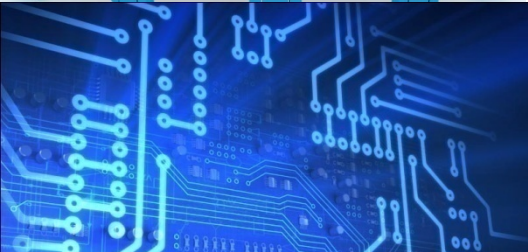




WIPO Inter-Regional Workshop on
Patent Analytics
4-6 Dec 2013
Manila, PHILIPPINES

Use of Patent Analytics by Government Agencies & Public Institutions



ipi-singapore.org

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

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



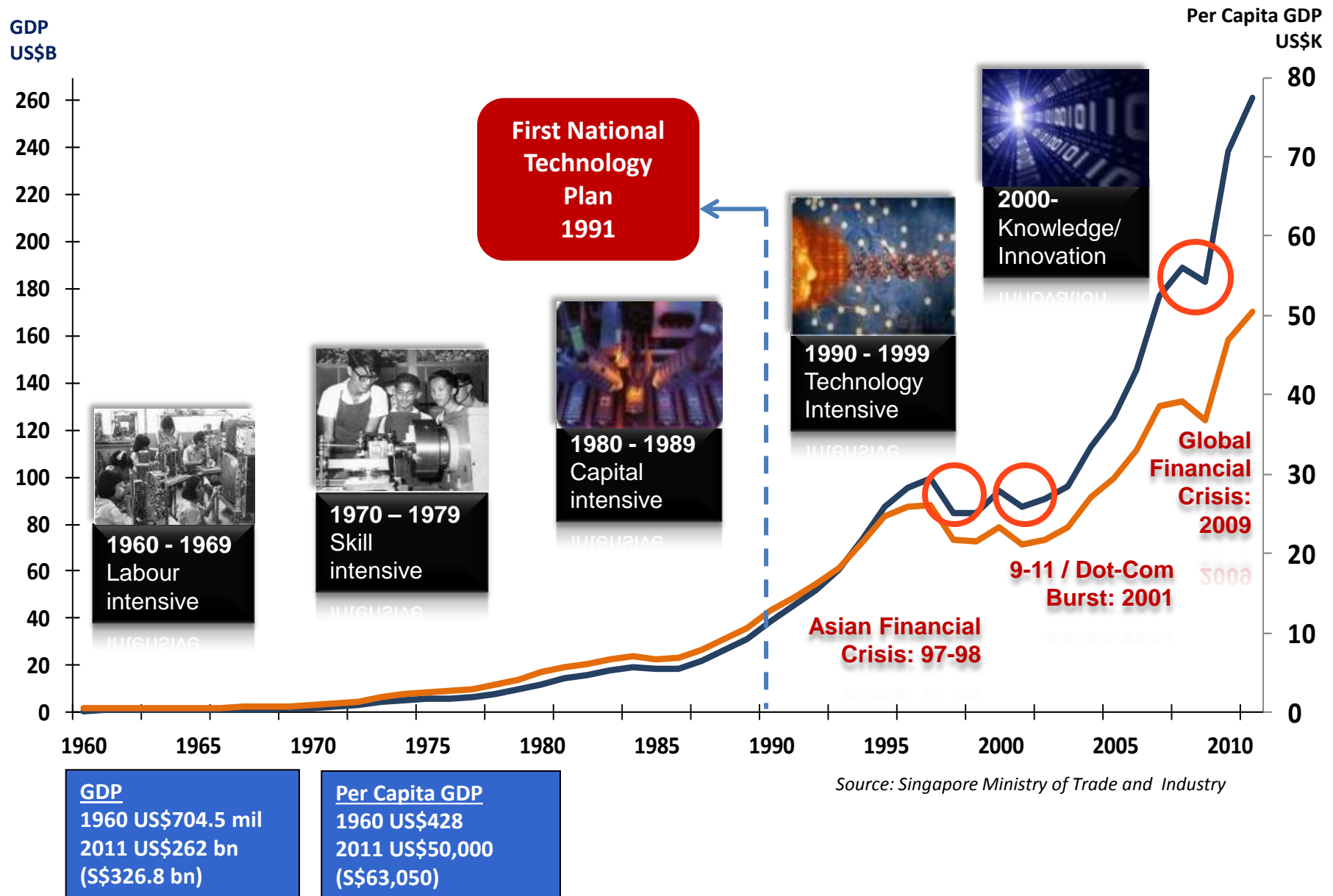
❑ A Vibrant Business Hub

- 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

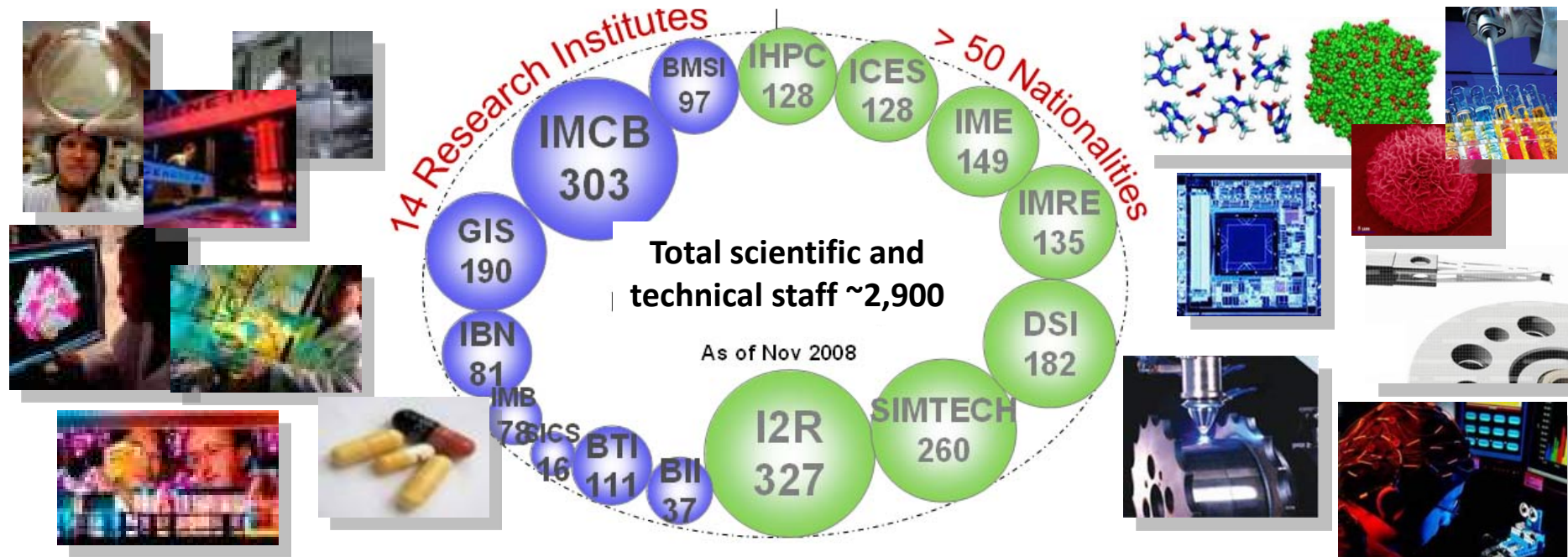
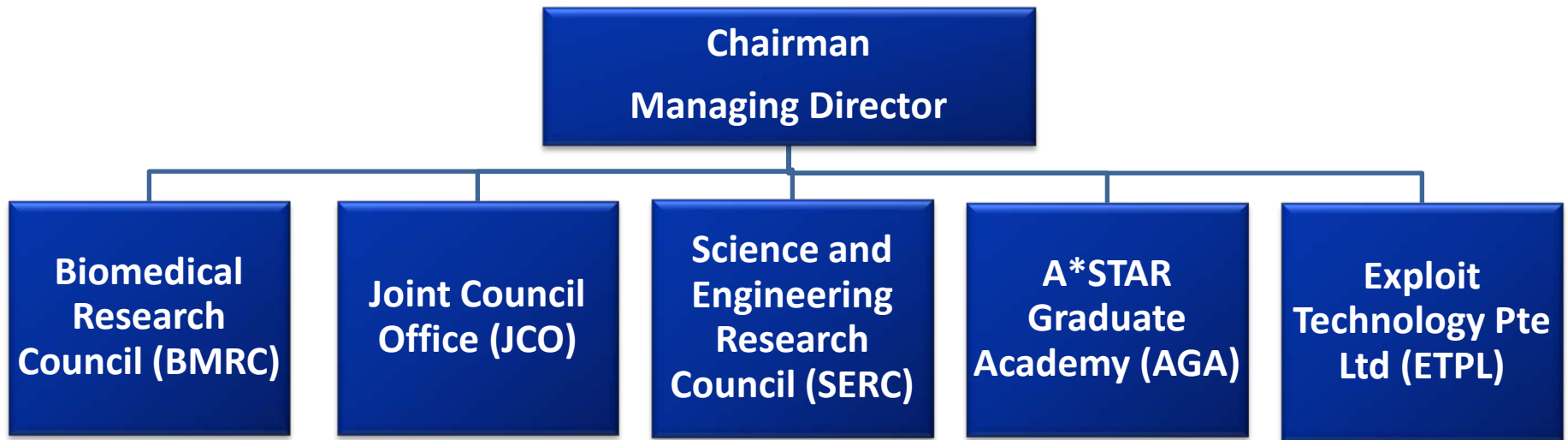
Singapore Economy



Growth of the Singapore Economy



Agency for Science, Technology & Research (A*STAR)



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)

The image displays three screenshots of Thomson Reuters patent databases. The top left shows the Aureka Gold interface with a search results list. The top right shows the Delphion interface with a map visualization of patent data. The bottom left shows the Derwent interface with a search results list. A large yellow box with the text "Patent Search Reports Citation MapManager" is overlaid on the Aureka Gold screenshot. A smaller yellow box with the text "Advanced Search Citation Link Derwent" is overlaid on the Derwent screenshot.

