IfM

UNIVERSITY OF CAMBRIDGE

Technology Management

Quarterly newsletter of the Centre for Technology Management

February 2008

Mapping the UK's future innovation strategy

The IfM has run a series of roadmapping workshops to help the government's Technology Strategy Board (TSB) in its mission to develop UK innovation and competitiveness. Specially customised roadmapping approaches have been developed by the Centre for Technology Management to deliver three pilot roadmaps, each addressing a different perspective on the TSB's future focus. The piloting has served the dual purpose of delivering results and insights whilst also acting as a knowledge transfer vehicle. Over half of the TSB's 75 staff have participated in the workshops, bringing immediate experience of IfM's highly participative workshop approach.

UK growth and productivity

The TSB was established in July 2007, as an executive, non-departmental public body. Its task is to stimulate innovation in those areas which offer the greatest scope for boosting UK growth and productivity. Its vision is for the UK to be seen as a global leader in innovation and a magnet for technology-intensive companies, where new technology is applied rapidly and effectively to create wealth.

Mapping future trends

The TSB has clearly defined criteria for investing in technology, which include the need to deliver impact in addressing significant global market opportunities and the requirement to build on areas where the UK has the capability for development and exploitation. This need to map future trends and drivers, to understand market needs and link to enabling technologies lead the TSB to identify roadmapping as an important tool to help inform future direction for developing and delivering this vision.

Identifying priorities

Although CTM's roadmapping toolkit was initially developed with a technology focus, it has also been applied to strategy development with great success. Given the new focus and fresh team at the TSB the initial pilot was aimed at assisting the re-formed board and executive team to review strategic direction and identify priorities for business processes, resources and initial actions.

A roadmapping workshop in progress

Innovation platforms

The TSB has a number of approaches to identifying important technologies. These include 'innovation platforms', where major policy and societal challenges are the focus for a suite of supporting technologies and other interventions to be developed, and 'underpinning key technologies' which have potential to impact across many areas of market application. Two further workshops had a more traditional 'technology roadmap' flavour, tackling an innovation platform (low impact buildings) and an underpinning technology (bioscience).

Standard process

It is intended that further application of roadmapping will ultimately enable the TSB to populate the whole of this technology/market space. This will be facilitated by the completion of the knowledge transfer process, with a documented set of templates and a standardised set of processes, backed by a final training event.

IfM roadmapping expertise

The IfM was a natural partner for the TSB to choose for its roadmapping project. It has developed and deployed roadmapping in a wide variety of situations to assist companies and whole industry sectors to develop business strategies which link markets and commercial direction with infrastructure, resources and technologies.

If you want to learn about technology and innovation management….

CTM's teaching activities continue to grow, with new courses and new content aimed at all levels of experience. The most recent addition to our portfolio is a two-week Technology and Innovation Management module for the IfM's post-graduate Masters course in Industrial Systems, Manufacture and Management. This module was run for the first time in January. It is a new option within the nine-month course for those students wishing to specialise in technology management. The module draws on CTM's extensive body of research and knowledge of current leading practice, and was enthusiastically received by the students (pictured above).

Other CTM teaching commitments included three days delivered as part of an IfM programme developed for the University of Trinidad and Tobago. This was presented by Rick Mitchell and David Probert in December. The UTT course is a Masters-level programme and many participants have significant industrial experience.

At the end of March we shall be running a programme for the Red Meat Industry Forum, tailored to their context. Our three-day public course in Technology and Innovation Management runs again at Jesus College in mid April. June sees our annual one-week course for Rolls-Royce Manufacturing Engineers, this year extended to welcome delegates from a wider group of companies.

Inter-disciplinary programme praised

The Cambridge Integrated Knowledge Centre (CIKC) successfully passed its first review last November, and received much encouraging comment from an Engineering and Physical Sciences Research Council assessment panel. The CIKC is an adventurous programme, that brings together people from physics, engineering, management and manufacturing at Cambridge University to exploit new science in semi-conducting and display materials.

The technology roadmapping project led by CTM was particularly commended. In the next phase, CTM will be involved in further roadmapping and education activities. There will also be a new project, led by Tim Minshall, exploring the development of skills and capabilities to support firms implementing open innovation.
www.cikc.co.uk

Workshop to present ways to keep track of new technologies

How to keep track of emerging new technologies is the focus of a workshop to be organised by CTM. The event, on February 28 in Cambridge is the third 'Technology intelligence' workshop run by the Centre.

Attendees will learn about the latest research findings and will receive a copy of a workbook devoted to technology intelligence produced by the Centre.

Strategies, tools and techniques

Companies at different implementation stages will present their experiences of setting up technology intelligence activities, including the strategies, tools and techniques they have used, as well as the challenges they have faced.

Networking opportunity

There will be presentations from three different companies, including a multinational organisation. The workshop will be an opportunity to network and exchange information both with researchers and with the other participants.

Technology intelligence and social networks – research collaborators wanted

CTM researchers have identified social networks as one of the key elements underpinning any technology intelligence system. By using intermediaries a company can grow its contact base exponentially, and receive interesting information with minimal resources. However, companies can be overwhelmed by the choices available in this area. Many service providers offer themselves as the intermediary of choice and it can be difficult to decide whom to work with. It is not just a matter of finding the right organisation, but of finding the right person within the organisation.

Practitioner consortium

We are looking for industrial partners interested in this topic who are willing to contribute to further research in this area. The project aims to produce guidance and to establish a practitioner consortium focused on the topic of technology intelligence. We are inviting a small group of senior managers from a range of industry sectors to discuss this new stream of research on the evening of February 27. If you would like to be involved please contact Jo Griffiths (jg393@cam.ac.uk).

