



Funding and Beyond

PolyU's Knowledge Transfer and Entrepreneurship Ecosystem

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THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學

-MISSION-



Missions of Universities

Education

To nurture critical thinkers, effective communicators, innovative problem solvers and socially responsible global citizens

Research

To pursue impactful research that benefits the world

Knowledge Transfer

To create impact of research and innovations on society



PolyU's KT Philosophy

- All PolyU IPs of practical value should leave campus to create societal impact.
- The primary objective of technology transfer and commercialization is not to maximize income.

University/ Research Institutes
Basic/Exploratory Research

Technology Transfer Models

1 | 2 | 3 | 4

Market
Commercialization

1 Licensing of University's IP to industry partners for commercialization

- A prevailing TT model. PolyU has granted most cumulative number of licenses among UGC-funded institutions.
- However, licensing income is not that significant (*sector-wide income was \$180M in FY2019/20, <10% of total KT income*).



Finer Nu-Torque™ Cotton Yarn Production

Allow the production of torque free singles ring yarns by a single step on a ring spinning machine.

Impact

- Implemented by leading textile manufacturers with **over 40 production plants in 8 countries**.
- Producing about **30M shirts annually** for well-known brands like Burberry, Armani, Gucci and Uniqlo and Texhong Textile Group Ltd, one of the largest cotton textile manufacturers in China.

2 University-industry collaboration for contract research

- Partnership often times is demand- and project-based or in more sustainable form via joint centres with funding commitment of industry partners. IP ownership as per invention contribution.
- *TT via contract research represented about 50% of sector-wide KT income in FY1019/20.*



Huawei x PolyU Joint Lab

- From project based (e.g. optical communication, autonomous navigation) to further strengthen the collaboration on AI research and cultivate talents

The Joint Lab fosters closer academia-industry partnership in research and applications and talent development

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Market
Commercialization

3


Collaborative partnership in R&D and commercialization with industry partners

- Mutual commitment in research and commercialization with R&D development and benefit-sharing mechanism for more strategic partnership.
- **PolyU will establish more Research Institutes in GBA and Mainland for translational research and technology commercialization to address local industry needs and capture market for broader impact.**

4

Startups/spinoffs to commercialize university's research and innovations

- Commercialization of PolyU's research and innovations through startups founded by academic staff or students/alumni.
- Direct impact on society but high failure rate of startups due to various reasons. Partnership with ecosystem stakeholders for support and resources is important.



PolyU's Myopia Control DIMS Technologies

- Reduces the high myopia population by 90%
- DIMS technologies co-developed with HOYA and licensed to HOYA for commercialization
- Have sold 3+ million pieces so far



Vision Science and Technology Co Ltd (VST)

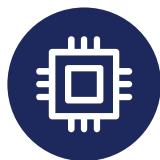
- Founded by a professor of School of Optometry and PolyU alumnus
- Produces and distributes advanced optometric DISC-1Day contact lenses in Hong Kong and China

PolyU Entrepreneurship Ecosystem Snapshot



450+

Total Start-ups



220 +

Tech Startups



230 +

Design & Social Start-ups



29

Academic-led Start-ups



4 Unicorns
(US\$1Bn+ valuation)

HAI ROBOTICS



13 Ponies

(US\$10M+ valuation)



