

Launching Startups from CSIR/NCL



Awareness Session, 4 Oct 2021



Outline (100 min)

- ◆ 5 min: Welcome remarks and introductions
- ◆ 5 min: Perspectives and comments from Director, NCL
- ◆ 20 min: Creating startups and spinouts from CSIR/NCL. Status report
- ◆ 45 min: Selected startups from CSIR/NCL
 - Serigen Mediproducts
 - Vivira
 - Module Innovations
 - Q&A
- ◆ 10 min: Intro to Venture Center. Support mechanisms available for startups at Venture Center
- ◆ 15 min: Closing
 - How to spot ideas for startups?
 - Interested? How to get started.

Welcome remarks and introductions (5 min)

By Dr Vidula Walimbe

Organized by



TechEx.in
Tech Transfer Hub at Venture Center
Supported by NBM - BIRAC

Supported by



Launching of startups from CSIR/ NCL

(Mon) 4 October 2021
Time: 11.00 am – 12:45 pm

Talk highlights

- How to create early-stage technology startups and spinout
- Being an entrepreneur: Startup stories
- Support mechanisms available at Venture Center for startups

Open to CSIR family

Register at:
<https://tinyurl.com/NCLspinoff>

More details:
www.techex.in

Technical queries:
Vidula Walimbe | vidula@ipface.org

FREE talk. Registration is mandatory!!
Sessions will be conducted on a online platform

Speaker line up for the talk



Ashish Lele
Director, CSIR-National Chemical Laboratory



Premnath V
Director, Venture Center and Head, NCL Innovations



Vinita Panchanadikar
Senior Advisor, Venture Center and Ex Chief Scientist at CSIR-NCL



Soma Chattopadhyay
Head - Incubation & Mentoring, Venture Center



Vijay Modepalli
Scientists, NCL innovations

Glimpses: Startup stories



Anuya Nisal
Founder: Serigen Mediproducts Pvt. Ltd.



Swati Ranade
Project Manager: VIVIRA Process Technologies Pvt. Ltd.



Sachin Dubey
Cofounder & CEO: Module Innovations





Ashish Lele
Director, CSIR-NCL



Premnath V
Director of Venture Center and
Head, NCL Innovations



Soma Chattopadhyay
Head - Incubation & Mentoring,
Venture Center, Pune



Vinita Panchanadikar
Senior Advisor, Entrepreneurship
Development Center, Ex Chief
Scientist at CSIR-NCL



Vijay Modepalli
Scientist , NCL Innovations



Vidula Walimbe
Associate Manager: Innovation
Management, Venture Center



Anuya Nisal:
Principal Scientist
Founder – Serigen Mediproducts Pvt. Ltd.



Swati Ranade
Project Manager: VIVIRA Process Technologies Pvt Ltd.



Sachin Dubey
Cofounder and CEO of Module Innovations

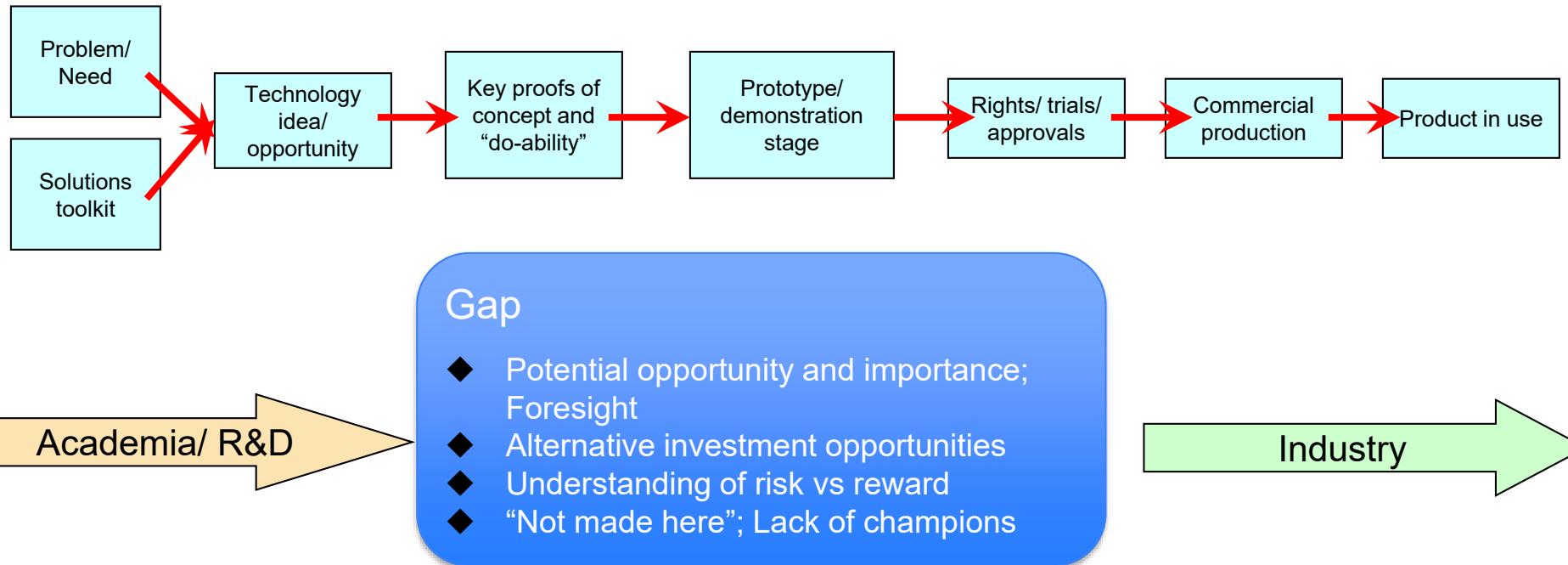
Perspectives and comments (5 min)

