

Minutes of Discussion

Topic	Review of Proposal submitted by I2India to be partner organization for Setting up of CSIR-Tech
Date	Monday, 9 th February 2009
Place	IMT, Chandigarh
Present	Dr. Girish Sahni, Dr. Naresh Kumar, Mr. R. K. Gupta, Mr. Hemant Kulkarni, Dr. Deepak Sardana

In spite of sizeable patent portfolio, CSIR has been successful only in a limited way to translate its knowledgebase into services and goods for economic and societal applications. It is felt that, setting up commercial entity that can supplement competencies of CSIR and which would be run independently and professionally would be desirable and viable option. In this regard, it was decided to solicit the support and involvement of a private partner who could bring in following competencies and services to put the idea into practice:

- Established track record of commercialization of IP from R&D organizations
- Preparation of Business/IP Strategy/policy documents and manuals
- IP evaluation, building of portfolio and 'business' based on IPs
- Strong network with stakeholder community within and outside country for all facets of business support / hand holding
- Business development including fund Mobilization and marketing
- IP Audit and project management
- Training and Competency Building for IP Management
- Management of portfolio emanating from R&D activities

In this connection CSIR had meetings with I2India Pvt. Ltd. who has shown interest in joining hands with CSIR to take forward commercialization process. The company accordingly submitted a proposal. The team members considered the proposal from the point of view of project requirement and CSIR needs. It was felt that the proposal by I2India broadly meets the objectives of CSIR. It was also noted that the business model proposed has been tried successfully in other parts of the world by Imperial Innovations, ARCH Partners. As per the proposal, CSIR would set up a JV and make its IP portfolio available to the proposed JV through NRDC. The private partner would bring in funds and operational management expertise. For effective functioning of the entity, it is desirable that the entity be independent and

run on professional lines. Hence it is suggested that CSIR should hold minority stake in JV. While the overall pattern of shareholding suggested by I2India is reasonable, the team recommends more deliberations, on micro level distribution of the accrued income from licensing and equity, to ensure that it is equitable to both the parties and in line with international practice. The team further recommends that as a pilot, CSIR identifies a few IP / IP portfolio that are of high commercial value and enter into a MoU with I2India to develop them into spin-outs. This will not only demonstrate the managerial claims of I2India, but also bring forth any issues related to the synergy. The exercise will set the foundation stone for deeper and more involved partnership through CSIR-Tech.

In summary, we recommend that :

- i) *prima facie* I2India seems to be a prospective and suitable partner that can help CSIR realize its commercial objective.
- ii) CSIR may enter into an MoU with I2India and undertake (e)valuation of select IPs from its portfolio and develop few spin offs as 'pilot'.
HK/DS to prepare and finalise MoU - 27th Feb
- iii) One internal deliberations on issues such as due diligence, legal opinion regarding tax / other statutory issues and micro level distribution of income
Internal Meeting / brainstorm - 3rd week of Feb

13th June 2009

Following are the points that the Project Team agreed to:

1. There is a need to take affirmative measures to change the current structure of commercialization that is not delivering desired results.
2. There is a need to involve private players to help in the commercialization process.
3. The private partner shall bring in management expertise and will be instrumental in raising funds to spin-out companies.
4. There is a need to follow hub and spoke model despite involving private partners for commercialization. This could be operationalized by asking private partners to depute individuals with good sectoral understanding at the lab-level. These individuals will interface between scientists in the lab and professionals based in the company HQ. These professionals based in company HQ will bring in strong functional expertise.
5. CSIR should undertake a due-diligence exercise to identify patents that have maximum potential for commercialization by way of spin-outs. This exercise should be done jointly by IPMD and URDIP, in-house units that have stated expertise in the given area.
6. Expression of Interest for the selected patents should then be asked from private players on non-exclusive basis.
7. Setting-up of a committee that will have necessary expertise and mandate to seek private proposals from private partners, evaluate them, and then make a decision.
8. Following submission of business proposal for commercialization of technology by a private partner, the said committee should evaluate them.
9. Initially only MoU should be signed with the private partner for spin-out of a few identified technologies.
10. Only after the performance of these individual initiatives, CSIR should take measures to initiate long-term strategic relationship with a private partner.

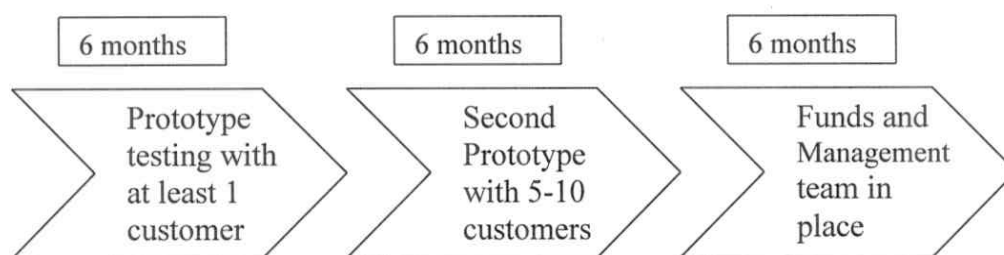
Following are the points that The Project Team recommended for more careful deliberation:

1. The need and role of CSIR Holding Company.
2. Crucial role of URDIP and IPMD in the new set-up.
3. The role of CSIR HQ and the current BDMG set-up at the lab level.
4. Should private partnership be limited for spin-out activities or should it also include technology licensing?
5. Clearly defined support mechanisms of CSIR in facilitating the process.
6. More fine-grained understanding on the financial implications of this activity on CSIR.

19th June 2009

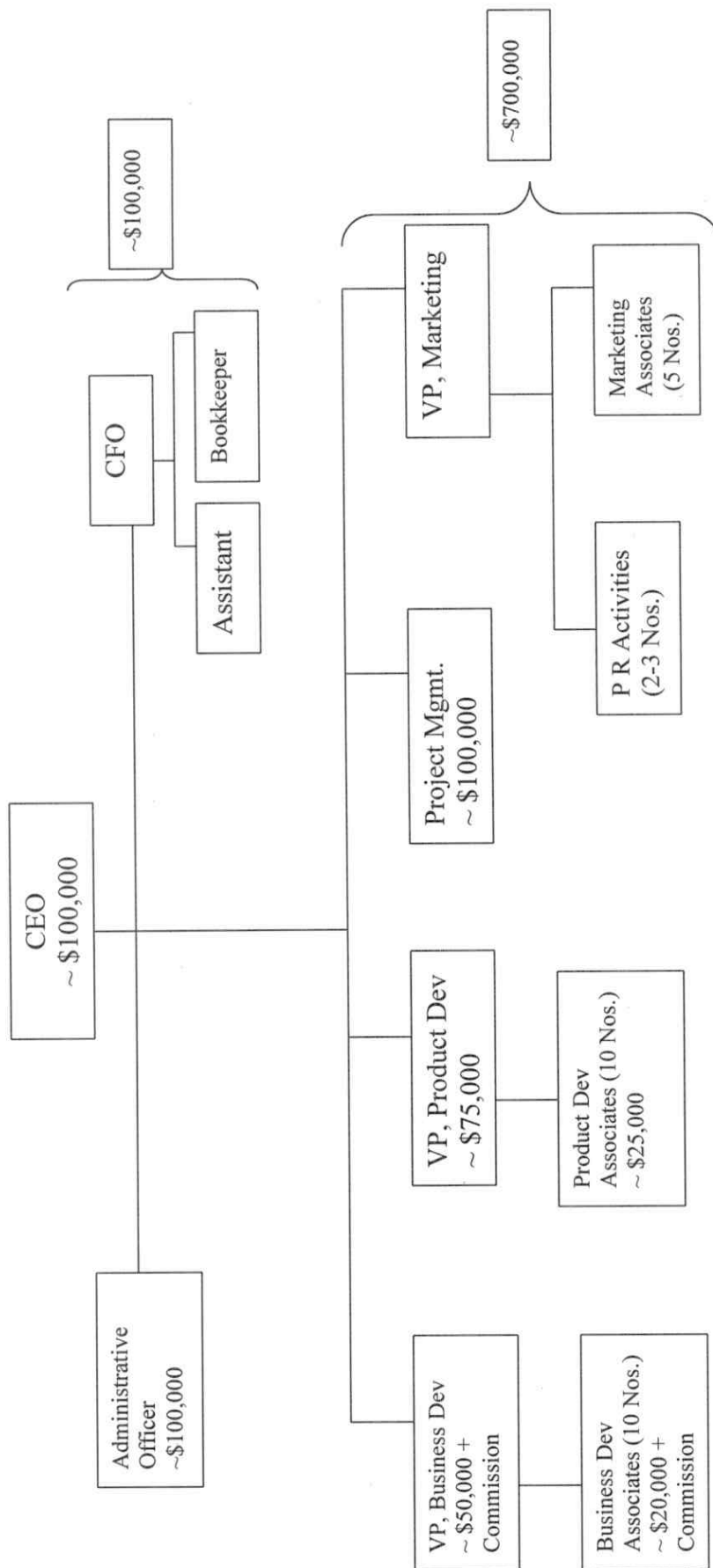
This was the meeting of Operational Team with special invitees (- Prof Brahmachari, Dr. Shiva, Dr Abhyankar, Mr Basu, and Mr Biswas). The meeting came to the following conclusion:

1. NRDC should focus on the technologies that are for social sector. Commercialization of such technologies is of vital importance to the development of the country. This requires special skills and good understanding of the needs of masses – NRDC is ideally placed for it and it has got a good track record in this front.
2. There is no need to set-up an additional IP Holding Company for CSIR. IPMD should be the nodal department within CSIR that will do the pre-commercialization screening and filing of patents for the technology. IPMD shall take help of URDIP and/or NRDC as and when it is required.
3. CSIR should seek a robust partner, preferably a government financial institution (like SBI Ventures), that will set-up a private entity for commercialization of technologies of CSIR.
4. The new company should focus only on spinning-out companies; licensing of technologies should be left to labs. Labs can however take assistance of any organization that they deem appropriate.
5. The process of spin-out is diagrammatically represented below:



Technology for commercialization will be financially supported and incubated for the initial 12 month period. This will be done by making use of available government funding (e.g., through DSIR promoted TePP). Thereafter, the start-up should raise private funding to develop its project.

