





Technical Report of Year 1

Project titled, "Inter-Institutional School of Diagnostic Innovation in Biodesign: A fellowship program for building next generation pool of diagnostics innovators and entrepreneurs"

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I. About Program

School of Innovation in Biodesign (SiB) is hosted at the Translational Health Science and Technology Institute (THSTI). This program is multi-institutional with IIT-Madras, CMC Vellore, PGIMER Chandigarh, Venture Centre, Pune, and ESIC Medical College and Hospital as partnering institutes. The thrust of this program is on *in vitro* diagnostics and promoting entrepreneurship. The current program has five SiB fellows whom THSTI and partnering institutes will mentor.

Venture Center is one of the training partners of the SiB program where the organization is mainly responsible for training SiB fellows on different aspects of entrepreneurship. Considering this Venture Center has organized an intensive training program for all five fellows at Venture Center, Pune as well as the team is constantly in touch with all the fellows and mentors them for all the next-level funding opportunities.

II. Program Overview

In this inter-institutional program Venture Center has a crucial role to play. The organization is being given the responsibility of training fellows on different aspects of entrepreneurship which is a key part of every entrepreneurial journey. The program becomes successful if the right candidates are chosen, nurtured, and empowered to take their entrepreneurial journey to the next level.

The Venture Center team was part of publicizing the SiB call moreover the screening and selection process of the fellows. Dr. Mugdha Lele, Principal Investigator of this project also participated in the conference held at THSTI on 3 May 2023. She moderated one of the panels of the conference titled "What Investors Want".

Startup Launch Accelerator Program (SLAP), an 11-day intensive training course was organized by Venture Center starting from 26 Oct to 7 Nov 2023. The SiB fellows who were part of the SLAP were from varied backgrounds and the program was designed specifically keeping in view the stage at which the fellows were in their entrepreneurial journey.

The main objective of the training program was to make innovators learn key aspects of Science and technology-based entrepreneurship. The acceleration program was a blend of a hands-on mini workshop series, startup visits, mentoring clinics, and a talk series of different aspects of entrepreneurship.









1. Diagnostic and Action Clinic:

Diagnostic Clinic was conducted on the first day of the program, to understand the problem statements of all the 05 SiB fellows. Also, the aim was to gauge the exact needs of each fellow and the solution they were thinking of. The fellows were given a template for presentation. Details of fellows, their background and the problem statements selected for the purpose of this fellowship are as follows:

| Sr. No. | Name of Fellow | Background | Problem Statement |
|---------|----------------|--|--|
| а | Niya Mathur | BDS (Rajasthan University of Health Sciences | To demonstrate a novel, early (12-24 hrs before Creatinine levels show it) benchtop, rapid (5 min) diagnostic for detecting Acute Kidney Injury in ICU patients thereby giving physicians crucial time to treat a critically ill patient early (where more/ better treatment options exist) |
| b | Mehak Bajaj | M.Sc in Human Genetics, B.Sc in Zoology Honours | To demonstrate a novel, colorimetric, sticker format sensor for biomarker M2 and M9 for use on the absorbing surface of a sanitary napkin for early stage detection of endometriosis to be used by menstrutating women experiencing chronic pelvic pain so as to recommend for confirmatory test and |







| | | | treatment for symptoms. |
|---|-----------------|-------------------------------|--|
| С | Kumar Nishchaya | M. Pharm, ICMR-JRF | To demonstrate a novel, cost-effective HPLC-based multi-analyte analytical method (60-90 min; single column run) to inform doctors treating ICU patients with impaired organ function with severe sepsis (bacterial/fungal infections etc) being treated with last line of antimicrobials by providing real-time concentration of drugs in the blood so as to reduce cases of drug over dose/toxicity/ under dose related deaths/complications. |
| d | Devhuti Palan | B.tech in Genetic Engineering | To demonstrate a novel <urine collector="" for="" sample="" women=""> that ensures collecting a sample of urine that is accurately from the mid stream of urine (and hence not contaminated by the first void urine) so as to reduce the need for pathology labs to provide accurate results (increased specificity in UTI detection) AND/OR request for repeat samples (and hence reduce delays, inconveniences, repeat consultations while also increasing patient adherence and ensuring timely treatment).</urine> |
| е | Jayanti Kumari | BDS (PGDCH, Amritsar) | To demonstrate a novel, rapid, affordable, saliva-based (non-invasive, ease of use; reliable) LFA/ biochip based point-of-care screening kit for early stage detection (stage 1 with excisable lesion) oral cancer. |