By Dr AK Lele

Creating startups and spinouts from CSIR/NCL (15 min)

By Dr V Premnath

The gap: Interests, motivations, expectations, trust



The new global role models



Frances Arnold, Cal Tech
Nobel Prize (2018)
Gevo, Provivi, Aralez Bio



Jennifer Doudna, UC-B
Nobel Prize (2020)
Mammoth, Intellia, etc



Ugur Sahin & Ozlem Tureci
mRNA Vaccine for COVID19
BioNTech



Bob Langer, MIT
Patents 1400; h index 280
More than 20 startups

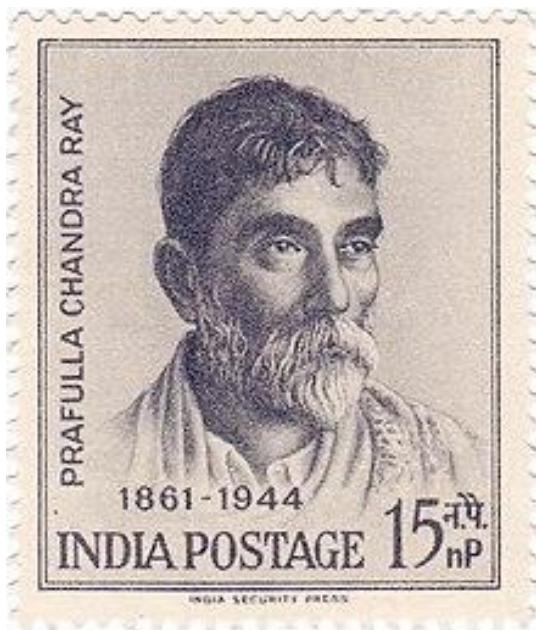


Richard Friend, Cambridge
1000 publications. 20 patents
3 startups



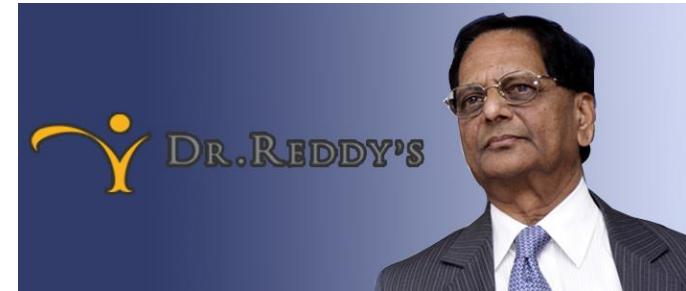
Amar Bose, MIT
Bose Corporation

Tradition of scientific entrepreneurship



1892: Dr Prafulla Chandra Ray founded Bengal Chemical Works; Goal -- fostering a spirit of entrepreneurship among the Bengali youth, and provide an alternative to jobs from the colonial British government (courtesy: Wikipedia)

Role models: Scientific Entrepreneurship



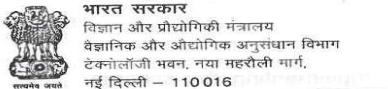
Key Elements of all Startups:

- ◆ Provide **solution** to a problem
- ◆ **Foresight**, future opportunity, uncertainty & risk
- ◆ **Innovation** based on organizational or technical novelty
- ◆ Revenue model
- ◆ Scaling

Science-based Deep Tech Startups:

- ◆ **Solution** leverages specialized knowhow
- ◆ **Foresight** leverages scientific insights
- ◆ Often **innovation** based on technical novelty (invention)
- ◆ Large differences in resourcing & de-risking

DSIR notification enabling spinouts and faculty entrepreneurship



GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH
TECHNOLOGY BHAVAN, NEW MEHRAULI ROAD,
NEW DELHI-110 016

File No. 3/3/2009-TU/V/Knowledge-to-equity

Date: May 25, 2009

OFFICE MEMORANDUM

Subject: Encouraging Development and Commercialization of Inventions and Innovations: A new impetus.

1. The Government of India has approved the proposal of DSIR on **Encouraging Development and Commercialization of Inventions and Innovations: A new impetus**. The key components of the proposal approved for implementation are:

- i. Permitting the researchers to have an equity stake in scientific enterprises / spin offs while in professional employment with their research and academic organizations (universities, academic and research institutions, herein after referred to as Scientific Establishment);
- ii. Permitting the Scientific Establishment to invest knowledgebase as equity in the enterprises;
- iii. Encouraging the Scientific Establishment to set up incubation centers; and
- iv. Facilitating mobility of researchers between industry and scientific establishment.

TELEGRAM : SCINDRECH
दूरभाष/ TEL : 26962819, 26567373
: 26565694, 26562133
: 26565687, 26562144
: 26562134, 26562122 (EPBAX)
फैक्स/FAX : 26960629, 26529745
26529738, 26516078

भारत सरकार
विज्ञान और प्रौद्योगिकी मंत्रालय
बायोटेक्नोलॉजी विभाग
GOVERNMENT OF INDIA
MINISTRY OF SCIENCE & TECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY



No. BT/NBDB/13/01/2014

द्वारा-2,7 वा रास, सी० च० ओ० कम्पलेक्स
लोदी रोड, नई दिल्ली-110003
Block-2, 7th Floor C.G.O. Complex
Lodi Road, New Delhi-110003

Dated: 25th November, 2014

OFFICE MEMORANDUM

Subject: Rules and Regulations for "Encouraging Development and Commercialization of Inventions and Innovations"

The Department of Biotechnology, Ministry of Science and Technology, Government of India hereby notifies the Rules and Regulations, "Encouraging development and commercialization of inventions and innovations" in Department of Biotechnology and its Autonomous institutes.

