of research-intensive universities which provides access to a greater combined research base than universities acting alone. In 2007, Cardiff University joined Fusion IP in a partnership across all academic schools, as a result of which Cardiff University became a major shareholder in Fusion IP. In return Fusion IP raised a ring-fenced Cardiff investment fund of £8.2M in return for the exclusive rights to establish new spin-out companies arising from Cardiff University-owned research. In 2009, IP Group plc became a

shareholder in Fusion IP and this partnership extends the expertise and resource available to assist in the commercialisation of research.

When a University researcher discovers something with commercial potential, Fusion IP acts as both an expert in start-up business management and finance; and as an investor. The Fusion IP team works closely with the University's Technology Transfer Office to assess each opportunity and the research with the most spinout potential is turned into a new company using Fusion's investment fund. In addition, Fusion IP has access to additional funds through its co-investment partners Finance Wales and IP Group plc. As well as providing access to finance Fusion IP leads the business planning process. Central to this is the evaluation and identification of the appropriate commercial strategy needed to turn an academic discovery into a commercial success. In addition to the executive team, Fusion IP has two full-time Commercial Managers, who work alongside Cardiff University Technology Transfer staff, and a wide network of professional advisors that can assist with the required due diligence and market research to underpin the establishment a successful spin-out candidate.

### **Cardiff University-Fusion IP Partnership**

The Fusion IP and University Technology Transfer teams work closely together from an early stage, recognising that only a relatively small proportion (<5%) of early stage concepts are likely to lead to viable candidates for spin-out companies. Nevertheless, this working practice helps ensure that projects are managed in a rigorous manner at the pre-investment stage and, where appropriate, proof of concept funding is sought to expedite milestone driven, development plans. In this respect there is a strong link between Fusion IP and the University's UCSF with common board representation. It is perhaps not surprising that many of Fusion IP's initial investments at Cardiff were in late-stage developments that had benefitted from earlier UCSF support. This emphasises the synergies between the two entities, whereby Fusion helps evaluate those opportunities that are of potential commercial value but too early stage and the UCSF provides seed commercial funding to help achieve the appropriate value-inflection point before a transaction is sought. In addition, the University operates a Commercial Advisory Panel, which also includes representation from Fusion IP, together with internal and external advisors to the University.

When projects reach the "investment ready" stage, Fusion IP has the resource and expertise to raise the money necessary to start the company. Recognising the need to motivate its inventors, the University has agreed with Fusion IP that academic founders of a spinout company receive 40% of the equity in any new business at inception, which aligns the interests of all stakeholders in the process.

Fusion IP also has a number of key external relationships that can aid any new spinout company. One of its strongest allies is Finance Wales, the investment arm of the Welsh Assembly Government, which has more than £130M under its control. To date Finance Wales has invested over £2.4M in Fusion IP Cardiff's portfolio companies.

### **Conclusions**

Although technology transfer can be a long-term, high-risk activity for universities, there are means to improve the likelihood of success. In the early stages of the commercialisation process, access to proof of concept funding together with an effective management process to oversee and drive technical progress is essential. In parallel, the acquisition of robust due diligence/market research intelligence and sufficient intellectual property protection resources is also critical. Managed effectively, these resources can provide a valuable triage system that focuses on the development of high-quality opportunities leading either to spin-out company or licensing opportunities. A key factor underpinning the success of this approach is the fact that Fusion IP not only has the pre-requisite skills, but is also based in close proximity to the University and in daily contact with their current and future investments and the University's Technology Transfer Office.

At the inception access to "in-house" investment funds and early-stage company management expertise ("rowers") are of significant benefit to any new venture. In the event that further funding rounds are required before an exit event, pre-existing agreements with potential co-investors is an advantage because they provide a means of de-risking investments in what are typically considered early stage/high risk opportunities by the venture capital community (Fig 1).

Appropriate incentivisation mechanisms are also vital for those involved in the commercialisation process. At an institutional level the universities are major shareholders in Fusion IP PLC, have influence in the way the company is managed via board representation and stand to gain financially if the company is successful. Academic founders of new spinout companies are incentivised through their personal shareholdings in their new venture or the University's standard revenue sharing arrangements, in the case of licensing.

# The fusion model

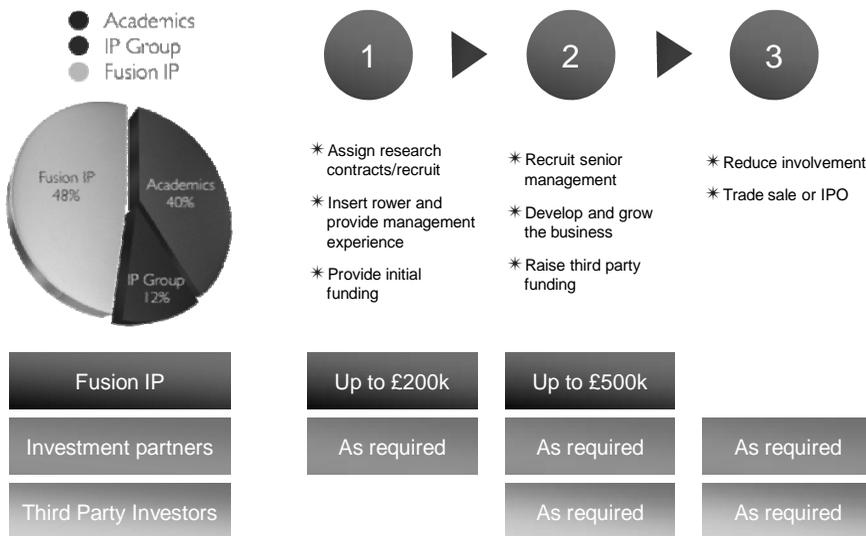


Figure 1

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## A Proposed Management Framework for Commercialisation of Expertise at Public Universities

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Commercialisation at universities, specifically the commercialisation of academic output at universities, has become an economic imperative since the 1990s, forming part of the changing role of universities.

Teaching-learning, research and community engagement have traditionally been central to most universities' mission statements. During the 1990s, countries such as Australia, the United States and the United Kingdom developed policies to exploit the collaboration between the higher education sector and industry with regard to technology bases, private sector participation and the exploitation of intellectual/academic output. The need has emerged for the development of a framework for the implementation of expertise and commercialisation at universities so that the academic ethos of the university and scholarship are not undermined. For this reason, it is important that universities develop a suitable framework for implementing expertise and commercialisation – one that is appropriately managed within predetermined guidelines.

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### Designing a new model for Expanded Knowledge Transfer Asset Development

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#### Background

Sheffield Hallam University (SHU) is currently delivering a £3.45 million ERDF and HEIF funded project called Innovation Futures designed to contribute to the development of a region-wide innovation ecosystem and increase business and employment growth within the Yorkshire and The Humber region, by providing more integrated support for innovation in small and medium sized enterprises. As a former polytechnic, SHU has a legacy of applied knowledge transfer and exchange (KT/KE) activities with industry and the city-region community and is deeply committed to expanding the university's role in supporting the growth of social, economic, and cultural wealth.

Innovation Futures (IF) was conceived to build on the experiences of previous KT initiatives which were largely single discipline based and project focussed. The University participates in many forms of KT/KE, such as Knowledge Transfer Partnerships (KTPs) and formal student consultancy (The Alchemy Exchange), yet the historical KT model is one in which knowledge is assumed to flow, primarily, from the University to the industrial client. For example, in Design Futures, a Centre for Industrial Collaboration (CIC), the majority of engagements deliver a design solution to a need articulated by an industry client and do not have scope to consider the opportunity for extending the benefits of KT to the larger stakeholder network. Design Futures does involve students, cross-faculty researchers, and external experts, however, these occasions are reasonably infrequent and the opportunity to create systematic impact is not regularly considered. Importantly, the external partners involved tend to be limited to other University based research consortiums or client supply chain suppliers.

A core theme within IF is multidisciplinary engagement. The programme created new staff resources within five research centres with the aim of bringing a range of academic perspectives, and talent, to each opportunity with external clients. These resources also provide critical "find and facilitate" capabilities to organise the type of cohesive, integrated responses required to respond to requests for innovation support from industry partners.

The core IF offer was initially organised around funding two days assessment per research centre to create a multidisciplinary 'joined up' engagement proposal. The two-day offer also exists to boundary the 'subsidy' for consulting to an industry client, after which the client is expected to contribute funding for additional engagement.

#### The Challenge

An initial problem experienced by IF was that while each research centre was used to assessing client needs, responding with KT proposals, and delivering consulting (or contract research), these engagements were all

essentially bespoke. Methodologies for client assessment were not part of a common understanding or practice. Typically diagnostic models for each research centre were not explicit, even amongst the various researchers in the centre, and therefore difficult for the IF staff group to access.

In addition, the IF project faced issues common to most UK University environments: limited and uneven capacity amongst academic faculties to contribute to KT engagements; the tendency for academic staff to prioritise REF-able research in their own discipline discourse; and resistance to the extra effort that is required to construct and participate in multidisciplinary KT projects.

Our challenge was simple - how could we create a multidisciplinary diagnostic process for the Innovation Futures programme and could that new process contribute to expanded KT/KE assets for the University?

### **Our Response: A New Model for Expanded KT Asset Development**

One research centre, C3RI, sought to create an assessment tool for IF clients that focussed on "design thinking" as a vital element in creating innovation skills and capacity. This focus came about as a result of observing a growing global conversation about the power of design practices/skills to the pursuit of innovation.<sup>i</sup> The incorporation of "design thinking" in new product development processes, as well as impacting organisational culture to achieve greater effectiveness in cultivating innovation, has been gaining attention internationally, largely as a result of compelling business case studies which attribute design and "design thinking" as major factors to their success.<sup>ii</sup> C3RI had extensive industry collaboration experience and research knowledge, particularly in the application of design practices in multidisciplinary collaboration<sup>iii</sup>. As "design thinking" is also critically linked to business strategy, new product development, and organisational culture, this work resulted in collaboration with the Sheffield Business School which had been assessing marketing and strategy in action learning workshops for SME clients.

The concept of "design thinking" inspired reflection on the extent of leveraging benefits from KT/KE engagements and has helped create a new model designed to expand KT/KE delivery and impact. At the same time, the University has been developing a new continuing education initiative for business leaders (Business Advantage) which offered an opportunity for the IF researchers to create teaching/learning modules based on field experience gained from working with IF clients. The desire and opportunity to contribute to this educational programme accelerated our drive to think about how to deliver further impacts from IF engagements.