The problem statements were presented by the fellows on day 01 of the SLAP to a panel of 07 in-house mentors from the Venture Center team. The evaluation was carried out on 5 pointers which were:

- i. Need Identification and Problem definition
- ii. Technical/ science soundness perspective
- iii. Value proposition perspective
- iv. Regulatory challenges & actions required
- v. Funding options and perspective

This diagnostic clinic indicated the exact stage at which each of the SiB fellows are currently at based on which further mentoring was done throughout the program.







On the last day after the completion of the acceleration program, the fellows presented their progress to the same panel of in-house mentors from the Venture Center team. These presentations were based on the suggestions and learning during the entire program. This was called the action clinic and fellows got very good inputs from all the mentors. All the suggestions were shared with the fellows for their further action.





2. Startup Location Visits:

This was a special morning slot during the SLAP, where fellows got the opportunity to visit selected 6 successful startups from the ecosystem of Venture Center. The visits were planned to learn about the journey of all these startups from their initial days, their learnings, successes as well as failures and key take-aways were shared by the startup founders of these 6 startups. Fellows could also see the facilities developed by these entrepreneurs; learn about their solutions as well talk to the founders and their teams. The list of startups visited is as follows

- a. Serigen Mediproducts Pvt Ltd https://serigenmed.com/
- b. Actorius Innovations and Research Pvt Ltd http://www.oncodiscover.com/
- c. Jeevtronics Pvt Ltd https://www.jeevtronics.com/
- d. Ahammune Biosciences Pvt Ltd https://www.ahammune.com/
- e. Nayam Innovations Pvt Ltd https://www.nayaminnovations.com/
- f. BioPrime Agrisolutions Pvt Ltd https://bioprimeagri.com/











3. Mini Workshop Series:

During the training program, 05 mini-workshops were planned to deep-dive into different essential entrepreneurial aspects. The workshops were conducted by renowned faculty members in the respective field with hands-on assignments. The list of workshops conducted is as follows:

<u>a. Hands-on skills workshop</u> - This workshop was conducted by Protoshop Team of Venture Center. The workshop included manufacturing methods for rapid prototyping, 3D modeling and simulation software for quick designing and simulation of the prototype, concepts, and basic operation of additive and subtractive manufacturing equipment, simple power tools, and its operations.

<u>b. Value Proposition workshop</u> - The workshop was conducted by Mr. Sundara Nagrajan (Managing Director at Innovation ScaleUp Advisors (ISA) Private Limited, an advisory platform and practice that helps innovators and investors scale up technology-based businesses and monetize innovation, globally) and Dr. Premnath V (Director Venture Center). The workshop focused on giving the participants a primer on building a value proposition for their innovative ideas, and positioning of their products, and initiate them to start thinking about the product-market fit for their products. Via deep dive hands-on sessions, participants also worked on the value proposition canvas.

c. Planning the regulatory pathway for medical devices and diagnostics - This was a Regulatory workshop planned considering the Biodesign Fellows and their solutions. The workshop was conducted by Venture Center's Regulatory Information and Facilitation Center team. The workshop was focused on helping participants to plan the regulatory pathway for their medical devices and diagnostic products. It provided the participants with an understanding of EU MDR 2017/745 and Indian MDR 2017 along with the regulatory requirements, gave knowledge about the regulatory pathway to get CE marking and CDSCO approvals which is a mandate for manufacturers looking to commercialize their devices in the European and Indian market respectively. The workshop also helped fellows understand the challenges involved in obtaining CE marks/approvals and ways to navigate these challenges based on different scenarios and understand the ISO 13485 (Quality Management System standard) compliance requirements.







d. Grant Writing and Financial Simulation of a Startup - This was a day-long workshop, covering two important aspects of the startup journey. The workshop faculty was Dr. Smita Kale (Advisor Bioincubation, Venture Center), Ms. Shruti Devsthali (Head of Funding and Investments, Venture Center), and Dr. Premnath V (Director, Venture Center). The workshop focused on giving the participants a primer on the various funding opportunities and how to explore those opportunities by writing startup grant proposals. The workshop also helped the participants to simulate the financials for their ventures via deep dive hands-on sessions. This helped the participants to incorporate the same in their grant-writing efforts. The workshop methodology focused on brief conceptual sessions combined with a brief discussion time and hands-on exercises for participants to work through and internalize the learnings.

