

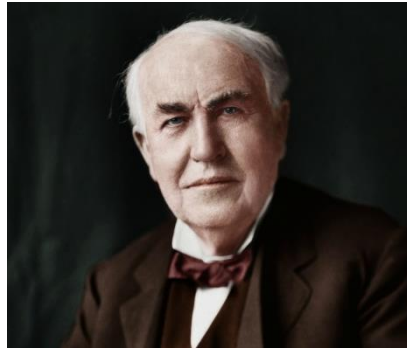
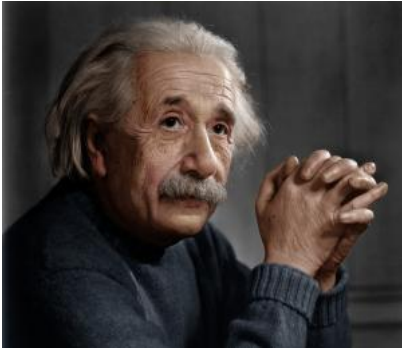
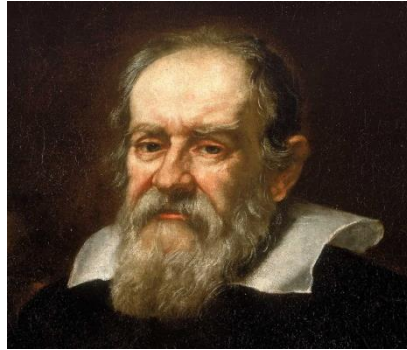
Can Doctors Innovate?

Building an Ecosystem for Medical Innovation in a Heavily
Clinical-biased Healthcare Environment

Prof London Lucien Ooi

MBBS, MD, FCSHK(Hon), FRCSEd, FRCSG

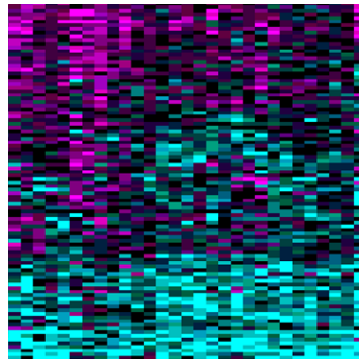
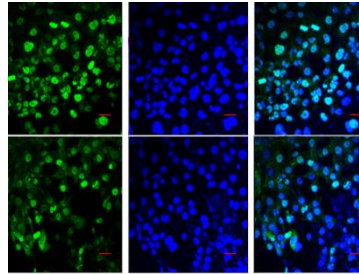
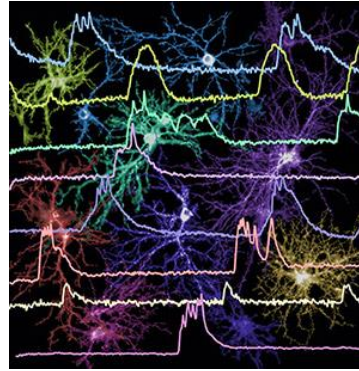
Innovators



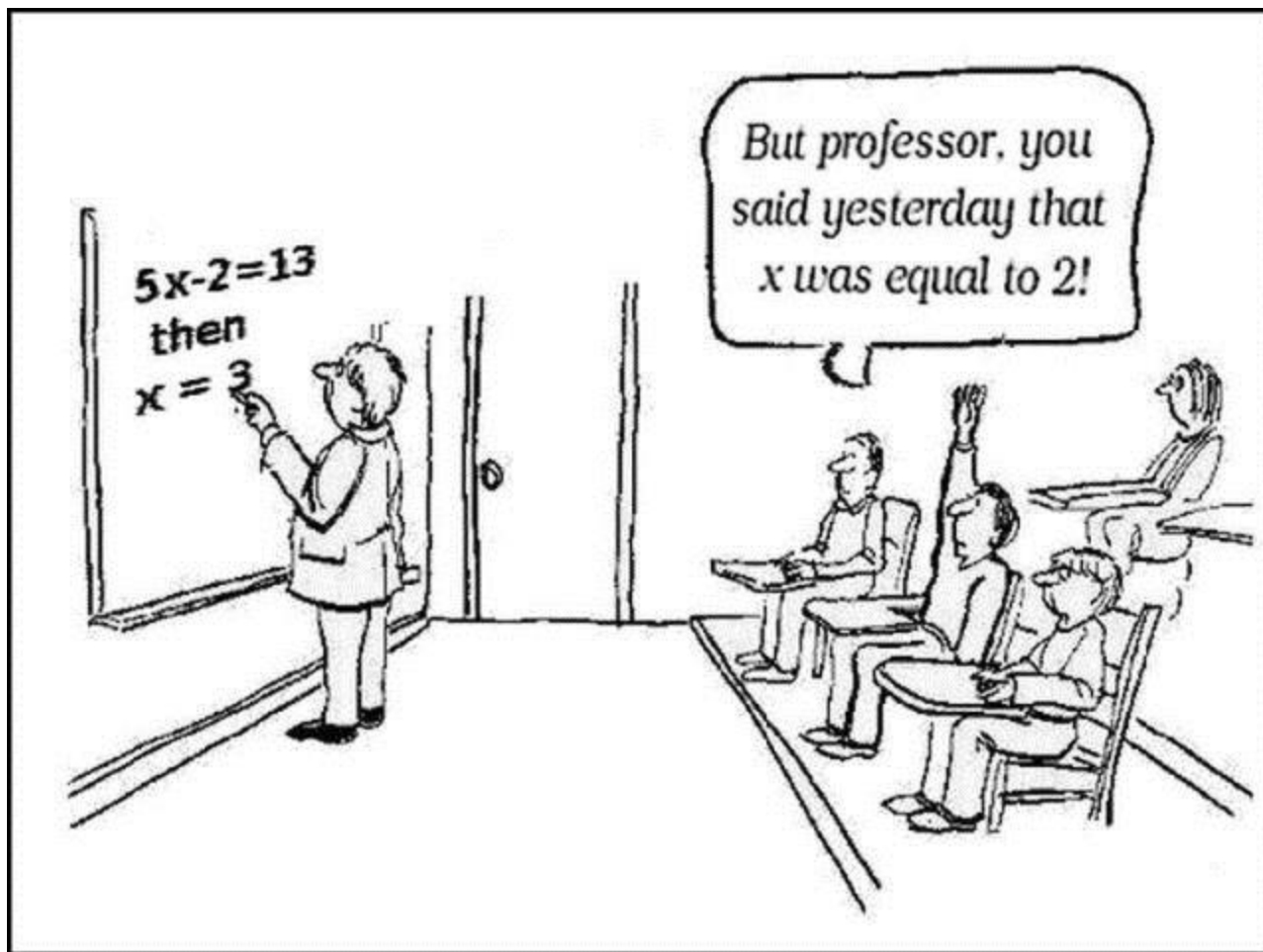
Highly intelligent
Non conformist
See beyond patterns
Think out of box
Risk takers
Colourful
Eccentric
Driven