6. Scientists and senior management of the private company should be given shares upfront. It was decided that scientists who have got commercializable patents and those who will take active interest in the commercialization process (e.g. by helping prepare a short report on the commercial applications of the technology along with clear depiction of market need) shall be given a fixed amount of common shares at 50% discount.
7. Following structure has been envisaged for the private company:



Operating Expense Per Annum = ~ \$ 2 Mn
Overheads = 40% of Operating Expense = ~ \$ 800,000/ year
Government Supported Incubation money for 12 months = ~ \$500,000/venture

At the setting-up of the company, following shareholding pattern has been envisaged:

- CSIR (as founding member) = 26%
- Senior Management = 14%
- Scientists = 10%
 - 20% of this pool will be given as common shares at 50% discount to the eligible scientists.
 - 80% of this pool shall be given as open options.
- ESOPS = 10%
- Private Partner = 40%

CSIR - Imperial College Partnership

Commercialization & Collaboration

Deepam Mishra
Imperial Innovations, India Pvt. Ltd



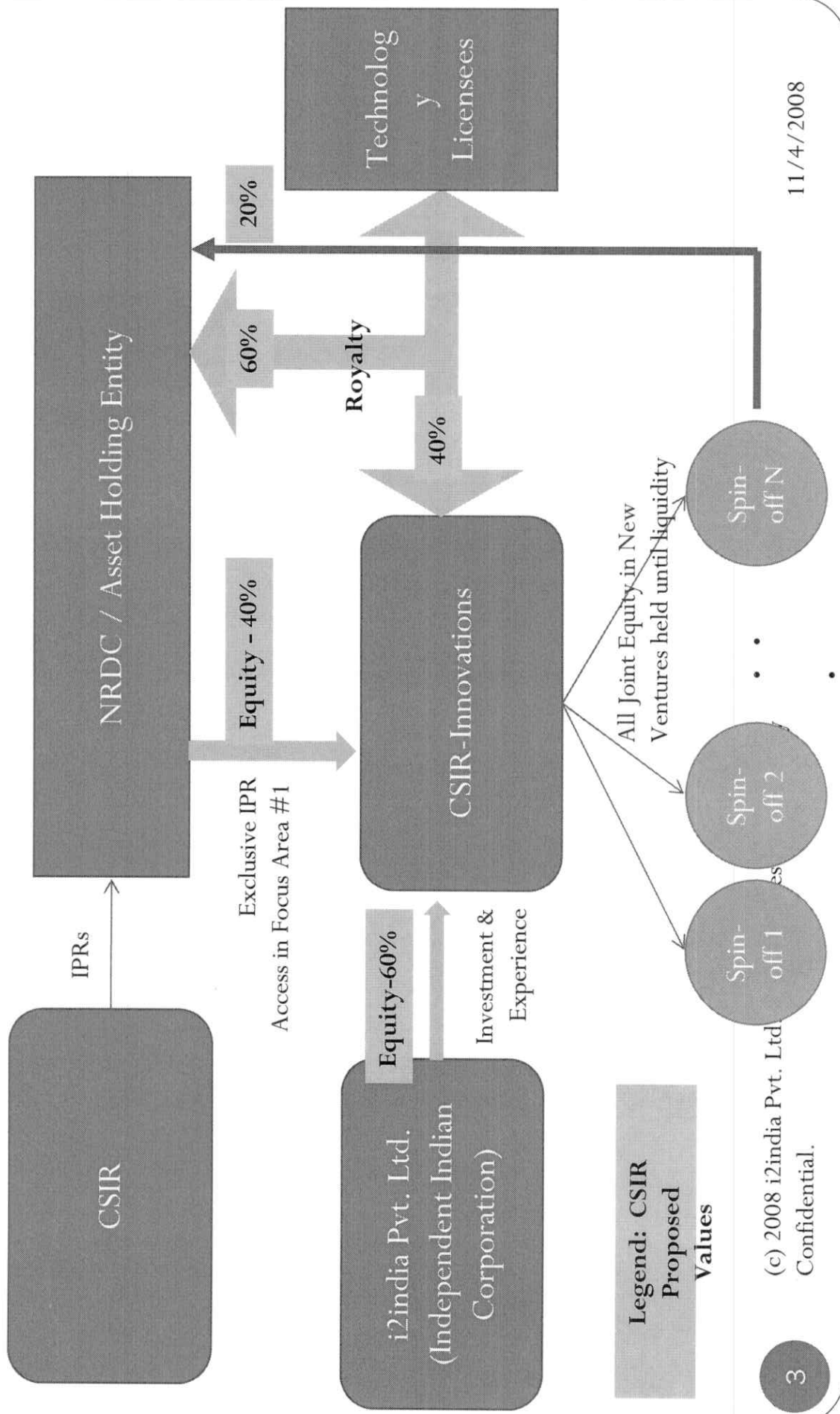
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CSIR-Tech Org. Structure (proposed)



**Legend: CSIR
Proposed
Values**

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11/4/2008

ANNEXURE II

Curriculum Vitae

V. A. Shiva Ayyadurai, Ph.D.

Massachusetts Institute of Technology

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Executive Summary

V.A. Shiva Ayyadurai is a scientist, entrepreneur, inventor and educator. Born in Bombay, India, Shiva moved to America at the age of seven. He completed his secondary school education in New Jersey and four degrees at M.I.T. spanning the fields of electrical engineering, computer science, architecture, applied mechanics and systems biology. He is the inventor of the world's first E-Mail system, aka "Dr. E-Mail", holding the first US Copyright for E-Mail. He has started and successfully grown several start-up companies. Following his winning of a White House competition to automatically analyze and sort mail, Shiva started EchoMail, Inc. which he grew to nearly \$200 Million in market valuation. He holds three US Patents in pattern recognition. His love of computing, modeling, pattern recognition and biology led him to systems biology where he invented CytoSolve, a scalable method to integrate distributed biological pathway models. He is currently on the Faculty at MIT his research is focused on integrating the world of systems biology with traditional medicine systems towards accelerating the development of personalized medicine. He has published scientific articles in conference proceedings and refereed journal articles. Shiva continues his passion for entrepreneurialism as Managing Director of General Interactive, a venture fund that incubates, mentors and funds new startups in various areas including rural healthcare, media, biotechnology, information technology, to name a few. Shiva has received awards and national press, including a feature story in *The MIT Technology Review*. He has appeared in columns and articles in *The Wall Street Journal*, *New York Times*, *NBC News*, *USA Today* and other major publications. He was named Top 40 in the *Improper Bostonian*. He the author of two books: *Arts and the Internet* and *The Internet Guide to Publicity*. He has been a teacher and educator to students at MIT as well as to CEO's and Executive Management at Fortune 1000 companies. He is a member of *Sigma-Xi*, *Eta Kappa Nu* and *Tau Beta Pi*. He is a founder of the Shanthi Foundation which raises money to provide scholarships for education to orphaned girls. He is also a supporter of various arts and non-profit organizations including the Guggenheim Museum, Very Special Arts, National Public Radio and the National Geographic Society. Shiva enjoys yoga, travel, tennis, animals, art and architecture, and lives Belmont, MA, USA.

References

1. C. Forbes Dewey, Jr., Professor of Biological Engineering and Mechanical Engineering
 2. John Essigmann, Professor of Biological Engineering, Chemistry and Toxicology
 3. Douglas Lauffenburger, Chairman, Department of Biological Engineering, Professor of Biological Engineering, Chemical Engineering and Biology
 4. Jacob White, Professor of Electrical Engineering and Computer Science
 5. Robert C. Berwick, Professor of Electrical Engineering and Computer Science
 6. Sonu Matthews Abraham, President and CEO of EchoMail, Inc.
 7. Simon Dao, MIT PhD, Managing Partner R&S Company
 8. Lawrence Weber, CEO of Racepoint Group
- Selected Publications

V.A. Shiva Ayyadurai

Education

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
MIT, Department of Biological Engineering	Ph.D.	2004-2007	Systems Biology
MIT, Department of Mechanical Engineering	S.M.	1988-1990	Applied Mechanics
MIT Media Laboratory, Department of Architecture	M.S.	1987-1989	Scientific Visualization
MIT, Department of Electrical Engineering and Computer Science	B.S.	1986	Operating Systems

Research Experience

2008-Present	Fulbright Scholar, Systems Biology and Traditional Medicines, US Fulbright Program
2008-Present	Faculty Member, MIT Biological Engineering Division
2004-2008	Research Fellow, Computational Systems Biology, MIT Biological Engineering
1996-2004	Chief Scientist, Large Scale Architectures for Message Analysis, EchoMail, Inc.
1992-1996	Chief Technology Officer, Document Analysis & Modeling, Information Cybernetics, Inc.
1990-1992	Research Team Leader, Handwriting Recognition, MIT Sloan School of Management
1988-1990	Graduate Research Assistant, Wave Propagation Analysis and Modeling, MIT NDE Lab
1986-1988	Graduate Research Fellow, Automated Graphic Design System, MIT Media Laboratory
1984-1986	UROP Research, Particle Analysis in Fluidized Bed Reactors, MIT Langer Laboratory
1983-1984	UROP Research, Cryogenic Embryo Preservation, MIT Health Sciences and Tech.
1981-1983	UROP Research, Tadoma and Speech Recognition, MIT Research Lab for Electronics
1979-1981	Research Associate, Sleep Pattern Analysis, UMDNJ Biomedical Engineering
1977-1980	Research Associate, E-Mail System, UMDNJ Laboratory for Computer Science

Industry & Entrepreneurial Experience

2004-Present	Board Member, E-Mail Management, EchoMail, Inc.
2004-Present	Founder and Managing Director, Venture Fund, General Interactive, LLC
1998-2004	Founder, President & CEO, E-Mail Management, EchoMail, Inc.
1996-1998	Founder, President & CEO, Media Production, Millennium Productions, Inc.
1994-1996	Founder, President & CEO, Arts-Online, the first online arts community
1990-1994	Director of Advanced Products, CD-ROM Search Software, Dataware Technologies, Inc.
1986-1990	Senior Engineer, Graphics Software, IBM/Lotus Development Corporation
1984-1986	Senior Engineer, Marketing Analysis Software, Information Resources, Inc.
1983-1984	Consulting Software Engineer, Hydrodynamics Software, Chase, Inc., Boston, MA
1982-1984	Research Engineer, Operating System for Cardiologist Workstation, HP Medical Systems
1982-1983	Consulting Software Engineer, Intelligent Signal Processing, MIT Civil Engineering
1981-1982	Consulting Software Engineer, Advanced Graphics Hardware, Number Nine, Inc.

