

# Launching Startups from CSIR/NCL



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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 Mediproducs
  - 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](http://www.techex.in)

Technical queries:  
Vidula Walimbe | [vidula@ipface.org](mailto:vidula@ipface.org)

FREE talk. Registration is mandatory!!  
Sessions will be conducted on an 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 Mediproducs 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 Mediproducs Pvt. Ltd.



Swati Ranade  
Project Manager: VIVIRA Process Technologies Pvt Ltd.



Sachin Dubey  
Cofounder and CEO of Module Innovations

**Perspectives and comments (5 min)**

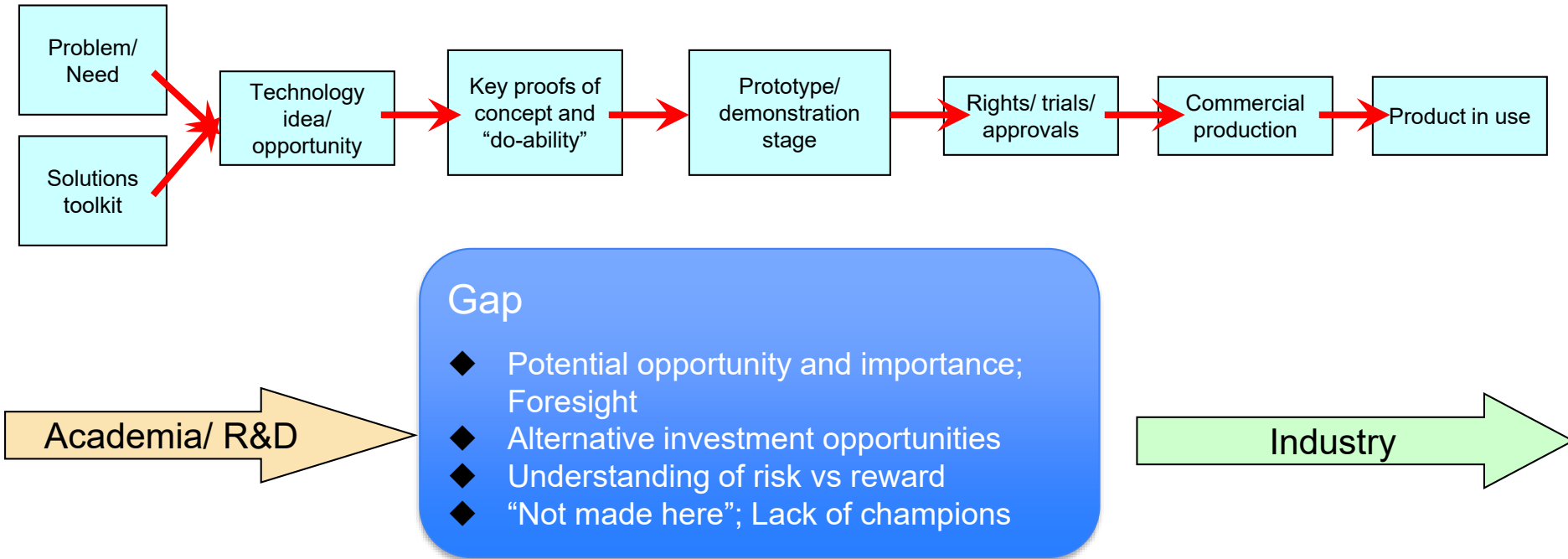
**By Dr AK Lele**

# **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



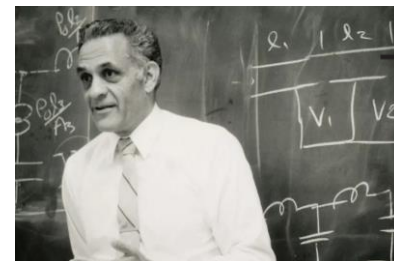
**Ugur Sahin & Ozlem Tureci**  
mRNA Vaccine for COVID19  
BioNTech



