INNOVATION IN INDIA

- STATUS, EMERGING TRENDS & CHALLENGES -

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SCOPE OF TOPIC

- R&D vs Innovation
- Current status of R&D and Innovation in India
- Key challenges/barriers for Innovation
- Initiatives by Government and industry
- India as a Global leader in R&D, Innovation
- Breakthrough Innovations Example

INNOVATION

- **Innovation**-Development of new customer value through solutions that meet new needs, unarticulated needs, or old customer and market needs in new ways.
- Accomplished through different or more effective products, processes, services, technologies, or ideas.

R&D vs INNOVATION - SEMANTICS

'Research And Development - R&D' Investigative activities that a business chooses to conduct with the intention of making a discovery that can either lead to the development of new products or procedures, or to improvement of existing products or procedures.

R&D vs INNOVATION - SEMANTICS

'Innovation' is defined as a process by which varying degrees of measurable value enhancement is planned and achieved, in any commercial activity. This process may be breakthrough or incremental, and it may occur systematically in a company or sporadically; it serves to improve market share, competitiveness and quality, while reducing costs.

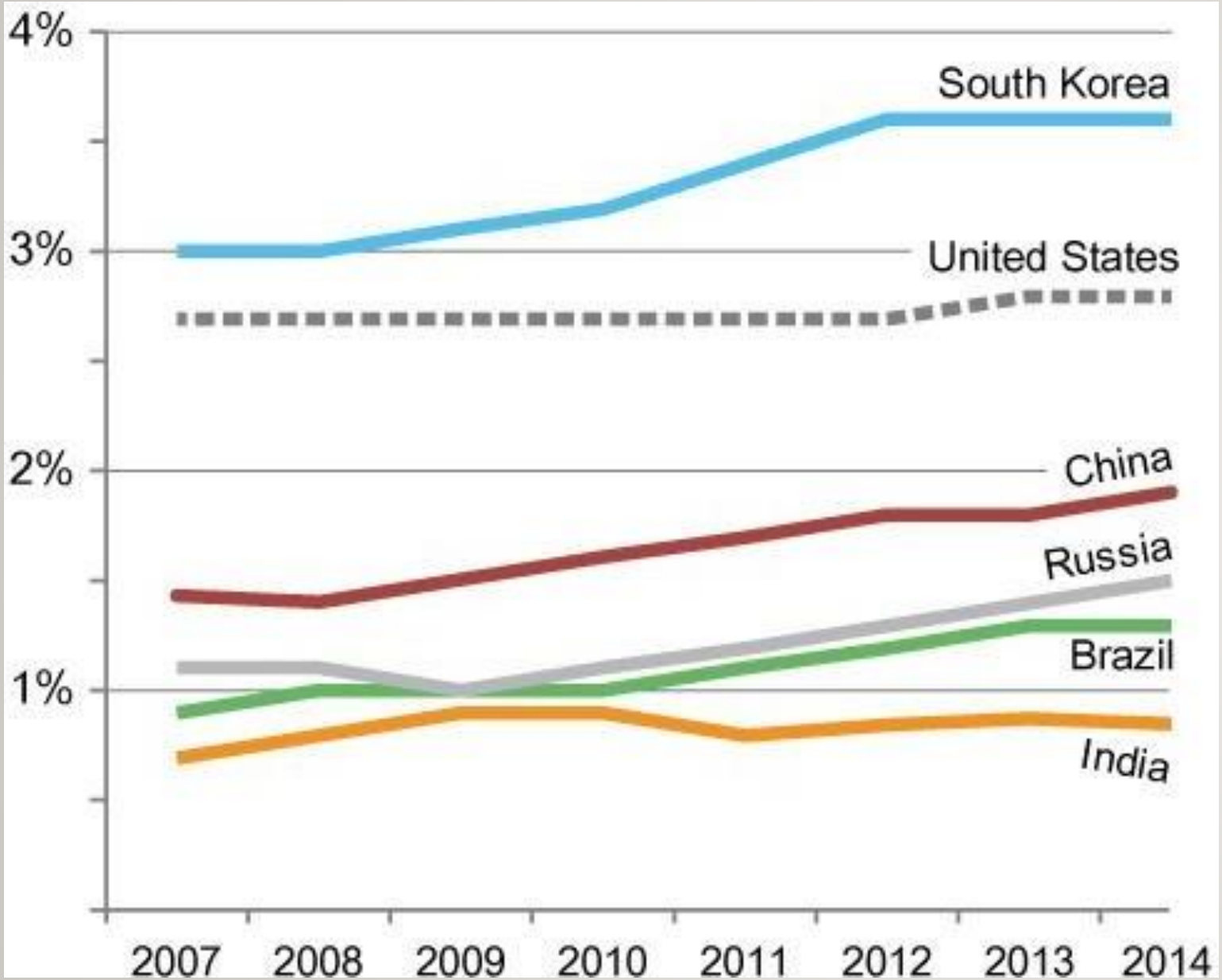
Means: New/Improved Goods/Services,

Operational, Organizational or Managerial Processes

ADDITIONALLY ON INNOVATION

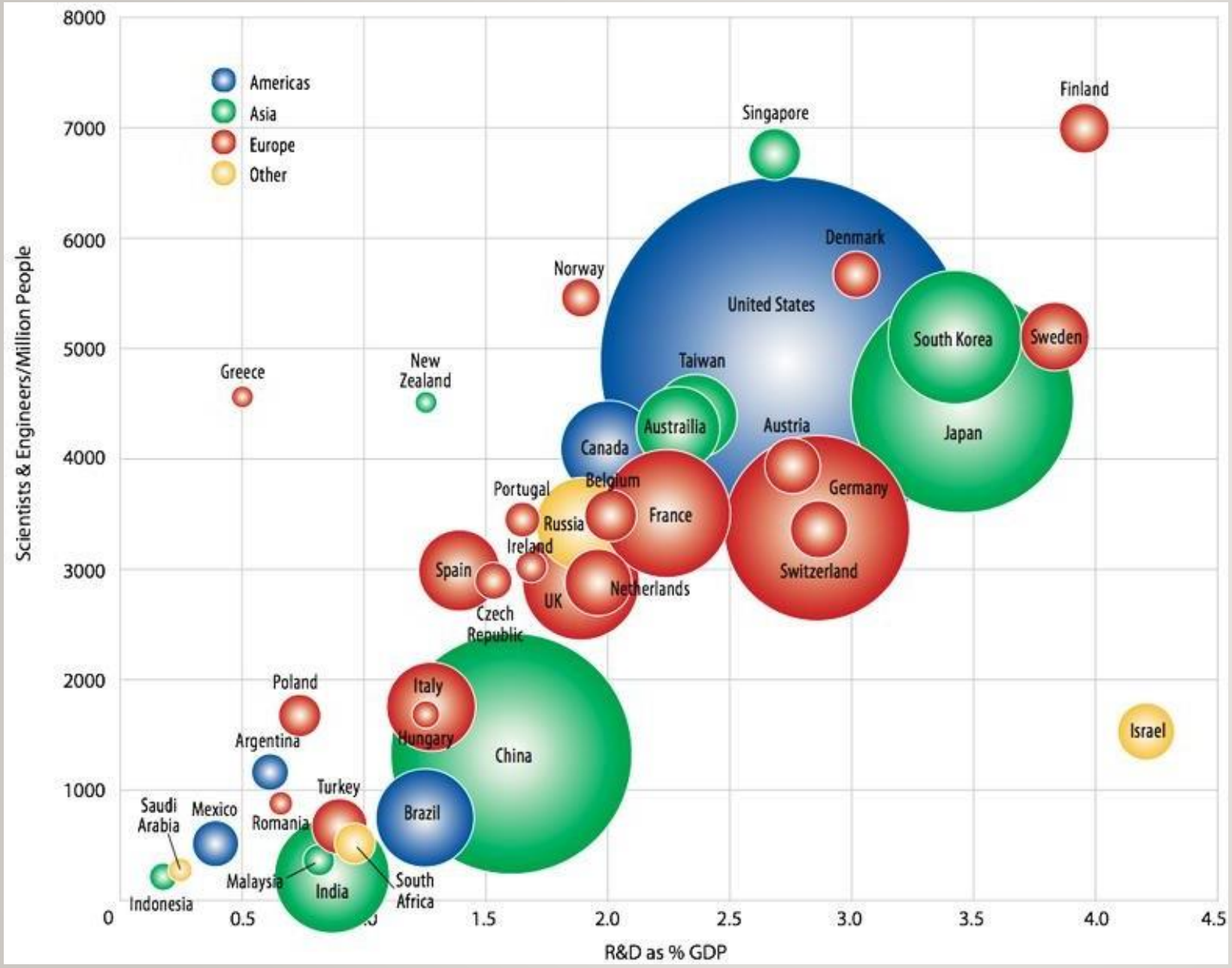
Innovation cannot often be bought or implanted. It will happen on its own once the right environment is provided within an organization or institution for research, learning and exploring ways to improve value provision along the entire system.