Scientists/professors can promote companies

Institutes/labs can give technology in lieu of equity

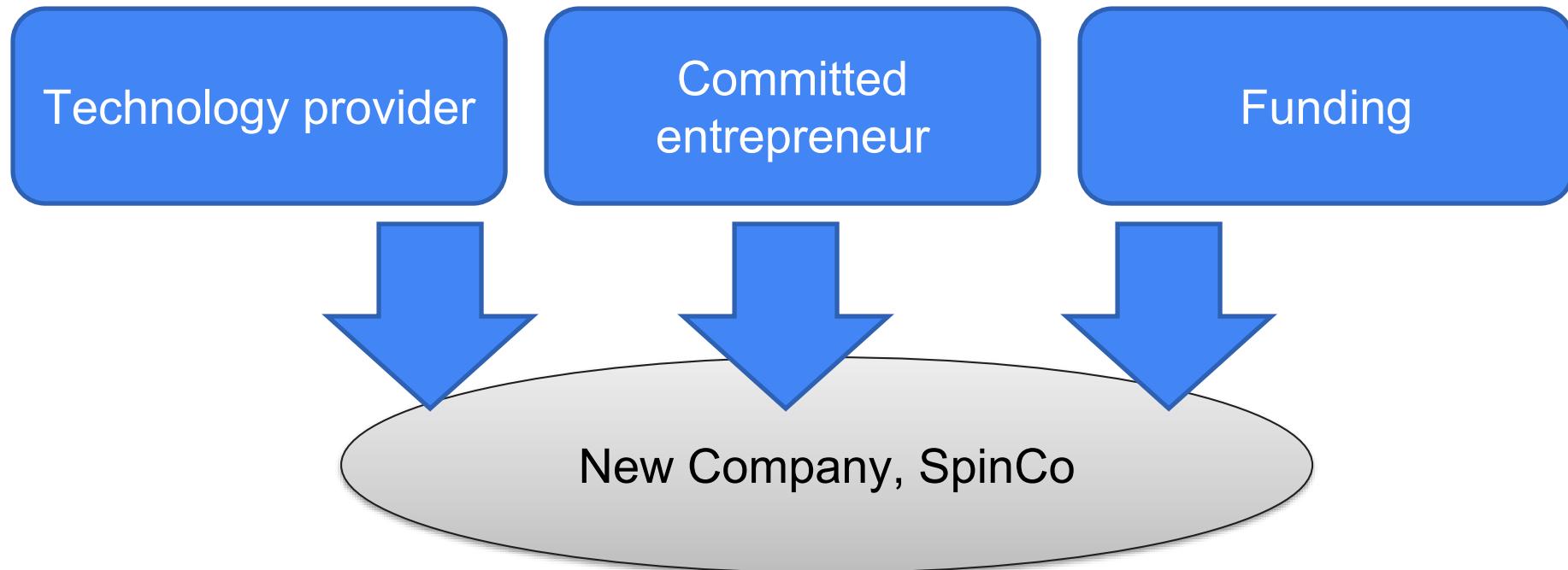
Incubators and mobility of researchers

Technologies suitable for new ventures

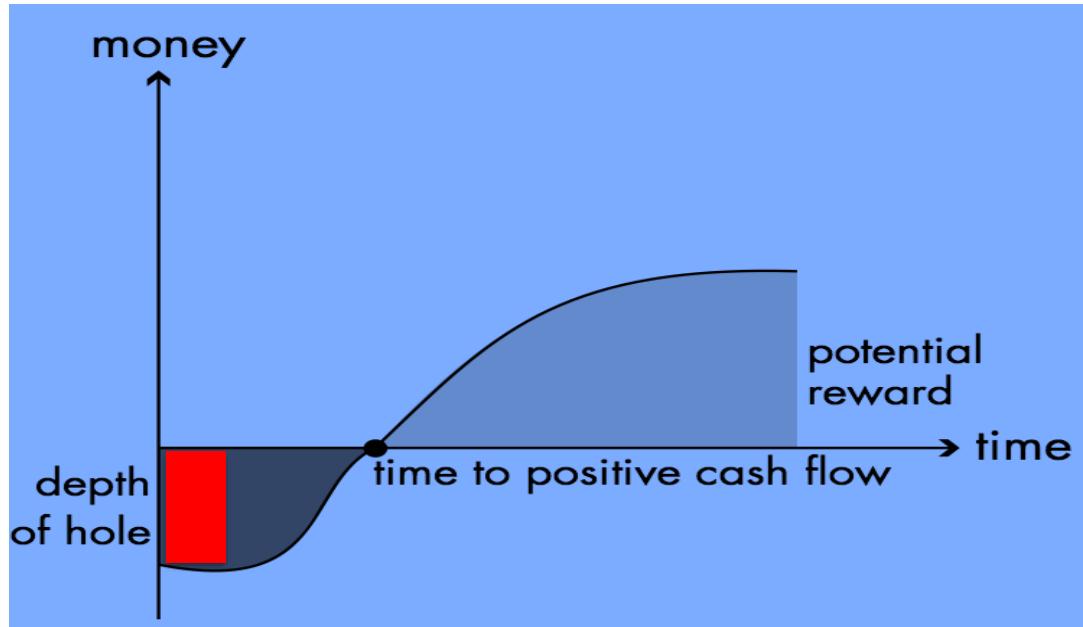
- Some thumb rules -

- Opportunity of an uncertain future. **Foresight led.** If foresight is right, size and growth of potential market is attractive enough to justify the risk.
- Key ingredients: Committed entrepreneur. Funding/ investment opportunities.
- (In the mind of the entrepreneur) The products/ services based on the technology are clear. Value proposition of conceived product/service vis-à-vis competition is significant and easy to understand.
- The entrepreneur can be provided with sources of sustainable competitive advantage (ex: patents).
- Barriers to entry are not insurmountable (industry structure and competition; IP landscape)
- Typically:
 - Technology is a platform technology; results in more than one product based on same technology
 - Product/service can stand on its own; doesn't depend on too many complementary technologies/ investments.