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

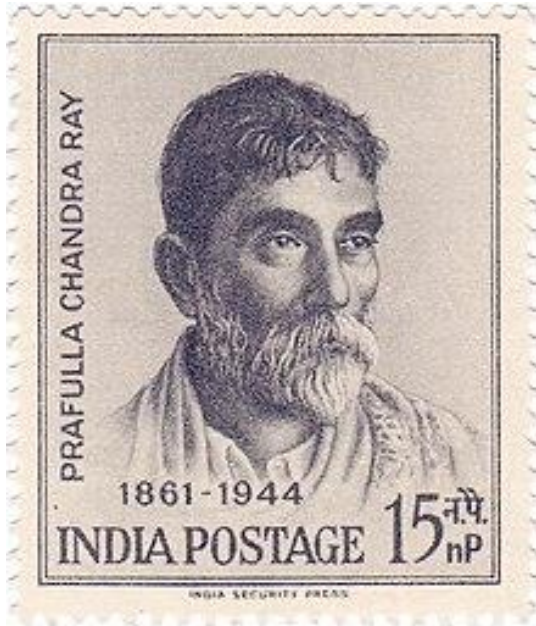


**Richard Friend, Cambridge**  
1000 publications. 20 patents  
3 startups



**Amar Bose, MIT**  
Bose Corporation

# Tradition of scientific entrepreneurship





বেঙ্গল কেমিক্যালস এন্ড  
ফার্মাসিউটিক্যালস লিমিটেড  
(কারত সরকারের একটি শাখা)

BENGAL CHEMICALS & PHARMACEUTICALS  
বঙ্গাল ঔষিক্যকর্ম প্রান্ত পরিচালনা



**Bengal Chemicals & Pharmaceuticals Limited**  
*Salutes its founder*  
**Acharya Prafulla Ch. Ray**  
*Father of Indian Chemistry*  
*on his 157<sup>th</sup> Birth Anniversary*

6ftX6ft

Pheneol    White Tiger    Naphthalene    Cantharidine    Eutheria

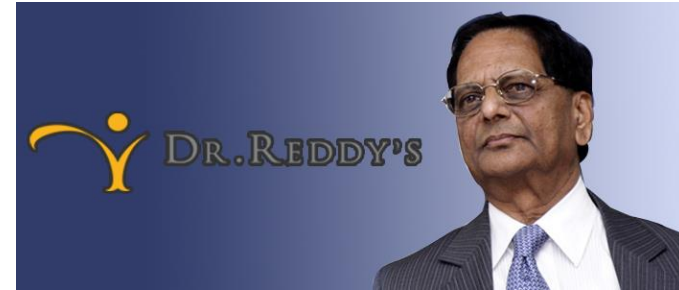
*Hygiene and healthcare for all*

**Bengal Chemicals & Pharmaceuticals Ltd.**  
 (A Govt. of India Enterprise)

Registered Office: 6, Ganesh Chunder Avenue, Kolkata- 700 013. Corporate Identification No.: U24299WB1981G01033489,  
 E-mail: secretariat@bengalchemicals.co.in / bcplmdsecretariat@gmail.com, Website: www.bengalchemicals.co.in

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



# Science-based Deep Tech Startups

## 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



भारत सरकार

विज्ञान और प्रौद्योगिकी मंत्रालय  
वैज्ञानिक और औद्योगिक अनुसंधान विभाग  
टेक्नोलॉजी भवन, नया महरौली मार्ग,  
नई दिल्ली - 110 016

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

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

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.

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



ब्लॉक-2/7 वां तल, सी० जी० ओ० कम्प्लेक्स  
लोदी रोड, नई दिल्ली-110003  
Block-2, 7th Floor C.G.O. Complex  
Lodi Road, New Delhi-110003

