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Transforming Kerala - Role of University in Building Entrepreneurship

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Abstract: In spite of the high material quality-of-life indicators on par with some of the developed nations, Kerala's industrial climate has been stagnating for the past several years. There is a significant rise in the number of students graduating from the state's technical institutions. It is high time, that earnest efforts are made to bring to practice the old dictum that "Engineers should not be job seekers, but job providers". There is an urgent need to create an ecosystem that will empower and enable the young engineers to pursue their entrepreneurship dreams and base their own start-up ventures within the state. This paper presents the start-up policy of Government of Kerala and APJ Abdul Kalam Technological University (KTU). A few models to implement these changes in the society are also presented.

Keywords: Entrepreneurship, Kerala, Start-up Models

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1. Kerala - An Introduction & Key Indicators

Kerala is a state in the south-west region of India and was created on 1st November, 1956 combining various Malayalam-speaking regions. Spread over 38,863 sq.km, it shares its borders with Karnataka, Tamil Nadu and the Lakshadweep Sea. According to 2011 Census, there are 33,387,677 inhabitants in the state. Kerala is the state with the lowest positive population growth rate in India; 3.44%, highest Human Development Index (HDI); 0.790 in 2011, the highest life expectancy; 77 years and the highest sex ratio; 1,084 women per 1000 men [1]. Its literacy rate is 93.91% and is mainly due to reforms under enlightened Maharajas in the 1800s, supplemented by Christian missionaries and social reform movements.

Kerala's unusual socioeconomic and demographic situation was summarized by author and environmentalist Bill McKibben: "its infant mortality rate is very low, its literacy rate among the highest on Earth, and its birth rate below

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America's and falling faster. Kerala's residents live nearly as long as Americans or Europeans. Though

mostly a land of paddy-covered plains, statistically Kerala stands out as the Mount Everest of social development; there's truly no place like it."[2]

2. Entrepreneurship - Role in Transforming an Economy

Entrepreneurship is sensing a new market opportunity and creating goods and services to take advantage of the new market opportunity. It results in new employment, higher earnings, higher national income, higher tax revenue and higher government spending. This can have a cascading effect in the economy [3]. The stimulation of related businesses or sectors that support the new venture adds to further economic development.

2.1 Entrepreneurship - The Kerala Scenario

Kerala is blessed with moderate climate and receives two monsoons every year. This makes it an apt place for agriculture. It helps Kerala to specialize in plantation crops - coconuts, arecanuts, cashew, rubber, tea coffee, spices - yielding up to 10 times the income per acre as rice. However, agriculture fared poorly due to fall in prices and other dynamic & social factors.

Around 1990's, four sectors which showed significant growth were software, communication, tourism and small scale industries (SSI). While Kerala's comparative advantage in human capital and basic infrastructure are factors responsible for the growth of first three sectors, growth of SSI was due to shift in remittance by large Keralite expatriate community from consumption to investment activity [4].

Historically, Kerala never had a trading community unlike some of the North Indian states where trading community was economically very active. Academicians have cited various reasons for the lack of entrepreneurship in Kerala. It is a practice among Kerala youth to acquire as many degrees until they get a job, preferably a government job. High demand for higher education in Kerala is driven by unemployment. A study of self-employed youth in Kerala found that majority of them took up self-employment as a last resort [5]. Failures of many self-employment ventures could be lack of commitment of the entrepreneurs who while running their ventures also strive to get a regular employment. This is also due to the fact that efforts have never been made to project the successful entrepreneurs of the state as role models. The 'role model' of the average Keralite is an employee, preferably a government employee, who enjoys a regular salary and perks and at the same time does not take any risk. In the marriage market, permanently employed persons irrespective of their salary are preferred to entrepreneurs.

Another reason cited for lack of entrepreneurship is the inability to conceive truly innovative entrepreneurial business opportunities. During the conceptual stage of business, the average Keralite has only a few product lines in his/her mind. This inability is reflected in the tendency to imitate successful industries which are conventional, low technology and low value adding. The generic role played by the unions has long hampered the growth of industries in Kerala. This factor can destroy entrepreneurship where times of work and pay are not necessarily commensurate with a secure job with industry or the government. This factor could be a major and vital reason why small businesses may have a hard time recruiting Keralites to work in environments where very long hours become the norm in order to achieve progress. One other aspect which has derailed Kerala in the past has been the strong division of labor and responsibilities. These factors cannot be tolerated in a small business as one has to be prepared to wear many hats at the same time and respond to the urgent needs of the customer and hence the profitability of the business. Small business is akin to an ICU where constant attention cannot be compromised as survival is key.The industrial stagnation is due to high wages, characteristics of labour, nature of collective trade unionism and high wage cost and low productivity [6].

