



KERALA DEVELOPMENT & INNOVATION STRATEGIC COUNCIL

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Table of Contents

Introduction	5
Innovation led development alternative to Investment led development for Kerala	5
K-DISC and Kerala’s Innovation Ecosystem	6
K-DISC Framework of Community of Practice (CoP)	7
Materials and Methods.....	8
1. BUILDING INNOVATION MODELS.....	9
Young Innovators Programme (YIP)	11
Innovation by Youth with Disability (I-YwD).....	15
Manchadi – Teach Maths for Kerala.....	17
Mazhavillu - Teach Science for Kerala	19
One District One Idea (ODOI).....	22
One Local Government One Idea programme (OLOI)	24
Local Innovators Programme	28
Accelerating adoption of Emerging Technology Solutions in Government	31
Achievements in Innovation Programmes	34
2. CREATING CENTRES OF EXCELLENCE.....	37
3. BUILDING CONSORTIUM	41
Accelerated Blockchain Competency Development (ABCD).....	43
Kerala Medical Technology Consortium (KMTC).....	44
Electric Vehicle (EV) Consortium and Green Energy Projects.....	45
4. COORDINATED PROJECTS.....	47
Climate Smart Coffee Project, Wayanad	49
Miyawaki Urban Afforestation Model.....	49
Atal Community Innovation Centre (ACIC)	50
Kerala Food Platform (KFP) Multi-stakeholder Platform.....	50
5. ADDRESSING EMPLOYABILITY	51
Kerala Knowledge Economy Mission	53
MODEL MANAGEMENT SYSTEMS.....	71
The Innovation Tower	73
Model IT Implementation for Organisational Efficiency	75
K-DISC Library.....	79
AWARDS AND RECOGNITION	81
K-DISC IN MEDIA	86

Introduction

Innovation is one of the key factors of economic development. Innovation and learning capabilities are vital for growth competitiveness of any region. Therefore, many Governments have tried to steer and foster the development of science, technology and innovation for many years and through many mechanisms, to improve directly or indirectly the wellbeing of their constituents. These efforts are commonly referred to as science policy, technology policy, or innovation policy. Their objectives span from the philosophical view of the enhancement and augmentation of the knowledge to the practical need of the development of the communities of a country.

The Kerala Development and Innovation Strategic Council (K-DISC) was established by the Government of Kerala with a unique focus on innovation policy. Unlike similar councils in other parts of the world that tend to prioritize science and research policy, K-DISC concentrates on non-linear innovation policy with an aim of building a holistic innovation eco system in the state. This makes it possible for Kerala to move away from the traditional linear model (scientific R&D focused model) in innovation policy, which has been replaced by the innovation system approach. An innovation system encompasses not only the innovations themselves, but also encompasses all significant economic, social, political, organizational, institutional, and other factors that impact the development, diffusion, and utilization of innovations.

Innovations emerge from interactions between actors with complementary (technological, managerial, investment or regulatory) competencies, which operate under specific institutional settings. The use of a system metaphor emphasizes the distributed, yet more or less coordinated agency that underpins the innovation process; interaction between firms, universities, policy makers and various intermediaries creates positive externalities that are of key importance in the innovation process, but very difficult to be produced or controlled by any actor on its own.

Innovation led development alternative to Investment led development for Kerala

Kerala stands at a critical juncture in its economic development trajectory, marked by a transition towards a knowledge economy. Kerala's journey towards a knowledge economy is shaped by its historical resource constraints. With limited natural resources, Kerala ranks poorly in per capita land availability and has scanty presence of ferrous minerals, non-ferrous minerals, minor minerals and fuel minerals. The only mineral deposits where Kerala makes a reckoning is atomic minerals where there are restrictions because exploitation of these resources can be done only through Indian Rare Earth Limited.

The state's parameters are thus not conducive to a conventional investment led growth model. Kerala's economic base is dominated by low productivity and low value addition units. While Kerala's state domestic product relies heavily on foreign remittance income, the transition to a knowledge economy presents opportunities to diversify revenue streams. By channeling remittances towards productive investments in innovation, entrepreneurship, and infrastructure, Kerala can stimulate indigenous economic growth and reduce dependency on external inflows.

Several factors propel Kerala's transition into a knowledge economy. Firstly, the state boasts a well-educated and skilled workforce, providing a solid foundation for knowledge-intensive activities. Additionally, Kerala's robust public education system and high literacy rates foster a culture conducive to learning and innovation. Moreover, the proliferation of digital technologies facilitates the dissemination of knowledge and enables participation in the global knowledge economy.

The state has thus embraced innovation as a key driver of economic growth. Innovation is also necessary to address second-generation problems affecting Kerala of high rate of educated unemployed, high social consciousness of environmental rights, ageing population, among others. The transition to a knowledge economy brings to the forefront opportunity to address a myriad of wicked problems that are unique to Kerala. Challenges such as urban sprawl, social inequalities of the outliers and immigrants, complex micro regional issues demand integrated and innovative solutions. Transition Kerala's low value added low diversification enterprise to high production high productivity requires knowledge input. The growth story of MSME's traced by C. Balagopool through his book "Under the Radar" emphasizes this. Transforming Kerala economic base from the present low productivity regime to a high productivity knowledge economy holds immense promise for driving sustainable economic growth, fostering innovation, and improving living standards.

Central to Kerala's transition is the adoption of the triple helix model, emphasizing collaboration between government, academia, and industry. This model fosters synergies between knowledge creation, technology transfer, and market dynamics, driving value addition across sectors. By leveraging this collaborative framework, Kerala can accelerate its transition towards a knowledge-intensive economy. Given the limitation of industrial base within the state there is a need to look at a new model integrating startups, sunrise industries, knowledge industries, and local governments.

K-DISC and Kerala's Innovation Ecosystem

In view of Kerala's unique geography, climate, history, and population, the state possesses opportunities and challenges in various sectors, including agriculture and manufacturing, that are distinctively different from that of the other states of India. The economic base has remained relatively stagnant, slow growing and less productive. Hence, there was an urgent need for a restructuring of the economic base and shift in the development path from low productivity. The main challenge Kerala faces is to increase production and productivity in the primary sector such as agriculture, animal husbandry and fisheries, traditional industries, MSMEs and to find new ideas, activities and techniques necessary to create more employment opportunities and make the local economy dynamic. In the above context, innovation emerges not only as an engine of prosperity, competitiveness and an ingenious mechanism of real-life problem solving but as the act of creating extraordinarily new values in unusually original ways.

Launched on March 24, 2018, K-DISC was given the mandate of promoting innovation in the state. K-DISC aims at bringing out path-breaking strategic plans that reflect new directions in technology, product and process innovations, social shaping of technology and creating a healthy and conducive ecosystem for fostering innovations in the State.

K-DISC was set up with a vision of “A competitive and inclusive Kerala through creation of a healthy, conducive ecosystem for transformative and bold innovations through new directions in technology, product and process innovations”. The mission of K-DISC can broadly be classified as holistic and quality human development in Kerala, a knowledge-centred, technology based local economy with global connect and enhanced inclusion, participation and self-reliance through cutting edge knowledge and technology. In order to achieve this, K-DISC has come up with a programme framework including competency development programmes based on design thinking, and active learning initiatives making Kerala ready for Industry 4.0, and programmes for enhancing inclusion, participation and self-reliance through livelihood strategies.

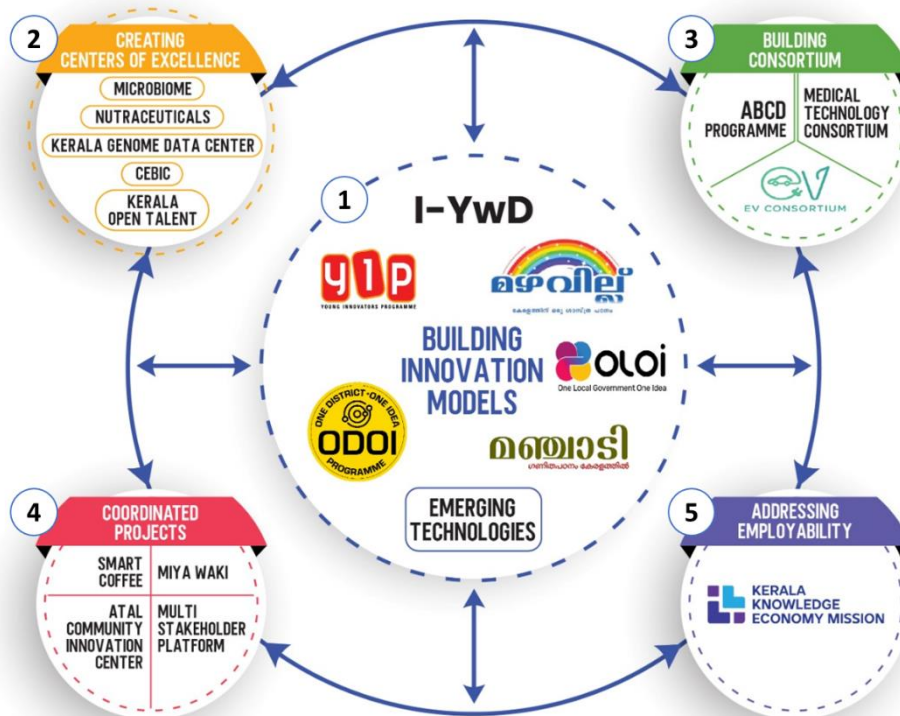
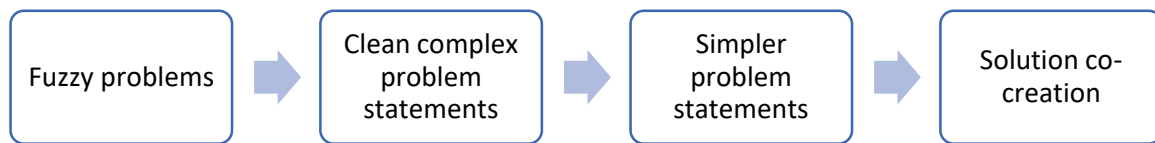


Figure 1 K-DISC Project Portfolio

K-DISC Framework of Community of Practice (CoP)

Community of Practice (CoP) is a framework that involves scientists, engineers, and practitioners from cross-disciplinary fields that can communicate with each other and exchange knowledge to promote knowledge diffusion and innovation. Secondly, it enhances communication between specialists and the public. Asymmetric information and incomplete information between knowledge producers and applicants often hinder Science and Technology (S&T) innovation. CoPs establish risk-sharing and forecasting mechanisms and construct a knowledge-sharing platform for open access. The K-DISC CoP ecosystem offers real time online service of experts and interaction with the public to enlighten their science awareness and to promote innovation. In particular, the One Local Government One Idea (OLOI) project aims to strengthen linkages between Local Government, Academia and Private/ Local enterprise to encourage open and inclusive sharing of knowledge, expertise and experiences to meet

common goals intended to address a diversity of societal challenges faced by local bodies. Local Innovations may arise through social contacts and interactive learning mechanisms. Therefore, the Community of Practice (CoP) is considered as a functioning framework to identify, evaluate and analyse the complex problems at the local level. Local value chains are among the entry points to diagnose these problems. However, it is still challenging for stakeholders how to integrate innovation as a means of addressing the observed problems, because most of the observed problems are multi-dimensional and in various sectors. For example, in agriculture: soil fertility, crop varieties, crop diseases, post-harvest market access to finance and value addition etc. The multi-dimensional characteristic of these problems involves multi-stakeholder dynamics and interactions at different scales.



Closely networked communities are a powerful foundation for social interaction among professional people who share the same interests in resolving an issue, improving skills, and learning from each other's experiences and imparting this knowledge. It is a precise method of knowledge management in any endeavour. The focus is to gather experiences and content in order to view the project holistically. Collaboration through partnerships amongst innovative communities can facilitate the flow and exchange of beneficial innovative practices and worthwhile lessons to adopt. The generation of new ideas that trigger innovation is likely to be facilitated by the diversity and breadth of different community experiences.

The CoP expert pool is being expanded by on boarding sectoral experts in the state identified from the PRISM (state pensioners) and SPARK (state employees) databases.

Materials and Methods

The Kerala Development and Innovation Strategic Council (K-DISC) has strived to develop a contextual holistic strategy for Kerala's second-generation development problems without sacrificing its inclusiveness and sustainability. K-DISC has crafted various non-linear innovation programmes to build a holistic Kerala innovation system. The various projects of K-DISC are imagined as building blocks to an integrative innovation ecosystem. K-DISC implements the following key programmes, with multiple projects within the programmes.

1. Building Innovation Models
2. Creating Centres of Excellence (CoE)
3. Building Consortium
4. Coordinated Projects
5. Addressing Employability

1. BUILDING INNOVATION MODELS

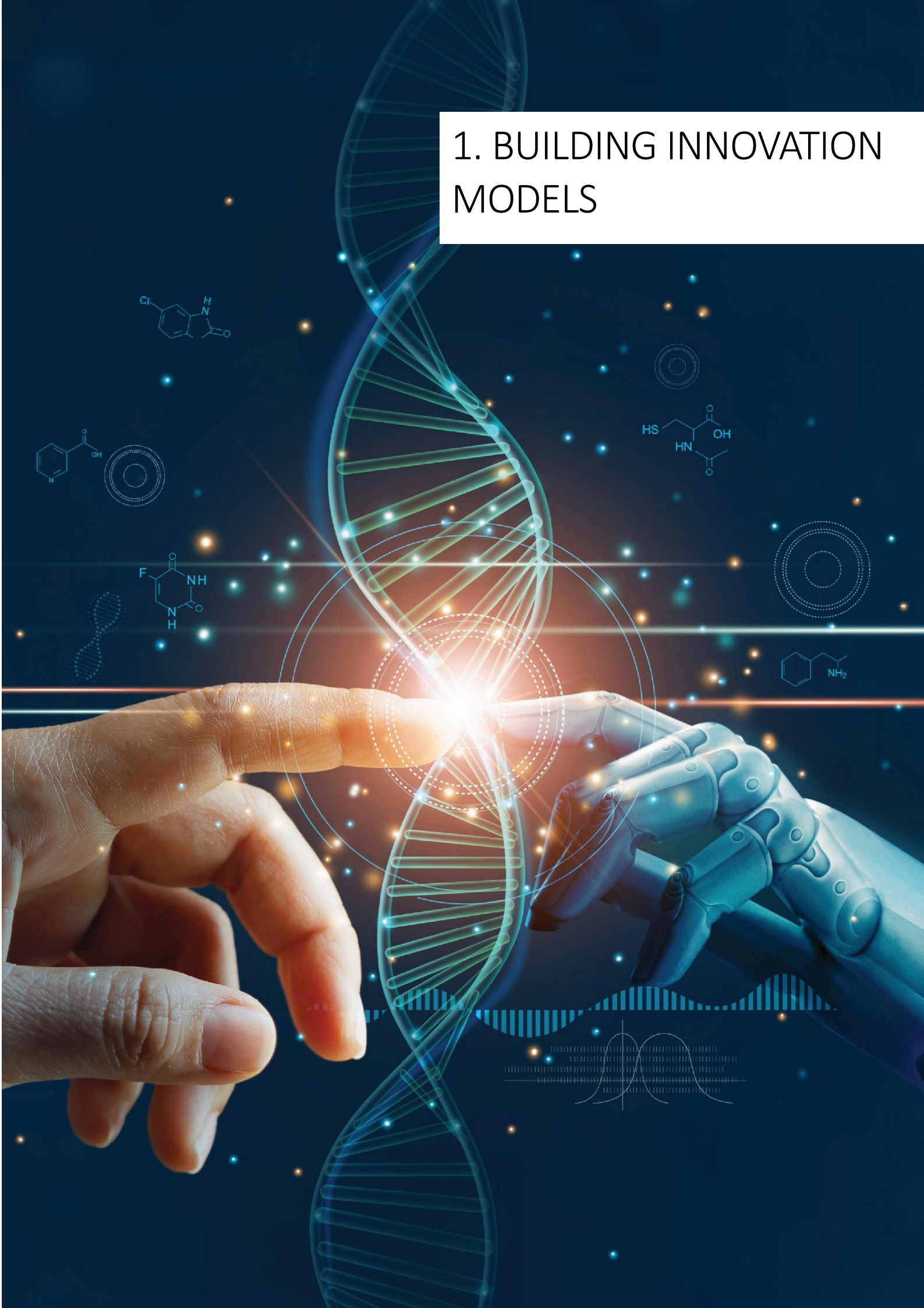


Image courtesy: K-DISC, 2023

Young Innovators Programme (YIP)

Young Innovators Programme (YIP) is the flagship project of K-DISC designed to transform the vision of a knowledge society in a way that is suited to Kerala through the promotion of innovations that bring about equitable and sustainable development of Kerala and provide solutions for real-life problems, and which are socially and economically beneficial to the society at large.

The Young Innovators Programme aims at democratising innovation and targets student teams in age groups from thirteen to thirty-seven. Addressing concerns raised from various quarters on the lack of proficiencies of children in critical thinking and resourcefulness despite access to facilities and infrastructure, equity etc.

