

Sub Policy 7: Technology Innovation and Entrepreneurship policy

1. Introduction

1.1. Knowledge based Innovation and Entrepreneurship

The Science and Technology driven Innovation comes under a broad category of innovation definition called "Knowledge based Innovation". It is critical to bring in this definition as we are in a Knowledge economy and there are other factors which impact the development of Science and technology based inventions and breakthroughs to a land.

The Information technology "start ups", essentially belong to the second category enterprises discussed above and seem to be bringing about disruptions in the sectors they are emerging. These innovators are today equipped with the power of Internet and developments in Information technology and hardware devices. They seem to be creating a market pull in unexpected directions and the convergence of ICT, mobility and cloud technologies seem to be favoring the same.

The thrust effected by re-engineered business models in the concerned sectors has been tremendous. In hospitality we have the largest accommodation provider who doesn't own a property and in Media we have the largest media company, which doesn't have a production facility. These were models unthought-of or written off not too long ago and similar disruptions are happening in education, healthcare and all such sectors.

1.2. Kerala Technology Startup Policy

Kerala Technology Start-Up Policy now in place unfolds the broad framework for creation of a startup ecosystem in technology based startups across sectors in state of Kerala. The Policy is split into nine sections that are the strategic building blocks towards a world-class startup ecosystem viz., Infrastructure, Incubators and Accelerators, Human Capital Development, Funding, State Support, Governance, Public Private Partnership, Scaling Existing and Establishing New Incubators and Startup-Bootup-Scaleup model for moving fast from ideas to IPO.

1.3. Kerala Start UP Mission

Kerala Startup Mission (KSUM) the nodal agency of Government of Kerala for entrepreneurship development and incubation activities in Kerala. The primary objectives of K-SUM was to undertake the planning, establishment and management of Technology Business

Incubators/ Accelerators in Kerala so as to promote technology based entrepreneurship activities and create the infrastructure and environment required for promoting high technology based business activities. KSUM objectives also include being an apex body for all other incubators in the state to co-ordinate their functions to strengthen the entrepreneurship development activities of the state government, promoting knowledge driven and technology based startup ventures by students, faculties, local entrepreneurs etc, planning and implementing industry institute linkages and networking, setting up of R & D facilities and related facilities, encouraging formation of IEDC and TBI's in academic institutions and capacity building programmes for human resources.

Government of Kerala, through KSUM, is establishing the Kerala Technology Innovation Zone, a global innovation incubator hub for multiple domains and technology sectors under a single roof.

2. Objectives

The major objectives of the Technology Innovation and entrepreneurship Policy are

1. increasing of R&D intensity,
2. Stimulation of climate and culture of innovation,
3. Commercialization of technology.
4. Fostering the growth of entrepreneurial ecosystems
5. Reduce the entry barriers
6. create innovation infrastructure (technology transfer labs, science hubs, and business/technology incubators)
7. encourage the uptake of strategic technologies among SMEs
8. improve access to pre-commercialization funding
9. provide tax incentives (R&D tax credits, favorable capital cost allowances)
10. Promote 'build on traditional industries' using new technologies

3. Key Initiatives

3.1. Youth Entrepreneurship Development Program

The Youth Entrepreneurship Development Programmes (YEDP) is a highly intense and focused scheme by Govt of Kerala, for the startups to improve their entrepreneur talents during incubation period. YEDP create avenues for innovation and cross sector ventures, enable them to experiment with various business models in niche segments. YEDP comprise of programmes and schemes like

'Learn to Code' (Raspberry pi Programme, Electronics@School), Startup Box Campaign, Startup boot Camp, Leadership Academy & Training Programmes, International Exchange Programme, Fablab Programme, Patent Support Scheme and Entrepreneur Driving Programme.

3.2. **Technology Innovation Zone**

Government of Kerala is establishing the Kerala Technology Innovation Zone, a global innovation incubator hub for multiple domains and technology sectors under a single roof. The zone will create world-class infrastructure facilities for multi sector technology incubators to incubate their start-ups and to support home grown enterprises. We also expect the cross pollination of ideas and technology breakthroughs to trigger high value innovations/startups.