THE INDIAN SCENARIO



S&T BUDGET

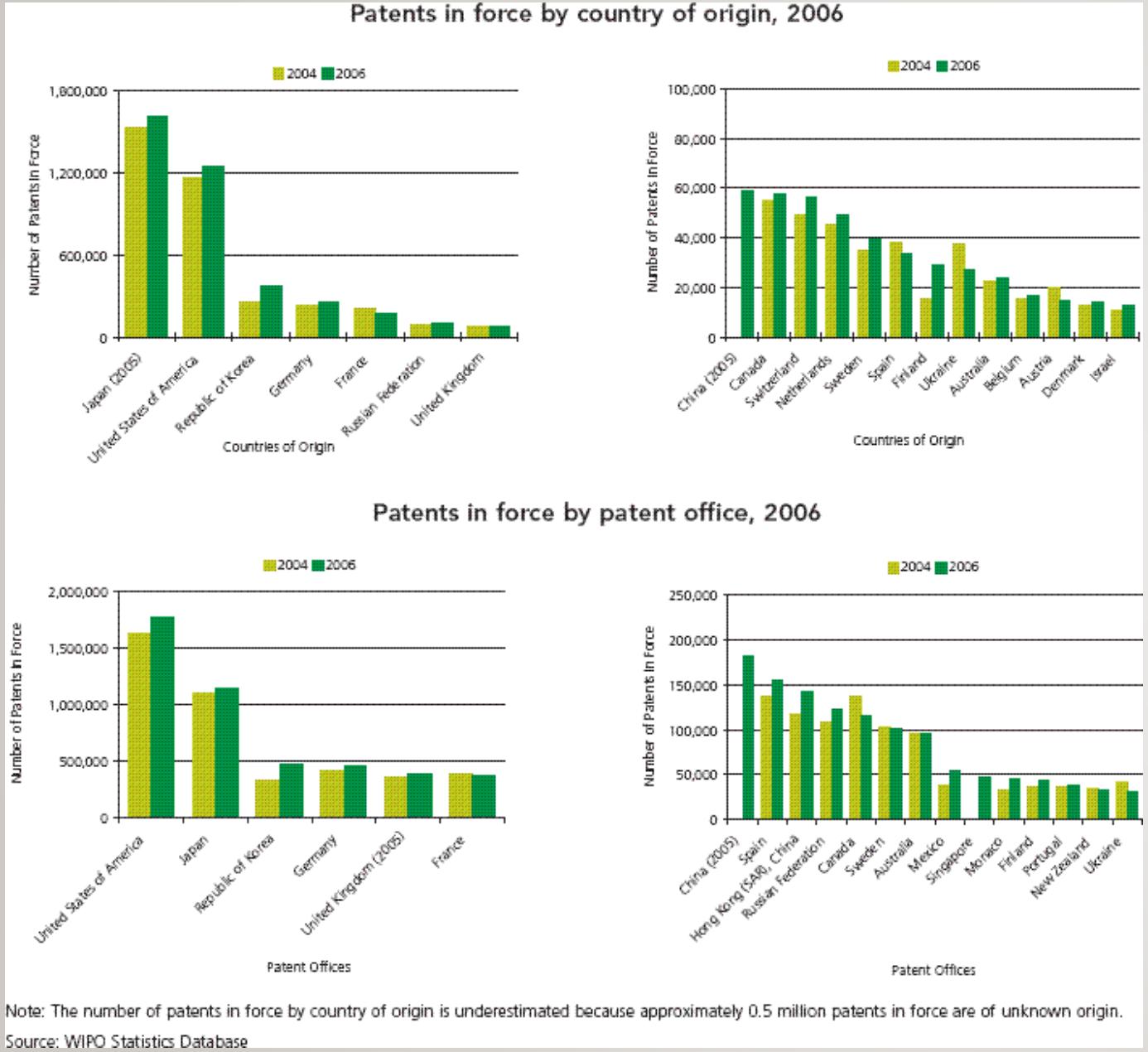
Expressed as a Percent of GDP



KNOWLEDGE WORKERS

Expressed per

Million people