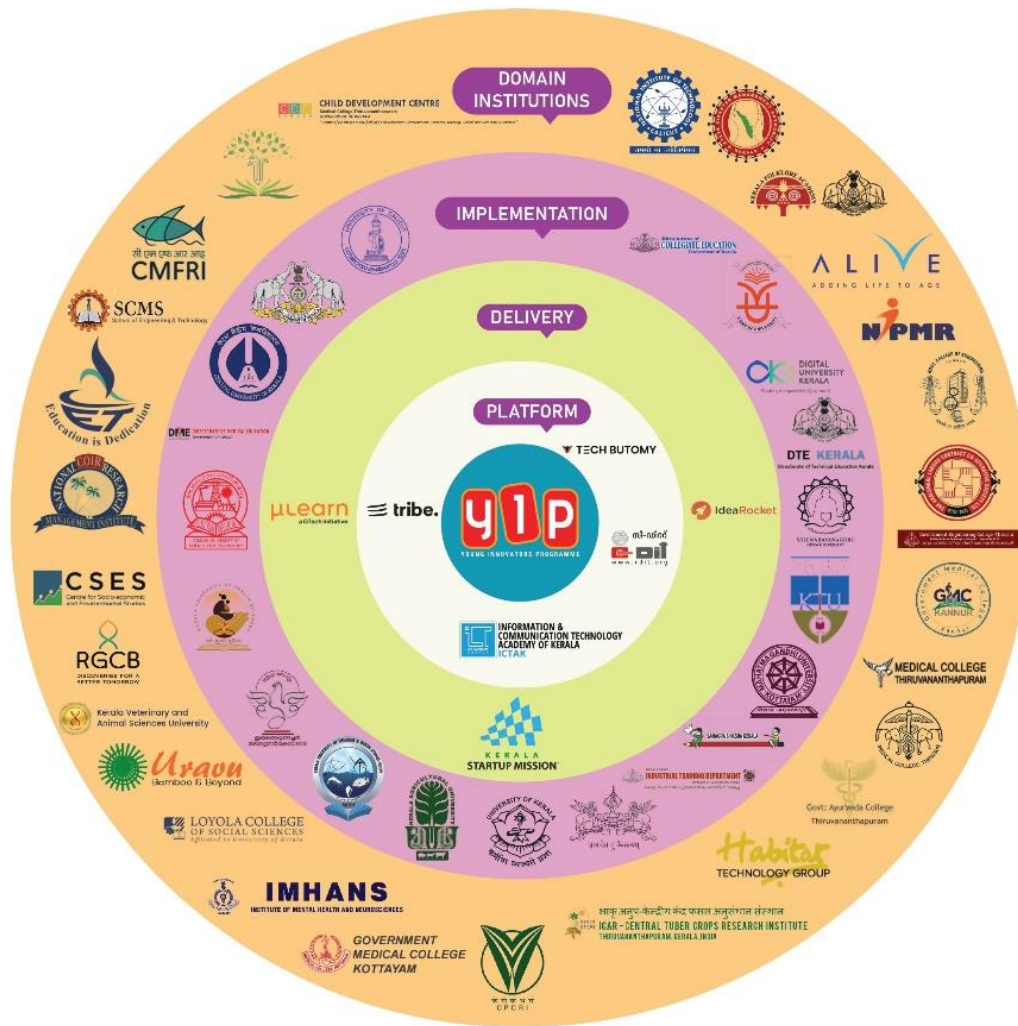


Figure 2 YIP Partner Ecosystem

Major Achievements

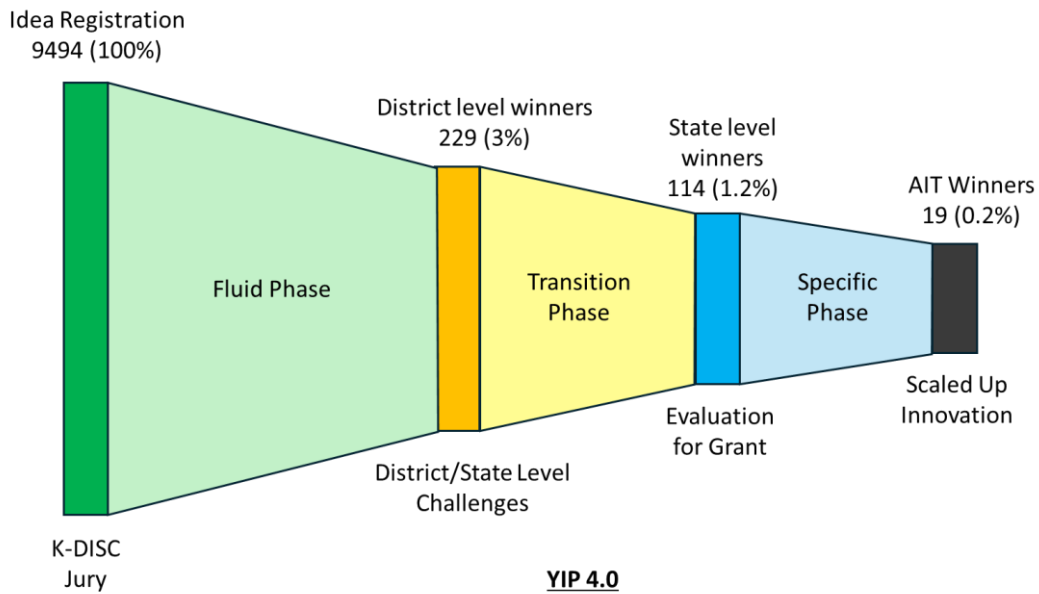


Figure 3 Innovation Funnel

The YIP programme has established a partner ecosystem, details of which are provided in Figure 2 above and Table 1 below. The details of patents filed by YIP participants are given in Table 2. The partner ecosystem pillion rides on the District Innovation Council, comprising the District Panchayat Chairperson, the District Collector, and representatives of the district's academia, research institutions, and industry. The programme has developed a contextualised critical pedagogy-based real-life problem-solving approach based on design-thinking mentored by a team of facilitator teachers, domain experts, Intellectual Property Rights (IPR) experts and a rapid fabrication expert. YIP architecture is provided in Figure 4 below. The entire programme runs on a platform and a process of mentoring around New Product Development with Fuzzy Front end has been adapted for the mentoring process. The ideation process follows a multi-stage evaluation along an inverted funnel with gated exits, leading to three-stage challenges after formal connects with domain institutions and an intense immersion in an innovation sandbox. Integrating the real-life problem-solving methodology into the curriculum would enhance the programme significantly.

THE PLATFORM ECOSYSTEM



Figure 4 YIP Innovation Architecture

Table 1 Coverage of the YIP Partner Ecosystem

Institution Type	Govt & Govt Aided	Private	Total
College	263	425	688
Deemed to be University Departments	1	4	5
National Institutes	16	0	16
National Council for Vocational Training (NCVT)	121	204	325
Others	30	2	32
Professional College	95	470	565
Research Only Institutions	36	9	45
School	4481	1533	6014
Skill Training Centre	0	2	2
Technical	72	100	172
University Departments	185	0	185
Total	5300	2749	8049

Table 2 YIP Patent Status

Sl.	YIP Tranche	Idea Name	Theme	Patent Status
1	2019	An energy efficient cooking apparatus	Energy,E-Mobility & Renewables	Patent filed
2	2020	Safe Artificial Insemination	Agriculture & Allied Sectors	Patent filed
3	2020	Nanoseal	Agriculture & Allied Sectors	Processing
4	2020	Ferro Mulch	Agriculture & Allied Sectors	Processing
5	2020	Anti-Microbial effect of doped bioactive glass nanoparticle	Modern Medicine and Biomedical Technology	Processing
6	2020	Natumen	Complementary & Alternative Medicine	Processing
7	2020	Re-arm	Assistive Technologies	Processing
8	2020	Agrospace	Agriculture & Allied Sectors	Processing



Two day residential Immersion Training Workshop, Kottarakkara, July 2023

Innovation by Youth with Disability (I-YwD)

The I-YwD methodology follows a module based approach. Each module consists of video based learning materials, online synchronous sessions and offline preparatory sessions. The entire teaching-learning process and materials have been made accessible to all the disability groups. The curriculum follows a methodical approach to innovation and entrepreneurship. Content videos are made available to mentees on a weekly basis. It has subtitles and sign languages. It teaches about the methodical approach to business, entrepreneurship, idea formulation, problem solving, and conducting research.



Hon. Minister Smt. R. Bindu, Inauguration, Jul 2023



I-YwD at Innovation Day 2023



I-YwD Event



Immersion activities



Project design



Stakeholder Connect

Major Achievements

1. Launching of Cohort-3 and Ongoing mentoring of Cohort-2. I-YwD confidently launched Cohort-3 on March 6, 2023 and within just a month, received an overwhelming response of nearly 400 inquires, resulting in over 125 applications. The I-YwD team conducted 85 interviews to clarify expectations further and provide program details. Following the interviews, applicants were engaged in a rigorous two – day online Participatory Selection Camp, completing tasks and activities to determine their selection for Cohort-3.
2. Cohort-3 batch activities are ongoing smoothly with the conduction of regular online and offline preparatory sessions with deaf, locomotive and visually impaired participants.
3. Conduction of regular Training of Trainers (ToT) session on Design Thinking for the team.
4. Continuing the regular communication and calls with mentees and mentors and releasing informative videos as part of the ongoing module on every Monday.
5. Three-day immersive program “Idea Springboard 2023” conducted on November 24, 25 and 26 with eight participants.
6. Nibin Mathew (a student from cohort-2 batch) represented India in the prestigious World Game 2023 for Blind Tennis Championship in Birmingham, United Kingdom. He is the first blind tennis player from India to compete on the international stage. He secured 3rd position at IBSA World Games 2023.

Table 3 Details of Innovation for Youth with Disabilities (I-YwD) cohorts

Cohort No1	Disability	Male	Female	Total
Cohort 1	Deaf	8	1	9
	Loco- Motor Disability	4	1	5
	Blind	3	0	3
	Autism	2	0	2
Cohort 2	Deaf	5	1	6
	Locomotor disability	7	4	11
	Blind	2	2	4
Cohort 3	Deaf	3	2	5
	Locomotor disability	8	1	9
	Blind	4	0	4
	Intellectual disability	1	1	2
All Cohorts	Total	47	13	60

Manchadi – Teach Maths for Kerala

Kerala is trying to create a classroom and education system suitable for a new Kerala. We have come a long way in terms of material facilities and admission rates for children. The school dropout rate is nominal. The next emphasis will be on quality and innovation. While attesting to excellence, we are also aware of limitations. The backwardness in mathematics is the most important among these. Considering this, K DISC took up an innovative initiative for mathematics education through Manchadi, on the direction of the Hon. Chief Minister.



Keraleeyam Manchadi exhibition



Manchadi group work on fractions



Manchadi class room activities



Activities on measurement



Manchadi introduced in 100 schools - a class room visual



Class on weights and measurement

Methodology

In 2018, the project started with Manchadi “koodarams”, which were started on an experimental basis in 5 Panchayats. It was then implemented in one centre in each district.

The core of the Manchadi learning approach is that mathematics is related to human life, and mathematical concepts are formed out of life experiences. Manchadi is guided by the view that learning mathematics should be related to life situations. It features a curriculum derived from international mathematics education research. Manchadi provides an opportunity to develop the capacity to absorb and discover ideas that emerge through meaningful activities. A curriculum designed with a Vygotskian approach emphasises communication, sharing, group work, and problem-solving. What differentiates this approach is that it enables children to stimulate their thinking and explore different ways of problem-solving. Manchadi emphasises the universalisation of mathematics and multifaceted intellectual development. Games and their level of enjoyment are embedded in the learning process. It is also characteristic that the thought process is taken together with the game. Manchadi has also benefited from the recognition that peer group experiences can stimulate children's interest in learning. This teaching method covers the various stages of problem-solving and its development. The child's joy and confidence when problem-solving is possible is a highly motivating experience.

Major Achievements

Transition of the project from Koodaram to Model Residential Schools (MRS)

The experiences gained from the “Koodarams” were very inspiring. The excellence of the children in math ability was accurately determined. Manchadi intervention was implemented in 20 MRSs in the second phase. This phase was completed on March 31, 2023.

MRS Effectiveness Study

Only 2.6% of the children who underwent the pre-test conducted before implementing the Manchadi scheme in MRSs recorded the prescribed standards. 87.4% recorded the wrong answer. When the same group was subjected to the final assessment, 86.6% reported significant improvement. (421 students participated in the initial assessment, and 461 students participated in the final evaluation). A pre-test based on the fractions syllabus of fifth-standard students was administered to sixth-standard students in these schools, and it was found that the children were very backward in this concept.

Once the pilot phases were successfully completed, the next step was sharing the methodology with teachers and adopting it to the school environment. Efforts have been made for this since April 2023. This year, the scheme is being implemented in 100 schools in the state in collaboration with the Department of Public Education, SCERT, Samagra Shiksha Kerala, and Vidyakiran Mission. Here, a relatively difficult mathematics concept - Fractions, is taught to students of class 5 through the Manchadi study method. Samagra Shiksha Kerala (SSK) undertakes the training of teachers in the methodology. SCERT does the research part and evaluation. K-DISC provides academic and logistics support. The first phase of the two-phase project has been completed. About 400 teachers have become part of the Manchadi project.

The completion of the first phase of the school implementation was a great experience. The children found the activities very enjoyable. Their interest in maths increased. This was also confirmed through the meetings with parents. The most significant aspect is the confidence developed in teachers through their responsibility in taking up the leadership for the classes. All the teachers expressed satisfaction with the teaching method. The project's second phase started in January 2024 in 100 schools. At the beginning of the implementation of the project, basic skill training of children was done with the cooperation of SSK. The Manchadi methodology can be extended to more schools once the effectiveness test is completed.

Mazhavillu- Teach Science for Kerala

Mazhavillu is a child centred approach to Science learning intended to develop and implement a Science education curriculum without routine class room teaching and relies on activities which would impart a spirit of enquiry, knowledge on the historical development of knowledge pursuit in Science and more importantly infuse scientific temper as envisaged in the constitution of India.



Inauguration by Hon. Minister M. B. Rajesh Aug 2023, GMRS, Thrithala



Inauguration by Shri. Kadakampally Surendran, Oct 2023, Kattela



Inauguration by Shri. A. Prabhakaran, Jul 2023, Malampuzha



Mazhavillu winning SKOCH Award 2023



September 2023 - KILA workshop



School Visits - Ashram School, Malampuzha

Objectives

1. Bringing in an element of history of science in science teaching.
2. Imbibing scientific temper and spirit of enquiry in children.
3. Improving critical thinking and analytical capacity in children.
4. Practicing methodology of science by observation and experiments.
5. Realization of frontiers of science and use of science in society.
6. Identify the problems which need analysis and creative debate, and create a platform for new constructive ideas for science exploration.

Methodology

The transactional approach to the existing curriculum is modified to develop a new communication system that transforms traditional science teaching in the classroom into an inquiry-based and activity-based process. This was done by critically analysing the existing text books, theme wise integration of their content and converting concepts into workable activities. Students of age group 8-12 years participated in this programme at 5 centres in Kerala. It also provides an opportunity for project-based learning to develop knowledge and skills through engaging projects around challenges and issues the students may face in the real world.

As a pioneer step, 5 themes have been formulated covering the entire learning objectives of basic science and social science subjects starting from class 3 to 7. Each of the 5 themes were divided into different sub-themes. Then the students were divided into 3 levels namely, Junior, Elder, and Senior. The next step was to ensure that all the learning objectives of the SCERT syllabus were covered while preparing the modules using teacher's handbook as a reference through online and offline meetings. Activities were designed so that children can grasp the concept easily through experiments, games, simulations, debates etc.

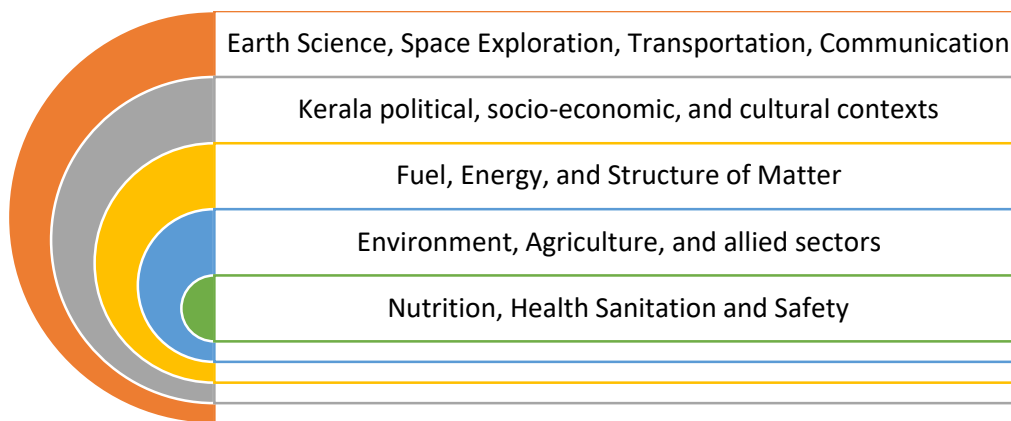


Figure 5 Mazhavillu Themes

To know the social and economic background of the student, a socio- economic survey was conducted jointly by Junior programme executives and volunteers. The data was uploaded in KSREC application.

In the second phase, a set of primary baseline activities were designed. A baseline assessment study was done among individual students to know the acquaintance on their fore knowledge and scientific aptitude. Modules are designed using integrated and interdisciplinary approach to teach the students. Biodiversity was taken as the first theme. After completing this topic, we focused on the theme water. Chemical, physical, biological, social and economic aspects of the theme water is being discussed.

Partner Government Departments & Agencies

Phase 1

SI No	Academic Institution	Local Self Government
1	Govt. Arts College	Thiruvananthapuram Cooperation
2	Maharajas College	Kochi Cooperation
3	KFRI, Thrissur	Pananchery Grama Panchayat
4	IRTC, Palakkad	Mundur Grama Panchayat & Puthupariyaram Grama Panchayat
5	Govt. Brennan College	Dharmadom Grama Panchayat

Phase 2

Model Residential School under STDD

SI No	Name of the Model Residential School	No of Students
1	Dr Ambedkar Memorial Model Residential HSS, Kattela	31
2	G. Karthikeyan Memorial Model Residential School, Kuttichal	13
3	Govt Model Residential School, Vadasserikkara	11
4	Indira Gandhi Memorial Model Residential School, Nilambur	28
5	Ammrghss Nalloornad, Mananthavady, Wayanad	34
6	Model Residential School, Chalakkudy	32
7	Ashram Model Residential School, Malampuzha	34
	Total	183

Model Residential School under SCDD

SI No	Name of the Model Residential School	No of Students
1	Model Residential School, Keezhmad, Aluva	23
2	Govt Model Residential School, Wadakkanchery	28
3	Govt Model Residential School, Thrithala	35
4	Dr Ambedkar Memorial Model Residential School, Alappuzha	28
5	Govt Model Residential English Medium School,Chelakkara	17
	Total	131

Major Achievement from April 2023 to January 2024

One-day workshop was conducted at KILA on 10-July-2023 for the awareness of the Junior Programme Executives before proceeding to their respective MRS. Preliminary stage of baseline assessment activities has also been planned in this workshop. A two-day Workshop is conducted at KILA on September 25, 26, 2023 for the preparation of Modules and the questionnaire of baseline assessment. A two-day training programme for newly selected mother animators was organised at KILA on November 14-15, 2023. The activities for the second phase have been finalized and the skeleton prepared for the detailed baseline study report.

