

# **WTO Regional Workshop on Intellectual Property and its Role in the Generation and Diffusion of Green Technologies**

## **University's Role in the Knowledge Transfer Ecosystem**

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# *PolyU's KT Philosophy*

## **A Win-Win Proposition**

### **What Industry looks for from University:**

- Talents / Experts
- Knowledge / Know-how
- Products / Technology (from Research Output)

### **What value University can create:**

For the University:

- ***Learning and Teaching*** – nurture **innovations & entrepreneurship**
- ***Research*** – transfer and apply research output / expertise

For Industry / Society:

- New innovations, products and technologies
- Improved industry / quality standards
- Better quality of living

# PolyU's KT Strategy

## DO WELL DO GOOD

To facilitate KT with enhanced governance, discipline and recognition:

- No cash investment; No majority shareholding; No direct involvement in operation; Enforced disciplined exit from start-ups and JVs

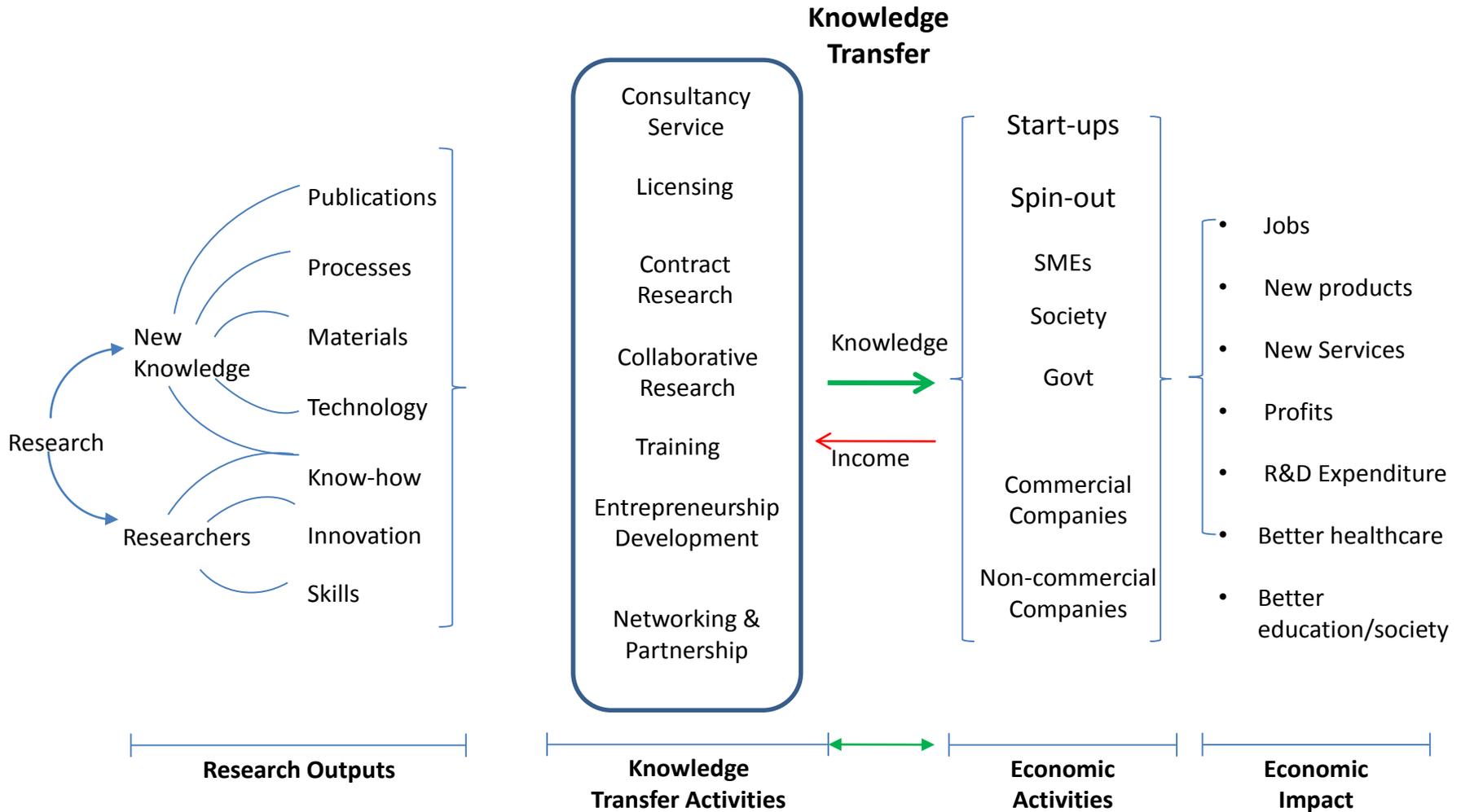
To leverage participation from global networks for enhanced impact:

- Joint research centres with industry partners pioneering innovation
- Partnerships with regional universities, organizations & incubation intermediaries for joint KT and entrepreneurship programs



Aviation Service Research Centre - by PolyU & Boeing

# PolyU's KT Process



# ***Different Mechanisms of KT***

- **Collaborative Research**
- **Consultancy**
- **Licensing**
- **Start-ups**



# Collaborative Research

- Industry-specific Research Centres with projects funded by industries and other funding agencies (e.g. ITF)
- Aligning industrial R&D needs for research impact

## **Example:** Research Institute for Sustainable Urban Development (RISUD)

- Life-cycle performance of infrastructures
- Building energy efficiency
- High-speed railway technology
- Regional air quality
- Sustainable urban renewal
- Sustainable waste management



