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
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
PolyU’s KT Process

Knowledge Transfer Activities
- Consultancy Service
- Licensing
- Contract Research
- Collaborative Research
- Training
- Entrepreneurship Development
- Networking & Partnership

Economic Activities
- Start-ups
  - SMEs
  - Govt
- Spin-out
  - Commercial Companies
  - Non-commercial Companies

Economic Impact
- Jobs
- New products
- New Services
- Profits
- R&D Expenditure
- Better healthcare
- Better education/society

Research Outputs
- New Knowledge
  - Publications
  - Processes
  - Materials
  - Technology
  - Know-how
  - Innovation
  - Skills

Knowledge Transfer
- Knowledge
- Income

Research
- Researchers

Innovation
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-Caner 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

Reference: NASA Technology Readiness Levels
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 – WOUF (upcycling design)

• Up-cycling of locally-collected dog hair into premium knitwear products

• Social Venture Competition Asia (2nd 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!