Using USPTO resources to discover innovation and economic development targets

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The big questions?

- What industries have potential?
- What synergies exist? (by geography, by industry)
- What companies are good targets?

- others?
Who am I?

• **Business Librarian** at NMSU
  • Subject specialist duties to College of Business

• **Patent and Trademark Resource Center**, representative
  • Outreach to entrepreneurs, Arrowhead

• **Formerly a business journalist**, before earning MS of Information Science at UNT, Denton
  • Wrote about agriculture, automotive industry, and real estate
Opened in Oct. 2016, the NMSU Patent and Trademark Resource Center is a unique research facility in New Mexico. We offer patent and trademark research assistance, with training provided to our library staff directly from the experts at the USPTO. We have powerful search tools that tap straight into patent databases worldwide, making it easier than ever for inventors to find relevant prior art and apply for patent or trademark protection.

Lose affiliation of partners include:

- Arrowhead
- StudioG
- NMSU IP transfer office
- Certain faculty members
- Inventors
Where are the PTRC offices?

Source: USPTO, PTRC Office
NMSU PTRC Stats

- Steady rise in researchers, contacts, and web clicks

Source: NMSU Library
Where inventions are happening ...

Source: patentsview.org, USPTO
How do innovative companies interact with their world?

Identify ...

- **People:** Who is the most active inventor for a specific assignee? What researchers are cited in recent grants?
- **Geography:** What county has shown increase/decreases in innovation in the past five years?
- **Industry:** In what CPC classification is most of the innovation occurring?
- **Relationships:** What companies/universities are actively developing new technologies?
Visualized: How does an economic target interact with the world?
Sample research flow

1. Query USPTO for granular endpoint, arrange by date granted
2. Select product and discover assignee and relationships to industry
3. Query USPTO databases/Google Scholar for citations or references
4. Use CPCs in a broader geographical area to identify potential targets

Source: David Irvin, MSIS
To index the world

Patent classification is called **CPC** or the Cooperative Patent Classification, developed between the European Patent Office and the USPTO. The system breaks down every conceivable inventions in these broad categories:

A. HUMAN NECESSITIES  
B. PERFORMING OPERATIONS; TRANSPORTING  
C. CHEMISTRY; METALLURGY  
D. TEXTILES; PAPER  
E. FIXED CONSTRUCTIONS  
F. MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING  
G. PHYSICS  
H. ELECTRICITY  
Y. GENERAL TAGGING OF NEW TECHNOLOGICAL DEVELOPMENTS ...

Source: Espacenet.com
Drilling down into the CPC

Advantages:
• Extremely granular approach to a difficult problem
• Accessible tools like Espacenet
• International in scope
• Provides a way to search everything in a classification for relevant retrieval

Disadvantages:
• The US formerly used its own system
• Reconciliation can be a challenge

Source: Espacenet.com
Example: Location approach: Abq

Organize by Grant Date Newest

Select granular endpoint

Source: patentsview.org, USPTO
Discover assignee/industry relationships

Source: patentsview.org, USPTO
Fabrication of solar cells with electrically conductive polyimide adhesive
US 9691930 B2

ABSTRACT
The present disclosure provides a method of manufacturing a solar cell including: providing a first substrate and a second substrate; depositing on the first substrate a sequence of layers of semiconductor material forming a solar cell including a top subcell and a bottom subcell; forming a back metal contact over the bottom subcell; applying a conductive polyimide adhesive to the second substrate; attaching the second substrate on top of the back metal contact; and removing the first substrate to expose the surface of the top subcell.

Citation finder (inventors, assignees, companies, universities)

Source: Google Patents
List of citations to explore, Google patents

<table>
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<tr>
<th>Patent No.</th>
<th>Application Date</th>
<th>Publication Date</th>
<th>Inventor(s)</th>
<th>Title</th>
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<tr>
<td>US20050145832</td>
<td>Dec 30, 2003</td>
<td>Jul 7, 2005</td>
<td>Bernhard Wessling</td>
<td>Polymide based compositions comprising doped polyaniline and methods and compositions relating thereto</td>
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<td>US20090078309</td>
<td>Sep 24, 2007</td>
<td>Mar 26, 2009</td>
<td>Encore Corporation</td>
<td>Barrier Layers In Inverted Metamorphic Multijunction Solar Cells</td>
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<td>US20090078310</td>
<td>Jan 31, 2008</td>
<td>Mar 26, 2009</td>
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<td>US20090229662</td>
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<td>Sep 17, 2009</td>
<td>Encore Corporation</td>
<td>Off-Cut Substrates In Inverted Metamorphic Multijunction Solar Cells</td>
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<td>US20090272438</td>
<td>Oct 16, 2008</td>
<td>Nov 5, 2009</td>
<td>Encore Corporation</td>
<td>Strain Balanced Multiple Quantum Well Subcell In Inverted Metamorphic Multijunction Solar Cell</td>
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<td>US20140116500</td>
<td>Mar 14, 2013</td>
<td>May 1, 2014</td>
<td>Encore Solar Power, Inc.</td>
<td>Inverted metamorphic multijunction solar cells mounted on flexible support with bifacial contacts</td>
</tr>
</tbody>
</table>

* Cited by examiner

Source: Google Patents
Other ways to get at the data

- Large data sets are available for download

- [http://www.patentsview.org/download/](http://www.patentsview.org/download/)

- Must be able to handle *.TSV files

- Also API tools for construction of alternative tools and batch jobs
Thank you, any questions?

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