310 +

International and
Local Awards



1,000 +

Entrepreneurs
Nurtured

Forbes Asia
100
TO WATCH

3 Start-ups

viAct spaceship



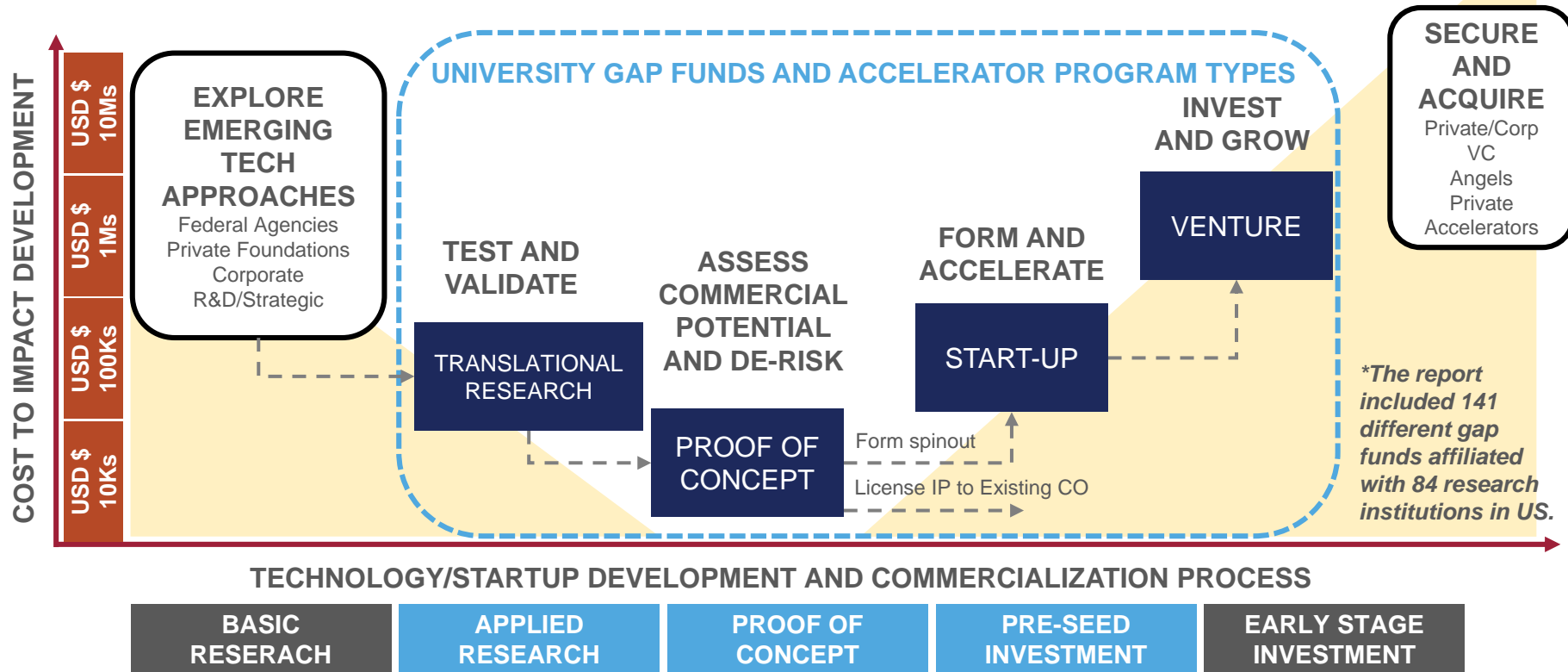


Addressing the Gaps

Innovation Capital Landscape in U.S.