A study by Kauffman Foundation has showed that 33.2% of all companies founded by immigrants in the US had an Indian co-founder [7]. One of the most talented immigrant communities among Indians are Keralites. Many among the most gifted youth of Kerala have left the state in pursuit of better career options, and many have become successful entrepreneurs either outside the state or country. This loss is irreparable in a Knowledge Economy where people and ideas are more important than land or capital. To realize the true potential of Kerala, this 'brain drain' needs to be reversed. Government has formulated and institutionalized policies to promote entrepreneurship, to retain talent and sustain new ventures. One such policy is the Start-up Policy of Kerala [8].

2.2 Start-up Policy of Kerala

Kerala envisages emerging as the No.1 destination in India for Start-ups and amongst the top five start-up ecosystems in the world. Through the Start-up Policy, Government of Kerala aims to attract Rs. 5,000 crore in investments into the Incubation and Start-up Ecosystem in Kerala, provide Rs. 2500 Crore for youth entrepreneurship activities for the next five years (1% of the annual State Budget), create more numbers of Indian owned Global Technology companies based out of Kerala, to establish at least ten Technology Business Incubators/Accelerators in each of the different sectors in the State, incubate at least 10,000 technology product start-ups, develop one million sq. ft of incubation space, to facilitate venture capital funding to the tune of a minimum of Rs 2000 Crore and to set the platform for creating at least one home grown billion dollar technology company from the start-ups [8].

The Policy is split into nine key portions that are the strategic building blocks towards a world-class start-up ecosystem namely Infrastructure, Incubators and Accelerators, Human Capital Development, Funding, State Support, Governance of Policy, Public Private Partnership, Scaling Existing and Establishing New Incubators and Startup-Bootup-Scaleup model for moving fast from ideas to IPO [8].

3. KTU - Game Changer for Entrepreneurship in Kerala

APJ Abdul Kalam Technological University (KTU) is the apex body which governs curriculum of technical education in the state. Its main thrust areas are Research, Development and Innovation. It aims to provide an ecosystem where the gifted educated youth of the state can reach his/her maximum potential. Towards this end, the University has introduced its Start-up policy [9] and it aims to create a world-class scientific and technology ecosystem that would empower and enable the youth to pursue their dreams within the State. Any society peaks when a great number of its people have access to experiences that are in line with their life goals and this requires development of increasingly complex skills. The necessity to develop increasingly refined skills is what lies behind the evolution of culture. By smoothly integrating the technological and creative skills of students to solve the contemporary problems, the KTU aspires to kick-start an entrepreneurial culture, which contributes to increased knowledge, wealth and employment.

The existing rigidity in systems and cultural barriers that discourages experimentation by moving out of the system needs to be changed. For example, an under graduate student is unable to move laterally or horizontally to other courses without losing time. A similar example is an academic or government employee, who is unable to take a break and pursue his or her entrepreneurial instincts by leveraging the knowledge gained during the work years. In fact, he or she should be encouraged to take a risk, and on failure should be allowed to join back to the system.

The demographic dividend in Kerala will end sooner due to its aging population and lower population growth and time is now to act decisively to reap the dividend. There is further necessity to retain the youth within the state to support the aging population. To employ all its youth, India will have to create one million new jobs every month for the next twenty years, and this is going to be created by new start-ups through entrepreneurship. The globally well-known Kerala model of development of achieving high Human Development Index (HDI) in an equitable manner has to now evolve into a new model of creating knowledge, employment and wealth through innovation and entrepreneurship and set an example for rest of the country. Kerala is the first and only state in the country to have 1% of the State's annual budget ear-marked for entrepreneurship development activities. For leading the way, KTU has institutionalized Student Start-up Policy for its student community.

3.1 KTU Start-up Policy- Features

KTU's Start-up Policy aims to achieve the following by the year 2020:

- Create more number of Indian owned Global Technology companies based out of Kerala.
- Generate 10000 start-up ideas per year, 1000 technology product start-ups and 100 successful and scalable enterprises.

It intends to achieve the above mentioned aims through:

- The incubation policy that will cover incubation facilities for all students and alumni, irrespective of their streams.

- Indicators to measure and rank all the departments and colleges.

- Facilitate start-up processes by seamlessly integrating the incubation value chain into the academic programs in order to have early exposure of incubation value chain to potential student start-ups.

- A student or a Faculty Member will also be permitted to apply for approval of a special elective on innovation, entrepreneurship and/or other relevant subjects, designed especially by the student or the Faculty Member

- All the colleges under KTU should provide core infrastructure, fully furnished and ready to use Plug and Play Infrastructure of up to 5000 sq. ft. floor area at their own colleges for entrepreneurship activity.