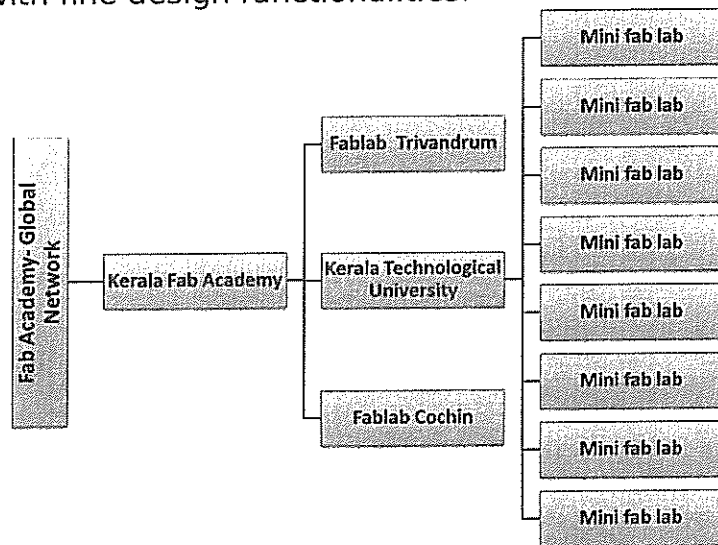
Kerala Technology Innovation Zone is envisioned as a one stop shop for technology innovation, where everything from the consolidating of the idea, to its incubation, to mentor support for setting up a successful enterprise and even a squadron of angel investors ready to invest in a bankable idea is present. The TIZ acts as a self-sustained ecosystem which serves all the interests of the young innovators and entrepreneurs, so that all the time and energy that they have, goes into product development and not the peripherals such as worrying about the law and lack of funding or infrastructural support.

3.3. **Fab Kerala Network**

Govt. of Kerala through Kerala Startup Mission (KSUM) has setup two Fablabs each at Technopark, Thiruvananthapuram and Kerala Technology Innovation Zone, Kochi. Fablab Thiruvananthapuram is located at the ground floor of Indian Institute of Information Technology Management (IIITM-K), Fablab Kochi is located in the ground floor of Water Tank Building, Kerala Technology Innovation Zone, KINFRA Hitch Park, Kochi.

By setting up the Fablab Kerala Network it is envisaged to encourage the innovation, technology development, product prototyping, maker learning, and commercizable product development. This will empower the maker-entrepreneurial culture, which at present is confined to ICT/ electronics domain. The Fablab programme will lead to a cross learning culture among multiple technology sectors and create a robust platform for the upcoming entrepreneurs to create indigenous technology products. The Kerala fablabs are a support facility for the maker community comprising of student, startups, entrepreneurs, corporates, individual makers, research groups, academic institutions and universities across India. The Kerala Fablabs has a vibrant ecosystem for creating a maker culture among the young techno-entrepreneurs, who want to

develop their innovative technology idea into a product prototypes with fine design functionalities.



Mini Fab Lab

The project Mini Fab Lab aims to create mini Fab Labs across Kerala in Schools, Colleges etc. This will in turn bring in an house development facility.

Mini Fab Lab is an effort to bring maker ecosystem to the community . These Fab Labs will be based on Educational institutions and closely adhere to the university's idea of bringing out makers with proven skills in design , development and fabrication. Mini Fab Labs will work closely with the Fab Labs to take advantage of the Fab Network , Fab Academy and other Fab Lab based initiatives. Makers based on Mini Fab Labs are allowed to connect to Fab Lab based makers / Fab Guru's at any point of time through a dedicated channel. This will also make it quite easy to get maker certifications from the Fab Guru, which is a value addition to the degree certificate. Students/individuals based on Mini Fab Labs will also get the opportunity to work at Fab Labs and get them certified as Fab Gurus.

Apart from the Mini fablabs, the Kerala Fab Academy envisages to create open maker spaces in the state. The open maker space will have all the basic machines for prototyping and will be accessible to public. The mini fablabs shall become kiosks for common people to approach in solving societal problems.