Doctors

Highly intelligent
Conformist
See patterns
Think logically
Risk adverse
“Boring”
Eccentric
Driven



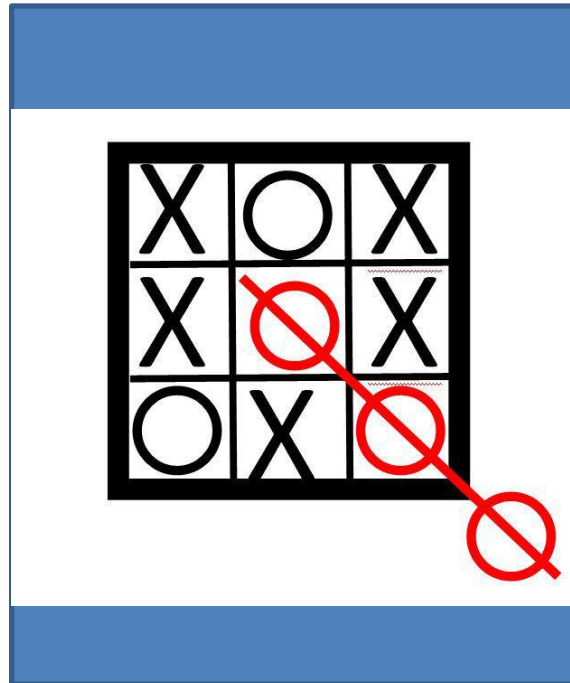
Highly intelligent
Non conformist
See beyond patterns
Think out of box
Risk takers
Colourful
Eccentric
Driven



