THE IMPORTANCE OF INTELLECTUAL PROPERTY (IP) TO YOUR RESEARCH

24 October 2018
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Learning Outcomes

Mr Daniel Poh (Marks & Clerk Singapore LLP)
- Intellectual Property (IP)
  - What is IP & Relevance to Research
- The Patent system

Mr Iftikhar Hayat/Ms Loh Mee Lan (NUS Libraries)
- Patent Searching
  - Effective patent searches in Patsnap
  - Generate technology & company dashboards using Patsnap Insights
- Generate patent landscape maps using Patsnap Landscape
The Importance of IP to Your Research

Mr Daniel Poh
Marks & Clerk Singapore LLP
PATENT SEARCHING

Mr Iftikhar Hayat / Ms Loh Mee Lan
NUS Libraries
Patent Searching – 5W1H

- What
- Why
- When
- Where
- How
- Who
## Patent Searching – 5W1H

<table>
<thead>
<tr>
<th>Questions Asked</th>
<th>5W1H</th>
<th>To Find Out...</th>
<th>Databases covered that can help to answer these questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the latest research?</td>
<td>What</td>
<td>Definition, description, examples</td>
<td>Google Scholar, Scopus, Frost and Sullivan</td>
</tr>
<tr>
<td>Who are the people or organizations researching?</td>
<td>Who</td>
<td>Stakeholders, experts, people involved, influencers, decision makers, authorities, etc.</td>
<td>PatSnap, Scopus (or other subject specific database), ScholarBank@NUS</td>
</tr>
<tr>
<td>Who are the top researchers in my research area?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Who in NUS is also working on my research area?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What were the developments in this research area over the years?</td>
<td>When</td>
<td>Development through time, time and frequency of occurrence</td>
<td>Google Scholar, Scopus, Frost &amp; Sullivan, Gartner</td>
</tr>
<tr>
<td>Who were the developments in this research area over the years?</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>• When was the first development and what happened since then?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• What factors drove a spike in research at this time?</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
## Patent Searching – 5W1H

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</table>
| Which countries are commercializing this technology?  
• Why is country is most focused in commercializing this technology? | Where | Country, market, environment in which it occurs | PatSnap, Frost & Sullivan, Gartner |
| What are the drivers or motivations for this research?  
• Why should the lack of XYZ impact the production of ABC? | Why | Reasons, justifications, motivations | Scopus (or other subject specific databases), ScholarBank@NUS, Frost & Sullivan, Gartner |
| How is this research applied?  
• What are the technical details of a particular technology?  
• How was XYZ applied in ABC industry? | How | Applications, process, methods, techniques, technologies, tools used | Scopus, PatSnap, Gartner, Frost and Sullivan |
WHY Search for Patents?

NUS: Invention Disclosure Form (Refer to ILO Website)

### IV. DETAILS OF THE INVENTION

15. **Overview** - Provide a summary or general description of the invention including its field of application.

17. **Novelty & Unobviousness** - List the features of this invention that make it a substantial and significant improvement, or the case of new and unexpected results, over existing technology (i.e., methods, devices and/or materials). Indicate what are the unique benefits or advantages these features provide.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit/Advantage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

18. **Limitations** - Describe the limitations, if any, of this invention in terms of, for instance, scalability, speed, power consumption, efficiency, use of exotic compounds, etc.

19. **Prior Art** - List any other existing technologies or literature that more closely resemble the features and/or functionalities of this invention. Indicate how this invention differentiates from existing technologies or literature listed.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit/Advantage</th>
</tr>
</thead>
</table>
HOW does IP data from patents supercharge R & D?

“Patents fit at every stage of R&D, from ideation to commercialisation. Patents are an important source of technical information. Engineers should read patents during the innovation process to understand R&D trends, emerging technologies and white spaces. According to a survey by nature, 60% of all patent readers and 72% of those reading for scientific reasons reported that they found useful scientific information, in the most recent patent read in their field....”