Patent Search Reports Citation MapManager

Advanced Search Citation Link Derwent

PatSnap

The image displays two screenshots of the PatSnap patent database interface. The top screenshot shows the main search results page with a list of patents and a map visualization. The bottom screenshot shows a detailed view of a patent, including its abstract, claims, and a graph of citation trends over time.

Others ...

WizPatent (www.wizpatent.com)

LexisNexis (www.lexisnexis.com)

WIPs Global (www.wipsglobal.com)

Research Grant Call



Source: H2O Solutions



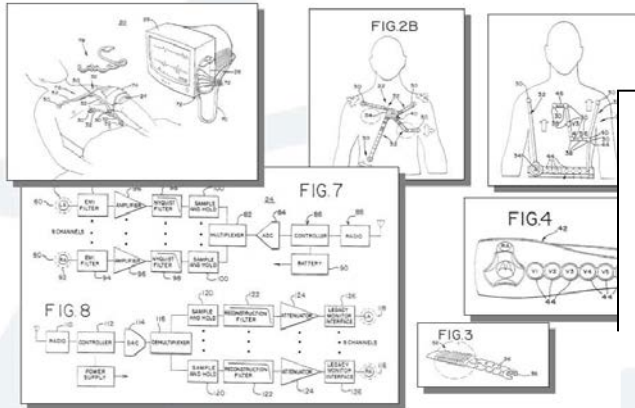
Patents information is:

- ✓ 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

Challenges & Opportunities in R&D (Part II)

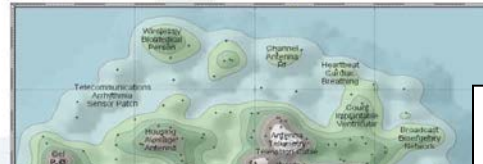
Key Patents in Remote/Wireless Patient Monitoring

US6611705: Wireless Electrocardiograph System & Method (Motorola)



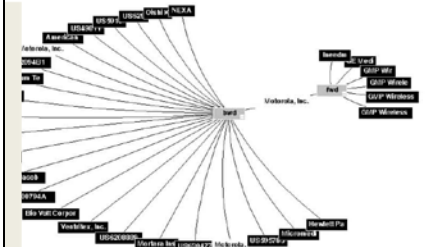
Key Patents in Remote/Wireless Patient Monitoring