Roadmapping used to improve treatment of fractures

CTM is using roadmapping techniques to support the field of orthopaedic trauma surgery for the Swiss-based 'AO Foundation'. The Foundation is a non-profit organisation, committed to improving patient care in the field of trauma and musculoskeletal surgery.

Identifying clinical priorities

The AO Foundation continually seeks to identify clinical problems and to promote innovative concepts for improved fracture treatment. Roadmapping is being used to identify clinical priorities and to support resource allocation for research, development and education activities. A successful first roadmapping session was held in December on the topic of infection. For more information contact Marcel Dissel (mcd35@eng.cam.ac.uk).

Report tackles important questions for the future of Cambridge hi-tech industry

The 2008 issue of the 'Cambridge Technopole Report' has been published. This report, co-authored by CTM's Tim Minshall, provides an overview of the Cambridge high technology business cluster and the challenges and opportunities it faces. This issue focuses on three key questions:

- Should the Cambridge Technopole become part of a wider 'supercluster' linking Cambridge with Oxford and London?
- What is the role of public support for the on-going growth of the Technopole?
- What are the core business and technological strengths within the Technopole, and are these changing?

The report is published by St John's Innovation Centre, with support from the Cambridge Network It is available from:
www.cambridgetechnopole.org.uk or by contacting Tim Minshall (thwm100@eng.cam.ac.uk).

Marketing and selling technologies

CTM has embarked on a new research project, building on earlier work focused on technology evaluation. The new project looks at marketing technologies and especially the process of constructing a successful business case.

The project, entitled 'Marketing technologies' (MTech), has received a lot of interest from industry and a very well attended industrial workshop was held on November 22 in Cambridge. Based on seven in-depth cases in a variety of industries, including automotive, aerospace, pharmaceutical and imaging, it has provided a comprehensive insight into the underlying issues of getting funding for, or indeed selling, new technologies both internally and to customers.

Five-step process

The project has resulted in the development of a five-step generic process to build the business case for new technologies. A key issue is that although many firms have advanced processes set up for conventional product sales, there is little equivalent when it comes to technologies.

Technologies, unlike products, do not always have a clearly established market, with traditional product-market combinations. Instead, the emphasis is on finding the right technology-problem combinations to identify the benefits of a technology. Having identified and selected these areas, constructing a business case is by no means simple, with many stakeholders needing to be involved – and convinced.

Training course planned

The MTech project will lead to a guide for practitioners on how to structure this process and build a successful business case. A training course will also be developed, integrating the findings from CTM's earlier work in this area.

The CTO's role in creating the future

The European Institute for Technology and Innovation Management (EITIM), of which CTM is an active member, continues to grow. The Technical University of Berlin recently joined the group, and the next meeting will be hosted by another new member, the Polytechnic University of Madrid. A PhD student network has now been set up, with the first meeting held in Cambridge in December.

This year's Senior Executive Forum will be in Nice in June. Building on the success of the three previous events, the subject will be *Science to business: The CTO's role in creating the future*. Any CTO wishing to join in, please email David Probert at drp@eng.cam.ac.uk.
www.eitim.org

Technology management research at Cambridge

- Good design practice
- New product introduction collaboration
- Strategic technology management
- R&D project selection
- Software sourcing in manufacturing
- Product planning
- Enhancing creativity in new product development
- Technology management: a process approach
- Technology selection
- Technology evolution in hi-tech firms
- Innovation management in hi-tech firms
- Technology management in software production
- Technology scanning and intelligence
- Strategic make-or-buy
- Industrial make-or-buy decisions
- Sustainability and knowledge management
- Technology valuation
- Technology foresight

People news

Dr Sungjoo Lee (left) joined CTM as a Visiting Scholar in January. She holds her BS, MS and PhD in industrial engineering, from Seoul National University in Korea. After spending six months working as a senior researcher in the Ubiquitous Computing Innovation Center in Korea, she moved to the UK to work as a postdoctoral research fellow for a year. Current and near-future research focuses mainly on: technology intelligence (analysing new technology opportunities), ubiquitous technology management and intellectual property management.

Dr Tae Hee Moon (left) has joined CTM for a year as a visiting researcher. He received his PhD from Yonsei University in Korea. His current research areas include technology management, quality engineering and marketing based on various statistical approaches. Recently, he has become interested in the area of technology financing.

Dr Erik Stam a Research Associate with CTM, has won the Herbert Simon Prize for his paper "Entrepreneurship and Innovation Policy". The prize was awarded in Porto, Portugal, during the annual conference of the European Association of Evolutionary Political Economy.

Technology Management Symposium 2008

This year's Symposium will be on September 25-26 in Downing College, Cambridge. The subject will be the exploitation of new science and technology to create wealth.

Linking particularly to the EPSRC 'Innovation and productivity' Grand Challenge, and our partners in that project, this promises to be our biggest Symposium yet, so early booking is recommended!

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Diary www.ifm.eng.cam.ac.uk/events

Feb		
28	*Technology intelligence: monitoring science and technology developments*	One-day workshop New Hall, Cambridge
Mar		
6	*Strategic roadmapping*	One day course New Hall Cambridge
19	*Innovation & Design Management Club meeting*	Evening meeting Selwyn College, Cambridge
Apr		
8-10	*Technology & Innovation Management*	Three-day workshop Jesus College, Cambridge