The new model, which we will present, creatively addresses capacity and funding limitations, recognises the opportunities created by widening the knowledge base, the benefits of KT within the network of stakeholders, and drives the creation of further KT assets, whilst delivering an IF intervention which addresses specific client innovation needs.

This model will have implications for the University in terms of its existing knowledge, understanding and practices. For example, it will require the development of rigorous, critical, monitoring and reflection processes in order to identify points of commonality, points of difference, and develop a new shared understanding of KT/KE possibilities. We welcome critical engagement which necessitates a process of debate, discussion and dialogue with the holistic KT/KE network, including external stakeholders and the diverse sets of stakeholders within the University.

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<sup>ii</sup> Design Council, *Design in Britain*, 2005-2006

<sup>iii</sup> Rust, C and Whitely, G; "Experimental Making in Multidisciplinary Research" *The Design Journal*, Volume 3, Issue 3; Chamberlain, P.M, "Shape of Things to Come" *Design Research Now*, 2007

## **Vademecum for Innovation through Knowledge Transfer: Continuous Training in Universities, Enterprises and Industries**

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In the current work we present a first state of the art in technology transfer from the university –public-private environment to the enterprises and industries in Spain and Italy and vice versa. In it are described the main causes that boost and damage that two-way relationship. Additionally, a first vademecum is established to avoid those environments where technology transfer is either nonexistent or difficult to carry out because of the human factors this process entails. This short guide allows one to detect easily through the Internet whether we are in a real or false technology transfer process.

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**Session D: Knowledge Transfer Insights**

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**Tri-partnerships in Knowledge Transfer: Changing Entrepreneurial Mindsets**

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The UK's drive towards a low-carbon economy is an example of the challenges facing Small- to Medium-sized Enterprises (SMEs). There is still a relatively low take-up of this initiative across all sectors. Is this because of the mindsets of the business managers in SMEs? Certainly research into entrepreneurial mindsets surrounding external environmental factors, particularly on the need to create, develop and deliver green values, suggests that adaptation is significantly influenced by their cognition processes.

Certainly, the vision and values of these entrepreneurs, concerning green initiatives, helps shape their entrepreneurial mindsets, and these then shape and guide the enterprise culture. Ultimately, the shift in the value and attitude of the entrepreneur is the initiating mechanism by which they take on the responsibilities of championing the change within their business model, and hence the enterprises' culture.

This paper reports on a longitudinal study into six enterprises involved in Knowledge Transfer Partnerships (KTPs) where uncertainty and ambiguity in their marketplace drove the need to change, and solicit outside help. . We report on the business entrepreneurs belief systems, and the sensemaking associated with their business models during these medium-term KTP projects. A comparative analysis was performed between the six enterprises studied and a framework was developed from the four major emergent constructs: environmental factors, entrepreneurial sensemaking, strategic orientation and the business model.

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**The Barriers to Academic Engagement with Enterprise: A Social Scientist's Perspective**

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This paper explores the barriers to academic engagement with enterprise from a social scientist's perspective and in relation to United Kingdom post-1994 universities in particular, expanding key themes from previous literature to consider both progress and the limiting factors which still face university managers in their attempts to implement their 'change' agendas. The current strategy of re-orienting and branding universities as professional, managerial and efficient organisations, within which knowledge must be generated in a deliverable and transferable form to external recipients, is unpopular with many social science and humanities academics in particular, owing to the prevailing view among the latter that their identity is under threat. Hence the apparently widespread academic disengagement discussed in this article, which is explored in the context of the reluctant academic pressured to extend their role into often unfamiliar business-speak, commercial enterprise and industrial environments by a university strategy that assumes all academics are capable of incorporating academic enterprise into their day to day activities. The paper concludes that for universities to successfully re-brand as professional and commercially successful institutions, they must adopt a more business like approach, requiring first that they overcome the fear, prevalent among many UK social scientist academics, at least, that their managers, and the higher education sector at large, have shed essential values which since Humboldt's time have underpinned the very purpose of higher education institutions.

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## A Toolbox for ICT Technology Transfer Professionals: A Preview of an Online Toolkit Aiming at the Acceleration of the ICT Technology Transfer Process

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### Structured Abstract

**Purpose** – This paper describes a technology transfer toolbox for practitioners of which the design currently is being finalized. The toolbox was developed within the scope of a European ICT project entitled FITT – Fostering Interregional exchange in ICT Technology Transfer. The goal of FITT is to centralize and improve the available instruments for transferring ICT research results from science to business. The strategic objective is to maximise the exploitation of research in order to pursue social and economic prosperity. Its main tactical purpose is to make a set of tools readily available with the aim of accelerating the various steps involved in the technology transfer process.

**Design/methodology/approach** – We propose a practice-based approach using the combined experience of a focused group of ICT technology transfer officers from five different European countries, being Belgium, France, Germany, Luxemburg and United Kingdom. Their insights and practices will be centralized into a toolbox that will be made available through a dedicated website. This website will allow technology transfer staff to: 1) visualize the technology transfer process and its methodologies; 2) get detailed insight into the main steps covered by the technology transfer process; 3) download case studies within highlighted steps of this process; 4) get access to specific tools in order to quickly accomplish certain important tasks; 5) focus on the assessment of research projects geared towards technology transfer and 6) enhance market driven aspects of the technology transfer process

**Originality/value** – This methodology attempts to facilitate the complex everyday job responsibilities of technology transfer officers by offering a one-stop-shop of freely available tools. Through a point-and-click user friendly interface this complete toolset provides unique value as users will be able to select the most appropriate tools for their specific working environment. Besides, an adapted technology transfer training programme will be provided in order to familiarize new employees with the toolbox in an optimal manner. The transnational character of the project allows the integration of various levels of regional approaches.

**Practical implications** – The practical implications of using this toolbox are numerous. Five core topics largely covering the technology transfer process have been included: 1) Opportunity Identification; 2) IP Management; 3) Human Resources Management; 4) Value Creation and 5) Networking & Clustering.

Within each topic, the online tool will focus on providing :

- A better understanding of the technology transfer process and involved methodologies
- Adoption of a common language through the development of a codebook which provides access to established definitions in the realm of ICT technology transfer
- Better assessment of the economic potential of research projects
- Faster and easier execution of specific tasks thanks to the online usage of specialized tools (e.g. how to calculate the market value of an innovation)
- Access to detailed reference material recommended by the FITT project members

Such outcomes will improve the socio-economic impact of research results and fasten science-to-market turnaround. Through the practical application of these tools, an ad hoc practitioner network will be created. The tool itself will continue to evolve through enhancements from this user network.

**References** – The FITT project web site: <http://www.fitt-for-innovation.eu>

## Knowledge Cloud and Text-Based Diffusion through Lexical Productivity

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Management practices and information technologies to handle knowledge of satellite manufacturing organizations may prove to be complex. As such knowledge (with its explicit and tacit constituents) is assumed to be one of the main variables whilst a distinguishing factor of such organizations; amidst those specialist in nature, to survive within a marketplace. Their main asset is the knowledge of certain highly imaginative individuals that appear to share a common vision for the continuity of the organization. Satellites and their related services remain a good example of that. From early pioneers to modern day satellite manufacturing firms, one can see a large amount of risk at every stage in the development of a satellite or a related service, from inception to design phase, from design to delivery, from lessons learnt from failures to those learnt from successes, and from revisions to design and development of successful missions. In their groundbreaking book *The Knowledge Creating Company* (1995), Nonaka et al laid out a model of how organizational knowledge is created through four conversion processes, being from: tacit to explicit (externalization), explicit to tacit (internalization), tacit to tacit (socialization), and explicit to explicit (combination). Key to this model is the authors' assertion that none are individually sufficient. All must be present to fuel one another. However, such knowledge creation and diffusion was thought to have manifested and only applied within large organizations and conglomerates. Observational and systematic (corpus-based) studies – through analysis of specialist text, can support research in knowledge management. Since text could be assumed to portray a trace of knowledge. In this paper we are to show how knowledge diffuses in a specific environment (a.k.a. Knowledge Cloud), and thus could be modeled by specialist text. That is dealing with the satellite manufacturing domain, and having embedded within the knowledge about the business sector and knowledge domain.

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## Session E: Knowledge Transfer Partnership Case Studies

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### Case Study of Successful Knowledge Transfer Project: Maximising your KTP

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#### Introduction: Details of the Knowledge Transfer Partnership

The KTP is between Buckinghamshire New University (BNU), based in the centre of High Wycombe and Bucks Vision (BV). BV is a charity providing services to blind and partially sighted people within the county of Buckinghamshire. It is based in Aylesbury and employs 15 paid staff and 450 volunteers.

The KTP associate was recruited very carefully using a model of professional recruitment and selection to support the process. He started working with the charity in March 2009, with the general remit to research its internal and external communications and service provision.

There are currently 7 classic KTP's running from BNU.

#### The Context

At the heart of any successful partnership is the notion that both parties should gain from it and in this instance the University wanted to investigate primarily how orthodox models and theories of marketing related to the third sector, at a time when there is pressure on the sector to become more commercially orientated. At the same time the university's work in the field of event management could be enhanced by research into events for blind and partially sighted people. A further interesting focus developing from the partnership is research into how culture and communication channels are influenced by the organisation's relationship with a volunteer workforce. The KTP has 10 specific objectives overall which can be summarised as follows:-

#### Bucks Vision Objectives

- External and internal auditing and research relating to key performance indicators for external collaborations, volunteering, and donations
- This research is fundamental in promoting the formulation of a new service provision structure and the internal and external communications to support this structure
- Enhancing the reputation of BV among the local business community to stimulate funding activity. This is so that the charity can meet the challenges of the changing external climate

#### BNU Objectives

- Promoting knowledge and understanding of marketing and marketing communications in this sector
- Promoting knowledge and understanding of organisational culture in this sector
- Adding to an existing portfolio of knowledge concerning crowd management, security and events

To achieve both BV's and the university objectives has demanded a close, ongoing, working relationship with the associate and with BV management. This has enabled the university to not only work on these objectives, but to also develop other ideas and projects, ranging from utilising the knowledge base for use on other KTPs in the sector, to wider discussions with the Society and Health faculty on using this work for research and new course development.

### Research within voluntary sector

There are approximately 180,000 charities in the UK with a total income of £53bn. The economic policies of the previous government encouraged a shift in the role of charities.