- Final year students of KTU will be required to take a practical problem applicable in real life, and solve it as a part of academic curricula through their final year project and can convert their projects into products/services through incubators at various colleges.

- Colleges will be advised to choose some of the Massively Open On-line Courses (MOOCs) as a part of the syllabus; they can select appropriate online courses (MOOCs) as electives and apply to the University, under the existing academic regulations.

- Student start-ups or Alumni start-ups (within 3 years of graduation), which have made an extraordinary impact and which had an early stage connection with College Incubator will be given suitable recognition/citation/awards for their achievements.

- KTU permits the concept of Student Entrepreneur in Residence. Students will be permitted to apply for grant of official leave of one year at a time for entrepreneurial initiatives during their study.

- A pilot scheme shall be introduced for College or University Professors who work along with students at an incubator to move out and pursue entrepreneurship for a specified time and on failure will be allowed to join back.

- Student entrepreneurs working on a start-up idea even from the first year of college may be permitted to convert their start-up project as their final year project towards degree completion.

- Every KTU program will dedicate a few hours of its academic time where students and teachers will pursue certain activities for inculcating and strengthening the spirit of entrepreneurship. Every week two hours are set apart for student activities including entrepreneurship. The Colleges and the Departments will have a choice of building such activities according to the local environment.

- KTU will recommend to all its affiliated colleges to at least nurture ten student start-ups. Each college will thus help at least one of their student start-ups to emerge, to grow and to scale every year through the help of all the resources in its campus.

- KTU will continue to organize and continuously improve its practices in IPR to help young start-ups in IPR related issues.

- College level entrepreneurship development clubs (Boot camps) will be established through incubators to foster innovation and entrepreneurial spirit at the school and college levels.

- KTU will celebrate an annual "Entrepreneurship & Start-up Day" in all institutions, jointly with the annual poster exhibition for final year projects.

- KTU will set up its own fund or set up a fund with support from multiple stakeholders and create a Prototype Fund to help very early-stage start-ups. KTU will financially support the individual college TBIs and student projects based on merit within the availability of funds.

- KTU will create linkages with external angel networks, incubators, TBIs and help link suitable spinoffs to them to help student start-ups wherever in need on a real time basis.

- KTU will work with various venture and angel fund groups and governmental institutions to help students obtain seed money funding at their early stage of inception when the students are found to have a Minimum Viable Product.

3.2 KTU Entrepreneurship Learning Models

APJ Abdul Kalam Technological University (KTU) envisages implementing a new culture of entrepreneurship as a lifeline component of

curriculum. The development of entrepreneurship as a field of study in engineering courses has been largely inspired by the acceptance of entrepreneurship as a legitimate tool for economic growth. This document aims to establish a new entrepreneurship education regime in Kerala to propose an effective ecosystem for integrating and promoting entrepreneurship education as fundamental to mainstream engineering education in Kerala. This can be achieved by providing different learning models for each affiliated institution to be implemented, which will create and develop business ideas firmly based in methodology in order to develop sustainable companies or activities in existing campuses. Colleges can choose any one or more from the four proposed methods or can introduce a new method with the approval of the University. Students also have the flexibility to choose the method they prefer. Through the specified model, one should take an application-oriented practice aimed at giving the student, the knowledge, skills and competences as well as the 'mind set' for creation of new technology, more employment opportunities and more wealth in our society. Considering the importance of the right entrepreneurship culture and education for the growth and development of an emerging economy such as Kerala, KTU considered different models of globally reputed entrepreneurship methods inspired from Massachusetts Institute of Technology (MIT), Stanford University, University of California Berkeley (UCB) and the Start-up Village.

There are presently four models from which the institutions may choose from:

3.2.1 Model 1: Proposed by Rajesh Nair, Visiting Scholar, MIT, Senior Lecturer & Director, Innovation & Entrepreneurship Center, Asia School of Business, Kuala Lumpur.

This is based on the methodology that was developed at MIT through events and focused research on "Catalysing Entrepreneurs from the Ground Up in Rural India." The MIT office of Digital Learning will develop programs for specific needs for KTU and utilize existing courses at MITx|EDX and other MOOCs. In addition to the training offered, this model proposes to build the Fablabs at colleges and maintain them overtime for productive engagement. The model promises to churn 1-2 start-ups per college; thus creating at least 5-10 entrepreneurs per year per college.

