

# Commercialisation Strategy and Challenges

## From Lab Prototype to Startup

David Toh

Director, CTO NTUitive

Nanyang Technological University

# NTUitive Introduction

## NIEO

- IP Management
- Technology Commercialisation
- Research Collaboration



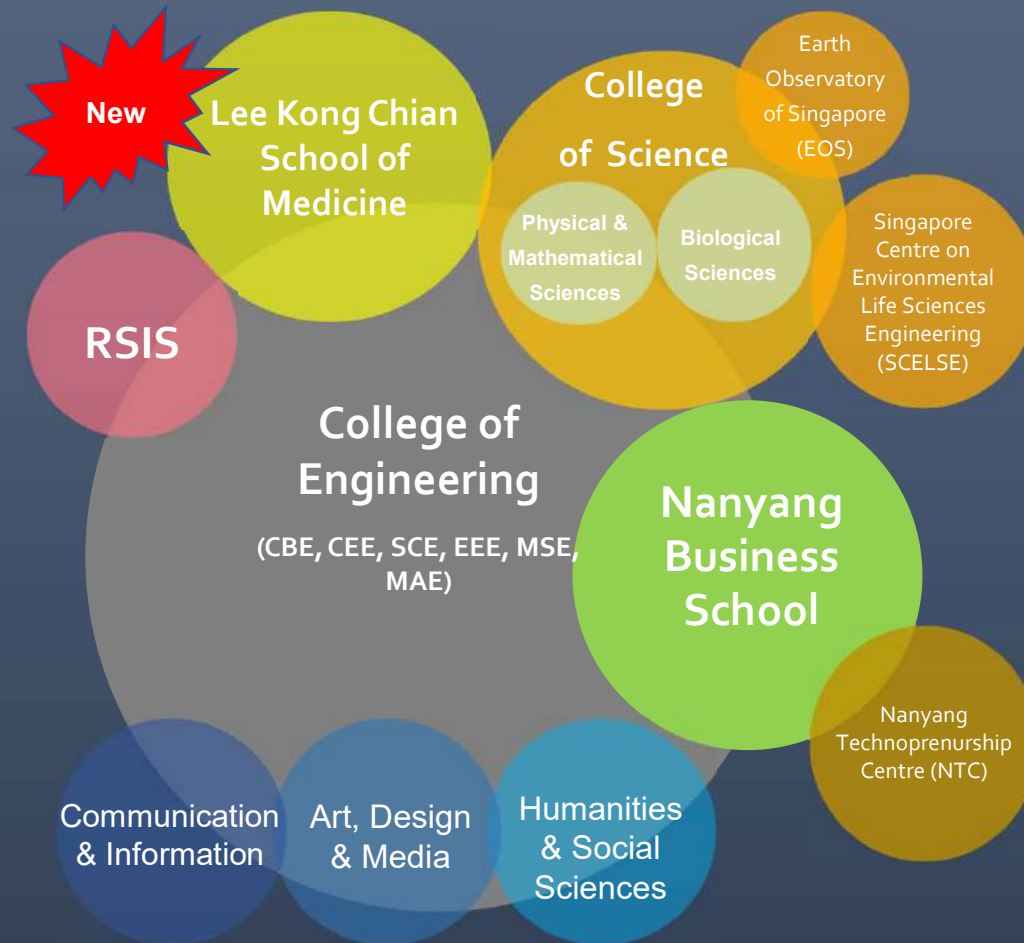
- Start-up Incubation
- I&E Ecosystem Development



- Takes on functions of NIEO and NTUV
- Private entity provides greater flexibility to respond to industry demands
- BoD comprises NTU and industry members for accountability

# Nanyang Technological University

- World's biggest Engineering College
- Research-intensive and interdisciplinary
- 33,500 students
- 3850 faculty and research staff



# Key Activities



**Collaborative research**



**Technology licensing**



**Spinoffs and startups**

# University Commercialisation Gap Challenge

## University research



**TRL level: Low**

Lab scale production  
No imputed capital cost  
No assumed yield loss

## Applied research

Technology and  
financial de-risking  
required

How to functionalise?  
What is the application?  
Competing solutions?  
Can technology scale?