Oliver Letwin, author of Conservative Party manifesto, said 'Charities should campaign less'. He regretted that "so much of the effort of some parties in the voluntary sector is devoted to campaigning. They are free to do it, but what I treasure about the sector isn't its campaigning role. Its special contribution is to do something to change things and solve problems. We need a huge market place of voluntary sector organisations and we need to find ways of replicating things, supporting best practice and increasing access to capital." (Campaigns Conference: A New Politics January 25<sup>th</sup> 2010). This idea has now manifested itself in the New Coalition Government's review of social provision and the role of charities as social welfare providers. The strategic implications for the sector are likely to be profound in terms of the skills of those working in it and whether organisations are correctly structured to meet the challenges that these events will throw up.

The sector is particularly interesting because of its unique employment characteristics (Kellock et al, 2001), but there has been very little research undertaken to date. The employment challenges faced by the sector generally and this charity specifically, are also interesting. They are focussed around reconciling the perspectives of the paid staff and the volunteers (Harris, 2001) and the need for effective communication strategies (Hewitt, 06).

The other area of academic interest is the application of marketing and marketing communications knowledge and expertise. The changes noted above will place more emphasis on both internal and external marketing skills in the sector, particularly within the wider context of the public's growing interest in how organisations position themselves, in a social as well as commercial context. It will therefore be interesting to apply academic social marketing concepts to the charity sector. This is "the systematic application of marketing – alongside other concepts and techniques – to achieve specific behavioural goals for a social or public good' (French & Blair Stevens 2005). The other pertinent consideration is societal marketing, which has been described as 'A principle of enlightened marketing which holds that an organisation should make good marketing decisions by considering consumer wants, the company requirements and consumers' long – run interests and society's long – run interest' (Kotler, Armstrong, Wong, Saunders 2008).

### Developing knowledge and extending the relationship

Research carried out so far on the project has already revealed insights into the charity's service provision to certain sectors, with implications for structural changes to meet a potential new role for the charity. This in turn has thrown light on the role of both permanent and volunteer staff. Whilst specific to Bucks Vision these may have interest to the sector as a whole as it defines itself in the context of wider economic and welfare provision changes.

As direct result of this the KTP has promoted advantageous partnership between Bucks Vision and other parts of University. In April 2010 BV held a successful Conference for Families at the University campus and an Employment Conference & Fair is planned for January 2011.

In terms of wider research opportunities, BV has been involved in a project with the Events Management team on the provision for the blind/partially sighted at events. The partnership has also added to existing course provision and other KTPs, and the development of new courses at local and national level. There have been fruitful discussions with the Society and Health faculty on areas of interest and knowledge. There are also negotiations underway relating to a second KTP with BV.

### Conclusions: What makes a successful KTP?

Realistic objectives at the outset, which are agreed and understood by all parties are essential. However the general approach throughout, needs to be flexible and collaborative.

The selection of the right associate is also incredibly important. He/she must have the necessary technical skills and knowledge but should also understand and fit the culture. This has been particularly important to a KTP within this sector.

Communication channels between the stakeholders should remain open so that there can be ongoing communication between all parties. Progress can then be closely monitored. All parties should maintain awareness of the importance of knowledge and how it can be transferred effectively.

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### Knowledge Exchange and Learning and Development in a Newly Formed SME: an example from the Knowledge Transfer Partnership Scheme

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This paper focuses on the how the Knowledge Transfer Partnership scheme has been used to introduce new information systems and advance learning and development at Optimum Consultancy Ltd, which was formed on 1st July 2008 via the amalgamation of Hama Ltd and J Orchard Consulting Limited. This new company now has 35 staff and turnover grew from £2.4m in 2008-9 to £3.1m in 2009-10. The knowledge base partner is the University of Gloucestershire, based in Cheltenham, UK. The KTP product is arguably the most used channel for effecting knowledge transfer between universities and local industries in the UK. The impact of the project is reviewed in terms of improved efficiencies, professional development, skills enhancement and organisational change. Learning and development were embodied in this major project to implement an integrated IT solution for the new company and rationalise and standardise the core business processes in the three offices situated at different locations in UK.

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### Providing e-business Capability on a Legacy Systems Platform: A Case Study from the Knowledge Transfer Partnership scheme

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This paper focuses on the how the Knowledge Transfer Partnership scheme has been used to develop and implement a technical strategy to support e-business trading by an SME dealing with the NHS and other public authorities. In this instance, the company (TPG DisableAids) decided against the introduction of new core systems but preferred instead to pursue a strategy of building e-business capabilities on legacy systems, which were deficient both technologically and in terms of functional capacity. This resulted in a number of technical and business challenges that were addressed via the KTP project.

**“At the fuzzy front end”  
Introducing four stages of innovation to Solo Cup Europe  
A Knowledge Transfer Partnership with Teesside University**

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This paper describes a two year Knowledge Transfer Partnership (KTP) between Teesside University and Huntingdon based foodservice and food packaging manufacturer Solo Cup Europe. The project focused on “fuzzy front end” innovation including early problem definition, idea generation and screening methodologies as the first stages in a Stage-Gate process. It introduced, developed and embedded a new creative working culture centred on New Product Development (NPD) as a core activity. The project was successfully completed in October 2010 with a projected additional turnover of £3.85m from product innovation

**The Situation:**

Solo Cup Europe (SCE) manufacture or import and distribute disposable paper cups, thermo-formed rigid plastic containers and expanded polystyrene articles to the Foodservice and Food packaging markets.

SCE have an American parent company who have limited knowledge of the UK market and no knowledge, skills or resources to identify the markets to enter with the most appropriate strategies, products or materials.

SCE previously relied upon decreasing polystyrene usage as its base material as a means of innovation and in order to comply with increasing environmental pressures and customer demands. The KTP challenge was to decrease the UK dependence on a single monomer material in a single market sector. This would be achieved by entering new food/foodservice packaging markets with innovative value added products which accounted for environmental factors.

**The Opportunity:**

The project was to design and implement a market driven new product development facility to enable the commercialisation of new, innovative & environmentally responsible products. The purpose of the project was to:

- **Predict** changes in the marketplace
- **Enable** SCE to be responsive to these changes.
- **Ensure** that SCE products meet and/or exceed customers’ changing needs and expectations
- **Protect** SCE’s existing market share from its competition
- **Drive** increased sales

Innovation would be at the core of the activity. This would be achieved by:

- **Understanding** SCE capabilities, the competitive market environment, strengths, weaknesses and areas for competitive advantage.
- **Implementing** an NPD strategy, systems and procedures to identify new customers, product and market gaps and to deliver suitable designs that would have protectable IP.
- **Embedding** NPD best practice and protocols in SCE within a continuous research and NPD facility.

**The Problem:**

Bringing “change” to a company is never an easy task and developing a cultural shift is always going to be difficult. This KTP has been an effective tool in bringing about a shift in approach which has enabled seven new products to be developed, new processes and new thinking to emerge. This was to be done by utilising,

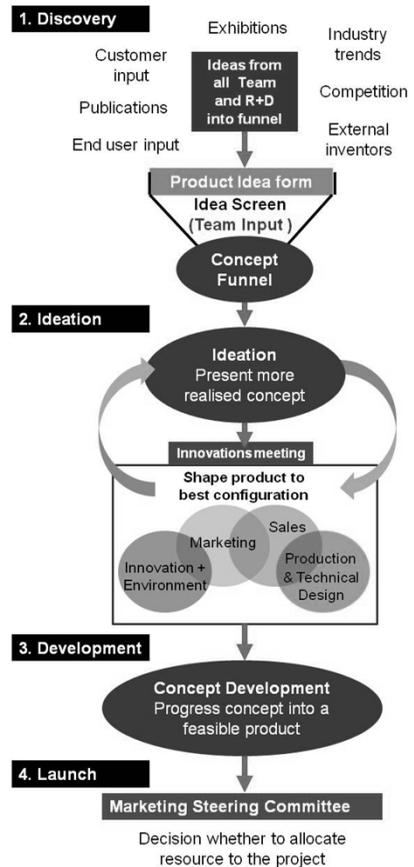
developing and refocusing the considerable expertise that already lay within the company, but this was not without its challenges. The KTP associate was embedded within the company to act as the creative lead, to manage the process and to instil design thinking as a normal working practice

### The Method:

The project required a staged approach which developed capacity over its duration. An early assessment of current practices and capabilities was undertaken via an internal auditing process. Market opportunities were examined via a comprehensive external audit and a variety of design processes, models and protocols were trialled. A strategy for NPD was subsequently developed. SCE have now moved to a research led innovation process, whereby they understand their marketplace, customer needs and competitors activity. Fundamental to this was the evolution of a **Four Stage Innovation Funnel**:-

1. **Discovery** - Ideas into the Concept Funnel  
Ideas are proposed and screened against the NPD strategy.
2. **Ideation** - Shaping the Idea into a Realised Concept. A number of different creative tools are used to develop an idea or realise a concept in the process,. These include brainstorming, scenario setting, sketching, experience prototyping, form prototypes and consumer trials. This feedback is fed back to multidisciplinary teams which help shape the idea to the best configuration
3. **Development** - Concept to Feasible Product. At this stage the brief is finalised, for the detailed design of product. Tooling design and manufacturing prototypes for testing can be outlined together with risk analysis and outline specification of the product. At the end of this stage detailed financial analysis takes place and Intellectual Property is filed.
4. **Launch Process** - Taking the Product to market after resource assessment.

Customers are targeted, marketing materials are developed and the sales team trained



The Innovation Funnel is supported by a companywide **Product Idea Net** which enables the capturing of ideas from across the organisation

### Measuring Success

To date, SCE's measurable deliverables include a series of new products (including protected IP) which are nearing market readiness

- **Cold Food Container** - Customer feedback has been extremely positive and from the market scoping it is estimated that, when launched in November 2010, this will provide £2.4M in additional revenue with an expected margin of 36%.

- **Pasta Container** – currently in negotiation with a customer for the exclusive supply of the products. It is estimated that when launched this will provide £1.45M in additional revenue with an expected margin of 25%.

The Associate won a prestigious 2010 National KTP Business Leader of Tomorrow Award and a North East Knowledge Transfer Showcase best poster award. He gained a Chartered Management Institute (CMI) Level 5 Diploma in Management and Prince 2 Foundation and Practitioner certificates. The associate was offered and accepted a full time, permanent position as innovation manager, commencing mid October 2010.