Critical Elements



See Beyond
Patterns



Think Out of
the Box



Take Risks

Hurdles & Impediments



Busy Clinical
Workload



Lack of
Support

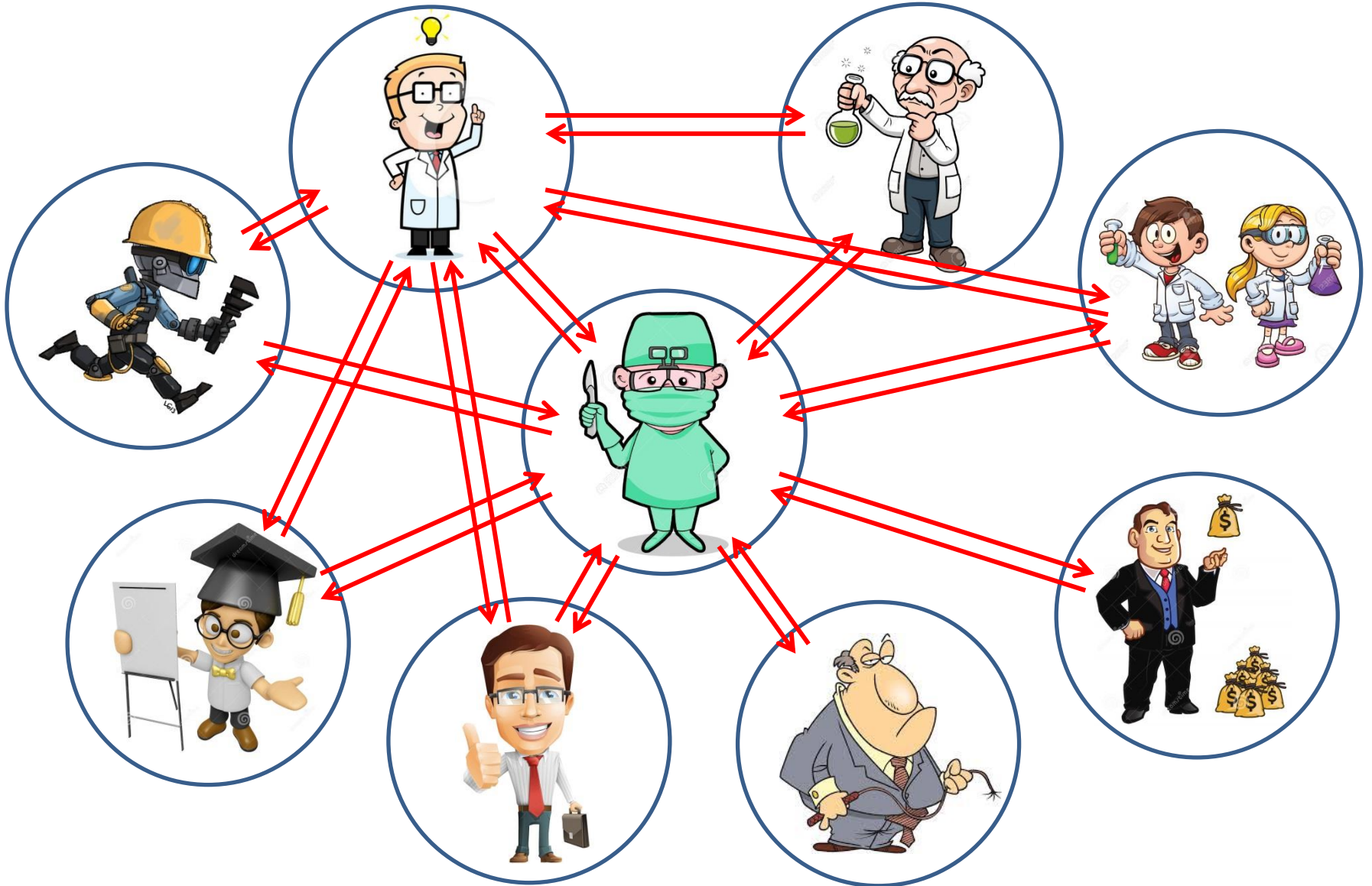


Funding
Priorities





Career
Development

Creating the Eco-System

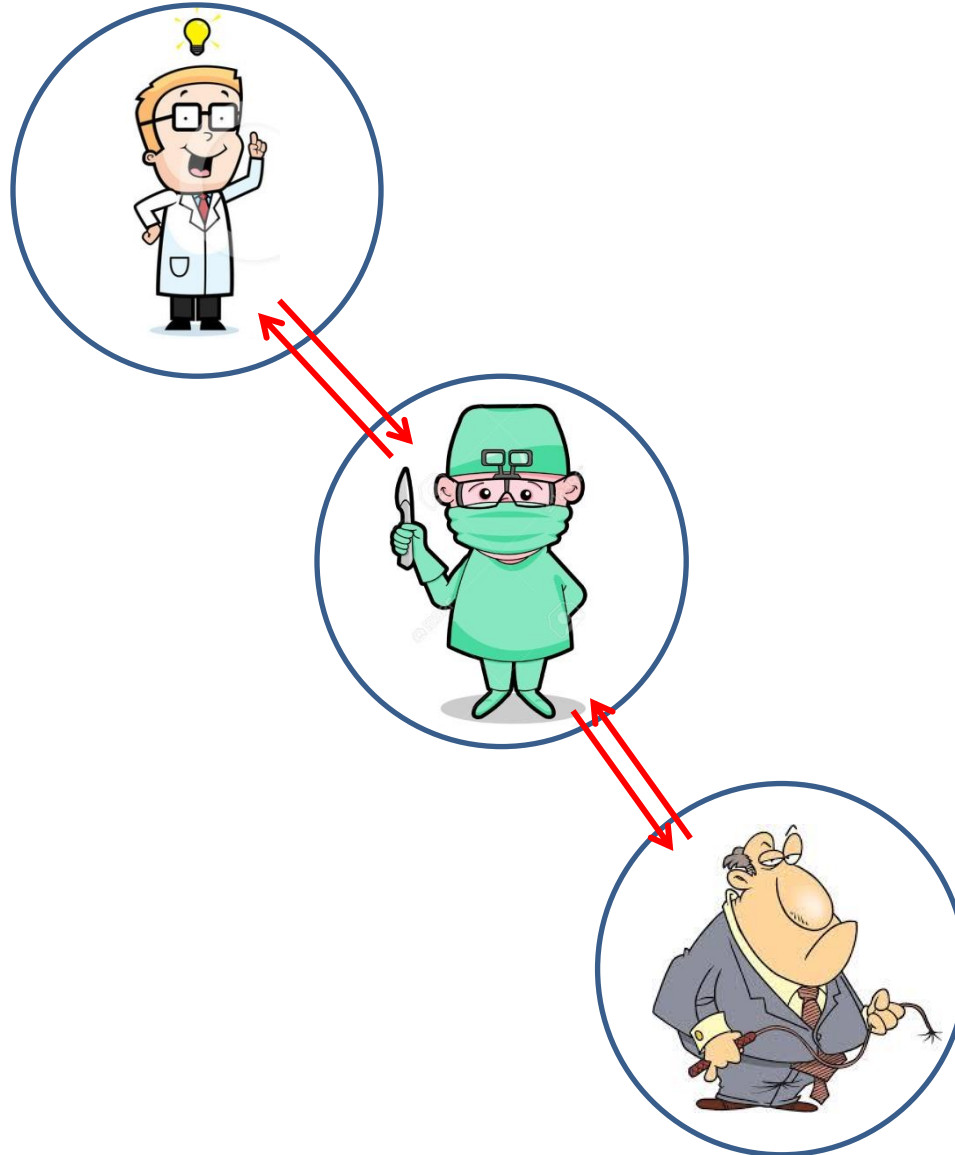


SingHealth Surgery ACP

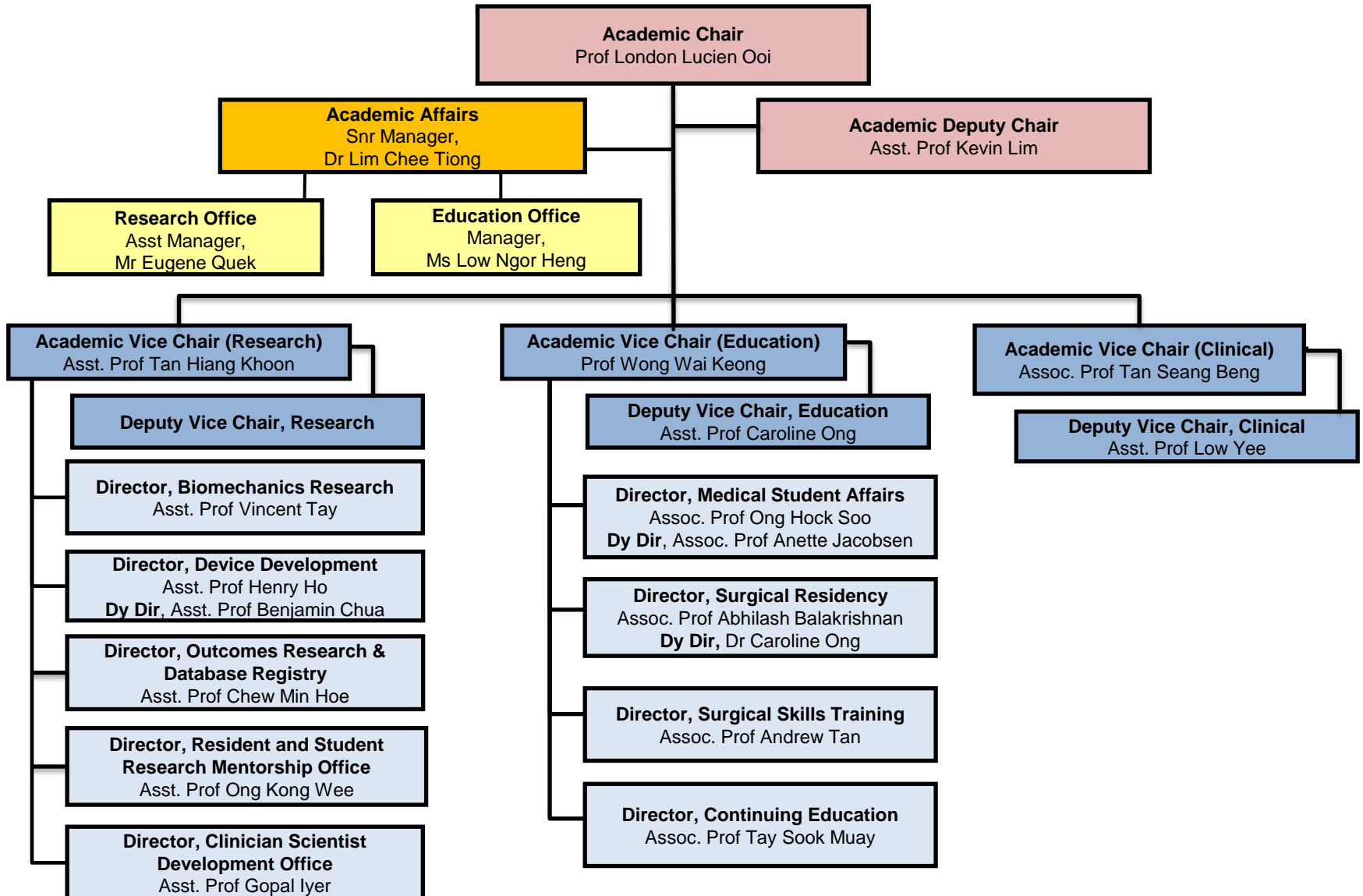
| SGH Departments Division of Surgery  | | KKH Departments Division of Surgery  | |
|--|---------------------|--|--------------------|
| Anaesthesia | GS (Upper GI) | Paeds Anaesthesia | Ophthalmology Svc |
| Oral & Maxillofacial | GS (HPB&Transplant) | Paeds Surgery | Dental Svc |
| Neurosurgery | GS (Vascular) | Orthopaedics Surgery | Neurosurgery Svc |
| Cardiothoracic | GS (Head&Neck) | ENT | Cardiothoracic Svc |
| OBGYN | GS (Breast) | Breast | Colorectal Svc |
| Urology | Hand | Plastics & Recon | |
| ENT | Plastics & Recon | | |
| Colorectal | Orthopaedics | | |

- 16 (SGH) and 11 (KKH) surgical departments and services
- 30% of SOC attendances in Singapore
- 31% of surgeries in Singapore

