



National IP strategies for Innovation : (The Singapore Experience)

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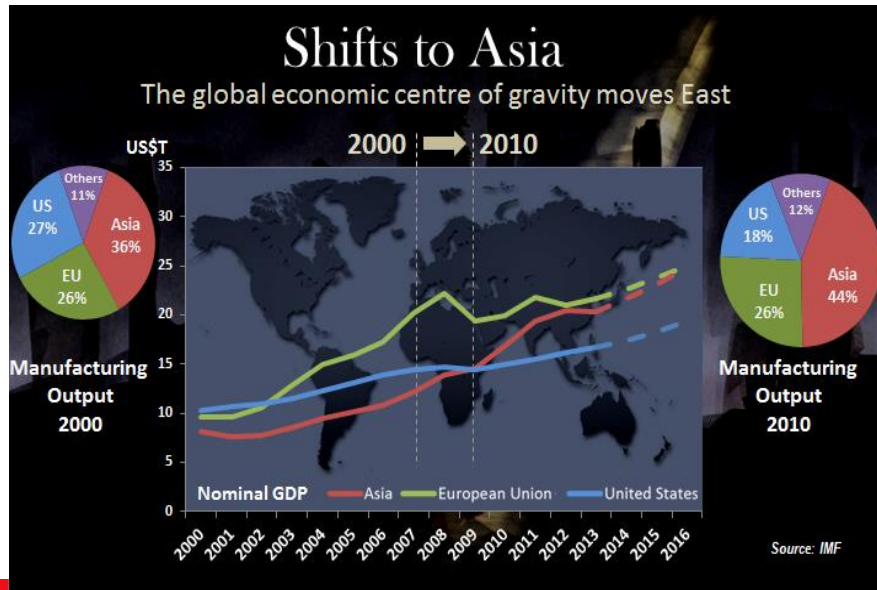
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CREATING AN INNOVATION ECONOMY



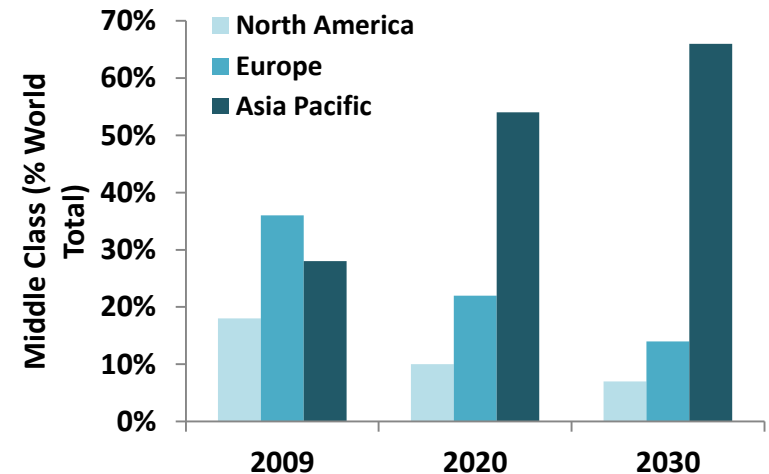
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GLOBAL ECONOMIC CENTRE OF GRAVITY MOVES EAST



- **Asia**: fastest growing region with rising middle class.
- Middle class population in Asia will double by 2030 -> increased consumption in Asia.
- Information gap on Asian phenotypes and preferences.
- Companies need to do R&D and innovation in Asia.

Evolution of the earth's economic centre of gravity
AD 1 to 2025



GAN INNOVATION ECONOMY

GLOBAL TRENDS



← **ACADEMIA**



INDUSTRY →

PRESSURES ON ACADEMIA

- Academic excellence
- Competition for talent
 - Faculty
 - Students
- Pressure of university rankings
- Pressure to deliver impact
- Pressure on funding

INDUSTRY PRESSURES

- Pressure to deliver on bottom-line
- Increased global competition
- Pressure to innovate
- Pressure to reduce R&D costs
- Industry Response?