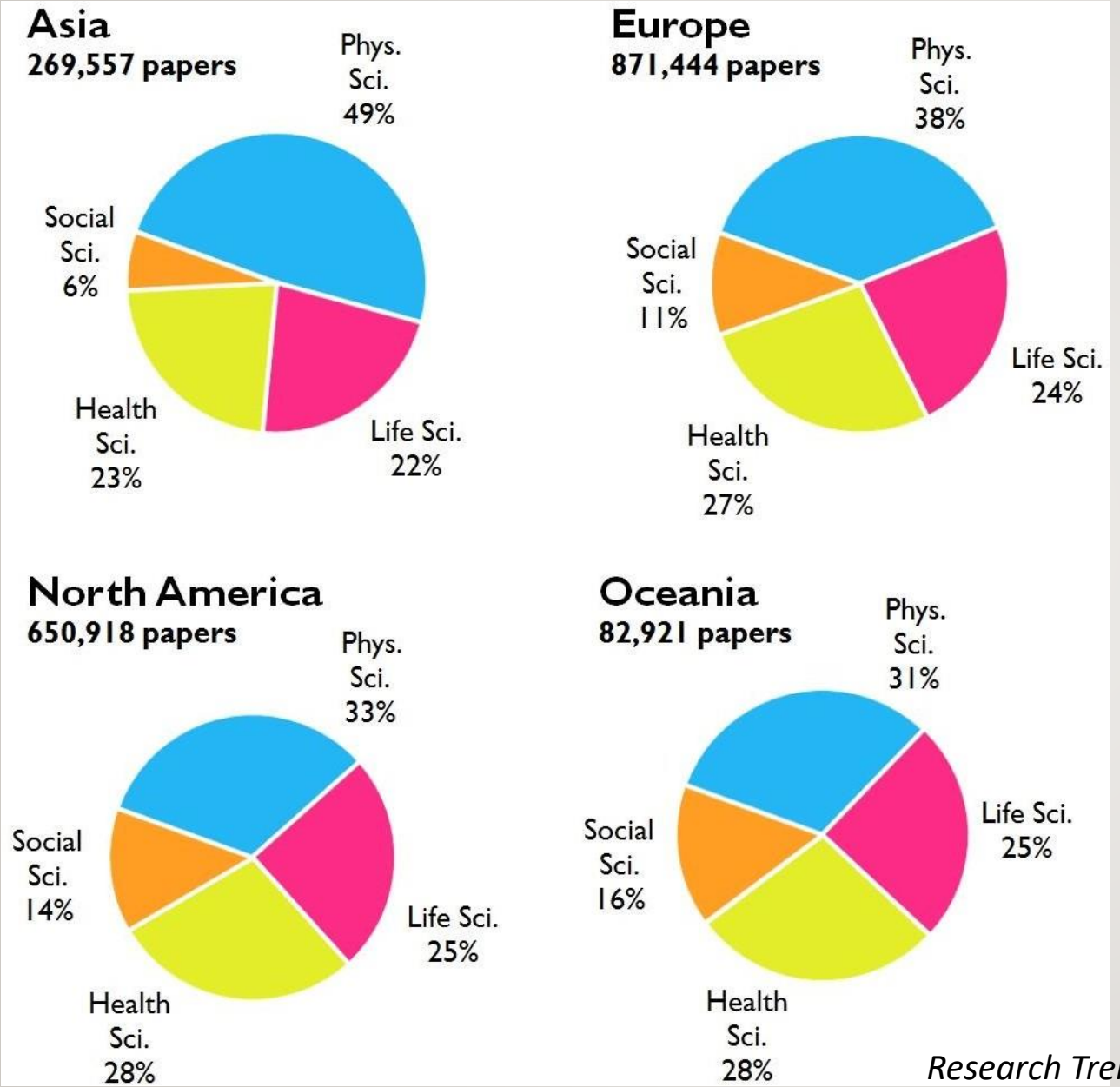
Note: The number of patents in force by country of origin is underestimated because approximately 0.5 million patents in force are of unknown origin.

