

MEASURING THE IMPACT AND SUCCESS OF UNIVERSITY INDUSTRY KNOWLEDGE EXCHANGE: A METRICS WORKSHOP

Friday 27th July 2007

Robinson College, Cambridge

Background

This workshop is intended to address the key challenges in defining and designing appropriate metrics for research council and other publicly funded initiatives in the university industry knowledge exchange and commercialisation areas. The workshop is held under the auspices of the Cambridge Integrated Knowledge Centre (CIKC) in Advanced Manufacturing Technologies for Photonics and Electronics. The CIKC has recently been set up with funding from the EPSRC to develop advanced manufacturing technologies based on new macromolecular materials systems, for example polymer electronics or advanced liquid crystals, and to create valid commercial exploitation models for these innovations.

Combining world-class research with a strong partnership with business, CIKC will engage with industrial partners to shape and prioritise the work programme, allow the secondment of researchers from industry and from other universities for knowledge exchange, and will enable the provision of pilot manufacturing lines for prototyping. The Mission of the CIKC is to provide the business and technical expertise and infrastructure to enable those with exploitable concepts to achieve commercial success.

CIKC brings together research activities in molecular and macromolecular materials in the Electrical Engineering Division (in particular, the Centre for Advanced Photonics and Electronics) and in the Cavendish Laboratory. It also draws on the expertise of the Judge Business School, the Institute for Manufacturing (IfM) and the Centre for Business Research (CBR) to; create innovative knowledge exchange activities spanning business research, training and specific exploitation; develop appropriate evaluation metrics for measuring impact and success in such activities; and draw lessons for future policy in this area.

Workshop Objective

The objective of the workshop is to bring together industrial and academic and policymakers' perspectives on the characteristics of successful knowledge exchange.

Key issues to be considered include:

- i. the development of an appropriate and parsimonious range of indicators to assess the impact and value of the knowledge exchange and commercialisation process
- ii. the most appropriate response in evaluation exercises to the problem of extreme skewness of successful outcomes in high-technology knowledge exchange and commercialisation processes
- iii. the most appropriate approach to measuring impact and success when outcomes may take many years to work through the process from scientific or technological breakthrough to effective commercialisation.
- iv. the need to address variations in the objectives and expectations of the various parties to effective knowledge exchange and commercialisation activities (including university-based researchers, sponsoring policy bodies and industrial and commercial partners in the commercialisation process).

Agenda

- 09.30 Coffee and Registration
- 10:00 Welcome and Introduction:
Metrics for Knowledge Exchange – Some Key Issues
*Professor Alan Hughes,
Judge Business School, Director, Centre for Business Research,
CIKC, University of Cambridge*
- 10:15 **Evaluating the Impact of Public Funding for Knowledge Exchange Activities**
*Professor Ben Martin, Professor of Science and Technology Policy Studies
Director of SPRU, University of Sussex*
- 10:35 Discussion
- 11:15 Coffee break
- 11.45 **Assessing UK Knowledge Exchange: Evidence from Council for Industry and Higher Education Research**
Philip Ternouth, Associate Director for R&D and Knowledge Transfer, Council for Industry and Higher Education
- 12.05 Discussion
- 12:45 Lunch break
- 14:00 **Measuring the Success of Knowledge Exchange Activities: An Industrial Perspective (t.b.c.)**
Dr Steve Battersby, Dept Head, Active Matrix Systems Gp, Philips Research Laboratories
- 14:30 Discussion
- 15:00 Closing Remarks:
Lessons from the Workshop for High-Risk Public Support Interventions
*David Connell, Senior Research Associate, Centre for Business Research, and CIKC,
University of Cambridge*
- 15:30 FINISH

Ground Rules

The workshop will be held under the Chatham House Rule. Thus although it is our intention to capture the principal findings of the discussion at the event neither the identity nor the affiliation of the speakers associated with any particular points identified will be reported. This is to encourage as open and frank a discussion of the issues as possible.