4. Startup Funding

4.1. Grants for innovative ideas (Rs 2lakhs per idea)

The government shall give Rs 2 lakhs per innovative idea/start up and this shall be to startups within the state . The funds shall be disbursed through Kerala startup Mission to the start ups registered in the ecosystem.

4.2. Seed funding (pre commercialization)

The government shall continue to provide pre commercialization funding through Kerala Start Up Mission and this service shall be extended to start ups in the entire startup ecosystem in the state.

4.3. Alternate Investment fund (Kerala Focused)

Government shall encourage Kerala focused funds to start operations in the state and shall take participation in the same upto 25% as limited partner. The Fund shall be managed as per the rules and regulations of the fund.

4.4. Early stage Funding (KSIDC & KFC)

KSIDC is offering Seed Funding to any new ventures promoted by Young Entrepreneurs, subject to a maximum of Rs 25 lakhs per venture or 90% of the initial cost of the project, whichever is lower. Seed Funding can be in the form of Soft Loan either to Promoter-Directors or to the Company itself. Funding can also be considered by way of direct equity subscription by KSIDC in the company wherever the project development/implementation has been advanced

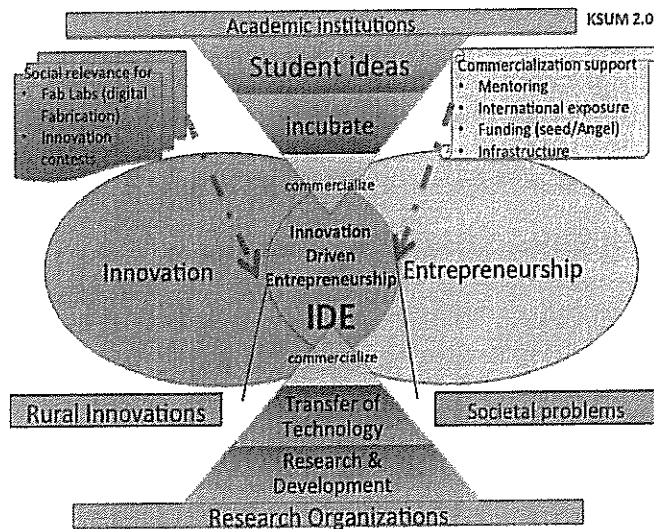
4.5. Standard Investment Subsidy

A standard investment subsidy is available for startups at 30% of Fixed Capital Investment subject to a limit of Rs. 15 Lakhs for companies located in Thiruvananthapuram and Ernakulam districts. For companies located outside the districts of Thiruvananthapuram and Ernakulam, the applicable Standard Investment Subsidy will be 40% of Fixed Capital Investment subject to a limit of Rs. 25 Lakhs. Industries that qualify for SIS are IT Software Development, IT Services, IT Enabled Services (excluding IT training institutes that provide training to public at large), Hardware Manufacture.

5. KSUM 2.0

Kerala Startup Mission, K-SUM (formerly Technopark TBI), the nodal agency for implementation of the policy offers, mentoring,

infrastructure facilities, entrepreneurship development programmes, seed fund assistance and exposure programmers, for startups. Kerala Start Up Mission has successfully implemented the startup Policy and prepared a base for a dynamic startup ecosystem. The Government is now looking at a quantum leap in the startup activities both in terms of quantity and quality. The KSUM 2.0 is an attempt in this direction.



KSUM shall focus on Innovation Driven Entrepreneurship and the elements of triggering such innovation are expected to come out of the Academic institutions, R&D centers, Society in general (societal problems) and Rural innovators, involved in 'jugad' innovations. We are establishing a clear stream of activities connecting the technical universities and academia at large which will help scout innovations nurture them and bring them to a level of commercialization. On the other end we have R&D institutions and agencies working on cutting edge technologies that are creating intellectual property and advancements in various technologies for their own research or operations. These advancements however do not come out for the common good of the society nor does it translate to commercial businesses. The system will have provisions to capture such latent talents and innovations and bring them to the forefront. The biggest triggering force of commercially successful business is a societal pain point, every time an innovation addresses a problem faced by the public in a way better than it is being done currently there is a ready market/ opportunity. The system shall also plan to identify, scale up and bring to notice the incremental, breakthrough or the frugal innovations done by general public especially in the rural areas. Open Innovation Platform