Source: WIPO Statistics Database

PATENT STATISTICS

India is nowhere

On the Scene



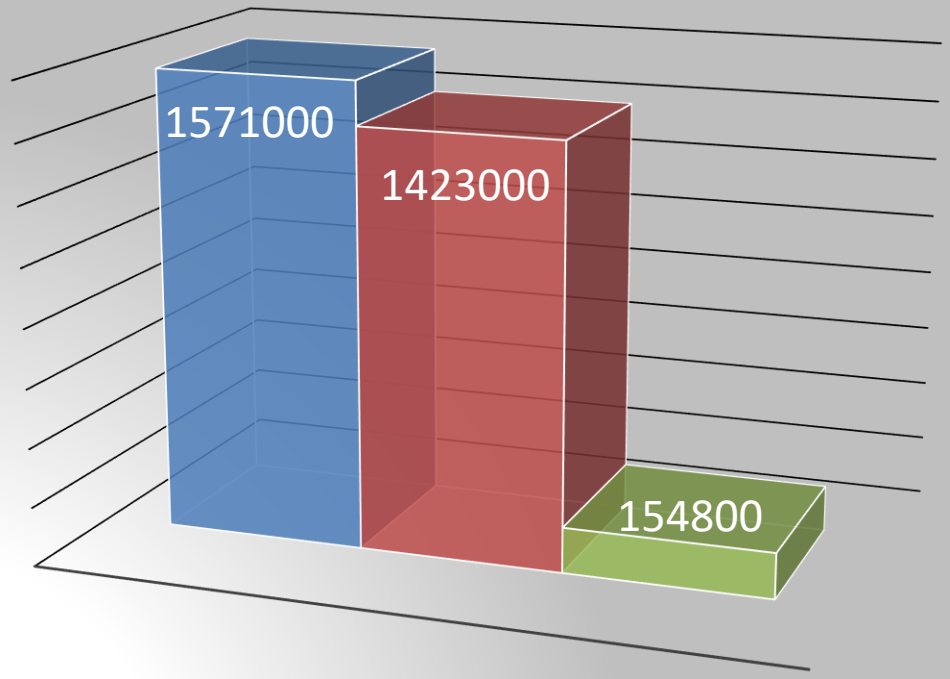
Research Trends, 2011.