US6611705 /Related Patent Landscape



Key Patents in Remote/Wireless Patient Monitoring

US6611705: Citation - Backward (22)/Forward(6)



Relevant Industry Players

- LifeSync

Background:
Founded 2000 (former GMP Wireless Medicine)
HQ @ Florida

Technology:
GMP Wireless has 9 US patents
Bluetooth connectivity
Licensed exclusively from Motorola (18 patents)
FDA/FCC approved Wireless ECG @ 2003

Product/Business:
LifeSync System/LeadWear Disposal
Implemented in 13 hospitals (US)



Source: LifeSync



A 3 1 A R S

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

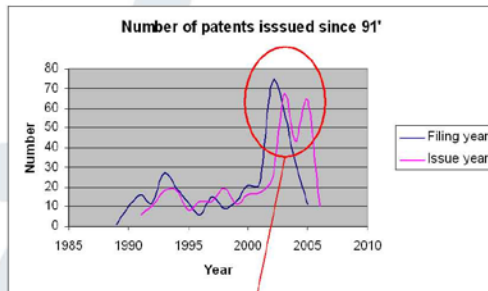
Industrial R&D Collaboration

Patent analysis on Safety needles



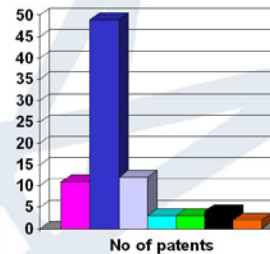
Patent filing trends

357 patents issued since 1991



Due to Needlestick Prevention Act in 2001 - 2003

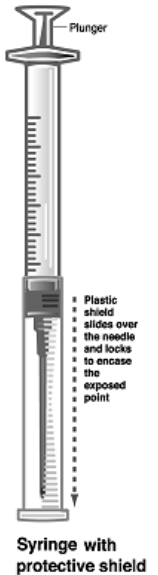
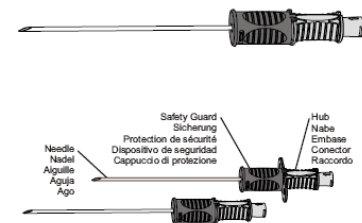
Assignees of patents



SecureLoc® Safety Introducer Needle

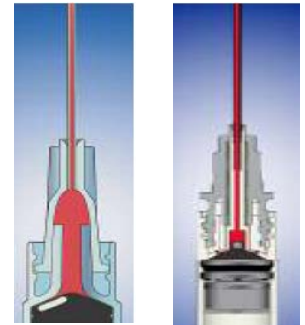
English Instructions for Use
Deutsch Gebrauchsanweisung
Français Mode d'emploi
Italiano Istruzione per l'uso
Español Instrucciones de uso

Specialized Health Products®, Inc.
565 West 500 South
South Salt Lake, UT 84115
1-800-308-3360 (USA, Canada)
1-801-298-3360
www.shpi.com

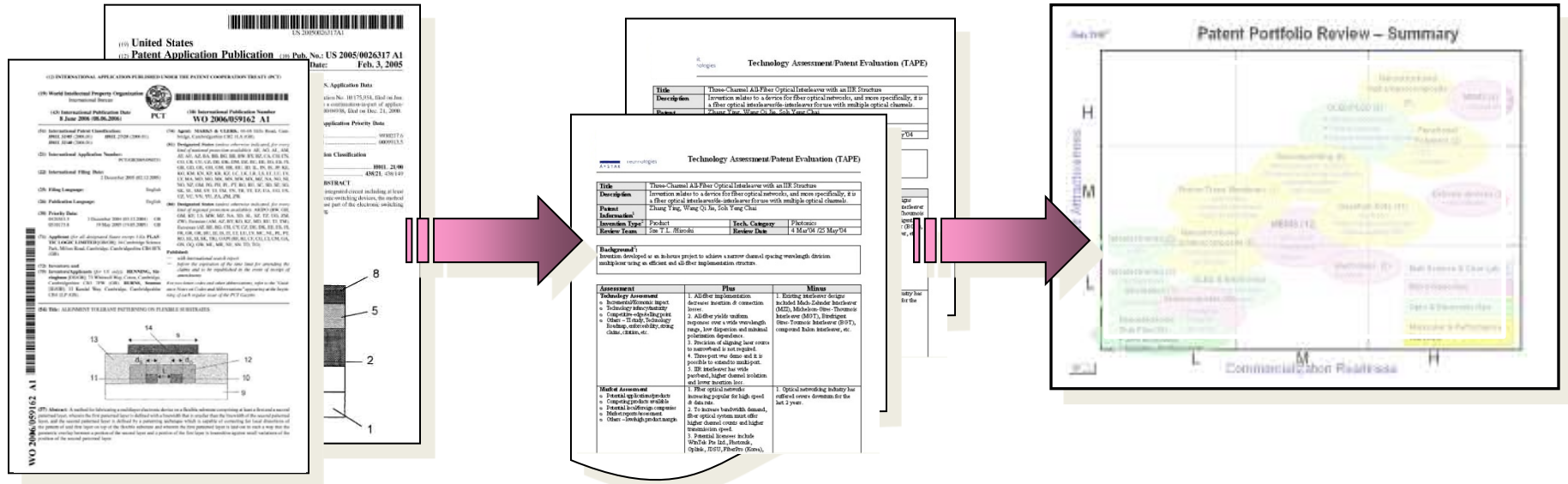


Patents Information is used to:

- ✓ 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



IP Filing Strategy

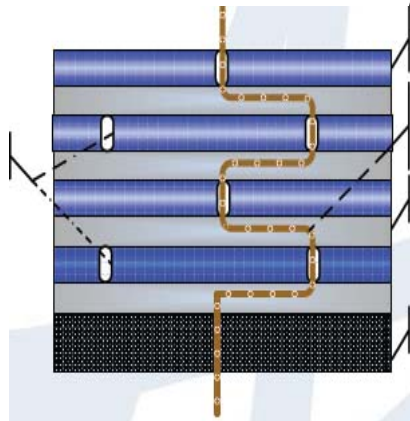


Patents Information is used to:

- ✓ 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

A Case Study: Flexible Barrier Substrate

Substrate Barrier



THE OSADIRECT NEWSLETTER

OLED Lighting IP Landscape Review

- * More than 1,800 patents
- * Patent data included
- * More than 250 companies
- * Easy to use

[click here for more details](#)

News Magazine Archive Register Contact

Devices Materials Commercial Process Patents

Where am I? [Home](#) > [Magazine](#) > [Newsletter Archive](#) > Tera-Barrier Films receives strategic investment from Applied Ventures

Saturday, 13th April 2013

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.