First Phase

1. Students discovered the joy of learning science by doing which completely erased their alienation while learning science.
2. Students now appreciate the interconnectedness across various disciplines in science observing and experimenting with various elements of nature.
3. Students realized that asking critical questions is the fundamental feature of learning science.

Second Phase

1. Phase 2 Workshop was conducted at IRTC during March 17 – 19, 2023. A draft of the integrated curriculum was developed.
2. Project is extended to 12 Model Residential Schools.
3. 314 students are the beneficiaries of this phase.

Major Achievements

1. 152 students in five different centres were participated in the programme for a period of 1 year.
2. Project is extended to 12 Model Residential Schools.
3. 314 students are the beneficiaries of this phase.
4. The project won Silver award at the 2023 SKOCH Summit.

One District One Idea (ODOI)

ODOI is an innovation challenge programme for manufacturing clusters, medium and micro-enterprise clusters. Innovation and technology have been identified as the primary differentiator that can take the enterprises as well as the clusters to non-linear non-incremental growth. The integration of the Triple Helix Model in the ODOI program exemplifies a collaborative and synergistic approach, where the combined efforts of government, academia, and industry create a dynamic ecosystem conducive to innovation, and sustainable development within MSME clusters.

In ODOI programme, innovation and technology have been identified as primary differentiators that can take the clusters to non-linear, non-incremental growth. The coverage of the clusters identified under ODOI is provided in Table 4. Strategic linkages are established with academic institutions.

Table 4 ODOI Innovation Clusters

District	Handicraft	Handloom	KBIP Manufacturing	Kudumbashree	Manufacturing	Others	Total
Alappuzha					2	2	4
Ernakulam	2	1	1	1	1		6
Idukki					5		5
Kannur	1		1		1		3
Kasaragod						2	2
Kollam	1	1		2			4
Kottayam	1		1	2	4		8
Kozhikode		1		1	4		6
Malappuram			2		1	1	4
Palakkad	3					1	4
Pathanamthitta	1				1	1	3
Thrissur	3	1				2	6
Trivandrum	4	4			1		9
Wayanad	1			1			2
Total	17	8	5	7	20	9	66

Partner Government Departments & Agencies

1. Digital University of Kerala (DUK)
2. Directorate of Industries and Commerce (DIC)
3. Enterprises Development Institute of India (EDII)
4. Kudumbasree State Mission
5. Handicrafts Development Corporation of Kerala Ltd
6. Kerala Bureau of Industrial Promotion (K-BIP)
7. Directorate of Handlooms & Textiles
8. Kerala State Industrial Development Corporation Ltd.
9. MSME-Development Institute (MSME-DI)
10. Centre for Management Development (CMD)
11. Kerala Institute of Local Administration (KILA)

12. Directorate of Technical Education (DTE)

13. Directorate of Collegiate Education



Arts and Crafts Village



Kuthampully Handloom Cluster



Balaramapuram



Kottukal



Kollayil Ecotex



Amrutham Nutrimix Calicut

One Local Government One Idea programme (OLOI)

The One Local Government One Idea programme (OLOI) envisions empowering the Local Governments in Kerala to develop innovative solutions for their problems, going beyond traditional problem-solving approaches and looking at transformation models. OLOI also aims to support local governments in local economic development, service delivery and governance through innovation.

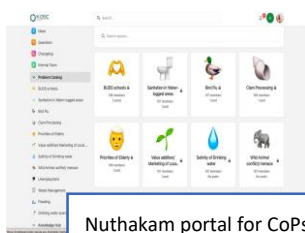
OLOI is anchored by the Centre for Management Development (CMD), Kerala Institute of Local Administration (KILA), and Integrated Rural Technology Centre (IRTC). OLOI follows a methodology of developing problem statements and arriving at solutions based on extensive involvement of stakeholders in problem curation, identifying solutions through hackathons, and providing scaffolding for developing the solutions through expert support and ensuring stakeholder involvement in implementation. Apart from addressing the wicked problems only, OLOI has started addressing low-hanging fruits on advisories for programmes on marginalised based on recommendations of the State Finance Commission and also coordinated projects for wider impact like the Zero Waste Hackathon. OLOI themes and details of LSGIs included in pilot phase are given in Table 5 and Table 6. OLOI has established a collaborative electronic platform called 'Nuthakam' for Community of Practices. See Table 7.

Table 5 OLOI Themes

Sl.	Themes
1	Agriculture & Plant Science
2	Priorities of Children
3	Food Technology
4	Fisheries, Inland Fish Farming and Ocean Sciences
5	Shelter, Heritage and Culture
6	Priorities of Elderly
7	Animal husbandry, Dairy and Poultry Science
8	Modern Medicine and Biomedical Technology
9	Water Conservation and Drinking Water
10	Traditional Industries and MSMEs
11	Renewables, Energy Conservation, E-Mobility and Carbon Sequestration
12	Climate Change Adaptation, Disaster Management & Environmental Sciences
13	Solid, Liquid and Hazardous Waste Management
14	Aggregation Platform
15	Education and Skilling
16	Urban Planning, Transport, Port and Harbour Engineering
17	Innovation Collectives and Cooperatives
18	Good Governance and Service Delivery
19	Fitness, Wellness and Youth welfare
20	Problems of the Marginalised and Backward Community—including Dalit, Adivasi and Fisher folk
21	Assistive Technology & Wearables
22	Complementary and Alternative Medicine - AYUSH
23	Gender
24	Digital Creative Art forms, AR/VR, Game Design
25	Data Science and Future Technologies
26	Post-pandemic Innovations and Epidemic Management
27	Biotechnology, Molecular Biology and Genetics



Hon. Minister M. B. Rajesh inaugurates OLOI portal



Nuthakam portal for CoPs



Stakeholder discussion



Stakeholder discussion



Zero Waste Hackathon launch

Table 6 List of selected themes, problems and LSGIs for OLOI pilot phase

Sl.	Theme	Problem	Name of LSGI	District
1	Priorities of Elderly	Problems of the elderly	1. Elikulam Grama Panchayat	Kottayam
			2. Manarcad Grama Panchayat	Kottayam
			3. Perumbavoor Municipality	Ernakulam
2	Agriculture and Plant Science	Procurement, storage and marketing-related issues of agricultural produce	1. Chirakkadavu Grama Panchayat	Kottayam
			2. Veliyannoor Grama Panchayat	Kottayam
			3. Poomangalam Grama Panchayat	Thrissur
			4. Karivelloor Peralam Grama Panchayat	Kannur
			5. Kanjikuzhi Grama Panchayat	Alappuzha
			6. Kuttiattoor Grama Panchayat	Kannur
			7. Vallicode Grama Panchayat	Pathanamthitta
			8. Njeezhoor Grama Panchayat	Kottayam
3	Education and Skilling	Unemployment	1. Perambra Grama Panchayat	Kozhikode
			2. Kakkodi Grama Panchayat	Kozhikode
			3. Thachampara Grama Panchayat	Palakkad
			4. Chemmanad Grama Panchayat	Kasaragod

Sl.	Theme	Problem	Name of LSGI	District
			5. Mogral Puthur Grama Panchayat	Kasaragod
4	Solid, Liquid and Hazardous waste Management	Sanitation issues in waterlogged areas	1. Ramankary Grama Panchayat	Alappuzha
5	Priorities of Children	Buds School	1. Puzhakkattiri Grama Panchayat	Malappuram
6	Animal Husbandry, Dairy and Poultry Science	Bird flu	1. Arpookara Grama Panchayat	Kottayam
7	Water Conservation and Drinking Water	Salinity in drinking water	1. Kulasekharapuram Grama Panchayat	Kollam
			2. Orumanayur Grama Panchayat	Thrissur
			3. Engandiyur Grama Panchayat	Thrissur
			4. Thanniyam Grama Panchayat	Thrissur
			5. Valiyaparamba Grama Panchayat	Kasaragod
			6. Venkitangu Grama Panchayat	Thrissur
			7. Vellangallur Grama Panchayat	Thrissur
			8. Poyya Grama Panchayat	Thrissur
			9. Pavaratti Gram Panchayat	Thrissur
			10. Padiyur Grama Panchayat	Thrissur
8	Fisheries, Inland Fish Farming and Ocean Sciences	Clam Processing	1. Muhamma Grama Panchayat	Alappuzha
9	Climate Change Adaptation, Disaster Management & Environmental Sciences	Human-Wildlife Conflict	1. Mariyapuram Grama Panchayat	Idukki
			2. Thekkumkara Grama Panchayat	Thrissur
			3. Athirapally Grama Panchayat	Thrissur
			4. Thavinjal Grama Panchayat	Wayanad
			5. Noolpuzha Grama Panchayat	Wayanad
			6. Pozhuthana Grama Panchayat	Wayanad
			7. Vamanapuram Grama Panchayat	Thiruvananthapuram
			8. Chittar Grama Panchayat	Pathanamthitta
			9. Kavilumpara Grama Panchayat	Kozhikode

Sl.	Theme	Problem	Name of LSGI	District
			10. Madakkathara Grama Panchayat	Thrissur
10	Climate Change Adaptation, Disaster Management & Environmental Sciences	Depletion of drains	1. Cherpu Grama Panchayat	Thrissur
			2. Maravanthuruthu Grama Panchayat	Kottayam
11	Solid, Liquid and Hazardous waste Management	Waste management	1. Trikaripur Grama Panchayat	Kasaragod
			2. Thrithala Grama Panchayat	Palakkad
			3. Pala Municipality	Kottayam
12	Climate Change Adaptation, Disaster Management & Environmental Sciences	Flooding	1. Aranmula Grama Panchayat	Pathanamthitta
			2. Arookutty Grama Panchayat	Alappuzha
			3. Karthikappally Grama Panchayat	Alappuzha
			4. Kottayam Municipality	Kottayam
			5. Kumarakom Grama Panchayat	Kottayam
			6. Peruvayal Grama Panchayat	Kozhikode
			7. Chazhur Grama Panchayat	Thrissur
			8. Mulakuzha Grama Panchayat	Alappuzha
			9. Edavanakkad Gram Panchayat	Ernakulam
			10. Pudukad Grama Panchayat	Thrissur
			11. Kanjoor Gram Panchayat	Ernakulam
			12. Eriyad Gram Panchayat	Thrissur
13	Water Conservation and Drinking Water	Drinking water	1. Elakamon Grama Panchayat	Thiruvananthapuram
			2. Paivalike Grama Panchayat	Kasaragod
			3. Sreenarayanapuram Grama Panchayat	Thrissur

Local Innovators Programme

In the journey of Kerala into a Knowledge Society opportunities need to be created to identify innovators from all walks of life and provide the right support to nurture them for value creation. Local innovation refers to innovations by society members outside the framework of schools, colleges, and formal industries. K-DISC ensures to provide the right ecosystem for identification and scaling of local innovation for risk mitigation, scaling, expert connect, and sustainable value creation as part of the transformation of Kerala into a Knowledge Society. The process for promotion of Local Innovation will follow the Innovation Life Cycle and will leverage the Triple Helix+ model to integrate components of academia, industry, government, community, and environment. The innovators will be mentored and supported to build competencies, take their ideas to prototypes, convert prototypes to working models and scale working models to sustainable sources of value generation.

Table 7 Local Innovation Ideas & Projects promoted by K-DISC

Sl. no.	Title	Innovator / Agency	Particulars
1	Rigas Engine	Rajeesh Rajan	<p>First local innovation of K-DISC awarded patent for his design of two stroke elliptical IC rotary engine having better volumetric efficiency than Wankel Engine.</p> <p>K-DISC had proposed Computational Fluid Dynamics (CFD) for its design and released grant for this.</p> <p>Automaker Mazda had shown interest in the product and Defence Research and Development Organisation (DRDO) had reviewed this earlier.</p> <p>The engine has potential applications in aircrafts, drones, electric vehicles because of higher power to weight ratio and low vibration.</p>
2	Moving Bridge Electricity Generator	Rejimon Leela Dennis	<p>Utilizing the human energy exerted on the ground in public locations to be converted into electricity.</p> <p>A moving bridge electricity unit to be piloted at Veli Tourist Village.</p>
3	Microbial inoculants for Waste Management	Integrated Rural Technology Centre (IRTC)	<p>Microbial consortium, combination of bacteria and fungi capable of aerobic degradation of biodegradable solid waste into compost. The compost is highly useful as organic manure.</p> <p>K-DISC is helping IRTC in scaling of the microbial inoculants and development from the lab scale to commercial so that they would make it available to local government institutions for using composting devices.</p>
4	High Pressure Bio-CNG Generation for Sustainable Transportation	TReST Park	<p>The project aims to convert locally available biodegradable waste to Bio-CNG*, which has higher calorific value and high usability,</p>

Sl. no.	Title	Innovator / Agency	Particulars
			<p>compared to biogas and make it available at high pressure.</p> <p>The fabrication of High Pressure Bio-gas generation and conversion to Bio-CNG will be the output.</p> <p>The bio-CNG so available can be pressurised further and bottled and made available for transportation purpose as well.</p> <p>*CNG – Compressed Natural Gas</p>
5	Bioethanol project	CSIR- NIIST	To assess the Feasibility of Bioethanol Production from Water Hyacinth Biomass (WHB)
6	Medical devices for iatrogenic urethral damage prevention, assisted bladder emptying and intraoperative autologous blood retransfusion	Digital University Kerala	<p>The proposal aims to develop</p> <ol style="list-style-type: none"> 1. a device to prevent urethral injuries associated with catheterization. 2. a device for assisted urine voiding in patients with bladder dysfunction. 3. a low-cost device to enable easy and safe intraoperative autologous retransfusion of blood for locations without easy access to blood banks.
7	Smart Air Quality Monitoring System	Shri Biju Oommen	The air monitoring system will sense several air quality parameters that include temperature, relative humidity, air pressure, CO ₂ , TVOC, PM _{2.5/10} , CO, NO ₂ , O ₃ and HCHO and provide this data geo tagged and time stamped to the cloud servers. Data collected at the cloud servers can be made available to the device owners (on their mobile), regulatory bodies, government or other
8	Amphibious project	Smt. NanmaGireesh	<p>Aims to research, design, develop and learn by implementing an amphibious house in a flood-prone area in Kerala</p> <p>Support from K-DISC: An amount of Rs. 85,000 was released as financial support for the pilot implementation to the innovator.</p>



Hon. Ministers Sri. P. A. Mohammed Riyas, Sri. Antony Raju with Moving Bridge Innovator



Moving Bridge Electricity Generator



Moving Bridge Electricity Generator inauguration event



Launch of Samata Biocomposter



IRTC Samata Biocomposter



Amphibious Housing - model

Accelerating adoption of Emerging Technology Solutions in Government

Accelerating adoption of Emerging Technology Solutions in Government is a programme where K-DISC works with partner departments to identify problems through Application Development Clinics. Under Emerging Technologies in Government, the startup procurement method has been identified as the mechanism of solution identification, leading to joint implementation with departmental partners. K-DISC provides scaffolding for startups. The list of projects taken up under the Emerging Technology Programme is provided in Table 8. Projects on Anti-Microbial Resistance, Improving Diabetic Retinopathy Care, Tissue Culture traceability, Blood bag Traceability and model for non-revenue loss reduction in water distribution projects are some of the interesting interventions. The objective of the project is to create a space for experimentation and radical transformation of governance and citizen service delivery.

