

RESEARCH COLLABORATION

International research collaboration has always helped scientists to keep abreast of international science and to share expertise and resources. Today, one-fifth of the world's scientific papers are coauthored internationally — a result of increasingly easy communication and cross-border travel. However, a new character of international collaboration is emerging, as scientific research has become an integral part of economic and innovation policy. International collaboration has also become a key element in globalization strategy. Research collaboration supports research, training and knowledge transfer in everything from architecture to zoology, apart from supporting world-class research facilities. It also promotes public engagement in science, engineering and technology. The knowledge and expertise gained through investment in people and innovation allows the world to maintain a technological leading edge, build strong global economy and improve quality of life for people. International research collaboration requires work in partnership with other research investors including government departments and agencies, universities and colleges, and industry. Research collaboration extends across disciplines and organizational boundaries. Some of the main fields for research collaboration are:

- ARTS AND HUMANITIES
- BIOTECHNOLOGY & BIOLOGICAL SCIENCES
- ECONOMIC AND SOCIAL SCIENCES
- ENGINEERING AND PHYSICAL SCIENCES
- MEDICAL SCIENCES
- NATURAL ENVIRONMENT
- SCIENCE AND TECHNOLOGY

Today global networks are known to have contributed significantly to the success of Silicon Valley, USA. It has been possible for the USA to benefit directly from the information technology boom in India by being connected. The success of India is not only from cheap labor but also from attracting global R&D activities. Recent trends indicate that USA is keen to establish connections with the new powerhouse economy of India — not only in downstream industries but also in upstream science. The world as a whole is increasingly united on the need for research and innovation to tackle global challenges such as poverty and climate change. The growing international concern regarding greenhouse gases, crises in Africa, or diseases in developing countries are leading to new hopes about international research collaboration to address these issues.

The United States was one of the first nations to establish an approach to attract "the best and the brightest" in the world to their institutions. This policy placed the United States at the heart of international research collaboration, with US researchers co-authoring with researchers from over 170 countries. The unique US position was based first, on the openness of financial aid and fellowships to support any deserving graduate student. This

system grew through generous federal research funding and also by means of institutional competition to attract the best graduate students. Second, the tradition of openness in hiring academics dated back to World War II, during which many prominent European scientists moved to the United States. Third, the US labor market has been open to immigrants — particularly for highly skilled ones who could get companies to sponsor them.

Today, more countries are taking comparable approaches to attract "the best and the brightest" through similar policies to open up. There is stepped-up competition for international students undertaken by several countries — most notably Australia, the United Kingdom, Japan, and China. India is on the threshold of joining this competition. Another approach to international collaboration is to invest in world-class research centers of excellence. Singapore was one of the first countries to use public money for attracting world-class institutions. Singapore has become a major Asian education and research center, by creating high-profile international partnerships (with the Massachusetts Institute of Technology, Stanford, Berkeley, and Wharton—to name but a few), inviting world-class foreign universities to open campuses (e.g., INSEAD, University of Chicago Business School, and Waseda), and by its ambitious biomedical science park, Biopolis. India has a great opportunity to enter into similar partnerships with American universities.

For a developing country such as India, these steps are likely to lead to increases in scholarship and research collaboration opportunities. International research collaboration has entered an era in which networking has a direct economic significance. Some governments are already beginning to pay a premium to become hubs in global excellence networks. These developments will produce significant changes in the world's research capacity and yield new centers of excellence. The Council of Scientific & Industrial Research (CSIR) is the premier industrial research and development organization in India. Its chain of 39 R&D laboratories with 80 field stations spread across India are manned by 10,000 highly qualified scientists and engineers and 13,000 auxiliary and other staff, covering almost the entire spectrum of industrial R&D, ranging from aerospace to mining, microelectronics to metallurgy. CSIR can play an important role in promoting international research collaboration. There are a good number of universities and colleges in India that have research programs and these trends indicate opportunities for capacity building for research in India.

With several billion dollars in annual research funded by the National Science Foundation, the National Institutes of Health, corporate partners, and other Federal and Private Foundations, American universities are major research centers in the world. Award-winning faculty members provide undergraduate and graduate students with research opportunities in a multitude of disciplines. American universities work with faculty and outside partners to capitalize on opportunities to expand research and scholarship across all intellectual fields. This includes developing new programs, making strategic investments to seed new research initiatives and assisting faculty in obtaining funding from sponsors. Research collaboration between Indian institutions and American universities will be a "win, win" for all.