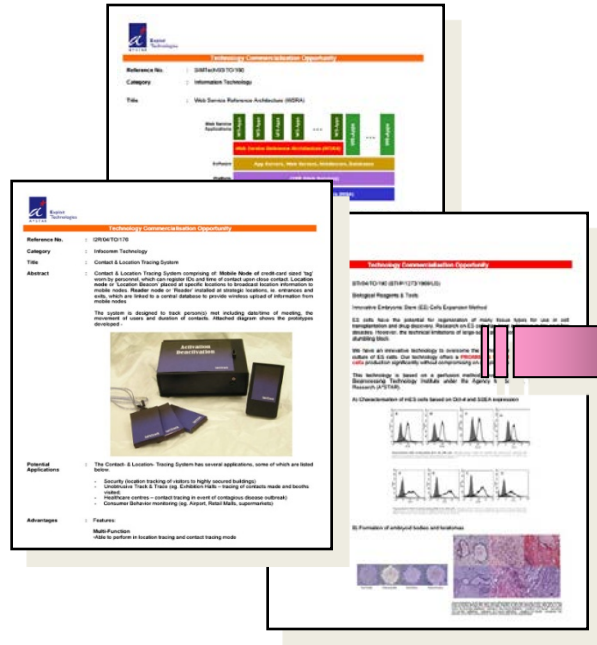
The funds will be used for the development and manufacture of a new proprietary, moisture resistant film that will significantly extend the life span of devices such as organic solar cells and flexible displays.

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."

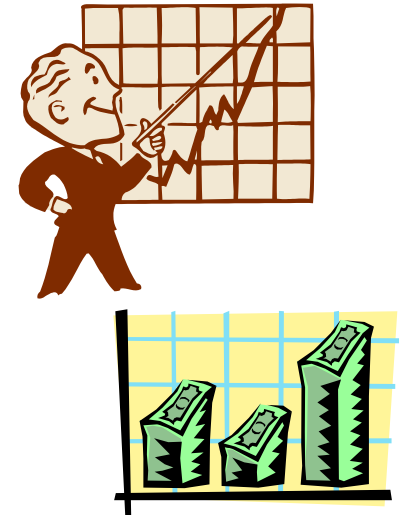


Finding Potential Licensees or Partners

A*STAR Technology Offer



Enterprise Technology Needs



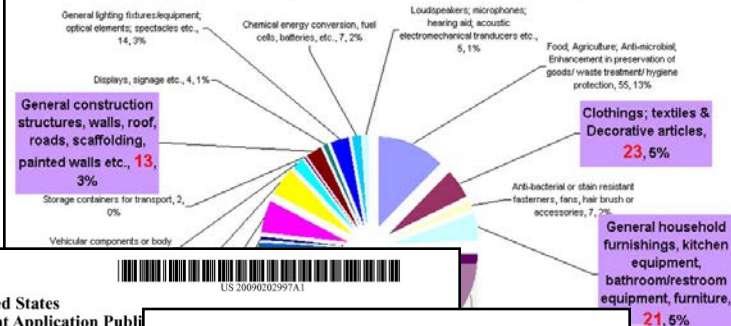
Patents Information is used to:

- ✓ 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

End User Application Vs. # Patent Families



US 2009/0202997 A1 Aug. 13, 2009

5

1. A process for the preparation of membrane proteins incorporated in a membrane, comprising the steps of:

(i) providing a membrane;

(ii) applying a cell-free expression system and a nucleic acid coding for the membrane proteins to the membrane; and

(iii) expressing the membrane proteins, which are incorporated into the membrane.

2. The process according to claim 1, wherein the membrane is a surface bound membrane.

3. The process according to claim 1, wherein the membrane is a tethered membrane.

4. The process according to claim 1, wherein the membrane is a tethered membrane.

5. The process according to claim 4, wherein the tethered membrane is a peptide-tethered membrane, a silane-tethered membrane, silane-thiol-tethered membrane or a polymer-tethered membrane.

6. The process according to claim 1, wherein the membrane is bound or tethered to a dielectric surface or a non-dielectric surface.

7. The process according to claim 1, wherein the membrane is bound or tethered to a surface comprising a metal or metal oxide.

8. The process according to claim 1, wherein the membrane is a planar membrane and/or has a vesicle-composite architecture.

9. The process according to claim 1, wherein the membrane comprises natural membrane components, synthetically produced lipids or amphiphilic polymers.

10. The process according to claim 1, wherein the membrane comprises phospholipids, including DMPC or phosphatidylcholine.

11. The process according to claim 1, wherein the membrane is a two-layer lipid membrane.

12. The process according to claim 1, wherein the membrane protein is a TM protein, a membrane associated protein or a membrane spanning protein.

13. The process according to claim 1, wherein the membrane protein is selected from the group consisting of G-proteins coupled receptors, neurotransmitter receptors, kinases, protein ABC transporters, ion transporters, acetylcholine receptors and cell adhesion receptors.

14. The process according to claim 1, wherein the membrane proteins are coupled with a tag.

15. The process according to claim 1, wherein the membrane proteins are tag-free.

16. The process according to claim 14, wherein the tag is selected from the group consisting of epitopes, a portion of a high affinity binding pair, and a label, wherein the epitopes comprises a VSV, His tag, Strept tag, Flag tag, myc tag or GST tag wherein the partner of the high affinity binding pair comprises a bait or prey, and wherein the label comprises a fluorescent label, an enzyme label, NMR label or isotope label.

17. The process according to claim 1, wherein the cell-free expression system is an in vitro transcription and translation system.