The university has benefitted from supported live student projects, support for teaching through associate presentations, case study materials and dissemination of best practice to university colleagues. The project has increased the profile of the university and presented public relations opportunities as well as helping to fulfil its key performance indicators for enterprise engagement. Research from this project is also building on the university's previous KTP experience in New Product Development and will form a comparative study into high and low risk NPD.

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### **Planning a Meaningful Relationship: The Story of a Social Science and Traffic Engineering Knowledge Transfer Partnership**

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This paper describes and rationalises a Knowledge Transfer (KT) Partnership between a University School of Nursing Science and an industrial partner manufacturer of traffic engineering products. We explain how the participants were brought together and the potential for the collaboration to impact holistically. We shift the soft focus of our usual practice in public health service training, research and evaluation to the sharp definition of traffic collisions and human injury avoidance. We describe how we will enable our company partner to access research and development knowledge and public agency collaborations within the context of the project, including development of the partnership, rationale and expectations at the beginning of the journey. We then draw back to a wider perspective in describing the innovation of this partnership and our University's approach to knowledge transfer and research. We discuss the position for academia from our experience of developing this partnership and our understanding of the issues surrounding engagement in the process. We conclude with a discussion of the tangible and intangible potential effects for both the partners and show from our perspective what KT has to offer for universities.

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**Session F: Innovation and Enterprise**

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**Firms' Nature and Characteristics and their Attitude Toward Publication. An Analysis of the Italian Biotech Sector**

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An increasing attention is being devoted by many scholars in the field of the economics of innovation to the phenomenon of the collaborations between university and other research institutions with industry. The new knowledge arising from such collaborations is often disclosed through the scientific publication or by the introduction of innovations. Besides, new knowledge creation is rarely a solitary activity; knowledge creation and innovative activities usually take place within networks and come out from collaborations.

Notwithstanding this increasing attention, some aspects of such collaborations remain probably not enough investigated. In particular there is need of a thorough analysis about the relationship between the activities and characteristics of the firms on one side and the frequency of the collaborations and the characteristics of the research networks on the other one. This paper tries to increase the knowledge in this direction, treating this issue with reference to the Italian biotech sector.

The choice of the sector is not arbitrary. In fact the biotech sector is characterized by an high level of knowledge intensity due to the pervasive nature of innovation; boundaries between basic and applied research are blurring, therefore collaboration of firms with research institutions are frequent and they often end up in publications, usually co-authored. Moreover this sector is characterized by an high level of complexity because of its multidisciplinary nature; boundaries of industries that can be included under the umbrella of "biotechnology" are blurring too. This causes a great heterogeneity inside the sector, up to the point that it becomes difficult to give a definition and to precisely identify it. An attempt to manage such complexity has been done by the OECD, which provides a definition of the whole sector and, on the basis of the kind of activity mainly conducted, tries to identify the different typologies of the firms inside the sector. We therefore face up a sector characterized by high heterogeneity and high propensity to publish and to collaborate, therefore it appears particularly interesting to study in this ambit the relations between the nature of firms and the nature of collaborations.

Basing on a database who identify the existing Italian biotech firms at the end of 2005 and classify them according to the OECD criteria, we crossed such data with data on publications (taken from ISI-Web of Science: number of publications; number, nature and localizations of co-authoring institutions) and data on firm size (taken from AIDA).

Through an econometric analysis we try to verify if the different characteristics of the firms are related to different behaviour toward publication and collaboration, in terms of frequency of publications and collaborations. Results suggest that such relationships do exist: bigger firms publish more and have larger networks of co-authorship. A more original result is that, even controlling for firm size, the belonging of a firm to an OECD typology has an effect on the number of publication done and on the number and quality of collaborations activated by that firm.

These results have some consequences also in terms of policy. A knowledge based economy and particularly a knowledge based sector, like biotechnology, requires fine tuned policies to implement the innovative capacity. A key topic of a modern innovation policy is surely the increase of the incentives to collaborate in research and to diffuse the knowledge achievement. Our analysis about the different approaches to these issues inside the biotech sector induced us to think that the policies to adopt in relation to the collaboration in research and the dissemination of its results should be different in relation to the different typologies of firms and also to different territorial realities. A complex and differentiated sector requires differently modulated policies.

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## Networks of co-authorship in the Publications of the Italian Biotech Firms: The Role of Different Institutions

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In this paper we analyse, through the instrument of the social network analysis, the network of co-authorships in the publications of the firms belonging to the Italian life-science biotech sector. The analysis is done at an institutional level; in fact we identify the kind of institutions the authors of the publications are affiliated to (we divide the institutions in universities, research centres, hospitals and firms), then we calculate many relevant statistics deriving from the social network analysis, trying to underline the role of the different institutions inside such network. We consider the nature and characteristics of the biotech firms too. To this purpose, we use a classification of the biotech firms according to the criteria suggested by OECD and we analyse the characteristics of the networks generated by the publications of each typology of firm, focusing the attention on the role played by the different institutions inside each of them. In this way, crossing two dimensions of the analysis (nature of the institutions, characteristics of the firms), we try to look deeply inside the structure of collaborations and knowledge exchange of the biotech sector, whose relevance is undoubted, because of its high level of research and innovativeness. The analysis shows that the Italian innovation system is based on a balance among different institutions, each of them having a prevalent function. The central role is covered by the universities, particularly the great universities in the Northern Italy, the more industrialised part of the country, and in Rome; their prominent role, among the different kinds of institutions, is common to all the typologies of biotech firms. Collaboration with hospitals is frequent, though less systematic; their role is particularly important for applied research, as it is demonstrated by their central role for the targeted firms, that, being suppliers, are more interested in applied results. Research centres have an important role in bridging different institutions, as it is possible to infer from their frequent presence in large and heterogeneous network of co-authorship. This analysis also shows a possible point of weakness of the Italian system of innovation, represented by the low degree of collaboration among different firms, at least on the point of view of co-authorship of scientific publication in the biotech sector.

This kind of analysis may have important policy implications. Facing the economic crisis, many countries have the need to rationalise the expenditure in education and research. Because of the crucial importance of this kind of expenditure for economic and civil growth, there is the need to have a deep knowledge of the research and innovation system, in order to take correct decisions. This kind of study, focused on a country, like Italy, that shares with many advanced countries the condition of a high level of technology, but not at a leadership level, may be for many countries an useful example of such attempts to understand in depth important parts of the innovation system.

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## Stitching an Organisation's Knowledge Together – Communities of Practice as Facilitator for Innovations Inside an Affiliated Group

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A major challenge for innovation inside an affiliated group, such as the Robert Bosch GmbH (Bosch), is to enable an effective knowledge exchange between its subsidiaries. One of the driving forces in Bosch's internal knowledge transfer is communities of practice (CoP). During the last fifteen years the company has established these experience exchange groups around its most important technical topic areas. By

conducting a qualitative study we wanted to find out how these groups influence the handling of knowledge. In addition to the expected results on the identification and the transfer of knowledge, we also discovered that communities of practice advance innovation in an indirect way. Bosch files 15 patents per working day. To establish an evidence, whether communities of practice contribute to this knowledge creation, we conducted a second study. Within the study, we analysed the relationship between inventions and communities of practice quantitatively and found a significant correlation.

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### **Living Labs are Innovation Catalysts**

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Living labs are increasingly facilitating new ways to stimulate innovation. They offer the possibility to catalyse how innovation can be carried out, focusing on user communities supported by information technology. However, living labs are poorly understood by the business community, in particular by small to medium companies who arguably have the potential to benefit most from accessing the services provided by living labs. This position paper sets out the context for the rising popularity of living labs, explaining how public-private-academic partnerships offer new ways or carrying out innovation activities that are increasingly user-orientated. The paper also discusses the issues and opportunities arising from this new approach.

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### **How to Transfer the Innovation Knowledge from Craft Art into Product Design - A Case Study of Character Toys**

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How to design highly-reputable and hot-selling products is an essential issue in product design. Product designers design a product by considering physical elements or characteristics of the product, while craft artists create their works relying largely on their own particular expertise or experience. In order to clarify the innovation/creation process between craft art and product design, we conduct an experimental study on character toys using the Kansei Engineering approach and the Quantification Theory Type I analysis. The result of the experimental analysis shows that the innovation knowledge models built in this study can help product designers understand consumers' emotional feelings to transfer the innovation knowledge from craft design into product design. This approach provides an effective mechanism for facilitating the new product design process.

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### **'Center for Global' or 'Local for Global'? R&D Centers of ICT Multinationals in India**

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Existing work on the information and communication technology (ICT) industry in India provides inadequate information on the R&D centers of multinationals. The present paper attempts to fill this gap through a

content analysis of secondary data on R&D centers of ICT multinationals and examines their impact on the local science and technology systems. The analysis finds that the centers are almost equally divided between those who execute the designs of the headquarters (center for global) and those who collaborate in design making and execution along with their headquarters (local for global). It also deduces that the nature of the linkages between the centers and the local universities, public research laboratories and local firms are inadequate to effect knowledge transfer to India. The paper suggests a few policy recommendations.

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### **Workshop: A Readiness Assessment Tool for KTP - where will your KTP run aground?**

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This workshop showcases a research-based model which is designed to identify areas of potential strength and weakness (either at the programme level or organisationally) when it comes to instigating or managing a KT project. The model will allow you to develop a 'Knowledge Working Footprint' by using a self scoring assessment. This will be followed by a discussion about how the model's outputs and conclusions can be used to improve KT project implementation through targetting effort and resources more effectively to take into account the culture of the organisation.

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## Session G: Knowledge Transfer Case Studies

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### How to Boost Innovation by Direct Use of University based Research - Case Studies from the Technical University of Denmark

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In all developed economies as well as emerging economies it is globally recognised that the road to further economic growth goes through further research, development and innovation in relation to new products and services. It is further recognised that small and medium scale enterprises play an important role in this connection as the fertile growth layer for innovation as well as employment. Last but not least it is recognised that university based research should play an important role as the driven engine for product and marked based research and development as well as innovation.

However, overwhelming international reviews and statistics clearly shows that only a minor part of the SMEs actually use university based research as the booster of their own product development and innovation. This is considered to be due to a combination of lack of awareness as well large cultural gaps between universities aiming at publishing research results and SMEs aiming at improving the bottom line.