Open innovation platforms, an integral part of a corporate business model may be created, by which they can bring in externally generated knowledge into their business and to streamline it along with the internally generated knowledge. This will benefit them to increase their rate of innovation in the business. One way of doing it is like donating company's patent to an independent, third party organization, put them in a common pool or grant unlimited license to use to anybody. Brining in open innovation can create competitive advantage at the level of business in which ideas for innovations can emerge or go to market from outside the company as well as inside or extended to a regional level. This will aid in the exploitation of intellectual capital and making new technology products. Government shall encourage and incentivize open innovation attempts by corporates and shall facilitate the same through creation of requisite infrastructure and funding.

6. Grand Innovation Challenge Kerala

The government wishes to establish an annual innovation challenge which will offer a grant of Rs 1cr to the winner. The focus of the challenge shall be innovations which have a high societal impact and can significantly improve the lives of people.

7. Technology Commercialization Centre /Platform

This TC Center shall bridge the gap the innovators and industry. As a result, it would become a technology and knowledge transfer center. The center shall also house an exclusive state of the art research lab (similar to MIT Media Lab) wherein the innovators and industry can collaborate do research and fine tune the products.

The Platform would have two tiers

1) a virtual platform where we bring in all technologies to be transferred (this is already done by VSSC/ISRO, CDAC , Sree Chitra etc) , and potential productising /marketing /commercialising players pick up the relevant ideas and meet up/team up with them to realise the same.

2) The ideas that evolve from the discussions and meet up in the virtual platform 'melting pot' shall be given space in the TC, a multi-disciplinary lab being attempted as part of the TIZ."

The Platform provides innovators and company founders with an opportunity to refine their commercialization and solicits early-stage feedback from experts as they develop a strategic plan. This program will provide with the assistance needed for a successful startup. The Platform also provides with an option to a start-up company for a licensing opportunity from research institute or university.

8. Fostering Future Technologies

8.1. Future Research lab

The main objective of the future research lab is towards upskilling the society towards skills, capabilities and knowledge needed to succeed in today's world. The future research lab shall open its doors towards emerging technologies where people experience the same. The core technologies in the future research lab shall comprise of :

1. Business Innovation
2. Cyber security
3. Big data
4. Machine Learning
5. Artificial Intelligence
6. Robotics & Automation
7. Augmented Reality
8. Virtual Reality
9. Internet of Things
10. Civic Technology
11. Space Technologies
12. Renewable Energy
13. Green Technology
14. Sustainable Development
15. e-Waste Management

8.2. DIY Bio Lab

Do-it-yourself biology (DIY biology, DIY bio) is a growing biotechnological social movement in which individuals, communities, and small organizations study biology and life science using the same methods as traditional research institutions. DIY biology is primarily undertaken by individuals with extensive research training from academia or corporations, who then mentor and oversee other DIY biologists with little or no formal training. This may be done as a hobby, as a not-for-profit endeavor for community learning and open-science innovation, or for profit, to start a business. Like the fablabs the Government shall also focus in setting DIY biolabs.

9. G-Tech Innovation Focus Group

GTech Innovation Focus Group (an initiative by GTech to promote innovation and entrepreneurship in Kerala) has initiated the following programs to foster innovation in the state. The Government of Kerala shall provide support to these initiatives and facilitate the reach of the programs across the state.

9.1. **Adopt A Young Idea (AAYI),**

The program is to identify and adopt potential ideas and curate it to maturity. The attempt is to create socially relevant projects that can be commercialized and has the potential to revolutionize the industry and society.

