

# Technology Management

The newsletter of the Centre for Technology Management (CTM)

July 2016

## From Science to Society: Innovation and Value Creation

This was the theme for the 2016 R&D Management Conference, held together with the first ever RADMA PhD Colloquium (see inside), from 2 to 6 July in Churchill College, Cambridge. Aspects of this theme were explored by an international community of more than 500 academic and industrial delegates, with activities including keynote presentations, refereed papers sessions, journal editors discussions, workshops and exhibitor demonstrations.

Great interest was generated by the four keynote speakers – who raised current challenges from leading industrial, academic and policy making perspectives:

- **Warren East**, CEO of Rolls-Royce, drew on his extensive experience of running technology intensive businesses (ARM and Rolls-Royce) to discuss the innovation process in the context of 'Making the Future'.



- **Joe de Sousa**, UK/US Product Development Science & Technology Lead, AstraZeneca, presented very interesting and useful insights into the practicalities of managing large scale, leading-edge R&D, with the human factors emerging as items of critical importance. His presentation was titled '21st Century R&D Leadership: The Right Medicine?'



- **Professor David Teece**, from the Haas School of Business, University of California at Berkeley, who is one of the world's top cited scholars in economics and business, gave a fascinating review and update on his thinking in 'Profiting from Innovation in the Digital Economy'.



- **Mark Samuels**, Managing Director, National Institute for Health Research Office for Clinical Research Infrastructure, outlined the challenge of applying business and innovation theory to national health system research.



With 274 accepted papers in the programme, all aspects of the conference theme were explored, with sessions

of particular interest to industrial delegates being included in the programme. There were also industrial panel sessions, where practical experience of dealing with R&D management issues could be discussed in depth. For academic researchers, the 'Meet the Editors' sessions were very popular, with eight different journals being represented, and an opportunity to discuss review processes and get advice on how to improve your chance of getting published with a high-impact paper.

Social events were another conference highlight, providing plenty of networking opportunity with a welcome reception and PhD poster prize-giving on Sunday evening, a 'British pub night experience with punting' on Monday and formal dinners on Tuesday evening in King's College and Peterhouse, the oldest college in the University.

Overall, the whole event was a great success, continuing the growth trend of recent years, reaching a greater number of academic and industrial participants.

A summary video of the fun and stimulation of the conference can be seen at [www.rnd2016.eng.cam.ac.uk](http://www.rnd2016.eng.cam.ac.uk)



### See you next year at Leuven

Now we look forward to next year at Leuven, where the conference will be held from 2-5 July. Titled 'Science, Markets and Society: Crossing boundaries, creating momentum', this already promises to be a great conference, organised and hosted by **Professor Koenraad Debackere** and his team. See you there!

### New website

To coincide with the conference, RADMA has launched a new website: [www.RnDToday.co.uk](http://www.RnDToday.co.uk)

Aimed particularly at people in industry, this aims to



provide practical help in dealing the challenges of managing R&D. RADMA Chairman **Dr Jeremy Klein** introduced the website and invited everyone to comment on, and contribute to, its development.

### Prizes galore!

Prizes at the conference were given in four categories and presented on the back lawn of King's College. The scene was set by a short concert by the King's Men, whose singing covers all ages and geographies!

The **Best Student Poster Prize** was won by **Benoit Tezenas du Montcel**, from Conservatoire National des Arts et Metiers, for 'When digitalization drives supply networks reconfiguration'. The prize was sponsored by BP and The Lego Group, and presented by **Professor Andy Neely**, Head of the IfM.



The **Best Student Paper Prize** was won by **Viktoria Drabe** and **Cornelius Herstatt**, from Hamburg University of Technology, for 'Why and how companies implement circular economy concepts: The case of cradle to cradle innovations'. The prize was sponsored by Wiley, and presented by **Professor Ellen Enkel**, editor of the R&D Management journal.

The **Best Industrial/Practitioner Paper Prize** was won by **William Wilby** and **Christopher Turner**, from Thales, for 'Business case earned value management'. The prize was sponsored by BP and presented by **Alex Quayle**, Technology Development Leader at BP.

The **Best Academic Paper Prize** was won by **Jouni Juntunen, Minna Halme, Angelina Korsunova** and **Risto Rajala** from Aalto University, for 'Powering sustainable innovations: Strategies for collaborating with deviant partners'. This was sponsored by BP and presented by **Professor David Teece**, Berkeley Research Group Chairman.

### Dinners, speeches and social events

The conference dinners in King's College and Peterhouse were both very enjoyable occasions. Set in the contrasting styles of the two great dining halls, delegates were entertained by the after-dinner speakers.

**Professor Sir Mike Gregory**, IfM founder, spoke of the origins and international nature of Cambridge University and the importance of linking education, research and practice through science, engineering and economics working together. **Professor Rick Mitchell** provided an informative, entertaining and appropriately irreverent overview of the origins of the University and its journey from Oxford University 'spin-out' to earning its place as one of the world's leading centres of scholarship, learning and innovation.



