

# Technology Management

Quarterly newsletter of the Centre for Technology Management

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UNIVERSITY OF  
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## Innovative ways to achieve growth

*Entrepreneurship, innovation and growth - 7th Annual Technology Management Symposium, Cambridge 12th - 13th July*

There have been some spectacular examples of new business growth resulting from innovation and entrepreneurship in recent years. This year's Symposium explored the technology management background to many such successes, in a variety of industrial sectors.

Speakers working in consumer and industrial electronics, precision engineering, computing, pharmaceuticals, telecommunications, transport and software all shared their experience of business transformation emerging from innovation and entrepreneurship. Both large and small companies were represented, reminding us that creative ideas can be fostered in organisations of any size – given good leadership and encouragement.

### Role of major corporations

Although entrepreneurial success is often associated with high tech start-up businesses, it is clear that major corporations can continuously renew themselves through successful innovation.

The keynote presentations from Philips, Renishaw, ARM, GlaxoSmithKline and Hitachi all provided stimulating, first-hand accounts of how such growth can be generated. The smaller case



study sessions allowed delegates more opportunity to discuss the challenges faced by seven other companies at varying stages of their lifecycle – from start up to the regeneration of a mature business.

Workshops on the last afternoon enabled participants to get hands-on experience of a number of technology management tools and ideas linked to changing their businesses – including cultural change.

The variety of activities involved in running the St John's Innovation Centre in Cambridge were described by the Managing Director, Walter Herriot, as the speaker at the Symposium dinner in Corpus Christi College. The clear message was that when trying to incubate new businesses, you need

to be prepared to turn your hand to all manner of entrepreneurial endeavour!

Professor Thomas Durand from the Ecole Centrale in Paris provided an excellent review of models and analytical techniques for understanding the link between innovation and growth.

### Barriers to growth

He concluded that the barriers to innovation-based growth are not so much technological as psychological, sociological and organisational.

A full account of the proceedings will be published in September. Next year, the Symposium will be on 11 –12 July 2002. Hope to see you there.

# New member Bepak seeking to increase its portfolio of technology

The Centre for Technology Management is pleased to welcome Bepak plc as a new corporate member.

Bepak, with bases in King's Lynn, Milton Keynes and North Carolina, has established a reputation as a leading supplier of drug delivery technologies and services to the pharmaceutical and biotechnology industries.

Bepak products and technologies include pressurised, metered dose inhalers and actuators, dose counters, breath co-ordinated and breath-activated devices, dry powder inhalers and electrostatic atomisation and a range of unit and multi-dose, liquid and dry powder nasal devices.

## Growing portfolio

At the recent Technology Management Symposium in Cambridge, Dr Paul Taylor, Group Research and Development Director, indicated

that: "Bepak is seeking to grow its technology portfolio by in-house R&D, outsourcing, partnering and acquisition, and innovation is an essential component of this technology strategy."

## Challenges

The technology management challenges faced by Bepak include strategic technology planning, investment decisions, technology transfer, management of acquisitions and mergers and the creation of an innovative culture in what is a 'traditional' manufacturing operation.

Membership of the Centre for Technology Management, and the opportunities that this brings for meeting colleagues in other companies and sectors facing similar challenges, provides a platform for supporting Bepak in these areas.

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## Welcome back Claire

Claire Rose has returned to CTM to continue with her research on the NPI Collaborations project after maternity leave. Claire says she is delighted to be back and encourages any companies interested in becoming involved with the project to get in touch.



## New role for Geraldine

Geraldine Chee Güçeri has taken on a new role within CTM. As Research Co-ordinator she will support the Centre's ongoing research projects and play an active role in the organisation of the Technology Management Network. Geraldine has a degree in Management and has worked in marketing for the telecoms industry in Singapore.



## European visitors

Two new visiting scholars have joined the Centre for Technology Management. Xavier Lesage is a first year PhD student from Ecole Centrale in Paris, supervised by Prof. Thomas Durand, a keynote speaker at this year's Technology Management Symposium. His research is focused on European SME's (small and medium sized enterprises) and the necessary conditions required for entering the Japanese market.

Xavier will spend seven weeks at the centre working on his conceptual framework, which is based on resource and competence theories.

Marcel Dissel is a final year PhD student from the University BW Munich. His research topic is centred on the use of Dynamic Capabilities for the reduction of uncertainty in hi-tech environments. In particular he is keen to explore the possibility of using Heisenberg's theory of uncertainty in Quantum Physics as an analogy to his research theme.