Teaching Experience

2007	Lecturer, Biological Pathway Design and Implementation, SMA 2007 Boot Camp
2006	Lecturer, Biological Pathway Design and Implementation, SMA 2006 Boot Camp
2006	Teaching Assistant, Control Systems and Dynamics, 2.14, MIT Mechanical Engineering
1994-2004	Industry Expert, "Dr. E-Mail", Industry Lectures Worldwide, Global 2000 Companies
1992-1994	Lecturer, Information Technology I, MIT Sloan School of Management
1990	Teaching Assistant, Dynamics, 2.03, MIT Department of Mechanical Engineering.
1988	Lecturer, Physics, MITES Program,
1987	Teaching Assistant, Computer Graphics, 4.971, MIT Media Laboratory
1986	Teaching Assistant, Measurements Laboratory, 2.671, MIT Mechanical Engineering
1985	Teaching Assistant, Being There, MIT Humanities Department

1984	Tutor, Circuits and Electronics, 6.002, MIT Electrical Engineering and Computer Science
1983	Tutor, Structures & Programming, 6.001, MIT Electrical Engineering & Computer Science
1982	Lecturer, IAP Course on Indian Art History, MIT Humanities Department

Selected Publications

1. S. Ayyadurai, Integrative Model of the Interferon Response to Viral Infection, (manuscript in preparation), submission to: Nature Biotechnology, July 2009
2. S. Ayyadurai, Modeling the Cell, Proceedings of BIO-IT Conference, In Silicon Modeling Section, Boston, MA, April 2009.
3. S. Ayyadurai, A Scalable Computational Architecture for Integrating an Ensemble of Biological Pathway Models, (in review), BMC Bioinformatics, March 2009.
4. S. Ayyadurai, Integration of Siddha with Systems Biology, *Proceedings of Fullbright Conference 2009*, Kolkata, India, March 2009.
5. S. Ayyadurai, Mission of Systems Biology, *Bio-IT Beyond Genome Conference Proceedings*, June 2008.
6. S. Ayyadurai, C.F. Dewey, Jr., Scaleable methods for large molecular pathway calculations: application to EGFR, *In Biomedical Engineering Society Annual Fall Meeting*, Los Angeles, September 2007.
7. K. R. Stiehl, K. Dang, S. Ayyadurai, B.-S. Seah, S. S. Bhowmick, C. Forbes Dewey, Jr., A New Approach to Database Creation Using Ontologies: OWLdb. K. Dang, K. R. Stiehl, S. Ayyadurai, B.-S. Seah, S. S. Bhowmick, C. F. Dewey, Jr., An Information Architecture to Support Molecular Pathway Models., *In Biomedical Engineering Society Annual Fall Meeting*, Los Angeles, September 2007.
8. S. Ayyadurai, C.F. Dewey, Jr., Integrating an Ensemble of Biochemical Network Models, *In International Society of Computational Biology (ISCB 2007)*, Vienna, July 2007.
9. S. Ayyadurai, Cytosolve, *In proceedings of the Singapore MIT Symposium for Computational and Systems Biology*, January 2007.
10. S. Ayyadurai, Integrating Biological Pathway Models, *In MIT CSBi Oktoberfest Proceedings*, Cambridge, October, 2006
11. S. Ayyadurai, C. Forbes Dewey, Jr., C. Tan, Distributed Computing of Complex Collections of Biological Pathways, *In World Congress on Medical Physics and Biomedical Engineering (WC 2006)*, Seoul, August-September 2006.
12. S. Ayyadurai, C. F. Dewey, Jr., J. Bassingthwaite, J. Butterworth, P. Villiger, P. Hunter, Normalization of Biological Pathways, *In World Congress on Medical Physics and Biomedical Engineering (WC 2006)*, Seoul, August-September 2006.
13. S. Ayyadurai, C.F. Dewey, Jr., Cytosolve: A Distributed Computational Architecture for the Integration of Biomolecular Pathways, *In Biomedical Engineering Society Annual Meeting*, Chicago, September 2006.
14. C. F. Dewey, Jr., S. Ayyadurai, V. Rouilly, C. L. Poh, S. S. Bhowmick, J. Evans, R. I. Kitney, Footprints in the Sand: Supporting External Analysis of Medical and Biological Databases, *In World Congress on Medical Physics and Biomedical Engineering (WC 2006)*, Seoul, August-Sept 2006.
15. S. Ayyadurai, Modeling Actin Polymerization as a System of Integrated Biomolecular Pathways, *In Proceedings of the Annual MIT CSBi Oktoberfest*, October 2005.
16. S. Ayyadurai, C.F. Dewey, Jr., Computing unsteady phenomenon across multiple molecular pathways, *In Biomedical Engineering Society Annual Meeting*, Washington, D.C., September 2005.
17. S. Ayyadurai, S. A. Cimaszewski, J. H. Williams, Jr.: Unsupervised Classification of Fiber Composite Interphases, *In Proceedings of the Second International Conference on Acusto-Electronics, The American Society of Nondestructive Testing*, June 24-25, 1993.
18. A. Gupta, M. V. Nagendraprasad, A. Liu, Patrick Shen-Pei Wang, S. Ayyadurai: An Integrated Architecture for Recognition of Totally Unconstrained Handwritten Numerals, *In International Journal of Pattern Recognition and Artificial Intelligence*, Vol. 7, No. 4, pp. 757-773, 1993.

20. G. V. Novakovic, L. E. Freed, S. Ayyadurai, H. Bernstein, Robert S. Langer and C. L. Cooney, Fluid-Dynamic Study of the Enzymatic Fluidized Bed Reactor for Blood Dehparinization, Fluidization VI, *In Proceedings of the International Fluidization Conference, Banff, Canada, May 1989.*
21. S. Laxminarayan, O. Mills, L. Rajaram, S. Ayyadurai, L.P. Michelson, Sleep Stage and Apnea Pattern Analysis, *In Proceedings of the International Conference on Medical and Biological Engineering, Espoo, Finland, August 1985.*

Patents

Patent No. 6,668,281, V.A. Shiva Ayyadurai, "Relationship management system and method using asynchronous electronic messaging", April 6, 2004.

Patent No. 6,718,368, V.A. Shiva Ayyadurai, "System and method for content-sensitive automatic reply message generation for text-based asynchronous communications", April 6, 2004.

Patent No. 6,718,367, V.A. Shiva Ayyadurai, "Filter for modeling system and method for handling and routing of text-based asynchronous communications", April 6, 2004.

Research and Thesis Supervision

Chief Architect, **MIT Research Project**, Biological Engineering, **Title:** CytoSolve, platform for dynamic integration of multiple molecular pathway models, 2004-Present

Ceryen Tan, **MIT UROP Project**, Biological Engineering, **Title:** SBML API Programming for Biological Systems Integration, 2005-2007

Steven A. Cimaszewski, **MIT Masters Thesis**, Mechanical Engineering, **Title:** Statistical Analysis of Fiber Composite Interphase Inverse Problem, 1994.

Peter L. Sparks, **MIT Bachelors Thesis**, Electrical Engineering, **Title:** A Hybrid Method for Segmenting Numeric Character Strings, 1991.

Matthew J. Labrador, **MIT Bachelors Thesis**, Electrical Engineering, **Title:** The Generalized Mass-Spring Lattice Model with Damping : A Lagrangian Dynamics Approach, 1990.

Honors and Awards

Fulbright Scholar:

US Fulbright, Washington, DC, 2008-2009

ISMB Travel Fellowship Award

ISMB 2007, Vienna, Austria, 2007

Graduate Research Fellowship

SMA Graduate Research Fellowship, 2004-2007

Communications Solutions™ Product of the Year Award

EchoMail RMOS Product Suite, November, 2003

Customer Interactive Solutions, TMC Labs Innovation Award

EchoMail Customer Care, September, 2002

Massachusetts Interactive Media Council Award (MIMC)
Customer Support Applications, EchoMail CC/BI (Finalist) 2002

Silver Pencil Award, Integrated Branding
Wieden & Kennedy/EchoMail, cK one E-Mail Campaign, 2001

Lotus Beacon Award
EchoMail RMOS Product Suite, 2000

Best of Class Internet Commerce Expo
Customer Service & Fulfillment, EchoMail CC, 1999

Massachusetts Interactive Media Council Award (MIMC)
Groupware/Collaborative Website (Finalist) World Music , 1998

Massachusetts Interactive Media Council Award (MIMC)
Non-Profit/Public Service Online, AccessExpressed.org Online Community (Finalist), 1998

Who's Who in America
Since 1997

Lotus Beacon Award
Best Messaging Solution, EchoMail Suite, 1997

Massachusetts Interactive Media Council Award
Best E-Mail/ Fax Application, EchoMail suite, 1997

Discover Magazine Award for Technical Innovation
XIVA™ Core Technology, 1996

Lemelson-MIT Award for Innovation
XIVA™ Core Technology (Finalist), 1996

Verizon (formerly GTE/BBN) Technologies Award
ProVision Award, Interactive Marketing Creative Direction, 1996

PCWeek's Web Site of the Week
Harvard-Square.com Online Community, 1996

Best of Europe Online
Arts-Online.com Online Community, 1996

Yahoo! #1 What's Cool
Harvard-Square.com Online Community, 1996

IBM Best Online Community
Harvard-Square.com Online Community, 1996

DISNEY EPCOT Center Award for Exhibit
Selected to be in Innoventions Exhibit, , 1996

First Place, Competition for Automatic Categorization of Electronic Mail
Office of the President, White House, Washington, DC, November, 1994.

