

Atal Innovation Mission

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India, over the centuries has never had a dearth of great thinkers, scientists, engineers, doctors, innovators, philosophers, artists. Indian intellectual capabilities are second to none with some of the greatest scientists, mathematicians and engineers in the world like President Abdul Kalam, Shri Ramanujan, Sir CV Raman, Shri Jagdish Chandra Bose and Dr Vikram Sarabhai. Our philosophy, culture, fine arts, temples and sculptures over thousands of years also bear testimony of the same.

What India however lacks today is a holistic innovation ecosystem that enables the thinking capabilities of more of our people to be expressed as great scientists and innovators. Whenever Indians go abroad they excel. Many like Sundar Pichai, Satya Nadella and other Indians are leading innovations in some of the largest and most innovative companies of the world like Google, Microsoft, etc.

Access to an innovative ecosystem in these developed countries has allowed them to realize their aspirations, convert their dreams into realities, and helped them flower and blossom to their true potential.

With over 1.3 billion+ people, over 1.4 million+ schools, over 10500 engineering institutions and similar number of business schools, with over 150 million youth of India entering the work force and we need to ensure that these students and youth can also realize their true potential.

The Atal Innovation Mission single focus is to create such a world class innovation and entrepreneurial ecosystem in India - to promote world class innovation and entrepreneurship throughout the length and breadth of our country. To provide an innovative ecosystem that will also transform our job seekers to job creators of the future.

The AIM Framework - a Holistic Framework

The Atal Innovation Mission has adopted a holistic framework to achieve its objectives, as we need interventions which can create immediate impact, and others which are necessary from a long term.

There are a growing number of startups in India thanks to the several startup initiatives in the country both from the private sector as well as the government - but there is a greater growing need for new green field Incubators across the various fine academic and other institutions of the country to provide the necessary support system in many ways to start ups to enable their success - from access to technology labs, mentoring networks, to access to venture capital, financial, hiring networks, etc.. There is also need to support scaling of existing proven Incubators. With 100 smart cities have been identified in the country, we need to ensure thriving vibrant incubators in all these smart cities

At the schools level is a tremendous need for creation of an innovative, problem solving mindset in the students of the high schools. These students are going to be the future of our country and we need to ensure that thousands of entrepreneurs and innovators are launched through the innovation initiatives of our country.

Finally at the grass roots level a cultural shift in attitudes towards entrepreneurship through education and awareness of the importance and opportunities of entrepreneurial ventures, availability of venture capital to seed them, through the incentivization of relevant product innovations with commercial and social impact through challenges. This will trigger and incentivize entrepreneurial thinking and minimize the fear of risk taking and risk Management in such ventures.

About Atal Tinkering Labs

The word Tinkering is often associated with a garage where you use the hundreds of tools in a garage to repair or fix a vehicle or even experiment with new possibilities. The very environment and atmosphere in a garage makes you apply your theoretical knowledge to practical applications and innovations.

Theoretical class room based knowledge in the various fields of science, physics, chemistry, math triggers the spark of curiosity in a child to acquire more of such knowledge and our children and students are very good at that

Practical knowledge, access and tinkering with these latest tools and technologies that ignites the imagination of children to apply these abstract concepts learnt in the classroom to real world solutions is very important for the children and youth of our country

The world is changing at a dizzying pace. Revolutionary technological advancements are transforming the world and giving rise to new technology and business innovations at an exponential rate. Electronics miniaturization has enabled a computer the size of a room to fit the size of our pockets with convergence of computing, storage and communications at incredibly lower costs . Robotics and artificial intelligence are driving next generation productivity and automation. 3D printers are making real time conceptualization, design, prototyping and manufacturing a reality. IOT or the Internet of things are connecting sensor Technologies to mobile and satellite Technologies in every Industry - from enabling precision agriculture, water cleansing and conservation, climate change controls, disaster prediction and management, driverless cars and space shuttles. Big Data and analytics and Artificial Intelligence are enabling ecommerce and complex decision making through advanced easy to use tools

All these tools and Technologies are available today and affordable too from a learning perspective . Unless our children in our schools have access to these Technologies and get familiar with them , tinker with them, experiment with them, design solutions with them, prototype them, test them, and allow unbridled expression to their imagination and creativity, they and we all will be left far behind.

If you can create prototypes and solutions in the school level you create also a mindset and confidence in being able to become a job creators of the future

AIM has already launched the implementation of 5000+ Atal Tinkering Labs across 650+ of the 715 districts of the country in both government and private schools across the country all of which will be operational in FY1819. The results of these interventions are amazing to watch. A 10th grade girl student from a remote government school has been able to develop an IOT device for irrigation management and water conservation using soil sensors winning a national student innovation contest. Another student from one of these Tinkering labs was a winner in a World Robotics Olympiad by designing a Robotic waste segregation and management system.

Atal Incubators

The Atal Incubators intervention is to enable the creation of world class incubators to support the burgeoning number of startups in the country.