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Global Trends

Open Innovation



“Open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology” – Henry Chesbrough



Connect and Develop: Targets an additional \$3 billion of revenue growth/year by partnering external innovators

Chris Viehbacher, CEO Sanofi: Aims to strike a 50:50 balance between “internal research” and “external research” with his US\$6.5 billion annual research budget



NATIONAL FRAMEWORK

- Framework of IP protection, management and commercialization for publicly funded research and development
- No force of law – unlike e.g. the Bayh-Dole Act in the US
- Aim
 - To set out the principles and guide and best practices for IP :
 1. Identification
 2. Ownership
 3. Protection
 4. Exploitation

NATIONAL FRAMEWORK OF IP PRINCIPLES FOR PUBLICLY FUNDED R&D (FCM M7/2009)



- Objectives
 - Non-binding set of principles
 - To provide frictionless process to accelerate the translation of R&D innovations in the market and to get inventions into the widest possible use.
- Philosophy
 1. Government is not in the best position to spot “winners”
 2. Innovation is a collaborative process
 3. It is sub-optimal to focus on maximizing revenue from licensing
 4. There is a need to facilitate the process of technology transfer to industry

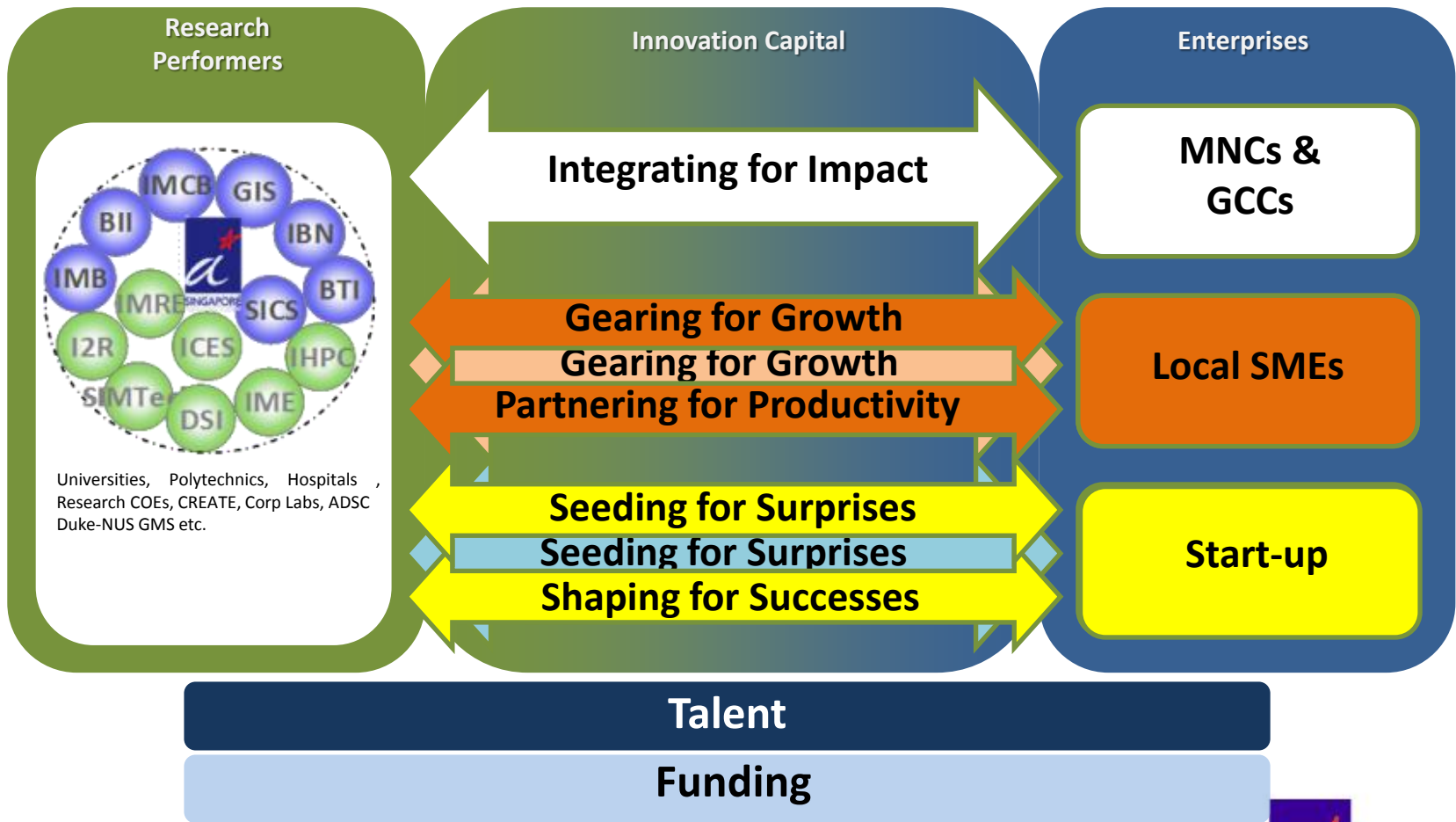
KEY PRINCIPLES FOR PUBLICLY-FUNDED R&D

(M7/2009)