Winner, Automatic Categorization of SGML Tagged Documents
Information Handling Services (IHS), Boulder, CO, 1993.

International Fellowship Research Grant, Research in the Cross-Language Translators
Sloan School of Management and Industrial Liaison Program and the Italian Trade Commission, MIT, Cambridge, MA, 1992.

Elected Session Chairman, Session on Scientific Visualization
International IEEE EMBS Conference, Institute of Electrical and Electronics Engineers (IEEE), Philadelphia, PA, 1991

Founder and Organizer, Session on Scientific Visualization
International IEEE EMBS Conference, Institute of Electrical and Electronics Engineers (IEEE), Seattle, WA, 1990.

Full Member, SIGMA XI
Since 1989

SIGMA XI UROP Award for Outstanding Undergraduate Research
1985

MIT Mennen Scholar
1982-1986

Tau Beta Pi
1984.

ETA KAPPA NU
1984

VI-A Hewlett-Packard COOP Assignment
Biomedical Division, Andover, MA 1983

MIT Varsity Soccer
1982

Awarded Westinghouse Science Talent Search Award
1981

Thomas Alva Edison/Max McGraw Finalist
1981

Accepted to American Legion Jersey Boys State Program

1981

Outstanding Statesman Award, American Legion Jersey Boys State

1981

All-County Soccer Champions

Essex County, New Jersey, 1981

Individual First Place in Advanced Mathematics at New Jersey State Mathematics Competition

1981

Accepted to Gifted Students Program

New York University Program in Computer Science at Courant Institute of Mathematical Sciences for gifted students in Eighth Grade of Junior High School, 1977

Professional Societies

Tau Beta Pi, Lifetime Member

Sigma Xi, Full Member

Eta Kappa Nu, Member

Oxford-Cambridge Society, Member

The Indus Entrepreneur (TIE), Charter Member

Biomedical Engineering Society (BMES), Student Member

Skills

Programming Languages

C++, C, Java, HTML, ASP

Foreign Languages

Spanish, Italian, Tamil

General Skills

Problem Solving, Writing, Teaching and Lecturing, Fundraising, Research, Proposal Development, Software Architecture, Design and Development, User Interface Design, Mathematical Modeling, Organizational and Business Development, Crisis Management, Mentoring and Career Development, Negotiations.

Invited Lectures & Talks

BIO-IT Conference In Silico Biology

Address: Modeling the Cell

BIO-IT Conference, Boston, MA April 2009

Sri Ramachandra University

Address: Integration of Yogic Science and Systems Biology

Sri Ramachandra University, Chennai, IN, March 2009

SIAM Conference on Multi-Scale Systems

Address: Scalable Architecture for Integrating Multiple Biological Pathway Models
Montreal, CANADA August 2008

Genome Biology Conference - KEYNOTE SPEAKER

Address: The Mission of Systems Biology
Genome Biology Conference, San Francisco, CA June 2007

MIT UROP Panel

Address: Opportunities for Research at MIT
MIT UROP, Cambridge, MA February 2007

MIT Singapore Symposium

Address: Cytosolve
SMA Alliance Symposium, Singapore, January 2007

MIT GAME Seminar

Address: Modeling the Cell
Graduate Mechanical Engineering Students Seminar, Cambridge, MA 2005

Effective E-Mail Marketing Campaigns

Address: Measure your Success: New Metrics for E-Mail Marketing
The Institute for International Research, San Francisco, CA, February 2002

Excellence in E-CRM Conference

Address: The Big Lie of CRM
Allstate Corporation Conference Center, Northbrook, Ill. November 2001

E-Marketing / E-Service Seminar Series

Address: E-Mail Project Solutions
Cambridge Education Center, Cambridge, MA December 2001

EU Conference: Artificial Intelligence

How to Increase Banking Business and Open New Dialogue with On-line Customers
Address: E-Business Strategies for CRM
Realvision Vicenza e NTI UK Italia, *Vicenza, Italy, June 2001*

Pre-Conference Lecture, E-Mail2001 @ MIT Conference

Keynote Address: The Pulse of the Industry
Becton, Dickinson and Company, Franklin Lakes, New Jersey, May 2001

Nothing But New Forum at Fidelity Center for Applied Technology

Keynote Address: E-Mail Marketing Strategies
Fidelity Center for Applied Technologies, *Boston, MA, April 2001*

E-Mail2001@MIT Conference: Intelligent Life

Keynote Address: The Corporate Nervous System
MIT University Park Hotel, *Cambridge, MA, January 2001*

Southern India E-Commerce Conference 2000

Keynote Address: E-Mail = E-Commerce

Advertising Club of Madras, *Chennai, India, December 2000*

Le Potenzialita del Marketing On-line in Italy

Keynote Address: Marketing On-line in Italy: How It Can Be Done

Brodeur Image Time, *Milan, Italy, December 2000*

2000 General Motors Dealer Summit

Keynote Address: eCRM - How E-Mail Helps Your Business

Maritz Performance Improvement Company, *Scottsdale, AZ, October 2000*

Producing Sales in Call Centers

Keynote Address: Implementing Interactive Web

Institute of International Research, *Washington, D.C., June 2000*

Measuring and Managing the Quality of E-Mail Response

Keynote Address: Using Automated Systems to Improve E-Mail Response

InfoCast, *San Francisco, CA, May 2000*

JCPenney Internet Day

Keynote Address: E-Mail - The Ultimate Relationship Builder

JCPenney, *Huston, TX, May 2000*

Annual Investment Conference for Private Companies

Keynote Address: Electronic Customer Relationship Management

Massachusetts Software and Internet Council, World Trade Center, *Boston, MA, April 2000*

Innovators Breakfast Series

Open Discussion: The eCRM Problem

Massachusetts Institute of Technology, New York Academy of Sciences, *New York, NY, April 2000*

Innovators Breakfast Series

Open Discussion: The Power of E-Mail - Brand Loyalty in Real Time

Massachusetts Institute of Technology, National Press Club, *Washington, D.C., April 2000*

American Express, Naples Conference

Keynote Address: Electronic Customer Relationship Management

American Express, *Naples, FL, March 2000*

American Express, Bermuda Conference

Keynote Address: Electronic Customer Relationship Management

American Express Delivery Group, *South Hampton, Bermuda, March 2000*

Customer E-Mail Management

Keynote Address: Using Automated Systems to Improve E-Mail Response

International Quality & Production Center, *London, England, February 2000*

GM e-Wow Speaker Series: Building Customer Relationships Online

Keynote Address: Electronic Customer Relationship Management

General Motors Global Brand Management College, *Detroit, Michigan, February 2000*

Innovators Breakfast Series

Open Discussion: Is software That Answers E-Mail Automatically the Future of On-line Marketing?
Massachusetts Institute of Technology, *Cambridge, MA, February 2000*

Internet Customer Relationship Management

Keynote Address: Electronic Customer Relationship Management
The Institute for International Research, *San Diego, CA, January 2000*

Electronic Commerce World 1999 Conference

Educational Track: E-Mail--The Ultimate Relationship Builder
EC World 2001 Conference, *Orlando, FL, October 1999*

Technology Based Customer Care ICM Conference

Keynote Address: E-Mail = E-Commerce
ICM Conferences, *Atlanta, Georgia, February 1999*

DISNEY INSTITUTE/ OOPS Conference

Address: Object Oriented Programming, 1998
Other Seminar Leaders: Alan Kay

Industry RFP Awards

Allstate Corporation, Business Intelligence and Customer Care Technology (\$1,500,000.00)

AT & T, Business Intelligence and Customer Care Technology (\$120,000.00)

American Express, Business Intelligence and Customer Care Technology (\$4,120,000.00)

BancOne Services Corporation, Business Intelligence and Customer Care Technology (\$920,000.00)

BThree (Warner), Business Intelligence and Customer Care Technology (\$520,000.00)

Bausch & Lomb, Business Intelligence and Customer Care Technology (\$25,000.00)

Becton Dickinson, Business Intelligence and Customer Care Technology (\$1,110,000.00)

Bush for President, Inc., Business Intelligence and Customer Care Technology (\$820,000.00)

Cendant, Business Intelligence and Customer Care Technology (\$20,000.00)

Citigroup, Business Intelligence and Customer Care Technology (\$3,150,000.00)

Calvin Klein Cosmetics Company, Business Intelligence and Customer Care Technology (\$830,000.00)

Classified Ventures, Inc., Business Intelligence and Customer Care Technology (\$710,000.00)

Dial Corporation, Business Intelligence and Customer Care Technology (\$110,000.00)

Entertainment Media Services, Inc., Business Intelligence and Customer Care Technology (\$150,000.00)

Fireman's Fund Insurance Company, Business Intelligence and Customer Care Technology (\$80,000.00)

Gateway, Business Intelligence and Customer Care Technology (\$1,170,000.00)

GEICO, Business Intelligence and Customer Care Technology (\$2,250,000.00)

Hasbro Interactive, Inc., Business Intelligence and Customer Care Technology (\$510,000.00)

Hershey Foods Corporation, Business Intelligence and Customer Care Technology (\$9,500.00)

Hilton Hotel, Business Intelligence and Customer Care Technology (\$1,050,000.00)

HomePortfolio, Inc., Business Intelligence and Customer Care Technology (\$315,000.00)

The IT Group, Business Intelligence and Customer Care Technology (\$25,000.00)

John Hancock Financial Services, Business Intelligence and Customer Care Technology (\$660,000.00)

JCPenney, Business Intelligence and Customer Care Technology (\$5,230,000.00)

LA Times, Business Intelligence and Customer Care Technology (\$20,000.00)

Lycos, Inc., Business Intelligence and Customer Care Technology (\$670,000.00)

Kimberly Clark Corporation, Business Intelligence and Customer Care Technology (\$130,000.00)

People, Business Intelligence and Customer Care Technology (\$120,000.00)

Procter & Gamble Company, Business Intelligence and Customer Care Technology (\$340,000.00)