RESEARCH PAPER TRENDS

India barely Contributes a good percent in the Asian Scenario

SCIENCE & TECHNOLOGY, INDIA

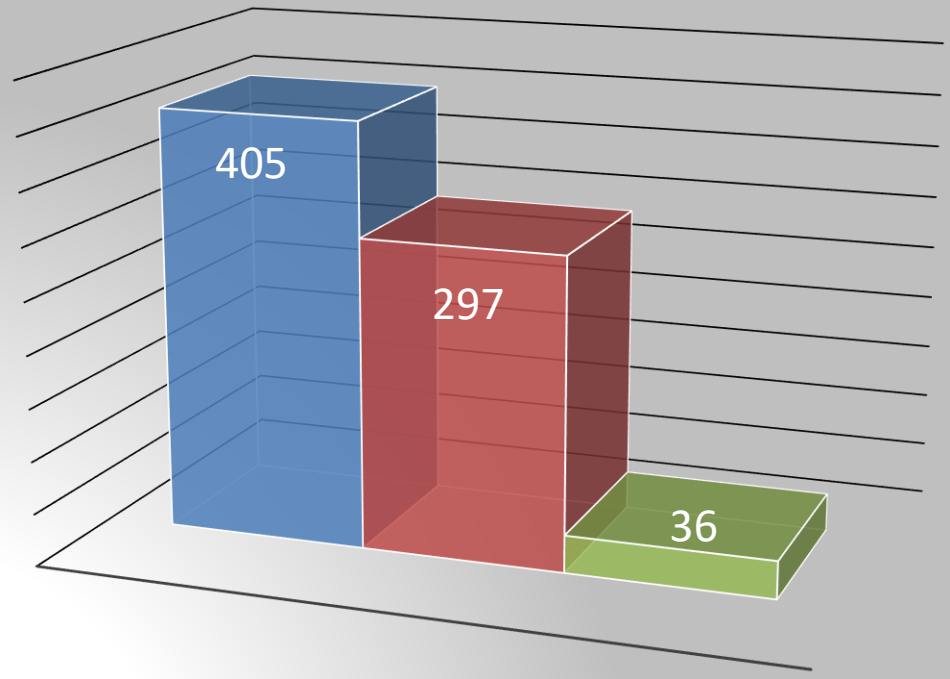
Researchers in the Country (2007-08)



RESEARCHERS IN NATION AS OF 2007 DATA

USA China India

R&D Spend in Billion USD's (2011)



R&D SPEND AS OF 2011 IN USD BILLIONS

USA China India

MAJOR CHALLENGES

R&D, INNOVATION

BARRIERS IN INDIA

Budget Allocation stuck at .9% for R&D - Across the BJP regime led by Atal Behari Vajpayee in 2003, all the way to the Manmohan Singh regime the Indian Science & Technology budget has stagnated at about .9% of the GDP. The promise to raise it to 2% has passed on from the 9th plan to the 12th plan with no avail. Significant drops in India's R&D budget allocation over the years. While private sector expenses in R&D is increasing, the Indian Government is not keeping pace with global R&D spends. We've reaped the benefits of major S&T initiatives taken in the past, but in the future do we have projects now that we can take benefits off.

The Science & Technology Portfolio, not given due importance – Often as a portfolio lacks good ministers at helm, and underplayed within the Government. Not governed by Ministers with the right caliber.

R&D, INNOVATION

BARRIERS IN INDIA

Archaic and Outdated Education System – The educational environment in India, is one that is driven by instruction systems and formulas, as opposed to one facilitated by curiosity, exploration and understanding. Political interference in education content in some cases. There is often a lack of depth in the learning, and the spirit of curiosity is not sparked.

The Brain Drain Scenario – The migration of highly skilled and educated youth from the better institutions in the country abroad in search for better pastures.

R&D, INNOVATION

BARRIERS IN INDIA

Lack of a R&D friendly Ecosystem – The nation has very few institutes and organizations that can create a healthy and internationally comparable environment for growth in Research Industry. Very little, R&D friendly policies within the Government.

