IPPro patents

Patent Prosecution
China's new administrative measures

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IP analytics software companies team up

Patent Pool
CRISPR stakeholders unite

And for my next trick
What is Qualcomm's strategy?

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The future of patent databases

Databases have transformed from data aggregators and search engines into specialised tools with usage-tailored interfaces. Doris Spielthenner of Practice Insight finds out why this transformation has taken place

Patent data is the most structured data source available for innovation, research, and market analysis. For many years, the core challenge of this data source was availability and completeness of data. This is the point around which commercial databases offering patent data used to put their unique selling propositions (USPs)—the coverage and the special information fields.

Not more than a few years ago, patent searchers had only two options of getting comprehensive data:

- Paid commercial databases

- A combination of multiple regional databases, with different search forms and syntax, different output columns (some allowing download, some needing to be scraped), different number formats, and so many other differences

There was no choice for a complete (and free) database except Espacenet and DEPATISnet and a few other 'non-patent-office' databases—where you cannot have surety of coverage, and given the fact that many databases came and went, the surety that the database will continue to exist (and be free to use) next week.

Things have changed a lot in the last few years. There's Cooperative Patent Classification to enhance classification searching, the common citation document, good machine translation, and register data and publication data completeness has increased over many jurisdictions. Google Patents has taken over, more or less, the spot from Espacenet to being the preferred free database for links, quick analysis, and so on.

Over time, it is evident that this USP of patent databases is now changing, and it will be very difficult for the current databases to survive based on just this USP for very long. Data completeness and coverage are turning into necessities rather than value addition.

What is the USP changing to exactly?

Some might say analytics, graphs and visualisation to support the results.

This is true, but this add-on alone cannot be a USP. All graphs are useless if the database doesn't figure out the intent of the search and mould its analytics and visualisations accordingly.

Is it user experience? Yes, it should be user experience. Any industry catering to users with commoditised data needs to have the user experience as their focus.

If you think about it, patent data is really becoming available to all. The only differentiator should be the user experience.

However, the user experience has more to do with 'usability' and tailored interfaces than just good looks, reduced latency and icon shapes.

With the advancements in software happening around us, having portals with just a good look and feel or low latency alone just doesn't cut it. It's more of a must have rather than the USP. That takes us to the other part of user experience/customer experience—the usability. For databases, usability can be defined as the extent to which the database makes life easier for the user.
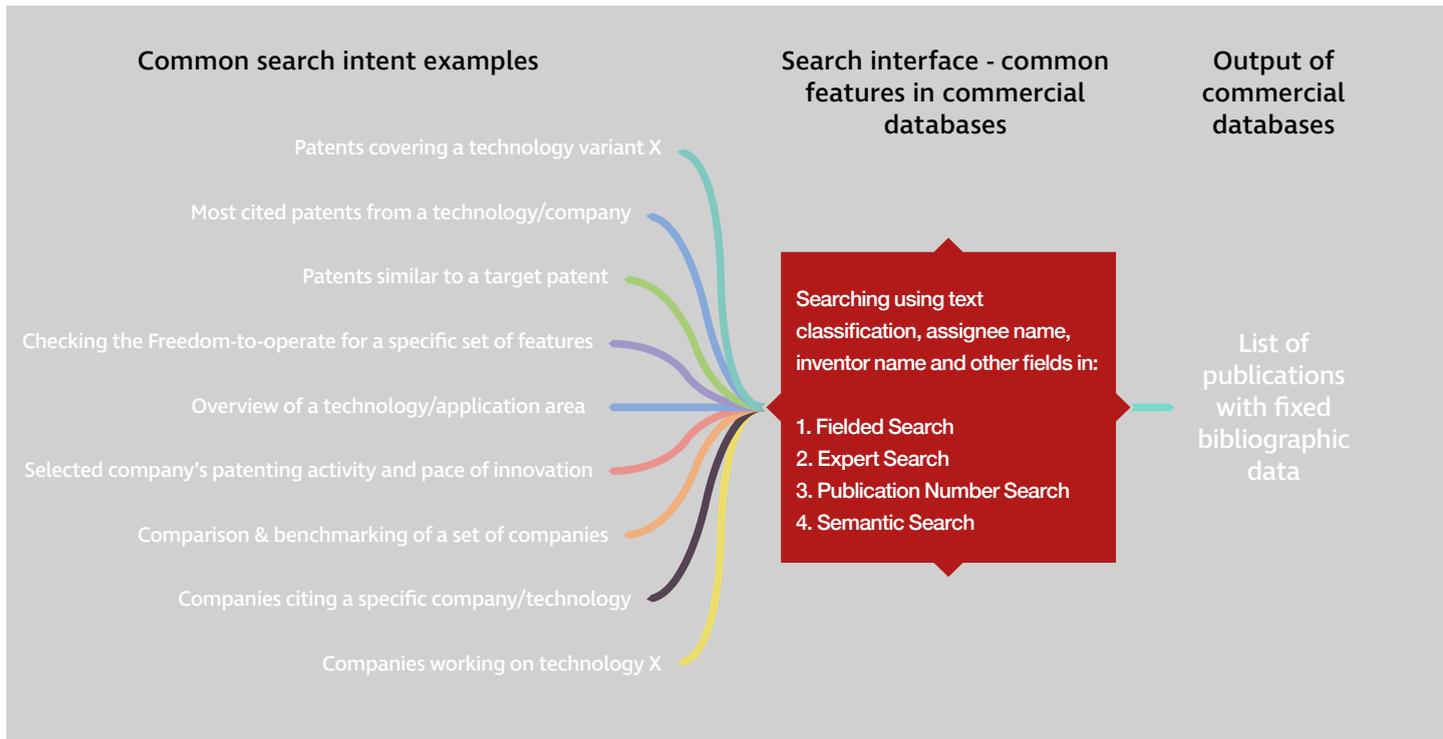
What can make life easier for the user?