18. The process according to claim 1, wherein the cell-free expression system is a eukaryotic cell-free expression system comprising a T7/R11 system based on rabbit reticulocytes, a prokaryotic cell-free expression system or an archaeal cell-free expression system.

19. The process according to claim 1, wherein the nucleic acid coding for the membrane proteins is added as cDNA.

20. The process according to claim 1, wherein the membrane protein is incorporated into the membrane in functionally active form.

21. A membrane having incorporated a membrane protein, obtainable by the process of claim 1.

22. Use of a membrane obtainable according to claim 21 in sensor technology as an adsorbent receptor or as drug sensor, and/or in warfare applications for detecting biological, toxic or explosive material.

23. Use of a membrane obtainable according to a process of claim 1 for determining the function and/or structure of membrane protein.

24. The use according to claim 23, wherein the determination method employed comprises an optical method, a surface enhanced optical method or an electrochemical method.

25. The use according to claim 24, wherein the IR spectroscopy, surface plasmon enhanced fluorescence spectroscopy or surface plasmon resonance is employed.

26. The use according to claim 22, wherein the detection method employed comprises an optical method, a surface enhanced optical method or an electrochemical method.

27. The use according to claim 26, wherein the IR spectroscopy, surface plasmon enhanced fluorescence spectroscopy or surface plasmon resonance is employed.

0001. The present invention is related to synthetic membranes, incorporated therein and, in part, transcription and translation of membranes, e.g., into tethered planar lipid present invention provides a new of such membranes. The membrane investigation of membrane receptor

0002. A detailed investigation biological pathways involving of such investigations, efficient and systems are required to characterize binding interaction in isolation which the receptor may be engaged

0003. Therefore, model systems have been developed such lipid membranes (BLMs) as well as vesicles such as solid-supported lipid bilayers. Tethered lipid membranes (TLMs) have been developed as solid-supported lipid bilayers with hydrophobic peptide, polyethylene glycol (PEG) covalently to support. To incorporate membrane proteins into such model membrane systems, isolation of membrane proteins and reconstitution into the membrane system has been necessary so far. Thus, for example, forming of a phospholipid monolayer on a solid support and subsequently subjecting this monolayer to lipid vesicles containing acetylcholine receptor (AChR) leads to the incorporation of the acetylcholine receptor into a lipid membrane, wherein the second layer is formed from lipids contained in the lipid vesicle (E. K. Schmidt et al., *Biochemistry and Biophysics* 13 (1994) 585-591), R. Nussim et al. (*Biochemistry and Biophysics* 14 (1999) 61-66) describe the incorporation of cytochrome c oxidase (COX) into a lipid membrane, wherein the second layer is formed from lipids contained in the lipid vesicle. Liposomes comprising phospholipid bilayers are spread on a thiolated lipid monolayer to form a peptide-tethered lipid bilayer membrane. This membrane is then incubated with isolated cytochrome c oxidase.

0004. A similar approach was reported for incorporation of integrins into artificial planar lipid membranes (E. K. Sinner, *Analytical Biochemistry* 335 (2004) 216-224). In this approach, integrins were incorporated into a lipid-functionalized peptide layer by vesicle spreading. Also with this approach membrane proteins-containing vesicles had to be prepared first, requiring preparation and isolation of the membrane protein.

0005. A problem in the case of the tethered used manufacturing method was that the membrane protein had to be

Case 2: Technology B

Assignees	No. of Patents /Applications
ADHD SOLUTIONS LTD.	1
Institute of National Research & Technology	1
Biofeedback Computers, Inc.	1
Human Bionics LLC	1
IBVA Technologies, Inc.	1
INTERACTIVE PRODUCTLINE INC.	1
MindCenter Corporation	1
MINDWAVES, LTD.	1
National Institute of Information and Communications Technology	1
NEUROSKY, INC.	1
SSI Corporation	1
The United States of America as represented by the Administrator of the National Aeronautics and Space Administration	1
Unique Logic and Technology, Inc.	4
ZYBERNETIX, INC.	1
BROTZ, GREGORY R.	1
CONKWRIGHT GEORGE COLBY	1
PRELL, ANDREW J.	1
TORCH WILLIAM C	1
TRACHTMAN, Joseph N.	2
Unknown	2

COMPANIES/
RESEARCH ORG

INDIVIDUALS

UNKNOWN

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

Competitive Research: mmWave-60GHz-WiGig

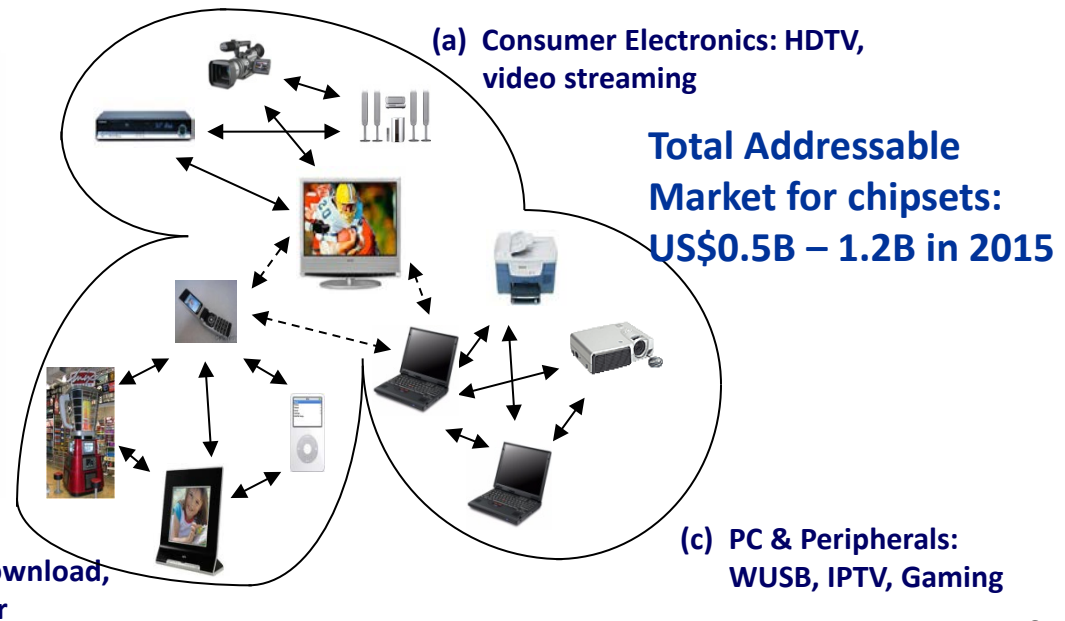
Millimeter Wave 60GHz Project ...

