

NANOTECHNOLOGY: MAKING THE LEAP TOWARDS COMMERCIALISATION

An India-UK workshop for nanoscientists to explore opportunities and routes to commercialization

Organizers:

- British Council
- Institute of Physics, UK
- Venture Center, NCL Innovation Park, Pune
- National Chemical Laboratory, Pune

Corporate sponsor:

- Reliance Industries Limited

Workshop objectives:

- Inspire and encourage Nano-scientists to translate research into products for end-users
- Enhance understanding of the process to take scientific ideas through to market products
- Provide a forum to explore opportunities for product innovation
- Document key processes and develop a road map for commercialization of intellectual property

Workshop dates:

- 7 – 10 January 2008

Structure & format:

- Workshop format including
 - Talks
 - Group discussion and exercises
 - Films and visual presentations
 - Public lectures

Participants profile:

- Researchers working in the nano/micro area. In particular, (nano/micro-) material development, fabrication and processing, and development of new measurement tools, applications and devices.
- Researchers with high quality research publications and having a track record for generating, or potential to generate, intellectual property in Nanoscience during their research career.
- Those holding regular staff or faculty positions in academic or research institutions or working in R&D centres in corporate institutions. Outstanding post-doctoral researchers will also be considered.
- Those with some exposure to projects with industry or having an interest and awareness of commercialization success stories. However, it is not expected that they will be familiar with nuts-and-bolts of commercialization.

Schedule:

| Date | Session | Time | Topic | Min | Speaker |
|----------------------|---------|------|---|-----|---------|
| DAY 0 | | | | | |
| 6 Jan 2008 Monday | | | | | |
| | | 0730 | Dinner <ul style="list-style-type: none"> Garden Court (Dinner hosted by Les Dangerfield, British Council) | | |

Venue: Venture Center, 100, NCL Innovation Park, Dr Homi Bhabha Road, Pune - 411008

| Date | Session | Time | Topic | Min | Speaker |
|----------------------|---------|-----------|---|-----|----------------|
| DAY 1 | | | | | |
| 7 Jan 2008 Monday | | | | | |
| | | 0900 | Start of day | | |
| | 1 | 0900-0940 | Inaugural session: <ul style="list-style-type: none"> Lighting of the lamp Welcome & goals (Manjula Rao, British Council) Les Dangerfield (on behalf of British Council) Dipali Chauhan (on behalf of IOP) Amit Biswas (on behalf of Reliance Industries Limited) Introductions: Outline and plan; Speakers; Participants. | 40 | |
| | 2 | 0940-1030 | Tentative title: Translating laboratory science to technology and then to products: Indian context and issues | 50 | S. Sivaram |
| | | 1030-1100 | Tea | 30 | |
| | 3 | 1100-1230 | Finding markets for emerging technologies | 90 | Tim Harper |
| | | 1230-1330 | Lunch | 60 | |
| | 4 | 1330-1430 | Case Study 1: Oxonica | 60 | P. Dobson |
| | 5 | 1430-1530 | Case Study 2: Iota Nanosolutions Talk title: Commercializing Nanotechnology - Practical Observations from "Start Up" on | 60 | Andrew Elphick |
| | | 1530-1600 | Tea | 30 | |
| | 6 | 1600-1630 | Introduction to Group Session 1: Identifying, defining and evaluating opportunities for commercialization. Thinking through science ideas for commercial potential Movies: Opportunity. Product development | 30 | Premnath V |
| | 7 | 1630-1745 | Group Session 1: <ul style="list-style-type: none"> Picking an interesting scientific idea. Conceiving/identifying/ defining a product. Identifying customers and/or end-users Defining the value proposition (problem/ need and solution approach). Defining existing and competing solutions. Their strengths and weaknesses. Defining outstanding features of your solution. Describing technology that makes it possible. Understanding nature of technology (platform or not; can stand alone or not; small part of big puzzle etc) Understanding the market size, growth potential, segments etc (5 teams of 5 each working on five different ideas.) | 75 | Facilitators |
| | 8 | 1745-1820 | Movie: Infinite vision (A case of successful social entrepreneurship from India) | 35 | |
| | | 1820 | End of day | | |
| | | 1930 | Dinner: P ride Executive | | |