Creating new ventures from R&D institutes



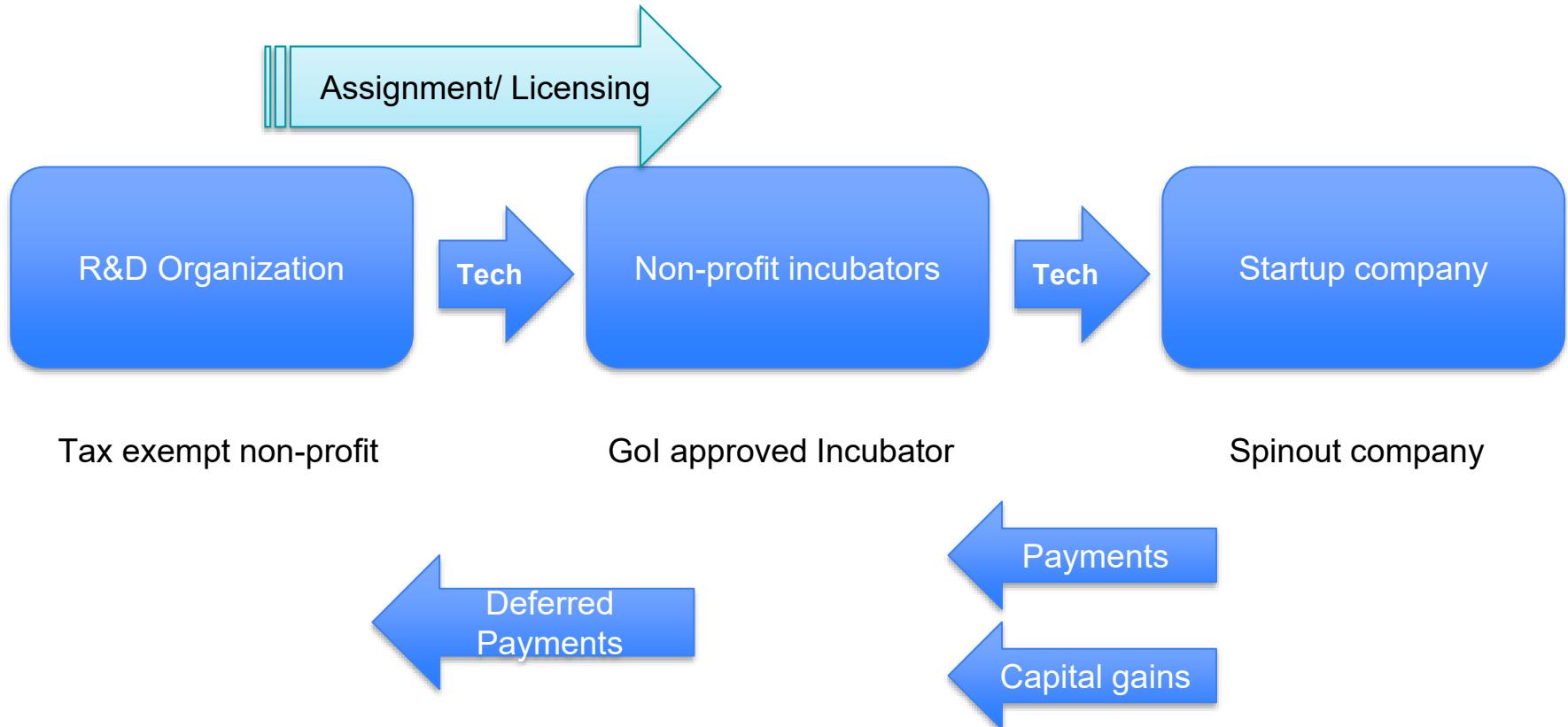
The Role of Grants



- ◆ Reduce risks and uncertainties
- ◆ Improve Internal Rate of Returns for investors via grant funding (red)
- ◆ Create a funding/investment continuum

Graph: William H. Sahlman, "How to write a great business plan" HBR Jul-Aug 1997

How it works?



Ex: Conflict Management

Allowed/ not allowed: Some examples --

- OK – Product startups
- OK -- “Productized services startups”
- NOT OK – Consulting services
- NOT OK -- Scientist starting company with current student or subordinate

Conflict management

- Conflicts cannot be entirely avoided. Some avoided. Some managed transparently.
- Be aware of potential conflicts. Periodic reporting of potential conflicts. Report and discuss with seniors.
- Following help:
 - Simple and transparent systems for services provided by institute
 - IP firewalls; Collaborations against agreements
 - Clear understanding of roles by all players

Spinouts from CSIR-NCL: Lessons so far

- ◆ Find the Product-Market Fit (Problem-Solution- Value Proposition Fit) takes time!
- ◆ Have at least one full-time co-founder from early stages
- ◆ The most challenging aspect: Finding good co-founders
 - ◆ Need networks and floating populations to draw from
 - ◆ Ecosystem needs to have people with interest, experience, networks
 - ◆ Mutual respect; Appreciation of the importance of different roles
 - ◆ Innovator (“new idea daily”) vs Entrepreneur (“focus”) mindset
 - ◆ Alignment of goals/ aspirations for the company, working culture etc
- ◆ Investors prefer
 - ◆ Full-time founders leading the company & majority shareholders
 - ◆ Investors invest in entrepreneurs and not innovators
 - ◆ Minimum shareholding by “silent” partners (incubators/ institutes etc.)
 - ◆ Minimum uncertainties on IP/ technology license
 - ◆ Minimum future payouts that will reduce valuation
- ◆ It takes time and patience and persistence. No early rewards or exits.
- ◆ Funding exists but is patchy. Ability to pitch and raise money is a critical skill!