Purina, Business Intelligence and Customer Care Technology (\$280,000.00)

QVC, E-Mail Management: Inbound and Outbound E-Mail (\$890,000.00)

Rx.com, Inc., Business Intelligence and Customer Care Technology (\$70,000.00)

Salomon Smith Barney, Business Intelligence and Customer Care Technology (\$120,000.00)

Silicon Graphics, Inc., Business Intelligence and Customer Care Technology (\$310,000.00)

Sprint Spectrum, Business Intelligence and Customer Care Technology (\$850,000.00)

TELUS Corporation, Business Intelligence and Customer Care Technology (\$90,000.00)

Time Incorporated, Business Intelligence and Customer Care Technology (\$45,000.00)

Turner Entertainment, Business Intelligence and Customer Care Technology (\$9,500.00)

United States Senate, Business Intelligence and Customer Care Technology (\$890,000.00)

Unilever Consumer Services, Business Intelligence and Customer Care Technology (\$780,000.00)

Professional ART RFP Awards

Aaron Concert Management, Art Promotional Support Online Branding Grant (\$15,000.00)

American Indian Contemporary Arts, Art Promotional Support Online Branding Grant (\$15,000.00)

Allworth Press, Art Promotional Support Online Branding (\$15,000.00)

Alvin Ailey American Dance Theater, Art Promotional Support Online Branding Grant (\$80,000.00)

Art Complex Museum, Art Promotional Support Online Branding Grant (\$15,000.00)

Boston Ballet, Art Promotional Support Online Branding Grant (\$40,000.00)

Boston Casting Company, Art Promotional Support Online Branding Grant (\$15,000.00)

Cambridge Art Cooperative, Art Promotional Support Online Branding Grant (\$15,000.00)

Cambridge Multi-Cultural Art Center, Art Promotional Support Online Branding Grant (\$15,000.00)

Dance Umbrella, Art Promotional Support Online Branding Grant (\$15,000.00)

Fashion Cafe, Art Promotional Support Online Branding (\$15,000.00)

Green Linnet/Xeonphile, Art Promotional Support Online Branding (\$15,000.00)

Handle & Haydn Society, Art Promotional Support Online Branding Grant (\$15,000.00)

Honolulu Academy of Arts, Art Promotional Support Online Branding Grant (\$15,000.00)

International Arts Manager, Art Promotional Support Online Branding Grant (\$15,000.00)

Houston Ballet, Art Promotional Support Online Branding Grant (\$15,000.00)

Lyric Stage, Art Promotional Support Online Branding Grant (\$15,000.00)

MMC Recordings, Art Promotional Support Online Branding (\$15,000.00)

MUSICIAN Magazine, Art Promotional Support Online Branding (\$40,000.00)

National Association Performing Artists Managers of America (NAPAMA), Online Branding Grant (\$15,000.00)

New Age Voice, Art Promotional Support Online Branding Grant (\$15,000.00)

Poetry Alive! Art Promotional Support Online Branding Grant (\$15,000.00)

Sedia Furniture Design, Art Promotional Support Online Branding Grant (\$15,000.00)

Sculpture Review, Art Promotional Support Online Branding Grant (\$15,000.00)

Strand Theater, Art Promotional Support Online Branding Grant (\$15,000.00)

Very Special Art, National, Art Promotional Support Online Branding Grant (\$70,000.00)

Very Special Art, Massachusetts, Art Promotional Support Online Branding Grant (\$30,000.00)

World Music, Art Promotional Support Online Branding Grant (\$15,000.00)

Young Concert Artists, Art Promotional Support Online Branding Grant (\$15,000.00)

ZIMA, Art Promotional Support Online Branding Grant (\$15,000.00)

Books and Chapters in Books

E-Mail: The Ultimate Relationship Builder, Volume (In Progress)
Volume I, Volume II, Volume II
Author: V.A. Shiva

The Internet Publicity Guide: How to Maximize your Marketing and Promotion in Cyberspace
Author: V.A. Shiva
Publisher: Allworth Press, New York, 1997

Arts and The Internet: A Guide to the Revolution,
Author: V.A. Shiva
Publisher: Allworth Press, 1996, New York

Chapter on Electrodynamics, Dynamics,
Chapter in Book by Prof. Williams

Chapter in Communications Arts

Computer Assisted Automatic Indexing
Document Analysis Conference, October, 1994
Author: V.A. Shiva Ayyadurai, Submitted for Publication

Unsupervised Hierarchical Clustering of Fiber Interphases for Materials Classification
American Society of Non-Destructive Testing (ASNT) Conference, April, 1993
Authors: V.A. Shiva Ayyadurai, S. Cimaszewski, J.H. Williams. Jr.

Neural Network Based Hybrid System for Handwritten Character Recognition
Sloan School of Management Technical Report Fall, 1991
Author: Shiva Ayyadurai

Visualization of Wave Propagation in Anisotropic Media

Master of Science Thesis, MIT Media Laboratory February, 1990

Author: S. Ayyadurai

A Workstation for Particle Motion and Flow Analysis

IEEE Computers in Medicine, New Orleans, LA, November, 1988

Authors: Ayyadurai, Novakovic, Gordana, Langer, Bob

Blood Deheparinization in a Fluidized Bed Reactor

Proceedings of the Canadian Conference on Fluid Dynamics, 1987

Author: Novakovic, G., Ayyadurai, S., Michelson, L.

Prototype Expert System for Bridge Deck Deteriorization

Project Report to NSF, September, 1986

Authors: Maser, Ken, Schott, Jean-Pierre, Ayyadurai, Shiva

Sleep Stage and Apnea Pattern Analysis, pp. 505-506

Journal of the International Federation of Medical and Biological Engineering, Espoo Finland, August, 1985

Authors: Laximinarayan, S. Ayyadurai, S., Michelson, L.,

Ayyadurai's Four Point Theorem

The Mathematics Teacher, Spring, 1981

Author: Shiva Ayyadurai

MEDIA APPEARANCES

Hindu: Fulbright-Nehru Fellowship Announcement, March, 2009

Times of India: Fulbright-Nehru Fellowship Announcement, March, 2009

MIT Tech Talk: Fulbright Scholar on New Adventure, September, 2007

Wall Street Journal: EchoMail Can Sort, Answer Deluge of E-Mails, 2001

Wall Street Journal: Amid Anthrax, Businesses Sour On U.S. Mail, 2001

Boston Business Journal: E-mail Marketing Looks Past Spam to Viral Affection, 2001

Wall Street Journal: Mail Scare Could be Lethal for Businesses, 2001

B2B Magazine: Technology Leads Prospects to Sales, 2001

Customer Interactive Solutions: TMC Labs 2nd Annual Innovation Award, 2001

Mass High Tech's On the Move with Dyke Hendrickson, 2001

Forrester Research: "Effective Email Marketing" by Shar VanBoskirk with Charlene Li and Jennifer Parr, 2001

Customer Interactive Solutions: Solutions for E-Mail and Speech Interfaces, 2001

CFO Magazine: The Customers Always Write, by Alix Nyberg, 2001

Summit Strategies: On the Radar column by Associate Analyst Kate Claus, 2001

Business 2.0 with John Tomasic: 2001

Summit Strategies: UpFront column by Associate Analyst Kate Claus, 2001

Congress Online Project: E-Mail Overload in Congress Managing a Communications Crisis, 2001

Read Across America: Daniel Haggerty Elementary School and EchoMail, 2001

ZD Net: During a Recent Visit to India EchoMail CEO, V.A. Shiva, Meets The Press, 2001

MIT Technology Review: Dr. E-Mail Will See You Now, *Cover Story* by Deborah Shapley, 2000

CIO Magazine: Electronic Electorate, 2000

Tech Republic: The E-Mail Doctor is In, 2000

The Boston Globe: As far as the Senate is concerned, 'Dr. E-mail' is in, 1999

Fast Company: The E-Mail Prescription, 1999

Internet World: Sites Invest Big in Technology to Improve Service, 1999

Fortune Magazine: Handling Customer Service on the Web, 1999

Adweek: Dr. E-Mail, 1999

Silicon India: Antidote for the E-Mail Ills, 1998

ComputerWorld: E-Mail Adds Aura to Calvin Klein Campaign, 1998

Mass High Tech: General Interactive May Rule the World of E-Mail, 1998

Continental Magazine: EchoMail's V.A. Shiva Has A Vision For The Internet That Begins With E-Mail, 1998

Exhibitor Magazine: IBM's Lead Retrieval System, 1998

Internet World: Companies Seek Solutions to E-Mail Flood, 1998

Electronic Messaging News: EchoMail® Executive Briefing, 1998

The Forrester Report: Commerce Technology Strategies, 1998

Times Union (Albany, NY) : The Web as a Black Hole, 1998

The Ann Arbor News: E-Mail Isn't Quite Down to Business, 1998

The Journal Record: Poor Response to E-Mail, 1998

The Press Democrat: Black Hole of E-Mail, 1998

The Houston Chronicle: Customer E-Mail, 1998

Integrated Marketing & Promotion: The Ultimate Relationship Builder, 1998

The New York Times: We Got Your E-Mail; Just Don't Expect a Response, 1998

Star Tribune: For Much Customer E-Mail the Web Can Be a Black Hole, 1998

Fort Worth Star Telegram: Much Internet Customer Slow as Snail Mail, 1998

Portland Press Herald: Many Companies Falter in Fielding Consumer E-Mail, 1998

Tallahassee Democrat: Companies Respond Poorly to Customer E-Mail, 1998

Mass High Tech: Millennium Clinches Olympic-Sized Deal, 1997

Andrew Ross Sorkin: Nike Ads Point Consumers to the Internet, 1997

Telephony Magazine: An E-Explosion, 1997

E-Business & Communications: IBM Solutions Strengthen Internet Service Providers for Success in "Second Wave" of the Internet, 1997