- + 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**

TICI Insights on
60 GHz MillimeterWave WPAN

*Standards, Markets
& Competition*

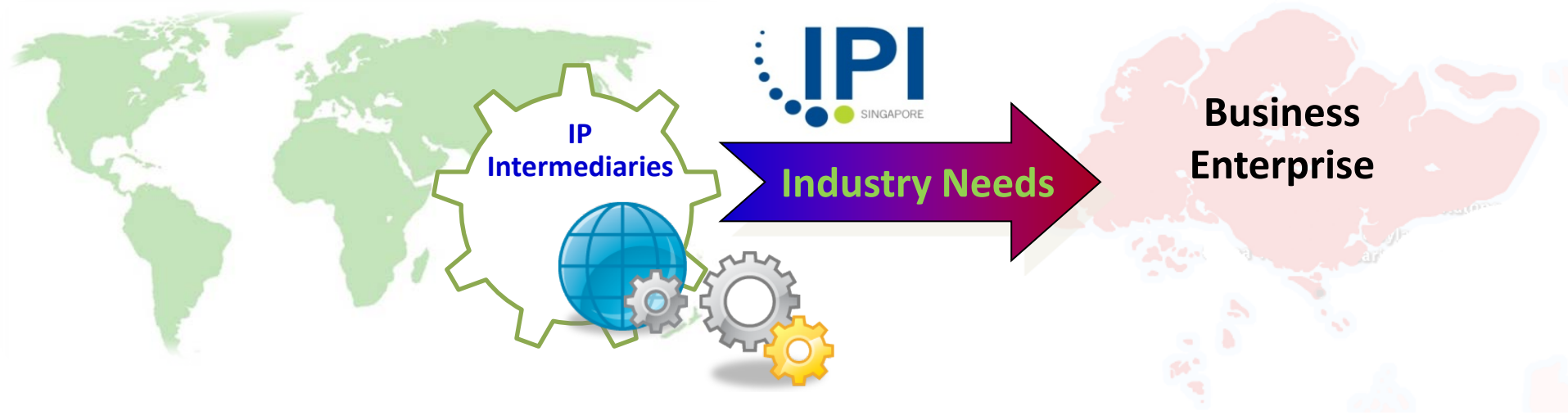
1 Feb 2007



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.



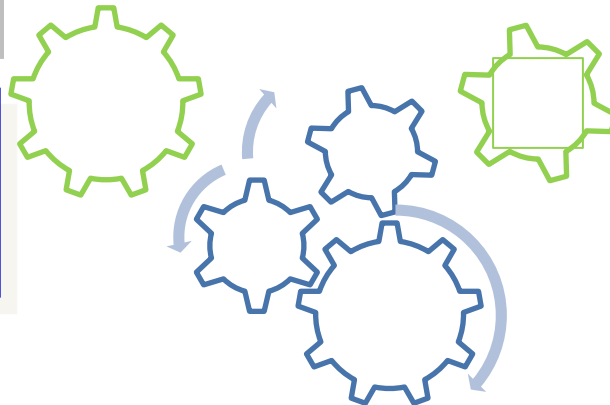
ICT, Electronics, Manufacturing, Energy & Environment, Healthcare, Materials & Chemicals, Marine & Offshore ...

Addressing the Gaps ...

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



**Business
Enterprises**



**R&D, Technology &
Innovation Providers**

1. *Study of the Role of Intermediaries in Support of Innovation* – Australia Department Industry, Tourism and Resources, April 2007
2. *Science & Technology Intermediary Services for SMEs: A Guide via Practices*, European Union, April 2008

What We Do ...

SCOPE:

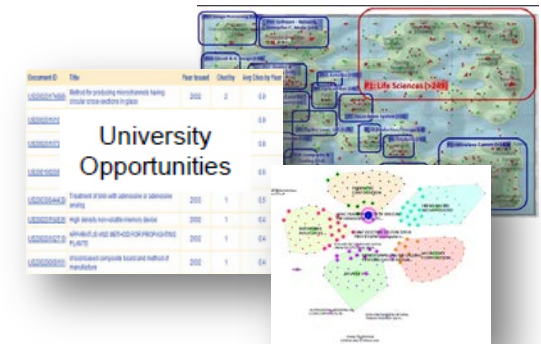
Understand company's business, product and services; translate innovation objectives into specific IP and technology requirements, etc.



Scope

SCAN:

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



Match

Assess

ASSESS:

Assess technologies, TRL and company's requirements, etc.

MATCH:

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



Source

SOURCE:

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



Organizations that IPI works with ...

Local Tech Partners (IP Providers)



