

# Technology Management

Quarterly newsletter of the Centre for Technology Management (CTM)

November 2010

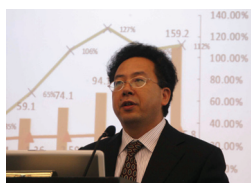
## Confronting global challenges: leadership, innovation, technology Cambridge Technology Management Symposium, September 2010

This year's Symposium focused on some of the key challenges facing the world in the areas of renewable energy sources, healthcare and mobility. Drawing on current research and leading practice in technology management, the Symposium explored many ways in which these challenges could be addressed.

A striking conclusion from the two-day event was the extent to which these three areas are linked, and the way in which solutions in one can influence developments in the others.

Key international speakers tackled each of the three themes and revealed a diverse range of approaches, based on technology, innovation and leadership.

### Renewable energy



Professor Su Jun of Tsinghua University discussed the rapid expansion of wind energy supply in China, facilitated by targeted government research funding. Dr Dominic Emery, Chief of Staff at BP Alternative Energy, described how his company had diversified away from oil

and gas in anticipation of the environmental constraints facing the sector.

### Mobility

The mobility theme was illustrated by a presentation from Frost and Sullivan, on the integrated mega city of the future. Steve Yianni, Director of Engineering at Network Rail went on to describe how major transformations in rail systems are under way and will be increasingly necessary to solve the transport problems of the future. The combination of personalised and public mobility systems formed an interesting bridge between these two presentations.



### Healthcare

Healthcare trends are a major concern for both developed and

developing economies. Professor Joanna Chataway, Director of Innovation and Technology Policy at RAND Europe, explained how new shared funding programmes were making it possible to tackle the neglected diseases that affect many underdeveloped parts of the world. Dr Marcel Dissel, previously CEO of the AO Foundation based in Switzerland, described how leading fracture repair practice has been transferred around the world by a community of practice sharing their innovation.



Delegates to the Symposium – the sixteenth in the series – also had the opportunity to engage with particular topics in more detail at case study and workshop sessions. The case studies focused on topics such as disruptive technologies in cleantech, the

impact of the digital footprint in network operations, innovative healthcare solutions and autonomous vehicle and tracking developments in transport systems. Workshops drew on current research at the Centre for Technology Management in the areas of early-stage technology acquisition and visual methods to support strategy formulation.

The Symposium dinner was held in the great hall of Christ's College. This historic setting appealed particularly to visitors from overseas, with Japanese visitors remarking on the 'Harry Potter' atmosphere! Speaking after the dinner, Professor Mike Gregory, Head of the Institute for Manufacturing, discussed the importance of balancing the theoretical and applied work of the University, and the particular contribution that technology management could make in this area.

The exchange of ideas and practice enabled by the Symposium was a major source of stimulation for people from industry and academia alike, and we look forward to more opportunities to bring the community together at future events.



## Japanese technology managers visit Cambridge

A delegation of 25 Japanese technology managers, academics and graduate students arrived in Cambridge on 13 September for a week-long series of talks, events and company visits. The programme – entitled Science and Technology Entrepreneur Programme (STEP) – is now in its seventh year and is the brainchild of Japanese technology entrepreneur and academic, Eiichi Yamaguchi.

The aim of STEP is to provide insight into the way into clusters, such as Cambridge and Silicon Valley, and how these might be replicated elsewhere.

The first three days of the programme combined talks from Tim Minshall (Institute for Manufacturing), Bill Wicksteed (SQW), Stew McTavish (IdeaSpace), Matt Schofield (Cambridge Network) and Letizia Mortara (Institute for Manufacturing) with visits to key innovation activities around Cambridge including ARM, Babraham Bioscience Technologies, St John's Innovation Centre and IdeaSpace.

The final two days of the programme involved participating in the 16th Cambridge Technology Management Symposium where the visitors had a chance to attend workshops, case studies and keynote addresses from companies including GSK, BAESystems, RAND, BP, Frost and Sullivan and AO Foundation.

## Kyoto collaboration

In late September Tim Minshall of CTM spent two weeks at Doshisha University in Kyoto as part of an on-going collaboration between the two centres.