Speakers

Steve Battersby

Department Head, Active Matrix Systems Group, Philips Research Laboratories, Redhill

Steve Battersby qualified with a 1st in Physics from Bristol University in 1977, received a MSc in Physics from the University of Western Ontario in 1978 and a PhD in Physics from the Cavendish Laboratories in 1982. After a short spell at ICI, he joined Philips Research Laboratories in Redhill, Surrey in 1983, where he worked on GaAs Hot Electron Transistors, Hot Carrier Injection Gunn Diodes and HEMTs as well as Si power and high frequency transistors. In 1993, he became Group Leader of the Large Area Electronics Group managing a group of 25 scientists researching the technologies and device physics of thin film transistors in both a-Si and low temperature poly-Si (LTPS), working with Hosiden Displays in Japan and LG.Philips LCD in Korea. In 2001, he was seconded to Philips Mobile Display Systems in Kobe, Japan to set up and run a Joint Development Agreement with Mitsubishi Denki to make displays for the mobile phone market based on LTPS. Currently, he is Group Leader of the Active Matrix Systems Group and has Programme responsibility for 50 scientists in Redhill and Eindhoven, Netherlands, studying applications of distributed electronics. His grey hairs bear witness to the long struggle to bring new technologies to the market.

David Connell

Senior Research Associate at the Centre for Business Research, and CIKC, University of Cambridge

David Connell was previously founding Chief Executive of TTP Ventures, a Cambridge based venture capital fund specialising in early stage science and technology based ventures with funding from Boeing, Siemens and financial institutions. TTP Ventures investments are mainly spin outs from research based companies and include TeraView (a spin off from Toshiba Research), ZBD Displays (a spin off from QinetiQ), Oxford Diffraction (Oxford Instruments), CamSemi (Cambridge University), Intense Photonics (Glasgow University), Element-14 (Acorn Computers), Alphamosaic (Cambridge Consultants Ltd) and Argenta (Aventis).

From 1989 to 1997 David was Head of TTP Group's Strategy Division, providing consulting advice on technology exploitation, innovation and business development strategy to a wide range of clients included Shell, BP, IBM, Nortel, ICI, Barclays Bank, the Department of Trade and Industry and Cambridge University. Prior to joining TTP in 1989, David was responsible for Deloitte Haskins and Sells national UK High Technology Group based in the City of London. His early career was with British Steel and the National Economic Development Office.

Today, David combines Directorships and board advisory roles for TTP Capital Partners and several small technology companies with his part time academic research position at the Centre for Business Research at Cambridge University. . David has written extensively on the strategic management of technology based businesses, innovation, start up strategies and public policy. He has recently been leading a campaign with Members of Parliament to persuade the UK Government to establish a US style Small Business Innovation Research programme in the UK. He has a BSc in Physics and Masters Degrees in both Economics and Operational Research.

Alan Hughes

Margaret Thatcher Professor of Enterprise Studies, Judge Business School and Director, Centre for Business Research (CBR), and CIKC, University of Cambridge

Alan Hughes's research interests are concerned with industrial and technology policy; the measurement of innovation; growth, innovation and financial and acquisition characteristics of small and medium sized enterprises; measurement and evaluation of industrial and business support policy. In the past 10 years he has published over 200 books, articles and chapters in books on these and related topics. His most recent work on innovation has been concerned with benchmarking university industry innovation activities in the UK and the US, and with the analysis of university-industry links in the UK regions..

