

TECHNOLOGY TRANSFER:

Challenges, Opportunities & Successful cases in INDIA

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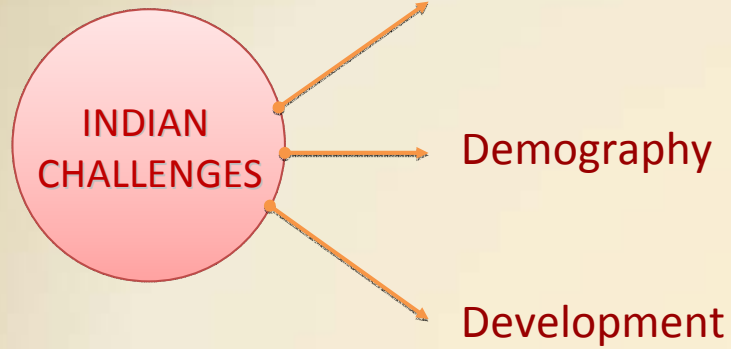
November 03, 2011 Hanoi, Vietnam

Challenges ...



Poverty
Hunger
Environment
Violence
Wars
Security, etc.

Challenges ...



Challenges ...

At Universities

- University - Faculty - Industry
Co-ordination / Collaboration

- Old Mindset
 - Education
 - Research
 - Knowledge Dissemination

Challenges ...

At Universities

- Ownership and Revenue sharing clarity
- Funding for continuous R&D
- Cumbersome procedure in securing Funds
- IP Development Time
- Industries' willingness to commercialise IP
- Government Interaction and Support

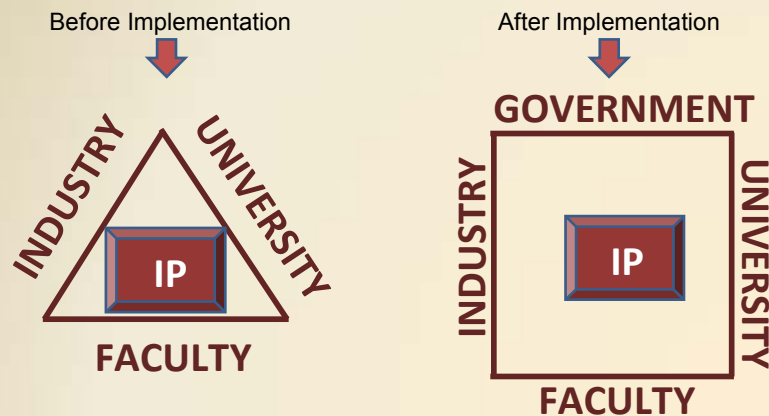
Government Efforts...

Protection and Utilisation of Public Funded IP Bill - 2008 (INDIAN improved Bayh Dole Act)

Act proposed with study of various models , acts, practices in countries like USA, UK, Korea, Finland, Ireland, Japan, EU, Spain, Switzerland ,Denmark.

Government Efforts...

Protection and Utilisation of Public Funded IP Bill-
2008 (INDIAN improved Bayh Dole Act)



Government Efforts ...

- National Innovation Council (NInC)
- National Knowledge Commission (NKC)
- National Knowledge Network (NKN)
- National Commission on Libraries
- National Science & Engineering Research Board
- National Skill Development Mission
- National Skill Inventory and National Database of Skill Deficiency Mapping

Government Efforts ...

- New : 8 IITs, 7 IIMs, 10 NITs, 3 IISERs, 20 IIITs, 2 SPAs
- 16 New National Universities & Multidisciplinary education systems introduced
- 14 innovation Universities
- 32 IP Facilitation Centres, especially for MSMEs
- Education Expenditure of US\$ 54 Bn (four folds)

Technology Business Incubation Unit (TBIU), I.I.T. Delhi...

- Established in 1999/2000 at IIT-Delhi
- Administered by FITT
- Infrastructure & Business/Networking Support
- Innovativeness of Technology as core of the Venture
- Student-Faculty led start-up companies preferred
- Technology Driven incubation proposals from Budding Entrepreneurs (including Non-IITians) are also considered
- 14 companies incubated till date

Technology Business Incubation Services...

Help with business basics	• Research & library support
Networking activities	• Links to strategic partners
Marketing assistance	• Business training
High-speed internet access	• Mentorship support
Accounting help/support	• Technology commercialization
Access to seed assistance	• Help with regulatory compliance
Access to angel investors	• IP management
Venture capital facilitation	

Incubating Units at TBIU- IIT-Delhi...

