Use of Patent Analytics by Government Agencies & Public Institutions

Dr Tiam-Lin Sze
Director, IP Intermediary (IPI)
SINGAPORE

ipi-singapore.org
An Overview of Singapore

- **Physical:**
  - Land area: ~700 sq km
  - Limited natural resources
  - Geographical position

- **Population:**
  - 1960: 1.60 million
  - 2012: 5.28 million

- **Economy (GDP):**
  - 1960: US$1.5 billion
  - 2012: US$266 billion

- **Per Capital GDP**
  - 1960: US$428
  - 2012: US$60,000

- **Political Landmarks:**
  - Parliamentary democracy
  - 1965: Independence

- **A Vibrant Business Hub**
  - Over 7,000 Multi-National Corporations (MNC)
  - 1/3 of Fortune & Global 500 have HQ activities
  - 4,000 Business enterprises from China, India, Australia and New Zealand
  - Multi-racial and English-speaking workforce
  - Lowest risk business hub
Singapore Economy

Manufacturing accounts for about a fifth of GDP (20%)
Growth of the Singapore Economy

<table>
<thead>
<tr>
<th>Years</th>
<th>Type of Intensive</th>
<th>Description</th>
<th>Events</th>
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<tbody>
<tr>
<td></td>
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</table>

**Source:** Singapore Ministry of Trade and Industry

- **GDP**
  - 1960 US$704.5 mil
  - 2011 US$262 bn (S$326.8 bn)

- **Per Capita GDP**
  - 1960 US$428
  - 2011 US$50,000 (S$63,050)
Agency for Science, Technology & Research (A*STAR)

Total scientific and technical staff ~2,900

As of Nov 2008
Use of Patent Information in Public R&D

- Research Grant Call
- Challenges/Opportunities in R&D
- Industry R&D Collaboration
- IP Filing Strategy
- Potential Licensees/Licensors
- Freedom to Operate (FTO)
- Competitive Research
Overview of Patent Databases & Tools

Thomson Reuters (Aureka /Delphion /Derwent)

Thomson Reuters, also known as Aureka, Delphion, and Derwent, offers comprehensive patent databases and tools for patent search, reports, and citation analysis. These tools provide advanced search capabilities and detailed information on patent applications and grants.

PatSnap

PatSnap is another powerful patent database that offers advanced search functionalities and detailed citation maps. It provides a user-friendly interface for accessing and analyzing patent information.

Others...

WizPatent (www.wizpatent.com)
LexisNexis (www.lexisnexis.com)
WIPS Global (www.wipsglobal.com)
Patents information is:

- Increasing used in grant call and requires Principal Investigators to assess what’s out there and how a research proposal can differentiate and value-add
- Ascertain what technologies are needed to bring about commercialization and/or potential collaborations to accelerate R&D outcome
Patents Information is used to:

- Identify commercial challenges in MEMS applications and devices
- To explore how computational MEMS can provide insights into MEMS design
- To explore new applications & opportunities
Challenges & Opportunities in R&D (Part II)

Patents Information is used to:

- To identify key players and products in the market place
- To review R&D plan and explore workaround solutions
- To consider the possibilities of partnerships and/or in-licensing
Patents Information is used to:

- To study existing and the evolution of design
- To explore and innovate new design
- To study market segment and country filing strategy
- To improve R&D proposal for funding support
Patents Information is used to:

- To search for prior arts and study/analyze related claims
- To underline key advantages and disadvantages of Technology Disclosure
- To develop patent portfolio, i.e., looking internally and externally
- To explore usage or IP bundling across Research Institutes @ A*STAR
- To determine possible countries to file
Tera-Barrier Films receives strategic investment from Applied Ventures

Tera-Barrier Films Pte. Ltd., a new spin-off from the Singapore Agency for Science, Technology and Research’s (A*STAR) Institute of Materials Research and Engineering (IMRE), recently announced that Applied Ventures, LLC, a venture capital arm of Applied Materials, Inc. has made a strategic investment in the company.

The funds will be used for the development and manufacture of a new proprietary, moisture resistant film that can significantly extend the life span of devices such as organic solar cells and flexible displays.

