

Deploying Intellectual Capital for Technology and Policy Leadership in the Telecom Sector: Role of TCOEs

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Objectives

Scientific Research and Development in the Telecom Sector

India Specific Application Development

Undertake Cross-pollination of Best Practices the World Over

Creating Synergies among the Academia, Industry and Research Institutes

Undertake Think Tank Activities for Policy, Regulation and Governance Advocacy in the Field of Telecom

Integration and Benchmarking of Technology to Promote Standardization Activities

Outcomes



Outcomes (1 of 2)

- ❑ Bringing intellectual capital for working with government and industry: organizing workshops and conferences
 - ✓ contributed in developing the framework and draft for NTP 2011/12
 - ✓ drafting the twelfth five year plan
- ❑ Helped in bringing major changes in the sector institutional framework by establishing TSSCI and worked towards setting up TSDI.
- ❑ Creation of a national long-term knowledge base on latest technologies
 - ✓ Evaluation of radio Interface Technologies for IMT-Advanced program of International Telecommunication Union (ITU) as one of the recognized evaluators.

Outcomes (2 of 2)

- ❑ Platform for both academia and the industry to conduct R&D for practical and innovative applications: rural areas, industry and end-consumer.
- ❑ Building human capital in the sector
 - ✓ A bridge between the operators (field experience), academicians (technical expertise) and the government.
 - ✓ Technical support and training to policy makers, regulators, and the industry.
 - ✓ Potential talent recruitment: Best source of high quality talent.
- ❑ Collaboration and association of TCOEs with foreign universities of eminence brings in the international perspective with respect to regulatory and technological issues.

Current State



The State of the Telecom Sector

Policy and regulatory uncertainty (future spectrum assignments and allocations, license renewals)

Reflect on Institutional Structure (Instruments and Basis of Decisions)

✓ E-GOMS (Reserve price determination)

✓ Courts (Spectrum auctions)

✓ DoT (EMF radiation)

✓ TRAI (Mobile number portability)

Lack of evidence based policy approach in many cases

What do we need to do?

- Identify areas where policy analysis is required for the future: Framework to prioritize issues
- Increase effectiveness of policy making
 - ✓ Increase policy making, evaluation capacity within DoT/TRAI - Training, workshops
- Crystallize larger issues (involve more TCOEs)
- Create greater stake-holding in DOT/Industry?

What do we need to do?

- ❑ Bring back focus on institutions, their roles, structures and processes Case studies: rationalize on hindsight for learning for the future
- ❑ Focus on human capital formation
- ❑ Creating a database/knowledge base (Spectrum use, QOS indicators, EMF Radiation Studies (Annotated))
- ❑ Help Develop Strategic Plans for TRAI/DoT

Processes to be Adopted

- ❑ Framing long term policy studies: How should we do it. This workshop is an example.
 - ✓ Annual (?) roadmaps and review
 - ✓ Emergent and stable activities
- ❑ Opportunistic Studies (Academic freedom?)
- ❑ State of the Art Report (Annual) like the India Infrastructure Report

Challenges



Challenges (1 of 2)

Projects are dragged too long and hence lose national importance

Absence of Project Coordinators to act as an accelerator for monitoring the overall progress of the project

Churn of technical talent leading to slowdown of projects

Professors are doing voluntary work (no compensation attached) and have busy academic schedules

Limited fund flow to TCOEs from some sponsors

Challenges (2 of 2)

Sub-optimal functioning and manning of Co-ordination Center

Not enough thrust from the government or industry for pushing the agenda - sporadic and opportunistic approach by TCOEs

Integration of TCOE processes with home institutional priorities and processes

Little integration across TCOEs

Opportunities



Opportunities (1 of 2)

Could play a crucial role in meeting the objectives of New Telecom Policy 2012 and National Policy on Electronics 2012 and in the pre-eminence of India as a technology solution provider.