### British Pub night

The conference took over the Granta pub on the river Cam for a barbeque on the night of Monday 4 July. Delegates enjoyed the opportunity to chat, network and relax on a chauffeured punt along the banks of the colleges.

The weather was kind, and for many it was the first time on a punt. Some even tried their hand at punting – which always means getting a bit wet, even for experienced punters!



### RADMA PhD Colloquium

The first RADMA PhD Colloquium preceded this year's R&D Management Conference on 2-3 July. From over 60 applications, 30 students from 14 different countries were selected to attend the two-day event, which took place at the Institute for Manufacturing.

The Colloquium was designed to complement existing training courses for PhD students to stimulate in-depth discussions on the students' research projects in small group settings.

The first day comprised a group-building exercise where participants had to communicate their research using a self-built LEGO artefact. The session was followed by an inspirational talk by **Professor Steve Evans**, head of the IfM's Centre for Industrial Sustainability. Steve encouraged participants to consider not only the economic and managerial implications of their research, but also the wider social and ecological consequences. The afternoon saw self-facilitated group and one-to-one paper review sessions, which students found very useful. The day ended with an exercise led by **Judith Shawcross** where students had to design a packaging system to allow drone deliveries of highly fragile goods. This was followed by a relaxed barbeque festival in the IfM garden with live music from two local musicians.

On day two, an industrial leader challenged each group of students on the implications of their projects for industry and society. The second session of the day brought together Cambridge's three Royal Academy of Engineering Visiting Professors of Innovation for a panel discussion - **Pieter Knook, Rick Mitchell** and **Sam Beale**. In the afternoon, students mixed up again in different groups for a session tutored by senior academics to discuss their research approach and methodology. The Colloquium finished with the Best Student Poster Prize ceremony.

During the Conference reception, PhD Colloquium participants were invited to leave comments on a LEGO brick and build a LEGO wall together, 'standing on the shoulders of giants' (i.e. the next generation academics).

Thanks to the support of a large team, extensive contributions from 16 external speakers, panellists, industrial and academic tutors, the Colloquium was very successful. We would also like to express our gratitude to RADMA and ThyssenKrupp for supporting the Colloquium.

### More Conference highlights

#### STIM Industry Panel

The STIM Industry Panel session provided an opportunity to share industry experience and challenges from a range of sectors, as a prompt for comments, questions and discussion with an audience of about 60. Three topics were raised by **Dr Bekir Özyurt** from Beko, **Dr Jon Salkeld** from BP and **Mike Bean** from Syngenta: evaluation of early stage technology, reconciling agile with stage gate processes, and 'collaboration 2.0'. STIM (Strategic Technology & Innovation Management) is a collaborative research and networking programme. The launch meeting for STIM 2018 is scheduled for 17 November. For more information contact **Rob Phaal** [rp108@cam.ac.uk](mailto:rp108@cam.ac.uk)

#### Roadmapping at LEGO

**Clive Kerr** and **Kasper Thams** from The Lego Group jointly presented a paper reporting the Group's experiences of using S-Plan and how it was customised to better fit the task and organisational setting. Kasper highlighted the problems faced by users when deploying roadmapping and shared 'lessons learned' from the company's perspective.

#### Visual Methods seminar

At the R&D Management Conference, **Clive Kerr** and **Ananya Singhal** (Secure Meters) jointly delivered a seminar on visual methods.

Clive outlined the fundamental principles underlying the use of visualisations and provided practical guidance on how to deploy them in an organisational context. Ananya presented real examples of how visual methods and approaches are used to gain insight and address key challenges in industry. Examples included portfolio dashboards and depicting HR strategic action plans.

#### Embedding Roadmapping workshop

Roadmapping is an effective method for supporting strategy and innovation, but firms often struggle to sustain and embed the process. This session aimed to explore these challenges.

**Clare Farrukh** gave an overview of the related STIM Consortium project and early outputs from the development of a maturity model for roadmapping practice. **Sven Schimpf** (IAO Fraunhofer Institute, Stuttgart) reviewed the results of his recent survey on the usage of roadmapping and support software in industrial companies in Germany.

There was then a discussion and post-it session to reflect upon the presentations in the light of Embedding Roadmapping.

#### Creating impactful management tools and processes workshop

Attended by both academics and industrialists, this workshop provided delegates with an understanding of how practical and impactful tools and processes can be developed from management research, as well as an opportunity for delegates to share their experience. At the core of the IfM approach is the combination of:

- 1) a framework to help define and scope tools and processes developed from university research,
- 2) the procedural action research methodology for

developing the tool or process, and

3) the role of intermediaries (IfM ECS) in facilitating the transformation of raw research output into practical and impactful tools and processes.