Dr Minshall delivered a technology management module to Japanese managers enrolled on an executive PhD programme, and interviewed policymakers, managers and academics about policies to support open innovation. These interviews form part of a new research activity examining the role of location in the successful implementation of open innovation.

Open innovation will be the focus of a new international research network which will hold its first meeting in March 2011. The 'Open Innovation Research Forum' will build



on a collaboration with Doshisha University. It will bring together academics from China, Taiwan, New Zealand, Japan, Switzerland, Belgium and the UK to share different approaches to researching the geography of open innovation.

## Roadmapping book

CTM has recently published a textbook on roadmapping, providing the first

comprehensive account of the approach. Examples of firm and sector applications are included, and 'fast-start' workshop methods described, together with design considerations. For more information, and to order a copy, visit

[www.ifm.eng.cam.ac.uk/service/books/](http://www.ifm.eng.cam.ac.uk/service/books/)



## Technical intelligence: a Mexican approach



Georgina Ortiz, from the Mexican Petroleum Institute (IMP), described her organisation's approach to competitive technical intelligence in a presentation at the Institute for Manufacturing in early October.

The intelligence group supports both internal

and external users – in particular Mexico's state-owned oil and gas company, Petroleos Mexicanos. The group's activities cover a range of topics including exploration and production, refining, fine chemistry, intellectual property rights and renewable energy sources. Their services include monitoring, technical intelligence reports, consulting in technology management issues and support for decision making.

## New Open Innovation initiative

CTM has just launched a new Open Innovation initiative aimed at firms involved in the Food & Fast Moving Consumer Goods (FMCG) Value Streams. The new forum builds on the success of the Cambridge OI Network which resulted in the report 'How to Implement Open Innovation' and is designed to provide a platform, focused on businesses in this important sector, to share learning on effective implementation of OI and to establish real value-adding collaborations. Increasingly the FMCG sector faces challenges and opportunities, such as sustainability and traceability, which require solutions that span the whole value stream; the Forum provides the ideal

framework to deliver the answers. The inaugural meeting took place in Cambridge on 12th & 13th October. Highlights of the meeting included:

- Reviewing the consensus for priority challenges in OI practice and sharing experiences
- Receiving a "hot off the press" preview of IfM's research into selecting and managing intermediaries
- Exploring the FMCG Value Stream and specific opportunities for collaboration amongst the members.

For more details contact Dominic Oughton on +44(0)7778 873512 email [do251@cam.ac.uk](mailto:do251@cam.ac.uk). Also see <http://www.ifm.eng.cam.ac.uk/ctm/teg/openinnovation.html>

## PhD research at CTM – opportunities for collaboration

PhD students within CTM work on a wide range of technology management related issues. Their research frequently involves working with industrialist to test and improve their ideas. Here we describe some current areas of research and the opportunities these present for industrial collaboration.

### Global healthcare entrepreneurship: innovation in TB treatment

Julia Fan Li is a second-year CTM PhD student doing research into entrepreneurial activity in global health. She is examining the business models of healthcare firms providing products and services for low and middle-income countries. The BoP (bottom of pyramid) market is characterised by low individual purchasing power, but large aggregated market opportunity and high critical demand.

Julia's work is focusing on Tuberculosis (TB). She is currently looking for research collaborations with TB-focused entrepreneurs engaged in innovation. The innovative activity can be in early-stage discovery, development or end-customer delivery of currently available TB drugs, diagnostics, vaccines.  
Julia Fan: [jfl33@cam.ac.uk](mailto:jfl33@cam.ac.uk).

### Attitudes to entrepreneurial failure in different countries

The different attitudes to entrepreneurial failure may reveal much about how entrepreneurs learn and how new opportunities are identified.

Keith Cotterill's research compares entrepreneurs' attitudes to failure in early-stage technology ventures in three different places: Munich, Cambridge (UK) and Silicon Valley in California.

Initial findings suggest different attitudes in the three regions: resilience and rapid recovery from failure in America; slow acceptance and the importance of social context of such failure in Britain; and the strength of stigma for German entrepreneurs.