3.2.2 Model 2: Physical + Online Model Proposed by BootUp Ventures: Silicon Valley's BootUp complements the people skills, communication skills, negotiation skills, information gathering, decision-making, and emotional intellect with the experience it brings to corporate innovation programs and start-up acceleration for KTU. On top of that, BootUp will grant the top performers of each class, access to their world-class mentors and Professors, a large group of serial entrepreneurs and corporate executives as well as for select alumni an opportunity to be part of Silicon Valley's best and brightest, after their university education. The best will potentially be placed with local incubators in India through the high value network of BootUp. The model also proposes plans to incubate the young entrepreneurs further before helping them launch their firms in the USA and globally.

3.2.3 Model 3: Hybrid Model Proposed by FICE

FICE proposes a model that is university wide and which will ensure that students, across campuses, collaborate with a global faculty pool that brings together the best global practices in entrepreneurship with local flavour.

The four-year program is schematically shown in Fig.1. FICE will provide an additional exposure to set the start-up in United States which could ultimately be listed in NASDAQ or similar stock exchanges in the future. This program combines the credibility and quality education from FICE's link with leading US universities like UC Berkeley, Harvard, dozens of universities around the world, the Mayo Clinic, National Science Foundation, Intel and many other leading institutions. Upon satisfactory evidence of completion of all program requirements, each student will receive a certificate of study issued by University of California, Berkeley.

3.2.4 Model 4: Start-up Village Model

Start-up Village is currently the National Award Winner for BEST TBI in India. Start-up Village offers a model of entrepreneurial learning that is 80% practical and 20% theory. The 20% theory of entrepreneurship is covered in Year 1 at Start-up Village. This knowledge is offered free of charge through the Start-up Village Online Playbook. Students learn remaining from practical experience and can start by building a real company. Over the next three years, students learn to work in a team, create an actual start-up, start building actual products and try to

market it to customers and raise funding. From academic year 2016-17, KTU will be a partner to Minor and Specialization in Technology Entrepreneurship programme so that students who learn the foundations in year 1 can have a seamless transition into this programme.

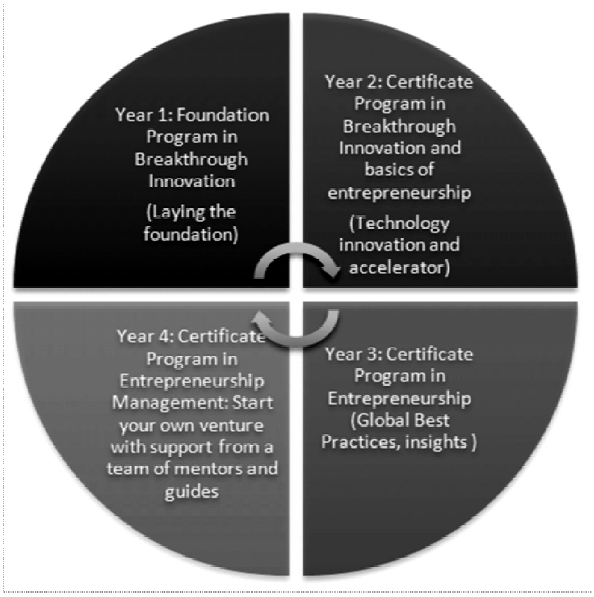

Fig. 1: Four-year program model by FICE

Table 1: A quick comparison of 4 proposed learning models

No	Affiliating Agency	Learning Methodology	Domain of Learning
1	Rajesh Nair	Hands-on, Action Learning	Product development, Fabrication, Innovation & Entrepreneurship
2	BootUp Ventures	Physical + Online Learning	General Entrepreneurship
3	FICE	Online and Physical	Digital Technology Start-ups
4	Start-up Village	Hybrid (Online + Physical)	Digital Technology Start-ups

Starting from 2015, all engineering colleges in Kerala affiliated to KTU have to implement a minimum of one entrepreneurship learning model as part of their curriculum. Colleges also have the liberty to suggest and try out learning models which deems to fit them with approval of the University. Students are also free to choose from among the models.

4. Conclusion

Kerala has succeeded in becoming one of most literate, uplifted societies with high human development indices. It is now time to transform Kerala into a self-sufficient and sustaining hub of economic activity. Realization has dawned upon us that it is possible only through the promotion of a spirit of enterprise among the population. Therefore, focus of Kerala government and newly established KTU is to make earnest efforts to change the attitude of the society and the youth in particular, foster risk taking and thereby encourage its inhabitants especially the youngsters passing out from the technical education institutions to endorse new ventures within Kerala. The process is a continuously evolving one with more models on entrepreneurship development likely to come up from different regions in the state and from experts and establishments willing to contribute to the cause.

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