“.... Patents are typically granted at a later stage of the R&D process but looking at patent literature should start at ideation. If you have an idea, it may be worthwhile checking whether a patented invention covers it. Looking at patent information prevents you from duplicating effort, and equips you to improve your invention and build around an existing patent.”

WHERE to Search for Patents?


- **Subscribed databases**
  - Patsnap
  - SciFinder, etc.

- **Free databases on Internet**
  - Google Patents
  - The Lens
  - USPTO, etc.
How to read a patent?

How to search for patents effectively?
Access Patsnap via NUS Portal (http://lib.nus.edu.sg)
Suggestions on how to read a patent effectively:

- **Front page**
  - Title, patent type, publication/grant dates
  - Abstracts

- **Specifications**
  - Background of the invention
  - Summary of the invention

- **Claims**
5 – HOW to Read a Patent?

Search for this patent (US7074391) in Patsnap

References Cited
Find related patents, what improvements have been made

Classification Numbers
“Patent classification is a system of sorting inventions and their documents into technical fields covering all areas of technology.”


See also Patsnap Libguide on how to search patent classification (http://www.lib.nus.edu.sg/ilp/pat/gui/Patsnap_Classification_Search.pdf)
Claims

- Defines the legal boundaries of protection
- Usually starts with phrases like “I claim”, “We claim”, “What is claimed is”, “The invention claimed is”

- Independent Claims
  “Generally an independent claim is one that does not refer to any other claim. Some independent claims may refer to other claims....”

- Dependent Claims
  “A dependent claim can depend upon one or more independent claims or one or more dependent claims....”

Source: “Independent And Dependent Claims”
Suggestions on how to search patents effectively:

- Semantic Search
- Keywords
- References / Patent Citations
- Patent Classification Numbers
Semantic Search
- Using machine learning algorithm to find most relevant patents
- Up to 1000 patents retrieved.

- Search Example
  - Patent Number (e.g. US7074391)
  - Journal article
  - Website
### 5 – How to Search Patents Effectively

#### Semantic Search

![Semantic Search Interface](image)

<table>
<thead>
<tr>
<th>Publication Number</th>
<th>Title</th>
<th>Inventor Name</th>
<th>Application Date</th>
<th>Publication Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Three-dimensional biodegradable scaffolds for tissue engineering applications</td>
<td>TECH, SWEET HAN</td>
<td>20 Apr 2014</td>
<td>06 Dec 2011</td>
</tr>
<tr>
<td>2</td>
<td>Engineered extracellular matrix control stem cell behavior</td>
<td>SHERRY L. VOYTIK, HAREN</td>
<td>17 Dec 2007</td>
<td>21 Oct 2005</td>
</tr>
<tr>
<td>3</td>
<td>Three dimensional purified collagen matrix</td>
<td>SHERRY L. VOYTIK, HAREN</td>
<td>15 May 2007</td>
<td>01 Dec 2007</td>
</tr>
<tr>
<td>4</td>
<td>Therapeutic bone growth and regeneration</td>
<td>SIMON WOZNIK, COOL</td>
<td>31 Sep 2006</td>
<td>02 Nov 2006</td>
</tr>
<tr>
<td>5</td>
<td>Compositions and methods for tissue repair with extracellular matrices</td>
<td>KAREN CHRISTMAN, JENNIFER SINGLEY, JERUSA DEQUACH</td>
<td>20 Sep 2009</td>
<td>10 Jul 2013</td>
</tr>
<tr>
<td>6</td>
<td>Extracellular matrix composite materials, and manufacture and use thereof</td>
<td>MICHAEL, F. HELES</td>
<td>07 Sep 2004</td>
<td>26 Nov 2007</td>
</tr>
<tr>
<td>7</td>
<td>Medical device</td>
<td>SANDRA DOWINES, GIORGIO TERENGI, MINHAI SUN, &amp; SANG HYEON</td>
<td>10 Sep 2009</td>
<td>20 Sep 2012</td>
</tr>
<tr>
<td>8</td>
<td>RECOMBINANT SCAFFOLDS FOR BONE REPAIR AND LONG BONE TISSUE ENGINEERING</td>
<td>TECH, SWEET HAN</td>
<td>19 Oct 2003</td>
<td>30 Nov 2003</td>
</tr>
<tr>
<td>9</td>
<td>BIOREABSORBABLE PLUG IMPLANTS AND METHOD FOR BONE TISSUE REGENERATION</td>
<td>TECH, SWEET HAN, TAN, KIM CHENG, HUTMACHER, DIETMAR</td>
<td>29 Nov 2003</td>
<td>29 Jun 2006</td>
</tr>
</tbody>
</table>
Keywords Searching – Search Operators

