Cross-border Challenges

IP Commercialisation

Mike LOH
HKUST R&D Corporation (Guangzhou)
www.fytri.cn
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My Background

Born in SG, Lived in HK, Working in GZ, China

- Trained in Patent Pool licensing
- Commercialisation of MPEG-4 SLS patent licensing program
- Setup Industry-Collaborative Projects
- Commercialisation of High-power LED Chips Manufacturing
- Commercialisation and IP management
- Entrepreneurship Platform for the Greater Bay Area regions
My Journey (2004-Current)

- 2005-2007 (USD500k) 音乐编码器
  美国Warner Music

- 2010-2012 (USD5-10m) LED芯片
  中国IDG，MGI，Advanced Materials

- 2013 可见光定位系统

- 2020 (USD1m) 5G器件
  日本

- 2015 (USD500k) 企业物联网
  新加坡NRF，RDV
Innovation and Technology Transfer

- Commercialising 4IR Technologies
- IP Management and Tech-Transfer Practices
Fourth Industrial Revolution (4IR)

4IR promises to revolutionize several aspects of social and economic life:
• Manufacturing (mass customization),
• Transportation (through drones and driverless cars) and
• Healthcare (personalized medication)

1. Large firms (with more than 250 employees) account for over 98% of all 4IR patent applications to the EPO since 1985

2. Firms with a long history in 4IR patent filings benefit more from the development of 4IR technological capabilities than later applicants

3. Returns from 4IR technological developments may be slow to be cashed in

4. Positive relationship with productivity is stronger for 4IR-related wireless technology and for artificial intelligence, cognitive computing, and big data analytics

Source: Oxford Academic: Industrial and Corporate Change, Volume 31, Issue 1, January 2022
IP Management and Tech-Transfer Practices

• Proper IP Management
  • Policies on IP ownership, protection and commercialisation
  • Conduct IP landscape analysis, ensure IP interests are properly protected to drive positive social and economic impact (Patent portfolio is not easy to work-around)
  • Inventions and any technical developments are disclosed timely

• Invention Protection
  • An invention needs to be controllable (i.e. through patents, contracts, trade secrets or a combination)
  • Patent filing strategy for a technology should consider protection in countries where the technology will be manufactured, commercialised and where competitors may operate

• Technology Transfer Practices
  • 99% of technologies do not see mass adoption (fact!)
  • Consider technical and market validation funding
  • Inventors are not the best entrepreneurs (naïve, greedy)
  • Tech > Team > BizModel > Timing > Luck
Challenges for Commercialisation

- Universities to Industry to Multilateral
- Promoting an 'Innovation' Ecosystem
Licensee company is granted the rights to manufacture, market and sell products or services developed from the patented technology.

1. **Engineering**
   - R&D Engineering
     - Patent Applications
   - 1-5 Yrs

2. **Promotion**
   - Commercialisation
     - Searching for Use Case
   - 5-8 Yrs

3. **License**
   - Early Adoption
     - Productisation
   - 8-12 Yrs

4. **Maintenance**
   - Mass Adoption
   - 13-20 Yrs
Case Study: Patent Pooling

Adaptive Streaming
MP4 Audio Codec

- Applied for 9 US patents, 2 entered into the MPEG-4 SLS standards

Take-aways:
- Technology has a lifespan…4G technology reduced the need for SLS
- Incumbent MP3 technology is almost impossible to replace
- Importance of Big Brands support

Outcome:
- Inventor recruited to Dolby
- Patent Pool formed, Warner Music invested in 2017

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Case Study: Exclusive Licensing

High-power LED Chips

- R&D (2005-2010)
- Applied 7 US patents, only 1 is really valuable
- Leadership team is critical for fund raising, core team members is the value of tech

Outcome:
- Offered 30% shares for USD10M early-stage investment

Take-aways:
- VC Lead is very important
- Industry timing critical for fund raising
- Other USP: US patent grant, market validation, core tech team...
Case Study: No Patents

End-to-End Enterprise IOT Platform

- No patent application, using open-source
- Relyed on individual capabilities (CTO)

Outcome:
- Proof-of-concept achieved seed investment, but not enough for a Pre-A or Series A round

Take-aways:
- Sizable customer is very critical to build investor’s trust
- Startups needed VC’s connections
- Patents and Big customers are absolutely needed for fund raising
Innovation’ Ecosystem

Research › Innovation › Economic Impact

‘Knowledge-based, highly productive and competitive economy’ built on innovation, research, science and technology:

• more research funding and start-up incubators
• proper intellectual property (IP) management and technology transfer processes
• access to industry and venture capital to support the adoption of new technology

MassChallenge is a non-profit organization dedicated to supporting innovation and entrepreneurship through collaboration and development. (https://masschallenge.org/)
Crossing Borders, Going Global

- Protection and Localisation
- Need for Greater Collaboration
Innovation Protections

If you don’t see a problem with this question, you need this class!

"All I asked was, ‘Can I patent my copyrighted trademark?!’"
Crossing Borders

Tech Export:
- Data Restriction
- Tech Restriction

Tech Import:
- Gov. Embracement
- Gov. Protection
Report: Innovation for Hong Kong’s Upward Social Mobility, HKUST Business School 2022
Prof. XU Yan, Mr YU Chun

• Hong Kong is losing the momentum for economic growth.
• If young people have no hope for the future, Hong Kong will have no future.
• Combine the strength of partner cities in the Greater Bay Area

“Global Innovation Index 2020”

• Hong Kong is ranked 11th overall
• But 54th in “Knowledge and technology output”
Embrace Technology, Ready to Adapt & Adopt.