1. Implement policies that promote exploitation of publicly funded research ideas for the benefit of Singapore and allow the Public Agency to grant licenses to other parties if current licensees are ineffective at commercialization.
2. Provide attractive incentives for inventors in the creation of IP
3. Preference and reasonable efforts made to license publicly funded research results to Singapore based companies; particularly local SMEs
4. If the Public Agency elects not to own and/or commercialize the IP within an agreed timeframe to allow the inventor(s) where appropriate, the right to own, license protect and commercialize the IP at his own expense
5. Public Agencies to have clear policy on whether they will claim any ownership and/or rights to the IP generate from R&D they have funded.
6. Public Agencies should reserve royalty free, irrevocable, worldwide, perpetual and non exclusive right to use IP for their own non commercial and R&D purposes.

RIE2015: A*STAR'S STRATEGY

DIFFERENTIATED STRATEGIES FOR OPEN INNOVATION



IP RIGHTS

***“THE CURRENCY”* OF BUSINESS ENGAGEMENT**

Engagement with industry

- Further develop in-house IP and/or help industry with solutions to problems

Value can be realized through

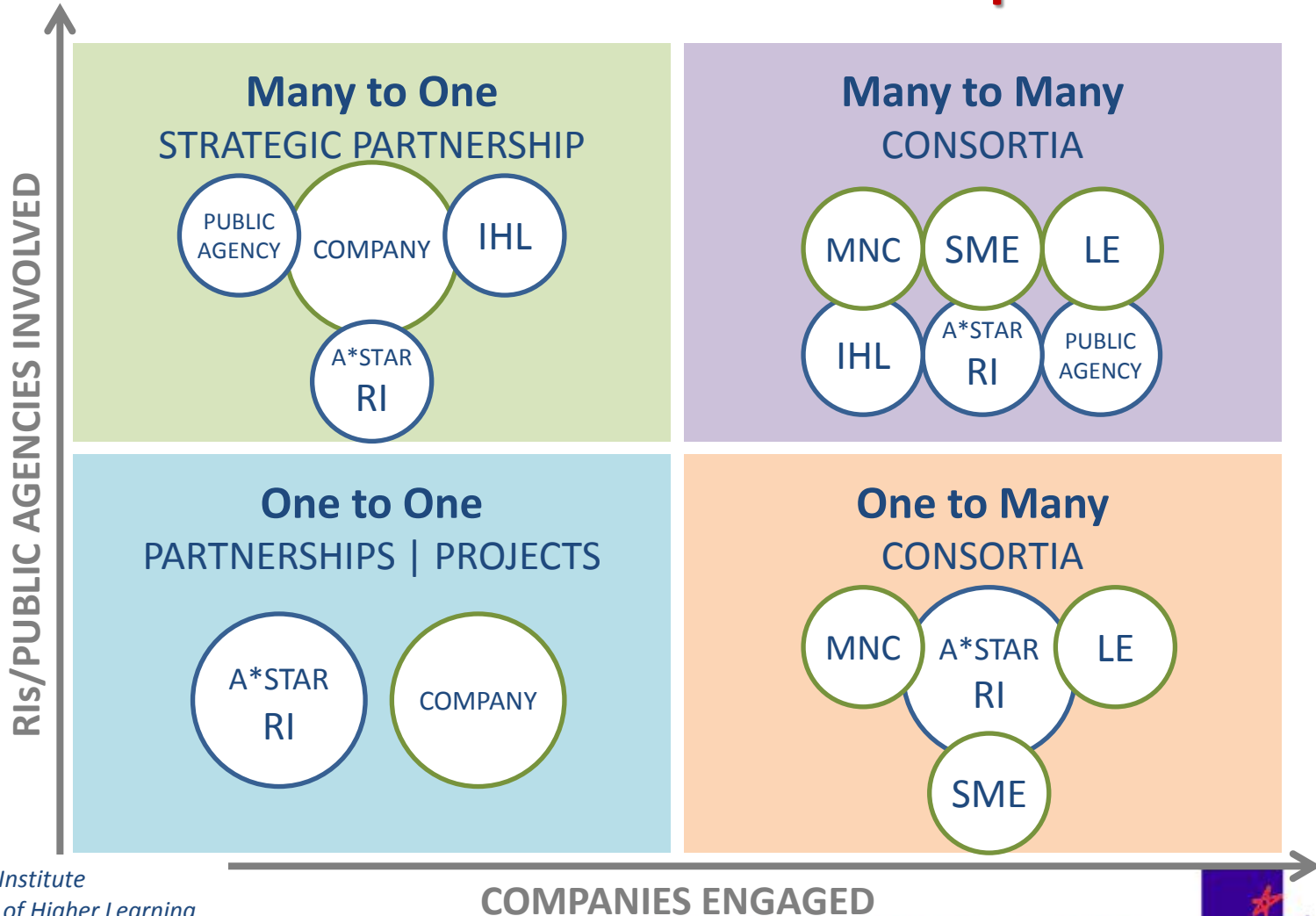
- Licensing income
- Investments in Singapore
- Promotion of R&D in Singapore
- Creating jobs
- New business creation & strengthening existing businesses

