Topic 1: Patent landscaping, mapping & analytics

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Overview

- Outline of the Workshop
  - From data of individual patents
  - To patent landscapes
- WIPO activities regarding patent landscaping
Patent analytics is big business

Status quo in industrialized countries:
- Many commercial firms offer patent analytics/landscaping services since there is a wide range of business use of patent information
- Many companies exploit patent information and utilize patent analytics

What is WIPO's role in this?
What is the role of other public institutions?
What is the utility for developing countries?
Treasures of patent Information

- **Technical information**
  - because of disclosure requirement
  - Patent publications are at forefront of emerging technologies
  - Patent publications are sometimes first publication of new technologies

- **Business / economic information**
  - derived from patenting activity of innovators; analysis of bibliographic data
  - Patents are related to technologies with commercial potential
  - Investment in global protection as indicator for potential patent value

- **Legal information**
  - Status in particular jurisdictions (freedom-to-operate)
  - Claims granted in particular jurisdictions
Aggregations of patent information

- **Individual application** (its bibliographic, technical, legal data)
- **Patent family(ies)** (domestic, simple, extended; technical)
- **Patent data collections** (e.g. search results)
- **Collective patent information** (Patent landscape reports, FTOs, ....)

- “Discovering knowledge in patent databases”

- Each subsequent level creates new patent information that is derived by processing the previous aggregation
Aggregations of patent information

Various products, diverse and fuzzy terminology

- Patent landscape reports
- State of the art, infringement, patentability, novelty, validity reports
- Technology watch (bulletins)
- Annual statistical reports
- Freedom-to-operate, clearance reports
- Valuation of portfolios
- Product to patent maps
- Litigation analysis
Patent Landscaping/Mapping?

- **Patent search** and **preparation** of a **Collection of patents**, e.g.
  - patents claiming inventions related to biofuel
  - patents filed by company X
  - patents filed in Brazil in 2012

- **Ordering and Analysis** of collection

- **Visualization** ("patent mapping")
  
  (+
  - Deriving conclusions, recommendations*)

*delicate task!*
Preparing a collection

- Selecting proper database(s)
- Developing and refining search query

- Size of collection
  - Macro level >10 000
  - Meso level 1000 – 10 000
  - Micro level <1000

- Data cleaning
  - Family reduction
  - Assignee grouping
  - Manual noise reduction

<> patentability search: 1-20

→ Topic 14
Patent information analyses

- Patent information is available as
  - **structured data**: bibliographic data (metadata)
  - **unstructured data**: description, claims, sequence listings
  - **(image data)**: drawings, chemical formula

- **Data mining**: structured data enable an easy
  - statistical analysis → Topic 13
  - network analysis → Topic 14

- **Text mining** of unstructured descriptions/claims/abstracts
  - Determining linguistic content/meaning/concepts
  - Similarity between documents

→ Topic 15
<table>
<thead>
<tr>
<th>Classification</th>
<th>Publication number</th>
<th>Filing date</th>
<th>Priority data</th>
<th>Applicant(s)</th>
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1. (WO2007076115) NITROGEN-EFFICIENT MONOCOT PLANTS

**Publication Date:** 05.07.2007
**International Filing Date:** 21.12.2006
**Applicants:** ARCADIA BIOSCIENCES, INC. [US;US]; 202 Cousteau Place, Suite 200, Davis, CA 95616 (US) (For All Designated States Except US).
KRIDL, Jean [US;US]; (US) (For US Only).
DEPAUW, Mary [CA;CA]; (CA) (For US Only).
SHRAWAT, Ashok, K. [IN;IN]; (CA) (For US Only).
GOOD, Allen, G. [CA;CA]; (CA) (For US Only).
THEODORIS, George [US;US]; (US) (For US Only).
**Inventors:** KRIDL, Jean; (US).
DEPAUW, Mary; (CA).
SHRAWAT, Ashok, K.; (CA).
GOOD, Allen, G.; (CA).
THEODORIS, George; (US).
**Agent:** WARD, Michael, R.; Morrison & Foerster LLP, 425 Market Street, San Francisco, CA 94105-2482 (US)
**Priority Data:** 60/753,818 23.12.2005 US
**Title:** (EN) NITROGEN-EFFICIENT MONOCOT PLANTS
(FR) PLANTES MONOCOTYLEDONÉES AYANT UN RENDEMENT EFFICACE EN AZOTE
**Abstract:** (EN) Methods of increasing nitrogen utilization efficiency in monocot plants through genetic modification to increase the levels of certain amipotransferase expression and plants.
Output of analysis
Visualization

- Facilitates the comprehension and the communication of the results of analysis
  - E.g. Tables can be illustrated by pie, bar, line charts

- Some output of analyses can hardly be separated from visualization
  - Network graphs
  - Concept maps

- Static visualizations (e.g. in PDF of report)
- Dynamic/interactive visualizations (e.g. on website)
- Various applications/tools
Stages of PLR preparation