Christopher Moran, vice president and general manager of Applied Ventures, said “This investment is in line with Applied Materials’ strategy to spur development of a broad range of products that not only serve customers’ needs, but conserve the Earth’s natural resources, and make alternative energy and environmental solutions more accessible and affordable.”
Finding Potential Licensees or Partners

Patents Information is used to:

- To identify & target potential licensees
- To source new technologies for commercialization
- Study potential infringements and technology offers
**Freedom to Operate (FTO)**

**Case 1: Technology A**

- General lighting (e.g., evacuation, decorative articles, etc.)
- Chemical energy conversion, rain, evaporation, etc.
- Electricity, telecommunications, etc.
- Heating, cooling, etc.
- Food, Agriculture, Administrative, non-exhaustive patent (e.g., waste treatment, hydroelectric generation, etc.)
- General household furnishings, kitchen equipment, decorative articles, etc.

**Case 2: Technology B**

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<td>Human Biosys LLC</td>
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<td>IBVA Technologies, Inc.</td>
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**Companies/Research Orgs**

**Individually**

- Unknown (2)

**Unknown**

- Unknown (2)

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**Patents Information is used to:**

- Ensure Licensor has right to license a technology
- Licensee has a right to practice technology
- Assess the need to in-license
Millimeter Wave 60GHz Project...

- **Demand Trend:** multimedia infotainment on-the-go

- **Solution:** 60 GHz CMOS technology offers low-cost ubiquitous secured wireless connectivity at multi-Gbps data rate up to 3 m range

- **Readiness:** A*STAR –NTU have created valuable IPs to venture into 60 GHz chipset productization and commercialization

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**Total Addressable Market for chipsets:**

- **US$0.5B – 1.2B in 2015**

**Applications:**

- **(a) Consumer Electronics:** HDTV, video streaming
- **(b) Mobile:** Video download, bulk data transfer
- **(c) PC & Peripherals:** WUSB, IPTV, Gaming
IP Intermediary (IPI) Singapore

Launched in 1 April 2011:

A nexus for local enterprises to access and acquire enabling technologies, know-how & intellectual property as a means to innovate and upgrade its businesses.
Addressing the Gaps ...

1. Information (Access) Gap
2. Translation Gap
3. Transfer (Transaction) Gap
4. Funding Gap, etc.

R&D, Technology & Innovation Providers

1. Study of the Role of Intermediaries in Support of Innovation – Australia Department Industry, Tourism and Resources, April 2007

What We Do …

**SCOPE:**
Understand company’s business, product and services; translate innovation objectives into specific IP and technology requirements, etc.

**MATCH:**
Introduce and facilitate discussion, site visits, technology evaluation, collaboration models, funding and others in order to facilitate agreements.

**SOURCE:**
Contact technology providers, establish business model, e.g., licensing, collaboration, etc.

**SCAN:**
Search available technologies or expertise from local and overseas sources through IPI Network, technology portals, patent analysis, etc.

**ASSESS:**
Assess technologies, TRL and company’s requirements, etc.
Use of Patent Information in GOV Agencies

- Searching for Innovation Opportunities
- IP Clustering of Technology Partners
- Patent Analysis in Grant Submission
Using Patent To Search for Innovation Opportunities

THOMSON INNOVATION

Text Clustering

Save | Edit

By Classifications

- H04L1/38
- G01S13/95
- H01F1/07
- H01Q1/34
- H04L13/10
- G01S15/00
- G01S13/89
- H01Q19/06
- H01Q21/00

By Document Type

- U.S. Patent Application
- U.S. Issued Patent
- WIPO Publication
- European Patent Application
- European Issued Patent
- Japan Patent
- China Patent

Cluster Details

- optical, laser, signal (241)
- channel, wireless, packet (202)
- dielectric, substrate, conductor (165)
- signal, phase, frequency (174)
- antenna, element, package (164)
- communication, station, communication device (106)
- layer, semiconductor, film (144)
- line, transmission, line, power (137)
- interface, module, game (120)
- beam, beamforming, link (117)
- node, delimiter, symbol (107)
- transceiver, waveguide, filter (102)
- terminal, translator, amplifier (96)
- section, radar, vehicle (89)
- board, phase, tunable (68)
- broadcast, display, service (67)

Cluster Words:
- optical
- signal
- light
- modulator
- modulate
- wavelength

UPC Class Table Analysis

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IPC Category Table Analysis

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<td>Performing Operations, Transporting</td>
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<td>Textiles, Paper</td>
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<tr>
<td>7</td>
<td>Fixed Constructions</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>Mechanical Engineering, Lighting, Heating, Weapons</td>
<td>3</td>
</tr>
</tbody>
</table>

Ahmadreza

Broadcom Corp.