For more information contact **Dr Imoh Ilevbare** [imi22@cam.ac.uk](mailto:imi22@cam.ac.uk)

#### Sustainable Value Roadmapping workshop



The workshop introduced the Sustainable Value Roadmapping Tool (SVRT), bringing together technology roadmapping and sustainable value analysis to integrate all dimensions of sustainability into strategic innovation thinking. The session ran very smoothly in an enthusiastic atmosphere. Workshop participants challenged themselves to find value opportunities across all stages of the life cycle of a product for social and environmental benefits while ensuring the economic profitability, using a fictional chocolate manufacturer as a case study. Feedback was highly positive, with strong recommendations to disseminate far and wide and two follow-up sessions requested by some of the participants.

#### We Welcome...

**Dr Thomas Bohné**, who joined the CTM in April. His research focuses on how human capacity and technology can be combined in new ways to create solutions that can make a significant contribution towards a better future.



Thomas holds a PhD from the University of Cambridge's Department of Engineering, MPhil from Cambridge Judge Business School, and MLitt from the University of St Andrews. He has been a Visiting Fellow at Harvard University and has held positions at the University of Auckland and RWTH Aachen University. He has also worked for a diverse range of organisations in education, investment banking, venture capital, consulting, pharmaceuticals and retail. As part of his research, he continues to work closely with a wide range of public and private organisations.

#### 3rd Strategic IP Forum

The third Strategic IP Forum took place at the IfM on 24 May and was attended by more than 50 delegates. This Forum focused on 'Organizing for IP exploitation' and was a great success. It featured four excellent talks by **Stephan Wolke**, CEO at ThyssenKrupp, **Annie Brooking**, CEO at Bactest, **Ian Anderson**, Innovation Director at Bepak and **Ian Harvey**, former CEO at BTG Plc, followed by a panel discussion

Watch out for the fourth SIPF towards the end of the year!



# 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
- Intellectual property management
- Strategic make-or-buy
- Industrial make-or-buy decisions
- Sustainability and technology insertion
- Technology valuation
- Technology foresight

## New publications

Foege, J. N., Lauritzen, G. D., Tietze, F., & Salge, T.-O., (2016), 'What is mine is yours, or is it? Exploring solvers' value appropriation strategies in crowdsourcing contests', Paper presented at the R&D Management Conference, Cambridge.

Ford, S.J. and Despeisse, M., (2016), 'Additive manufacturing and sustainability: an exploratory study of the advantages and challenges', *Journal of Cleaner Production*, In Press [www.sciencedirect.com/science/article/pii/S0959652616304395](http://www.sciencedirect.com/science/article/pii/S0959652616304395)

Ford, S., L. Mortara, and T. Minshall, (2016), 'The Emergence of Additive Manufacturing: Introduction to the Special Issue', *Technological Forecasting and Social Change*, 102:156-159.

Granstrand, O., & Tietze, F., (2016), 'IP strategies for evergreening of sequential innovations', Paper presented at the R&D Management Conference, Cambridge, UK.

Lauritzen, G. D. and Karafyllia, M., (2016), 'How to Control Openness in Firm and Community Collaboration? Innovating through Paradox', *The Proceedings of the 23rd Innovation and Product Development Management Conference*, June 12-14.

Pieper, T., Tietze, F., Schultz, C., & Herstatt, C., (2016), 'To share or not to share – Exploring the impact of sharing behavior on user innovativeness', Paper presented at the R&D Management Conference, Cambridge.

Srai, J.S, Kumar, M., Graham, G., Phillips, W., Tooze, J., Ford, S.J., Beecher, P., Raj, B., Gregory, M., Tiwari, M.K., Ravi, B., Neely, A., Shankar, R., Charnley, F. and Tiwari, A., (2016), 'Distributed manufacturing: scope, challenges and opportunities', *International Journal of Production Research*, In Press [www.tandfonline.com/doi/full/10.1080/00207543.2016.1192302](http://www.tandfonline.com/doi/full/10.1080/00207543.2016.1192302)

Thiesse, Frédéric, Marco Wirth, Hans-Georg Kemper, Michelle Moisa, Dominik Morar, Heiner Lasi, Frank Piller, Peter Buxmann, Letizia Mortara, Simon Ford, and Tim Minshall, (2015), 'Economic Implications of Additive Manufacturing and the Contribution of MIS', *Business & Information Systems Engineering*, 57 (2):139-148.

Tietze, F., & Hansen, E., (2016), 'To own or to use? How product service systems facilitate eco-innovation behavior', *CTM working paper series*, (2016/04). Cambridge, UK.

Tietze, F., & Lauritzen, G. D., (2016), 'IP challenges in multi-partner collaboration', *PARTNER - Institute for Collaborative Working*, 90-91.

Yip, M.H., Probert, D.R. and Phaal, R. (2015), 'Characterising product-service systems in the healthcare industry', *Technology in Society*, 43, pp. 129-143.

## Diary 2016

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

### September

16	<i>EITIM IP Management Teaching Workshop</i>	One-day workshop IfM, Cambridge
20-21	Realising the Potential of Early Stage Technologies	Two-day course IfM, Cambridge

### October

11	<i>2016 STIM Consortium Programme Roadmapping Open Forum</i>	Open event fM, Cambridge
12	Strategic Roadmapping	One-day course IfM, Cambridge

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