In order to bridge this gap the Technical University of Denmark in 2008 established a project based unit aiming at knowledge and technology transfer from the university especially to the SMEs with the mission that: *DTU Match is the gateway to the knowledge at DTU. We know who knows what, and bridges technological research and commercial enterprises.*

The unit is supported from funds directly from the university as well as development grants from the Danish government related to specific project applications. One of these projects named *One-Stop-Science-Shop*, which will be finished at the end of 2010 after a two and a half years project period, is specifically aiming at establishing these research connections with technology based Danish SMEs. Based on a special concept developed through this project named *Technology Jumpers* 15 Danish SMEs, representing a variety of product portfolio as well as marked position, has been innovated through this conceptual and methodological framework. Based on this innovation experiment methods and tools for innovation processes directly between a university and an SME with no intermediaries has been developed and further tested on a number of other Danish SMEs. In this connection a special tool, a so called InnovationTOUR, has been developed, which can facilitate the understanding of the process as well as the process it self, and are also used for teaching purposes at college and university level. In addition to this a number of other process and educational tools related to direct knowledge transfer from universities to SMEs has been developed.

Amongst other activities the unit has (i) developed a project aiming at climate change mitigation in relation to water management for municipalities in the Greater Copenhagen Region based on university research and aiming at co-ordination of measures for the 29 municipalities in the area; (ii) developed a project for local enterprise support for the municipality where the university is located; (iii) developed a project management master in creativity and knowledge management focusing on designing and managing knowledge sharing processes in the global network world.

This short paper will present and discuss the results from and the experience gained in relation to the running of a daily match making function at the Technical University of Denmark especially aiming at SMEs. Further, it will present and discuss the research and development projects conducted in the unit over the last three years ranging from SME innovation to climate change mitigation, but all with the common feature of effective transfer and maximum usage of university based research. A special focus will be given to the 2½ year research and development project One – Stop – Science – Shop, which will be concluded at the end of 2010, and which have had a special focus on direct transfer of university based research to SMEs.

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## **An Examination of an Innovation Intermediary Organisation's Methodology using Case Studies**

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The intermediary organisation the InnovationXchange (IXC) has utilised a methodology to assist innovation through knowledge transfer for a range of organisations. A brief review of technology intermediary organisations introduces the emerging field of open innovation intermediaries before looking in more detail at the methodology of the InnovationXchange. The service users in two successful commercial transactions were interviewed to examine the methodology used to facilitate the transfer of knowledge and technology from UK academic research into global organisations. This paper will elucidate the mechanisms used to create value for services users based on a typology of innovation intermediaries

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### **The ISSUES Project: An Example of Knowledge Brokering at the Research Programme Level**

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This paper examines knowledge brokering as a method of knowledge transfer at the research programme level using the ISSUES project as an example. The analysis is undertaken in the context of existing theories of knowledge brokering, focussing on the three roles of knowledge brokers: knowledge managers, linking agents and capacity builders. To illustrate the nature of brokering at the programme level, the authors propose two models: the 'one-to-one' model, where brokers work with individual producers and users of knowledge, often supporting the transactional side of knowledge transfer; and the 'many-to-many' model, where brokers mediate between multiple producers and users of knowledge to encourage the formation of individual relationships. This latter model has particular relevance to large and complex research programmes. Using examples from the ISSUES project, the paper recommends that future applications of this approach may benefit from embedding knowledge brokering into the work of the research programme as well as coordinating it with other knowledge transfer schemes.

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### **Student Supported Consultancy to Address Market Needs: Leeds Source-IT, a case study**

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As universities become more commercially oriented, the demand by local businesses for small scale consultancy increases. Within the HE sector, there is growing recognition that consultancy can be an important income generating activity for a University and a perception that it may have additional, non-financial benefits for those taking part. Although there is a growing interest from within the academic community to undertake consultancy, as part of a portfolio of commercial activity, there are also real tensions with the core activities of research and teaching. Unlike research contracts, which have a long lead time and are designed to generate publications as well as commercial deliverables, consultancy assignments have to be delivered to meet the client's needs and the client's timescales. Often there is a prohibition on publication and the nature of the task can be seen as uninteresting and diversionary. Leeds Source-IT ('Source-IT') was formed to address the tension described, to service a 'market pull' and provide solutions to local companies. The School of Computing often receives enquiries for small scale programming and web

development work. The growth of on-line social networking and wider access to the Internet has created increasing interest in businesses based on web applications and Web 2.0. These enquiries are very difficult to service. They are generally too small scale and too low level to be of interest to academics. We therefore established Source-IT as a formal mechanism to meet this market need. The extra ingredient that enabled this to happen was the driver for personal development, work experience and financial remuneration by students and new graduates. This gave access to a community of potential consultants who could benefit directly. The pilot highlighted some of the practical challenges, but suggests that such a model could be self-sustaining with some adjustments. Within a research-led university and under the current economic climate, it is hard to demonstrate real strategic value unless the benefits can be translated into outputs by which academic staff and universities are judged.

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**Session H: Knowledge Transfer with the Third and Public Sectors**

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**Using KTP to Enhance Neighbourhood Sustainability - a case study of Wolvern Housing Association's Sustainability Indicators (WINS)**

Paudie O'Shea

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Knowledge Transfer Partnerships (KTPs) are widely regarded as one of Europe's leading programmes to help businesses improve their competitiveness through incorporating knowledge, technology and skills from UK universities. While the KTP is still very popular with businesses and corporations around the UK, more and more public bodies, not for profit organisations and charities are also recognising the benefits of such partnerships. Wolvern Housing Association is one of these organisations. They are seeking to expand their neighbourhood sustainability assessment tool (WINS) in order to identify 'sink' neighbourhoods, put initiatives in place to reduce the number of void properties, rent arrears and anti social behaviour (ASB) and ultimately to guide future investment strategies. The importance of sustainable neighbourhoods for housing associations across the United Kingdom is obvious. Although the achievement of a universal decent homes standard has been long outlined as a priority area by successive Governments, organisations such as the National Housing Federation and the Homes and Communities Agency now demand a more expanded approach to asset management and indeed the concept of the 'community'.

This paper examines the role of KTPs in facilitating the development of the company's practical assessment instrument known as the WINS (Wolvern Indicators of Neighbourhood Sustainability) tool. It explains how the company determined that this type of assessment is important and why their sustainability indicators tool is innovative. Combining both quantitative and qualitative research data, the paper evaluates the relationship between neighbourhoods, public consultation and sustainability indicators within the Crewe area. It discusses and highlights the successful and less successful elements of the project so far. It details what the project is about, what has and what has not worked and can be used as a guide for future 'social' KTP projects in the UK. The paper also analyses some of the work carried out nationally which forms the basis or rationale for developing such a neighbourhood sustainability tool. The paper also outlines some of the problems facing Wolvern in Cheshire and housing associations nationally. It discusses Wolvern's attempts to improve housing stock and neighbourhoods by achieving decent home standards, energy efficiency ratings and progress towards measuring the condition of their neighbourhoods. Initial findings suggest that, in many instances, some of the main issues facing Wolvern customers and their neighbourhoods are less transparent.

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**The InterAct Project and TechLink: an Example of International Collaboration and Technology Transfer**

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Limited resources, time constraints and a lack of local contacts can make conducting effective global technology and knowledge transfer challenging. Working with partners who are well networked in their own region can help facilitate new deals and collaborations. The UK based InterAct partnership has been working with US partner TechLink on licensing and collaboration partnerships for the last 18 months.

InterAct is a unique partnership between six leading UK government research organisations: Centre for Environment, Fisheries and Aquaculture Science (Cefas), Defence Science and Technology Laboratory (Dstl), The Food and Environment Research Agency (Fera), Health and Safety Laboratory (HSL), Health Protection

Agency (HPA) and Veterinary Laboratories Agency (VLA). The project is funded by the UK Department for Business, Innovation and Skills (BIS) and was first established in 2005 with four of the partners - Dstl, Fera, HPA & VLA. The project was expanded in October 2008 to include Cefas and HSL and received funding for a further 3 years. InterAct was established to capture the synergies derived through combining the IP, know-how and R&D services of these multi-disciplinary world-class institutes. It is achieving this through identifying technology clusters comprising technologies, IPR and know-how which span across the partner organisations. The technology clusters represent commercial opportunities for novel products and services, new businesses, or enhanced R&D capacity.

The TechLink Centre was established in 1996 at Montana State University in Bozeman, Montana. TechLink helps the Department of Defence (DoD) to commercialize leading-edge new technology by partnering DoD labs with private sector companies for technology licensing, transfer, and research and development. These technology transfer partnerships solve industry problems, create business opportunities, and stimulate economic development while helping DoD to achieve its technology transfer and transition missions. TechLink has worked with approximately 75 percent of the 123 Defence labs and centres nationwide, facilitating more than 700 technology transfer partnerships, including over 240 license agreements that have transferred approximately 600 patented or patent-pending inventions to the private sector.

Initial discussions between the InterAct partners and TechLink began in 2008 and two workshops were held to discuss the synergies that existed between the groups and potential collaboration projects. It became clear during these meetings that both parties could add value to the one another's commercialisation projects either through potential licensing contacts or further validation and development. What made the prospect of working together particularly attractive was the commercial connections that each group had. For the InterAct partnership one of the advantages of working with TechLink was their extensive network of personal contacts within the small and medium sized (SME) company sector in the US. It is relatively easy for a UK organisation to establish links into large US companies that they wish to target with licensing opportunities but it is more difficult to build a relationship with US SMEs who would be valuable companies to target. This type of company is often more receptive to an approach from a local US-based group. There are a number of projects that are being progressed through the InterAct/TechLink collaboration. These include:

- Evaluating the US licensing possibilities for a Brucella vaccine
  - The technology was discussed with a selection of organisations with an interest in Brucella, including US SMEs, Universities, land owners and funders
  - The research led to the conclusion that the development stage of the vaccine was too early to be attractive for licensing
  - Potential development partners were identified and an InterAct funded Proof of Concept project is underway with 2 academics partners in the US which it is hoped will provide the additional data required to create a more attractive commercial offering
- Marketing a CBW decontamination technology to US companies and assisting with company evaluations of this technology
  - US focused marketing literature was drafted
  - Over 30 potential target companies were identified
  - Meetings were arranged to coincide with a visit to the US by the inventor
  - Further information has been sent to a number of companies, and one is discussing an evaluation of the technology
- Marketing seven InterAct diagnostic technologies
  - US focused marketing literature was drafted
  - Over 80 potential target companies were identified
  - A number of companies expressed an interest in moving to confidential discussions
  - CDA's are in place and some of the technologies are currently being evaluated
  - Discussions are ongoing with one company on the terms of a Heads of Agreement

Throughout these projects, the InterAct partners have had access to the expertise and contacts of 20 licensing professionals from both TechLink and from UK-based IP Pragmatics Ltd, who are employed by InterAct to provide marketing and licensing support. Most, if not all, of the US companies approached by TechLink have been ones that have not been previously identified by the InterAct partners when researching target companies. The alliance with TechLink has introduced the partners to a greater selection of potential licensees and collaborators thus increasing their options for knowledge and technology transfer. Another benefit has been the availability of staff in both UK and US time zones able to address any issues rapidly.