## Product research



**TRL level: High**

Productization  
Capital and R&D cost  
Yield losses

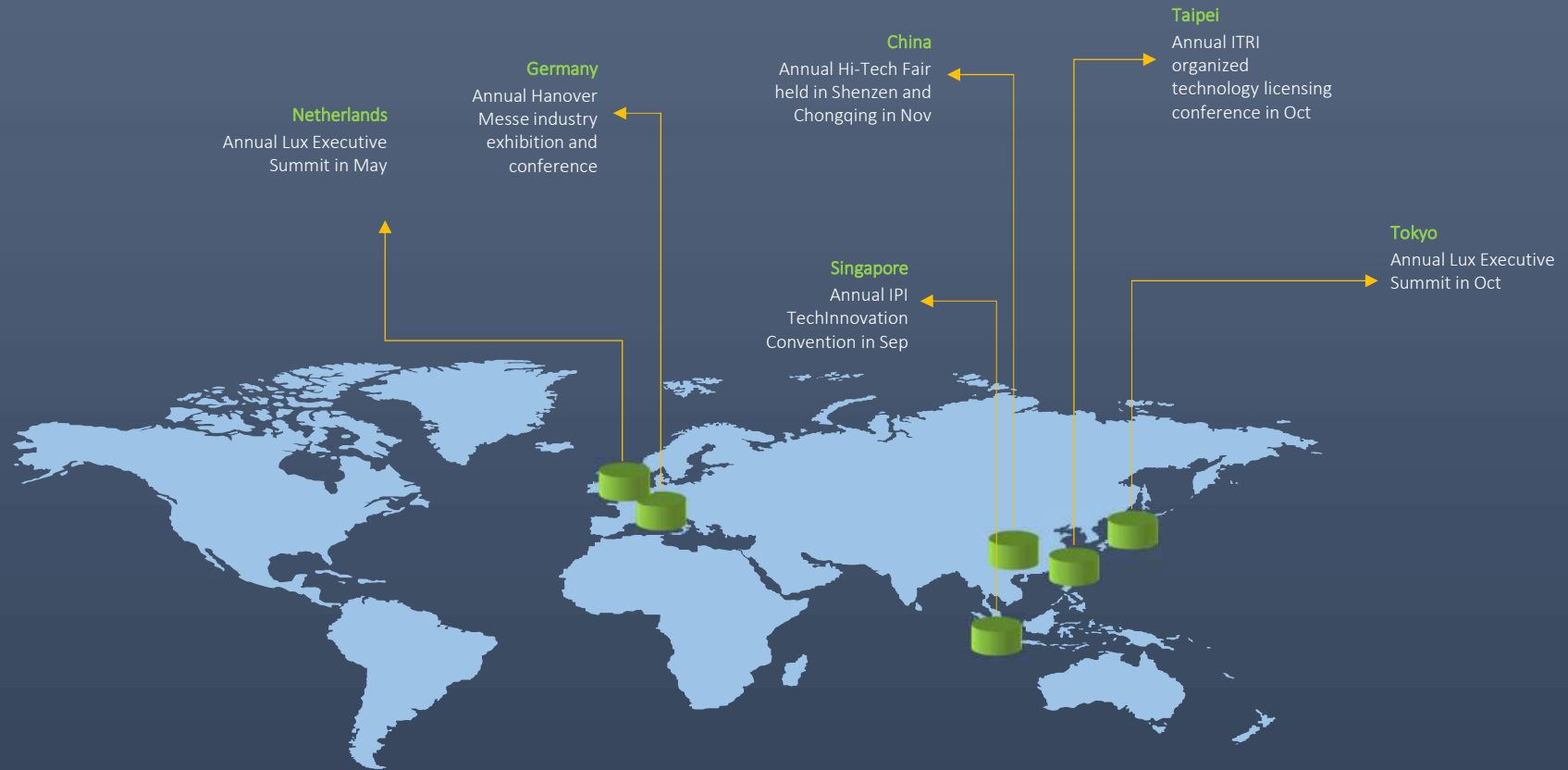


NTUitive role

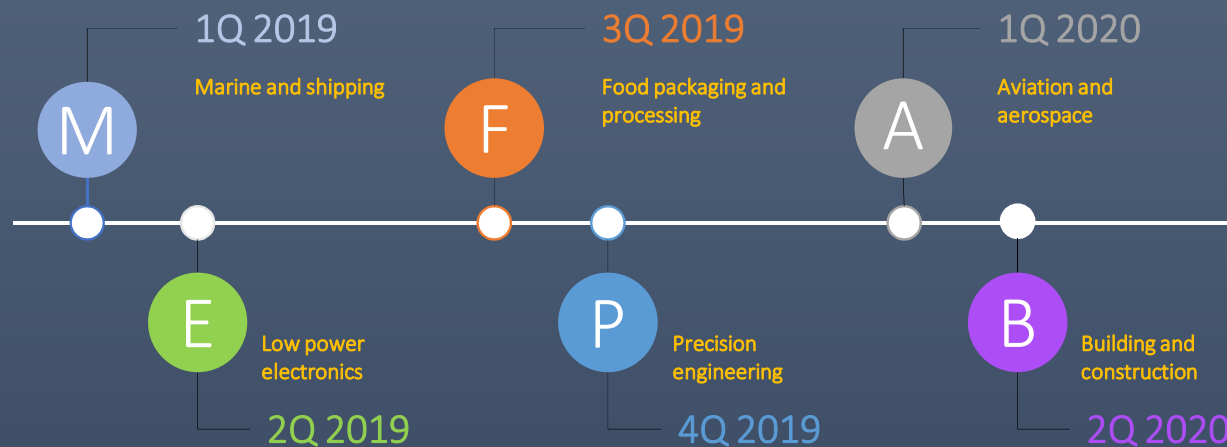
# Licensing Strategy

- Friction-free licensing
- Simple standard term sheets
- Royalty free for non-exclusive evaluations
- Pay as you scale royalties

# International Outreach to Promote Licensing



# Domestic Initiatives to Promote Licensing



## Industry Innovation Days

Half day seminar format held off campus including networking lunch.

Mix of speakers from industry and key industry stakeholders to articulate industry challenges.

Short pitching sessions from faculty members and relevant startups.

Focus on 30-50 participants mostly from local SMEs and LLEs.

Strengthen industry academia partnership to boost capabilities of local industries.