IP can boost economic growth and wealth creation for Singapore



INTEGRATING FOR IMPACT

Public-Private Partnerships



RI: Research Institute
IHL: Institute of Higher Learning
MNC: Multi-National Company
LE: Local Enterprise
SME: Small & Medium Enterprise

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A*STAR'S APPROACHES

Project IP owned according to **INVENTORSHIP**.

Collaborator given an option to negotiate a fee-bearing non-exclusive/exclusive license of A*STAR Project IP and/or Joint Project IP in Collaborator's Fields

Corresponding right to A*STAR for A*STAR Field

Project IP owned according to each Party's **TECHNICAL AREA**.

Collaborator given an option to negotiate a fee-bearing, non-exclusive/exclusive license of A*STAR Project IP

All Project IP **JOINTLY-OWNED** between A*STAR and Collaborator .

Collaborator given an option to negotiate a fee-bearing exclusive license of Project IP in Collaborator Fields

A*STAR has corresponding rights for A*STAR Field

All Project IP **JOINTLY-OWNED** between A*STAR and Collaborator .

A*STAR grants to Collaborator a free, exclusive license in Collaborator Fields.

Collaborator grants to A*STAR a cost-free, exclusive license in all fields outside of Collaborator Fields.

FLEXIBLE MODELS WHILST SAFEGUARDING A*STAR'S INTEREST

- A*STAR's flexible approach to achieve “win-win” solution for both sides
- Safeguarding A*STAR's interest
 - Freedom to use and build on FIP to create new IP
 - Maximize use of our IP by ensuring
 - Freedom to collaborate with as many companies as possible
 - IP is used to benefit local economy
 - IP is made available to, and benefits as many companies as possible