The InterAct/TechLink relationship has led to other valuable, though less tangible outputs that include a sharing of lessons learnt with regards to the knowledge transfer process, knowledge of different funding sources and mechanisms, collaboration on new projects and an understanding of the different European and American market needs and requirements. The two partners expect the current relationship to continue beyond the end of the current InterAct project which is scheduled to finish in March 2011.

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### **Knowledge Transformation in the Third Sector: Plotting Practical Ways to have an Impact**

Razia Shariff

*Head, Knowledge Exchange Team, Third Sector Research Centre*

The Third Sector Research Centre (TSRC) in the UK is a unique initiative established in 2008 by the Economic and Social Research Council (ESRC), Office of the Third Sector (recently changed to the Office for Civil Society) and Barrow Cadbury Trust. Initially over a five year period it aims to develop a solid evidence and knowledge base about the third sector to inform policy and practice. TSRC, hosted by the Universities of Birmingham and Southampton has established mechanisms for knowledge transfer in the design and delivery of the research process, offering virtual as well as physical participatory spaces for knowledge exchange to occur. This paper explains TSRC's policy approach to knowledge exchange based on current definitions, theories and models of knowledge transfer. The paper details some of the initial reflections from the approach used by the Centre to engage with, and involve non-academic stakeholders in knowledge exchange through its formal structures and the activities of the knowledge exchange team. The paper presents, a Knowledge Exchange Impact Matrix (KEIM) (adapted from Arnstein's 'Ladder of participation') which plots different types of TSRC knowledge exchange activities based on: the extent of meaningful knowledge exchange; and the number of stakeholders engaged. The paper ends by exploring TSRC's planned methods for monitoring and evaluating TSRC's knowledge exchange activities and how these support research reach and impact.

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### **Problem-based Learning (PBL) and Knowledge Transfer (KT) Collaboration between a Derbyshire Market Town and University Knowledge-preneurs**

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The aim of this research has two objectives. Firstly, to develop cognitive, transferable and intellectual skills in HE students within universities. Secondly, to transfer that knowledge by means of collaborative ventures with community organisations. Experiential learning and regeneration/diversification project work is needed by all communities. The project is predicated upon our ability to provide graduates with portfolios of independent evidence of achievement obtained from working with a partner organisation. Third Sector

organisation capability and KT can be constructed with resources from the University of Derby, and is supported by HE students enrolled in Undergraduate and Postgraduate taught programmes in Business and Tourism.

We support the Community Charitable Trust, New Opportunities Wirksworth (NOW!) in the market town of Wirksworth, Derbyshire through the delivery of specially negotiated work-based learning. The output is the creation of student knowledge-preneurs and the knowledge transfer and social capital exchange within this community's business and tourism sectors. Knowledge-preneurs are considered in this context as individuals whose 'calling and practice is the acquisition and development and commercial exploitation of information, knowledge and understanding (Coulson-Thomas, 2003: 13).

The research identifies the extent to which we have the ability to imbue learning by PBL in the community. A responsible and responsive approach to learning is the basis for these projects (see for examples Hendry et al, 1999; Brown & King, 2000; Kolb & Kolb, 2005). In taking PBL from classroom to practice we are creating a new knowledge transfer environment in which skills can be acquired and tested in a work-or-practice related setting at NOW!

Teaching, learning and assessment in Higher Education use PBL, especially in vocation-specific domains that is usually undertaken using a constructivist approach (see for example Hendry et al, 1999; Brown & King, 2000; Kolb & Kolb, 2005). Such constructivist methodologies are often predicated, for learners and for teachers, on the delivery of experiential, entrepreneurial and applied skills. Students are seen as short-changed if they are not learning from lecturers working at the 'frontiers of knowledge'; while researchers are hardly worth their salt if they are not regularly reporting back on their latest findings (Brown & McCartney, 1998: 117).

So, in this research we direct and manage a cadre of students to consider PBL as experiential in partnership with the Centre for Entrepreneurial Management (CEM) and University of Derby Corporate (UDC). The project meets the contemporary employability agenda through the application of PBL/KT to our specific organisation, 'Wirksworth NOW!', and its core cluster components: arts, creative industries and culture, trade and tourism, education and training, youth.

Third sector support is designed to meet specific targets for the NOW! in their Five Year Strategic Plan; this requires the Board to review existing policies and services. Our additional objective is to offset difficulties in the operating environment for small firms and in supporting projects exploring the climate for entrepreneurial activity and knowledge exchange (Cleverdon & Smith, 2009; Kestenbaum, 2010). This research leads to knowledge creation and transfer through PBL for our students and this community whilst potentially enabling graduates into enterprise within the community and/or the region.

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## The University of Wolverhampton

The University of Wolverhampton is proud to be one of the sponsors of the Innovation through Knowledge Transfer 2010 conference. The University has been successfully running Knowledge Transfer Partnerships (KTP) since 1990; implementing 130 KTPs to date; is currently number 2 in the country for delivering KTP's. As a result of this expertise the University is leading a £24.3 million regional KTP programme that includes all of the Universities across the West Midlands. The aim is to implement 210 KTP's across the region between 4 June 2009 and 30 July 2013.

### Academic quality

Academic quality and standards at the University have been highly commended by the Quality Assurance Agency (QAA), which reviews UK higher education teaching. The University was praised for its 'regard for the student voice' and QAA concluded that confidence could be placed in the management of academic standards and the high quality of learning experiences available to students.

### Research excellence

The University has areas of research ranked among the best in the world. The 2008 Research Assessment Exercise produced outstanding results for the University, with research achieving the highest 4\* rating, which equates to world-leading. Eight of the 11 research areas examined had work in this category. As a result, our allocation from the Higher Education Funding Council of £1.9 million for Quality Research was the highest amount for any new university in the West Midlands.

### World-leading expertise

A University of Wolverhampton academic has been ranked number one in the world in a list of leading researchers in his field. Computer scientist and mathematician Professor Mike Thelwall has been named the most prolific researcher in the field of 'informetrics' – the science of measuring information to assess the importance of a set of documents. Professor Thelwall specialises in the newest area: measuring the value of web pages.

### Business solutions expertise

The University of Wolverhampton has a reputation for providing business solutions to meet the needs of businesses and organisations within the West Midlands, across the UK and internationally. Area's of business expertise include business incubation and advice for entrepreneurs; FREE recruitment services; specialist business advice for IT infrastructure; support for innovators including help with product development, prototyping, intellectual property rights and patenting.

For more information

Tel: +44(0)1902 321272

Email: [enquiries@wlv.ac.uk](mailto:enquiries@wlv.ac.uk)

visit: [www.wlv.ac.uk](http://www.wlv.ac.uk)

## **Future KES Events**



**SEB'11 is an excellent opportunity for all those involved, or wanting to know more, to find out about the latest research from around the world on renewable energy, sustainability and applications to energy efficient buildings.**

The first two international conferences on Sustainability in Energy and Buildings attracted high level researchers from countries round the world including Australia, China, Korea, India and a number of countries in Europe. Following this success, the Third International Conference in Sustainability in Energy and Buildings, SEB'11, will be jointly organised by the **Laboratoire des Sciences de l'Information et des Systemes\_ (LSIS)** in Marseille, France in partnership with **KES International**.

Papers are sought for SEB'11 on a range of renewable energy and sustainability related topics. In addition the conference will explore two innovative themes: -

- The application of intelligent sensing, control, optimisation and modelling techniques to sustainability, the technology of sustainable buildings and combining these themes - **The Intelligent Building**

- The conference will feature presentations from world-class researchers, engineers and industrialists, working in a broad range of renewable energy and sustainability topics, exploring ideas about the future of the intelligent sustainable building and smart renewable energy technology. Consisting of plenary keynote talks by experts, oral presentations, invited sessions and workshops, SEB'11 will form an exciting chance to present, and learn about, the latest research on the subject, and network with others working in this important area.

**Call for Papers** Contributions are invited that are within the Conference Scope and also on other relevant subjects. Accepted papers will be published by the prestigious publishing house, **Springer Verlag**, as book chapters in a volume of KES series in *Smart Innovation, Systems and Technologies*, and indexed in ISI conference publications, EI, INSPEC, etc.

Draft full papers must be provided for review through the online submission system following the instructions on the web site. All papers will be thoroughly reviewed by the International Programme Committee.

Papers will be scheduled for presentation either orally or by poster both types of presentations being regarded as of equal importance and status.

**Call for Invited Sessions** An invited session consists of a presentation session of six or more papers on a specific conference topic, organised as half or full day mini-conference. We invite senior scientists who have a special interest in a specific conference topic to take responsibility for an invited session, gathering papers from a range of research expertise around the world. Accepted invited sessions include:-

- Microgeneration for Domestic Combined Heat and Power
- Intelligent Agents for Sustainability in Energy and Buildings
- Intelligent Energy Systems

- Sustainable Energy and the Electricity Supply Utilities

**International Programme Committee** We are forming an international programme committee to help with paper reviews and promote and advise on the event. Please contact us with a brief statement of your involvement in the subject if you wish to be involved.

**Future SEB Venues** We are forming a programme of locations round the world where future SEB events will be held. If you are interested in hosting one of these contact us.

#### DEADLINES

Submission of Papers: **15 January 2011**  
 Notification of Acceptance: **1 March 2011**  
 Upload of Final Papers: **1 April 2011**  
 (All dates provisional at this stage)

#### TOPICS

SEB'11 topics include the following, however, the list is not meant to exclude other relevant subjects:-

**Renewable energy technologies:** photo-voltaics, solar thermal, biomass, geothermal systems. Micro-wind turbines, horizontal and vertical axis aero-generators. On-site, off-grid, grid-supplemented generation systems; combined heat and power (CHP) and micro-CHP systems.

**Sustainable Building technology:** low energy architectures, energy efficient buildings, highly-efficient insulation, novel sustainable building materials and techniques, passive heating and cooling.