He has been invited to provide policy advice and consultancy by amongst others HM Treasury, HM Inland Revenue, the DTI, DfES, the Bank of England, Eurostat, the International Labour Organisation, the National Consumer Council, and the UN World Institute for Development Economic Research. Specific examples include: Evaluation of the impact of training on firm performance (DfES), Evaluation of the SMART scheme (DTI), Analysis of innovation activities in small firms (EU), Evaluation of the EIS and VCT Schemes (HM Inland Revenue), Analysis of Universities Spin-out Policy (Dutch Ministry of Economic Affairs), Evaluation of the Small Business Initiative (British Bankers Association), Analysis of Effect of Mutuality on Building Society Structure (Norwich and Peterborough Building Society and the Building Society Association), Analysis of Legal Reform relating to Directors Duties, (Institute of Directors and Law Commission), and Background analysis for the Cruickshank report on Small Business Finance (HM Treasury). In 2004 he was appointed by the Prime Minister of the UK to membership of the Council for Science and Technology, the UK's senior advisory body in this area.

Ben Martin

Professor of Science and Technology Policy Studies and Director of SPRU, University of Sussex

Ben Martin was Director of SPRU (Science and Technology Policy Research) at the University of Sussex from 1997 to 2004. He has carried out research for over 25 years in the field of science policy. In the earliest work with John Irvine, he helped to establish techniques for the evaluation of scientific laboratories and of research programmes. A second area in which he has made an impact is empirical comparisons of national scientific performance and in particular work on the relative decline of British science. A third contribution was to produce the first truly comparable international statistics on government funding of academic and related research. The fourth area of activity has been the collaborative work with John Irvine which pioneered the notion of 'foresight' as a tool for looking into the longer-term future of science and technology with the aim of identifying areas of strategic research and emerging generic technologies likely to yield the greatest economic or social benefits. He was a member of the Steering Group for the UK Foresight Programme from 1993 to 2000. He led the SPRU team that produced the influential review for HM Treasury on the benefits from government funding of basic research. More recently, he has carried out research on the changing nature and role of the university, and on the impact of the Research Assessment Exercise (RAE). In 2004-05, he served as Deputy Chair of the EU High-Level Expert Group advising the European Commission on the potential benefits of establishing a European Research Council. He has published seven books, eight monographs and official government reports, and approximately 50 journal articles, and produced 170 other reports and papers. He is an Editor of Research Policy, a former member of the Technical Opportunities Panel (TOP) of EPSRC, and the 1997 winner of the Derek de Solla Price Medal for Science Studies.

Philip Ternouth

Associate Director for R&D and Knowledge Transfer, Council for Industry and Higher Education

Philip Ternouth is the Associate Director for R&D and Knowledge Transfer at the Council for Industry and Higher Education (CIHE) and until recently a Regional Advisor on Knowledge Transfer Partnerships. He has extensive experience in both Industry and in Knowledge Transfer in the HE sector, having run KT activities from 1995 to 2001 in Manchester University since when he has concentrated on the development of a better understanding of the detail of interactions between University and Business through a number of research, teaching and policy development initiatives. He remains active as a board member of small companies, and recently participated (for EPSRC) in a review of the EngD program. He is an Enterprise Fellow of Salford University and sits as a member on the AHRC KT panel and UUK and HEFCE advisory panels on metrics.

His work for CIHE has included researching and writing "Knowledge Transfer, Towards a Strategic Framework" and "The Business of Knowledge Transfer". Most recently he researched and co-authored (with Richard Brown) "International Competitiveness: Businesses Working with UK Universities" and then commissioning and editing for publication "Oxford Entrepreneurs". A major feature of this work is a focus the mechanisms and interactions which enable business actually derives value from relationships with Higher Education.

He is an active member of national and international organisations which provide mutual support and professional development in the transfer of university technology to commercial application. He was for three years a Board member of the UK University Companies' Association, UNICO, becoming Chairman in 1999 and is an active member of AUTM and has undertaken a number of consultancy assignments in the UK and overseas for research institutions to assist in developing their knowledge transfer agenda. These have included leading the development and delivery of a substantial short course curriculum in Knowledge Transfer for the whole university system in South Africa. He holds professional and postgraduate qualifications in marketing and is a member of the Institute of Directors and the Institute of Knowledge Transfer.