Status Report (5 min)

By Dr Vijay Modepalli

Fact file (2010-2021)

Number of startups: 14

- ◆ SES + L2M: 9
- ◆ SES + LIC: 1
- ◆ L2M: 2
- ◆ SES + stalled: 2

◆ Number of SES approvals: 18

◆ Number of scientists applying for SES: 14

◆ No of startups proposed under SES: 12

Number of startups: 14

- ◆ Active: 10
- ◆ Dormant: 2
- ◆ Stalled at birth: 2

Financing > Rs 30 Cr

- ◆ BIRAC/NBM grants: 10
- ◆ Other major grants: 2
- ◆ Investments: 3
- ◆ Sales initiated: 5

Number of scientists applying for SES: 14

- ◆ Female: Male – 5:28
- ◆ Age at founding (<50) : (>50) – 27:6

Founding teams: 14

- ◆ Scientist: 14
- ◆ Ex-project staff/ project students/ postdocs: 9
- ◆ Ex-PhD students: 1
- ◆ Others: 7

Founding teams: 14

- ◆ Major changes in founding teams: 5

Sectors of 14 founding teams:

- ◆ Medical devices: 3
- ◆ Medical diagnostics: 3
- ◆ Energy and environment: 4
- ◆ Agro, food, nutrition: 4

Startups (2010-2021)

Total Startups — 14

Startups under SES— 12

Lab2market cases — 10

SES + L2M	SES + Traditional license	L2M	SES Nascent (2020/2021)	SES
<ul style="list-style-type: none"> o Orthocrafts o Biolmed/ Serigen o Genrich o Abhiruchi o Annweshan o Barefeet o Zeroplast o Module 	<ul style="list-style-type: none"> o Vivira 	<ul style="list-style-type: none"> o Green Pyramid o Fluorogent 	<ul style="list-style-type: none"> o Rechargion Energy Pvt.Ltd – SES Approved and start-up created o Abhiveera – SES Approved 	<ul style="list-style-type: none"> o AMPS



Scientists involved in SES (2010-2021)

SES approved scientists— 14; Startups under SES— 12

Scientist	Start-ups under SES
Dr. Ashish K Lele	Orthocrafts, Biolmed/ Serigen, AMPS
Dr. Premnath Venugopalan	Orthocrafts, Biolmed/ Serigen
Dr. Ulhas Kharul	Genrich, AMPS
Dr. Anuya Nisal	Biolmed/ Serigen
Dr. Archana Pundle	Abhiruchi
Dr. Dhiman Sarkar	Annweshan
Dr. Venkat Panchagnula	Barefeet
Dr. Magesh Nandagopal	Barefeet
Dr. V. V. Ranade	Vivira
Dr. Kadhiravan S	Zeroplast
Dr. J. P. Jog	Module
Dr. Sreekumar Kurangot	AMPS
Dr. Manjusha Shelke	Rechargion
Dr. Raja Thirumalaiswamy	Abiveera



Current status

Company ongoing	License returned but ongoing	Company dormant or closed	SES Nascent (2020/2021)
<ul style="list-style-type: none"> o Orthocrafts o Biolmed o Genrich o Abhiruchi o Annweshan o Barefeet o Zeroplast o Vivira o Green Pyramid 	<ul style="list-style-type: none"> o Module o Fluorogent 	<ul style="list-style-type: none"> o AMPS o Annweshan 	<ul style="list-style-type: none"> o Rechargion Energy Pvt.Ltd – SES Approved and start-up created o Abhiveera – SES Approved



Selected startups from CSIR/NCL

Moderator: Dr V Premnath

Glimpses of selected startups

- ◆ Introduction to speakers
- ◆ Serigen Mediproducts: Tissue engineering with silk based biomaterials
- ◆ Vivira: Industrial water treatment/ Hydrodynamic cavitation
- ◆ Module Innovations: Point-of-care diagnostics/ AMR/ COVID19
- ◆ Q&A



Introduction to Venture Center (5 min)

By Soma Chattopadhyay

Venture Center

India's leading inventive business incubator



National Award for Technology
Business Incubator, 2015



Asian (AABI) Incubator of the
Year Award, 2018



National Entrepreneurship
Awards, 2019

Mission

"To nucleate and nurture technology and knowledge-based enterprises for India by leveraging the scientific and engineering competencies of the institutions in the region."

Focus Areas

We focus on promoting **inventive enterprises** and **spin-offs** from **R&D institutions**. We are **sector agnostic** but our strengths lie in science based technologies.



Healthcare, Biotech,
Biomed, Life sciences



Energy, Environment,
Sustainability, WASH



Engineering, Electronics,
Manufacturing, and Engineering
services



Agro, Secondary
agriculture, Food,
Nutrition

Unique Aspects

Extensive experience working with startups

14

Years of
experience

600+

Total
incubatees

150+

Resident
incubatees

10

Spinoff
companies

Highly engaged community

200+

Mentor
community

200+

Events conducted /
year

High touch mentoring to S&T focused early stage startups

85%

Startups still active

90%+

Startups at concept, PoC or
prototype.