<u>e. Elevator Pitch and Pitching to Investors</u> - The workshop was conducted by Ms. Soma Chattopadhyay (Head, of Incubation and Mentoring, venture Center) and Dr. Premnath V (Director, Venture Center). The workshop focused on how to build a storyline for your business, how to build the "First deck" to connect with your stakeholders, the key elements of an elevator pitch, and how to build your elevator pitch. The speakers shared a few pointers on aspects that need to be covered in the pitch deck for investors. Participants also learnt a new style of presentation- 'Pecha-Kucha'.













4. Lunch-side chats with Startup founders from various deep tech sectors

The interaction with startup founders was planned during the lunch time. In total 08 such interactions were planned with startups from different backgrounds. The idea here was to give a flavor of the startup journeys from varied sectors to the SiB fellows and help them to understand the nuances of the entrepreneurial ecosystem.

- a. Mehul Baldwa Utopic Tech Pvt Ltd https://www.utopictech.com/
- b. Vilas Shelke Rechargion Energy Private Limited https://www.rechargion.com/
- c. Shubham Singh Fumalabs Pvt Ltd https://craste.co/
- d. Supriya and Satyajit Phadke Hydrovert Energy https://hydrovert.in/
- e. Rohan Aggarwal Vidcare Innovations Pvt Ltd https://www.vidcare.in/
- f. Ashwin Shankar Divish Mobility Pvt Ltd https://www.batterypool.com/
- g. Vaishnavi Kulkarni Intignus Biotech Pvt Ltd https://intignusbiotech.com/
- h. Jilma Peruvangat Kozhnosys Pvt Ltd https://kozhnosys.com/



5. Mentoring Clinics:

One-on-one mentoring sessions (M-Clinics) were organized for each fellow. The clinics helped fellows in clarifying their queries and also get valid suggestions from the respective mentors from each clinic. The M-Clinics also helped the fellows to gain confidence of the fellows about their ideas and also received important suggestions regarding the same. The 03 M-Clinics were organized on Intellectual Property







Strategy, Tech development pathway and Planning how to raise funds and Regulatory pathway. The M-Clinics were conducted by Ms. Archana Joshi, Dr Richa Arya, Dr. Premnath V, Ms. Chetna Dharmavat-Dabi and Mr Akash Dhade.



6. Talks on Aspects of Entrepreneurship:

Twelve talks covering all facets of entrepreneurship was conducted every day as the last session of the day. The talks covered topics like need identification and problem definition, Value Proposition, Importance of Intellectual Property, Team building, Legal, essentials of finances, Market Research and analysis etc. The talk series closed via a Panel discussion moderated by Dr. Manisha Premnath on "Lessons from Deep Tech Startup Journeys". The panelists were selected startup founders from the Venture Center ecosystem.









On last day of SLAP, Dr. Premnath conducted a concluding session and emphasized on improving the solutions to the different problem statements that the SiB fellows would be working on. They were advised to deep dive into all aspects of the problem, plan the tech de-risking experiments accordingly and define the credibility of the solution to the last detail. The 11 days Startup Launch Accelerator Program concluded on 7 Nov 2023.



III. Project Management Team (Names are in alphabetical order as per last name)



Niruta Killedar

Niruta is Senior Associate for Social Innovations at Venture Center. She is primarily responsible for assisting in the implementation of the Social Innovation Immersion Program at Venture Center. Overall she assists in driving the Social Innovations portfolio at Venture Center and coordinates events and related mentoring activities. She is a Microbiologist by training and has more than 7 years of experience in interdisciplinary areas of science. She has been passionately working in border areas for the last 15 years as a volunteer through the NGO Aseem Foundation, which adds value to the Social Innovations portfolio at Venture Center.







