Evolving an innovation ecosystem for Kerala

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I shall start off with some brief comments on Kerala Development and Innovation Strategy Council (K-DISC). It's a rather new organisation initiated in the state in 2018. It is only one of its kind because, State Innovation Councils established at the instance Sam Pitroda in 2010 in all other states have been wound up throughout the country. The only state with the remnants of the State Innovation Council is Kerala where it has been remodeled. That is how K-DISC originated. Brief introduction about K-DISC activities has already been made by Dr K. M Abraham, our founder Chairman. Hence, I will not attempt to make a comprehensive overview of K-DISC activities.

To give a taste of the activities leading to innovation promotion in government done by K-DISC, I will touch upon three projects; a project called the Blood Bag traceability, where we work with the General Hospital and the Parasalla Community Health Centre. They work in a hub and spoke mode to meet the needs of blood transfusion. In this project we have used a technology developed by Bagmo Private limited, a startup in maker village to reduce perishability of blood bags using IoT devices. The second one is a collision avoidance pilot with Intel for KSRTC wherein using telematics the possibilities of collision between vehicles is reduced. This is going to be implemented in new vehicles for KSRTC financed by KIIFB. Third one is a real time retinal image quality assessment and feedback system for government ophthalmological hospital Trivandrum. This is done with support of C-DAC. These projects undertaken by us belong to Industry 4.0 technology adaptation in government departments.

My focus however is on the innovation ecosystem, which is primarily for democratizing the innovation system in the state. It's a flagship program of K-DISC. The objective of this program is basically to nurture young talents interested in pursuing avant-garde research academics and business model building. We have promised a three-year hand holding for idea creation, prototyping, testing and launching. Prominence is also given to social

innovation, along with business development. We partner with the Startup Mission. Capacity Building of mentees is around the Stanford University Methodology of design thinking which has now become the de-facto standard for real life problem solving. We have a program for mentoring of mentors specially developed for us by the IIM Calicut. This looks at a new product development framework integrated with a fuzzy front-end. Basically, we are trying to draw practices from the industry for product development, trying to weed out the fuzziness of the ideas and to put the process in the discipline of new product development.

We have a program in which any new innovation can be fostered with its focus on democratising innovation, it cannot be a blueprint program. It has been continuously evolving. Over the years, there has been an increase in the number of ideas that came up; 1391 ideas in the first year (2018) which increased to 2000 during the second year and almost doubled that in the third year. We have a very strong funneling approach of removing ideas which might not work and which are not worth pursuing. Thus, we had to reduce the ideas in 2018 to 204 which increased to 371 in the second year and 800 in the third year. We have put in a mechanism of generating ideas from schools, colleges and universities. We have a network of 1143 institutions during 2018 we just now enhanced this to 2900. Around 400 of them in our network are professional colleges and university departments and the rest of them are schools, polytechnics and other institutions. From each of these institutions we have, two facilitators who are our ambassadors who have been trained in the industry 4.0 and the innovation methodology. We have tried working out a hub and spoke mechanism wherein eventually the hubs would emerge as Centers of Excellence. This would be linked to various partner institutions making the spoke mechanism. We have developed a very clear methodology not only for screening the ideas, but also for improving the group dynamics within the ideas through group techniques.

This is the architecture of the young innovation program which we have built up. We have a completely electronic platform for doing all our operations. We have a digital idea platform, which is connected to high schools' polytechnics and higher education institutions and research centers. We have District Innovation Councils, which are going to come into action from this year onwards in the evaluation programs. We also have a mentor mentee platform, which is completely electronic. One of the very important things that we have found as a part of the first few years of the program is that very systematic mentoring is required, both from the industry experts as well as from the academia for translating ideas to clear targets. We have not been able to put that in place during the first year. But during the second year, we

have been able to put in place an electronic platform for this. We hope that the quality of delivery would substantively relate to mentoring. The mentors have been trained and positioned.
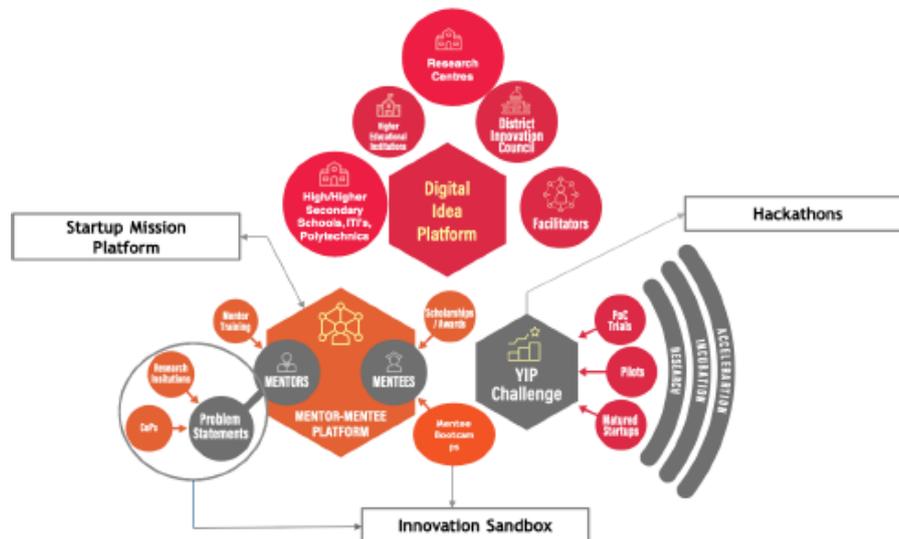
One of the weaknesses of the program is that we don't really get good ideas. Essentially people pick up ideas from the google and them; these are not really real-life ideas. So we have brought into two methodologies, one a methodology of creating real life problem statements with the help of practitioners through community practices. This is an internationally renowned methodology of situated cognition. Then secondly, we are trying to create a process of innovation sandbox, which is a methodology of improving the real life, real time, problem solving experience using crowdsourcing and open innovation and bringing in vital user experience.