# Consultancy

- The largest one-of-its-kind service provider in academia
  - Revenue: \$128 million (FY2013/14)
  - 567 projects for 364 public/private clients
- 80% activities related to high-impact work conducted by expert faculty staff under the full governance of a university subsidiary
- **Selected Green Tech areas**
  - Energy efficiency optimization of complex buildings
  - Indoor air quality monitoring
  - Power generation from renewable energy sources
  - Energy harvesting for remote sensor monitoring
  - EV charging and power station network design
  - Pollution monitoring and control (air, light, industrial waste)

# Consultancy

## Technology Service Platforms

- Example: Railway Safety Monitoring
  - New level/standard for international railway safety
  - Global recognition of PolyU's expertise
  - Contributing to the development of China's High-Speed Rail and other railway projects around the world



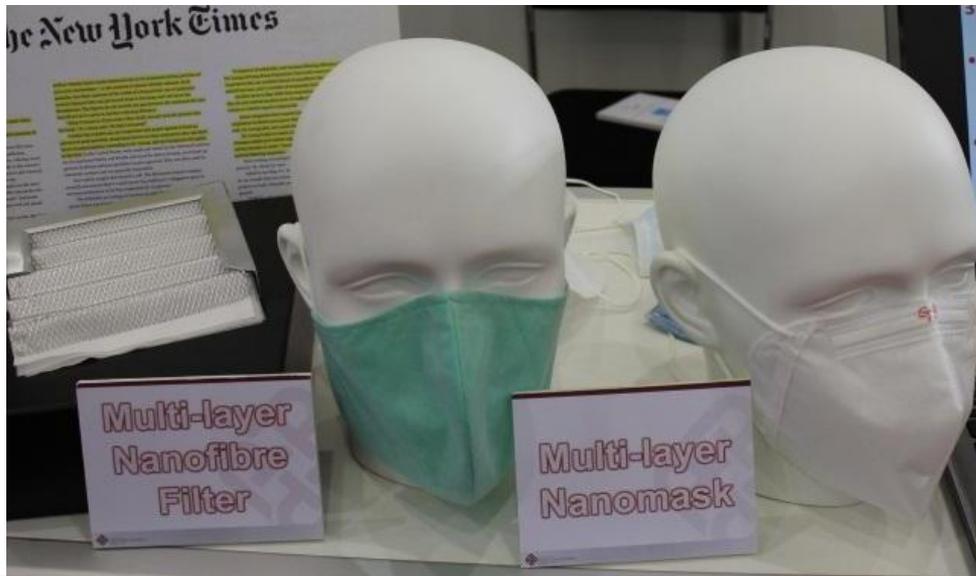
# Licensing

- Anti-Cancer Drug
  - State-of-the-art DNA technology
  - HK's first anti-cancer drug granted with US FDA Investigational New Drug (IND) in 2012



# Licensing

- Nano-Fibre Filter
  - High filtration efficiency (N95 equivalent) with good air permeability (with a pressure drop 4 times lower than that of the N95)
  - Protect facemask wearer from virus particles like bird flu, Escherichia coli, Influenza A, Ebola



# Licensing

- MyCar
  - Hong Kong's first home-grown electric vehicle
  - US manufacturing plant established in 2012



# Micro Funding Platform

- Ingredients / Resources: Funds, Network, Programs (learning, activities & events)
- **MF + “X”**: extended platform to bring in extra dimensions/ niche to the Micro Fund schemes: but not associated with any departments
- “X” Foci: China, Technology, Social Innovation



# Micro Fund

- First-ever micro financing *grants* for university student start-ups in the region
  - Innovation; Talents; and Research Outcome
  - Guided “*Out-of-Classroom*” Entrepreneurship Training / Education
- 80+ ventures since 2011
- 50% received further support in excess of HK\$40 million
- Over 20 international & regional awards



The poster for the POLYU Micro Fund 2015 features a central graphic of a glowing, multi-colored hexagon containing the text "\$100,000 SEED FUND". Above this, the text "POLYU Micro Fund Do Well Do Good 2015" is displayed. To the left, it says "Kick-start Your Business Now! Realize your Entrepreneurial Dream". The top right corner includes the logos for The Hong Kong Polytechnic University and the Institute for Entrepreneurship. Below the central graphic, a "DEADLINE: 16 JAN 2015" is noted. The bottom of the poster features silhouettes of people standing on upward-pointing arrows, and a QR code in the bottom right corner. At the very bottom, it reads "THE UNMATCHABLE OUT-OF-THE-CLASSROOM LEARNING EXPERIENCE" and provides the website "www.polyu.edu.hk/ife/microfund" along with social media links for Facebook and PolyUMFund.

# Green Start-Ups – Alchemist Creations (Eco-design)

- Eco-design of CAN-watch – use of recycled aluminum cans
- Engaging special needs workers for manufacturing
- Red Dot Design Award 2013 (Best of the Best)



# Green Start-Ups – WOOF (upcycling design)

- Up-cycling of locally-collected dog hair into premium knitwear products
- Social Venture Competition Asia (2<sup>nd</sup> Place)



# *The Way Forward*

- What drives a win-win KT ecosystem?
- What are the stakeholders' roles in a dynamic government-university-industry interaction? How should R&D and market risks be addressed?
- What policy areas government could address to stimulate academic-industry collaboration (besides giving more money)?



***Thank You!***