AIM has already launched 101 incubators to date all of which would be operational by end 2019. These incubators will provide the necessary ecosystem of access to technology labs, hiring, training, mentoring, finance, venture capital networks and corporate networks.

The long term vision is to have world class incubators in the Top 10 academic and engineering institutions of every state and at least a couple of incubators in every city identified as a smart city for development

Atal Challenges

India is the world's largest democracy with over a billion people, 33 states, 8 Union Territories, multiple languages with each state having different issues and problems to solve both from an economic growth point of view as well as societal needs point of view. It is important to expose the magnitude and impact of these problems to the future innovators of the country to also enable them understand the enormous positive impact that solving these problems would have

There is therefore an urgent need to incentivize relevant problem solving and innovations at local, regional and national levels across the length and breadth of the country – at schools, universities, industry and even global levels.

The Atal Tinkering Challenges at school levels, the Atal New India Challenges at Start ups and University levels, the Atal Grand challenges at a national level will incentivize Relevant problem solving and innovations and entrepreneurships, which can have ready markets for them besides enabling creating new markets. 24 Atal New India Challenges stimulating product innovations in five sectors have been launched in areas such as Drinking water and Sanitation, Urban Housing and development, climate smart Agriculture, Rail safety and Transportation which can have great benefit for the country as well as be commercial successes. In the recently held Atal Tinkering Marathon over **35000+** students participated creating 6000+ innovations in five challenges launched nationwide. The Top 100 innovations from these school students are being considered for possible conversion from prototypes into market ready products.

Collaboration is the key

AIM is convinced that that none of these initiatives are going to succeed without proactive collaboration with corporate and individual mentors, specialists and professionals who want to give back to society in some way and be a part of the India in the making, Corporates and SMEs can adopt ATLS and coach the students into problem solving, ideation, prototyping and triggering small innovations. Regional, state and international governments who actively support the cause, global academic partnerships can enable sharing of best practices and could extend their facilities virtually. NGOs and multinational companies who have a stake in one of the largest democracies of the world can collaborate on almost all these initiatives. None of these initiatives will succeed without a certain degree of selfless commitment and passion to the cause of innovation and to the cause of betterment of the world we live in. In a connected world remote or distance mentoring can be a reality.

Collaboration will be key to the success of these initiatives. AIM has therefore launched a **Mentors of Change – Mentor India Network** across the country and hopefully extend it world wide . Over 5000 mentors have registered for mentoring and many corporates have adopted Atal Tinkering Labs for mentoring them.

Future long term goals of AIM

AIM's future initiatives include establishment and promotion of Small Business Innovation Research and Development on a national scale (AIM SBIR) for accelerating innovation on a large scale in small businesses/startups/MSME in different sectors. AIM would also collaborate in Science and Technology Entrepreneurial Ecosystem Rejuvenation (AIM STEER) of innovations in major research institutions of the country like Council of Scientific Industrial Research (CSIR), Indian Council for Agricultural Research (ICAR) and Medical Research (ICMR) aligned to national socio-economic needs.

In closing

India did get left behind in the industrial revolution that swept the world in the last century. But India does have a fantastic chance to contribute to the world in the knowledge based revolution that is sweeping the world today. That is why Atal Innovation Mission initiatives are so important and needs to be embraced by all. The children and youth of the future deserve it. We all need to collectively make it happen.



About the author: Mr. R Ramanan is the Mission Director of the Atal Innovation Mission Additional Secy NITI Aayog - the Atal Innovation mission is a strategic national Innovation initiative NITI spanning schools, universities, NGOs and the industry

R Ramanan was previously Managing Director & Chief Executive Officer and member of the Board of Directors of CMC Ltd., a subsidiary of the globally acclaimed Tata Consultancy Services (TCS).

Ramanan's illustrious career in the IT industry spans more than three decades when he joined TCS in 1981 after graduating from IIT Mumbai in Electrical Engineering. Ramanan played an instrumental role in the growth of TCS with a variety of responsibilities ranging from software product development, technical marketing, global business development, and general management of large delivery centers of TCS.

Ramanan led CMC's rapid transformation from a domestic government organization to a global IT systems engineering and integration organization. Under his leadership CMC share price grew over 2100% between October 2001 to 2014, its operating profits over 1338%, with over 72% of its business coming from the overseas markets and leading to its successful amalgamation into TCS in 2015

Ramanan graduated from IIT Mumbai in electrical Engineering in 1981. He is also a Harvard Business School Advanced Management Program Alumni and accredited by Cambridge University in Sustainability Leadership. He was also elected Lifetime Chair of HBS AMP187 Alumni by HBS.

Ramanan received the CEO of the Year award in 2015 from CMO Asia, India's top 3 most "Value" able CEO recognition by Business World in 2011 and 2013, Indira Gandhi Sadbhavana and Rajiv Gandhi Shiromani awards in 2005-2006 and many other recognitions for outstanding contributions in Innovation and Business Leadership. He has recently been recently honored with Mint SAP Digitalist Award-19th April 2018 in Mumbai.