75%+

Startups with inventive
products

>100

Unique families of
patents filed

Unique Aspects

Entrepreneur inclusiveness and quality

30%

Women
Founders

85%

Founders with
higher degrees

Startup centric Infrastructure

50,000

Sq. ft of incubator space

9

Unique resource
Centers

Impactful funding opportunities

500Cr

Risk capital mobilized in
past 6 yrs

~1000 Cr

Revenue generated in
last 5 yrs

- Leading IP Facilitation center in India
- One-of-a-kind Regulatory Information facilitation Center
- State-of-the-art scientific and prototyping facilities

Success Stories

Venture Center incubated technologies making global impact.

<p>1st in India</p>  <p>NobleExchange</p> <p>City scale demo of organic waste conversion to BioCNG</p>	<p>1st in India</p>  <p>air</p> <p>CDSCO approved circulating tumor cell diagnostic solution</p>	<p>1st in World</p>  <p>JEEVTRONICS</p> <p>Dual powered hand cranked defibrillator</p>
<p>1st in India</p>  <p>INDIUS MEDICAL SOLUTIONS INC.</p> <p>US FDA Approved Spinal Implants</p>	<p>1st in India</p>  <p>Tridiagonal® Solutions</p> <p>compute innovate develop</p> <p>India's top process modeling and simulation experts</p>	<p>1st in India</p>  <p>GREEN PYRAMID BIOTECH PVT LTD</p> <p>Biosynthesized, biosurfactant based fruit and vegetable cleaning solution</p>
<p>1st in India</p>  <p>flytbase</p> <p>Software platform for commercial drones</p>	<p>1st in India</p>  <p>OmniBRx® BIOTECHNOLOGIES</p> <p>Disposable bioreactors for biopharma</p>	<p>1st in India</p>  <p>Mylab</p> <p>Discovery solutions Translating Discovery to Delivery</p> <p>CDSCO approved indigenous RT-PCR and antigen tests for COVID-19</p>

Support Mechanisms for Startups at Venture Center (5 min)

By, Soma Chatopadhyay

A faint, stylized graphic of two hands shaking is centered in the background, composed of thin, light gray lines.

**Venture Center provides comprehensive support to
promote early stage ideas, startups and entrepreneurs
through its diverse and impactful ecosystem.**

A Complete Ecosystem

Infra Facilities

Dedicated Labs, Offices,
Discussion & event rooms.

Mentoring



Funding

Fellowships, PoC and
Prototyping grants , Seed funds,
CSR

Information



Funding database

Plug and play labs

Hotlabs



Prototyping



Testing & Analysis



Regulatory



Tech Transfer & IP



Partnerships

Design & Prototyping, Trial
Manufacturing, Finance,
Legal, HR



National Programs



BIRAC
Regional
Bio-Innovation
Center

Example: Med Tech Facilities

Venture Center offers a whole suite of facilities for medtech product development on our campus.

Proof Of
concept

Prototyping

Trial
Manufacturing

Sterilization
and Packaging

Testing and
Regulatory



 Tinkering Lab



CLEANROOM
—
Venture Center

RIFC



Awareness & Training

Awareness

- ◆ Talks, Seminars
- ◆ Symposia
- ◆ Theme-Focused Campaigns

Training & workshops

- ◆ Business
- ◆ Technology management
- ◆ Regulations/ QMS
- ◆ Technical, hard skills
- ◆ Soft skills

Networking

- ◆ Entrepreneurs
- ◆ Investors and funders
- ◆ Industry sector

Specialty events

- ◆ Show cases
- ◆ Demo days

Mentoring & guidance

Mentoring focus

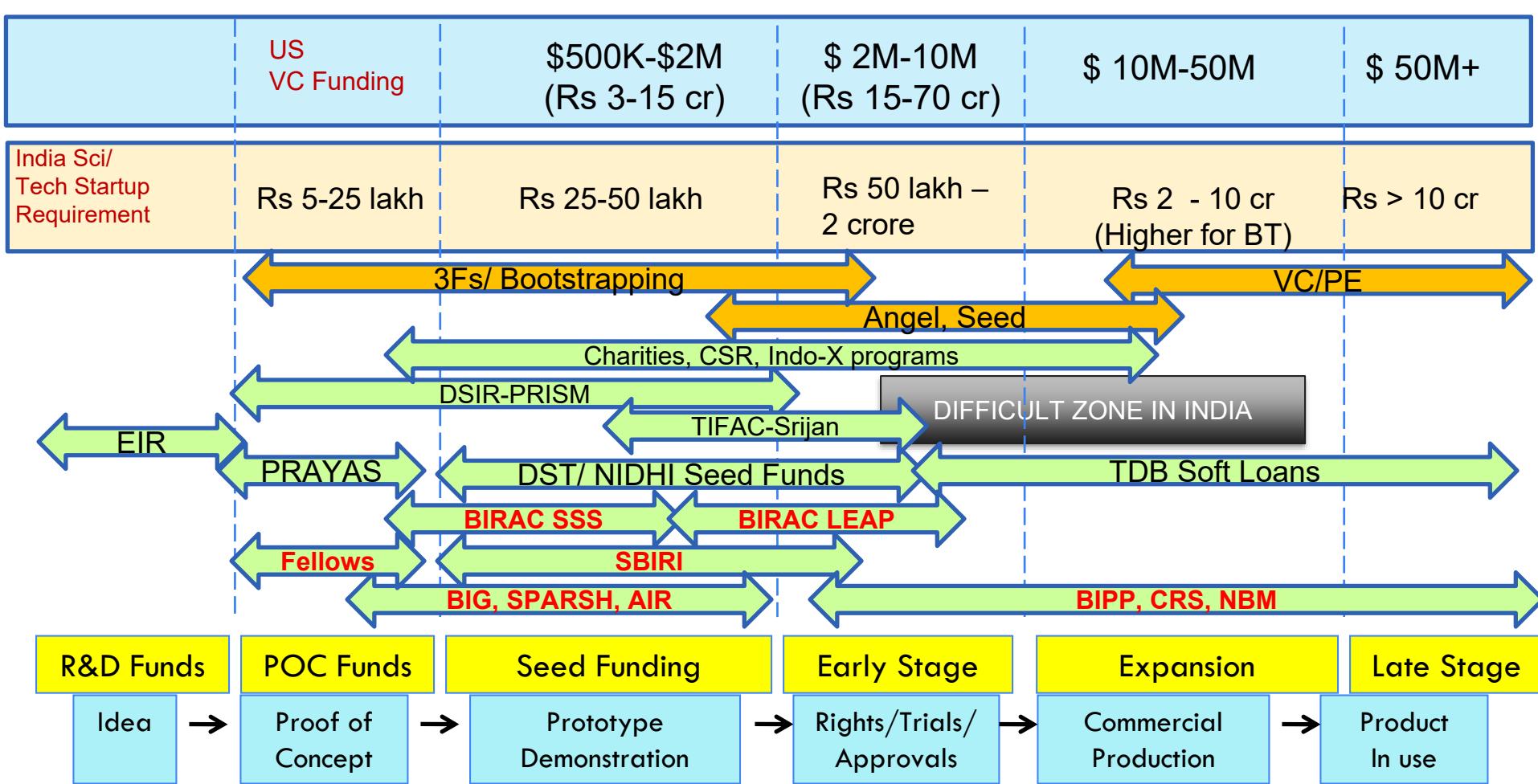
- ◆ Grant applications
- ◆ Investment readiness
- ◆ Technology strategy
- ◆ Regulatory roadmap
- ◆ Value proposition, PMF
- ◆ Designing de-risking studies
- ◆ Technical soundness