# Startup Ecosystem Support

## Training



Lean Launchpad Training

Startup Bootcamps

NTU-Stanford SPARK

Business Model Canvas

## Facilities



Open Innovation Labs

Incubation Space

Mozilla Open Source Centre

Hot Desking

## Networking



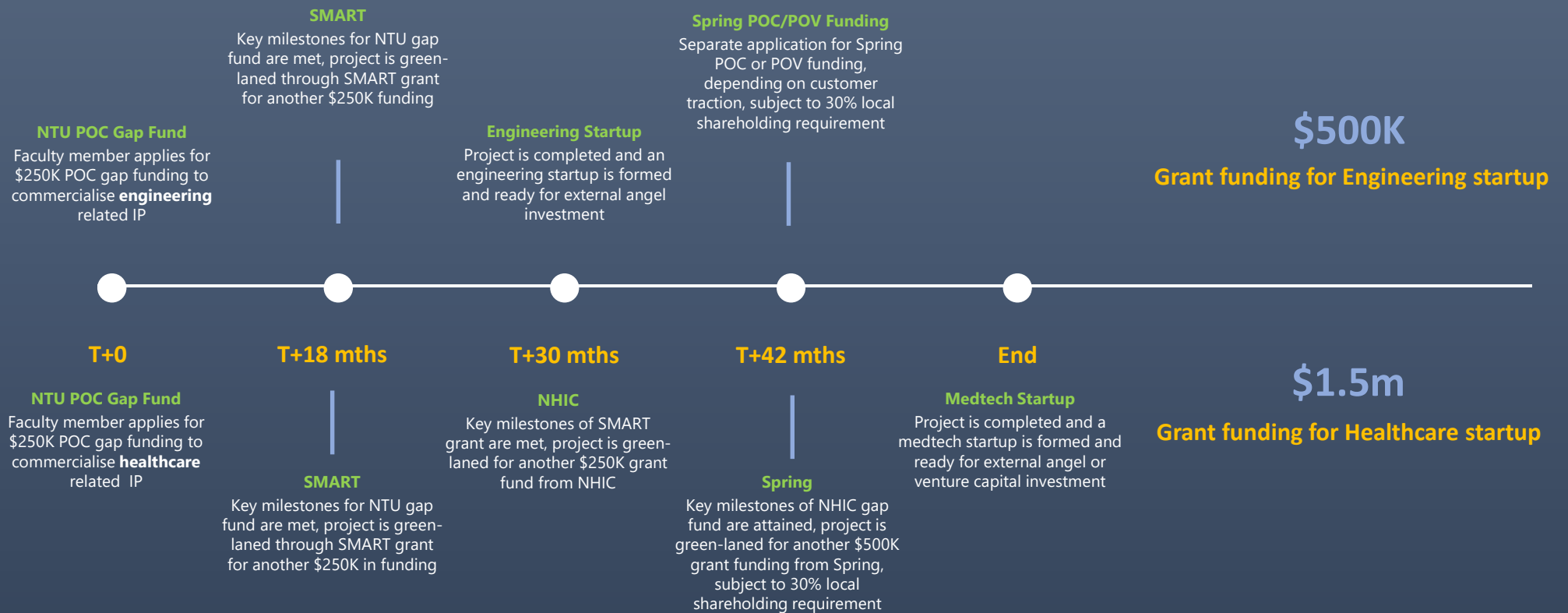
Distinguished Speaker Events

Startup Conferences

Hackathons/Makethons

Makan Networking Nights

# New Singapore-MIT Alliance Research Initiative



# NTU Strategic Research Innovation Fund

- \$10m fund to catalyze and support the best faculty spinoffs
- Addresses funding gap for engineering and medical spinoffs
- Investment Committee of industry veterans and VCs
- Up to \$500K in Convertible Note investment
- 16 companies approved to date

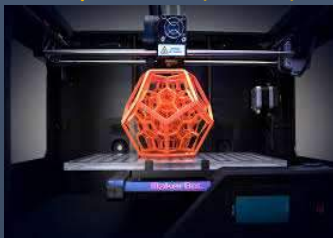
# National Innovation Programs



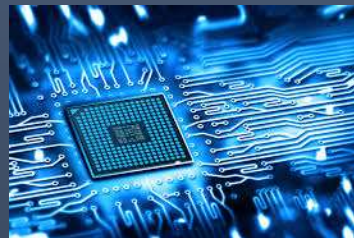
Water and Gas Membrane Separation (START)



Lux Photonics



3D Printing (NAMIC)



Spintronics

- Private – Public consortiums to commercialise research from NRF research grants
- Combines IPs generated from the three local universities in Singapore
- Active local and international industry member company participation
- 3 year royalty free evaluation licenses for industry members

# Summary of FY17/18 Performance

**74**

Licenses

**30**

Startups formed

**\$2.5m**

NRF POC  
commercialisation  
grants

**356**

Technology invention  
disclosures

**15**

Faculty spin-offs

**>5000**

Students engaged in  
hackathons,  
bootcamps, and  
workshop seminars