PC Week: Return to Sender , 1997

Communication Arts: The Internet Publicity Guide, 1997

Reseller Magazine: N.E. VAR Builds Very Special Intranet, 1997

Mass High Tech: Web Site Transforms the Hub into Surf City, 1996

The New York Times: Lotus Gears Up to Get a Slice of Internet Pie, 1996

Boston Business Journal: Marrying High Art with High Tech, 1996

Computer Reseller Magazine: VAR Bridges Arts, Technology Gap in Web Site Design, 1996

ANNEXURE III

46. Novel method for development of B-type Natriuretic peptide (BNP) for diagnosis and treatment of congestive heart failure;
47. Conversion of cellulose and hemi-cellulose into sugars and ethanol;
48. Conversion of Bioglycerol into value added chemicals;
49. Novel approaches for production of hybrid seeds with characteristics of improved insect resistance and higher yield in Rice and Cotton; and
50. Mesoscale modeling for Monsoon predictions-Phase II
51. Design and development of cushion bonded organic ceramic clutch discs
52. Distributed video surveillance system
53. Intelligent monitoring and control of the interconnected electric power grid using phasor measurement units (PMUS)
54. Novel therapy for management of sepsis
55. A syndromic approach to diagnosis of infections: development of DNA macro-chips for simultaneous detection of pathogens causing AES (Acute Encephalitic Syndrome) and septicaemia
56. Development of rice resistant to the fungal blast disease
57. Development and characterization of an indigenous vaccine for Johne's disease

15. Development of an oral herbal formulation for treatment of psoriasis a clinical and scientific challenge; and Clinical studies of an oral herbal formulation for treatment of psoriasis;
16. Development of novel biotech therapeutic molecule – Lysostaphin;
17. Microbiological conversion of erythromycin to clarithromycin and other novel biologically active molecules;
18. Environmentally secure rare earth based colorants for surface coatings;
19. Functionalization of alkanes;
20. Novel molecular diagnostics for eye diseases and low vision enhancement devices;
21. Nano-material coatings and advanced composites for tribological applications in automotive industry;
22. Value added polymeric materials from renewable resources: lactic acid and lactic acid based polymers;
23. Recombinant approach to produce α -linolenic acid and docosahexanoic acid (DHA) in sunflower and yeast;
24. A cost effective Simple Office Computing (SofComp) platform to replace PC;
25. A PC based high-end 3D visualization platform for computational biology – 'Darshee';
26. Improved genome annotation through a combination of machine learning and experimental methods: *Plasmodium falciparum* as a case study;
27. Oral delivery of insulin;
28. Pharmacological and genomic investigations on *Withania somnifera* - an Indian medicinal plant;
29. Development of novel fungicides;

Nationally Evolved Projects (NEP)

The Nationally Evolved Projects follow a step-wise procedure. It begins with wide-ranging consultation to elicit ideas. The short listing of the ideas is done by a "Screening Committee" followed by selection of broad areas by the domain Expert Groups. The projectization of the areas is then carried out by "domain champions". The best players in the field are then approached and invited to participate in the project. Once the project is finalized it is reviewed and considered by the High Powered Committee (HPC). The HPC recommended projects are then considered for support by CSIR Governing Body.

Industry Originated Projects (IOP)

For this category of projects the process begins by soliciting of proposals through press advertisement and personal letters from DG, CSIR. The screening of the conceptual proposals thus received is carried out by a "committee" followed by assessment and rating of short listed ideas by the domain experts. The development of top rated two ideas in each domain is undertaken with the assistance of NMITLI designated experts. The project thus finalized are considered and reviewed by the HPC and the recommendations of HPC are considered by CSIR Governing Body in order to decide on the projects to be supported in a given period. Last few years experience indicates that less than 5% of the projects get qualified for development under NMITLI.

The companies registered in India and having more than 50% of shareholding by Indians/non-resident Indians are eligible for support under this category. However, at any given time not more than two projects of any individual company are supported.

Financial Support

The financial support to all the projects under NMITLI Scheme is in the form of grant-in-aid to the institutional partners in public domain and as soft loan (@ 3% interest) to the industrial partners.

Projects supported under the Programme

The programme has developed so far 57 projects, which cover diverse areas. The projects supported under the programme are listed below and the spread of the projects are shown graphically.

requests/applications, the programme identifies the areas for development based on national consultation and invites best partners from institutions, academia and private sector to play a role in the development;

2. **Types of Projects:** Both 'push' and 'pull' type of projects are evolved under NMITLI, which are appropriately named as (i) Nationally Evolved Projects (NEP) and (ii) Industry Originated Projects (IOP);

3. **PPP mode** - Almost all projects are built in a public-private partnership mode;

4. **Emphasis on identifying and building the projects** - Greater emphasis is laid on identifying the niche areas and building the projects with the help of best brains in the country. A specially constituted project wise expert group builds the project by interacting with a large number of researchers and stake holders with focus on technology development;

5. **S&T inputs** - High quality technical inputs are provided at both project development as well as at implementation stage;

6. **Monitoring & review system** - A two-tier tight monitoring system is introduced to ensure realization of the objectives and deliverables. At the first level is an internal Steering Committee comprising PIs (meets once in 3 months) and at the second level an external independent Monitoring Committee comprising recognized peers (meets at least once in six months). The later committee is entrusted with the responsibilities to recommend: (i) foreclosure or modification of the project or sub component; (ii) inclusion of additional institutional / industrial partners wherever necessary; and (iii) revising the funding support to any / or all implementing partners;

7. **IP mapping** - The programme provides for continuous mapping of the IP scenario for each project and in licensing of IP with a view to building of a portfolio and achieving the leadership position;

8. **Foreclosure of projects** - the programme also provides for foreclosure of the non-performing or non-achievable project components; and

9. **Financial support** - An innovative feature of the programme is that it provides financial support to all players in the project. The support is in the form of grant-in-aid to the institutional partners in public domain and as a soft loan (@3% interest) to the industrial



**Department of Scientific and Industrial Research (DSIR)
Technopreneur Promotion Programme (TePP)
Invitation for proposals 2009-2010**

TePP along with its network partners provides grants, technical guidance and mentoring to independent innovators to emerge as entrepreneurs by incubating their idea and enterprise in two phases. Till date over 300 innovations have been supported. Proposals are now invited on the following for support in the year 2009-2010:

PROGRAMME	ELIGIBILITY
Micro Technopreneurship Support (TS) (Max support Rs 0.75 lakhs)	<ul style="list-style-type: none"> ➤ Indian students having nascent creative ideas. ➤ Independent innovators exploring innovative ideas before applying for TPF.
TePP Phase I (innovation incubation)	
TePP Project Fund (TPF) (Max support Rs 15 lakhs)	<ul style="list-style-type: none"> ➤ Unattached independent innovators like micro and small entrepreneurs working on new designs. ➤ Start-up firms/incubated firms with turnover less than Rs 45 lakhs ➤ Independent innovators scouted, documented, mentored by various agencies like NIF, RIN, RIF, ISB, SPJIMR, CIIE, CII, FICCI, Stanford Bio Design. ➤ Finalists of competitions like Techfest, GE Edison Challenge, Tata NEN, Proto.in, Indian Angel Network, TiE, Eureka, India Innovation Pioneers Challenge, Lockheed Martin India Innovation growth program, Innovation for India awards, Piramal Prize, Economic Times, National Geographic. ➤ Medical doctors coming out with low cost tools.
TePP Phase II (enterprise incubation)	
Supplementary TePP Fund (STF) (max support Rs 7.50 lakhs)	<ul style="list-style-type: none"> ➤ Innovators who have successfully completed TePP Phase-I projects
Seamless scale-up support (S3T) (max support Rs 45 lakhs)	<ul style="list-style-type: none"> ➤ Innovator who has successfully completed TePP Phase-I project and desires to take innovation to market by becoming Technopreneur. ➤ Innovators who have worked on 'Phase-1 concept proving stage' with support from other government agencies or with their own funds. ➤ Independent innovator taking up collaborative innovation in partnership with commercial firm using TePP Open Innovation Network. ➤ Entrepreneur taking CSIR rural technologies (with high social impact) to market.

Interested? Contact:

Dr A S Rao, Scientist 'G'
Department of Scientific & Industrial Research (DSIR)
Technology Bhawan, New Mehrauli Road
NEW DELHI 110016
Fax. 011 2696 0629 **Email.** asrao@nic.in

Important:

1. Women innovators are encouraged to apply. All assistance will be provided to them by TePP Network.
2. TePP works in a network mode with several out reach centers spread across the country. Addresses of TePP Out reach centers (TUC) with name of coordinator and contact numbers are placed in DSIR web page. All outreach centers provide counseling and mentoring, some provide incubation facilities too. Innovators are encouraged to submit proposals through the TePP Outreach Centers.
3. The **application blank** appropriate to the category may be downloaded from DSIR Website: <http://www.dsir.gov.in>.
4. Application can also be submitted on line: TePP portal <http://oscar.iitb.ac.in/TEPP/>
5. Information on TePP is also available on TePP Blog : <http://tepp-innovators.blogspot.com/>

We share your dreams

TePP

Technology Development and Innovation Programme (TDIP)**Technopreneur Promotion Programme (TePP)**[TePP](#)
[Home](#)**Phase I: Micro Technopreneurship Support (TS)****Eligibility**

- Indian students having nascent creative ideas.
- Independent innovators exploring innovative ideas before applying for TPF.

Scope & Support

- TS is for micro budget innovations, to help convert ideas into demonstrable models.
- TS is also given as initial support to those aspiring to seek later, a larger grant under TePP Project Fund(TPF), after successful completion of TS project.
- Selected projects will be provided financial support as stipend to foray into unknown areas of Science & Technology.
- Support can also be used to explore new concepts through lab-scale demonstrations and computer simulations based on math models.
- Maximum support under this category is Rs. 75,000/- subject to 90% of approved project cost.