Given below is a list of top American and Canadian Universities visiting India for participating in the Indo-American Education Summit 2009. The major fields in which they are interested in collaborating with well established Indian institutions are also mentioned.

Case Western Reserve University

Power - Fuel Cells and Micro-Batteries
Sensors, MicroElectroMechanical Systems, Micro-Fabrication
Bio-Medical Imaging
Genomics/Proteomics
Neural Pathologies and Treatment, NeuroEngineering
Advanced Materials
Stem Cell and Regenerative Medicine

Clarkson University

Sustainable Energy - wind, photovoltaics and biofuels
Nanomaterials and other advanced materials
Applied Mathematics and Computer Science
Global Supply Chain Management

Concordia University

Energy and Environment
Aerospace and Transportation
Information Security
Computer Imaging and Gaming
Advanced Materials, Micro-technology
Bio-products and fuels.

Drexel University

Energy - storage, distribution, alternative (wind, solar, fuels)
Biomedical Technology
Urban Planning
Disaster Forecasting
Structural Stability
Robotics

Florida International University

Immunology
Neuro-Immune Pharmacology
HIV Infections
AIDS
Drugs & Abuse.

Florida State University

Sustainable Energy

Governors State University

Web Security
Web-centre innovation
Method Development for Chemical analysis.

John Carroll University

Business / Economics
Politics in India
India - Pakistan Conflict
Terrorism / Security Studies

Pacific Graduate School of Psychology

Psychology – All areas

Roosevelt University

Biotechnology and Chemistry Science
Computer Science and Telecommunications
Math and Actuarial Science
Psychology
Sociology
Women and Gender Studies
Business
Accounting

Management

South Dakota School of Mines & Technology

Cardiac, Vascular, Bioprosthetic Heart Valves

Tissue Engineering

Biomechanics

Orthopedic Implants

Pathophysiology

Computer Modeling

Biomaterials

Southern Illinois University

Clean Coal Technology, Gasification, Sequestration

Software Engineering

Real-time System Analysis

Wireless Sensor Networks

VLSI test design

Embedded Controls/Systems

Power Systems

Materials Technology

High Speed Optical Converters/Storage

Device Modeling using Super Computing

Ultrasonic Navigation

Friction Science

Water Resources Engineering

Biofuels

Environmental Engineering

Geotechnical

Business Administration – all areas

Cross-Cultural Issues

Supply Chain Design and Implementation

Management of Technology

Group Decision Support Systems (GDSS)

Brand Marketing

Service Operations
Financial Management Issues
Globalization Strategies
Sustainable Organizations
Innovation Management
Doctoral Programs with top Indian Business Schools

Southern University and A&M College

Computation, Communication, and Information
Advanced materials, Nanomaterials, Nanoscience, and Devices
Energy
Environment

Temple University

Environmental Engineering
Bioengineering
Communications
Electrical and Computer Engineering
Energy
Environmental Engineering
Mechanical Engineering

Texas Christian University

New Media.

Tufts University

Food and Water-borne Diseases
Nutrition
Economics
Child Development and Education
Infectious Diseases of Humans and Animals

International Relations
Basic Medical Sciences
Public Health
Veterinary Medicine
Nutrition
Engineering
Arts
Sciences
Humanities
Technology Licensing

University of Alaska Fairbanks

Energy
Engineering
Climate Change
Atmospheric Sciences
Geophysics
Fisheries and Oceanography
Biomedical Research

University of Bridgeport

Tissue Regeneration
Tissue Engineering
Biorobotics
Very Large Scale Integration (VLSI)
Wireless Communication
Thin-film Solar Cells
VLSI design and testing
Man-Machine Interface
Biomechanics of manipulation
Computational fluid dynamics
Business and Information Technology Continuity and Security
Environment and Energy Management

New Product/Service Development and Commercialization

This is a partial list of areas of research available at UB.

University of Massachusetts-Boston

Doctoral and Post-Doctoral Programs in Chemistry

University of Oregon

Humanities

Social Sciences

Hard Sciences

Business

Education

Music and Dance

Journalism and Communications

Architecture

Arts

Planning

Public policy

Conflict Resolution

Law

University of Rochester

Humanities

Social Sciences

Natural Sciences

Engineering

University of Wisconsin - La Crosse

Business Administration

Health Education and Health Promotion

Exercise and Sports Science

Psychology
Physical Therapy
Occupational Therapy

Widener University School of Law

Joint LLB/LLM Programs
Summer Law Program in American Corporate Law
Scholar-in-Residence Programs
Comparative Business Law Conferences
International and Comparative law Annual Summit