Search Matters 2016
How you can identify patent thickets and related patents
Outline

- Patent thickets
- Related applications at the EPO
- Families and divisional applications
- Similar subject-matter
- Tips for searching related patents in Espacenet
- Exercises
- Conclusions
Patent thickets
Patent landscaping

Figure 7 Patent Landscape map showing the razor technology landscape © Thomson Reuters
(from Patent thickets – An overview, UK Intellectual Property Office, Nov. 2011)
# Patent thickets – an example

<table>
<thead>
<tr>
<th>Publication Number</th>
<th>Publication Date</th>
<th>Assignee/Applicant</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP429174B1</td>
<td>24/05/1995</td>
<td>Warner Lambert Company</td>
</tr>
<tr>
<td>EP453138B1</td>
<td>05/07/1995</td>
<td>Warner Lambert Company</td>
</tr>
<tr>
<td>EP584215B1</td>
<td>28/05/1997</td>
<td>Warner Lambert Company</td>
</tr>
<tr>
<td>EP696243B1</td>
<td>22/10/1997</td>
<td>Warner Lambert Company</td>
</tr>
<tr>
<td>CA2121427C</td>
<td>26/01/1999</td>
<td>American Safety Razor Company</td>
</tr>
</tbody>
</table>

Table 13 Patents selected from the analysis of peak 4 of the safety razor map (Flexible cap spacer) (source DWPI)

(from *Patent thickets – An overview*, UK Intellectual Property Office, Nov. 2011)
Patent visualisation

Visualising your results

The statistics feature can, for example, display the top ten companies in your result list, or it can create a graph of the result using various parameters, to identify possible technological niches, for example.

(from Global patent index introductory guide, EPO 2013)
Related applications and patent thickets

- Frequently, an area of the patent landscape – a patent thicket – is occupied by just a few applicants each with several overlapping patents/applications.

- How to find these related applications from the same applicant?
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Related applications, the EPO terminology

- **Doublures** = EPO files of a family, e.g. French national filing followed by EP

- **Divisional application** see Article 76 EPC, cf. US continuation-in-part, DE Teilanmeldung

- **Technical doublures** = filed by one applicant or one inventor on approximately the same date with similar subject matter: similar title, similar abstract, similar drawing, similar claims,..
Related applications: Distribution and file allocation

- The EPO receiving section makes extensive use of related application detection for pre-classifying them so that they can be allocated to the proper technical experts.

- How?
  - application / patent families as non published files may be similar to some published files
  - prior and later applications by the same applicant independently of the application language as they may follow various routes (PCT, EP or national).
  - parallel applications received on the same day or within a few days from the same applicant.
Related applications: search and classification

- The examiner search is started with an automatic pre-search including the detection of related applications.

  Advantage: Searching related applications by the same examiner makes the search report more coherent.

- The classification process may derive relevant classes from pre-classification and pre-search routines applied on non-classified patents available in EPODOC and Derwent WPI.
Related applications: at examination and appeal

- The examination is started with a top-up search that might include an automatic related applications detection.

- Granting parent and divisional applications by the same examiner helps to identify situations where double patenting may arise.

- Treating related application the same day in opposition and appeal maintains the cohesion between files and limits the number of divisions involved.
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Doublure 1 (Internal priority type 1)

EP12005254

first filing

internal priority

EP12006843

EP2687412A1

EP2687413A1

time
Using bibliographic data (exercise)

- Which bibliographic data (INID codes) are the same for each document?
  - 21 Application number
  - 22 Date of filing
  - 30 Priority (number and date)
  - 51 Classification
  - 54 Title
  - 57 Abstract, abstract figure, figure number
  - 60/62 reference application(s) / Earlier application(s) according to Art. 76
  - 71/73 Applicant / Proprietor
  - 72 Inventors
  - 74 Representative
- Divisionals can be much more complicated, as following examples show.
Example: Divisional applications of EP2101496

- The field /PR of EPODOC has two older European applications:
  - EP20060011611 19970228 (mother); EP19970903634 19970228 (grand mother)
- /PR contains also three Japanese priorities:
  - JP19960041583 19960228; JP19960323770 19961204; JP19960347284 19961226
- But /PR fails to show daughter applications. A process has to extract all /PR fields data of the family so as to collect all divisional applications. We perform /PR search iterations as long as the family grows and show them in a tree as follows.
Example: Divisional applications of EP2101496

- The WPI family contains 29 divisional EP applications on base of Japanese shared priorities.
Example: EP2101496 (continued)

- Divisional applications are brought together thanks to a listing of older referenced applications. The published patent EP2101496 (EP09164213) leads to the following tree view showing all family applications:

- EP09164213 was the basis of five divisional applications.
Divisional applications: a tree approach

**DiviTree derived from EP09164213**

**DiviTree derived from EP09164213**

**DiviTree derived from EP09164213**
Example: Divisional applications of EP1021794

We defragment our stock office wide on base of divisional files or related files detections.
This case shows 81 divisional applications.
Divisional applications: a divisional forest
**Example: Divisional applications of EP1048274**

- **NOVELTY:**
  The prosthesis (10) includes a fracture stem (20) with a body having an exterior surface, a shank (50) attached to the body and a head (30). The body includes a medial fin (42), an interior fin and a posterior fin. The medial fin includes a suture hole (42a). The anterior and posterior fins each include a number of suture holes. The prosthesis further includes a lateral suture hole (45a) intersecting the exterior surface of the body. The lateral suture hole may be formed in a projection on the lateral side of the prosthesis.