A lack of Entrepreneurship friendly policies – The NKC sites that start ups and SME's are often the hub of innovation, while the government policies that encourage and promote startup and entrepreneurship culture is still in it's infancy.

R&D, INNOVATION

BARRIERS IN INDIA

Indian Universities are just learning shops – As opposed to the practice in most great universities and institutions abroad, universities are at the forefront of research often partnering with private, public and government sector organizations.

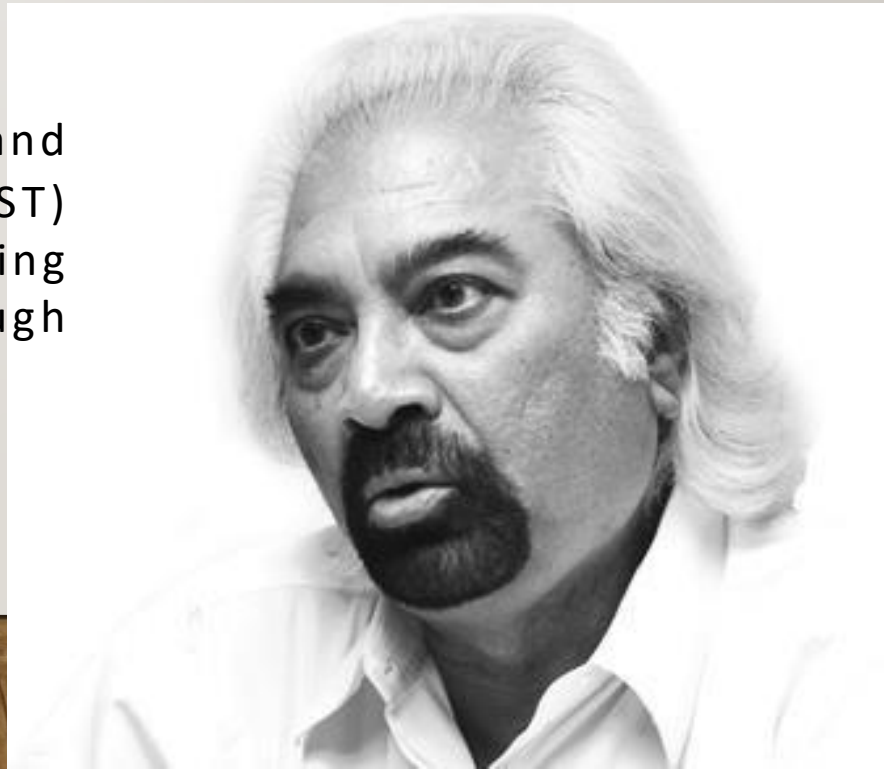
IPR and Patenting Practices on Decline – The pursuit to build indigenous IPRs and patents in various sectors is taking a backseat, while most international MNC's make use of Indian Eco-systems and Resources to build their portfolio of the same.

GOVERNMENT INITIATIVES

GOVT. INITIATIVES – INNOVATION AND R&D

The National Innovation Council, India – An Thinktank initiative by the Indian government to create a roadmap for sustainable innovation from 2010 – 2020 under the chairmanship of Sam Pitroda (former chairman of the NKC).

DST & DSIR takes the Lead – 'Ministry of Science and Technology'. The Department of Science and Technology (DST) and Department of Scientific and Industrial Research (DSIR) taking the lead in fostering innovation & R&D in the country through various programs.