Need to focus on Manufacturing and Telecom Entrepreneurship

Creating new institutions for standards and strengthening Indian IPR creation, product development and flow back of royalties

Boosting Research & Development

Bridging the digital divide, deepening Broadband penetration

Opportunities (2 of 2)

Human Capital Formation

Spectrum Management

Broadband Deployment

Mobile and Broadband as Facilitators for Access to Basic Services like Health, Education and Banking

Cyber Security

Capacity Development for Policy Making across Different Domains (IT, Electronics)

Roadmap and Recommendations



Roadmap and Recommendations (1 of 3)

- ❑ Policy, technology and management experience of TCOEs could be used for policy framework of the telecom R&D fund and the infrastructure fund to bring maximum benefit to the country
- ❑ TCOEs can be the breeding ground for developing advocacy expertise that is useful to the industry

- ❑ Undertake R&D activities, create IPRs and their incorporation in international standards
- ❑ Setting up of testing labs would help electronic product designers at TCOEs to achieve the compliance requirements
- ❑ More investment and active government support are needed for the marketing of TCOE developed products for exports

Roadmap and Recommendations (2 of 3)

- ❑ Look for alternate sources of revenue to be self-sufficient in coming years
- ❑ Funding from sectors other than telecom may be explored for projects relevant to those sectors
- ❑ TCOEs should get substantial government funding against specific projects in support of the manufacturing efforts
- ❑ Work in areas of national priority: cyber security, digital divide

- ❑ Greater collaboration with global organizations like NITs, IIITs and private reputed organizations

Roadmap and Recommendations (3 of 3)

- ❑ Maintaining an effective Coordination Centre is essential for the effectiveness of the TCOEs
- ❑ Proper co-ordination and assignment of objectives based on strength of each TCOE
- ❑ Committed funds from operators against specific projects may be continued and this association could be further leveraged by providing capabilities of live network testing for the researched outputs

Actionable Points

- ❑ Create a supportive environment for sustaining TCOEs. Unique institutions. Preserve them.
 - ✓ Mechanism for coordination with Industry, DOT/TRAI for policy, technology and management initiatives in the sector: Telecom, R&D, Entrepreneurship and Manufacturing Fund
- ❑ Maintaining an effective Coordination Centre is essential for the effectiveness of the TCOEs
- ❑ Inclusion of certain NITs, IIITs and private reputed organizations
- ❑ How to create greater stake-holding in DOT? TCOEs?
Review interface mechanisms

Ongoing Projects at IITCOE

1. Evolving Policy for Spectrum Management through Impact Assessment of Wireless Technology and Broadband Connectivity in Rural India, Prof Rekha Jain, IIMA. Project funded by Ford Foundation, commenced in June 2012.

2. Leveraging Knowledge Networks for Enabling Innovations in Higher Education and Research Institutes in India and UK, Prof Rekha Jain, IIMA; Prof Manjari Singh, IIMA; Dr Jillian MacBryde, University of Strathclyde; Dr Jason Whalley University of Strathclyde and Prof David Souter, University of Strathclyde. Project funded by UKIERI and IITCOE, commenced in April 2012.

Ongoing Projects at IITCOE (Contd..)

3. Optimal Strategies for Reliable Service in MIMO-OFDM Multiuser Cellular Broadcast Systems, Dr. Aditya K. Jagannatham, IIT Kanpur. Project commenced in December 2012.

4. Strategy for Growth of Smartphone Manufacturing Ecosystem in India, Prof. Ravi Shankar, IIT Delhi. Project commenced in November 2012.

5. In Sync and Sight with Technology- Arvind Eye Care System, Ms Srishti Shaw, IIMA and Ms Neha Hathiari, IITCOE under the guidance of Prof. Rekha Jain, IITCOE. Project commenced in September 2012.

Ongoing Projects at IITCOE (Contd..)

6. Semiconductor Industry Ecosystem and the Critique of India's Electronics Policy, Prof Amit Bhatt, DAIICT. Project commenced in July 2012.

7. Case Study Development for Africa Airtel, Prof Rekha Jain, IIMA. Project commenced in June 2012.

8. A Study on the Potential Adaption of E-learning on Portable Mobile Devices and its Impact on Wireless Broadband Usage, Sridhar Varadharajan, Sasken. Project commenced in April 2011.

9. Understanding Outsourcing in the Indian Telecom Sector, Prof Kirti Sharda, IIMA. Project commenced in September 2010.

Thank You