Mugdha Lele



Mugdha is Head – Social Innovations at Venture Center. She is a Ph.D from School of Health Sciences, University of Pune and has teaching and research experience in a State Government medical university. At Venture Center, she is responsible for driving the Social Innovations and related activities and is responsible for providing technical mentoring for incubatees at Venture Center. Mugdha has been a Fellow of the Chevening Rolls Royce Science, Innovation, Policy and Leadership Programme (CRISP) at the Said Business School, University of Oxford, UK in 2016. In 2018 she has also been part of the Aritra Accelerator Program for Leadership in the Social Sector at IIM Bangalore with Phicus Solutions and Dr. Reddy's Foundation.

In-House Mentors (Names are in alphabetical order as per last name)



Soma Chattopadhyay

Soma Chattopadhyay leads the Incubation & mentoring vertical of Venture Center as Head Incubation & Mentoring. Soma is recipient of the CheveningGurukul Fellowship from Oxford University, UK. At Venture Center she is responsible for managing the incubation activities - identification of potential innovators & entrepreneurs and early stage start-ups, conducting in-depth technical & business mentoring, raising various funds for the incubator.

Soma serves as the nominee director on the board of Dee Dee Labs Pvt. Ltd that works in medical & assistive device domain. She was the winner of "Star Gazing award for Incubation Managers 2016" awarded by Indian STEP and Business Incubator Association (ISBA) & DST. Soma joined Venture Center with >9 years of experience as Team Leader-in the R&D division of an MNC named Cookson Electronics where she built novel materials for electronics. Soma has a Masters degree in Physical Chemistry and is a certified internal auditor for ISO 9001:2008,trained for implementing ISO 17025 standard and certified Six-Sigma Green Belt.



Shruti Devasthali

Shruti is currently Head for Equity and Grant Portfolio at Venture Center. She is a Chartered Accountant and a certified Financial Risk Manager. She is currently operating seed fund activities for Venture Center and monitoring the investments in Venture Center's portfolio companies. She is also responsible for mentoring lab2mkt companies on corporate governance; and management of financial and legal matters relating to grant programs. During her previous work engagements Shruti has worked with CRISIL Limited and Dun and Bradstreet Information Services India Private Limited in the areas of credit and financial analysis.

Akash Dhade

Akash works as Associate Manager for the Regulatory Information Facilitation Center (RIFC) at Venture Center and has assisted multiple organizations in choosing regulatory









pathways, creating technical documentation, and submitting the documentation to the notified bodies for the European market. He has experience drafting over 20 technical documentation for different types of medical devices and also has the lead auditor certification for ISO 13485 and ISO 9001 QMS by BSI Academy.



Chetna Dharmavat-Dabi

Chetna works as Assistant Manager for the Regulatory Information Facilitation Center (RIFC) at Venture Center and assists various medical device startups in planning regulatory pathways, interpreting standards, and establishing and implementing a quality management system for medical devices. She is a certified lead auditor for ISO 9001 and ISO 13485 QMS by BSI Academy.



Archana Joshi

Archana is Associate Manager for TechEx services at Venture Center, where she is responsible for activities related to Intellectual Property, Patent drafting, IP Training programs and workshops. She is a registered Patent Agent at Indian Patent Office. Previously, she was Project Assistant-III at CSIR- URDIP. M.Sc. in Organic Chemistry from Pune University and has a P.G. Diploma in Patents Law from NALSAR University (Hyderabad).



Sujaya Ingale

Sujaya is working as Head — Scientific Initiatives at Venture Center. She leads and coordinates scientific initiatives and Prototyping Support activities which involve planning for scale up and expansion of scientific facilities and services, creating and managing service efficiency and quality matrices to ensure high standards in services. Sujaya has done her masters in Microbiology and has a total professional experience of 17 years. She heads the quality control department of the ISO 13485 certified Class 7 and Class 8 MedTech Clean room at Venture Center. She is also involved in handling Biotechnology research projects, developing new methods and services.



