

# Innovation: A National Priority for India

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**Abstract -- Innovation is the practical implementation of ideas that result in introduction of new goods or services or improvement in offering goods or services. Innovation requires creativity and willingness to take risks than the implementation of typical projects. To successfully realize innovation projects, a different mindset is needed. Creation of value is a defining characteristics of innovation.**

**For India aspiring to become knowledge-economy, this paper highlights importance of institutionalizing widespread innovation ecosystem. It requires visionary leaders to nurture innovations.**

*Keywords: Innovation, Knowledge economy, R& D institutions, Start-ups, Innovation ecosystem*

## I. INTRODUCTION

THE word “innovation” is derived from the Latin verb innovare, which means to renew. In essence, the word has retained its meaning up until today. Innovation means to improve or to replace something, for example, a process, a product, or a service. *Innovation is a process by which a domain, a product, or a service is renewed and brought up to date by applying new processes, introducing new techniques, or establishing successful ideas to create new value.*

The creation of value is a defining characteristic of innovation. New technology in society can promote a higher quality of life, which in turn creates a community free to pursue scientific advancements. On a socioeconomic level, the impact of innovation is far-reaching and essential for growth. Technological advancements, for example, allow social change groups to think big.

*Where does Innovation originate?* Innovation originates from dreaming, envisioning, imagining, and thinking. The thinking needs to be converted in verifiable, repeatable, workable, provable concepts.

*Are we creating impactful innovations?* In many segments specially in electronics and telecommunications technology, it is like “elephant and the blind men story”: So much work has been done but still there are very few breakthroughs which can be claimed as dramatic departure from the traditional concepts.

*Telecommunications is Looking for Breakthrough:* Fiber Optic communication, Free Space Communication, High frequency

use for communication Like IMT 2020 also referred as 5 G, High throughput satellites (HTS) and 6 G Wi-Fi are all using evolution of electronics and use of more spectrum and more transmit power. Being the second largest telecommunications market, we have chance to generate the breakthrough, but there seem to be in catch up game as short term is perfect enemy of long term in innovation ecosystems.

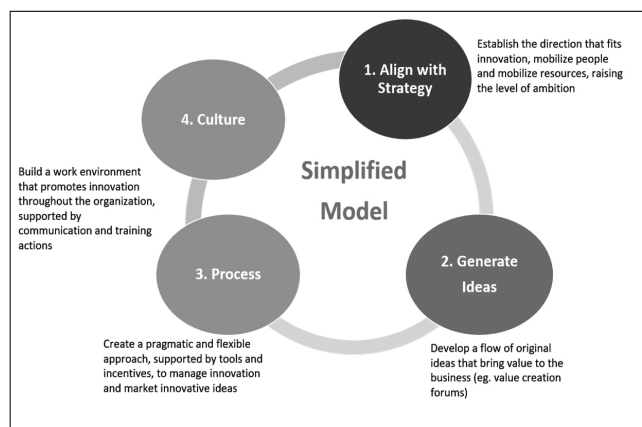


Figure 1. Schematic of an Innovations ecosystem.

*Institutionalisation of innovations in India:* Innovation is not a single step but continuous build-up over previous innovations hence institutionalization and continuity of domain knowledge and experience makes the innovation easier, at the same time previous experience hampers new learning so the organizations have to have continuous learning and innovation or else face obsolescence through legacy of past achievement. Unless organizations learn to destroy their own creation, there cannot be continuous learning and innovations.

## II. CHALLENGES AND ISSUES IN CREATING INNOVATION ECOSYSTEM

- Advance Learning and R&D institutions cannot behave like industry, they need to work with industry, when innovation needs scale and investment.
- Radical ideas based on science are required to answer unsolved mysteries. This needs collaboration between academics and applied innovators.
- Startups require agility, ecology, support system, and funding. Many brilliant ideas are buried below unrealistic expectations and lack of funding.

- The IT applications for facilitating or creating business models, supply chain, retail, and customer services etc. are service innovation but cannot be equated with core technological innovation.
- There is a need for changing or innovating R&D institutions to move forward in hereto unexplored arenas which can become basis for solving country's needs and not simply indigenization of western implementation.
- Incremental change without larger goal and ambition is counterproductive to R&D in long run.
- Innovation is function of creative, inquisitive a self-believing and restless minds wanting to change the world and not cozy, comfortable job and time-based increments and promotion.
- Like any complex system, there is need for subject matter experts preferably diverse and cross functional team members and these must be led by an institution creator willing to deal with even more complex environment.
- In current economic environment, there is need for monetization of innovation to have snow balling effect to create big global impact. The monetization of innovation requires ecology and symbiosis.
- There is a need for Indian standards and standardization bodies to ensure that Indian innovations find path in standard essential patents (SEP).
- There is need to have discipline and knowledge about when to publish, patent, prototype and participate in standardization of an innovation. Publish as soon as possible mentality has to be arrested.
- There is need for world-class visionary leaders and innovators to lead innovations. It cannot be done by bureaucratic, bean counters, firefighting leaders all out to please the boss or governing bodies.
- The exceptions that we see in India cannot become rules. While every small success needs to be recognized and celebrated but it cannot create hope of proliferation and sizeable economic change.
- Dynamism and adjustment to global innovation practices and knowledge requires more participation at the global institutions.

#### *Policies for Boosting Innovation*

- Offer Tax Incentives for R&D. Government tax subsidies and grants are the most effective way to increase innovation
- Provide Direct Grants for R&D.
- Support Skilled Migration.
- Train Workers in STEM Fields.

### III. CONCLUSION

Why do we need innovation? One of the major benefits of innovation is its contribution to economic growth. Simply put, innovation can lead to higher productivity, meaning that the same input generates a greater output. As productivity rises, more goods and services are produced – in other words, the economy grows.

The country aspiring to be called knowledge economy, innovation hubs, globally competitive R&D need to focus on innovation process, systems, leadership and resources to solve local and global problems in some selected areas. This is seed of progress and prosperity.



**Vipin Tyagi**, FIETE is an innovation and Business Leader from Information Technology and Telecommunication Industry for over 35 years. Presently, he is Chief Technology Officer, Chief Information officer and Executive Vice President Strategic Relationships of a leading virtual events organization, Premier Global Services Inc. His present area of interests is next wave of human interaction technologies.

Earlier, he served as Executive Director & Chairman of the Board, at C-DOT. Contributed in areas of Optical communications, Next Generation Networks, Wi-Fi, 5G, Digital communication infrastructure required for smart cities and smart buildings, disaster communication, digital imaging and video broadcasting technologies. Prior to that he founded and led a company out of New Delhi for 12 years as Board Member and Global CEO. He has headed global business in India, Japan, Australia, USA and Europe. He has actively worked towards Research and Development of large systems, Organizational Development, and creation of high-performance teams. Granted 8 Patents and filed 23 in last three years. Notable projects include : World's first IOT/M2M platform based on oneM2M standard; World's first satellite integrated Wi-Fi system created to serve remote and rural areas with landline phone, VOIP phone, WIFI hotspot, mobile phone IP PBX with couponing / prepaid billing; India's first balloon based WIFI hotspot; India's first 100 Gigabit per wavelength commercial grade optical fiber link; Access product for providing internet based services to illiterate and technology unaware rural population through a product, GYANSETU.

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