Levels of mentoring

- ◆ In-house mentors
- ◆ In-house specialists (IP/TT/ Regulation)
- ◆ Mentoring clinics
- ◆ Review and monitoring committees
- ◆ Specialist service providers
- ◆ Senior mentors

Funding & investment

- ◆ Fellowships for budding entrepreneurs
 - DST-NIDHI-EIR or BIRAC-SIIP
 - NCLRF TCI, RK Lagu Fellowship, Visvesvaraya Fellowship
- ◆ Grants
 - BIRAC Biotech Ignition Grant, SPARSH
 - NIDHI - Prayas
 - CSR funded pre-POC projects
- ◆ Seed investment
 - BIRAC SEED, BIRAC LEAP
 - DST-NIDHI-SSS



Source: funding.venturecenter.co.in

How to get started at Venture Center?

- ◆ Contact Soma Chattopadhyay (soma@venturecenter.co.in) and request a discussion meeting or mentoring session.
- ◆ Attend Venture Center events – talks, workshops, networking sessions etc. Use the videos available on Venture Center/BRBC/ AIM PRIME Youtube site. You can also attend events of entrepreneur networks in Pune like Startup Saturday, Startup Leadership Program, TiE etc
- ◆ Start by identifying a significant problem/ customer pain/ unmet need to solve.

Current & upcoming opportunities

- ◆ Events
- ◆ Fellowships
- ◆ Funding calls

Thank you.

Soma Chattopadhyay

Head, Incubation & Mentoring, Venture Center

soma@venturecenter.co.in

+91-9172232215

How to spot ideas for startups (5 min)

By, Dr Vinita Panchanadikar

Interested? How to get started (5 min)

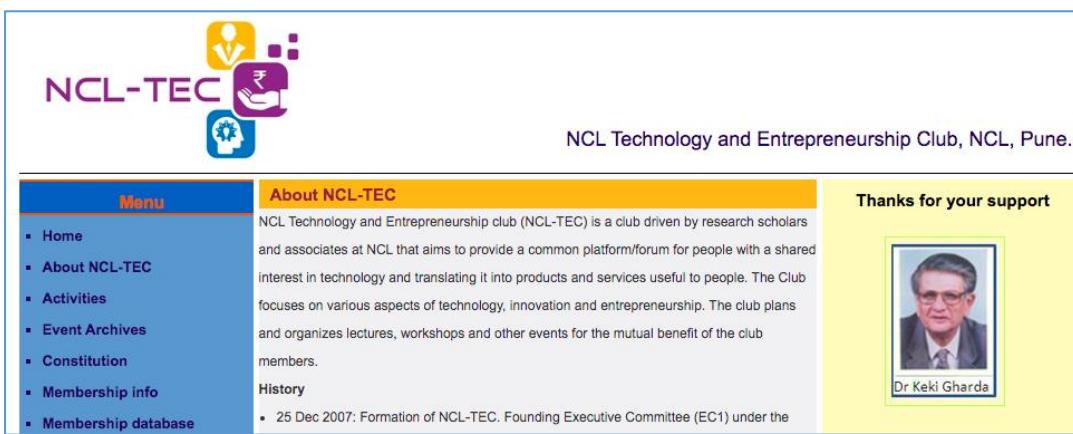
By, Dr Vijay Modepalli

Join -- NCL Technology & Entrepreneurship Club

Website: <https://venturecenter.co.in/ncltec/>

Blog: <http://ncltec.blogspot.com/>

LinkedIn: <https://www.linkedin.com/in/ncl-tec-73300118b/>



NCL Technology and Entrepreneurship Club, NCL, Pune.

Menu

- Home
- About NCL-TEC
- Activities
- Event Archives
- Constitution
- Membership info
- Membership database

About NCL-TEC

NCL Technology and Entrepreneurship club (NCL-TEC) is a club driven by research scholars and associates at NCL that aims to provide a common platform/forum for people with a shared interest in technology and translating it into products and services useful to people. The Club focuses on various aspects of technology, innovation and entrepreneurship. The club plans and organizes lectures, workshops and other events for the mutual benefit of the club members.