Table 8 Overview of ET projects in various stages as of December 2023

Sl.	Stages	Count
1	Launched	3
2	Post-implementation evaluation	7
3	Startup finalisation, Project Approval, and Project Implementation	7
4	Ideation, Freezing Proposal, Department Approval	14
	Total	31

Table 9 Emerging Technology Projects

Sl.	Project Name	Department
1	Emerging Technology-Driven Continuous Drinking Water Supply Monitoring System For Pandalam Municipality Town	Department of Water Resources
2	Artificial Intelligence based system for automatic screening of Diabetic Retinopathy Phase 2	Health and Family Welfare Department
3	Emerging Technology-Agriculture-Smart Crop	Department of Agriculture Development & farmers Welfare
4	Consumer Billing Application For Drinking Water Supply	Department of Water Resources
5	Automated Cervical Cancer Screening Using Artificial Intelligence	Health and Family Welfare Department
6	Antibiogram Application For Department Of Microbiology	Department of Microbiology
7	Land Record Management.	Registration Department
8	AR/VR Based Training For Kerala Police Academy	Police Department
9	Aadhaar Data Vault Compliant Blockchain Based EHR System	Health and Family Welfare Department
10	Citizen Climate Connect	Administration Department
11	Citizen Satisfaction Survey (Citz Happy)	State GST Department
12	Facility Mapping in Hospitals for the public to track and use	Health and Family Welfare Department

Sl.	Project Name	Department
13	Wireless infusion monitoring with Dripo	Health and Family Welfare Department
14	G-Gaiter - The Advanced Robotic Gait Rehabilitator pilot implementation at PMR Department, General Hospital, Trivandrum	Health and Family Welfare Department
15	eHealth Hackathon - Mobile app to connect the beneficiaries of KASP-PMJAY for SHA	State Health Agency
16	Tissue Culture Traceability Using Blockchain Technologies	Department of Agriculture Development & Farmers Welfare
17	Development of voice to text functionality for eHealth platform	Health and Family Welfare Department (eHealth Kerala)
18	Blood Bag Traceability - Phase2	Health and Family Welfare Department
19	Hekaflo at General Hospital, Thiruvananthapuram and WNC, Thycaud	Health and Family Welfare Department
20	Low-cost camera based adaptive intelligent traffic signal control system	Police Department
21	Remote Monitoring Application for solar plants for ANERT	ANERT
22	Unnathi Jalakam for Scheduled Caste Development Department	Schedule Caste Development Department
23	State Level Virtual Road Safety Training platform for Motor Vehicle Department	Transport Department
24	Integrated Smart Parking at Gandhi Park- Thiruvananthapuram Corporation	Local Self Government Department
25	To Design an AI Based Chat System for Providing Health Related Information through eHealth Portal	Health and Family Welfare Department
26	Administration and Management of Chit Funds in Kerala for Registration Department.	Registration Department
27	eHealth Hackathon - Development and implementation of bone marrow registry	Health and Family Welfare Department
28	eHealth Hackathon To design a voice assisted Slot prediction system for OP token management	Health and Family Welfare Department
29	Veineux AR 100 Augmented Reality Based NIR Vein Viewe	Health and Family Welfare Department
30	Landslide Prediction for KSDMA	Kerala State Disaster Management Authority
31	Building Evaluation - Registration Department	Registration Department



Launch of G-Gaiter by Hon. Chief Minister



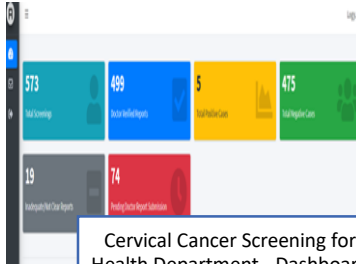
Launch of G-Gaiter by Hon. Minister for Health



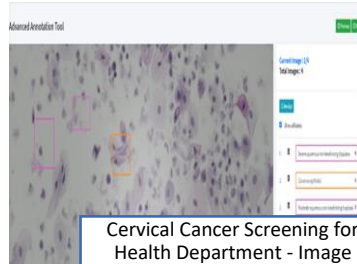
Continuous Drinking Water Supply - KWA - Flowmeter installed at Athiramala, Pandalam



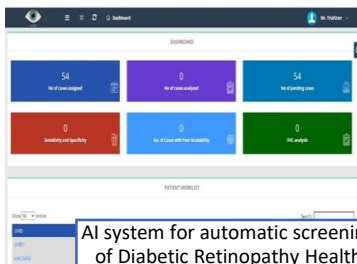
Continuous Drinking Water Supply - KWA - Flowmeter display console installed at Cherickal



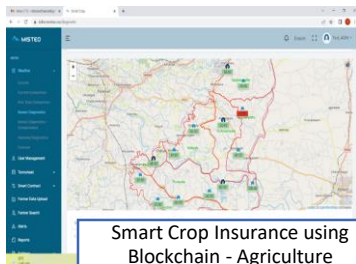
Cervical Cancer Screening for Health Department - Dashboard



Cervical Cancer Screening for Health Department - Image Annotation Tool



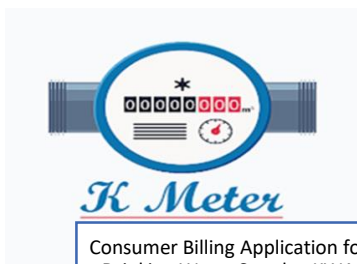
AI system for automatic screening of Diabetic Retinopathy Health Dept.



Smart Crop Insurance using Blockchain - Agriculture Department



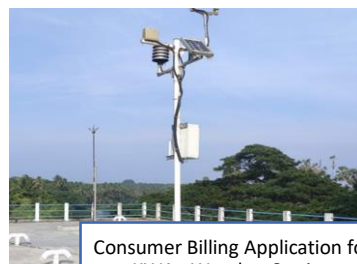
Consumer Billing Application for Drinking Water Supply - KWA



Consumer Billing Application for Drinking Water Supply - KWA



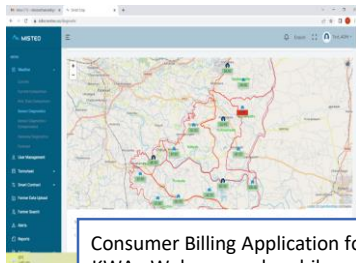
Consumer Billing Application for KWA - Training for KWA readers



Consumer Billing Application for KWA - Weather Station



Consumer Billing Application for KWA - Workshop at Palakkad



Consumer Billing Application for KWA - Web app and mobile app



Consumer Billing Application for KWA - Meter reader capturing the photograph of the water meter

Achievements in Innovation Programmes

Table 10 Achievements in Innovation Programmes

Sl.	Project/ Programme	Parameter	Achievements
	Building Innovation Models		
1	Creating an Innovation Ecosystem	Number of Schools in Innovation Ecosystem	6,230
		Number of Polytechnic institutes in Innovation Ecosystem	73
		Number of Higher Education Institutes in Innovation Ecosystem	2,548
		Total number of academic and research institutions connected as part of the Innovation Ecosystem	8,851
		Number of Communities of Practice (CoP) members	1,531
		Number of real life problem statements by CoP members	120
		Number of real life problem statements by state departments	1950
2	Young Innovation Program (YIP)	Patents filed	1
		Patents filling in progress	7
		Number of startups emerging from YIP	4
		YIP 2018 Participation count	1320
		YIP 2019 Participant count	3950
		YIP 2020 Participant count	10112
		YIP 2021 Participant count	102512
		YIP 2022 Pre-Registrations	1,59,044
		YIP 2022 Ideator Registrations	40,913
		YIP 2022 – participants who completed Voice of the Customer Pre-Training	24,385
		YIP 2022 – Total number of groups	9595
		YIP 2022 – Number of ideas submitted	6,447
		YIP 2022 – District Level Winners	730
		YIP 2023 – Total registrations	1,02,792
YIP 2023 – Idea Submissions	10,692		
3	One District One Idea (ODOI) Programme	Number of innovation clusters formed (MSME, DIC, Handloom etc clusters)	63
		Number of Mentor Institutions	61
		Number of innovation clusters shortlisted	27
4	One Local Government One Idea	Number of LSGI officials trained on OLOI implementation	1757
		Number of Gram Panchayat level officials trained	7662
		Number of Block level officials trained	1632
		Number of District level officials trained	495
		Number of elected representatives trained	7862
		Number of Resource persons trained	1449

Sl.	Project/ Programme	Parameter	Achievements
5	Local Innovation Programme	Number of projects supported	8
6	Manchadi-Teach Maths Kerala	Number of centres where programme is actively implemented	123
7	Mazhavillu-Teach Science Kerala	Number of centres where pilot project is actively implemented	14
8	Innovation Technologies (ET)	Total number of pilot projects to increase adoption of emerging technologies in governance	36
		Number of projects part of Citizen Service – One Department One Idea	7
		Number of pilot projects part of Innovation for Government (i4G)	4
9	Innovation by Youth with Disability	Number of students provided continued mentoring	40
10	Talent Search for Youth with Disability	Number of participants in second cohort	75
Coordinated Projects and Building Consortium			
11	Miyawaki Afforestation Programme	Pilot plots where model was tested out	12
12	ABCD Programme (as on 25-12-2023)	Beginner Program	18562
		Developer Program	7219
		Architects	97

Table 11 Distribution of Communities of Practice Professionals

Themes	Academics	Administrator	Professionals	Scientist	Others	Grand Total
Aggregation Platform	9		10		8	27
Agriculture and Plant Science	45	11	63	8	15	142
Animal Husbandry, Dairy, and Poultry Sciences	20	6	32		3	61
Assistive Technologies and Wearables	13		12		1	26
Biotechnology Molecular Biology and Genetics	15		12	6		33
Climate Change Adaptation-Disaster Management & Environmental Sciences	23	13	17	11	12	76
Complementary and Alternative Medicine – AYUSH	35		46	1	1	83
Data Sciences and Future Technologies	19	1	18	2	2	42
Digital Creative Art Forms AR/VR & Game Design	6	1	14		1	22
Fisheries, Inland Fish farming and Ocean Sciences	16	1	21	2	1	41

Themes	Academics	Administrator	Professionals	Scientist	Others	Grand Total
Fitness Wellness and Youth Welfare	20	9	3		20	52
Food Technologies	4	2	12		15	33
Gender	9	12	5		19	45
Good Governance and Service delivery	7	62	10		25	104
Innovation Collectives and Co-operatives	11	8	5	2	9	35
Modern Medicine and Biomedical Technology	60	2	21		4	87
Post-pandemic innovations & Epidemic Management	8		9		3	20
Priorities of Children	25	12	15		14	66
Priorities of the Elderly	17	5	9		7	38
Problems of the Marginalised and Backward Regions	3	20	7		24	54
Renewables energy conservation e-mobility and carbon sequestration	22	5	45	1		73
School Education	60	4	4		3	71
Shelter Heritage & Culture	15	10	6		8	39
Solid-Liquid and Hazardous Waste Disposal	21	14	10		20	65
Traditional Industries and Micro Small and Medium Enterprises	15	27	25	2	17	86
Urban Planning Transport Port and Harbor Engineering	10	2	30		4	46
Water conservation and drinking water	14	6	18	14	12	64
Grand Total	522	233	479	49	248	1531

2. CREATING CENTRES OF EXCELLENCE



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K-DISC has developed a strategy of innovation-led development by creating Centres of Excellence in strategic areas like the Centre of Excellence in Microbiome, Centre of Excellence in Nutraceuticals, Kerala Genome Data Centre, Clean Energy Business Incubation Centre, and Kerala Open Talent CoE.

Table 12 Centres of Excellence in K-DISC

Sl.	Centre of Excellence	Translational Research /Intervention Focus	Partner Institutions
1	Microbiomes	Spanning human, animal, plant, aquatic and environmental domains driven by a One-Health approach;	Rajeev Gandhi Centre for Biotechnology (RGCB) Kerala State Council for Science Technology and Environment (KCSTE).
2	Nutraceuticals	Nutraceutical mediated and immune modulation-based solutions for human health leveraging rich biodiversity and herbal traditions	KCSTE and KSIDC.
3	Kerala Genome Data Centre (KGDC)	AI powered high performance cluster for genomic data to develop pest-resistant crops and increase yields, explore animal genomics to conserve biodiversity, predict and mitigate zoonotic infections within an overall one health approach, address human health issues like diabetes, hypertension, cardiovascular diseases, and cancer	Digital Sciences Innovation and Technology (Digital University Kerala), KIIFB
4	CEIBIC	Hub for clean energy deep tech innovations and product development across energy access, storage, generation, and distribution	Clean Energy International Incubation Centre, Energy Management Centre Kerala State Electricity Board, Agency for New and Renewable Energy Research and Technology. Department of Electrical Inspectorate
5	Kerala Open Talent	Highly scalable freelance based future-work model with facilitation services, policies, regulations and social security leveraging co-working spaces and giga-byte connectivity.	ICT Academy Kerala (ICTAK), Digital University Kerala

Centres of Excellence (CoE) bring strategic translational inputs. See Table 12. Consortia provide for creating models of experiential innovation working on specific target areas of interest to the state through Academia-Industry-Government connects.

Table 13 Startups part of the first cohort of CEIBIC

No	Startup name	Scope of work
1	Climai CleanTech Pvt Ltd (Solar Bhai)	Solar Panel optimisation using data analytics
2	Tranquility IoT & Big Data Solutions	Real Time Energy Management & Monitoring System
3	Praketa Innotech Pvt Ltd	Behavioural Effective Energy Planner
4	MistEO Pvt Ltd	AI Renewable Energy Power Plant Generation Forecaster
5	Norbert Hewitt Pvt Ltd	Propulse Mobility - Agnostic EV as a Service Ecosystem
6	Gridflow Technologies Pvt Ltd	Electrically Powered autonomous internet like infrastructure for transportation
7	Yesen Sustain Pvt Ltd	Electric marine Retrofit propulsion system for fishing boats
8	Transfloat Solar Pvt Ltd	Second Life Battery Energy Storage System
9	Hooba Energetics	Carbon Nanotube Coated transmission wires

3. BUILDING CONSORTIUM



Cover image created with the assistance of DALL·E 2

Accelerated Blockchain Competency Development (ABCD)

The Accelerated Blockchain Competency Development (ABCD) programme was established to make Kerala a Blockchain hub. K-DISC, ICTAK, Digital University Kerala, Blockchain Education Network MLG Blockchain Consulting, Canada, Linux Foundation, Intel Corporation are founder partners. Industrial partners include - Robert Bosch Engineering and Business Solutions Private Limited India, UST Global, Wipro Technologies Ltd., Ndimensionz Solution Pvt Ltd,,Sofocle Technologies OPC Pvt Ltd, Grant Thornton Blockchain (CYPRUS) Ltd, Regov Technologies., ECGIT, Engineering Consultants Group iT. Bluecast Technologies Pvt Ltd. and LCubed AB. The ABCD programme has led to many large companies setting up Global Centres of Excellence in Blockchain in Kerala and small companies relocating to Kerala due to the availability of quality talent.

Table 14 Candidates trained under ABCD till 25-12-2023

Program	Number
Beginner Program	18562
Developer Program	7219
Architect	97
Total	25878

Table 15 Placement details of ABCD course beneficiaries

Sl.	Program Type	Program	Total No. of Students	No. of Student Placed during Program
1	KBA In-person Classroom Programs (ABCD : 2018-23) <i>(placement details of many students are not available yet)</i>	Beginner Program	708	350
2		Developer Program	448	286
3		Architect Program	117	107
1	KBA Online Instructor-led and Self-paced Programs (ABCD : 2021 - 23) <i>(placement details of many students are not available yet)</i>	Beginner Program	15999	97
2		Developer Program	6577	25

Table 16 List of official Collaborations of KBA for ABCD Program

Training Collaborations	Industry Collaborations	KBA Student Startups	Blockchain Centres by IT Majors
Associate Member and Official Training Partner of Linux Foundation Hyperledger Project	Robert Bosch Engineering and Business Solutions Private Limited India.	Phaethon Technologies	Allianz Technologies - Trivandrum

Training Collaborations	Industry Collaborations	KBA Student Startups	Blockchain Centres by IT Majors
Content Partner of Global Blockchain Education Network.	UST Global	Pranah	TCS - Kochi
Collaboration with Intel India for Hyperledger Sawtooth program.	Wipro Technologies Ltd.	Trackgenesis	EY – Trivandrum
Partnership with MLG Blockchain Canada for Ethereum Programs.	Ndimensionz Solution Pvt Ltd.	Crypraise	UST Global – Kochi and Trivandrum
General Partner of R3 Consortium for Corda Blockchain.	Sofocle Technologies OPC Pvt Ltd	Sagaverse Games	Wipro - Kochi
Official Education Partner of Zilliqa Blockchain Network	Grant Thornton Blockchain (CYPRUS) Ltd	Buildverse	
Associate Member of InterWork Alliance	Regov Technologies.	DappGenies	
Knowledge Partner of IBF NET	ECGiT, Engineering Consultants Group iT.		
Decentralized India Chapter with University of Nicosia.	Bluecast Technologies Pvt Ltd.		
	LCubed AB		

Kerala Medical Technology Consortium (KMTC)

Kerala Medical Technology Consortium (KMTC) aims to position Kerala as the top Medical Devices and MedTech Hub in the country. The vision is to establish Kerala as the preferred destination for research, innovation, development, and manufacturing of Medical Devices / MedTech in the country within a decade. KMTC's Mission is to catalyze and accelerate the research, innovation, development, and manufacturing of Medical Devices / MedTech in Kerala, by bringing together all stakeholders – Research, Academia, Industry, Healthcare, Startups, Service Providers, Investors, Government, and Policymakers – into a rich, diverse, interactive, and inclusive ecosystem. This is in line with well-founded knowledge that describes the Cluster model of Innovation as a pre-requisite for the growth of the sector. The project aims to establish Kerala as the top Medical Technology / Medical Devices hub in India by the year 2032 and to facilitate and promote investments in and accelerate growth in manufacturing of Medical Technology / Medical Devices and ancillary equipment and supplies.

A few key partners of KMTC			
Digital Kerala	University	Kerala Start-up Mission (KSUM) and Maker Village	KSIDC MCC Thalasseri
Foundation of Innovation & Social Entrepreneurship (FISE)	of	Sree Chitra Tirunal Institute for Medical Sciences and Technology	Cochin University of Science and Technology (CUSAT) Techno parks

A few key partners of KMTC			
Institute of Advanced Virology	National Institute of Speech and Hearing	RGCB	Kerala Rubber Limited
NIT Calicut	Indian Medical Association	Med Tech Companies in Kerala	AIC Bimtech

Kerala Medical Technology Consortium (KMTC) leads generated	
Company Name	Expected Investment Value
San Fererro	90 crores
Vitalis	24 crores
KIMS	20 crores



KSHEC-KMTC-SCTIMST International Conference on Biomedical Translational Research, Aug 2023



KMTC Stakeholders Connect Meet, KVASU Thrissur, July 2023



KMTC Stakeholders Connect Meet, KVASU Thrissur, July 2023



KMTC MOU Signed with NIT Calicut



KMTC at Medica 13-16th November 2023



KMTC at Medica 13-16th November 2023

Electric Vehicle (EV) Consortium and Green Energy Projects

Electric Vehicle Consortium

The Electric Vehicle (EV) Consortium was formed to create an ecosystem for manufacturing electric vehicles and components conducive to Indian conditions and utilising indigenous resources. It comprises of K-DISC, Vikram Sarabhai Space Centre, Travancore Titanium Products Limited, Centre for Development of Advance Computing and TrEST Research Park.