No. BT/NBDB/13/01/2014

Dated: 25<sup>th</sup> 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

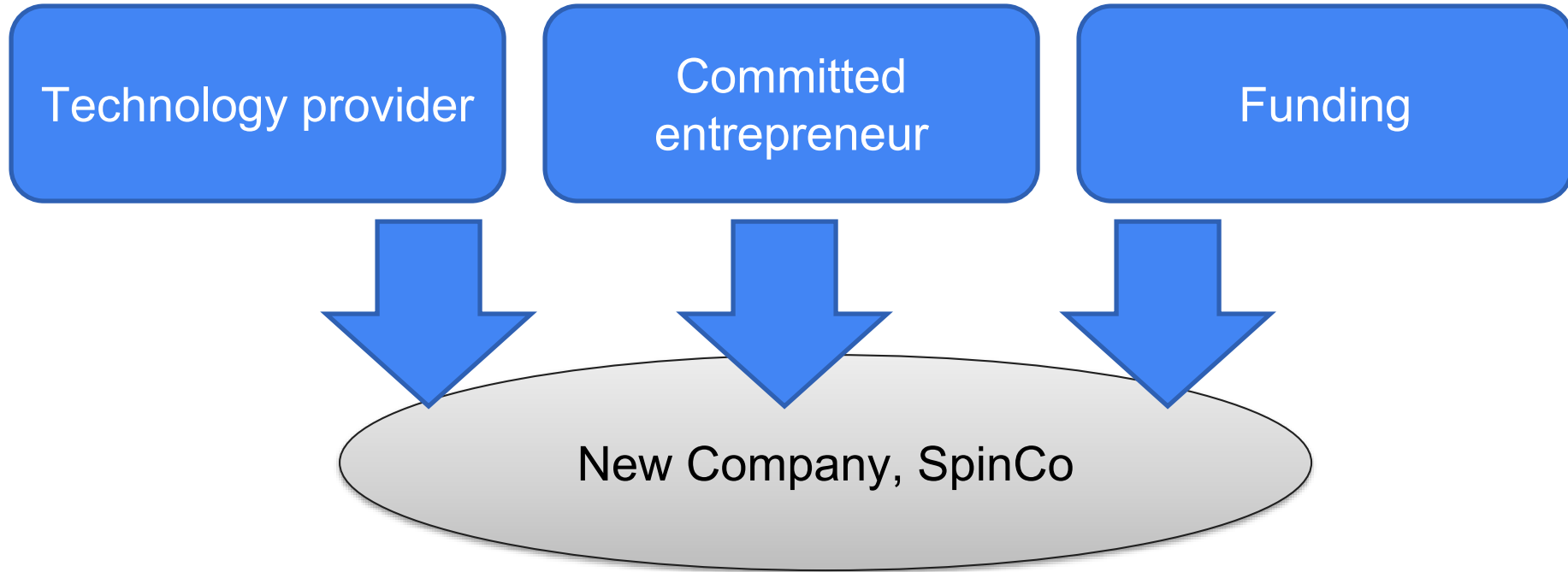
Incubators and mobility of researchers

# Technologies suitable for new ventures

- Some thumb rules -

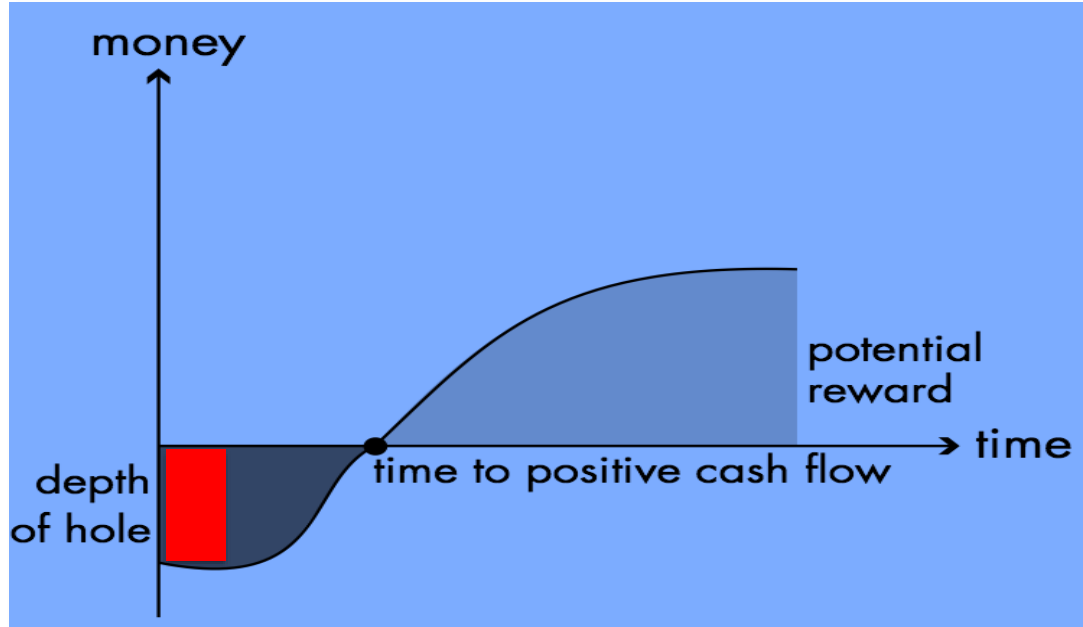
- Opportunity of an uncertain future. **Foresight led.** If foresight is right, size and growth of potential market is attractive enough to justify the risk.
- Key ingredients: Committed entrepreneur. Funding/ investment opportunities.
- (In the mind of the entrepreneur) The products/ services based 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