- Planning
- Tendering (if to be outsourced)
- Delivery/preparation
- Dissemination
- (use)
- Evaluation

→ Topic 13
WIPO Patent Landscape project

- PLRs perceived as important tool for access to and exploitation of patent information
  - Business use
  - Factual evidence for policy discussions and strategic planning
  - Technology transfer (FTO, public domain; eg extensions)

- WIPO Committee on Development and Intellectual Property (CDIP) created project DA_19_30_31 as part of WIPO's Development Agenda
  - Bridging the knowledge gap
  - Promoting the use of patent information as a freely accessible (on copyright protection) and globally available resource for technology information
WIPO Patent Landscape project

**Phase I** (2010-11)
- Budget for 12 PLRs
- Diverse areas of technology to be covered
  - Health, food security, green technologies, .....
- PLR should be "demand driven", addressing needs of developing countries
  - Need for competent cooperation partners
  - NGOs and IGOs as initial partners
- Developing a procedure for the preparation of PLRs
- Website for publishing PLRs and related information

→ Topic 13
→ Topic 3
Collaboration with users

- WIPO has usually limited technical expertise in areas of technology
- Partners having needs and expertise are valuable for assuring
  - relevance of each report
  - efficiency of preparation
  - sufficient utilization of completed report (impact)

- Each collaboration serves for partners as vehicle/means to familiarize themselves with patent information, analytics, patent system

- Collaboration covers several phases: drafting TOR, delivery phase, dissemination, evaluation of PLR
Outsourcing to providers

- WIPO has limited technical expertise in searching, analysis and visualization; and limited access to professional databases and tools.
- PLRs were contracted out after tendering procedure according to WIPO's procurement rules.
Matching needs

Demand

Coordinator

Supply

Institutions in DCs NGOs IGOs

Expertise in Area of Technology

WIPO

Expertise in
Analysing needs
Planning
Delivery
Patent Information

Commercial Providers

Expertise in
Search Analysis Visualization
(Area of Technology)
WIPO’s patent landscape project

Patent Landscape Reports

Patent landscape reports describe the patent situation for a specific technology in a given country, region or on the global level. They usually start with a state-of-the-art search for the technology of interest in suitable patent databases. The results of the search are then analyzed to answer specific questions, e.g. to identify certain patterns of patenting activity (Who is doing what? What is filed where?) or certain patterns of innovation (innovation hubs, density of solutions for a technical problem, collaborations). An essential component of each patent landscape report is the visualization of these results in order to facilitate their understanding, and certain conclusions or recommendations based on the empirical evidence provided by the search and analysis.

Patent landscapes can therefore be useful for policy discussions, strategic research planning or technology transfer. However, they provide only a snapshot of the patenting situation at a certain point in time. In a wider sense, some patent landscapes reports may analyze the validity of patents by referring to legal status data, and thereby form a basis, e.g., for freedom to operate analyses.


On-going work at WIPO

WIPO has been mandated to prepare patent landscape reports in areas of particular interest to developing and least developed countries, such as public health, food security, climate change and environment. For that purpose, WIPO is developing in cooperation with interested external partners, such as institutions from member States, intergovernmental or non-governmental organizations, the scope of each report. The author of each report is selected in a tendering process based on specific terms of reference. List of on-going work.

Published Patent Landscape Reports

Patent landscape reports on various topics have been published by interested organizations, a list can be reviewed on. html.

Dedicated website

- Links to published reports
- Links to groups/institutions active in the field
- General background/information

Phase I work and collaborations

- UNITAID/medicines Patent Pool (MPP):
  - Ritonavir (Landon IP)
  - Atazanavir (Thomson)

- WHO: Vaccine manufacturing (FIST)

- DNDI: Patents related to 5 neglected diseases

- FAO:
  - Adaptation technologies for improving plant salinity tolerance (PIIPA)

- IRENA, GIWEH:
  - Desalination technologies, and use of renewable energies for desalination (CambridgeIP)
  - Water purification (CambridgeIP)

- (no partner):
  - Solar cooling (IP Search); Solar cooking (Scope)
WIPO Patent Landscape project

- Evaluation after Phase I
- **Phase II** (2012-13)
  - Budget for 6 further PLRs
  - Enhancing capacity building
    - Manual/Guidelines for best practices
    - Regional Workshops for exchange of best practices
  - Refining standardized tools/procedures of Phase I and developing into future standard service
Phase 2 work and collaborations

- CERN
  Industrial applications of accelerator technologies

- UNEP/Basel Convention:
  Electronic waste management (Thomson)

- FAO:
  - Abiotic stress tolerance of plants, as extension of the plant salinity tolerance PLR (PIIPA)
  - Animal genetic resources (Paul Oldham)

- WHO
  - non-communicable diseases
  - update of Ritonavir PLR (Landon IP)
Utility of a WIPO PLR

Thematic dimension:
- Factual evidence: raw and analyzed data
- Enables/provides conclusions, recommendations, answers specific business questions
- Visualization facilitates comprehension

Training dimension:
- Develops and describes search methodology in particular area of technology