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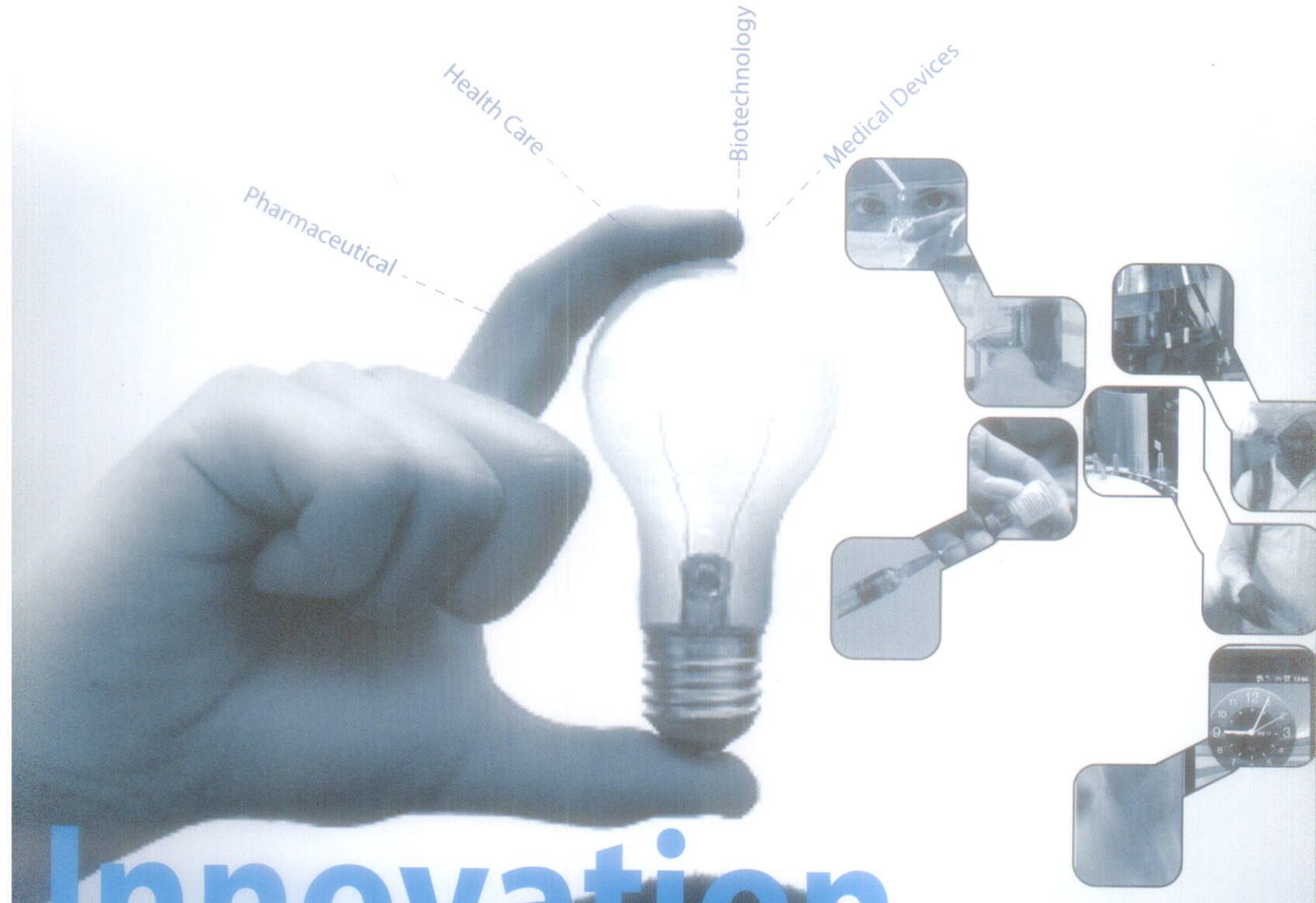
Life Science INDIA

A Confederation of Indian Industry Initiative



Innovation need of the hour

HEALTHCARE SCENARIO IN INDIA
Dr S Jayaprakash

INDIA'S NEED TO INNOVATE
Rajaseevan, Founder Trustee
Indian CST

India's prescription for Innovation
Dr Saji Salam

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Our Need to Innovate

-Rajaseevan
Founder Trustee
Indian Centre for Social Transformation
A Public Charitable Trust

The global population is projected to rise from 6.5 billion in 2005 to 7.6 billion in 2020. It is also aging rapidly; by 2020, about 719.4m people – 9.4% of the world's inhabitants – will be 65 or more, compared with 477.4m (7.3%) two years ago:

i. Older people typically consume more medicines than younger people; four in five of those aged over 75 take at least one prescription product, while 36% take four or more.