| Date | Session | Time | Topic | Min | Speaker |
|-----------------------|---------|------------|---|-----|---|
| DAY 2 | | | | | |
| 8 Jan 2008 Tuesday | | | | | |
| | | 0900 | Start of day | | |
| | 9 | 0900-1030 | Tentative title: An overview of technology commercialization. Aspects important in the commercialization of nano-science/technology. | 90 | D. Secher |
| | | 1030-1100 | Tea | 30 | |
| | 10 | 1100-1230 | Different routes to commercialization: Conventional licensing, start-up companies, and strategic partnerships. | 90 | P. Dobson |
| | | 1230-1330 | Lunch | 60 | |
| | 11 | 1330 –1430 | Nanosafety: the concerns and the actions | 60 | P. Dobson |
| | 12 | 1430 –1530 | Question – answer session on sources of finance around movie clips: <ul style="list-style-type: none"> • Movies: Bootstrapping, customer funding, angels, venture funds • General categories and their preferences • Global trends • Scenario in India | 60 | Tim Harper David Secher Peter Dobson Andrew Elphick S Raghu V Premnath Mahesh Patel |
| | | 1530-1545 | Tea | 15 | |
| | 13 | 1545-1600 | Introduction to Group Session 2: What is the best route for taking laboratory science to the market? Strategies for gaining sustainable competitive advantage. Charting out key success factors, major risks, and milestones towards along the project and time lines. Movie – Routes, Entrepreneurship | 15 | V. Premnath |
| | 14 | 1600-1730 | Group Session 2: <ul style="list-style-type: none"> - Understanding the industry structure and competitive forces - Understanding the value chain, players and fit. - Understanding IP and regulatory barriers and costs. - Understanding career goals, motivation and risk propensity of team members - What are the sources of sustainable competitive advantage in your project? - What are the key success factors? What are the key risks to be managed? What will be the strategies to manage those risks? - Chart out milestones and time lines. - Some time to synthesize everything into 5-7 slides/10 minutes presentation. <p>(Same 5 teams of 5 each continue on ideas from Workshop 1)</p> | 90 | Facilitators |
| | 15 | 1730-1745 | Movie clips: Patents and licensing | 15 | |
| | | 1745 | End of day | | |
| | | | | | |
| | | 1930 | Dinner <ul style="list-style-type: none"> • Royal Maratha | | |

| Date | Session | Time | Topic | Min | Speaker |
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| DAY 3 | | | | | |
| 9 Jan 2008 Wednesday | | | | | |
| | | 0830 | Start of day | | |
| | 16 | 0830-1000 | <ul style="list-style-type: none"> Introduction to Patents Patents: Process and strategies for licensing and commercialization | 75 | Hasit Seth |
| | 17 | 1000-1045 | Patents and patenting strategies | 45 | Kunal Sharma |
| | 18 | 1045-1100 | Case Study 3: ShayoNano Singapore Pte LTd | 15 | Maresh Patel |
| | | 1100-1130 | Tea | 30 | |
| | 19 | 1130-1230 | Invention to Product: Time-lines and Process-lines | 60 | S. Raghu |
| | | 1230-1320 | Lunch | 50 | |
| | 20 | 1320-1445 | University Science and Technology Transfer: The Difficult Facts and Some Creative Solutions | 85 | Gerry George |
| | | 1445-1515 | Tea | 30 | |
| | 21 | 1515-1630 | Group Session 3: Group presentations by each team (7 min elevator pitch with 3 min discussion). Analysis and sum-up. | 75 | Participants, speakers and organizers. |
| | 22 | 1630-1700 | Final words. Workshop closure (including an evaluation form) | 30 | |
| | | 1700 | End of day | | |
| | | 1705 | Leave for dinner venue Venue: Chokhi Dani (http://www.chokhidhanipune.com/) | | |

Parallel NCL event:

9 Jan 2008; 10-11 am; Biochemical Sciences Lecture Hall, NCL; First seminar of the NCL Technology and Entrepreneurship Club (Student Club) -----> Talk by Prof David Secher titled "**Technology Transfer - some trends in the UK and USA**".

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| DAY 4 | | | | | |
| 10 Jan 2008 Thursday | | | | | |
| | | 1100-1130 | Tea | 30 | |
| | 24 | 1130-1245 | Inventing Entrepreneurs: Technology Innovators and their Entrepreneurial Journey. (Including a Pune release/announcement of new book) Venue: NCL Auditorium | 75 | Gerry George |
| | | 1245-1400 | Lunch for participants and speakers Venue: Third floor conference room, NCL main building | 75 | |