EV Consortium Partners	Roles and Responsibilities
Travancore Titanium Products Limited (TTPL)	Manufacture of LTO Electrode Material.
Vikram Sarabhai Space Centre (VSSC)	Material characterization. Cell Design using different cathode materials like Nickel Cadmium Aluminium (NCA), Nickel Manganese Cobalt Oxide (NMC), Lithium Ferrous Phosphate (LFP)), development and qualification

EV Consortium Partners	Roles and Responsibilities
Centre for Development of Advanced Computing (CDAC)	Development of Power Electronic Components for Battery especially Battery Management System for EVs Development of Power Electronic Systems, Wide Band Gap (WBG) Power Electronic Controllers for Drives.
Trivandrum Engineering Science and Technology (TrEST) Research Park	Motors, Controllers for EV application - Design and Development. Setting up of Drive Train Lab (HV and LV), to facilitate testing of Drive train systems.
K-DISC	Anchor Coordinator and facilitator of the project

EV Park

Establishing an Electric Vehicle (EV) Park in the state holds significance in contributing to the broader goals of sustainability, economic development, and transportation efficiency. The EV Industrial Park provides the complete ecosystem for the design and development, manufacturing, R&D and testing the Electric Vehicle Components, which include Batteries, Motors, Controllers, Charging Systems.

Feasibility assessment for Bioethanol Production from Water Hyacinth Biomass (WHB) with CSIR-NIIST and Feasibility study of High-pressure Biogas Generation for Sustainable Transportation with CET.

K-DISC has initiated this project to promote the use of biofuels as a cleaner and renewable source of energy and reduce the dependence on fossil fuels thereby helping Kerala in the transition to a thriving low-carbon economy. The project is focused on the production of biofuel from water hyacinth, solving the menace choking Kerala's backwaters. Overall, the project aims to promote the production and usage of biofuels such as biodiesel and bioethanol in the state. Bioethanol yield from water hyacinth biomass is found promising by CSIR-NIIST.

EV Retrofitment

K-DISC and TrEST Research Park jointly worked out a proposal entitled "3 Wheeler e-conversion kit project". The project is envisaged to cut down the carbon emissions from the IC engine autorickshas and support the auto owners, thereby making it an affordable and more environment-friendly solution for promoting electric vehicles in the State. It also includes GHG Emissions, Carbon Credit Calculation & Monetization for EV 3W Retrofitting with TERI.

4. COORDINATED PROJECTS



After 2 years 4 months, Miyawaki Project, Forest Training Institute, Walayar, Palakkad

Climate Smart Coffee Project, Wayanad

Following the Paris Agreement in 2015 and taking into cognisance the ecological significance of Wayanad and the impact of climate change in the region the state government announced the Carbon Neutral Wayanad initiative in the 2016-17 Budget Speech. The government also envisions the construction of a Carbon Neutral Coffee Park in Wayanad through KINFRA and KIIFB.

The Wayanad Smart Coffee project aims to establish state-of-the-art processing facilities for coffee farmers to access higher value for their produce and provide solutions for problems caused by climate change. Tie-ups have been initiated with International Universities. Programmes on supply chain management and geo-spatial studies are being pursued. Knowledge based interventions in soil, coffee productivity, microclimatic variations, GI tag based branding, among others are being taken forward. Technical University Delft, Groningen University, Kerala Agricultural University, RARS Ambalavayal, MS Swaminathan Research Foundation, NIT Calicut, Meenangadi panchayat, Sulthan Bathery panchayat, Kerala Industrial Infrastructure Corporation (KINFRA) are key partners for the programme.

Miyawaki Urban Afforestation Model

Under the Miyawaki programme, a model for rapid urban forest development for Kerala was developed for carbon sequestration, biodiversity improvement, eco-restoration, and urban open space creation. The project created dense, multi-layered forests in a short time frame. It saves more than 95% of land requirement compared to conventional afforestation. It creates a biodiversity nucleus in urban regions. This has been verified by the on-going Environmental Impact study. Around 85% of the plants have survived in the 3 years. Trees have acquired an unbelievable growth of 30 feet on an average. The forests are home to several species of butterflies, insects, birds and distinct micro climatic variations are evident in the Miyawaki sites. Natures Guardian Foundation and Department of Environment and Forest are partners.

Table 17 Miyawaki Pilot Implementations by K-DISC

Sl.	Project Location	District	Date of launch	Area (sq.m)
1	Government GHSS, Killipalam, Chalai	Thiruvananthapuram	29-Jan-20	405
2	Indian Naval Base, Venduruthy, Kochi	Ernakulam	21-Mar-20	405
3	CUSAT, Thrikkakkara	Ernakulam	19-May-20	405
4	Ashramam Maithanam	Kollam	5-Jun-20	810
5	Bekal Beach Park, Bekal	Kasaragod	5-Nov-20	405
6	Munakkal Beach, Azhikode	Thrissur	15-May-20	810
7	Alappuzha Port Museum	Alappuzha	3-Nov-20	810
8	State Forest Training Institute, Walayar	Palakkad	5-Nov-20	405
9	Women & Child Development Department Viyur	Thrissur	19-Nov-20	405
10	Nila Park, Ponnani	Malappuram	26-Mar-21	405

Sl.	Project Location	District	Date of launch	Area (sq.m)
11	Bhat Beach Road	Kozhikode	28-Mar-21	405
12	Andallurkavu Temple, Malabar Devasom Board, Dharmadom, Palayad	Kannur	18-Dec-20	405

Atal Community Innovation Centre (ACIC)

Atal Community Innovation Centers (ACIC) supported by the Atal Innovation Mission (AIM), NITI Aayog aims to create community tinkering labs to serve the unserved/underserved areas of the country with respect to the start-up and innovation ecosystem. ACIC aims to create a formal approach to identify and scale up frugal innovations; using solution driven design thinking supported by a Public Private Partnerships (PPP) model. NITI Aayog provides financial and technical support to agencies to create ACICs across the country.

K-DISC envisions to setup an Atal Community Innovation Centre (ACIC) in Thiruvananthapuram with the partnership of the Atal Innovation Mission, Kattakada Local Self Government Institution, Kattal Skill Development Multipurpose Industrial Cooperative Society, Trinity College of Engineering, Young Indians, and Puthran Associates. The ACIC can become an enabling meeting point between the innovation promotion projects and knowledge economy projects of K-DISC. The ACIC centre can act as a knowledge co-creation and dissemination hub. It will supplement development of innovation mindset in the community and also link the state's innovation ecosystem to the national innovation ecosystem. This aligns with K-DISC's mandate to transform Kerala to a knowledge society and the Knowledge Economy Mission project.

Kerala Food Platform (KFP) Multi-stakeholder Platform

Kerala Food Platform (KFP) addresses aggregation for safe-to-eat food products. It creates digitally enabled participatory agriculture ecosystems to achieve sustainable livelihoods from agriculture. It enables Food Supply Chain traceability to ensure safe to eat food. Better product differentiation for produce and better price for farmers, support for ethnic foods, Safe to Eat branding, and organic certification.

Platform was implemented at the Palliyakkal Co-operative Bank in Ezhikkara in Ernakulam by digitising the integrated farming model. The platform enabled Aggregation of products - 40 MT Pokkali Rice and 70 MT Fruits & Vegetables (annually) and around 800L of Milk (daily) from around 260 active farming households. The platform implemented ecommerce solution with traceability for 34 products. The average weekly transaction value is INR 20,000 through the platform. The project was piloted in partnership with Palliackal Urban Cooperative Bank. It created a standardised framework for aggregation of produce which can be adapted for independent distributed ecosystems. The platform has helped easy availability of produce for the wholesalers and retail customer.

5. ADDRESSING EMPLOYABILITY



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Kerala Knowledge Economy Mission

The employability program of K-DISC called the Kerala Knowledge Economy Mission (KKEM) aims at providing access for educated unemployed to opportunities in the capital-intensive, technology-driven enterprises in the private sector through demand-driven skilling programmes.

The Kerala Budget 2021 announced an ambitious programme for the transition of Kerala to a Knowledge Economy. It had declared a four-pronged strategy, which included the following:

- Transforming higher education institutions and establishing Centres of Excellence in cutting-edge areas.
- Promotion of innovation for enhancing productivity and value addition in productive sectors of the economy.
- Undertaking a comprehensive programme for providing employment to two million educated unemployed.
- Devising strategies for the digital transformation of various sectors of the economy.

[Government of Kerala (2021)]

This was a logical extension of the developmental policy of the Government of Kerala, which came to office in 2016, which had decided that “while deepening and extending its achievements in human development, it would use these achievements as a foundation:

- to create new employment opportunities for the people, particularly youth.
- to enhance the productive forces and increase income from production in agriculture, industry and income bearing services.
- to build infrastructure.

[Government of Kerala (2016)], [State Planning Board (2021)]

The unique situation of Kerala’s Labour Force

- The population in Kerala is ageing, unlike the rest of the country, and increasingly older men and women are remaining economically active. The rate of growth of the working age population is slowing down in Kerala and has reached a stage where Kerala can benefit only marginally from the so called demographic dividend.
- Kerala has low labour force participation rates which may be attributed to relatively low participation of females in the workforce.
- Large shares of the participants are educated with nearly 40% having higher secondary education, graduation and postgraduate levels of education.
- Though regular employment is increasing, a large segment of workers continues to be self-employed and casual.
- The services sector continues to absorb the largest share of workers, but the income growth in this sector has not created commensurate employment growth.
- Employment in the organised sector in Kerala has been declining because of the downsizing of the public sector, reflective of the trends at the national level. There is an increase in private sector employment.

- The unemployment rates across age groups show that the problem is most acute in the age group of 15-29 years. High rates of unemployment, particularly unemployment among the educated, continue to be a serious area of concern in Kerala.
- Unemployment of career break qualified women is a major issue which needs to be addressed, requiring appropriate social and infrastructure mechanisms.
- Unemployment of return migrants with higher expectations and aspirations is also an issue that is likely to be serious in the years to come.
- Kerala continues to be a relatively high wage economy in casual forms of employment compared to the rest of India.
- Reservation wages are relatively higher in Kerala due to high remittances, higher governmental support in terms of social security and public provisioning of merit goods and services. In response to this and changing aspirations, people are choosy about jobs in terms of the remuneration levels, the nature of the job, location etc.

1. Convergence with overall vision of Kerala

Kerala's new industrial policy aims to build the state into an Industry 4.0 ready industrial ecosystem by 2028. The policy has several focus sectors, including nanotechnology, biotechnology, and advanced digital technologies like 3D printing, Artificial Intelligence (AI), and Internet of Things (IoT).

The Information Technology policy aims to establish Kerala as a leading IT destination with a focus on Knowledge Industries to create direct and indirect employment.

Enhancing productivity, profitability and sustainability in agriculture and allied sectors needs embracing new technologies in predictive analytics, precision agriculture, drone-based agriculture, just-in time irrigation, integrated water management, biotechnology and nanotechnology. Improving agriculture value addition and agro-processing are also priorities for Kerala.

The promise shown by the emergence of Kerala based entrepreneurs in the Micro Small and Medium Enterprise sectors in setting up many technologically advanced enterprises in the manufacture of electronic components, medical equipment, dental instruments and supplies, spice extraction, food processing, and genomics need to be sustained.

Kerala, the first state to declare a policy for technology start-ups and home to the largest hardware incubator - the Maker Village, has emerged as a highly favourable location for start-ups which holds a lot of potential for Kerala's industrial growth. The state government has declared a policy for making Kerala Carbon neutral by 2050, focusing on green energy, including electric mobility and promoting hydrogen technologies. [Government of Kerala (2022)] All these policies for structured transformation of the Kerala economy calls for the highest levels of skill development and training for the Kerala youth to ensure their enhanced participation in the modern-productive-high value addition economy.

Since a very large chunk of the above capital intensive, technology driven enterprises are going to be in the private sector there is a need for aligning the state goals for employment generation with the private sector in the years to come. The Kerala Knowledge Economy Mission has been established by

Kerala Development and Innovation Strategic Council (K-DISC) to achieve the state government's ambitious programme - "Undertaking a Comprehensive Programme for providing employment to two million educated unemployed" with the above strategy of private sector linked employment generation. The mission has developed a strategy paper through an elaborate consultation which developed the following multipronged strategy for achieving the humongous target within five years:

- Mobilisation and curation of 30 lakh job seekers with different qualifications and skill sets;
- Sourcing and curating 60 lakh knowledge jobs from local and global sources;
- Appropriately skilling the identified jobseekers on a continuous basis to ensure that they get meaningfully engaged with the sourced demand;
- Creating a digital platform to link the jobseekers with job providers and support their engagement at multiple levels.

2. Realities of the changing workplace and the Job market

The changing workplace refers to the ongoing evolution of the work environment that includes changes in the nature of work, organisation of work, and composition of the workforce. The key dimensions of the changing workplace are increasing use of digitisation and automation in jobs; wider adoption of telework and flexible work arrangements; diversification of the workforce in terms of gender, ethnicity, age and nationality; increasing insistence of employees on work-life balance and the support from employers for this; emerging new models of work including gig modes; skills development to cope with accelerating technological changes and workplace diversity and the increasing focus on corporate social responsibility with a greater focus on fair labour practices, social justice and sustainability. The changing workplace has been triggered by a variety of factors. The transition from the Ford era manufacturing regime characterised by centralised, mass production of standardised goods moving on an assembly line using dedicated machinery and semiskilled labour to the Post Ford regime of distributed flexible production catering to niche markets, specialised products, decentralised decision making and greater emphasis on collaboration and teamwork, addressing varied consumer choices through wider use of information communication technologies, lean production techniques leading to wastage reduction and increasing efficiencies.

Increased competition and demand for higher efficiencies and productivity, larger outsourcing leading to changes in the composition of the workforce, global scale of corporates changing the way work is organised and managed, greater cultural diversity in the workplace, accelerated adoption of technologies transforming the workplace, arising out of globalisation, robotics and automation majorly replacing routine and manual tasks, increasing application of data and analytics to optimise production, data driven decision making and continuous improvements in production, digitalisation of the production processes leading to greater flexibility, customisation, agility and responsiveness to dynamic market conditions, wider use of augmented reality and virtual reality for training, customer interaction all arising out of the fusion of the physical, digital, and biological worlds collectively termed Industrial Revolution 4.0.

The changing workplace has led to the emergence of new job opportunities in areas such as technology, data analysis and digital marketing while traditional jobs have declined drastically. There is increased emphasis on skilling and continuous learning for workers to remain competitive in the job market. The

new forms of employment like gig work have brought flexibility but have created huge challenges to job security and social security benefits. ILO has recently brought out reports on the transformation of the workplace around global digital platforms raising a variety of social security issues. The KKEM strategy paper has considered at length the context of the changing workplace and the changing job market during the last several decades and developed a demand mobilisation, skilling, and jobseeker-job provider engagement model based on these.

3. Transforming the Kerala Skill Ecosystem

Over the last years, Kerala has developed a skill ecosystem which has been strengthened by inclusion of vocational education, technical education, higher education, apprenticeship, recognition of prior learning and institutional-industry linkages. The details of the institutional ecosystem for skilling are provided below in Table 1.

Table:1(a) Kerala Skill Eco System – Skilling Institutions

Sl. No	Name of Organisation	NSQF Level Training Programmes Conducted	Industrial Aligned Courses	Total Number of Trainees So Far	Community skill parks
1	Additional Skill Acquisition Programme (ASAP) Kerala	80	123	2,51,242	16
2	Kerala Academy for Skills Excellence (KASE)	20	50	198,032	5
3	Kudumbashree	63	0	1,17,247	0
4	ICT Academy of Kerala	0	82	46,484	0
	Total	163	255	6,13,005	21

Sources: State Planning Board (2023)

Table:1(b) Kerala Skill Eco System - Educational Institutions

Sl	Institution	Govt.	Aided	Private	Total	Intake
1	Polytechnic Colleges	45	6	49	100	12,321
2	ITIs	104	0	277	381	33,770
3	Arts & Science Colleges	66	163	878	1,107	3,26,383
4	Vocational Higher Secondary Education (VHSE)	261	128	0	389	29,711
5	Engineering Colleges	9	3	162	174	30,147
6	University Departments	191	0	0	191	2,292
7	University Centre	123	0	0	123	3,690

Sl	Institution	Govt.	Aided	Private	Total	Intake
8	Medical Colleges, Nursing, Paramedical and Pharmacy	43	5	271	319	23,161
9	Law Colleges	4	0	19	23	N/A
10	Kerala Agricultural University	9	0	0	0	3,485
11	Kerala University of Fisheries and Ocean Studies	1	0	0	0	513
12	Kerala Veterinary and Animal Sciences University	7	0	0	0	2,510
13	Digital University	1				196
	Total	864	305	1,656	2,807	4,68,179

Source: State Planning Board (2023)

The skilling strategy of KKEM is based on the overall strategy of the Knowledge Society transition. It covers facilitating skill infrastructure strengthening and increasing the availability of facilitators and trainers and improving the quality of skilling. The focus of KKEM skilling had been

1. Developing high end knowledge skills around Centres of Excellences (CoEs) established by the higher education department and K-DISC;
2. Medium end knowledge skills through strengthening the existing skilling agencies like Additional Skill Acquisition Programme (ASAP) and Kerala Academy for Skill Excellence (KASE)
3. Developing makeshift vocational academies in higher educational institutions;
4. Grey collar and blue collar knowledge work around the modernisation of Industrial Training Institutes (ITIs) Institutions like Indian Institute of Infrastructure and Construction and around existing programmes of Kudumbashree and KASE
5. Industry led skilling through Industry Associations, MSMEs and Community Skill parks. An extensive plan for industry led training has been initiated through Recruit-Train-Deploy (RTD) under the Confederation of Indian Industries (CII) with partnerships with MSME and industries. RTD has been also implemented through HCL and Tata Electronics. An enrolled agent programme of ASAP, for representing taxpayers before Internal Revenue Service in USA, has been funded in the RTD model.
6. Increasing availability and quality of trainers and facilitators is envisaged around the University CoEs in high end skill areas through establishing Learning Circles, modified apprenticeships and Internships, Faculty-Industry Immersion Fellowship in Higher Education Institutions, Industry Collaboration Models through aggregation of skill providers, establishing Community Skill Parks, and improving quality of training providers through skill test, industry connect programmes, industry immersion programmes, and developing trainer pools.