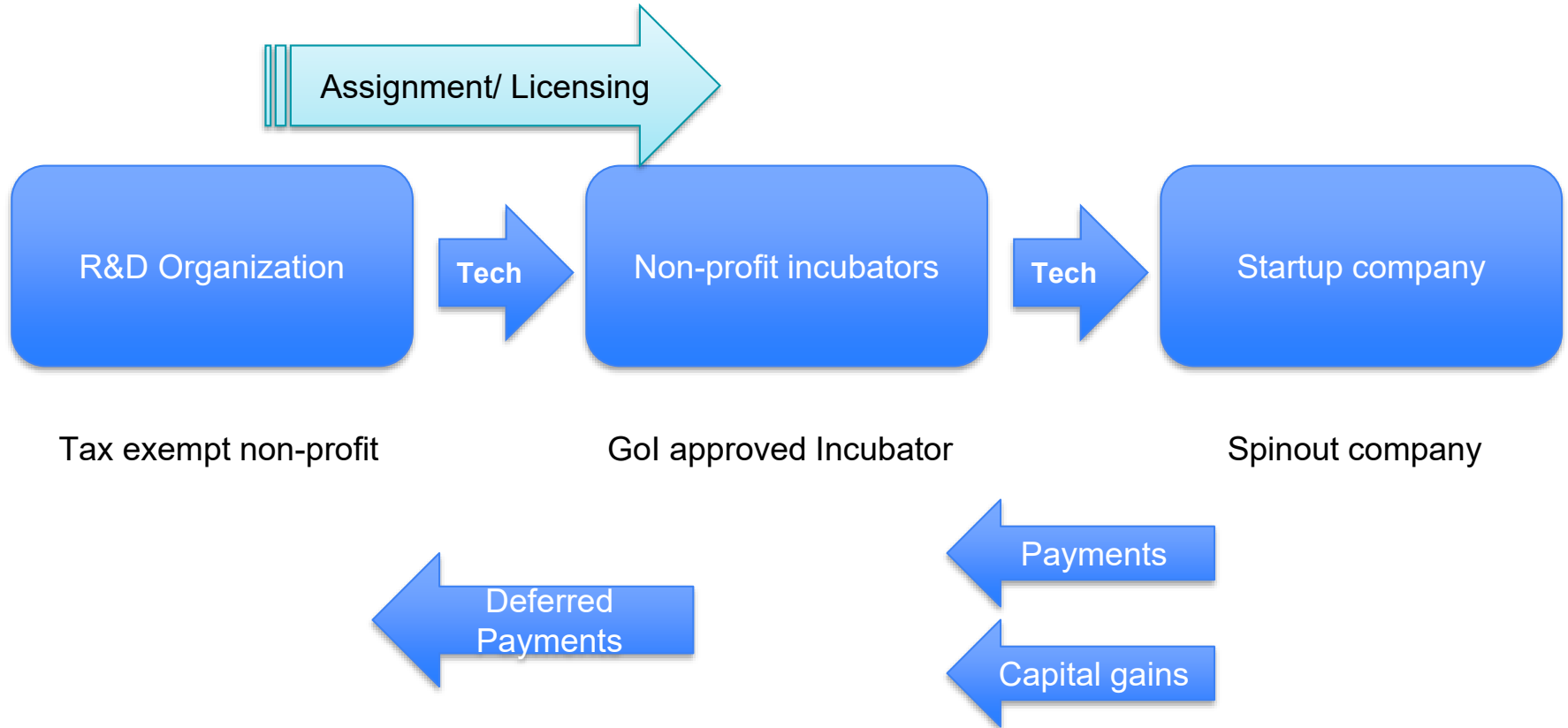
# The Role of Grants



- ◆ 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"> <li>Orthocrafts</li> <li>Biolmed/ Serigen</li> <li>Genrich</li> <li>Abhiruchi</li> <li>Annweshan</li> <li>Barefeet</li> <li>Zeroplast</li> <li>Module</li> </ul>	<ul style="list-style-type: none"> <li>Vivira</li> </ul>	<ul style="list-style-type: none"> <li>Green Pyramid</li> <li>Fluorogent</li> </ul>	<ul style="list-style-type: none"> <li>Rechargion Energy Pvt.Ltd – <b>SES Approved and start-up created</b></li> <li>Abhiveera – <b>SES Approved</b></li> </ul>	<ul style="list-style-type: none"> <li>AMPS</li> </ul>



# 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. Kadiravan S	Zeroplast
Dr. J. P. Jog	Module
Dr. Sreekumar Kurangot	AMPS
Dr. Manjusha Shelke	Rechargion
Dr. Raja Thirumalaiswamy	Abiveera



GENRICH  
Membranes Pvt. Ltd.





# Current status

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



**Selected startups from CSIR/NCL**

**Moderator: Dr V Premnath**

# Glimpses of selected startups

- ◆ Introduction to speakers
- ◆ Serigen Mediproducts: Tissue engineering will 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

## Impactful funding opportunities

**500Cr**

Risk capital mobilized in  
past 6 yrs

**~1000 Cr**

Revenue generated in  
last 5 yrs

## Startup centric Infrastructure

**50,000**

Sq. ft of incubator space

**9**

Unique resource  
Centers

- 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.