<table>
<thead>
<tr>
<th>Operator</th>
<th>Explanation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>AND</td>
<td>2 keywords must be found in document</td>
<td>apple AND orange</td>
</tr>
<tr>
<td>OR</td>
<td>Either keywords found in document</td>
<td>apple OR orange</td>
</tr>
<tr>
<td>NOT</td>
<td>1st keyword must be found but exclude 2nd keyword</td>
<td>apple NOT orange</td>
</tr>
<tr>
<td>“ ” “</td>
<td>Keywords within quotation marks must be next to each other in the order specified</td>
<td>“apple juice”</td>
</tr>
<tr>
<td>( )</td>
<td>Using parentheses to define search order</td>
<td>(apple OR orange) NOT juice</td>
</tr>
<tr>
<td>*</td>
<td>Replace a string of characters</td>
<td>function*</td>
</tr>
<tr>
<td>$Wn</td>
<td>Search words within “n” words of each other, in any order</td>
<td>vitamins $W5 nutrients</td>
</tr>
<tr>
<td>$WS</td>
<td>Search words within SAME sentence</td>
<td>vitamins $WS nutrients</td>
</tr>
</tbody>
</table>

Go to Search Helper for more tips: Search Syntax Tab
Keywords Searching – Search Statements

Query: 3D Printing

“3D printing” OR “rapid prototyping” OR “additive manufacturing”
Retrieved > 140,000 patents

Review Search Statement
(“3D printing” OR “rapid prototyping”) AND “additive manufacturing”
Retrieved > ____________ patents
5 – How to Search Patents Effectively

Classification Search

- Within a document
- Using Classification Manual

Additional help
- Patsnap: Patent Classification Search (available in Patent Libguide)
5 – HOW to Search Patents Effectively

References / Citations

Additional Help from Patsnap:
What Is The Citation Map and How Do I Use It?
5 – HOW to Search Patents Effectively

Additional Help:
- Patsnap : Quick Guide on alert, save search query and workspace

Patsnap Website
- Getting started with Patsnap Workspaces
- Do I manage my email alerts?
Patsnap Insights

Patsnap Insights provides business intelligence information. You can assess opportunities and threats, find valuable information about the company or technology, etc. The data is based on information extracted from Patsnap database.

2 Types of Dashboards
- Technology
- Company

How to Access
- From Search Results Sets (Patsnap)
- Workspace (Patsnap)
- Direct from NUS Libraries Portal
5 – HOW to Search Patents Effectively

Patsnap Insights

Additional Help
- Quick guide on finding company information
- Quick guide on finding technology information

Patsnap Website
- Additional Help on Patsnap Insights
5 – HOW to Search Patents Effectively

Patsnap Landscape

Additional Help (from Patsnap Website):
- Getting Started With Patent Landscaping

How to Access
- From Search Results Sets
- Workspace
6 – WHO

- Who is eligible to file patents?
- Who to contact if you are searching for patents?
- Who to contact if you are planning to file a patent?
- Who grants patents?

Refer to: [http://www.wipo.int/patents/en/faq_patents.html#accordion_collapse_10](http://www.wipo.int/patents/en/faq_patents.html#accordion_collapse_10)
RESEARCHER unbound

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