- **USE:**
  Shoulder prostheses are sometimes used to repair what is known as a 'four part humeral fracture'.

- **DESCRIPTION OF DRAWINGS:**
  The figure shows an exploded side elevational view of the shoulder prosthesis.

  - 10: prosthesis
  - 20: fracture stem
  - 30: head
  - 42: medial fin
  - 45a: lateral suture hole

AN
AP

- 2000-524715
Example: EP1048274 (continued)
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Similar subject-matter (exercise)

- Which bibliographic data could be used to find related applications EP0395263 to EP0395270?

Back where it all began!
Example: EP0395263 in EPODOC, related applications

PA, IN and TI are the field used for detecting related applications in EPODOC. /AP and /PR provide additional possibilities.

<table>
<thead>
<tr>
<th>1/1</th>
<th>© EPODOC / EPO</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP</td>
<td>- EP19900303967 19900411</td>
</tr>
<tr>
<td>PR</td>
<td>- GB19890009643 19890427</td>
</tr>
<tr>
<td>PN</td>
<td>- EP0395263 A2 19901031</td>
</tr>
<tr>
<td>CCI</td>
<td>- G06T7/202; H04N7/0125; H04N7/014</td>
</tr>
<tr>
<td>CCA</td>
<td>- G06T2207/10016</td>
</tr>
<tr>
<td>PA</td>
<td>- (A2 B1) SONY CORP [JP]</td>
</tr>
<tr>
<td>TI</td>
<td>- (A2) Motion dependent video signal processing.</td>
</tr>
<tr>
<td></td>
<td>- (A3 B1) MOTION DEPENDENT VIDEO SIGNAL PROCESSING</td>
</tr>
<tr>
<td>IN</td>
<td>- (A2 B1) GILLARD CLIVE HENRY [GB]</td>
</tr>
</tbody>
</table>

To some extent, we rely on the title defined by the Applicants since they remain coherent with their prior filings.
## Use of bibliographic data to find related applications

<table>
<thead>
<tr>
<th></th>
<th>Doublure</th>
<th>Divisionals</th>
<th>Similar subject-matter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority number</td>
<td>Same</td>
<td>Possibly incomplete</td>
<td>-</td>
</tr>
<tr>
<td>Priority date</td>
<td>Same</td>
<td>Same</td>
<td>Same/similar</td>
</tr>
<tr>
<td>Filing date</td>
<td>-</td>
<td>-</td>
<td>Same/similar</td>
</tr>
<tr>
<td>Classification</td>
<td>Same</td>
<td>Same</td>
<td>Same/similar</td>
</tr>
<tr>
<td>Title</td>
<td>Same</td>
<td>Same</td>
<td>Same/similar</td>
</tr>
<tr>
<td>Applicant</td>
<td>Same</td>
<td>Same</td>
<td>Same</td>
</tr>
<tr>
<td>Inventors</td>
<td>Same</td>
<td>Same</td>
<td>Same (some)</td>
</tr>
<tr>
<td>Application no.</td>
<td>-</td>
<td>-</td>
<td>Can be similar</td>
</tr>
<tr>
<td></td>
<td>Formally linked</td>
<td>Formally linked</td>
<td>No formal link</td>
</tr>
</tbody>
</table>

- Easy to find
- Can be difficult to find
- Only with special strategy
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Searching bibliographic data in Espacenet

- **Inventor**
  - use quotation marks if searching for first name as well, e.g. “Smith John”
  - be careful of alternate spellings, e.g. use Julich OR Juelich to find Jülich/Juelich/Julich
  - “VAN BOGAERT BRUNO” for Bruno van Bogaert; searching for VAN BOGAERT without quotes also finds van den Bogaert
  - “WILLIAMS JR OLIN” and USB finds 4 results; “WILLIAMS OLIN” finds zero.
  - Japanese variants of Western names, cf. JPH02290386

- **Applicant**
  - Variants, e.g. Silverbrook Limited, Silver Brook Ltd
  - Change of name of applicant, e.g. Matsushita, Panasonic

- **Classification**
  - use “/low” to include classes lower in hierarchy, e.g. B60R21/01/low
Finding inventor teams
Tips for searching related patents in Espacenet

- Enable query history
- Divisionals of EP1486970
- Publication number, e.g. EPB or USB restricts the search to granted patents
- Application number and Priority number can also be used for application and priority dates to build progressive *Time limitations*, e.g.
  - sony and 1989 and 1990
  - sony and 198904 and 199004
  - sony and 19900411 and (19890427 or 19890426 or 19890428)
  - **sony and 19890427 and 19900411**
  - excluding certain (e.g. already known) priorities:
    - **sony and (19890427 NOT (GB19890009643 OR GB19890009644 OR GB19890009645 OR GB19890009646 OR GB19890009647 OR GB19890009648 OR GB19890009649 OR GB19890009650)) and 19900411**