**Control and optimisation of renewable energy systems:** sensors and instrumentation technology, virtual sensors; smart monitoring and control using intelligent systems; high-efficiency switching systems; highly-efficient voltage conversion systems; novel high efficiency distribution systems and low voltage busses.

**High efficiency power storage systems:** battery systems; reversible fuel cells; flywheel systems; super-capacitors.

**Novel primary sources:** bio-mass generation schemes; Stirling cycle engines; bio-fuelled diesel generators.

**Applications to building services:** heating and ventilating control systems for reduced energy use; building management systems; low energy building technology; low energy lighting systems; high-output light LED lighting systems; passive solar heating systems.

**Energy modelling schemes:** life cycle analysis methodologies; tools and life cycle analysis; triple-bottom-line analysis

Honorary Chairs: Klaus Rishmuller, ST Mircoelectronics, France & Prof. Lakhmi.C Jain, University of South Australia  
 General Chairs: Prof. Kouider Nacer M'sirdi & Prof. Aziz Naamane, LSIS, France

Executive Chair: Prof. Robert J.Howlett, KES International & Bournemouth University, UK

KES International knowledge transfer organisation is a member of the **World Renewable Energy Network**

SEB'11 Web site: <http://seb.sustainedenergy.org>

Email: [seb@sustainedenergy.org](mailto:seb@sustainedenergy.org)



# KES-AMSTA-2011

5<sup>th</sup> International KES Conference on  
**Agents and Multi-agent Systems –  
Technologies and Applications**

Manchester, United Kingdom  
29 June – 1 July 2011  
<http://amsta-11.kesinternational.org>

KES International  
Conference Series



**Welcome!** KES-AMSTA-2011 is an international scientific conference for research in the field of agent and multi-agent systems. The aim of the conference is to provide an internationally respected forum for scientific research in the technologies and applications of agent and multi-agent systems. Agents and multi-agent systems are related to a modern software paradigm which has long been recognized as a promising technology for constructing autonomous, complex and intelligent systems. This conference will provide an excellent opportunity for researchers to discuss modern approaches and techniques for agent and multi-agent systems and their applications. KES-AMSTA-2011 is organized by [KES International](#) and [Manchester Metropolitan University](#) in England. The university in which it will take place is located in the city centre of Manchester. Our city has a strong international presence in the sporting arena: as host to 2002 Commonwealth Games, the location of the National Velodrome and home of Manchester United and Manchester City football clubs. The Bridgewater Hall is home to the Halle Orchestra which is visited by an array of international talent in the fields of classical and contemporary music. In contrast our bohemian Northern Quarter is the current focus of one of the world's most vibrant popular music scenes. However there is more to enjoy nearby, including a number of traditional English stately homes and the Jodrell Bank radio telescope. The many attractions of the area are easily reached via *Manchester International Airport*, which is 11 miles by motorway from the city centre and our university. This trip can be made by Taxi or a 24 hour bus service. Manchester Metropolitan University is part of the largest higher education campus in the UK and one of the most extensive education centres in Europe. With a history dating back 150 years it has a combination of the traditional and the contemporary that sets it apart and gives it a distinct character. The scope of KES-AMSTA-2011 includes the following topics:

**Agent Systems:** Formal models of agency. Agent architectures. BDI architecture. Learning, evolution, and adaptation. Perception and action. Communication: languages, semantics, pragmatics, protocols, and conversations. Knowledge representation. Computational complexity. Autonomous or humanoid robots. Social robots and robot teams. Autonomy aspect. Cognitive models, including emotions and philosophies. Embodied and believable agents. Emergent behaviour Ontologies.

**Multi-agent Systems:** Cooperative distributed problem solving. Task and resource allocation. Mechanism design, auctions, and game theory. Modelling other agents and self. Multi-agent planning. Negotiation protocols. Multi-agent learning. Conflict resolution. Trust and reputation management. Privacy, safety and security. Scalability, robustness and dependability. Social and organizational structures. Verification and validation. Novel computing paradigms (autonomic, grid, P2P, ubiquitous computing). Brokering and matchmaking. Agent-oriented software engineering, including implementation languages and frameworks. Mobile agents. Performance, scalability, robustness, and dependability. Verification and validation. E-business agents. Pervasive computing. Privacy, safety, and security.

**Tools and Applications:** Simulation systems. Web services and service-oriented computing. Artificial social systems. Autonomic computing. Case studies and reports on deployments. Computational infrastructures. Information retrieval. Web services and semantic web. E-learning systems. E-institutions. E-commerce.

## CALL FOR PAPERS

Papers are invited from prospective authors with interests on the indicated conference topics and related areas of application. All contributions should be original and not published elsewhere or intended to be published during the review period. Contributions from more applied related fields in industry and commerce are very welcome. All accepted papers must be presented by one of the authors who must register for the conference and pay the fee. To ensure high quality, all papers will be thoroughly reviewed by the KES-AMSTA-11 International Programme Committee. The conference proceedings are planned to be published by [Springer-Verlag](#) in [LNCS/LNAI](#) series (subject to confirmation). Submitted papers should be prepared in LNCS/LNAI style and should not exceed 10 pages. Extended versions of selected papers will be considered for publication in special issues to be included in several journals indexed by ISI, [KES Journal](#) and [Int. Journal of Intelligent Information and Database Systems](#). Ph.D. students are invited to submit papers to Doctoral Track. Special sessions are also welcome.

## IMPORTANT DATES

Submission of papers: 20 Dec. 2010  
Notification of acceptance: 11 Feb. 2011  
Final papers to be received: 11 Mar. 2011  
Authors / Early registration: 19 Mar. 2011  
Conference: 29 June – 1<sup>st</sup> July 2011

### Honorary Chair: To be announced

**General Co-Chairs:** J. D. O'Shea, Manchester Metropolitan University; N.T. Nguyen, Wroclaw University of Technology, Poland; & L.C. Jain, University of South Australia, Australia

**Executive Chair:** R.J. Howlett, Bournemouth University, UK

**Program Co-Chairs:** Z. Bandar, Manchester Metropolitan University, K. Crockett, Manchester Metropolitan University, Dariusz Krol, Wroclaw University of Technology, Poland

### Local Organising Chair:

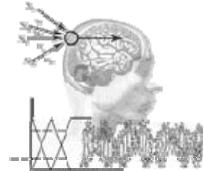
**Publicity Co-Chairs:** D. McLean, Manchester Metropolitan University and K. Crockett, Manchester Metropolitan University  
L.C. Jain, University of South Australia, Australia

**Doctoral Track Chair:** D. Król, Wroclaw University of Technology, Poland

*KES-AMSTA-2011 is part of the AMSTA Series chaired by N.T. Nguyen, which is a sub-series of KES International Conference Series, Chairs L.C. Jain and R.J. Howlett*

**Web Site:** <http://www.amsta-11.kesinternational.org>

**Email Enquiries:** [amsta-11@kesinternational.org](mailto:amsta-11@kesinternational.org)



# KES IIMSS 2011

## 4th International Symposium on Intelligent Interactive Multimedia Systems and Services

20, 21 and 22 July 2011  
University of Piraeus, Piraeus-Athens, Greece

### WELCOME

We are pleased to invite participation in KES-IIMSS2011 organized by the University of Piraeus and its Department of Informatics in conjunction with KES International. KES-IIMSS2011 is the fourth in a series of international scientific symposia for research in the fields of intelligent interactive multimedia systems and services. The aim of the series is to provide an internationally respected forum for scientific research in the technologies and applications of intelligent interactive multimedia systems and services. The conference will take place in Piraeus-Athens, the capital and main port of Greece. Greece offers top quality tourist attractions to over 20 million international visitors every year. Athens, the capital and main point of entry to Greece, is home to ten major Universities which educate a total population of over 200,000 students. The conference will consist of keynote talks, oral and poster presentations, invited sessions and workshops, on the applications and theory of intelligent interactive multimedia systems and services and related areas. It will provide excellent opportunities for the presentation of interesting new research results and discussion about them, leading to knowledge transfer and generation of new ideas.

### SCOPE OF THE CONFERENCE

#### GENERIC TOPICS OF INTEREST

Mobile Technologies and Intelligent Services  
Intelligent Educational Services  
Automated and Intelligent Lecture Rooms  
Intelligent Audio and Music Storage/Retrieval/Transmission/Analysis  
Intelligent Video Storage/Retrieval/Transmission/Analysis  
Intelligent Image Storage/Retrieval/Transmission/Analysis  
Knowledge-based Multimedia Signal Processing  
Security in Knowledge-based Multimedia Systems  
Knowledge-based Virtual and Augmented Reality  
Knowledge-based Human-Computer Interaction  
Intelligent Multimodal Interactive Systems  
Digital Rights Management  
Intelligent Digital Library Services  
Adaptive hypermedia systems  
Intelligent narrative environments  
User Modeling  
Adaptive Recommender Services  
Multimedia Notification and Decision Support Services  
Intelligent Information Systems  
Knowledge-based Entertainment Services  
Knowledge Technologies for the Semantic Web  
Intelligent e-Learning Multimedia  
Intelligent e-Commerce Multimedia  
Intelligent e-Government Multimedia  
Intelligent e-Entertainment Multimedia  
Intelligent e-Medicine  
Intelligent e-Legal Services  
Intelligent Environmental Multimedia Systems  
Intelligent Remote Sensing and Telemonitoring Services  
Intelligent GIS Services  
Smart-Home Multimedia Services  
Multimedia Services to People with Special Needs  
Multimedia Communication Services  
Knowledge-based Applications

### CALL FOR CONTRIBUTION

#### CALL FOR PAPERS

Contributions are invited from prospective authors with interests in the indicated conference topics and related areas of application. All contributions should be high quality, original and not published elsewhere or submitted for publication during the review period. Please see the web site for details of the required paper format. Papers will be thoroughly reviewed by the International Program Committee, and may be accepted for oral or poster presentation. The conference proceedings will be published by Springer as book chapters in their SMART INNOVATIONS, SYSTEMS AND TECHNOLOGIES SERIES. Selected papers will be considered for publication in the KES Journal. Authors will be limited to two papers per registration, with an extra charge for additional papers from the third onwards.

#### CALL FOR TRACK/SUBJECT CHAIRS

Experienced researchers in the field are invited to chair wide scope tracks covering the various facets of the Intelligent Interactive Multimedia Systems and Services, taking responsibility for overseeing the paper review process within their domain of expertise. Please contact the conference Secretariat outlining your experience and area of expertise if you would like to contribute as a Subject Chair.