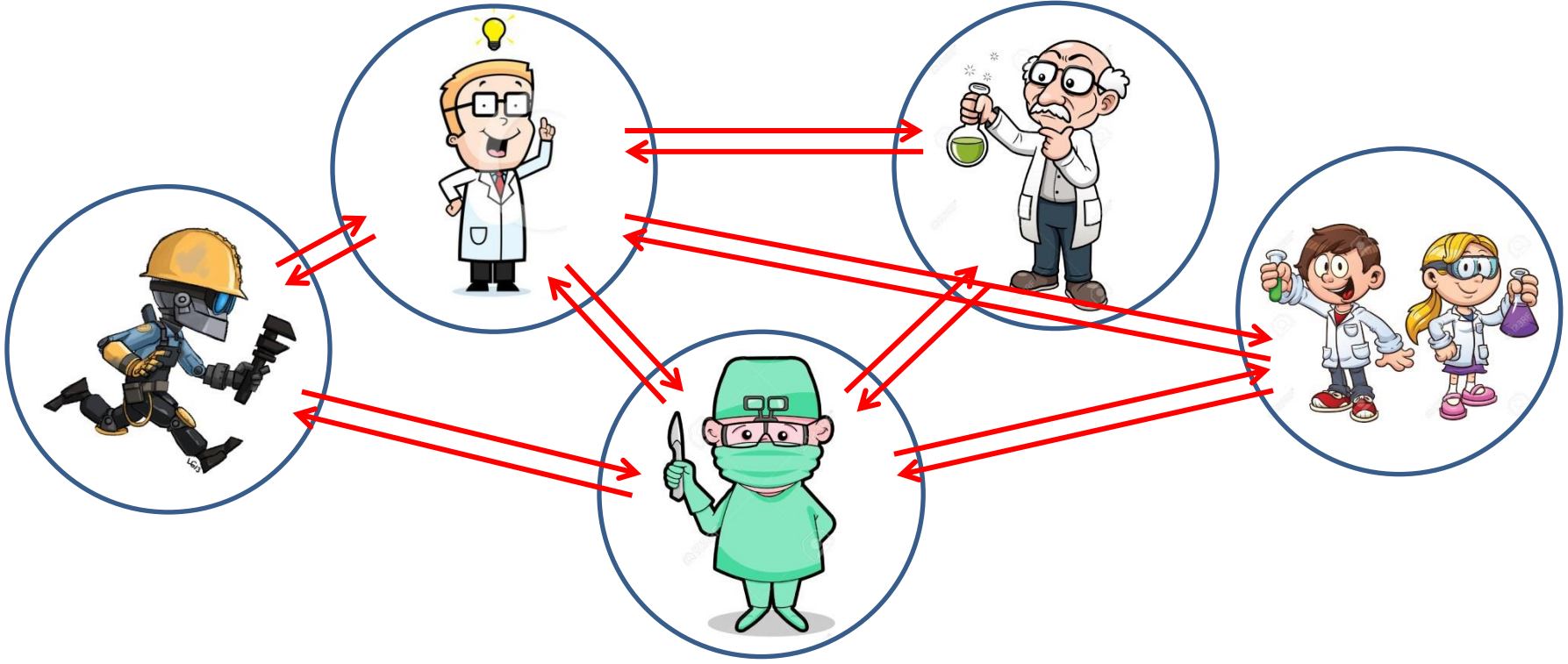
Organisational Structure



Surgery ACP Org Chart



Cultivating Talent



Cultivating Talent



Medical Student Engagement Sessions



Duke-NUS MedTech Interest Group



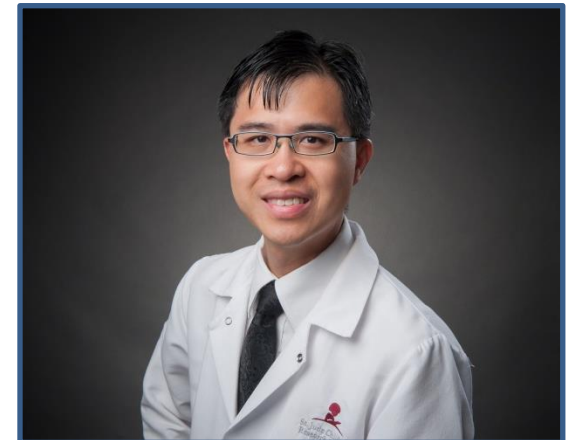
Research Retreats with IHLs



Singapore Stanford Biodesign Programme



Surgeon Scientist Strategic Start-Up



Nurturing Clinician Scientist Scheme

Our SSB Scholars

FELLOWS 2011



Henry Ho
Urologist
SGH



Fiona Loke
MS Elec Eng,
ST Engineering



Iris Tan
BS Mech Eng,
Merlin MD



Anthony Tang
General Surgeon
NUHS

FELLOWS 2012



Ng Tze Kiat
Urologist
NUH



Luke Tay
General Surgery
SGH



Pearlina Teo
PhD Immunology
A*STAR Scholar



Justin Phoon
MS Bioeng
Medtronic

FELLOWS 2013



Poh Yong Cheng
PhD Bioeng
NUS



Emma Luong-Van