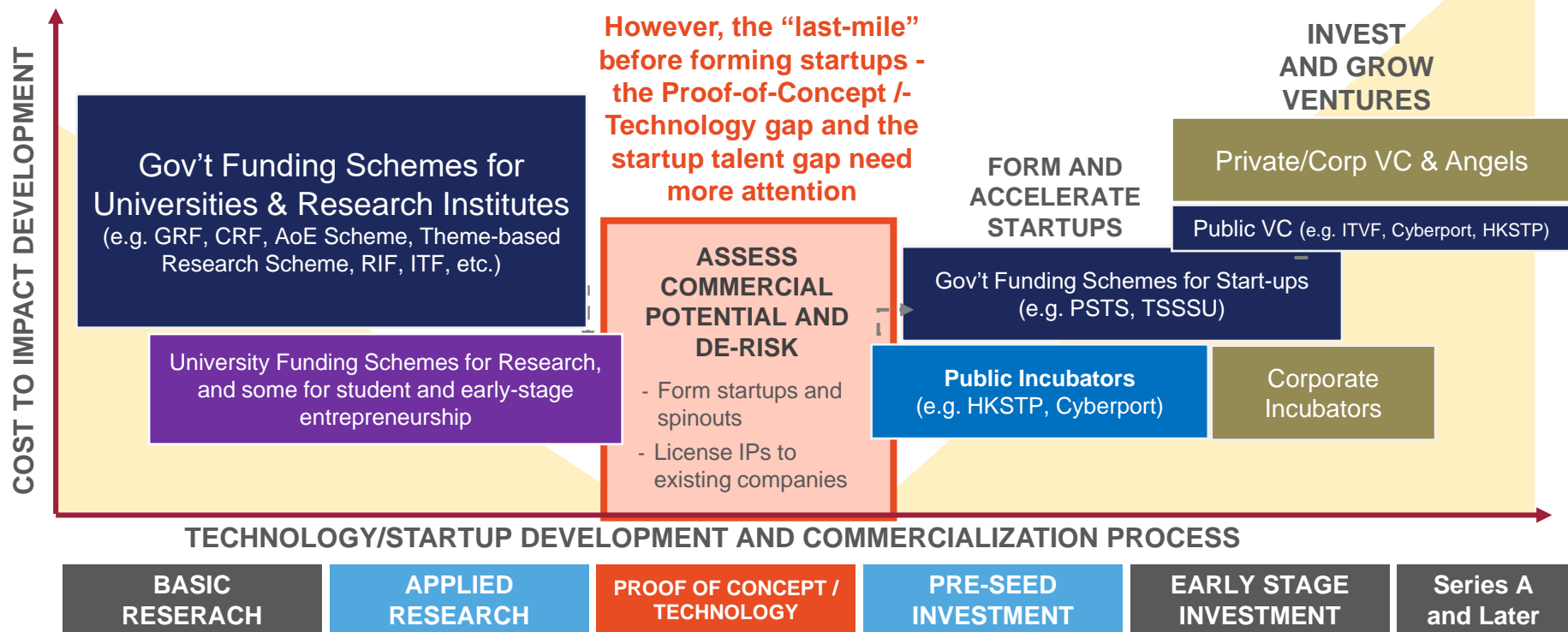
The innovation system that transitions breakthroughs in research from the lab into the marketplace is constrained by **the lack of available early-stage capital and development support** (The Mind Gap Report*, 2020). Universities and partners have created technology and startup gap funding and accelerator programmes to address the challenge.



Innovation Capital Landscape in Hong Kong



Hong Kong government allocated \$150B for I&T development and cultivating an entrepreneurial environment. Public incubators offer incubation programmes, infrastructure and funding support to start-ups. Public VCs also match private investment to encourage early-stage investment.





How does PolyU address the gaps and facilitate impact innovation and technology commercialization?

1. We focus on **I&T talent development, proof-of-concept and -technology support, and building a quality pipeline of startups** which commercialize PolyU's research and innovations.
2. We adopt an **PI³ (PolyU + Incubators + Industry + Investors) model**, partnering with ecosystem players to inform industry needs and leverage their funding and incubation resources to support startups' growth in GBA and beyond.

Impact Innovation@ PolyU: Holistic Framework for Entrepreneurship



300+ Each Year
Innovation Seeds



Innovation and Entrepreneurship Education & Ideation

X + Innovation & Entrepreneurship Curriculum for Undergraduates

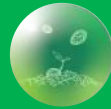
Undergraduate Research and Innovation Scheme (URIS)

Domain-based Future Challenges

- Digital
- Health
- Manufacturing
- Sustainability

Proof-of-Concept 2.0 Scheme

100 Each Year
Projects / Start-ups



Pre-incubation / Incubation

Micro Fund Scheme

With accelerated direct admission to HKSTP incubation Programmes

- For students and alumni (\$120k)
- For researchers

GBA Startup Postdoc Programme (Hong Kong & Shenzhen)

20 Each Year
Deep Tech Ventures



Investment for Acceleration

Two-tier Angel Fund Scheme
(\$1M & \$3M by TSSSU and top-up investment by PolyU)

Equity Investment Fund
(\$4M plus \$4M+ from co-investor[s])

Together with business advisory and support, industry mentorship, market & investor networks, etc.