Support has been provided to ASAP for developing Technical Skill Development Executives for their technical courses under KKEM. The Skill Express programme implemented by KKEM has initiated establishing learning circles and developing industry led internships and internships through G-Tech. KKEM has also organised internships through KBA, Ernst&Young, Care stack, Right walk foundation, Transnueron, Life-Chefs and Inclusys Foundation. Faculty from Engineering Colleges were given immersion in Business Analytics Courses through ASAP by KKEM. Aggregation of 26 Skill providers has

been achieved through iTrack, a dedicated Skill platform integrated with DWMS provided by Transnueron.

4. Towards building a new model for skilling and employment in Kerala

The KKEM strategy of skilling and employment revolves around the understanding of educated unemployment indicated in the problem tree depicted below in Figure 1. The major issues identified include the following:

1. **Lack of proactiveness of Job Seekers** - This includes lack of willingness to attend paid skilling programmes, over emphasis on government and public sector jobs quite often leading to mal employment and under employment, high reservation wages leading to highly choosy nature of job seekers on remuneration levels, nature of jobs, location etc.
2. **Lack of academia-industry integration** - Poor exposure of faculty with industry, non-alignment of courses with industry needs, poor updating of courses with state-of-the-art requirements of the industry and poor coverage of earn-while learning, apprenticeships and internship programmes. Limited exposure and motivation for students to be taken up for industry relevant skilling.
3. **Inadequate demand and job aggregation** - Poor reach out to major aggregators, poor confidence level of industries in the systems for skilling and placement available, and lack of connect of the placement system with major job providers across geographies.
4. **Limited awareness about gig opportunities** - Poor linkages with responsible gig providers ready to engage with a trained and benchmarked talent pool, poor social security and infrastructure support for gig work, wrong perceptions about gig opportunities and inadequate efforts to create innovative gig platforms for fair and decent jobs.
5. **Low levels of local demand** - Inadequacies in programmes for local economic development, inadequacies in employment-oriented development in the growing productive sectors and poor convergence with other development initiatives on capacity building, improving technology adoption, equity and focussing on sustainable development.
6. **Skilling not aligned to demand** - Lack of continued industry interaction by the skilling agencies, inadequate scholarship and loan support for students to avail new high-end courses which have not stabilised on placement processes and inadequate quality infrastructure for new skilling programmes.
7. **Competency mismatch** - Poor understanding of industry demand by skilling agencies, limited responsiveness to industry demands and poor readiness of skilling system in developing courses in new areas.
8. **Issues of immigrants and marginalised** - Poor connect with opportunities for immigrants and marginalised, poor support for reskilling, inadequate social security support.
9. **Social structure and Career break job seekers** - Poor mobilisation of remote work opportunities suitable for career break job seekers, Poor Work From Home (WFH) and Work Near Home (WNH) facilities, inadequate support for reskilling and inadequate social security support.
10. **Limited skilling bandwidth** - Inadequate mobilisation of job candidates to ensure a sustained supply chain, inadequate scholarship support (especially for the poor and marginalised), poor accountability of skilling programmes with regards to providing employment, poor utilization of existing infrastructure by lack of opportunities for varied profiles including working professionals, returning immigrants, career break women, candidates from marginalised segments, physically

challenged, mentally challenged, minority genders etc., lack of well qualified trainers with industry exposure, inadequate integration of skilling programmes with education systems and poor availability of skilling loans for new higher end courses.

The solution developed based on this involves the creation of an electronic platform-of-platforms linking the job seeker, the mechanisms for curation and counselling, skilling, job providers, mechanisms for demand side management and aggregators. The Digital Workforce Management System (DWMS) platform manages candidate registration, curation, skilling agency connections, as well as job provider registration electronically. The right skilling and mentoring are provided to the job seekers. For smooth execution, the DWMS engages many companies, including start-ups. In addition, many agencies from around the world have been engaged as Skill Partners.

The ecosystem created by DWMS is portrayed in Figure 2. As seen, a diverse group of agencies comprising of local governments, educational institutions, MSMEs, Skill providers, Private Companies, Aggregators and Community organisations have been brought together in implementing the platform to deliver infrastructure, technology services, skilling, mobilisation and placement.

Building an ecosystem to mobilize jobs based on talent development, leveraging job opportunities to make skilling meaningful, and developing grooming and curation to support job seekers is unique. Here, DWMS brings together skill providers, employers, and employees. In essence, it aims to create the world's largest talent marketplace.

A block schematic of the interventions is provided in Figure 3. As seen from the schematic four components reflect the verticals of KKEM: Mobilisation, Career Support Services, Skilling, and Demand Side Management. Under mobilisation through Kudumbashree community ambassadors, District Programme Managers and the Programme Management units initial mobilisation of jobseekers was done and community touchpoints were developed in local governments where community gatherings of jobseekers have been organised. There are 1037 active community ambassadors in 1070 Community Development Societies of Kudumbasree. A grassroots level campaign was initiated reaching out to 81.23 lakh households mobilising 53.42 lakh potential jobseekers on a mobile application called Jalakam specifically developed for the purpose. 3586 community touch points called Thozhil Sabhas were established in 861 out of 1034 local governments, and 15,232 wards out of a total of 19,489. The total participation in the Thozhil Sabhas was 1,59,857 out of 44,94,891 jobseekers.

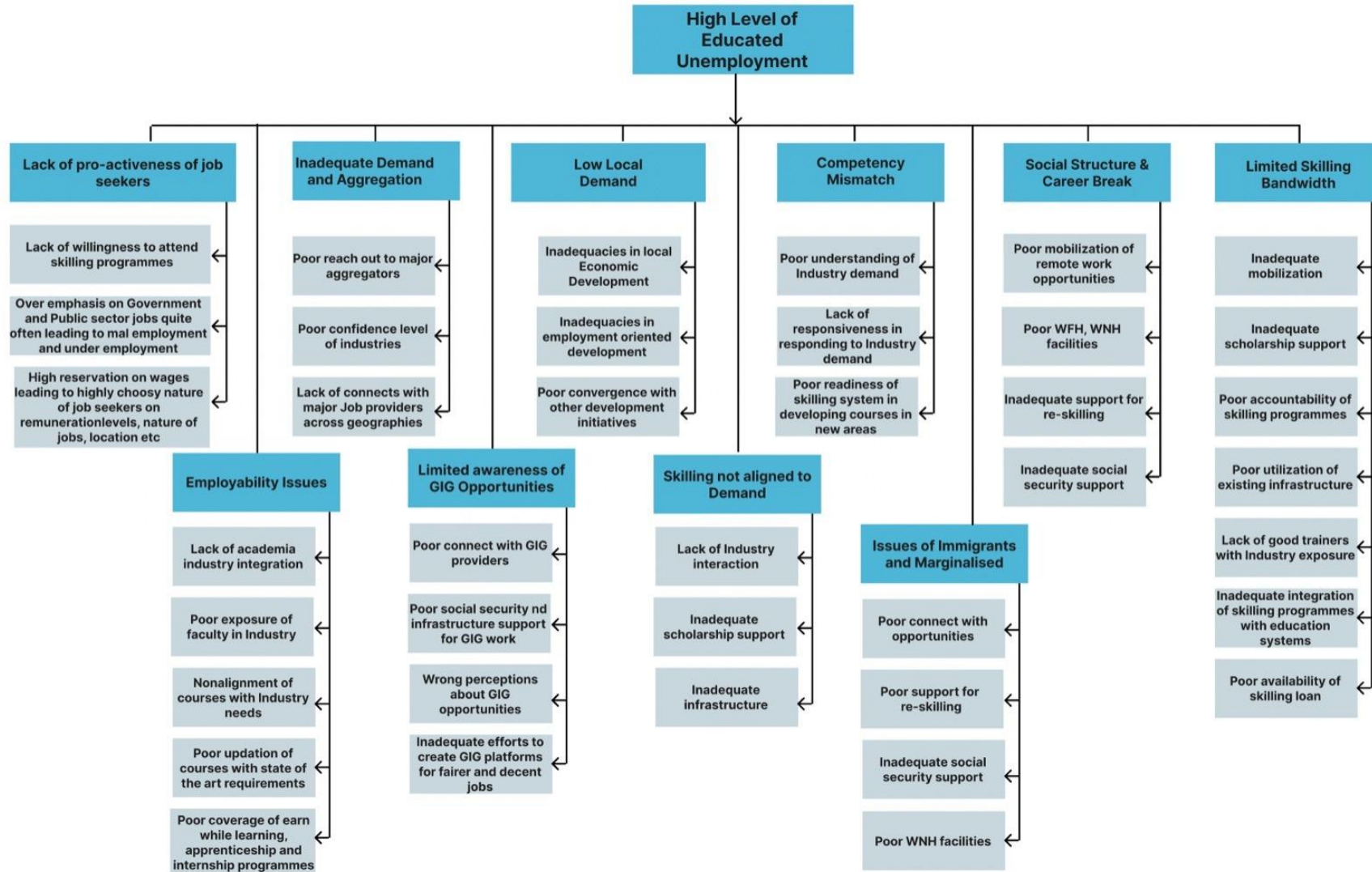
Following this special focus, mobilisation programmes have been initiated for focusing scheduled caste, scheduled tribe, transgenders, fisherfolk, women, people with disabilities and neurodivergent jobseekers. Under curation, career assessment and counselling programmes have been organised to provide 360-degree career profiling for jobseekers as an online service. A web based English language training and app-based certification has been operationalised. AI supported video interviews to provide candidates with real time experience of interviews are available on DWMS. Personality development training to improve interpersonal skills, communication skills and presentation skills are available for jobseekers from trainers of their preference in convenient time slots.

The special programme for mobilising scheduled castes organised under the leadership of the SC department is called Panchami. The Scheduled Tribe Department driven programme for mobilising jobseekers for KKEM is called Opera. The joint programme of KKEM and Social Justice department for transgenders and gender minorities is called PRIDE. Thozhiltheeram is the project implemented by KKEM in collaboration with the department of fisheries for mobilising the fishing community. The special programme for career break women and women students in campuses is called Thozhilarangathekku. The Social Justice department works with KKEM for skill development and placement of differently abled through SAMAGRA. The work readiness programme is a fifteen-hour exposure to etiquette, attitude, resume writing and improving presentation and interview skills is organised in offline and hybrid mode.

A special drive to mobilise students on campuses and introduce them to the DWMS services was done through Career to Connect which has been followed up with intense job provider engagement for internships and placements through an industry supported programme called skill express. Profile visibility workshops for Resume building and support of career support executives for linking students on campuses with internships and job fairs have been initiated.

The DWMS was awarded the National Digital India 2022 Platinum Award for Digital Initiatives in Collaboration with startups by the President of India.

Figure 1: The problem tree of unemployment



The skilling programme of KKEM, as explained earlier, is focussed on revitalising the skill providers and strengthening the skilling system for scaling up and ensuring quality. The weakness is that most of the courses in the skill ecosystem in the state need continuous tweaking to provide talent needed for the industry. The KKEM skill platform has integrated 27 skill providers and 230 courses. 22 new skill providers are being on boarded. A scholarship scheme for women, transgender, fisherfolk, scheduled castes, scheduled tribes and persons with disabilities has been launched.

To develop a new skill culture, Kerala Skill Express has used a gamified approach and launched two tracks on campuses. The **Learning Track** is for pre-final year students who create learning circles and affinity spaces and undergo skilling through skill exploration workshops and skill boot camps and develop themselves as career ambassadors. The **Career Track** for final years integrates the DWMS career counselling and curation services and extends them to intense job fairs, internship fairs, industry challenges and hackathons aiming at high quality conversion. Skill Express has on boarded a new set of 305 employers through industry associations and techno parks. With the support of the higher education department the “Earn While You Learn Programme” has been linked with the local industries and is being launched. Efforts have been initiated to link the Coursera global learning platform covering more than 80,000 skill courses and over 2 lakh micro learning videos to create dedicated virtual training academies with career paths to entry level jobs offered by corporates. The programme aims to proactively link faculty in educational institutions as facilitators and mentors for the coursework and project work of aspiring job seekers.

The central pillar of the KKEM ecosystem is the mobilisation programme which initially kicked off with a focus on regular jobs. Confederation of Indian Industries (CII) and ICT Academy of Kerala (ICTAK) are the major partners. Recruit Train and Deploy (RTD) is an interesting innovation attempted along with hybrid job fairs. The KKEM had set a target of providing employment to 30,000 jobseekers during the year 2022-23 along with its partners. The target has been achieved. In the current year till 27th January 2024, KKEM has been able to provide employment to 1,01,703 job seekers along with partners. The contribution of KKEM on its own is 28,395. The crucial aspect of the intervention is the success in mobilising jobs. A confidence has been established that through the jobseeker registration, curation, skilling, and placement processes results could come forth and the critical aspect in this had been the mobilisation of aggregators and employers on to the platforms and the vacancies in large numbers operationalising the ecosystem.

During the last few months of its functioning the mission has developed an elaborate strategy and a clear roadmap. Verticals have been developed for mobilisation, curation and counselling, skilling, demand aggregation and technology. Given the large number of stakeholders and complexity of the tasks for improving the outcomes, the team is developing a strategy of microplanning and developing a Micro/Macro grid for decision making. This is sought to help the mission to achieve the exponentially increasing targets before it, in the coming years.

Artificial Intelligence Based Career Optimizer profiling system (AICO)

The latest additions to the K-DISC armour in creating the skill ecosystem is the Artificial Intelligence Based Career Optimizer (AICO) profiling system which seeks to create a skill gap and career assessment report for jobseekers registered on the DWMS platform through a process involving feature

engineering based career data set construction, AI models for predictions, hyper parameter optimisation for efficient model operation, continuous learning and model optimisation for adapting to dynamic changes in the job market in real time etc. One of the challenges which the mission has been is to develop insights on the trends in the demand market which are dynamically varying and build such insights into the macroplanning and microplanning framework. Efforts are on to create a continuous market watch and draw intelligence from this. The partnerships with the aggregators is likely to help KKEM in a big way in this direction.

Considering the growing significance of freelance work globally, KKEM has looked at opportunities for connecting job seekers with freelance work opportunities. Through ICTAK a proposal for setting up an open talent Centre of Excellence which will create standards, processes and a framework for KKEM to engage with the freelance economy space is being taken forward. The objective shall be to create a talent pool which can tap into the freelance economy space and to negotiate mechanisms addressing the regulatory gaps for decent work as proposed by ILO covering aspects of freedom of association and collective bargaining, employment relationship, occupational safety and health, social security, fair remuneration and working time, non-discrimination, dispute resolution mechanism and data protection. The strategy paper has mooted a co-operative platform for innovation collectives of freelancers for achieving this. The open talent CoE would play a major role in architecting this. A policy framework for developing social security programmes to address the vulnerabilities of freelance and gig workers need to be also addressed jointly with the labour and employment department.

Conclusion

Providing employment to 20 lakh educated unemployed is an extremely significant milestone in Kerala's transition to the Knowledge Society. One of the major successes of K-DISC had been the mobilisation of vacancies till date the number of vacancies mobilised is 10,37,965. The conversion of applied candidates to those called for interviews is low only 50,748 out of 13,17,334. In order to address this there is a need to rework the demand side pipelines drastically and to also enhance the coverage of skilling. The Recruit Train and Deploy model is the best solution available right now. Skilling efforts needs to be enhanced with skill loans and combinations within the existing skill ecosystem. The Knowledge Mission special programme for developing Pathanamthitta District as a Knowledge Society aims to drive the RTD programme to new heights using the diaspora connects established through the Migration Conclave 2024. The model being built by the KKEM using the digital platforms jointly with local governments, Department of Higher Education, Department of Labour and Skills, Department of Employment and Training, Department of Social Justice, Department of Scheduled Castes, Department of Scheduled Tribes, Department of Non-Resident Keralites, and skill providers like ASAP, KASE, ICTAK etc. has started grappling with the problem holistically. The systems for monitoring and inter-departmental inter-agency coordination reviewed at the highest level in the state has created momentum. Closely watching the global and national skills market and towing an appropriate strategy dynamically incorporating new insights would ensure success.