Mechanism

- Initially, the proposals will be screened for completeness at the point of receipt, by the coordinators of TUCs (TePP Outreach centres).
- The proposals after initial Screening are evaluated by the Technology angels working with the TUC.
- Complete and evaluated proposals will be discussed in the TMC (TUC Monitoring Committee) and those recommended for support by TMC will be submitted to TSC (TePP Screening Committee).
- The innovator will be given an opportunity to make presentation to TMC.
- Finally sanction will be released to those that are approved by the department. The applicant has to sign "Terms & Conditions" prior to the actual release of grants-in-aid.
- The first release is based on assessment of need by TePP official and subsequent releases are based on assessment by project monitoring committee/ concerned TUC. Each of approved projects will be monitored by TUC/ other network partner by including technical expert(s). TUC will be periodically reporting project status to the TSC.
- Project completion/ closure will be reported to TSC for feedback and record.

Limiting conditions

- Pure software development projects and academic research projects are not eligible.
- The support is not an award or a prize. The financial support is provided for the work to be undertaken.
- Students will have to provide a 'No Objection Certificate' from the head of their institutions, on the institutions' letter-head along with their application.

- Applicant has to be a single person. When a group of students want to pursue the project, then there has to be an agreement among the group about the lead applicant. Though financial support can be given only to the single applicant by name, letter of commendations can be given by the department to all the students of the team, after successful completion of the project.

Application Form [RTF](#)  [PDF](#)  and Terms and Conditions [RTF](#)  [PDF](#) 

For more information, Contact / Write to:

Dr A S Rao, Scientist 'G'
Department of Scientific & Industrial Research
Technology Bhawan, New Mehrauli Road, New Delhi-110016
Email: asrao@nic.in Fax. 011-2696 0629

Last Updated: April 27, 2009

Technology Development and Innovation Programme (TDIP)**Technopreneur Promotion Programme (TePP)**[TePP](#)
[Home](#)**Phase II: Seamless Scale-up Support for TePP (S3T)****Eligibility**

- Innovator who has successfully completed TePP Phase-I project and desires to take innovation to market by becoming Technopreneur.
- Innovators who have worked on 'Phase-1 concept proving stage' with support from other government agencies or with their own funds.
- Independent innovator taking up collaborative innovation in partnership with commercial firm using TePP Open Innovation Network.
- Entrepreneur taking CSIR rural technologies (with high social impact) to market.

Scope & Support

- Proposals aim at incubating enterprise promoted by independent Innovator. Activities aim at improving market access , by carrying out such value added work like adding product features, protection by patenting, aesthetic design, limited production for market seeding etc, as per approved business plan.
- Maximum support under this category is Rs 45,00,000/- subject to a maximum 50% of approved project cost. An amount equivalent to government grant has to be raised by the technopreneur from Financial Institutes/ Angel investors etc.

Mechanism

- The applicant will be presenting their achievements in prior phase and plans for commercialization to TEPP Outreach Centre (TUC).
- For TePP Phase-1 innovators, the technical evaluation of phase-II proposal will be done by Chairperson of Phase-1 Project Monitoring Committee. For innovators not supported under Phase-1, an independent evaluation of their past work will be done by nominated experts. For entrepreneurs taking CSIR rural technologies to market, the evaluation will be done by concerned CSIR lab director.
- The evaluated proposals are put forth to TePP Screening Committee (TSC) for consideration. Applicant will be given an opportunity to make presentation to TSC. If TSC recommends the proposal for TePP support, it will be processed on file for approval and release of grant.
- To facilitate 'financial closure' the innovator will be given letter of intent, based on which innovator can firm up agreements with banks/ institutions to raise innovator's part of resources.
- After Financial closure, the applicant has to sign "Terms & Conditions" prior to the actual release of grants-in-aid.
- The first release is based on assessment of need by TePP officer and subsequent releases are based on assessment by Project Monitoring Committee/authorized TUC.
- Project completion/ closure will be reported to TSC for feedback and record.

Limiting conditions

- Eligibility is limited to those mentioned above.
- There is a need to submit viable Business plan.

- TePP support will not exceed 50% of approved project cost subject to ceiling of Rs 45 lakhs and innovator need to raise resources for balance of the project cost. This arrangement has to be made before release of first sanction by TePP.
- Funds will be released to Innovator.
- Manpower costs supported will not exceed 20% of the total grant amount. Innovator's salary and rental expenses for use of own facilities are not eligible for support.
- Travel costs supported will not exceed 5% of the total grant amount.

Application Form [RTF](#)  [PDF](#)  and Terms and Conditions [RTF](#)  [PDF](#) 

For more information, Contact / Write to:

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Department of Scientific & Industrial Research
Technology Bhawan, New Mehrauli Road, New Delhi-110016
Email: asrao@nic.in Fax. 011-2696 0629

Last Updated: April 27, 2009

Technology Development and Innovation Programme (TDIP)

TePP

Technopreneur Promotion Programme (TePP)

Home

List of Projects Supported [August 15, 1998 - March 31, 2009]

NB : May, 2008 onwards, TIFAC is not a partner in TePP Programme.

TePP is now hereby a program of DSIR under Ministry of Science & Technology.

Summary of Phase-I Projects

Total Number of Phase-I Projects Supported under TePP	: 319
Department of Scientific & Industrial Research (DSIR)	: 224
Technology Information, Forecasting & Assessment Council (TIFAC)	: 95

Summary of Phase-II Projects

Total Number of Phase-II Projects Supported under TePP	: 9
Department of Scientific & Industrial Research (DSIR)	: 8
Technology Information, Forecasting & Assessment Council (TIFAC)	: 1

Micro-Technopreneurship Projects

Total Number of Micro-Technopreneurship Projects Supported under TePP	: 27
Department of Scientific & Industrial Research (DSIR)	: 27

List of Phase-I Projects supported

Sl.No.	Title of the Project	Innovator / Agency
Department of Scientific & Industrial Research (DSIR)		
1.*	Bullock Cart(Aaruni) having non-hydraulic tilting mechanism	Shri Amrutbhai Agrawat, Vill. : Pikhori, Ta : Malia-HATina, D 362 245. (Gujarat) C/o Gujarat Grassroots Innovations Augmentation Network no. 1, Satellite Complex, Near Satellite Tower, Premchand Jodhpur Tekra, Satellite, Ahmedabad – 380 015. Tel : 079
2.*	Motor cycle(Bullet) driven Sprayer	Shri Ganesh Bhai Dodia, Vill. : Ghogha Samdi, Taluka : Gandhinagar, Distt. : Bhavnagar(Gujarat) C/o GIAN, Ahmedabad
3.*	Promotion of cost and time effective Polythene bag filling device-Kittanal	Shri Khimji Bhai Kanadia, Vill. : Gadha, Via : Vaktapur, Taluka : Sabarkantha (Gujarat) – 383 010. C/o GIAN, Ahmedabad
4.*	Innovative Cotton Stripper	Shri Manshukh Bhai Patel, Vill. : Viramgam, Distt. : Ahmedabad C/o GIAN, Ahmedabad
5.*	Development of Air Pollution Control Device-RUDRAKSH-R2	Shri Sandeep Jaidka, Rudraksh Innovations, E-185, East of Delhi – 110 065.
6.*	Technological up-gradation and Safety Certification of 10 H.P. tractor	Shri Bhanji Bhai Mathukia, Vill. : Kalawad, Visavdar, Distt. : (Gujarat) C/o GIAN, Ahmedabad
7.*	Kushal Sprayer – a small 5 litre capacity sprayer	Shri Khimji Bhai Kanadia, Vill. : Gadha, Via : Vaktapur, Taluka : Sabarkantha (Gujarat) – 383 010. C/o GIAN, Ahmedabad
8.*	Standardisation of Natural Dye/Vegetable Dye	Dr. Faqueer Mohammad, 868, Hamdard Nagar(B), Anoopali, Aligarh – 202 202(U.P.)
9.*	A device and process for producing effects of water fall, rain, garden and mountains, while viewing a picture in	Shri Sandeep Jaidka, Rudraksh Innovations, E-185, East of Delhi – 110 065.

ANNEXURE IV

Guidelines and operating procedures for implementation of the initiative on Encouraging Development and Commercialization of Inventions and Innovations: a New Impetus

Preamble

Department of Scientific & Industrial Research (DSIR) vide OM NO. 3/3/2009-TU/V/Knowledge-to-equity dated May 25, 2009 has put in place a new initiative entitled "Encouraging Development and Commercialization of Inventions and Innovations: A New Impetus". This initiative has four distinct components, namely:

- (i) Permitting the researchers working in Scientific Establishment to have an equity stake in scientific enterprises / spin offs while in professional employment with their research and academic organizations;
- (ii) Permitting the Scientific Establishment to invest knowledgebase as equity and / or loan in an Entity;
- (iii) Encouraging the Scientific Establishment to set up incubation centers; and
- (iv) Facilitating mobility of researchers between industry and scientific establishment.

CSIR had constituted a committee to prepare detailed guidelines and operating procedures for implementation of the initiative and also to evolve guidelines to address issues related to conflict of interest. These have been worked out and given in the following paragraphs:

A. Guidelines and operating procedures for the Initiative

Component 1: Guidelines for Scientific Entrepreneurship Scheme

1. The Background

Promoting science and engineering based enterprises and entrepreneurship is the future challenge for Indian R&D institutes and universities as the way to create

continued impact on society and the economy. This measure will encourage not only creation of new businesses/ spin off companies but also employment opportunities for highly skilled technical and scientific personnel.

2. Definitions

In these guidelines, unless the context otherwise requires:

- (a) "Government" means the Central Government;
- (b) "Entity" means a "person" which includes any company or association or body of individuals, incorporated under various laws, constituted primarily to commercialize Knowledgebase;
- (c) "Scientific Enterprise" means a special class of new Entity that leverages scientific research, inventions and innovations and transform into commercializable technologies/products.
- (d) "Scientists" means Group IV scientist of CSIR.
- (e) "Knowledgebase" means all inventions / innovations (whether patentable or not) invention / innovation disclosures, trade secrets, know-how, proprietary information, technical data, documentation, data collections, databases, concepts, processes, software, designs drawings, materials, support services and the like, whether or not the foregoing are in tangible or intangible form.

3. Eligibility

The scheme shall be applicable to Group IV scientists in CSIR.

4. Procedures

- 4.1 Any CSIR scientist desiring permission under the scheme shall apply to the Director of the Laboratory in prescribed form.
- 4.2 The concerned Laboratory shall examine each application received under the scheme, seeking permission to have a stake in a scientific enterprise and to be associated with the Entity as non-executive Director, in accordance with procedures.