Marcel will be visiting until the end of October and plans to continue working on his thesis during this period.

# A comprehensive approach to 'make or buy' issues

The Centre for Technology Management can now offer comprehensive support to companies considering their make or buy situation, from strategy to individual decisions at manufacturing unit level.

David Probert's original research resulted in a publication by the Institution of Electrical Engineers: 'Developing a Make or Buy Strategy for Manufacturing Business'.

## Industrial decisions

More recently the research carried out by Laura Cañez, David Probert and Ken Platts, has been published in workbook form by the Institute for Manufacturing. 'Industrial Make or Buy Decisions' addresses the individual sourcing decisions within a manufacturing unit.

Both these publications contain practical application guides, with case study examples. The Institute also offers a one-day course, based on the two books, which introduces participants to the concepts of make or buy and the application of the methodologies. Together, these two approaches provide the means to completely review a company's long, medium and short term make or buy issues.

## In-house training

Recently, we have been approached by several companies interested in using these methodologies and running the training course in house. In these cases the one-

day course has been extended to include some case study work based on the company's own data.

## Company review

These in-house courses provide excellent preparation for a company to carry out its own make or buy review, ideally facilitated by someone from within the company trained in the methodologies. Recent work has involved companies with factories in the UK, USA and mainland Europe.

Product areas covered include equipment and systems for process machinery, electronic



and electrical control systems.

A series of workshops has been organised that bring together people of all disciplines, but primarily manufacturing and purchasing. The aim is that individual product areas within a business unit will be able to carry out their own make or buy analysis, using a consistent approach that is in line with the business strategy.

## Conference focuses on the boundaries of knowledge

*Living within the limits of knowledge* Central European University, Budapest, 22 - 23 June 2001

This conference had the aim of exploring the limits of knowledge under conditions of increasing social and economic complexity. The event was organised by the ESRC's NEXSUS Network and sponsored by Georg Soros at the Central European University, Budapest. Research on young high-tech firms by Elizabeth Garnsey and Paul Heffernan at CTM forms a part of this inter-university network.

The extent to which knowledge as an emergent property of a system can

exceed the knowledge of participants was explored. For example, the emergence of a new industry requires knowledge widely distributed across different business specialisms. The launch and refinement of pioneering products is made possible by trial-and-error, with firms engaging in "learning networks" or clusters.

Complex dynamic systems thinking is a new paradigm that can help to understand how the limits to knowledge impact on co-evolution processes. The conference highlighted both benefits and problems of applying theories developed in the physical sciences to socio-economic systems.

# 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
- Technology change
- Technology management: a process approach
- Technology selection
- Technology evolution in hi-tech firms
- Innovation management in hi-tech firms
- Technology management in software production
- Strategic management competences
- Strategic make-or-buy
- Industrial make-or-buy decisions
- Sustainability and knowledge management
- Engineering re-use
- Technology foresight

## Conference report

European Institute for  
Advanced Studies in  
Management (EIASM)

8th International Product  
Development Management  
Conference

This conference was held in Enschede, in Holland during June. Supported by the European Institute for Advanced Studies in Management (EIASM), it provides an opportunity for researchers from around the world to update and exchange views on current issues in product development.

This year, collaborative new product introduction was high

on the agenda, with around 25% of the 60 papers investigating issues relating to co-design, co-development and product development within networks.

This reflects the interests of industry, with dispersed and networked product development becoming a growing challenge.

### Performance measurement

The second dominant theme of the conference addressed the role of performance measurement and the determination of success factors for product development.

Three papers were presented by CTM staff, as outputs from current NPI projects:

- 'Assessing co-development relationships' discussed the emergent framework and audit tools being developed to support

effective collaborations during product design

- 'Exploratory studies of a proposed Design Maturity Model' described the generation of a Design Maturity Model and process to support the improvement of product design capability
- 'Patterns of communication around new product development in an emerging business' described a PhD study investigating inter-project communication modes in a local, high technology business

### Positive response

Response to the papers was extremely positive, with two being chosen as possible candidates for a forthcoming 'special edition' of the Journal of Product Innovation Management.

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## Diary

### September

20th	Technology Management Network Forum <i>Creating and protecting value; strategies for implementing innovation and protecting intellectual property</i>	Cambridge
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### October

15th	Technology Roadmapping User Group <i>Using the roadmap on an ongoing basis</i>	Cambridge
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### November

8th	Good Design Project <i>Successful Total Product Design: developing user centred products</i>	London
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