Incubating Unit	Technology area	Faculty
Sunurja Systems	Energy efficient Inverters	Dr AK Agarwala, IDDC
Leadinvent Tech.	Bioinformatics tools	Prof B Jayaram, Chy
Appin Security Solutions	Software engine for vulnerability scanning of digital assets	Prof SK Gupta, CSE & Prof SK Jain, DMS
CarePro Biotech	Agri-biotechnology	Prof VS Bisaria, DBEB
EnNatura Technology	Eco-friendly printing inks	Prof AK Bhaskarwar Chem
Innovative Transport	Innovative Traffic Eng solutions	Prof D Mohan & Dr G Tiwari, TRIPP
Faros Technology	Auto simulators	Prof S Mukherjee, DME
AON	Garments with wellness properties	Prof ML Gulrajani, DTT et al
Global Motortech	Motor design / analysis software	Prof KR Rajagopal, DEE
Gramvani	Media delivery for rural areas	Prof H Saran & S Prasad, CSE
Hands Talk	Human – Computer Interface	Prof A Sharma, Phy.

Unit	Technology Area	Entry	Exit	Duration (Months)
TRIGYN Technologies (eCapital Solutions (I) Pvt. Ltd.)	Internet based technologies in telecom & financial services	2/99	07/01	29
InfoPlex Technologies (P) Ltd.	Internet based services, Internet kiosks	2/99	09/01	31
SINTEX ESCO	Energy Efficient products	12/01	02/03	14
RISUG	Male contraceptive	12/00	08/03	32
INRM	GIS based tools, packages and products in Water Resource Mgmt	3/02	03/04 G	24
Kritikal	Embedded Systems, Adhoc Networks, Computer Vision	9/02	09/05 G	36

Unit	Technology Area	Entry	Exit	Duration (Months)
Genie Networks Systems Pvt Ltd	Wi-fi/Wi-Max Technology based Products and Applications	8/04	06/05	10
Virtual Wire Technologies	Wireless communication	7/03	12/06 G	41
Sanmotech Labs	Development of new macrocyclic metacyclophane (MMC) molecules for innovative applications	7/04	4/07 G	33
Gridsolv	Grid computing	2/05	10/06	20
Tensor Technologies, (10.8L)	Search Personalization using Tensor Analysis and Higher Order POD (Proper Orthogonal Decomposition) Concepts	4/06	7/08	27
Mechartes	Services / software products in the domain of CAD, FEM, CFD	8/05	7/08 G	35

Opportunities ...

- University Innovation Clusters
- Inclusive Innovation fund of US\$ 1Bn
- Increased Budgets of Higher & Secondary Education
- National Innovation Portal
- Distance Education & Technology Development
- Freedom on Private & Foreign Partnerships
- Physical and Virtual Clusters

Opportunities ...

New Mindset at Universities :

- ◆ Education
- ◆ Research
- ◆ Knowledge Dissemination
- ◆ **Resource Mobilisation**
- ◆ **Technology Commercialisation**
- ◆ **Collaboration with Industry**
- ◆ **Entrepreneurship**

Opportunities ...

The time has come to create a second wave of institution building and of excellence in the field of education, research and capability building so that we are better prepared for the 21st Century.

-Dr. Manmohan Singh – Prime Minister of INDIA

2010 – 2020 : **DECADE OF INNOVATION**

Vision of Government of India to use IP for masses. Market of 1.1 Bn+ population

Case Studies ...

Super Heat Recovery Water Heater By IIT - Mumbai

- Chiller Capacity 60 TR (211.2 kW_c)
 - R22 York Reciprocating Compressor
- Temperature of Refrigerant, In/Out 95/63 °C
- Temperature of Water, In/Out 30/60 °C
 - SHRWH is installed in co-current mode

- Hot Water Flow rate 870 l/h
- Fuel Saving Reported 81 l HSD/day
- Annual Savings per unit Rs 1 Mn/yr
- Reduction in CO₂ Emissions 880 tonne in 8 year
- Simple Payback 3 to 6 month
 - Without accounting for electricity saving due to improved COP
 - Without accounting for 100% depreciation

Case Studies ...

Super Heat Recovery Water Heater (SHRWH) at Hotels

Free Water Heating
12,000 to 24,000 lpd,
from 30 °C to 60 °C

Chiller Power Saving
~ 20 %

Capacity Increase
~ 30 %



Operating for Over Ten Years without a Single Service Call at Hotel Fariyas (Mumbai)

Case Studies ...

Super Heat Recovery Water Heater (SHRWH) at FastFood Chain

Free Water Heating
240 lph from
27°C to 60°C

AC Power Saving
12 to 15.6%

Cost recovery time
9-12 months



Case Studies ...

Pilling Tester based on Digital Image Processing

Technology Developed by : IIT – Delhi

Scope of Technology : It pertains to development of an objective evaluation system of pilling, using image processing techniques.

Licensed to : M/s innovative Engitech (P) Ltd.

Thank You ...

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INDIA