Figure 2: Platform Landscape of DWMS

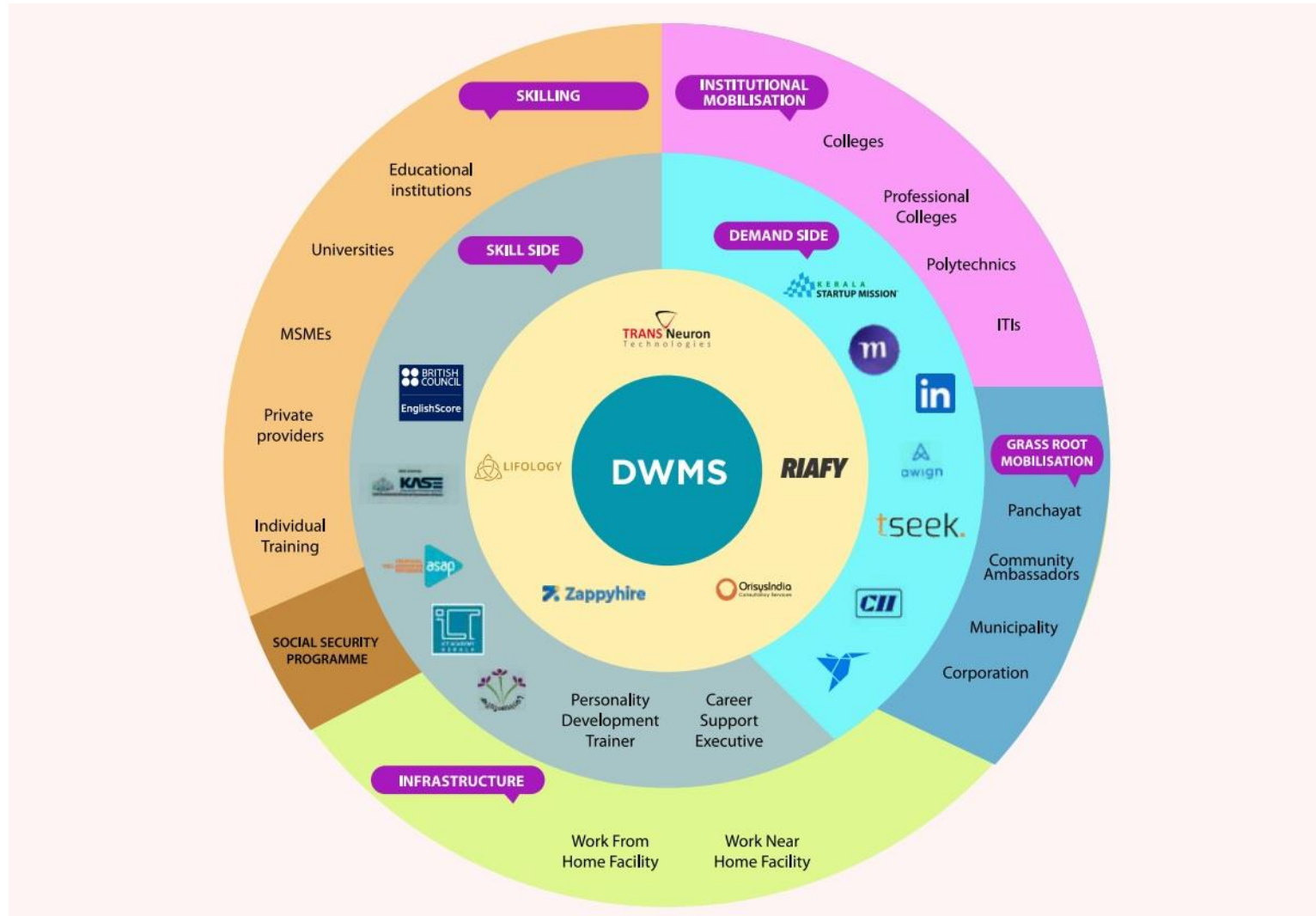
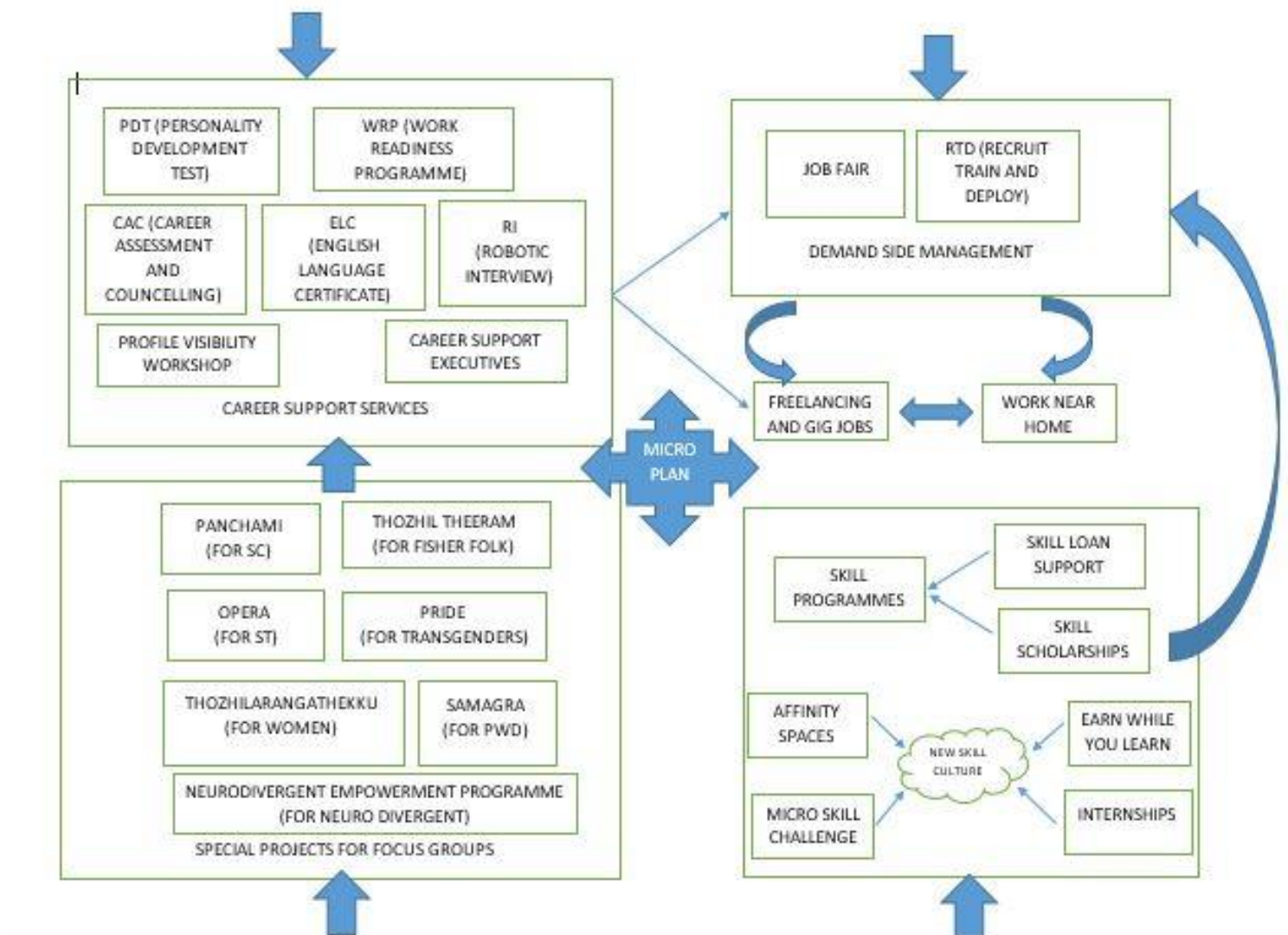


Figure 3: Components of KKEM



As on 27-01-2024 13,75,402 candidates have been registered in total on the Digital Workforce Management System platform which covers 7,78,193 females 5,20,145 males and 413 transgenders. The distribution of the jobseekers by qualification and experience are as follows:

Sl. No	Qualification	Male	Female	Transgender	Total
1	Post-Doctoral Level	323	583	0	906
2	Doctorate Level	794	1608	1	2403
3	Integrated (Graduation-Postgraduation)	824	2027	0	2851
4	Post-Graduation	41355	158270	64	199689
5	PG Diploma	2386	4657	1	7044
6	Integrated (Graduation - PG DIP)	561	567	0	1128
7	Integrated (Double degree)	817	2056	0	2873
8	Graduation	163973	368828	194	532995
9	Diploma Course	48848	62261	40	111149
10	Twelfth/VHSE (Vocational Higher Secondary Education)	31833	52034	54	83921
11	ITI (Industrial Training Institute)	63594	20111	30	83735
12	Tenth	6344	6847	9	13200

Experience range	Male	Female	Transgender	Total
0-1 year	377743	559080	288	937111
1-2 year	9925	18891	10	28826
2-3 year	6199	11274	3	17476
3-5 year	16694	26436	15	43145
5-8 year	16595	22199	19	38813
8-10 year	5520	6213	5	11738
10+	25764	24609	32	50405

The number of vacancies mobilised through the ecosystem from employers is 2,88,673 and through aggregators is 2,15,798. The distribution of vacancies by contributors across the honorarium ranges is provided below. (27-01-2024)

Salary Range	CII	ICTAK	ITD	Kudumbashree	KKE M	ODEP C	IHR D	NORK A	WM C	Total
400k - 500k	1	1	0	0	0	0	0	0	0	2
300k - 400k	4	1	0	0	5	0	0	40	0	50
200k - 300k	126	162	0	0	140	100	0	18	0	546
100k - 200k	212	248	0	0	20	0	0	726	0	1206
90k - 100k	33	46	103	1	73	0	0	0	0	256
80k - 90k	106	66	2	0	1	75	0	0	0	250
70k - 80k	92	479	50	0	16	0	0	6	0	643
60k - 70k	726	1679	100	0	3	0	0	0	0	2508
50k - 60k	138	1004	50	0	178	30	0	0	0	1400
40k - 50k	489	1520	1	25	32	0	0	0	0	2067
30k - 40k	2596	2316	0	24	1215	0	40	0	0	6191
20k - 30k	12674	13627	44	290	2482	0	186	0	0	29303
15k - 20k	33617	20632	497	1723	9554	0	25	4	0	66052
10k - 15k	67548	32305	5774	4515	2196	100	235	0	0	112673
5k - 10k	16984	27542	13669	3354	2143	0	370	0	11	64073
less than 5k	120	339	552	116	273	0	53	0	0	1453
Total	135466	101967	20842	10048	18331	305	909	794	11	288673

(ITD stands for Industrial Training and Employment Department, ODEPC for Overseas Development and Employment Promotion Consultant and WMC for World Malayalee Council)

The details of the opportunities brought on to the side by the aggregator Foundit across honorarium levels and category for job roles is provided below. The actual number of vacancies for the job roles is not available since the full details were not integrated with our platform.

The distribution of vacancies shows that the most predominant group of vacancies is in the category 10k-15k (39%). The next significant vacancy group is 15k-20k (22.87%), followed by 20k-30k (10.15%). This reflects the lack of confidence of major employers in the placement systems created which needs to be overcome as the system is further strengthened.

The distribution of jobseekers by job category type and job profile is shown below.

Job region-Job type	Gold Collar	White Collar	Grey Collar	Blue Collar	Total
Local-Onsite	13516	127200	40202	10375	191293
Local-Remote	481	4151	75	0	4708
National-Onsite	5065	47410	24930	12957	90362
National-Remote	75	830	150	0	1055
International-Onsite	69	738	310	138	1255
International-Remote	0	0	0	0	0
Total	19206	180329	65668	23470	288673

Among the jobs, local onsite jobs are 66.26%, while national onsite jobs are 31.30%. Among the jobs white collar jobs are 64.94% while grey collar jobs are 22.74%, blue collar jobs come to 8.13 % while gold collar jobs are only 6.65%.

A sample of the leading job trends in the global job market is as provided below:

Sector	Linkedin	Freelancer	Upwork
IT and Technology	Software Developer,Data Analyst, Project Manager,Web Developer	React JS, Blockchain,Machin e Learning	Blockchain Architecture, Dyanamo DB Amazon, Shopify Development
Financial Services, Insurance real estate or Consulting	Financial Analyst, Accountant, Real estate agent, Business Analyst	Financial Analyst, Business Analyst, accounting	Financial Planning and Analyst,Business Consulting, Financial modeling and Forecasting
Healthcare and Paramedics	Nurse practitioner, paramedics technician, Clinical research associate	Medical writing, Research writing	Biostatics, Bioinfomatics
Education	Online teachers/ Instructor/ Trainer/ Coach/ Mentor/ Educator/ Facilitator/ Lecturer/ Professor/ Adjunct faculty etc	e-learning, Instructional Design	Curricular Development and online course orientation
Hospitality and Tourism	Hotel Manager/ Front desk receptionist, Concierge, Reservation agent/ Housekeeping etc Restaurant Manager, sever, bartender, chef, cook, caterer, travel agent, tour guide, tour operator, travel consultant, travel coordinator	Event planning and management and travel writing	Hospital consulting, Tourism marketing

Source: Insights from LinkedIn, Freelancer and Upwork.

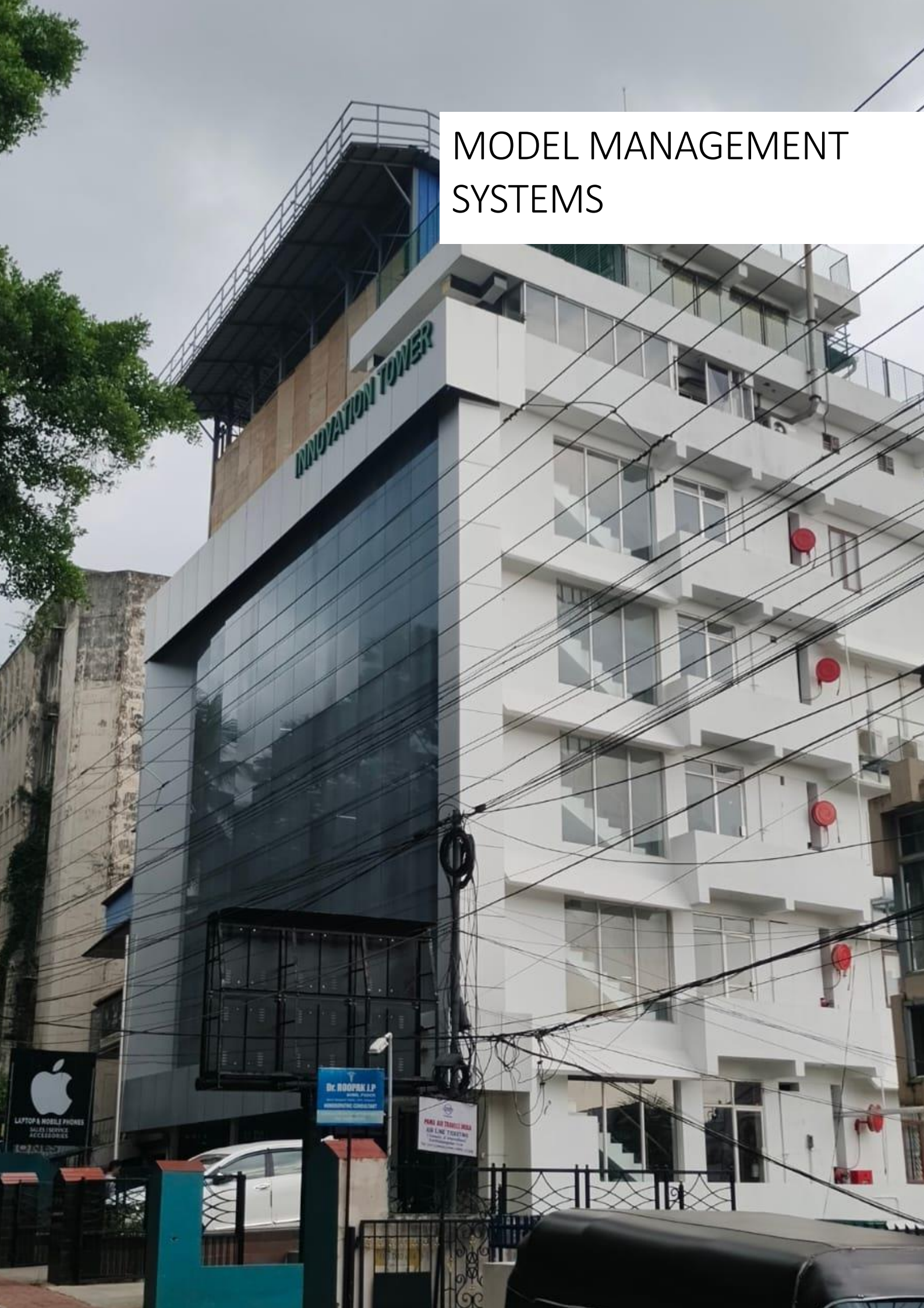
According to Upwork's 2020 Freelance Forward report, there were 59 million freelancers in the US in 2020, representing 36% of the US workforce. According to ThriveMyWay, it is estimated that there are over 22 million self-employed or freelance workers in Europe in 2021. According to GoDaddy, the estimate of freelance workers in India is 15 million.

Table 18 Achievements of the Kerala Knowledge Economy Mission KKEM

Sl.	Items	Target (2023-24)	Achievement on 31.03.2024
1	Employers registered	6,000	6,095
2	Job Seekers registered	25,00,000	16,53,099
3	Vacancies mobilised	8,75,000	1,045,516
3(a)	Domestic	4,94,000	876,654
3(b)	International (Onsite & Online)	14,200	5,424
3(c)	International Jobs (Mobilised through NORKA)	1,000	784
3(d)	National		162,654
4	Vacancies - Freelancing	41,800	1,820
5	Vacancies - Third Party (Monster etc...)	3,24,000	524,397
6	Applied (Distinct)	27,00,000	1336473(263740)
7	Interviewed	6,00,000	50806(36428)
8	Selected. shortlisted	3,00,000	40276(32198)
9	Employment provided	1,80,000	106,025
9(a)	Direct	1,00,000	32214(30075)
9(b)	Third Party*	80,000	73,811
10	Job Seekers - Skilling provided thorough DWMS	1,82,000	18,191

*Employment Exchange: 20837, Kudumbashree: 42,163 KASE: 4865 ASAP:1430 NORKA: 2991 ODEPEC: 1525

MODEL MANAGEMENT SYSTEMS



The Innovation Tower

The K-DISC Head Quarters is situated at India Heights Building, Women's College Road, Vazhuthacaud, Thiruvananthapuram 695 014. It is a six storied building with a basement, and a terrace floor. The total building area is 15974 Sq. ft. including terrace which has been converted as a meeting place / dining space.

K-DISC has reworked the building to develop functional spaces, to ensure Green Protocol, Solar rooftop mechanism , good ambience and unique colour scheme, waste recycling and high performance network management system. The construction of the HQ building of K-DISC has been undertaken as a very functional office space satisfying green protocol standards of Government of Kerala. The building has been renamed as Innovation Towers with each floor dedicated to eminent Innovators. The design of the functional building occupied by K-DISC provides for a base civil structure which could be flexibly restructured for office and commercial purposes in accordance with functional needs. K-DISC has adapted this building for the requirements of its Head Quarters to furnish its various departments viz. Management Services, Innovation Technologies, Planning Competency Development and Innovation System, Skills Employment and Entrepreneurship, Social Enterprises and Inclusion and its functionaries.

The K-DISC has won the Kerala State Energy Conservation Award under the "Building" Category in 2022 and under the "Institutions and Organisations" Category in 2023. The Kerala State Energy Conservation award has been given to recognize K-DISC for its systematic and serious attempts for efficient utilization of energy, conservation of energy, research and promotion of energy efficiency.