Classes or keywords may be used with any of the above time limitations
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Exercises

- Are there any EP applications related to EP2657945?
  - use e.g. same priority date, same application date, similar numbers, inventor/title, etc, e.g. conductor in the title AND ep as the publication number AND 20101224 as the priority number AND sumitomo as the applicant -> 2 results EP2657945 and EP2657946

- How many granted EP patents are there to Thomas Lich in the CPC class B60R21/01 (control of airbags) and all lower classes.
  - 38 results found in the Worldwide database for: EPB as the publication number AND "Lich Thomas" as the inventor AND B60R21/01/low as the Cooperative Patent Classification
Exercises

- How can we use inventor names to find any EP applications related to EP740468? How can we make the selection progressively more relevant? How could we build a ranking algorithm in Espacenet?
Exercise solution by Facet: EP0740468

- Subset of any inventor present out of 4:
  - Approximately 32 results found in the Worldwide database for: EP as the publication number AND texas instruments as the applicant AND MARKANDEY or CLATANOFF or OHARA or TAKEDA as the inventor

- Subset of 2 inventors out of 4:
  - 6 results found in the Worldwide database for: EP as the publication number AND texas instruments as the applicant AND (MARKANDEY and CLATANOFF) or (MARKANDEY and OHARA) or (MARKANDEY and TAKEDA) or (CLATANOFF and OHARA) or (CLATANOFF and TAKEDA) as the inventor
  - 2 results found in the Worldwide database for: EP as the publication number AND texas instruments as the applicant AND OHARA and TAKEDA as the inventor
Exercise solution by Facet (continued)

- Subset of 3 inventors out of 4
  - 4 results found in the Worldwide database for: EP as the publication number AND texas instruments as the applicant AND (MARKANDEY and CLATANOFF and OHARA) or (MARKANDEY and CLATANOFF and TAKEDA) as the inventor
  - 1 result found in the Worldwide database for: EP as the publication number AND texas instruments as the applicant AND (MARKANDEY and OHARA and TAKEDA) or (CLATANOFF and OHARA and TAKEDA) as the inventor

- Subset of all 4 inventors present
  - 1 result found in the Worldwide database for: EP as the publication number AND texas instruments as the applicant AND MARKANDEY and CLATANOFF and OHARA and TAKEDA as the inventor

- Summary: any one inventor: 32 results; any two inventors: 8 results; any three inventors: 5 results; all four inventors: 1 result.
Exercise solution for EP0725538

- Are there any EP applications related to EP0725538? In case related applications are detected, can we further broaden the detection by some way and check whether more related applications in this given industrial field could be found?
  - 2 results found in the Worldwide database for: electr* program guide in the title AND sony as the applicant AND niijima or nakano or sonoda or kumagai or nagahara or nashida or tamori or hanaya as inventors -> EP0725538 and EP0725539
  - 2 results found in the Worldwide database for: electr* program guide in the title AND (199502 or 199503) not (JP19950018217 or JP19950108517 or JP19950018216 or JP19950108462) as the priority dates not the previous priority numbers (of EP0725538 and EP0725539) AND sony as the applicant -> US5808694 and JP2000324410
Exercises

Synchronisation system

- Are there any EP family members related to EP1130512? Have any of them been granted?
  - 1 result found in the Worldwide database for: EP1130512 as the publication number, also published as EP1130511 and EP1130513 (Click on title in results screen to see related publications)
  - 0 results found in the Worldwide database for: EP1130512B or EP1130511B or EP1130513B as the publication number
Exercise – related granted patents

Razor patent thicket

  - **flex* or guard** and EPB and “**Warner Lambert**” and **B26B21/4012/low** finds six of eight (total 17 results)
  - **flex* or guard** and EPB and “**Warner Lambert**” and **1989 or 1990 or 1991 or 1992 or 1993 or 1994 or 1995** finds all eight (total 15 results)
  - many other solutions also possible..
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Conclusions

- Simple but effective techniques are available to uncover related applications.
- They are based on using bibliographic data.
- Compared with existing techniques such as patent landscaping the techniques proposed here are simpler to use, quicker and less expensive.
Speaker(s)

- **Alain Materne** (French) amaterne@epo.org;
  - Electronic Engineer
  - One year in industry
  - Since 1988 at EPO, working now in audio, video, multimedia
  - Development of search tools for ranking and retrieving prior arts and related applications

- **Gershom Sleightholme** (British/Australian) gsleightholme@epo.org
  - Mechanical Engineer
  - Six years in industry and UK civil service
  - Since 1996 at EPO, working now in vehicle technology
  - Trainer for search tools within the EPO and senior expert

- **Nigel Clarke** (British) nclarke@epo.org
  - Physical scientist
  - Eight years in industry
  - Since 1991 at EPO, worked in Examination, IT and Patent Information
  - Currently Head of Unit for Online Products