Now, thanks to the efforts of the Honorable Finance minister, who has made an evaluation of the program. He wanted us to scale up this programme substantively and we are restructuring YIP in 2021 to meet his dream. YIP is a mix of challenges. Right now, following the idea challenge, we have the accelerated the innovation track. But beyond that, we are also now bringing in team-based hackathons, and a coordinated programme of rapid proto-typing jointly with fab-lab and startup mission. With this we are hoping that the Young Innovation Program is going to make a major transformation.

The outcome so far; 31 products have been structured for priority funding and we could hardly spend 1 million rupees for this process. That is one of the limitations of the programs. We have been able to do the democratization reach out to the campus, bringing together the teaching Community and the students, but in terms of converting the ideas into innovations,

we are lacking, and that is why we want to get into a sandbox methodology for deepening the innovation process.

Now, coming to the next program which caters to the ecosystem building in the MSME sector. In One District One Idea Program, we have identified 266 clusters throughout the state. It covers handicraft handloom Kudumbasree service clusters, Kerala Bureau of Industrial Promotion manufacturing clusters and other manufacturing clusters. These have been selected for a challenge. Digital University had come up with an excellent training program for the core group. We have brought in professors from commerce department, economics department and also from the engineering college to work in the field with these clusters and develop innovation action plans for them. Thus, we are bringing in academia in a big way to work with the industry to solve their problems- Making the triple helix model a reality. The objective is to come up, not with the incremental growth as the Honorable Minister was discussing in the previous session. It is not incremental growth but exponentially growing clusters, that we are focus i.e., innovation clusters.

Now, coming to the one local government one idea program. The design of the program is similar. We start off with a shelf of projects which have been identified by local governments, run hackathons across specific domain sectors, go to a local government marketplace, select products for support and then theses goes back to the local government for implementation.

And the last programme is the local innovation program. The design of the program is as follows. We crowdsource ideas from anyone capable and interested. There is a panel of experts at the State level and at the District Level. There is a rating scheme and based on which we come up with a local market place for the POC and the pilot and which will be taken up through various local governments and public sector. One of the most important things is that the first product which K-DISC has initiated is ready to get into manufacturing. Rajeesh Rajan, a Polytechnic diploma holder, who had developed a ragas engine. A two-stroke elliptical IC engine. We had sent his design for computer fluid dynamics studies. And basically, this has helped him improve and patent the engine. He wants to take it up to the aircraft engine manufacturers and to work with DRDO. Yesterday he came and presented that to us. And so, the local innovation promotion program, which we kicked off three years back, has just started bearing fruits.

Let me conclude by talking about the three pillars of focus in the budget. One is the Innovation Economy, the Digital Transformation and Creating the new workforce. The innovation economy component is the one which I talked about primarily. I also briefly touched upon digital transformation, because the ODOI program looks at digital transformation of MSMEs. The local government One idea one Local Government program also takes up digital transformation. We have been involved in a small scale in developing the new knowledge economy workforce. We have been working with KBA and ICT Academy for developing the Accelerated Blockchain Competency Development program. Now the new knowledge workers skilling program has been also passed on to us. So, this is a great opportunity for K-DISC along with its partners to have been involved in the three pillars, so our final objective would be essentially to involve with the Kerala Knowledge Economy building process through skilling of knowledge workers, driving innovation ecosystem, innovation collectives and startups and also moving towards digital transformation of various sectors.

Last, but not the least, let me touch upon the very specific critical point which Professor Lundvall had raised in the first session- if we focus only on scaling the Knowledge Workforce and strengthening the ICT industry, there is a possibility of alienation from a section of the non-digital economy. A huge section of the citizenry will be left out of the knowledge revolution. It's a very important point. Through the higher education strengthening, digital transformation, innovation building programme as well as the Social Security initiatives we have looked at this in totality in the budget. I would congratulate the Honorable Finance Minister for coming with such an excellent blueprint for the Kerala Knowledge Economy. Thank you.