#### CALL FOR INVITED SESSIONS AND WORKSHOPS

We invite researchers on hot topics and fresh ideas in the field to organize invited sessions, or parallel workshops of a half or full day, gathering a minimum of 5 papers of at least 3 research teams in the world. Please, contact the Conference Secretariat enclosing the title and content of the proposed session, and tentatively involved research teams. We also welcome suggestions for other activities that will appeal to our delegates.

### DEADLINES: General Sessions

Submission of papers: 17 February 2011  
Notification of acceptance: 21 February 2011  
Final paper to be received by: 21 March 2011

### DEADLINES: Invited Sessions and Workshops

Proposal for Invited Sessions/Workshops: 20 December 2010  
Session/Workshop Chair sets submission deadlines  
Final paper to be received by: 21 March 2011

**All presenting authors must register and pay the conference fee by 14 March 2011 for their papers to appear in the proceedings**

*All deadlines and other details are provisional at the stage.*

### ORGANISATION

**KES IIMSS 2011 General Co-Chairs and IPC Co-Chairs:**  
G. Tshirntzidis and M. Virvou, University of Piraeus, Greece

**KES IIMSS 2011 Executive Chair:**  
R. J. Howlett, Bournemouth University, UK

**Local Organizing Chair:**  
D. Despotis, University of Piraeus, Greece

**Invited Sessions Chair:**  
L.C. Jain University of South Australia, Australia

KES IIMSS 2011 E-mail: [iimss-11@kesinternational.org](mailto:iimss-11@kesinternational.org)

Web Site: <http://iimss-11.kesinternational.org/>

## KES2011 - 15th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems

12, 13 and 14 September 2011 in Kaiserslautern, Germany

### WELCOME

We are pleased to invite participation in KES2011 organized by the the German Research Center for Artificial Intelligence and the University of Kaiserslautern, in conjunction with KES International. The conference will take place in Kaiserslautern. The city is located at the edge of the Palatinate Forest in southwest Germany and home to about 100,000 inhabitants. It received its name from the favorite hunting retreat of Frederick Barbarossa who ruled the Holy Roman Empire from 1155 until 1190. The historic centre dates back to the 9th century. Today, Kaiserslautern is a modern centre of information and communications technology and home to a well-known university, a technical college and many internationally renowned research institutes. The conference will consist of keynote talks, oral and poster presentations, invited sessions and workshops, on the applications and theory of intelligent systems and related areas. It will provide excellent opportunities for the presentation of interesting new research results and discussion about them, leading to knowledge transfer and generation of new ideas.

### SCOPE OF THE CONFERENCE

#### GENERIC TOPICS OF INTEREST

Automated Design and Configuration of Sensory Systems, Self-x principles in Intelligent Engineering Systems, Knowledge-Based Systems, Expert Systems, Cognitive Systems, Neural Networks, Artificial Immune Systems, Fuzzy Techniques and Systems, Genetic Algorithms and Evolutionary Computing, Hybrid Intelligent Systems, Multi-Agent Systems, Knowledge Discovery and Data Mining, Data Analysis and Pattern Recognition, Machine Learning, Bayesian Networks, Knowledge Representation and Management, Computational neuroscience, Planning, Spatial & Temporal Reasoning, Knowledge Acquisition, Semantic-Based Systems.

#### INTELLIGENT APPLICATIONS

Multi-Sensor Information Systems, Dimensionality Reduction and Interactive Multivariate Data Visualization/Analysis, Organisation Memories, Industrial Control, Monitoring and Planning, Intelligent Web-based Systems, Fault Diagnosis, Robotics, Image Processing, Machine & Computer Vision, Medical & Diagnostic Systems, Financial & Stock Market Monitoring and Prediction, Speech Processing and Synthesis, Natural Language Processing, Environmental Monitoring, Power Electronics & Drives, High Voltage Systems, Engine Control and Vehicle Applications, Signal and Time Series Processing, Wavelets.

#### EMERGENT INTELLIGENT TECHNOLOGIES

Pervasive Computing, Intelligent Web Personalization, Ubiquitous Computing, Context-aware and Affective (Emotional) Computing, Mobile Computing and Systems, Business Intelligence Systems, Human-centered Computing, Intelligent User Interfaces, Cognitive Networks, User profiling, Evolvable Hardware, DNA Computing, Immunocomputing, Artificial Life, Bioinformatics, Micro array Data Analysis, Intelligent Tutoring Systems, E-commerce/E-business and E-learning, Semantic Web, Intelligent Web Mining & Applications, Virtual Reality & Multi-Media Intelligent Information Systems, Blind Source Separation.

### DEADLINES: General Sessions

Submission of papers: 1 March 2011  
Notification of acceptance: 1 April 2011  
Final paper to be received by: 1 May 2011

All presenting authors must register and pay the conference fee by 1 May 2011 for their papers to appear in the proceedings  
All deadlines and other details are provisional at the stage.

### ORGANISATION

#### KES2011 General Chair:

A. Dengel, University of Kaiserslautern and German Research Center for Artificial Intelligence, Germany

#### KES2011 General Co-Chair:

A. König, University of Kaiserslautern, Germany

#### KES2011 Executive Chair:

R. J. Howlett, University of Brighton, UK

KES2011 E-mail: [kes2011@kesinternational.org](mailto:kes2011@kesinternational.org)

### CALL FOR CONTRIBUTION

#### CALL FOR PAPERS

Contributions are invited from prospective authors with interests in the indicated conference topics and related areas of application. All contributions should be high quality, original and not published elsewhere or submitted for publication during the review period. Please see the web site for details of the required paper format. Papers will be thoroughly reviewed by the International Program Committee, and may be accepted for oral or poster presentation. The conference proceedings will be published by Springer in LNCS/LNAI. Extended versions of selected papers will be considered for publication in the KES Journal.

#### CALL FOR TRACK/SUBJECT CHAIRS

Experienced researchers in the field are invited to chair wide scope tracks covering the various facets of the Intelligent Systems, taking responsibility for overseeing the paper review process within their domain of expertise. Please contact the Conference Secretariat outlining your experience and area of expertise if you would like to contribute as a Subject Chair.

#### CALL FOR INVITED SESSIONS AND WORKSHOPS

We invite researchers on hot topics and fresh ideas in the field to organize invited sessions, or parallel workshops of a half or full day, gathering a minimum of six papers. Please, contact the Conference Secretariat enclosing the title and content of the proposed session, and tentatively involved research teams. We also welcome suggestions for other activities that will appeal to our delegates.

### DEADLINES: Invited Sessions and Workshops

Proposal for Invited Sessions/Workshops – as soon as possible.  
Session/Workshop Chair sets submission deadlines  
Final paper to be received by: 1 May 2011

#### KES2011 Program Co-Chair:

K. Hinkelmann, University of Applied Sciences Northwestern Switzerland, Switzerland

#### KES2011 Program Co-Chair:

K. Kise, Osaka Prefecture University, Japan

#### KES2011 Organising Chair:

S. Zinsmeister, German Research Center for Artificial Intelligence, Germany

Web Site: <http://kes2011.kesinternational.org>



# International

Making Knowledge Connections



## About the KES International Organisation

KES International (KES) is a worldwide association for researchers providing opportunities for knowledge transfer, networking, publication and beneficial interaction. The focus of KES was originally Knowledge Based and Intelligent Engineering Systems. However, KES has recently broadened its areas of activity into renewable energy, through links with the World Renewable Energy Network/Congress, and Knowledge Transfer through a link with the Institute of Knowledge Transfer.

Formed in 2001, KES regularly provides networking opportunities for Intelligent Systems researchers and practitioners through one of the largest conferences of its kind. On an occasional basis KES may organise tutorials and summer schools, and other ventures, for example, e-publishing.

KES annual conferences have been held since 1997. In 1997, 1998 and 1999, the conferences were in Adelaide, Australia. In 2000 the conference was in Brighton, UK; in 2001, Osaka, Japan; in 2002, Crema near Milan, Italy; in 2003, Oxford, UK; in 2004, Wellington, New Zealand; in 2005, Melbourne Australia; in 2006, Bournemouth, UK; in 2007, Salerno, Italy; in 2008, Zagreb, Croatia; in 2009, Santiago, Chile; in 2010 in Cardiff, Wales; and in 2011 it will be in Kaiserslautern, Germany. Delegate numbers have grown from about 100 in 1999, to the present figure of several hundred each year. The conference attracts delegates from many different countries, in Europe, Australasia, the Pacific Rim, Asia and the Americas. In addition to its annual conference, KES also organises symposia on specific technical topics, for example, Intelligent Decision Technologies, Agent and Multi Agent Systems, and Intelligent and Interactive Multimedia Systems and Services.

For the first time, in 2009, KES held a conference on Sustainability in Energy and Buildings, looking towards the use of smart techniques in buildings to improve energy efficiency. In collaboration with the Institute of Knowledge Transfer and Kingston University, KES offered the first international conference on Innovation through Knowledge Transfer as a much-needed opportunity for knowledge transfer professionals and practitioners to publish on their activities.

Published by IOS Press in the Netherlands, the KES Journal has joint Editors-in-Chief Professor R.J.Howlett and Professor B. Gabrys (both affiliated to the University of Bournemouth). There are Associate Editors in the UK, the US, Poland, Australia, Germany and Czechoslovakia. The Journal accepts academic papers (articles) from authors in many countries of the world and has approximately 600 subscribers in about 50 countries.

KES also edits 'Intelligent Decision Technologies: and International Journal', also published by IOS Press and edited by Professor Gloria Phillips-Wren or Loyola University Maryland, USA.

KES has a book series on Smart Innovation, Systems and Technologies, published by Springer-Verlag and another on Knowledge based and Intelligent Engineering Systems, published by IOS Press.

KES International is headed by the KES Executive Board consisting of Executive Chair Professor R.J.Howlett, Founder and Chair (International Relations) Professor Lakhmi Jain and Chair (Academic Affairs) Professor Bogdan Gabrys. The Executive Board takes advice from an Advisory Group made up of about a dozen prominent researchers from various countries.

KES is an independent association, operated on a non-profit-orientated basis, from a base in the UK. A number of universities around the world contribute to the organisation, operation and academic activities of KES.

Involving several thousand researchers drawn from universities and companies world-wide, KES is in an excellent position to facilitate international research co-operation and generate synergy in knowledge based areas.

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### KES International

Correspondence address: KES Secretariat, PO Box 2115, Shoreham-by-sea, BN43 9AF, UK

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