More interviews are planned to explore these issues further. Contact Keith if you are interested in being involved.  
Keith Cotterill: [kc378@cam.ac.uk](mailto:kc378@cam.ac.uk)

### Supporting the early stages of innovation

The front-end of the innovation process is currently a

challenge for every business that intends to compete through product innovation. Several studies have explored this early phase of innovation, and some progress has been made in describing its features, activities, barriers, best practices and tools.

Nevertheless, companies still face problems in managing it effectively, providing a significant opportunity to improve innovation success. Maicon Oliveira's research aims to identify the most important factors for facilitating innovation in the early stages.  
Maicon Oliveira: [mgd37@cam.ac.uk](mailto:mgd37@cam.ac.uk)

### Managing uncertainty and risk

Imoh Ilevbare is investigating the application of roadmapping and other planning and foresight techniques in high uncertainty environments. This work aims to understand how different types of uncertainty and risk can be addressed and made explicit in the development and visualisation of roadmaps for decision making purposes. Emerging industries and markets, typically characterised by the rapid pace of development, volatility and high-uncertainty, are considered ideal environments for this study.  
Imoh Ilevbare: [imi22@cam.ac.uk](mailto:imi22@cam.ac.uk)

### Collaborative NPD in the oil and gas industry

Victor Ortiz's research is looking at technology acquisition in the context of the collaborative development of new products. In particular, his research aims to identify the characteristics that are important for an effective technology acquisition in the context of collaborative new product development, involving early-stage technologies. This project is being carried out through case studies and literature research in the context of the oil and gas industry. Any suggestions for case studies and contacts are welcome.  
Victor Ortiz: [vgo20@cam.ac.uk](mailto:vgo20@cam.ac.uk)

## Intensive training programme for Qualcomm engineers

CTM organised an intensive technology and innovation programme in September for 20 engineers from European subsidiaries of Qualcomm, the US wireless telecommunications company.

The engineers from Cambridge, Farnborough, Dublin, Frankfurt and Helsinki, attended the bespoke programme at the Möller Centre in Cambridge. The 1.5 day programme gave the Qualcomm engineers a chance to learn about and apply technology management frameworks, new product introduction tools, and strategic technology management techniques.

Highlights included CityCar, a new product introduction simulation game, and an after-dinner talk at Christ's College by Rick Mitchell.



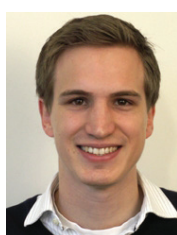
# Technology management research at Cambridge

- Strategic technology management
- R&D project selection
- Software sourcing in manufacturing
- Enhancing creativity in new product development
- New product introduction collaboration
- Technology management: a process approach
- Technology selection
- Technology evolution in hi-tech firms
- Innovation management in hi-tech firms
- Emergence of technology based industry
- Technology scanning and intelligence
- Technology acquisition
- Technology protection
- Strategic make-or-buy
- Industrial make-or-buy decisions
- Sustainability and technology insertion
- Technology valuation
- Technology foresight

## New CTM people



**Clemens Chaskel** is a PhD student focussing on the management of technology in a business context and its links with technology roadmapping and portfolio strategy.



**Sebastian Dworschak** is a visitor at the IfM for 6 months on an entrepreneurship-related research project to finish his degree in Business Administration and Mechanical Engineering at RWTH Aachen University.



**Luzselene Rincon Arguelles** is a first year PhD student, studying the relation between R&D and marketing areas in an open innovation framework.



**Man Hang Yip (Yip)** is a part-time PhD student. Her research interest is in the management of early stage new product development in Healthcare industry.



**David Weiss** is a first year PhD student focusing on dynamic approaches to open innovation.

### Recent graduates

**Y**udh Jayapravitra from Thailand has completed his PhD under the supervision of David Probert in 'Telecommunications regulation in the convergence era - hands-on or hands-off? Developing a theory of divergent regulation, a divergent licensing model, and the NTC licensing model.'

## Diary

[www.ifm.eng.cam.ac.uk/events](http://www.ifm.eng.cam.ac.uk/events)

### March

Wednesday 9

*Strategic roadmapping*

One-day workshop,  
IfM  
Cambridge

### April

Tuesday 5 -

Thursday 7

*Technology and Innovation  
management*

Three-day course,  
Jesus College  
Cambridge

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