ii. Demand for effective medicines is rising, as the population ages, new medical needs emerge and the disease burden of the developing world increasingly resembles that of the developed world.

iii. The leading pharmaceutical companies will lose between 14% and 41% of their existing revenues as a resultof patent expiry.

iv. Pharma is trying to find cost effective methods to improve its R&D productivity, if it is to meet the world's unmet medical needs and capitalize on the market opportunity that is now emerging.

v. Tuberculosis -Disease impact: Estimated 2 million deaths per year, 90% in developing countries. Some 2 billion infected.

vi. Malaria -Disease impact: Estimated 1 million deaths

12. Establish an incentive system and culture that encourages team-based, multi-disciplinary progress.Manage the ownership of intellectual properties and valuation that results in intangible assets

Outlining a practical business model

i. The R&D programs models can be designed based on the strategic value, gestation period, technology risk and commercial potential of the technologies.
ii. Huge investments made in this sector will have long gestation periods like a min of 7 years for breakeven to happen and to see its profitability a few years later.
iii. Research funding must be made available during this period though some part will be supported by way of international outsourcing work.
iv. Huge knowledge equity will be generated in form of new IP's, patents, publications and of course a few possible new molecules which will be the major output of this business initiative.
v. In-house high quality research manpower and innovative process algorithms will be available for doing own drug research projects.
vi. It's a high risk business but does have its own BIG profits as its product development and research business.
vii. The benefits of long-term R&D training programs are uncertain and the gestation period could be more than 10 years. Such initiatives may be unattractive for private sector funding and therefore, long term R&D programs will have to be funded by the government.
viii. It is essential for the Center to initiate new drug development for diseases of relevance to Indian population not only presently but in the years to come as well. Based on this assessment the priority Center were identified as follows:

i. Communicable and infectious diseases : T.B., Malaria, gastro intestinal infections, (e.g. cholera, hepatitis, etc.), kalaazar, filaria, H.I.V and sexually transmitted diseases (STD's), lower respiratory diseases.
ii. Cardiovascular diseases: Hypertension, atherosclerosis and myocardial infarction, coronary artery diseases, rheumatic fever and heart disease.
iii. Cancer
iv. Eye and ear diseases
v. Metabolic diseases : diabetes, arthritis, dyslipidaemia and obesity
vi. Neurological diseases: e.g. Alzheimer diseases, Parkinsonism, Epilepsy.
vii. Nutritionally linked diseases: Malnutrition,Aneamia,a vitaminoses.
viii. Paediatric diseases: Neo-natal diseases to reduce infant mortality.
ix. Reproductive diseases
x. Respiratory diseases : Asthma and other allergic respiratory disorders.

One of the major limitations to the future expansion of bioinformatics as there is a lack of trained personnel in this interdisciplinary field.

Over the past 15 years, there has been a noticeable shift in these industries away from drug discovery toward drug development and commercial manufacturing. This shift in emphasis has created jobs in analytical chemistry, pharmacology, toxicology, regulatory affairs, bioprocess and process developments, validation, quality control, quality assurance, clinical trials management, and large-scale manufacturing. This shift has also resulted in a decreased demand for science Ph.D.s--who are highly sought in drug discovery--and an increased demand for baccalaureate- and master's-level scientists to fill jobs in quality systems, regulatory affairs, clinical trials management, and manufacturing.

- Human Resource Development
- Infrastructure Development
- Focus on Research And Innovation
- Promoting Drug Discovery Instrumentation Entrepreneurship
- Encouraging New drug discovery related Business
- Educating leaders for tomorrow
- Hiring and retaining brightest minds
- Exploring new horizons
- Enabling new capabilities
- Opening new avenues for basic and applied research
- Speeding new inventions
- Accelerating technology commercialization
- Creating high-tech life science industry
- Making economic impact
- Shaping the future of students

Long Term Trends That Will Influence Bioscience Technologies

- Aging Population
- Systems Biology & Scientific Convergence
- Customization of Therapeutics (personalized medicine)
- Continued Innovation Explosion
- Increased Distributed Computing
- Miniaturization and Automation
- Increasing Cost Containment
- Focus Areas of Economic Development (by many governments/entities)
- Improvements in Agricultural Production
- Need for Education and Training
- Bioterrorism (actual and preventive measures)

Health

- Advanced healthcare: genomics, imaging
- Healthcare Management: Telemedicine
- Genomics & Preventive medicine