GOVT. INITIATIVES – INNOVATION AND R&D

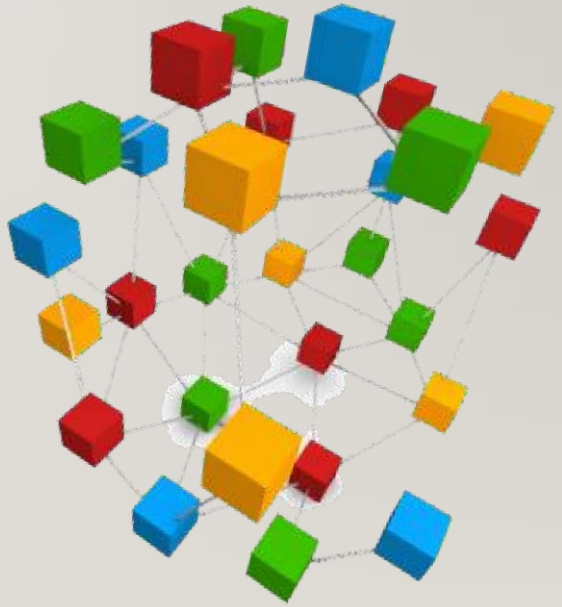
New Science, Technology and Innovation Policy – The new policy focusses on creating a framework that imparts quality knowhow, a better and more appealing research atmosphere for professionals, creating better facilitation of private sector participation in R&D etc…

National Jawaharlal Nehru Fellowship Scheme / Professorship Scheme – A scheme envisaged to attract Indian born skilled and Talented researchers and academicians back to India for short stints to pursue Research and Devolopment in Indian Institutes and Organizations. (Received strong criticism for ECG Sudarshan, but adopted successfully by nations like China, Australia Etc…)

NATIONAL INNOVATION COUNCIL – INDIA

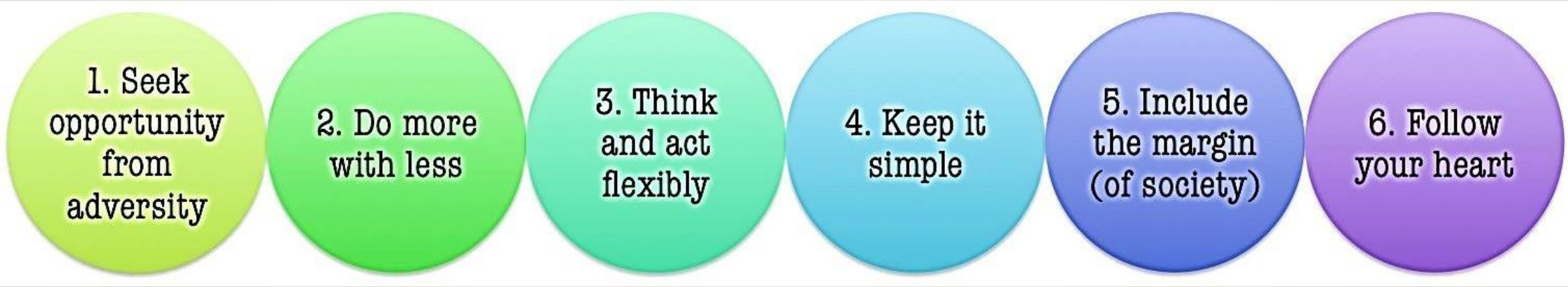
The National Innovation Council, India – Some of the more interesting initiatives and key element the NInC are working are mentioned below…

- Federal Policy and Incentive Schemes
- Access to Capital, Skilled Manpower, Market
- Industry & Cluster Innovation Center (CIC)
- Building positive Public Private Partnerships (PPP)
- State & Sector Level Innovation Cluster Initiatives



PRINCIPALS OF
JUGAAD INNOVATION

The fundamental principals behind Jugaad Innovation



REFERENCES

" This presentation has been made possible through the information and ideas derived from a lot of articles, journals, books and magazine references from many sources ranging from the National Innovation Council documents, Policy Papers, Forbes Articles, The Hindu, The Financial Express, The Times, Books like Jugaad Innovation, Breakthrough Innovations in India and very many numerous other Resources… All mostly that were made accessible to us by Prof. Sthanu R Nair… We hope this document helps you get a better picture of the Indian Scenario on Innovation"