1st in India



City scale demo of organic waste conversion to BioCNG

1st in India



CDSCO approved circulating tumor cell diagnostic solution

1st in World



Dual powered hand cranked defibrillator

1st in India



US FDA Approved Spinal Implants

1st in India



India's top process modeling and simulation experts

1st in India



Biosynthesized, biosurfactant based fruit and vegetable cleaning solution

1st in India



Software platform for commercial drones

1st in India



Disposable bioreactors for biopharma

1st in India



CDSCO approved indigenous RT-PCR and antigen tests for COVID-19

# **Support Mechanisms for Startups at Venture Center (5 min)**

**By, Soma Chatopadhyay**



**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

Tinkering Lab



## Testing & Analysis



## Regulatory



## Tech Transfer & IP



## Partnerships

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

## National Programs



# 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



# Awareness & Training

## Awareness

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

## Networking

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

## Training & workshops

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

## 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

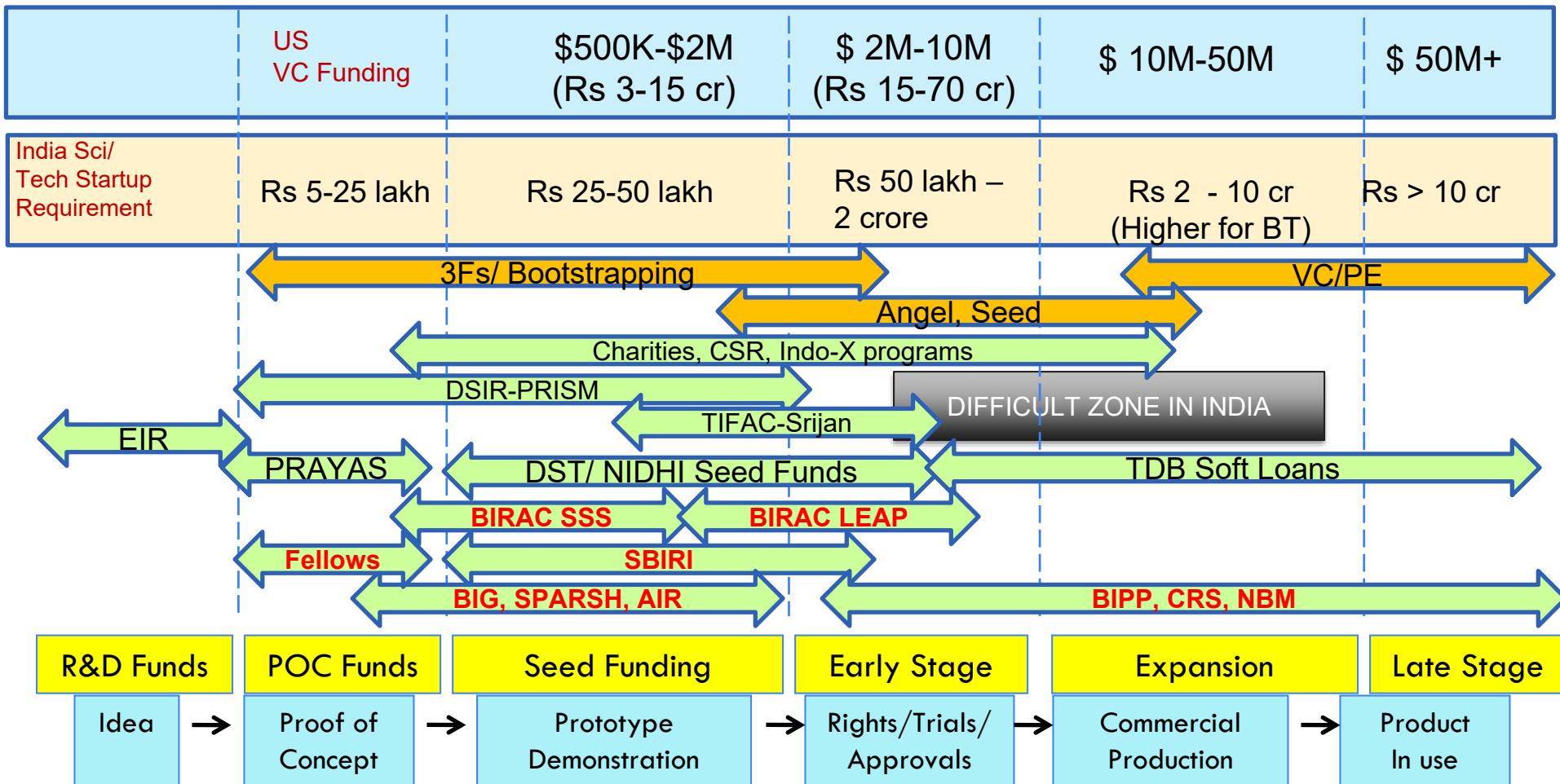
## Levels of mentoring

- ◆ 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](http://funding.venturecenter.co.in)

# How to get started at Venture Center?

- ◆ Contact Soma Chattopadhyay ([soma@venturecenter.co.in](mailto:soma@venturecenter.co.in)) and request a discussion meeting or mentoring session.
- ◆ Attend Venture Center events – talks, workshops, networking sessions etc. Use the vidoes availble 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](mailto: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-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](mailto: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**

Free Workshop\*  
One full day including  
exciting group activities  
Lunch and snacks included  
\*Festival fee deposit of Rs. 100

presents  
One Day Workshop  
on  
**Professional Development**  
Dr. Magesh Nandagopal  
Scientist and Technology Manager  
NCL Innovations  
19<sup>th</sup> 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