Smita Kale

Smita is Advisor for Bio-incubation at Venture Center. She is leading Bio-incubation activities, is responsible for the technical aspects at the Center for BioPharma Analysis and BIRAC's Regional Bioinnovation Center (BRBC) projects at Venture Center. She is actively involved in mentoring startups at Venture Center. She is Ph. D in Pharmaceutical Chemistry from Institute of Chemical Technology, Mumbai and prior to joining Venture Center has had academic experience of 12 years which includes research experience of 3.6 years.



Manisha Premnath

Manisha is Chief Operations Officer at Venture Center. She holds a Ph.D in Biotechnology from University of Pune and Post-doctoral training from University of Cambridge, UK. She has been a Chevening Rolls Royce Science, Innovation, Policy and Leadership Programme (CRISP) Fellow at the Said Business School, University of Oxford, UK during 2015 where she had the opportunity to study technology innovation ecosystems. She has research experience in biotechnology, microbiology, fungal







biotechnology, molecular biology and molecular virology. She has experience in planning and setting up of advanced scientific facilities and program management.

Premnath V



Premnath is Scientist-Polymer Science & Engineering Division at NCL and Director-Venture Center. He is a technologist and commercialization expert having previously successfully commercialized two technologies. He has a keen interest in technology development for biomedical products. He holds a B.Tech from the IIT Bombay and a Ph.D. from the MIT, USA. He has also been a Chevening Technology Enterprise Fellow with the Centre for Scientific Enterprises, London Business School and Cambridge University, UK. He brings with him considerable experience in technology development and commercialization (two successfully commercialized families of products), working with start-up companies (in Cambridge-UK and India) and engaging with large corporations on research and consulting projects as project leader.

External Mentors (Names are in alphabetical order as per last name)

Sujata Bogawat



Sujata is a Chartered Accountant by training and also holds a Business Management degree. She has diverse experience spanning two decades across manufacturing, services, not-for-profits, start-ups and consulting companies. She specializes in advising VC funded startups and startups incubators across the country. She founded Avant Edge Business Consulting in 2012 to provide startups and emerging businesses with quality management of their non-core functions on a consistent basis. The company also provides investment advisory, equity structuring, business valuation, virtual CFO, compliance, and pre-funding support and services.

She has strong eco-system connects with start-up incubators such as Venture Center, Villgro Foundation, CIBA Mumbai and Goa and academic institution incubators like RISE Foundation-IISER Kolkata, and serves on various committees of these incubators. Previously, she has worked as a Vice President-Finance at Firstcry.com, GM at Venture Center and Finance Controller at Thermax Ltd. Sujata is an angel investor and startup mentor. She was the founding Program Leader of Startup Leadership's Pune chapter and frequently speaks at startup events on subjects of startups, funding, business valuation, etc.



Siddhesh Gawate

Siddhesh has been working in the field of market research, consulting, and strategy for more than 7 years. His first three years of experience involved working with multiple fortune 500 clients by offering them market and competitor insights in the form of well-synthesized reports & presentations. Recent four years with several leading MNCs and startups, where he led a team of market analysts and contributed to strategic decision-making within the company. Overall, Siddhesh has exposure to a multitude of industries such as Chemicals & Materials, Power & Utilities, Oil & Gas, Automotive, Testing, Inspection & Certification (TIC), Advanced Information Technology (AI/ML/Cloud), Technology Research etc.

Pushkar Ingale

Pushkar is design director at Cohesive Labs - a design & research consultancy based out of









Pune. He leads design and research activities for the lab's clients, helping them strategize their approach for projects led by on-the-ground research and later implemented by design. Over the last decade and half, he has designed several solutions impacting healthcare at a device and system level. Earlier he was heading the India operations of Laerdal Global Health, a Norway headquartered organization working towards helping save lives on the day of birth. Several of his innovations and design solutions have earned international recognition and awards for their impact in global health.

Pushkar is M.Des. from IDC, IIT Bombay, and followed up his interests for design in healthcare with the Stanford India Biodesign Fellowship at AIIMS, New Delhi. He has worked across several industries including manufacturing engineering, automotive styling, electronics and iot, medical devices and more recently petcare. Pushkar is passionate about design methodologies, entrepreneurship and learning from nature and occasionally dabbles in academics at design, engineering and management schools.