Government Agencies



International Tech Partners



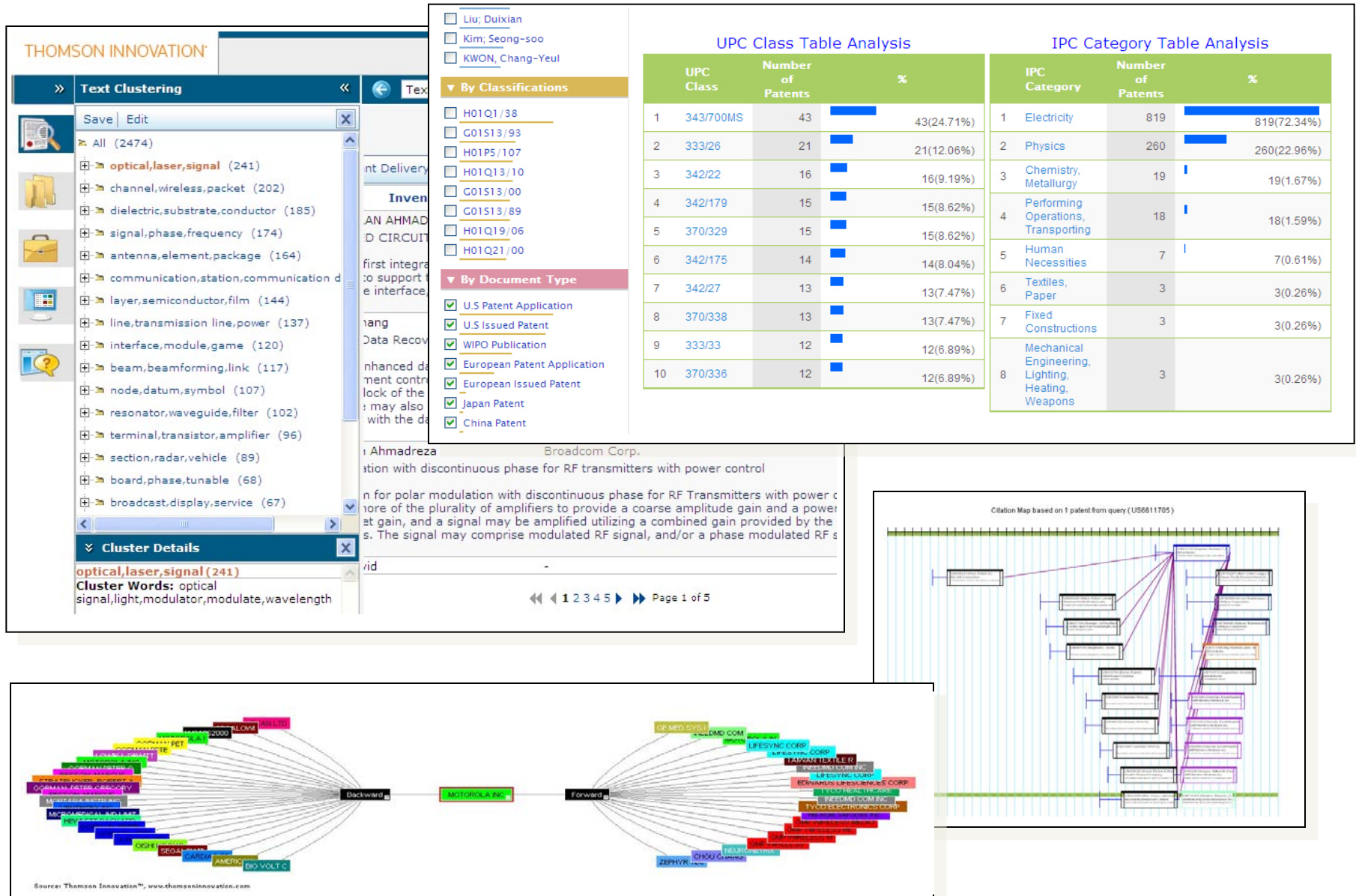
Trade Organizations



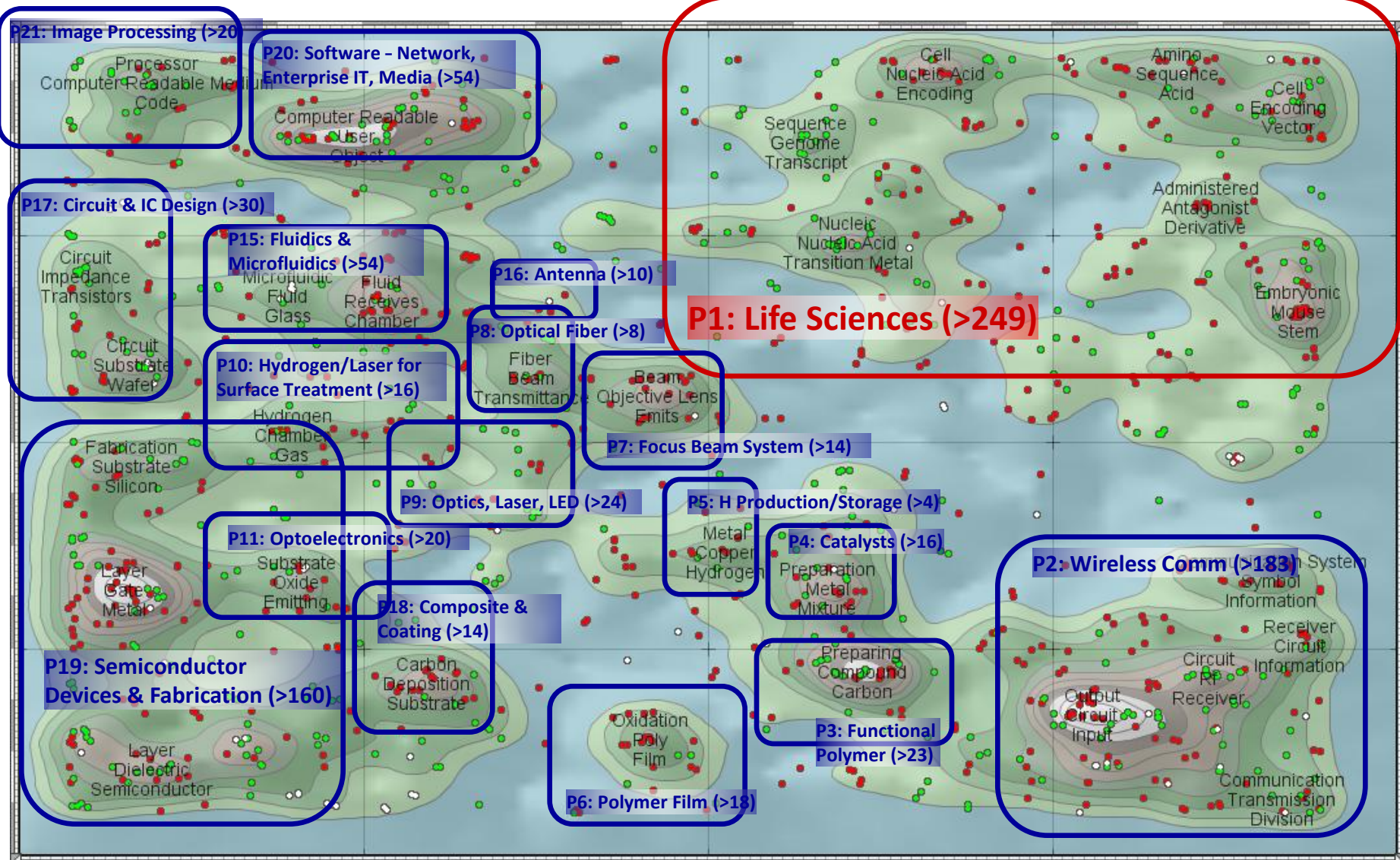
Use of Patent Information in GOV Agencies