PhD Biomed
A*STAR IMRE



Chew Jing Ming
BS Bioeng,
A*STAR Scholar



Siow Wei Ming
Orthopedic Surgeon
SGH

FELLOWS 2014



Angela Dharmawar
General Surgery
SGH



Benjamin Tee
PhD, Elec Eng
A*STAR Scholar



Cecilia Wang
PhD, Mat. Sci & Eng
NTU



Prusothman Raja
Research Engineer
Ayoxxa

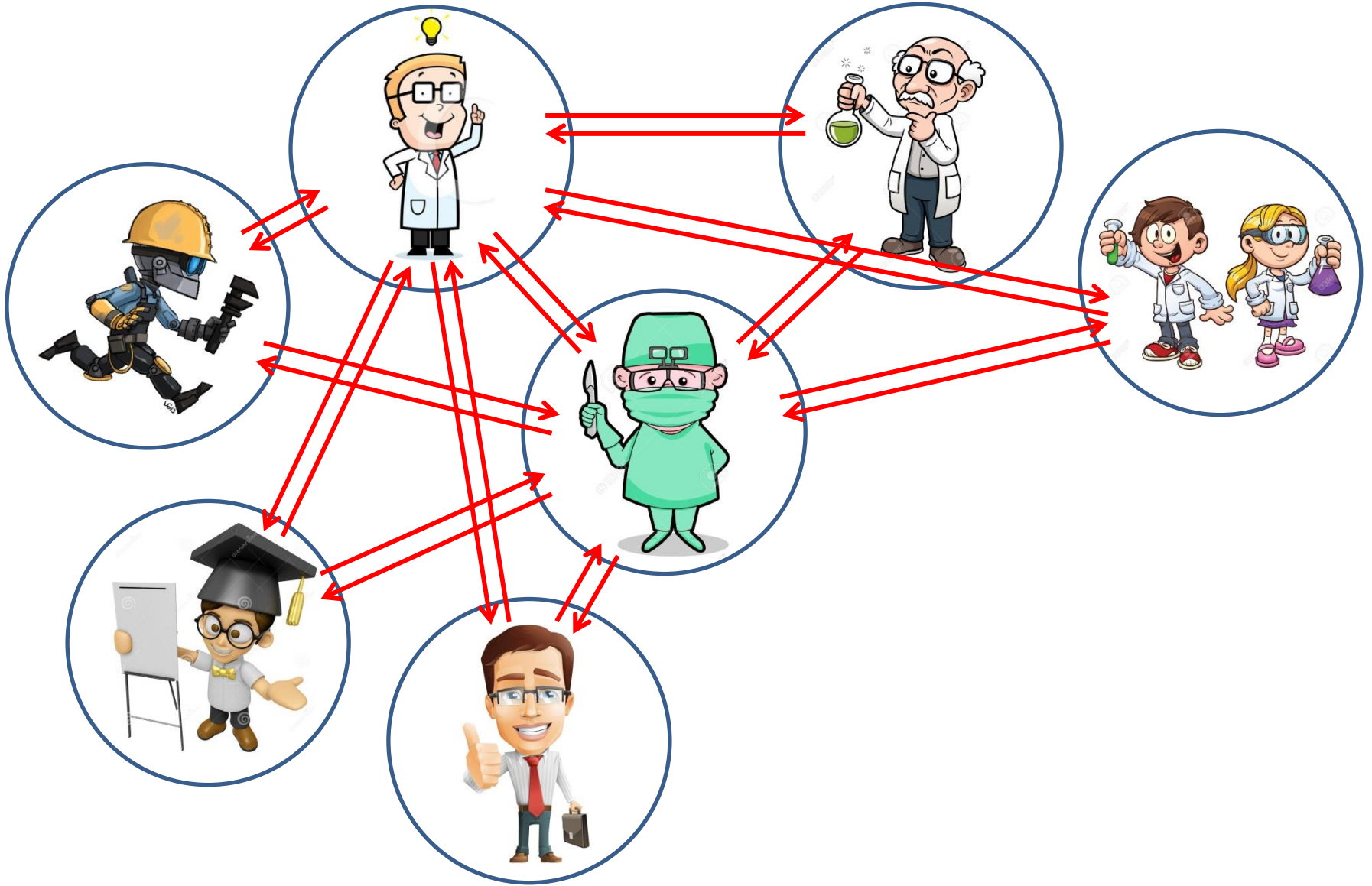
FELLOWS 2015



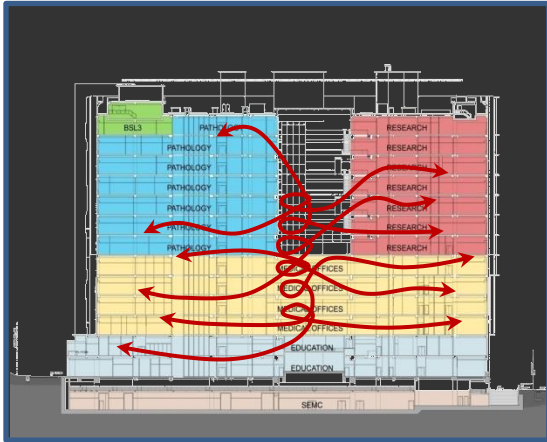
FELLOWS 2016



Building Infrastructure



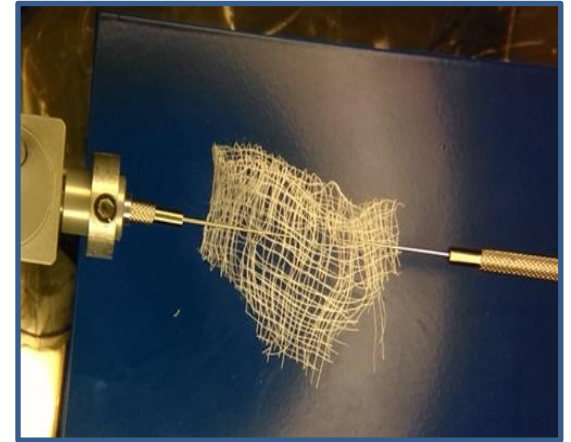
Building Infrastructure



Interactive Spaces



Prototyping Tinker Studio



Biomechanics Laboratory



Admin Support Office

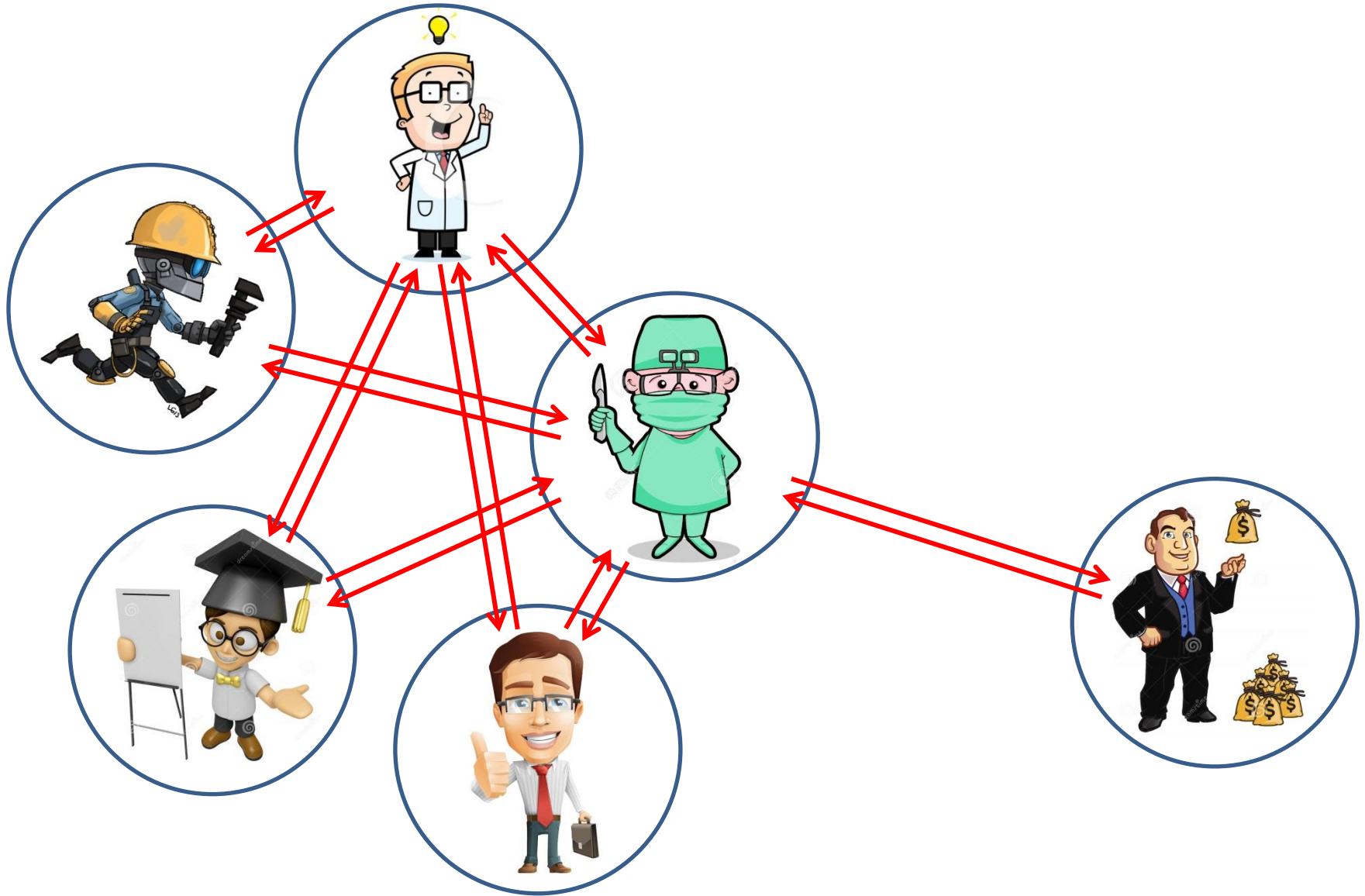


Device Development Office



Department Engineer Embedment

Building Partnerships



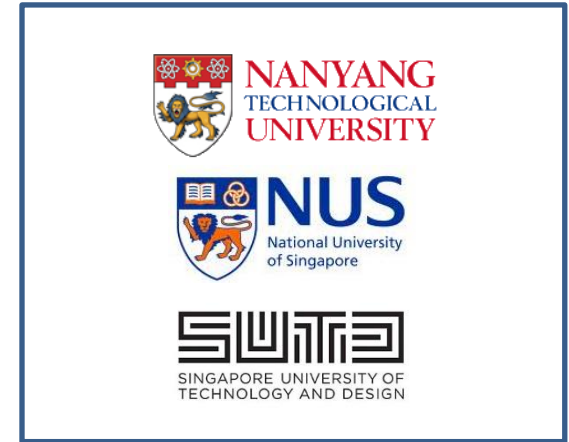
Building Partnerships