Invention with discontinuous phase for RF transmitters with power control

For power modulation with discontinuous phase for RF Transmitters with power control, the plurality of amplifiers provide a coarse amplitude gain and a power level, and a signal may be amplified utilizing a combined gain provided by the transmitters. The signal may comprise modulated RF signal, and/or a phase modulated RF signal.

Clustering Map based on 1 patent from query (US6111795)

IP Clustering of Technology Partners

1. Life Sciences (>249)
2. Wireless Comm (>183)
3. Functional Polymer (>23)
4. Catalysts (>16)
5. H Production/Storage (>4)
6. Polymer Film (>19)
7. Focus Beam System (>14)
8. Optical Fiber (>8)
10. Hydrogen/Laser for Surface Treatment (>16)
11. Optoelectronics (>20)
12. Composite & Coating (>14)
13. Semiconductor Devices & Fabrication (>160)
14. Circuit & IC Design (>30)
15. Fluidics & Microfluidics (>54)
16. Antenna (>10)
17. Circuit Impedance Transistors
18. Composite & Coating
19. Semiconductor Devices & Fabrication
20. Software - Network, Enterprise IT, Media (>54)
21. Image Processing (>260)
Patent Analysis in POC and POV Submission

NRF AWARDS 12 PROOF-OF-CONCEPT GRANTS UP TO $250,000 EACH

20 November 2011, Singapore – Fearful of a needle prick? Worried about wearing eyeglasses? These common concerns are areas being addressed by projects that are awarded the Proof-of-Concept (POC) grant by the National Research Foundation (NRF) today. Twelve POC awards were made on the recommendations of an expert panel to evaluate several dozen proposals submitted by the institutes of higher learning (IHLs). Award amounts will range from $250,000 each and be given within 12 months to turn their ideas into commercial prototypes.

One example of a project which has commercial potential is the development of a microscope that can detect and collect cancercells from the blood for analysis, thus avoiding the pain and effort of a biopsy. Another project aims to develop a new disposable soft contact lens which could delay the onset of myopia. A third project, if successful, could offer a dressing patch made of algae and extracts of human umbilical cord and hMSCs to stem cells for treating wounds. The innovative technology field, a proposal for 3D neuroprostheses consisting of strategically positioned embryos and providing an enhanced patchy and entertainment experience. These project proposals were evaluated on a range of criteria such as project scope, innovativeness, technical soundness, market potential, manufacturability and scalability as well as their potential for spin-offs.

The Evaluation Panel recommended that from the next POC grant call, principal investigators would be encouraged to seek endorsement for their projects from potential customers, investors and industry partners. Such endorsements will serve to indicate the degree of innovativeness and the potential for economic and societal benefit of the inventions.

Biomedical Engineering Programme (BEP) 2012 Grant Call Announcement

The Agency for Science, Technology and Research (A*STAR) has launched the Biomedical Engineering Programme (BEP) 2012 Grant Call. This call aims to support research efforts in the field of biomedical engineering.

The BEP seeks to foster collaborations between biomedical engineers and clinical researchers to develop medical devices and solutions to clinical problems. In particular, it supports collaborative research projects with an emphasis on devices, procedures, diagnostic, and clinical systems to improve patient care and cost-efficiency of the healthcare system. Applications for the BEP 2012 Grant are not restricted to a particular clinical area but priority will be given to proposals in the following areas: Cardiology, Neurology and Orthopaedics.
Thank you for listening
A Special Thanks ...

Intellectual Property Office of Philippines (IP PHL)
and
World Intellectual Property Organization (WIPO)