The K-DISC Headquarters building is equipped with the following installations.

1. 48 V DC Solar Photo Voltaic System - DC 48 V is a new standard which is the best energy conservation opportunity for homes and offices with substantial computing loads. K-DISC has implemented the 48 V DC Solar Photo Voltaic System at its Head Quarters Building. It is the first 48 V DC Powered public building in the State. The 48 V DC Solar Photo Voltaic System (20 KWp) has been implemented at K-DISC HQ building to serve as a model energy efficient power distribution system having the integration of roof top solar energy system to the existing grid. Net metering system and behind the grid arrangement has been implemented to maximise the capability of energy efficient system in the building. Thus the benefits of the implementation include Modular Architecture with floor wise redundancy, efficient integration and utilization of Solar PV system, Customizable battery bank based on the back up requirement and Improved Electrical Safety and reliability.
2. Water Curtain System – Water Curtain System fixes the issue of oppressive heat and low oxygen levels in the facility. The water curtain comprises of 4mm wide strips of nylon thread along which the water flows under the effect of gravity. Mono block pump is used for the circulation of water to the header. The system has been demonstrated in front of the façade of the K-DISC HQ to reduce Solar heat gain.
3. Vertical Axis Wind Turbine (1 KWP) - Vertical Axis Wind Turbine system has been implemented at the roof top of five storeyed building of K-DISC office which has a unique form of power generating technology. It could utilize the wind speeds at the roof top for generating electric

power. Presently the output DC power (1 KWp) from the Vertical Wind Turbine is utilized to directly charge the Solar Photo Voltaic System batteries.

4. Double Glazed Windows – to reduce heat transfer. South facing side of the K-DISC building are equipped with Double glazed windows to reduce the heat transfer due to oblique light penetration from the Sun.
5. Aero Water Maker - An atmospheric water generator which converts the atmospheric humid air into pure drinking water. This innovative product has been developed by one of the winners of the Young Innovators Programme of K-DISC. The Aero Water Maker has been installed at the terrace dining area of the K-DISC HQ and the system generates upto 20 litres of Water from humid air.
6. Green Cover system – Green cover system consisting of Indoor and Outdoor plants has been implemented in the building. A bamboo curtain covering has also been provided across the terrace open space in the building promoting sustainability.
7. A Video Wall has been provided at the entrance of the HQ building for showcasing the various innovative and Strategic programmes of K-DISC in multidisciplinary fields and its achievements at National and International level under the Government of Kerala.
8. The building is also equipped with other energy efficient installations such as Solar Hot plate, Solar lights and Solar refrigerators.
9. Implementation of Solar Tile, DC Air conditioners, Geo Polymer Planters and Green Certification for the building is under progress. Discussions are also progressing for the development of Innovation Corner in the building which is considered as an innovative space for ideators to interact an exchange ideas towards the Government of Kerala efforts to promote a culture of Innovation in the State.

Model IT Implementation for Organisational Efficiency

At the Kerala Development and Innovation Strategic Council (K-DISC), our IT strategy is deeply rooted in the concept of Government Process Re-engineering (GPR), aiming to radically redefine and enhance government operations and services. This strategic vision is driven by the aspiration to not just digitize existing processes, but to fundamentally transform them, leveraging cutting-edge technology to create more efficient, transparent, and user-centric systems.

Key objectives of our strategy include:

- **Transforming Government Processes:** Implementing GPR to not just digitize but fundamentally transform existing procedures, making them more efficient and user-centric.
- **Streamlining Workflows:** Replacing outdated procedures with streamlined, digital workflows to significantly improve service delivery and policy implementation.
- **Integrating Advanced Technology:** Utilizing ERP level web applications like DDFS, Zoho Suite, and Tally to create a Total Digital Office that is efficient, agile, and responsive to public needs.
- **Enhancing Operational Capabilities:** Through digital transformation, improving operational agility and responsiveness within K-DISC.
- **Setting New Standards in Digital Governance:** Aiming to achieve a benchmark in digital governance, influencing wider government entities towards similar transformations.
- **Achieving Citizen Satisfaction:** Focusing on unprecedented levels of citizen satisfaction and operational excellence in government functioning.

IT Architecture Overview

The Kerala Development and Innovation Strategic Council (K-DISC) has embraced the Total Digital Office concept, a visionary approach to transforming the traditional office environment into a fully digital workspace. This concept is pivotal in achieving operational efficiency, enhanced accessibility, and real-time collaboration across various departments and functions. The core of this approach lies in:

- **Digital Workflow Integration:** Seamlessly connecting different functions and processes through digital platforms to ensure smooth, uninterrupted operations.
- **Data-Driven Decision Making:** Utilizing real-time data for informed decision-making, ensuring transparency and accountability.
- **Enhanced Collaboration:** Facilitating better communication and collaboration within teams and with external stakeholders through digital tools.
- **Remote Accessibility:** Enabling staff to access systems and data securely from any location, promoting flexibility and continuity of operations.
- **Eco-Friendly Operations:** Significantly reducing paper usage, contributing to environmental sustainability.

List of Applications as part of the IT Landscape

Function	Tool/Software
HRMS	Zoho People
Project Management	Zoho Projects
Accounting	Tally Enterprise
Treasury	BIMS
Decision Management	DDFS/Ospyn Docs
OLOI	OLOI Platform
Manchadi, Mazhivil	BITRIX
YIP	YIP Platform
ODOI	ODOI Platform
Agreements	DocuSign
Collaboration	MS Office
Video Conferencing	Vconsol
Ticketing & Issue Management	Zoho Ticketing

Functional Component	Tool/Software	Benefits	Model IT Implementation Aspect	Current Status of Implementation
HRMS	Zoho People	<ul style="list-style-type: none"> Streamlined HR and Payroll processes. Centralized employee data management Enhanced employee engagement and self-service capabilities. 	Demonstrates efficient digital transformation in human resource management.	Fully Implemented and Operational
Project Management	Zoho Projects	<ul style="list-style-type: none"> Real-time monitoring and tracking of individual and project-related KRAs. Improved results-based management. 	Facilitates transparency and accountability in project management.	Implementation Underway
Accounting	Tally Enterprise	<ul style="list-style-type: none"> Professional and streamlined accounting processes. Integration with other Zoho applications for cohesive fiscal management. 	Showcases the integration of traditional accounting systems with modern ERPs.	Scheduled for Upgrade to Zoho Books

Treasury Management	BIMS	<ul style="list-style-type: none"> • Efficient management of financial resources. • Secure and transparent transactions. 	Example of modernizing government treasury functions.	Requirement finalized and expected to start this year
Decision Management	DDFS/Ospyn Docs	<ul style="list-style-type: none"> • Automated decision-making processes. • Templatised file generation for efficiency. 	Innovation in administrative decision-making.	Recent Upgrade, Testing Completed, Rollout scheduled for Feb 2024
Additional Platforms	OLOI, Manchadi, Mazhavil, YIP, ODOI	<ul style="list-style-type: none"> • Specific applications for various departmental needs. • Streamlined project and information management. 	Customized solutions for diverse administrative functions.	Varied Stages of Implementation
Agreements	Docusign	<ul style="list-style-type: none"> • Digital signing and management of agreements. • Enhanced security and compliance. 	Digital transformation in legal documentation.	Implemented
Ticketing & Issue Management	Zoho Ticketing	<ul style="list-style-type: none"> • Efficient issue resolution and ticket management • Improved internal communication and service delivery. 	Modern approach to internal support and services.	Planned for Future Implementation

The IT implementation at Kerala Development and Innovation Strategic Council (K-DISC) demonstrates significant achievements with a practical impact on government operations:

- **Efficiency and Productivity:** The implementation has notably improved operational efficiency and productivity, streamlining processes across various departments.
- **Cost Savings and Resource Allocation:** This strategic IT deployment has led to considerable cost savings and more effective resource allocation, reflecting a judicious use of technology in government operations.
- **Transparency and Accountability:** There has been a substantial enhancement in transparency and accountability, aligning with the principles of good governance.

K-DISC's approach serves as a model for other government entities for several reasons:

- **Alignment with Digital India Initiatives:** The IT strategy is in sync with national digital initiatives, showcasing a commitment to modernizing government infrastructure.
- **Comprehensive and Integrated Approach:** The use of a diverse range of IT tools and applications demonstrates a comprehensive approach to digital transformation.
- **Scalability and Adaptability:** The IT architecture's scalability and adaptability highlight its potential applicability across other government departments, offering a versatile blueprint for digital integration.

In summary, K-DISC's IT implementation not only enhances its internal operations but also provides a viable template for digital transformation in the public sector.

K-DISC Library

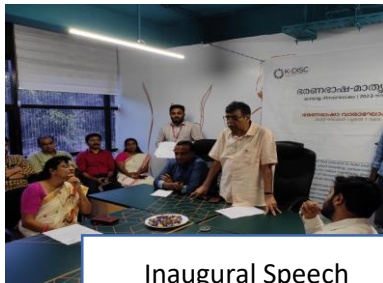
K-DISC established a physical and digital institutional library as a step towards effective knowledge management. The library was formally opened on 1st November 2023. A library was established encompassing a diverse collection of approximately 3000 books and journals on the 5th floor at K-DISC. Additionally, partnerships with diverse universities, research institutes, national and international publishers led to the development of a library facility, enabling seamless e-resource subscriptions and remote access.



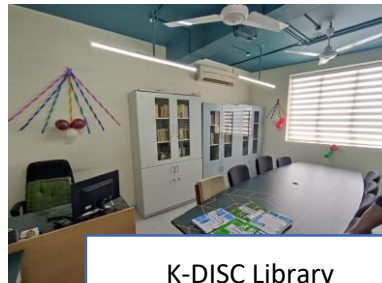
Library Inauguration, Nov 2023



Malayalam essay writing competition, Nov 2023



Inaugural Speech



K-DISC Library

An eight-member Library Committee has been constituted at K-DISC. The K-DISC Library comprises books spanning diverse categories, e-resource facilities, and subscriptions obtained from universities, research institutes, as well as national and international publishers.

Categories include – Innovation Management, Engineering, Computer Science, Medicine, Agriculture, Physics, Chemistry, Maths, Electronics, Statistics, Media, General Science, Economics, Political Science, Social Science, History, Geography, English Literature, Malayalam Stories/Short Stories, Biographies, among others. Subscriptions include Statista, Academia, MIT Technological Review, Encyclopaedia Britannica, and IEEE Spectrum.

Under the leadership of K-DISC Library, 19th June 2023 marked the celebration of Reading Day, accompanied by the creation and distribution of posters. An essay writing competition was organized on 1st November 2023 in connection with the celebration of Malayalam Language Day. Prizes were awarded to the winners.

Remote Access from Universities:

1. Kerala University Library
2. Sree Sankaracharya University of Sanskrit Library
3. Calicut University Library
4. Digital University Library
5. KVASU Library
6. Kannur University Library
7. M G University Library
8. A P J Abdul Kalam Tectological University

List of Journals:JSTOR

1. Nature Journals
2. Oxford University Press
3. South Asia Archive
4. Springer Link
5. Taylor and Francis
6. American Chemical Society (ACS)
7. American Institute of Physics
8. EBSCO Discovery Services and EBSCO host Research Database
9. EPWRF (E P W Research Foundation)
10. Hindi Database
11. Indian Journals
12. Project Muse
13. Science Direct
14. Wiley
15. American Physical Society
16. Annual Reviews
17. Oxford Academic Journals
18. Web of Science
19. IEEEXplore
20. ACM Digital Library
21. Springer Nature Journals
22. EBSCO Academic Search Premier
23. Oxford University Press

AWARDS AND RECOGNITION

1. Digital India Award 2022



The Digital Workforce Management System (DWMS) of KKEM won the Platinum Award under the category 'Digital Initiatives in Collaboration with Startups' in the prestigious Digital India Awards -2022'. The award was handed over by the Honourable President of India Smt. Droupadi Murmu to the Member Secretary, K-DISC in New Delhi on 7th January 2023.

2. The Kerala State Energy Conservation Award



The Kerala State Energy Conservation Award instituted by the Energy Management Centre for Energy Conservation in recognition of its disciplined earnest attempts for energy use, conservation, research, and increasing efficiency. The award was handed over by the Honourable Chief Minister of Kerala Shri. Pinarayi Vijayan.

3. The Global Sustainable Development Award



The Global Sustainable Development Award of IEEE IAS Global Conference on Renewable Energy and Hydrogen Technologies (GlobConHT) 2023 held in the Maldives. The award recognises institutions that contributed distinguishably to the areas of Emerging Technologies, related areas of Industry Applications Society to achieve Sustainable Development Goals for the world.

4. Tesz Award 2023 for the 7th best citizen caring department.



5. Skoch Award 2023



The 2023 Skoch Award for Kerala Knowledge Economy Mission (KKEM) programme presented in the e-governance category to recognise outstanding contributions towards enhancing India's progress.

6. Kerala Management Association's Special Jury award



Kerala Management Association's Special Jury award in the Outstanding Digital Transformation category for YIP at KMA IBS IT Awards 2023.

7. MSME Excellence Award 2023 from Hues of Life Magazine



8. ICT Academy of Kerala Excellence Award 2023



ICT Academy of Kerala Excellence Award 2023 “Most Innovative Program with Social Impact” for Young Innovators’ Programme.

9. SKOCH Awards 2023

- a. Young Innovators programme - Silver Category
- b. Mazhavillu Teach Science for Kerala – Silver category
- c. Rapid Urban Forest Development - Miyawaki Model Afforestation (Gold Category)



K-DISC IN MEDIA





K-DISC IN THE NEWS



വാർത്തകളിലൂടെ
കെ-ഡിസ്ക്

Job fair for engineering student
and graduates inaugurated

Thiruvananthapuram: A job fair for engineering students and graduates titled "Landed Pad Kerala 2023" has been inaugurated by Digital University vice-chancellor Sajith Gopinath. The event was organized by the IEEE (Institute of Electrical and Electronics Engineers) Kerala Chapter, ISTE, K-DISC, and NIELIT Kozhikode. Sajith said that the engineering students should make use of such job opportunities as to ensure a robust economy in the state. He also added that these kinds of initiatives from ISTE and IEEE are essential for the growth of the state. The event was held at the ISTE auditorium, Kozhikode. The state secretary of ISTE, K-DISC, and NIELIT Kozhikode also spoke on the occasion. Around 800 students who cleared the online and offline examinations that were held in various districts participated in the job fair. A total of 43 companies, including multinational companies, took part in the fair.



കെ-ഡിസ്കിന്റെ ഉദ്ദേശ്യപദ്ധതികൾക്ക് തുടക്കം കുറിച്ചു. ഇവർക്കിടയിൽ കെ-ഡിസ്കിന്റെ പ്രവർത്തനം സംബന്ധിച്ചും കെ-ഡിസ്കിന്റെ പ്രവർത്തനം സംബന്ധിച്ചും ചർച്ചകൾ നടന്നു. **അസാദിഹാനി** Mon, 29 May 2023 <https://epaper.com>



SKOCH award for Jananetra,
Knowledge Economy Mission

Jananetra, the web-based Hydrographic Data Management System of the Department of Hydrographic Survey, has won the SKOCH award for digital governance initiatives. The Kerala Development and Innovative Strategic Council (K-DISC) also won the award for its Kerala Knowledge Economy Mission project.



ലോകോ ക്ഷണികളിൽ
തിരുവനന്തപുരം: മുഖ്യമന്ത്രി പിണറായി വിജയൻ ഉദ്ദേശ്യപദ്ധതികൾക്ക് തുടക്കം കുറിച്ചു. ഇവർക്കിടയിൽ കെ-ഡിസ്കിന്റെ പ്രവർത്തനം സംബന്ധിച്ചും കെ-ഡിസ്കിന്റെ പ്രവർത്തനം സംബന്ധിച്ചും ചർച്ചകൾ നടന്നു. **അസാദിഹാനി**

വാർത്തകളിലൂടെ
കെ-ഡിസ്ക്

എക്സലൻഷ്യ അവാർഡ് വിതരണവും വൈദഗ്ദ്ധി ക്ലബ്ബുകളുടെ ഉദ്ഘാടനവും

തിരുവനന്തപുരം • വ്യവസായ പരിഷ്കരണ വകുപ്പിന്റെ എക്സലൻഷ്യ അവാർഡ് വിതരണവും വികസനരംഗം പ്രകാശനവും വൈദഗ്ദ്ധി ക്ലബ്ബുകളുടെ ഉദ്ഘാടനവും ഇന്ന് തിരുവനന്തപുരം സെന്ററിലെ പാതാൻ ഹാളും സെന്ററിലെ ഹാളിലും നടക്കും. മേന്മ വിശിഷ്ടമായി ഉദ്ഘാടനം ചെയ്യും. മന്ത്രി അഭ്യർത്ഥിക്കുന്ന ഭാഗ്യ അർപ്പണ വഹിക്കും.

ഉദ്ഘാടനം വേഗം നേടിയ സർ ജി.

അതേ പട്ടികയിൽ പട്ടിക വകുപ്പിന് വികസന വകുപ്പുകളിലെ ക്ലബ്ബിന് ഐക്യ സംരംഭ ക്ലബ്ബിന് എക്സലൻഷ്യ അവാർഡും കെ-ഡിസ്ക് പ്രീസന്റേഷൻ, ഗ്രൂപ്പ് ഓഫീസുകളിൽ, ഇൻസ്ട്രക്ടർമാർക്കുള്ള അവാർഡുകൾ എന്നിവ വിതരണം ചെയ്യും. കെ-ഡിസ്ക് വ്യവസായ പരിഷ്കരണ വകുപ്പിന് അധികമായി വരുമാനം കൈവരിക്കാനും സഹായം നൽകാനും സർ സുജാത എന്നിവർ അറിയിച്ചിട്ടുണ്ട്.



K-DISC IN THE NEWS



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Notes