AStar Institutions



SPRING + SMEs



IHLs



Polytechnics

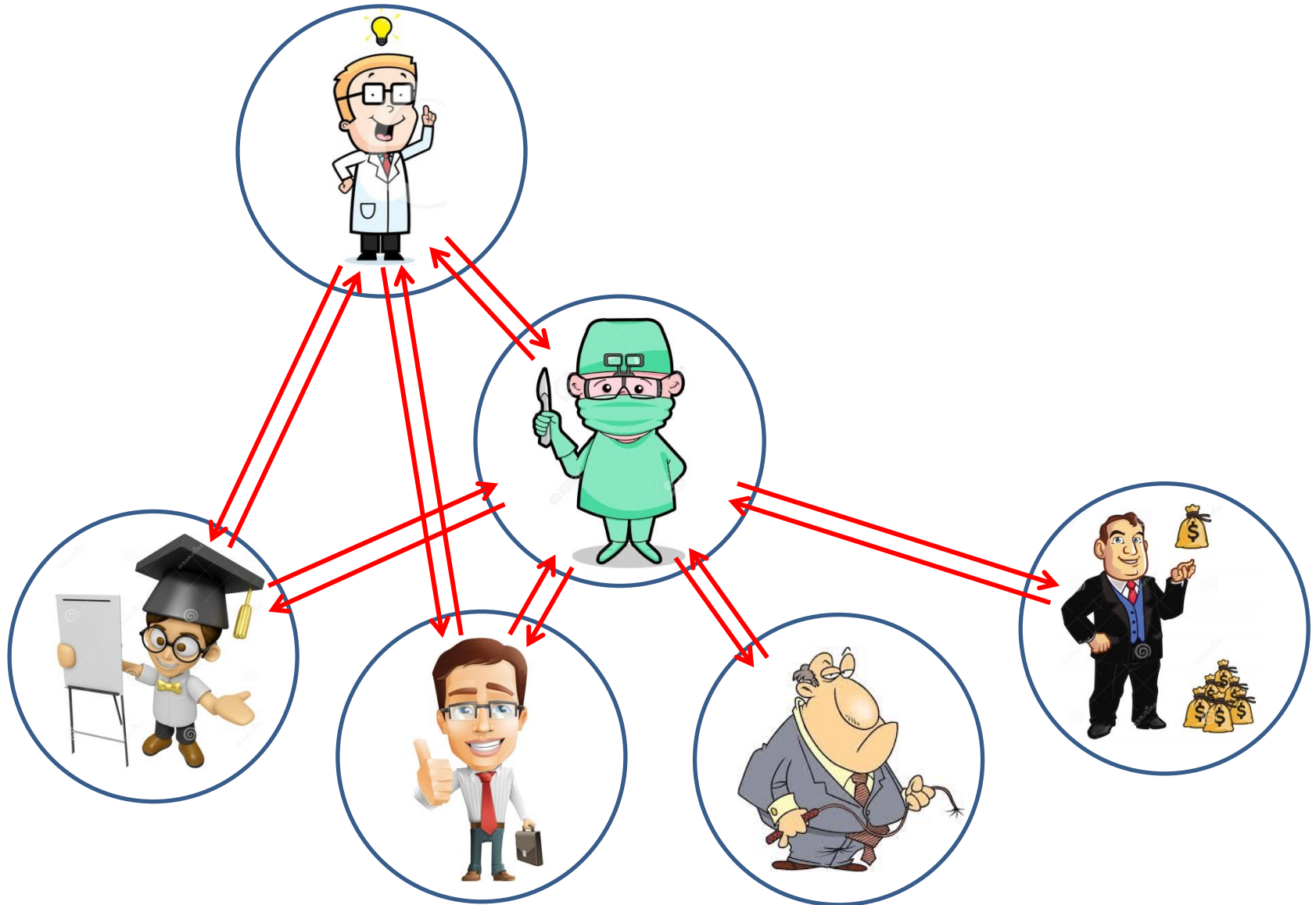


Duke-Surgery



Industry Partners/Collaborators

Finding Funding



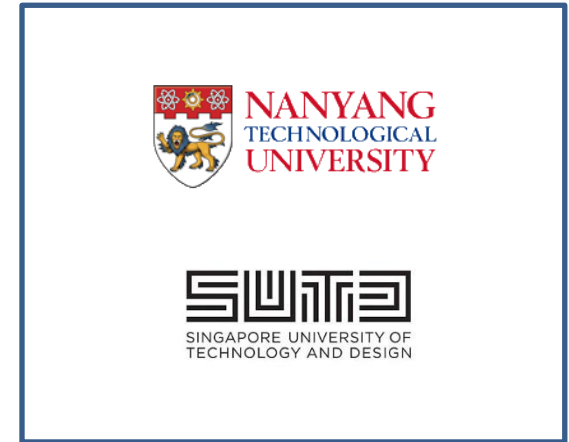
Finding Funding



Joint Project Fundings



Competitive Grants Funding



Bipartite Competitive Grants Funding



Named Professorships



Fund Raising Activities



SingHealth Foundation Grant Funding

Outcomes in 2 Years

| | |
|---|----------------|
| Clinicians involved in medtech projects: | 14 |
| Departments involved in medtech projects: | 4 |
| Clinician-initiated projects served: | 20 |
| Surgery ACP specialties served: | 7 |
| Non-Surgery ACP specialties served: | 4 |
| Residents/interns served: | 4 |
| Institutions served: | SGH, KKH, NCCS |

Outcomes in 2 Years

| Category | Achievements |
|--------------------------------------|---|
| Grants | \$325,000 of grants secured |
| Patents | 1 Singapore provisional patent filed |
| Seed grants | NTU NITHM, SUTD co-invested a total of \$200,000 matched by Surgery ACP with \$200,000 to fund seed grants |
| Singapore Stanford Biodesign Fellows | 1 of 4 SSB Fellowships secured each year, worth full tuition and salary stipend (est. > \$200,000 per year) ; 4SSB's project PRIVI won \$100,000 grant (Dr Rena Dharmawan) |
| Industry investment | \$400,000 to fund MTO |
| Training | Training for Allied Health and SSB, bringing in \$6,000 |

Attracted > \$1.3 million external funding in grants, investments, co-funding and scholarships





Thank you

london.lucien.ooi.p.j@singhealth.com.sg