- 4.3 The application of the scientist shall be decided by the Director of the Laboratory and will be approved by the DG,CSIR in shortest possible time.
- 4.4 Notwithstanding anything contrary contained in any other rule, order or notification but subject to the provisions of this Scheme, Director of the Laboratory may or may not recommend permission as sought by the Scientist in the application.

5. Responsibilities and Liabilities of Scientist

- 5.1 The primary responsibility of the Scientist is to the CSIR and shall be bound by any instructions, general or specific, that the CSIR may issue from time to time.
- 5.2 The Scientist(s) making application under the scheme shall bring the potential conflict of interest issues to the knowledge of the Director of the Laboratory(or his/her nominee) and shall be governed by the instructions issued by the Director of the Laboratory. The guidelines on issues relating to conflict of interest will form the basis for this purpose.
- 5.3 Notwithstanding any permission granted to a Scientist, no scientist shall directly or indirectly;
- i. associate himself / herself with any process to license knowledgebase to the Scientific Enterprises;
 - ii. associate himself / herself with any process for the purchase or hiring of any goods and services from the Scientific Enterprises;
 - iii. associate himself / herself with the evaluation of any goods or services that compete with the goods or services of the Scientific Enterprises;
- 5.4 The scientist may provide professional advice to the Scientific Enterprises, on such terms and conditions as the CSIR/ Laboratory concerned may prescribe from time to time.
- 5.5 If the scientist desires to be associated with the Scientific Enterprises in the initial stage on a full time basis, the scientist shall be on a lien for a maximum period of three years from the CSIR/Laboratory concerned.

6. Responsibilities and Liabilities of Scientific Enterprise

- 6.1 The scientific enterprise should not be construed as an agent or representative or part of the CSIR/Laboratory. The scientific enterprise is solely responsible for the activities undertaken by it or for any liabilities that may arise from its activities.
- 6.2 The Scientific Enterprises can utilize the resources of the CSIR/ Laboratory concerned (the term 'resources' shall be construed widely and include, without limitation, laboratories, equipments, personnel and space of the Scientific Establishment) with prior approval in writing and on such terms and conditions as the CSIR/ Laboratory concerned may prescribe.
- 6.3 Subject to the existing rights or licenses, the scientific enterprise shall have the option to obtain license of Knowledgebase from the CSIR by paying royalty (upfront or staggered with milestones or a combination of both).
- 6.4 The scientific enterprise shall continue to be liable to the CSIR for payment of royalty as per agreement even if the Scientist disinvests his/her stake in the Scientific Enterprises.

7. Responsibility and Liabilities of CSIR/ Laboratories

- 7.1 CSIR may take equity stake in the Scientific Enterprise in lieu of royalty/premia or its combination, as per agreement. In case CSIR decides to disinvest the equity, it will be first offered to the promoters of the Scientific Enterprise.
- 7.2 Inventor will have the first right of refusal of exploiting the knowledgebase to create Scientific Enterprise. However, CSIR shall license Knowledgebase to the Scientific Enterprise on terms not less than the terms on which the CSIR would have licensed the Knowledgebase to another entity on arms length basis.
- 7.3 The scientist who has been granted permission under the scheme shall be exempted from the provisions of the Rules 15, 16 and 18 of CCS (Conduct) Rules, FR-11 and other related rules.

8. Resolution of disputes

"Any dispute arising out of the agreement shall be referred to an arbitral tribunal comprising of three arbitrators; one arbitrator to be appointed by each party to the dispute and the two arbitrators in turn shall appoint a third arbitrator. The three arbitrators shall constitute the Arbitral Tribunal. The decision of the arbitral tribunal shall be final and binding on the parties. The venue of the arbitration shall be the place of the laboratory concerned. The arbitration proceedings shall take place in accordance with the Indian Arbitration and Conciliation Act 1996 or any subsequent amendment thereof. The cost of arbitration proceedings shall be equally shared by both the parties. The language of the arbitration proceedings shall be English.

Component 2: Guidelines for Investing Knowledgebase as Equity in an Entity

1. The Background

The focus is to permit Scientific Establishments and Industrial Research Organizations (SIROs) to invest knowledgebase as well as cost of support services as equity in an Entity.

2. Objective

The objective of this scheme is to encourage and support enterprises aiming to commercialize knowledgebase developed at CSIR labs by allowing CSIR to take equity in lieu of licensing/assignment fees (upfront or deferred, in part or whole) and/or fees for support services.

3. Definitions

In these guidelines, unless the context otherwise requires:

- (f) "Government" means the Central Government;
- (g) "Entity" means a "person" which includes any company or association or body of individuals, incorporated under various laws, constituted primarily to commercialize Knowledgebase;
- (h) "Scientific Enterprise" means a special class of new Entity that leverages scientific research, inventions and innovations and transform into commercializable technologies/products.
- (i) "Scientists" means Group IV scientist of CSIR.
- (j) "Knowledgebase" means all inventions / innovations (whether patentable or not) invention / innovation disclosures, trade secrets, know-how, proprietary information, technical data, documentation, data collections, databases, concepts, processes, software, designs drawings, materials, support services and the like, whether or not the foregoing are in tangible or intangible form.

4. Eligibility

With the permission of DG-CSIR, all CSIR laboratories shall be able to exercise an option of taking equity in an entity in lieu of licensing fees (upfront or deferred, in part or whole) and/or fees for support services.

5. Procedures

5.1 General

5.1.1 The Laboratory desiring permission for equity participation for its knowledgebase shall apply to the Director General in prescribed form.

5.1.2 The Laboratory shall provide a detailed justification for a) taking the equity route as opposed to the conventional licensing route, and b) the rationale for the proposed level of equity planned to be held in the entity and any other related terms.

5.1.3 Notwithstanding anything contrary contained in any other rule, order or notification but subject to the provisions of this guideline, Director General, CSIR may or may not grant permission as sought by the Laboratory in the application on the basis of sensitivity angle.

5.1.4 The final approval on the application made by Laboratory shall be given by DG,CSIR within a quarter (three months time) from the date of receipt in CSIR HQs.

5.2 Terms of Knowledgebase as Equity

5.2.1 The terms of knowledgebase as equity would be finalized by CSIR based on the mutual agreement between the identified entity, and other involved parties and the CSIR constituent Laboratory.

5.2.2 Equity investment shall be made in lieu of royalty/premia (upfront or staggered with milestones or a combination of both or in any form as agreed upon) resulting or expected from Knowledgebase (as defined) through a valid licensing agreement only.

5.2.3 CSIR Laboratory could also invest the cost of support services of CSIR as equity with the approval of the respective competent authority.

5.3 Issues pertaining to management of the Entity wherein equity stake is being taken

5.3.1 Laboratory shall not participate in the management of the Entity wherein CSIR constituent Laboratory is investing knowledgebase as equity. The management of such entity shall vest in the promoters or next majority stakeholder.

5.3.2 Laboratory shall be allowed to nominate its representative on the Board of Directors of the company/ management mechanism of the Entity if required.

5.4 Distribution of the money received from the Enterprise wherein equity stake is being taken

5.4.1 The dividend received from entity as well as divestiture of equity shall be shared with the innovators and staff of concerned CSIR Laboratory /CSIR HQs. as per the procedures laid down by CSIR.

5.4.2 Dividend received from the income of such entity as well as the amount received due to divestiture of equity shall be ploughed back by CSIR in furthering its research objectives.

5.4.3 CSIR/Laboratories shall be permitted to hire the services of professional institutions to assist in setting up equity arrangements and/or managing the equity portfolio.

5.4.3 CSIR at an appropriate opportunity, on its discretion, shall have the option to divest its equity in an entity as per the financial norms.

6. Power to approve investment of Knowledgebase

The Competent Authority to approve investment of Knowledgebase as well as cost of support services as equity, in an Entity is DG,CSIR.

B. Guidelines to address issues related to Conflict of Interest related to implementation of the initiative

CSIR has not only pioneered the concept of R&D as Business but has practiced it successfully and fine tuned it over the years. The contract R&D undertaken by CSIR constituent Laboratories has lead to understand not only tenets of IP capturing and sharing with sponsors but also maintaining proprietary of knowledge among various clients. CSIR thus has long experience of dealing with industry for R&D related matters.

1. The basis for establishing Conflict of Interest

Conflict of interest arises in a situation in which a scientist's interest vis-à-vis the interest of CSIR in the event of permitting scientist to have equity stake in a scientific enterprises while continuing as scientist in the CSIR. A conflict of interest may prejudice a scientist's ability to perform his or her duties and responsibilities objectively.

The situation can be better explained by use of the term "conflict of roles". Scientist of CSIR may experience situations where those two roles conflict.

2. General principles for dealing with conflicts of interest and commitment for scientists:

It is the policy of CSIR that its scientists and others acting on its behalf have the obligation to avoid ethical, legal, financial, or other conflicts of interest and to ensure that their activities and interests do not conflict with their obligations to CSIR / Laboratory or its welfare.

In this context, CSIR scientist shall disclose all possible situations that may result in a conflict of interest to the designated officer in the CSIR/Laboratory. The designated officer shall also advice individuals on conflict avoidance and / or management, wherever required. Scientist of CSIR / Laboratory shall mitigate the possibility of conflicts arising by recusing them from certain situations / decisions or avoidance. CSIR scientist should also report any breach of the conflict of interest or commitment policy

without deliberate intention or knowledge to the designated officer in the CSIR / Laboratory.

3. About this form:

The purpose of this form is to assist CSIR scientist to declare any potential sources of conflict of interests.

a. Information on person filling this form

a1.	Name	
a2.	Designation	
a3.	Name of Laboratory	
a4.	Affiliation (Group/ Dept)	
a5.	Contact information/ address	
a6.	Phone	
a7.	Email	

b. Background and origin of potential conflict of interest

b1	Describe the circumstances leading to potential conflict of interest issue.	
b2.	CSIR/Laboratory analysis of avoidance of conflict of interest, if arises.	