In Partnership with Internal / External Stakeholders

Academic & Research Units

Industry Partners

Incubators & Accelerators

Investors



1

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Future Challenges

- Cultivate and translate innovative ideas and technologies into solutions that can address industry problems and societal challenges

Dec 2021-Feb 2022

Smart City Future Challenge

In partnership with Chinachem Group, Esri China (Hong Kong) and HKT

- 60+ Participants, 22 Projects



Jun-Aug 2022

Health Future Challenge

In partnership with Faculty of Health and Social Sciences (FHSS), Applied Biology and Chemistry Technology (ABCT)

- 200+ Participants, 39 Projects



Sep 2022-Mar 2023

Sustainability Future Challenge: Textile and Fashion Innovations in

partnership with Hang Seng Bank



Nov - Dec 2022

Smart City Future Challenge

In partnership with ASRC and the Orion Astropreneur Space Academy (OASA)



Proof-of-Concept/Technology Validation 2.0

- Translate ideas and technologies into prototypes and feasible solutions
- Technology Market Validation Programme for Researchers



2

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Highlights

- **PolyU InnoHub in Hong Kong and Shenzhen:** Co-creation and co-working space
- **PolyU Industry Centre:** Maker space, Proof-of-Concept / prototyping
- Design fabrication
- HKSTP and Cyberport incubation programmes
- Business and investment advisory
- Professional and industry mentorship

InnoHub@HK

70+

teams admitted

InnoHub@Shenzhen

75+

teams admitted



Highlights

- **First of its kind in Asia** with **dual career track**, structured programme in Hong Kong and Shenzhen to commercialize PolyU technologies through tech ventures of PhD graduates
- **Leverage GBA resources** with joint support from Shenzhen and Hong Kong
- **Attract global talents** for research-based tech ventures in GBA
- **5-week Lean Launchpad Programme** to validate technologies with market needs

YEAR 1(Compulsory)

- ✓ Problem-solution Fit
- ✓ Business modelling
- ✓ Technology (IP) development

1st Half

2nd Half

YEAR 2 (Optional Extension)

- ✓ Company setup
- ✓ IP licensing
- ✓ Fundraising

1st Half

2nd Half

1st Year End Assessment

Final Assessment

Academic track*

2021 Pilot Cohort Progress

5

awarded **PolyU Micro Fund** (HK\$120K)

5

admitted to **Incubation Programme** or secured **funding support by HKSTP**

HK\$

12.5M+

follow-up funding support secured

9

awards in local and national level entrepreneurship competitions



RESEARCH COMMERCIALISATION THROUGH ACADEMIC START-UP

Techno-preneur

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Philosophy: “Nurturing Winners”

- To develop impactful PolyU start-ups for impact through closing the financial gap from seed to the pre-A stage
- To generate reputational returns to the University
- Financial return is secondary consideration
- Primarily co-investment up to 1:1
- Support beyond capital with co-investors and industry

Co-investment Partners



A dynamic pool of co-investment partners

Beyond Funding: Creating an Enabling Ambience for Impact Innovation

1 Make PolyU IPs available for adoption

- Trial license of IPs to inventors for 1 - 2 years for market validation with simplified licensing process and terms
- Collaborate with other R&D centres to strengthen innovation impacts

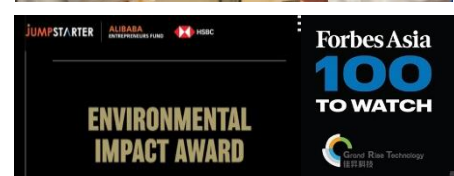
2 More flexibility for inventor founders to work in their startups

other than in the form of outside activities of one day per week or no-pay leave. Staff may release part of their full-time commitment for assuming an operating/executive role in the start-up

3 Startup technology impact showcases and University (and ecosystem) networks to build credentials

4 Use of University's facilities for R&D, e.g. startups establishing joint research centres for R&D with the University

5 Measurement and recognition: University and sector-wide mechanism to recognize TT contributions of academic staff and universities?



Opportunities and Concluding Remarks

1. Universities' missions are to nurture talents and to create societal impact by having their research and innovations translated into practical solutions that can address societal needs. Specifically, universities have the unique roles in I&T talent development, addressing the “last-mile” support for commercialization, and building quality pipeline of startups for I&T development in GBA.
2. Disruptive and proprietary technologies with good business models and teams would draw investors. However, the path from research to commercialization is never easy. We need not just technology or funding but aspirations of inventors to go beyond research.
3. An enabling university ambience which facilitates and recognizes TT and commercialization, as well as a broader ecosystem that can better integrate the strengths for innovation and technology development in GBA are crucial.



情繫理大·共創非凡

We Are PolyU • Together We Excel

*Thank
You!*