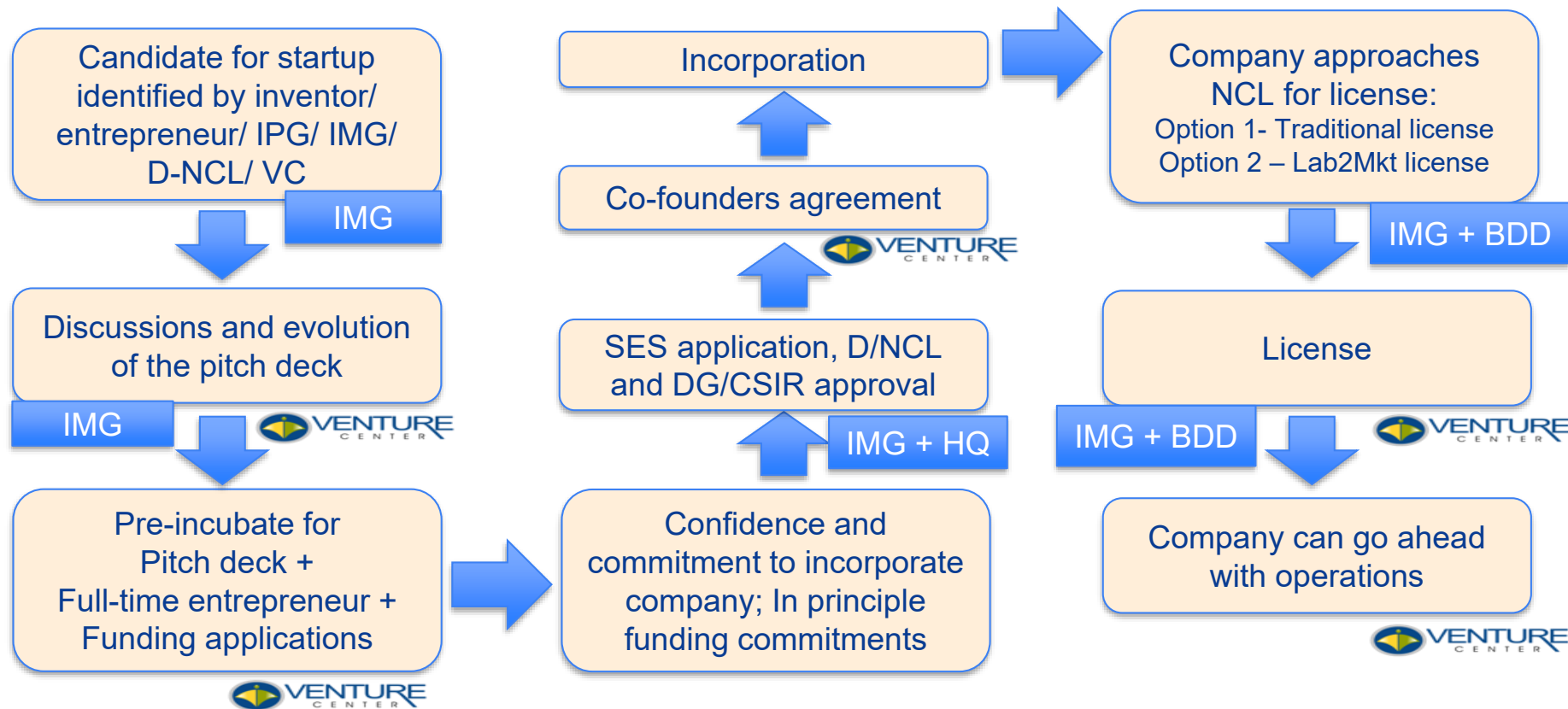
Limited Seats | Register @ [tecm@nclchem.com](mailto:tecm@nclchem.com) or [tecm@nclchem.com](mailto:tecm@nclchem.com)

For queries contact: Kameshwar (9422098700/9422098701)



# Process Flow



# Contact information

**Vijayakumar Modepalli, Ph.D.**

Scientist, Innovation Management Group  
NCL Innovations, CSIR-NCL  
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