Driving Research to Impact: Adaptive Innovation™ Approach

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• How to help scientists drive research assets to impact?
• The next ware of economic growth globally will be lead by innovation and entrepreneurship.
• Our thesis is that academic research can be a significant driver of the “knowledge-based economy”.
Historic View

Undesired Outcome:
Research fails as a driver for economic development

- Academic research is not intended to address short-term market needs
- Investors reluctant to take risks
A world class research institution surrounded by an entrepreneurial ecosystem that can harvest and monetize the results of its research

Kauffman Foundation Report – Revenue USD 2T

Deshpande Center for Innovation and Entrepreneurship – a key element in this MIT ecosystem “Providing market/customer driven information and mentorship to the research team”.

*Entrepreneurial Impact: The Role of MIT (Published 2009)
Innovation Desphande Centre Focus on T = -1 Phase

Critical Element : Focus on T=-1 Phase

**Business Conceptualization Phase**
- Deshpande Center Model
  1) De-risk technology
  2) Go-to-market strategy
  3) IP Strategy

**Formation Phase**
- Seed VC Funds
- Accelerators
  1) Form company
  2) Form management team
  3) Initial funding and product development

**Growth Phase**
- Product sold by efficient organization
  1) Larger VC’s
  2) Organizational focused CEO’s

**Academic/Research Centres**
- GRANTS
- PAPERS
- ADVANCES IN SCIENCE

**Marketplace**
- GOODS
- SERVICES
- JOBS
- ECONOMIC DEVELOPMENT

**Pipeline**

T= -1
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T= 0
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T= +1
Innovation Strategy (Adaptive Innovation™)

Idea Emerge from Academic Research

SELECT (review by VCs and Entrepreneurs)

DIRECT (Catalysts, iTeams, Bootcamps)

CONNECT (to Markets and Financing)

New Company Formation

Company Growth Impact

Entrepreneurial Networking
SMART – Operational Plan

1. Bootcamp
   - IHL Research Staff

2. i-Teams
   - NUS, INSEAD, SMU

3. Catalysts

Select
- Innovation Grant
- Adaptive Innovation™

Direct
- International & Local
  - Entrepreneurs
  - Investors
  - Accelerators
  - Government programs
  - CEO pool

Connect
- Company Formation
- Promoter/Interim CEO
- Start-up development
- CEO & Staff Recruitment
- Licensing Office

Patent strategy, filing and prosecution

Networking Events/EmTech

Seed Funding
- Angel POV TIS

Series A, B Funding
- VC Funding
Opportunity Matrix

What can it do

Brainstorm possible commercial applications. Don’t be afraid to speculate
Case Study: Brontes Technologies

• Professor Douglas Hart came to MIT in 1992, Dr. Janos Rohaly his post-doc joined in 1996. Were searching for image processing technology to optically measure fluid flow (Microfluids Laboratory).

• 2002 found a way to record images 1000 times faster, which evolved into technology capable of converting 2D camera images into technology capable of measuring objects in 3D. However, not sure of commercial application...maybe industrial 3D imaging.
Case Study: Brontes Technologies

Market Opportunities Under Consideration

- Medical – Oncology
- Industrial measurement
- Video games
- Cosmetic surgery
- Facial recognition
- Quality Assurance – Inventory
- Dental
- Rapid Prototyping
- Biology – microscopy
- Film – Omnimax
- Endoscopy
- Quality Assurance – Packaging, Food
- Facial expression recognition
- Forensic
- Computer human interface
- Archiving – museums, animals, collectables
- Autonomous navigation
- Topographical Mapping - underwater, land
- Robotic Feedback
- Custom apparel, hairstyles and clothes
- Sports
- Architectural Planning
- Virtual meetings
- Cloning
- Consumer still imaging
- Consumer video
Case Study: Brontes Technologies

• Team discovered the “Sexiest” areas including face recognition and medical applications were either too small or too fragmented for a large development effort.

• Next focused on machine vision – but the industry is characterized by small companies chasing niche applications.

• Eric had appointment with family dentist and started to question him on problems dentists face and what bothers patients.

  Dental impressions
  • Uncomfortable for patient
  • Time consuming
  • Expensive and too inaccurate

  July 2003: refocused on dental impression market
  ➢ Dental impression market: 50M implants/year USA; 150M implants/year Worldwide → $2.5B/year
  ➢ 160,000 dentists in USA: highly entrepreneurial professionals
  ➢ Dentists save $25,000/year while improve experience of patient
Case Study: Brontes Technologies

2002  Deshpande Grant

Jul 2003  Focused on Dental Impression Market

2004  Raised $3,000,000 Seed Capital

2005  Raised $5,000,000 Series A

Oct 2006  Beta system tested in local dentist offices
  - Commitment for $25,000,000 Series B
  - 5 bids for Acquisition

Selected Acquisition by 3M for US$95,000,000
Case Study: Brontes Technologies
Outcomes for SMART Innovation Centre

- 15 companies launched
- 22 companies in pipeline
Critical Success Factors for Faculty and Researchers

1. Seek “Peer Mentoring”: Catalyst, iTeams, and Mentors.

2. **Adaptive Innovation™** is an important template. Allow pivoting as the go-to-market strategy evolves due to real market and technical data.

3. One must simultaneously address technical and market risk to find a product/market fit ...it is a “contact sport”. (Don’t be afraid to step out of comfort zone).

4. Networking is required across the innovation ecosystem.

5. Involving Post Docs and Graduate Students is key to venture creation teams.

   (Kauffman Foundation Report)
Driving Research to Impact: The “MIT-Deshpande” Way

- Adaptive Innovation™ Innovation Grant Program
- Catalyst Programs
  - Innovation teams(iTeam)
  - Bootcamps
  - Networking

Academic Research

Grants

Corporate Sponsored Research

Market Place

- Angel Investing
- VC Funding
- Corporate Licensing