History

- 26 Dec 2007: Formation of NCL-TEC. Founding Executive Committee (EC1) under the

Thanks for your support



Dr Keki Gharda

NCL-TEC is a club driven by research scholars and associates at NCL, Pune that aims to provide a common platform for people with a shared interest in technology and translating it into products and services. The Club plans to focus on various aspects of technology, innovation and entrepreneurship.

Call:

Students interested in joining the Executive Committee of the Club and re-energizing it, can contact Dr Vijay Modepalli

Email:

v.modepalli@ncl.res.in

X 3265

Join -- NCL Technology & Entrepreneurship Club

- ◆ Last committee: 2019
- ◆ Activities chosen by the NCL-TEC to focus on:
 - Workshop on Professional Development
 - “Research Scholar Profile” Booklets
 - Talks by Senior Industry Professionals on Industrial Research Opportunities
 - Visits to Industry Sites
 - Attend/ participate in business plan competitions



NCL-TEC presents
One Day Workshop on
Professional Development

Dr. Magesh Nandagopal
Scientist and Technology Manager
NCL Innovations

19th Jan 2019 | Training room, Venture Center

For: NCL-TEC members | Masters/PhD Students | Project Fellows

Topics to be covered

Planning for career growth | Communication skills
Resume writing | Interviewing
Working in teams | Leadership
Post-Doc vs Industry

Limited Seats | Register @ <http://www.venturcenter.org/WorkshopDetails.aspx>

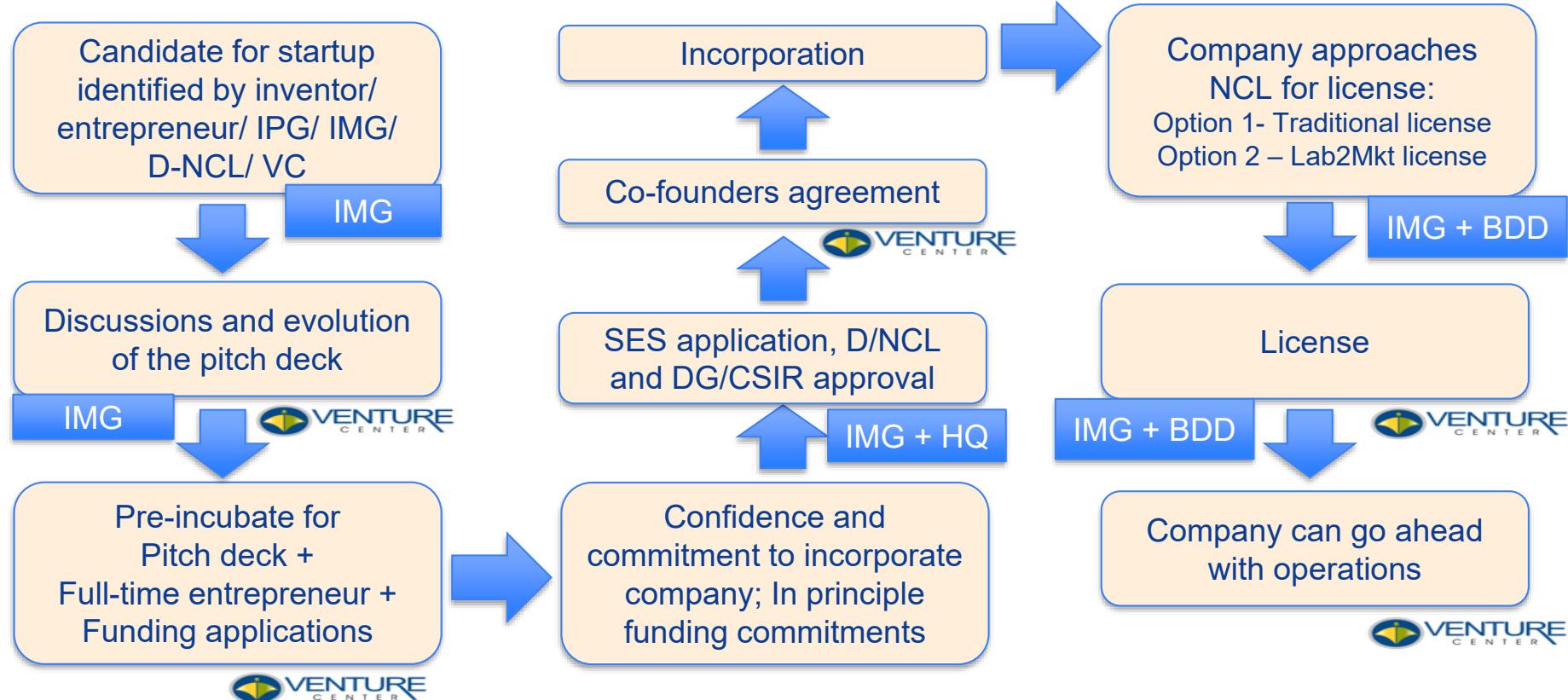
NCL **NCL INNOVATIONS** **VENTURE CENTER**

For queries contact: Ravinder Ravinder@iitb.ac.in

*Refundable fee deposit of Rs. 200

Free Workshop
Other facilities including
refreshments included
Lunch and snacks included

Process Flow



Contact information

Vijayakumar Modepalli, Ph.D.

Scientist, Innovation Management Group
NCL Innovations, CSIR-NCL
Dr. Homi Bhabha Road, Pashan,
Pune 411008, Maharashtra, India

Tel: +91-20-2590-3265
Email: v.modepalli@ncl.res.in