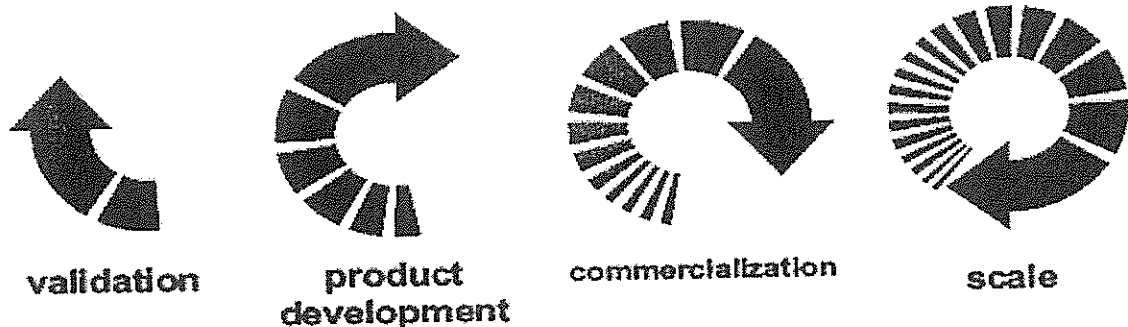
9.2. **Rural Innovation Challenges in Kerala (RICK)**

This program initiated by GIF is to identify and nurture rural innovators who do not get the opportunity to engage in the mainstream startup ecosystem of the state. State Government shall provide support to this also.

9.3. **Startup Mentoring Support**

1. Firms seeking to grow need to be given help in linking up with customers, suppliers and other "actors" within the ecosystem who can provide resources.
2. Startups shall also be given support through the incubation acceleration programs of the Incubators/accelerators in the ecosystem
3. Government shall tie-up with National and International agencies for such mentoring support to the startups.

10. **Support for entire Startup Life cycle**



10.1. **Validation**

1. Idea validation by Experts

1.1. **Technical feasibility**

The services of a network of technology experts shall be made available to the startups to discuss the technical feasibility of

their product ideas. The empanelled list with KSUM, KSCSTE and experts from Academia and scientific institutions shall be part of the network

1.2. Commercial viability

The commercial viability of the proposed development could be validated with the business mentor network that will be established by extending the current mentor network of KSUM to TIE and other industrial bodies

2. Idea refinement support

There shall be support for idea refinement in the case of Innovative ideas recommended by an expert committee.

3. Patent support Scheme

The current Patent support scheme delivered through KSUM shall be aligned to the national scheme for patent support and the scheme of support under the KSCSTE. The scheme which is currently a patent filing cost reimbursement scheme shall be enhanced to facilitate generation of patents by identifying patentable innovations and supporting the innovator/inventor to develop it to a patentable form.

10.2. Product development

1. Seed support

The existing seed support from KSUM currently a soft loan, shall be enhanced and also be made into a convertible debt in the lines of the schemes of KSIDC. Government shall consider constituting an innovation/prototyping fund to support innovators and startups create innovative products and this shall be a grant subject to a maximum of 50% of the cost or 10 lakhs whichever is lesser.

2. Lab support

2.1. Future labs

The Labs for futuristic technologies being setup in Kerala Startup Mission shall be accessible for the startups/innovators to develop the products and test them.

2.2. Fab Labs

The Fab labs set up in Trivandrum and Kochi and the mini fab labs in engineering colleges shall provide necessary support for the innovators/startups for rapid prototyping.

3. Technology mentorship

The pool of technology experts/mentors shall be identified and mentors shall be encouraged to actively own the start ups.

The mentor pool shall include experts from industry academia and scientific community.

4. Design and Development

4.1. Design workshops

Design thinking and industrial design workshops shall be conducted for startups to enhance their design capabilities.

4.2. Development and testing support

Platforms for development and testing purposes shall be made available for students and startups with the help of technology partners.

5. Startup Boxes

State of the art devices for development purposes shall be made available to the startups through their respective incubators as per the scheme of KSUM

10.3. Commercialisation

1. Market exposure and Networking

The startups shall be given avenues for market exposure in terms of access to market intelligence reports by global research organisations and through customized reports. Kerala startup mission shall engage with such organizations for getting enterprise licenses for the benefit of all start ups in the ecosystem.