- ✓ **Searching for Innovation Opportunities**
- ✓ **IP Clustering of Technology Partners**
- ✓ **Patent Analysis in Grant Submission**

Using Patent To Search for Innovation Opportunities



IP Clustering of Technology Partners



Patent Analysis in POC and POV Submission

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Proof-of-Concept Grant

The Proof-of-Concept (POC) grant scheme provides funding to researchers from public hospitals and institutes of higher learning (IHLs) to enable them to carry out further research on their inventions or ideas. The resulting product or application could then be licensed to interested companies or be marketed by a new company.

A successful POC demonstrates not just technical viability but also a high degree of commercial readiness. This gives

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

25 November 2011, Singapore - A Fearful of a needle prick? Worried about worsening eyesight? 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 recommendation of an expert panel assembled to evaluate several dozen proposals submitted by the institutes of higher learning (IHLs). Awardees will receive up to \$250,000 each and be given 12 months to turn their ideas into commercialisable prototypes.

One example of a project with commercial potential is the development of a microchip that can detect and collect cancer cells from the blood for analysis, thus avoiding the pain and effort of a biopsy. Another project seeks to develop a new daily disposable soft contact lens which could delay the onset of myopia. A third project, if successful, could offer a dressing patch made of aloe vera and extracts of human umbilical cord Wharton's jelly stem cells for healing wounds. In the info-comm technology field, a proposal for 3D headphones consisting of strategically-positioned emitters promise an enhanced gaming 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 proposals from potential customers, investors and/or industry partners. Such endorsements will serve to indicate the degree of innovativeness and the potential for economic and societal benefits of the inventions.

Ministry of Education
moulding the future of our nation

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MOE OLGA > Translational and Innovation Fund

Translational R&D and Innovation Fund

MOE will administer both the MOE Innovation Fund (IF) and NRF Translational Research & Development (TRD) grants under a combined Translational R&D and Innovation Fund (TIF) grant call. The call will be held twice yearly and opened to Polytechnics and ITE. The call will be managed as a unitary grant (i.e. the TIF) with two modes: (a) general-route (i.e. IF) and (b) translational-route (i.e. TRD) grant. The mode has to be specified in the application. TIF funding serves the following objectives:

1. Enable new innovations which will improve or develop new products, processes and systems that generate economic payoffs.
2. Enable self-initiated applied research ideas to be developed to the point which demonstrates potential for product development or improvement that could attract industry funding.

SPRING singapore
Enabling Enterprise

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11 Apr 2013
NR/05/13

15 technology start-ups get \$6 million in SPRING grants

1. Fifteen start-ups have been awarded Proof-of-Concept (POC) and Proof-of-Value (POV) grants totalling \$6 million under SPRING Singapore's Technology Enterprise Commercialisation Scheme (TECS), which aims to bring potentially disruptive technologies closer to the market.

2. The 15 projects cover a wide spectrum of technology areas including medical devices, electronics, engineering, water and environment, as well as infocomm.

Agency for Science, Technology and Research

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Home > Research > Funding Opportunities > Grants & Sponsorship > SERC Biomedical Engineering Programme (BEP)

Biomedical Engineering Programme (BEP) 2012 Grant Call Announcement

The A*STAR Healthcare and Lifestyle Programme Office, under the Science and Engineering Research Council (SERC), announces a call for Pre-Proposals for the Biomedical Engineering Programme (BEP) 2012 Grant. This call will be open from 12 Dec 2012 to 22 Jan 2013.

The BEP seeks to foster Clinician-Engineer collaborations to develop medical devices and solutions to clinical problems. In particular, it supports collaborative research projects with emphasis on devices, procedures, diagnosis, 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 Ophthalmology.

Funding Opportunities

Grants & Sponsorship

Grant Calls

Results of Grant Calls

WIPs Global Citation Analysis

ID: IP001 | Help

Citation: Text Mode Visual Mode Citation from Description: Text Mode Visual Mode

Root Patent US : Granted Patent 6611705 Search US 6611705 B2 2903.08.26 No. of Citation 471 / Unavailable Doc in WIPs 57

Depth B2 ~ F2 Statistical View Primary Applicant Applicant IPC(M) IPC(A) Country Analyze Refresh Filtering ON

Primary Applicant	Total	Backward (235)				Forward (179)			
		sum	B1	B2	B3	sum	F1	F2	F3
Corvatis, Inc.	73	0	13	55	0	5	1	4	0
Health Hero Network, Inc.	13	0	0	0	0	13	7	6	0
Medtronic, Inc.	12	0	0	0	0	12	0	12	0
Sotera Wireless, Inc.	11	0	0	11	0	0	0	0	0
A*STAR Technological Resources Pte. Ltd.	9	0	0	0	0	9	0	9	0

Search results: Total 414

Citation Depth	B3: 0	B2: 211	B1: 24	F1: 46	F2: 133	F3: 0	etc: 0
Citation Profiles	US: 400	EP: 6	PCT: 8	JP: 0	KR: 0	CN: 0	

No	Country	Number	Kind	Date	Title	Cited Info.	No. of F1	Analysis Link
1	US	6611705	B2	20030826	Wireless electrocardiograph system and method	0000	-	Claim Family
1	US	8591411	B2	20131126	Body-worn vital sign monitor	00	0	Claim Family
2	US	8591430	B2	20131126	Adherent device for respiratory monitoring	00	0	Claim Family
3	US	8594776	B2	20131126	Alarm system that processes both motion and vital signs using specific heuristic rules and thresholds	00	0	Claim Family

Thank you for listening

A Special Thanks ...

**Intellectual Property Office of
Philippines (IP PHL)**

and

**World Intellectual Property
Organization (WIPO)**

