IITB-Monash Research Academy
An Indian-Australian Research Partnership

A Joint Venture Research Academy...

www.iitbmonash.org
Any research partnership has to be seen as a win-win for all stakeholders:

– Students/post-docs,
– research faculty,
– industry,
– the institutions,
– the countries
The Australian Context

- Two-way Australia-India has grown substantially from $3.3b in 2000 to more than $20b in 2011 but remains narrowly based: resources (coal, gold and copper).

- The Australia-India Comprehensive Economic Cooperation Agreement is set to broaden the relationship and deliver more than $43b in real GDP and $33b in real consumption to the Australian economy over 20 years.
The India Story…

- R&D expenditures in India by MNCs increased from INR 2860m in 2002 to INR 28,830m 2010 (~$570m).
- The share of MNC R&D expenditure in India grew by 20% in the period 2000-2009.
- Number of R&D Centres grew from 100 to about 1350 in the 10y period from 2000.
- >800 MNCs have R&D centres in India.
- For many of these the India R&D centre is their largest outside Europe/USA.
- India is currently drawing 25% of global R&D investments.
- Much of the R&D is r&D, maybe. But when that changes (and it will) where will we be, if we do not engage?
The India Story (cont’d)

• Today 60% of the world’s leading product/OEM companies are sourcing part of their technology needs from India.
• ~30% of the top 1000 R&D spenders have a presence in India.
• India also has the highest number of US FDA-approved production facilities in the world.
• Over the next decade, India’s R&D sector is expected to undergo major changes as the Indian Government scales up public investments into S&T.
• The recent successful Mars mission showcased India’s ability in technological projects of massive scale and has attracted international attention.
Australia and AISRF

• AISRF is Australia’s largest bilateral program.

• Over 10y, more than $60m has been invested in the AISRF and recently it has been extended for another 5y.

• *There has to be a corresponding change in emphasis in universities from a focus on student recruitment to research collaborations.*

• *This is how we create win-win.*
So... Why India?

• Scale...
• Demographic dividend...
• Growing middle class that need their aspirations met...
• Access to new markets...
• Talent: the better-cheaper-faster leverage...
• India is a country that is in a terrible hurry...
India’s opportunities/challenges

- Education: 1% increase in GER = ~15m more need to be educated/year,
- Rapid urbanisation,
- Accelerated technological change (leap-frogging),
- Globalisation,
- 300m Indians will migrate from rural areas to cities in the next 10y-20y (the largest migration in peacetime).
- So, 100 new cities with new infrastructure!
- Innovating for rapid technological change also requires low-cost market entry for new technologies so that the cost of failure is minimised.
- India offers a wonderful platform for this purpose.
- Several US venture capital funds are in India.
The research opportunity, though...

• different
  – research: MLM
  – products
  – markets
  – needs
  – problems
  – impact
Why should you engage?

• Over the years, I was asked “Why is Monash investing on The Academy?” much more than “Oh! So you want our students!”

• You engage for
  – Reputation/image
  – impact
  – Networks

• Not just for student recruitment.

• India requires a nuanced/layered approach
IITB-Monash Research Academy: Journey

Monash
- Developed India Strategy in 2005-6:
  - HDR/PhD level only,
  - In partnership with the best Indian Institution,
  - Must be not-for-profit, independently structured entity,
  - Highly inter-disciplinary and industry-facing,
- Attract the best students,
- Invest (grant) funds into the entity.

IITB:
- Visited by >200 delegations every yr
- Nearly one delegation/day.
- Several MOUs signed.
- Wanted:
  - a deeper institution-wide engagement,
  - strengthened industry interactions,
  - inter-disciplinary research.

2005-6

2007
- Monash Council approves strategy

2008
- IITB Board of Governors approves the collaboration
- Academy is formally Inaugurated. First student admitted.
- 4 years to reach stability and a firm footing

2012

2017
- Steady state target:
  - ~250 PhD students.
  - Partnership has to be seen as a win-win for all:
    - students
    - professors
    - industry
    - the 2 Institutions
    - the 2 countries

Current status:
- ~200 PhD students
- 60 students have graduated
- 20 more have ‘completed’
- 50% students in industry
- several high-quality publications
- nine industry partners
- a few more partners likely to sign up

Monash Council approves strategy

IITB Board of Governors approves the collaboration

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The Academy: Design Principles

- The IITB-Monash Research Academy ("The Academy") is a joint venture between two of the world’s leading institutions.
- The Academy is a not-for-profit, Section 25 (now Section 8), autonomous, independent entity.
- The Academy aims to engage with Industry in addressing "Grand Challenge funding" and "long term commitments" as opposed to "project based" funding.
- The Academy has its own building on the IITB campus at Powai, Mumbai.
- Current strength: ~200 PhD students
- At a steady-state, The Academy expects to have between ~240 PhD students.
- SCALE was always important...
- PhD level only (initially) where each student is jointly-guided.
So, what IS it?

A large-scale, cross-country, international research collaboration that is strongly focused on applied, industry-relevant, inter-disciplinary, use-inspired research.

…on problems that need to be solved and not on problems that can be solved.
Project as the vehicle

• Focus on the project ensures
  – Faculty collaboration,
  – Industry engagement,
  – Student attachment,
  – Student selection,
  – Multi-disciplinary approaches,
  – Outcomes orientation,
  – Problems that NEED to be solved as opposed to problems that CAN be solved.
Project is the vehicle (problems that need to be solved)

Industry suggests projects that they'd like to carry out.

Students apply to projects.

Project drives multi-disciplinary research.

Drives and defines collaboration.

Project before student.

Project at the core (start).
Academy Students...

• PhD students:
  – Gain qualification from two institutions (IITB-Monash).
  – Receive generous scholarship that will be competitive with starting salaries for graduate engineers and scientists.
  – Take advantage of world-class facilities and resources.
  – Benefit from (at least) dual supervision.
  – Obtain a truly global qualification.
  – On completion, have access to employment opportunities with sponsors of their research project.
  – Have the opportunity to spend some of their PhD tenure in Australia at Monash and with their project sponsor institution.
First of a kind…

• The IITB-Monash collaboration is a first of its kind in the world.
• Constantly visited by some of the best institutions in the world.
• Most of whom ask, “Why?” and “Was this easy?”
• We are not aware of any other similar collaboration in the world of this scale.
Is it all rosy?

- India is a difficult place to engage with,
- Patience is the best virtue,
- It will be 2 steps forward, 3 steps back,
- Patronising tones will end the engagement,
- There will always be a committee to form a committee to form a committee to…,
- In China, everyone will look to the Chair; in India, everyone in the committee needs to sign on for things to move,
- This is not me grabbing a trumpet, but in India, the person that runs things is as important as what it is!
- “No point in using stairs. You need a helicopter.”
- The prodigal son will return,
- The NRI syndrome!
Key challenges/concerns

- Strong continued leadership
- New building and how that integrates
- Mismatched expectations
- Managing and working with ‘dissatisfaction’ amongst key stakeholders (students, guides, industry, JV partners)
- Government funding
- Two-way flow of students is hard
- Lack of “untied” funds except from Monash
- Extending: Masters programs, etc
Conclusions…

• The IITB-Monash Research Academy is certainly a world-first.
• It is no longer an experiment.
• With increasing ability to attract industry, this is proving to be a sustainable business model too.
• We need many more such partnerships to thrive and produce talent in the national innovation system.
Questions / Comments...