Let's say a user wants to know which company's patents are citing Company B's patents to find potential licensees for Company B. What steps does the user have to follow on well-known commercial databases?

- Identify variants of Company B names that are relevant for the analysis

- Search for all Company B's patents

- Get all family members of Company B's patents identified above

- Find all forward citations of publications identified above

- Screen out results with company names

- List down company names with their patents

In all of these steps, the user used the database as a mere data source and a search engine. The real value addition would have been if the database made these steps easier for the user (or even made them unnecessary). The only way a database can do that is if it adjusted and adapted its interface and the presentation of results according to the user's search intent.

What is search intent and how can databases use it?

Search intent is the user's or searcher's goal that they are trying to meet using the database and its features.

Common search intent examples

Patents covering a technology variant X

Most cited patents from a technology/company

Patents similar to a target patent

Checking the Freedom-to-operate for a specific set of features

Overview of a technology/application area

Selected company's patenting activity and pace of innovation

Comparison & benchmarking of a set of companies

Companies citing a specific company/technology

Companies working on technology X

Search interface - common features in commercial databases

Searching using text classification, assignee name, inventor name and other fields in:

1. Fielded Search
2. Expert Search
3. Publication Number Search
4. Semantic Search

Output of commercial databases

List of publications with fixed bibliographic data

Figure 1: Even the well-known commercial databases the search intent

Since patents can answer a lot of different questions, the search intent for a user can be any one of many different possible options. The database can adapt its interface as well as the way the results are displayed according to the search intent.

Some examples for adapting result display can be:

- A novelty search's results need not be sorted by jurisdictions and earliest priority date, but such a sorting might help a lot when screening validity search's results

- While visualisations might be of very low value for a validity search, an overview landscape graph and other trends might be very useful for a searcher working on a landscape study

- While most other studies might need one member per family to be presented, it might make sense to understand the target geographies in a freedom to operate search and present data accordingly

- Presenting the claims may be paramount in infringement and claim analysis studies, but optional in landscape studies

- If a user needs to know companies working on a specific technology or citing a specific company or technology, it makes sense to list results by company rather than publication number

How can databases find a user's search intent?

With the traditional approach of databases being make a 'one size fits all' portal, it may be possible (although very difficult) for them to keep multiple user interfaces, result formats, and background algorithms for common search intents such as prior art searches and landscapes. How can databases know what the user wants to do? There are two ways to do this: a simple way and a difficult (but elegant) way. While the simple way will be right all the time, the difficult way will be less intrusive.

Simple way

Ask the user:

- Ask as a question
- Ask as a selection mode

If the user doesn't know their intent, there's always an option of 'only looking'

Difficult way

Predict the user behaviour using some proprietary machine learning classifier taking, for example, following data points as inputs:

- User's past activities
- User's actions
- The type of searches the user is running

While going the difficult way will also incur computational costs for the databases, it might also take some time to perfect. Going with the simple way seems logical and reasonable for now, but it may seem intrusive to the user.

There is a third option: esigning a portal keeping only a select few related intents in mind, and it can be most useful to increase user experience. Why is that so?

- It doesn't give generic interfaces and generic result options, but specific interfaces for intents closely related to each other

- It doesn't bother the users with questions and selections after the user starts using the database, but rather asks it before when the user decides to use it

An example of this is Citation Eagle by Practice Insight. It is solely designed to be a citation identifying and tracking portal that can quickly identify if someone is citing the patents of a particular company.

It is designed to be applicable of user intents around citations:

- Identifying possible licensees for your patent portfolio

- Identifying possible leads for infringement and opposition and invalidation

Only a user whose intent is aligned with what the database offers will decide to get into Citation Eagle. So, essentially, the database is asking the user a question, without asking it explicitly.

A side-by-side comparison (see below) of the steps needed to perform the same task of 'identifying which company's patents are citing Company B's patents' that we looked at earlier will clarify the usability increase for a database that focusses and adapts itself to search intent.

This decrease from six steps to one saves time, effort, and offers great value for money to the users who have the sole intent of running this type of search.

Further, the user can easily filter the citations by citation level, keep a track on citations and do much more using the extra time that they save.

The users can leverage the technology to do the data based tasks and focus on creativity.

Filing Analytics is another product from Practice Insight that demonstrates a similar design principle.

It is designed keeping competitive intelligence analysis for IP firms in mind.

It leverages register data and publication data to provide the user key information points about law firms and their associated filings and collaborations across different regions.

Using this portal saves a lot of time for users who previously would have to rely on register information and data cleaning procedures to find this data. This clearly increases the usability.

These two examples cement the fact that usability of the database can increase substantially if the user's intent is aligned to the database's interface and way of presenting the data, and the best way of finding user's intent is to design a portal keeping only select few related intents in mind.

They also mark the change in the way databases function and the shift in the USP of databases from being mere data aggregators and search engines to specialised portals designed to directly meet the user's search intent.

Contemporary Commercial Databases	Citation Eagle
Identify variants of Company B names that are relevant for the analysis	Search with the Company B name and select relevant variants from all variants that the database suggests
Search for all Company B's patents	
Get all family members of Company B's patents identified in above	
Find all forward citations of publications identified in above	
Screen out results with company names	
List down company names with their patents	

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