2. Capacity building and International exposure

The current international exposure scheme of the Government delivered through the Kerala startup Mission shall be enhanced to cover delegation visits , event and competition participation based on a selection and capacity building programs which are unique or cutting edge.

A delegation of 25 startups from Schools and colleges will be identified through a contest and exposed to Silicon valley through the Silicon Valley Visit Program (S-V²)

3. Marketing support (PR & Digital marketing)

An empanelled list of agencies shall be identified for supporting the startups in digital marketing and appropriate PR activities.

4. Support to fund raising (KSIDC/KFC, Investor Network)

An empanelled list of Individual professionals and institutions shall be made through a process of screening and selection to ensure that startups get adequate support in document preparation and financial aspects.

5. Assistance to early markets (Government and pilot projects)

Government shall attempt to facilitate early adoption markets for the startups through pilot projects in government and also facilitation through means of DEMO days for products applicable to government. Government shall make suitable modification to rules to enable direct engagement of startups by government agencies for costs less than 5 lakhs.

6. Statutory services

The government shall create a list of empanelled agencies for assisting the startups in the statutory matters regarding company formation, filings, accounting and taxes

10.4. Scale-up

A major area of deficiency noted in the ecosystem is the lack of support of the startups in the scaling stage. These are startups which have garnered a good round of funding or got acquired by a larger entity or amalgamated with another entity.

1. Infrastructure support for scale-ups,

The government proposes to give subsidized infrastructure for the scaleups in terms of built up space in the government owned/assisted parks. The subsidizing could be in terms of reimbursing part of the rent (a maximum of 50% or 20 Rs /sqft) whichever is lower; this shall be subject to the growth shown by the startup in terms of team, top line, valuation etc.

2. Extended support during transition

2.1. for merged/acquired/amalgamated startups

All benefits of the startups shall be extended to the merged / acquired / amalgamated entities formed out of a startup with a significant valuation, for a period of 1 more year of formal reporting of the transaction.

2.2. Startup expansion with funding

Startups that are beyond the period of concessions (3 years) under the startup definition but who have managed a substantial funding and has created value shall be given an extended benefits under all the schemes.

3. Government Funding for acquired/merged entities

Government funding agencies that are supporting startups through Grants, debt and equity funding shall be allowed to extend the same facility to a merged / acquired / amalgamated entity formed out of a startup, with significant valuation.

4. Conversion of debt to equity (at premium)

Government shall join as a limited partner in SEBI accredited funds, with focus on Kerala as a limited partner and shall contribute to a maximum of 25% of the fund corpus

11. Accommodating Failures
1. Winding up facilitation

The startups undergo many cycle of correction and the need to reinvent and restart the process all over is a part of the learning curve the entrepreneur goes through. It is then critical that the startup founder be able to close his failed startup attempt and move on rather than be bogged down by the old one. The state will give support and guidance to them in whatever ways needed.

1.1. Distressed Startup Fund

If the startup had a compelling reason to borrow and attempt the idea and it is seen that they had genuinely attempted it then the government shall write off /reimburse debts of such startups through a fund created under distressed Startups Fund. The fund would be implemented through the Government of India approved/Government of Kerala approved startup incubators. The source of these funds could be government contribution and contribution to Incubator by the incubator and through CSR funds from the corporates. The contribution to the fund will be in the ration 40: 30:30 (Govt: Incubator: CSR/other funding). The incubator shall form a committee with a member from the Government department (as Chair) , A chartered accountant and industry member with other members as the incubator may deem appropriate.

2. Repeated attempt

Reinstating the startup status for a startup who is pivoting (after the initial three years) shall be done if the incubator where the startup is placed does a recommendation to Government (KSUM) regarding the previous track record and the current proposal duly vetted by a expert committee of standing.

3. No Failed Entrepreneur

The Government recognizes the fact that the ideas, attempts / or start ups could fail but there cannot be a failed entrepreneur. The Startup founder/ entrepreneur shall not be barred from restarting a startup in an incubator or availing the benefits of the startups/entrepreneurs due to a previous failed attempt unless there is a filed/proven case of fraudulent/malicious intent. The Government endorses the fact that the failed attempt provides lot more learning and experiences that are equally important.