Sundara Nagarajan



Nagarajan is Managing Director at InnovationScaleUp Advisors (ISA) Private Limited, an advisory platform and practice that helps innovators and investors scale-up technology-based businesses and monetize innovation, globally. ISA helps accelerate the monetization and scaling of disruptive companies. Nagarajan deeply relates to the challenges involved in scaling ideas to deliver business value, owing to his career in computer systems development engineering for over three decades. He is an accomplished senior technologist with experience in startup initiatives of large global enterprises and early-stage companies. He has performed director-level technical leadership and executive management roles in product development and deployment serving Customers worldwide. His subject matter expertise is in computer systems architecture, data management, and systems/software engineering.

Vivek Sadhale



Vivek is Founder Partner, LegaLogic Law Firm. He brings over 24 years of extensive experience with an expertise spread over numerous fields including international technology and commercial contracts, successful IPO, top tier venture capital investment and private equity funding, M&A / takeovers, joint venture agreements, managing Investor Relations, having worked with reputed Indian and Multinational organizations, with exposure to Finance and Treasury functions. Vivek has extensively worked on negotiating international commercial contracts, negotiating IP Licensing deals, dealing with IPR-related issues, employment law, designing Employee Stock Option negotiating foreign currency loans, M&A, PE and VC deals, Restructuring matters and establishing domestic/overseas offices and companies. Vivek worked with Persistent Systems Ltd. for thirteen and half years as Company Secretary and Head – Legal and Investor Relations. He also has working experience with Kirloskar Group, Bombay Dyeing and Siemens.

Srikant Sastri

Srikant is the President of the TiE Delhi-NCR Chapter, the chairman of the i3g Network and the co-founder of Crayon data. As an entrepreneur himself with 2 successful exits, he now is a mentor on a mission to help startups become successful. Srikant is a Board member of Venture Center and is Advisor and Mentor in Digital innovation & a Social Enterprise evangelist. He is a seasoned entrepreneur and bridge-builder. He provides strategic leadership as the co-founder of Crayon Data, the ambitious Singapore-headquartered start-









up, which aims to build a global business around a Big Data platform and products third start-up. As a successful entrepreneur, Srikant had founded India and Southeast Asia's largest CRM & Digital agency, Solutions – Digitas, in 1995. The business achieved scale (2000 employees) and market leadership before being acquired by the Publicis Groupe.

Srikant is the Chairman of the Board of IIM Calcutta Innovation Park. He also serves as the board member, advisor and mentor to several emerging corporations, university incubators and startups. This includes the board of Venture Center and IIT Kanpur's incubator SIIC and is a mentor to BIRAC-supported incubators & programs like BioAngels Network. Respected as a leading marketing & CRM practitioner, Srikant started his career at Unilever and McCann – Erickson, and has been inducted into the DMAi 'Hall of Fame'. He has been on the jury at Cannes Advertising Festival. He works closely with, and nurtures several tech start-ups, and is an active angel investor. He earned an Engineering degree from IIT, Kanpur and a Post-Graduate qualification in Management from IIM, Calcutta.

M V Shankar



Shankar is the Vice-President, Technology Innovation at Mahindra and Mahindra Group and has featured in the top 50 Innovative Leaders by World Innovation Congress 2020. He is Co-Inventor on 10 issued US Patents and 10 Indian Patent Applications and has coached over 1000+ innovators. A technology innovation leader, he is passionate about facilitating technology innovations in India. He excels in mentoring inventors to grow their ideas into innovations.

He has more than 25 years of experience in Corporate R&D and Global Technology Organizations like GE, Dow, Honeywell and Cummins. With his rich experience in visioning future technologies, passion for scouting new technologies for potential business opportunities, Dr. Shankar has an excellent track record in Materials Innovation and New Product Development. He has managed global cross-functional teams to deliver technologies that are critical to business growth. Shankar is a Ph.D. from IISc, Bengaluru and has a Management degree from IIM, Bengaluru.

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