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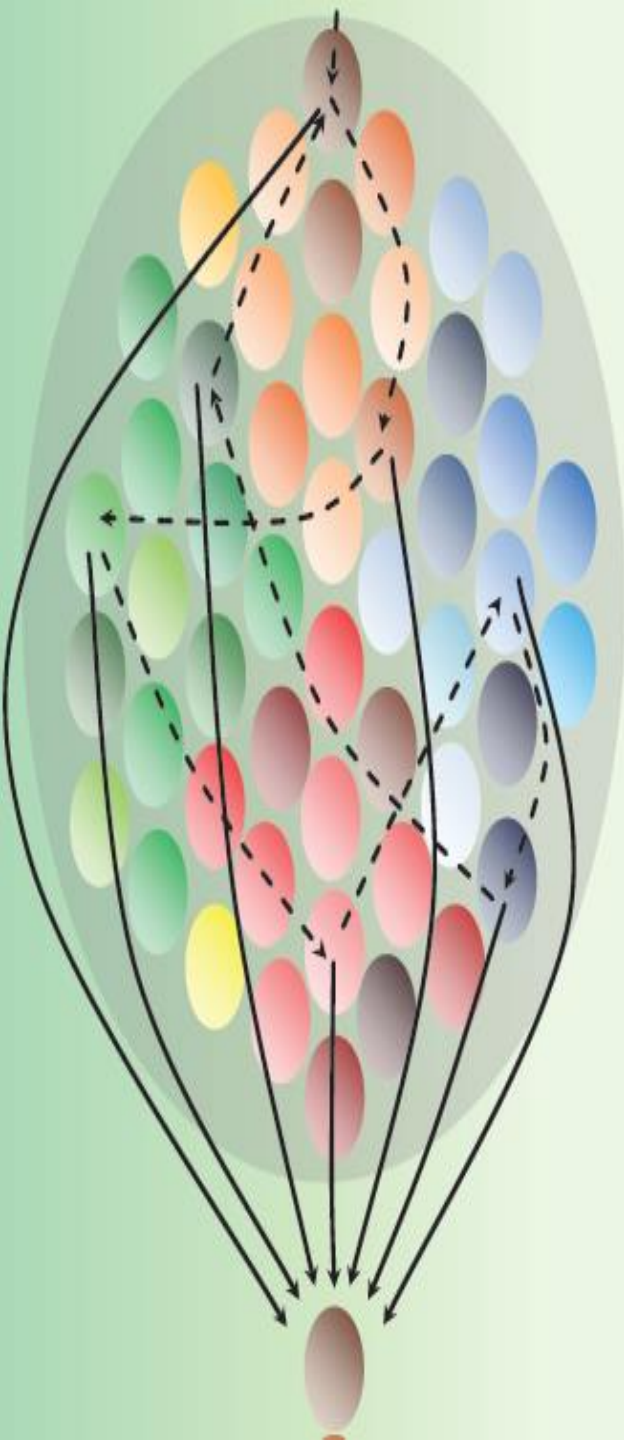


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SINGAPORE

“WHERE WE DRAW THE LINE”

- Risks and Liabilities - Low tolerance
 - Government related entities are perceived to have deep pockets but litigation-shy and thus an easy target
- Accountable for public monies
 - Structured risk avoidance & mitigation rules
- No indemnity policy
 - Exceptions on very limited basis
- Will not provide wide-ranging warranties
 - Especially warranties as to non-infringement of third party IP
- Disclaimer or limitation of liability for consequential loss and indirect damages
- Overall cap on liabilities
- Internal processes to seek senior management’s guidance



GEARING FOR GROWTH

National Productivity Initiatives

- A*STAR helms R&D Productivity Workgroup
- SIMTech's Manufacturing Productivity Technology Centre and Operations Management Innovation programme



Technology for Enterprise Capability Upgrading (T-Up)



Operation and Technology Roadmapping (OTR)



Technical Advisory Support (TA)



A*STAR Facility Sharing Programme (A*FSP)

GET-Up

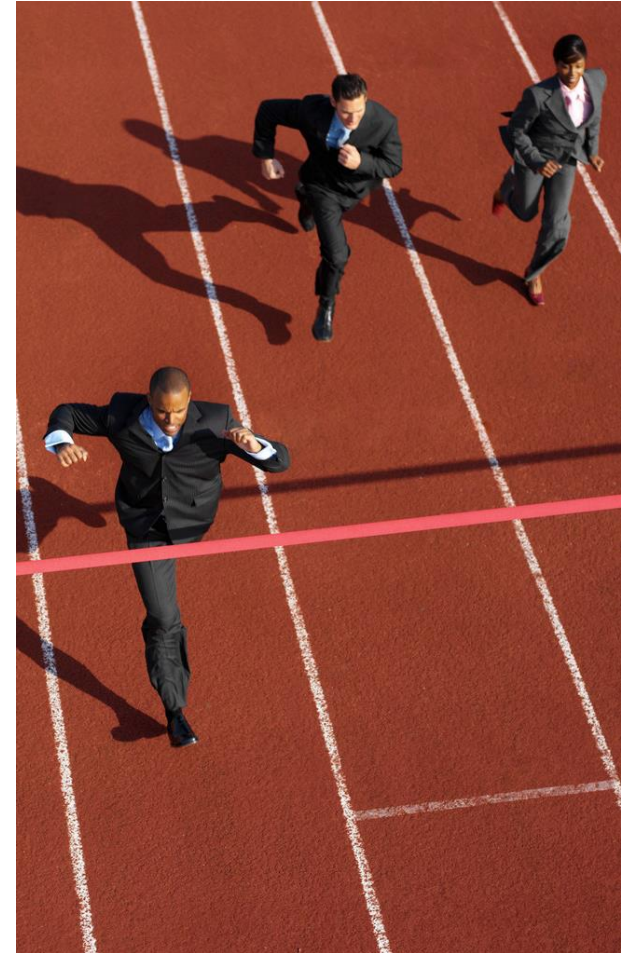
GET-Up is a pro-active, targeted approach aimed at boosting the competitiveness of SMEs through technology adoption

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A*STAR'S HEADSTART PROGRAMME

ASSISTING LOCAL SMES THROUGH SME-FRIENDLY TERMS

- SMEs who enter into RCAs with A*STAR RIs are granted:
 - an automatic 18-month exclusive licence over the Foreground IP -> “HeadStart” Licence
 - an option to extend the exclusivity on terms to be negotiated
 - where option not exercised, the HeadStart License will convert to a non exclusive royalty free licence
- SMEs not required to give indemnities



SEEDING FOR SURPRISES

Deepening partnerships with Start-ups and Spinoffs:

- **‘Seeding for Surprises’ to include ‘Shaping for Successes’.**
- **Creating even more conducive and engaging conditions for start-ups and spinoffs.**



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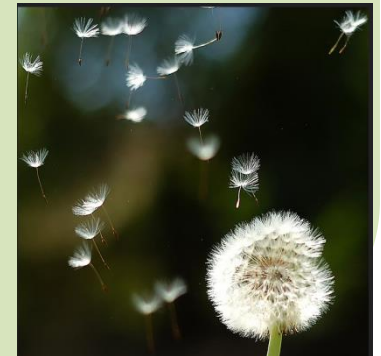
SEEDING FOR SURPRISES

A*STAR is part of an integrated ecosystem that provides funding & advice at critical stages:

- Research Grants
- Gap Funding
- POC Funding
- POV Funding
- Angel & VC Investment

14 incubators under Singapore's Technology Incubation Scheme (TIS) to nurture early stage high tech start-up companies in Singapore:

- 9 in ICT/Digital Media
- 2 in Medtech
- 1 Hardware
- 1 Semiconductor
- 1 General



A*STAR'S IP PRINCIPLES & FRAMEWORK

IP Ownership

- Institutional ownership
- Ownership based on inventorship
- Carefully defined rights and obligations in the case of joint ownership
- Distinguish ownership from rights to use
- Avoid IP fragmentation

Exclusivity and Non-Competition

- Non-exclusive licensing model preferred
- Exclusivity with limits
- No non-competition obligations that block further R&D and commercial exploitation

Licensing

- Flexible licensing policies
- Attractive licensing terms for SMEs – Headstart Programme
- Promote technology/IP adoption and use with commercialization obligations
- Maximize use of IP
- Blended terms mitigate risks for both sides

Incentives for inventors

- One-third revenue share to inventors
- Recovery of commercialization expenses
- Release of IP to inventors

MODEL FOR SINGAPORE

- Revenue generation is not the main motivation
 - Economic development for SG
 - Enterprise development
 - Investment promotion
 - Support local companies
- All leading up to more jobs for Singaporeans and wealth for Singapore



MODEL FOR SINGAPORE

- Works because:-
 - Strong and developed IP regime – provides certainty for IP owners
 - Availability of stringent enforcement measures
 - Efficient court system – speedy disposal of cases
 - Specialist IP court
 - Growing local presence of IP savvy professionals – patent agents and IP lawyers
 - Greater awareness of IP and portfolio building among SMEs and businesses
 - Companies and Investors prepared to spend on building patent portfolios and on IP enforcement



THANK YOU !



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