Leveraging patent landscape analysis and IP competitive intelligence for competitive advantage

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ABSTRACT

Patent landscape and the accompanying IP competitive intelligence involves understanding and anticipating the competitive environment within which a company operates. More specifically, IP competitive intelligence highlights emerging IP risks, provides patent portfolio benchmarking, monitors competitor technology development efforts, and predicts commercialization of technology.

This paper provides a framework for patent landscape and IP competitive intelligence as driven by strategic intent. This paper advocates the benefits of both "quantitative" statistical analysis and "qualitative" human intelligence for IP competitive intelligence. Moreover, this paper defines four Levels of IP analysis with pruned examples for effective competitive intelligence.

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1. Opportunity area

"Big [patent] data" needs to be converted into effective IP, business, and competitive intelligence before it can be used in the corporate world. This conversion process is referred to as IP competitive intelligence. In Michael Porter's "Five Forces That Shape Strategy", he indicated that business risks may come from competitors, new entrants, substitute products or services, buyers, and suppliers [1]. IP competitive intelligence highlights the emerging IP and business risks from all these factors. It is used for informed IP management and enables data-driven strategy and technology planning decisions. With the wide-spread use of IP and data analytics, there is a remarkable opportunity for patent information professionals to promote the strategic and tactical use of IP competitive intelligence. The practice of allocation of full-time dedicated (100% FTE) IP competitive intelligence personnel and development of a proactive IP competitive intelligence capability can be very advantageous.

"To begin with the end in mind," it may be useful to define three requirements for the output of effective patent landscape and IP competitive intelligence. It should highlight **new, non-obvious, and useful** patent information. Of note, the three requirements are the same as those required for patentability. Thus, the requirements set a very high bar for the output provided by IP competitive

intelligence. It does take a certain "minimum" amount of time, money and resources to ensure success. At the onset, it is important to align the IP competitive intelligence priorities with the top business priorities (often referred to as key intelligence topics). In other words, it is essential at onset, to triage or delegate the relatively less important (sometimes even urgent or tactical) and focus on the important business priorities and technology areas for maximum business impact.

2. Framework for effective patent landscapes and IP competitive intelligence

Patent landscape and IP competitive intelligence can be described as **anticipatory prescriptive analysis**. The IBM White Paper 2013 provides a more detailed description of the three different types of analysis [2]. When viewed as a process, the emphasis of the final output is really on prescriptive analysis (What should we do — intelligence, recommendations and insights) over predictive analysis (Future leaning and what could potentially happen) and descriptive analysis (What has happened - information). A framework for patent landscape and IP competitive intelligence is shown in Fig. 1. It includes three components:

- Process (robust continuously evolving dynamic process),
- Technology (multiple separate tools for search, analysis, and repository), and

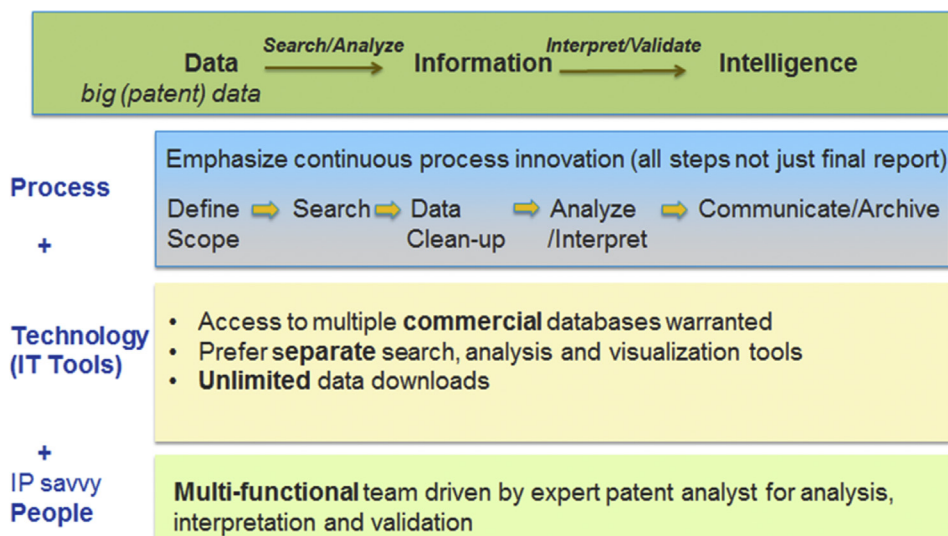*E-mail address:* yateenraj2@gmail.com.

Fig. 1. Patent landscape and IP competitive intelligence framework.

- People (IP competitive intelligence managers, IP and technical intelligence center of excellence).

2.1. Process

The process of converting patent data into intelligence requires many steps. The process follows a classic stage-gated approach of define scope, search, data clean-up, analyze, and communicate. The steps are driven by the business needs as well as the actual usage and users of the final output. A key point is to focus on **both**.

- activities at each step of the process and
- final output or the reporting template.

One can get big process improvements by continuously improving every step of the process and not just the final reporting template. Sometimes inordinate amount of attention is given to standardize the final report (for instance, the final font or to make it more user friendly) and not so much on the other activities in the process. The needs of each project are different. Optimizing each of the five process steps for every project "as determined by needs of the project" is essential. It starts from whether one should have even worked on the project to defining the scope, use of which databases, deciding who is going to do the search, who is available for analysis, finalizing analysis, interpretation by technical subject matter experts and final communication method. All of the choices (whether by design or default) impact the final output.

2.2. Technology/tools (information technology tools)

There are many advantages to having multiple "separate" tools for patent searching and analysis. Though the "all-in-one" IP analytics tools are more efficient for sharing quick preliminary analysis, it is usually more advantageous to separately download, custom tag, and analyze the patent data for optimal analysis. Yun Yang provides an example of the combination of separate tools for effective patent searching and analysis [3]. There are many good reasons to separately download, custom tag and analyze the data.

- First, having a separate platform allows one to merge different data types from multiple resources, such as, coupling product data with patent data.
- Second, one is not limited to the pre-defined charts from the IP Service provider. One is able to move data among multiple analysis and charting software to create the best visualizations for the project.
- Third, the patent analysis process involves a lot of collaboration with the technical Subject Matter Expert (or the end-user), who is not always very skillful in the use of sophisticated patent analysis tools. They are able to assist better when the information is provided separately in an end-user friendly format.

Even though having multiple separate search and analysis tools may initially appear to be expensive, it will have a higher business impact and enable larger cost savings in the long run. The allocated budget for search/analysis tools should be viewed as part of the total cost of managing and maintaining patent portfolio. The cost of separate search and analysis tools is usually a very small percentage of overall total costs of prosecution, maintenance (and possible litigation) of even a medium-size global patent portfolio.

2.2.1. Search tools

An **effective patent search by a skilled patent professional** is the underpinning of IP competitive intelligence analysis. Careful evaluation and alignment with business needs is essential before selection of the appropriate tool to be used in the search. Of all things, **content counts most of all** and having good quality patent data is the single most important criteria driving choice of search tool. Two other key considerations in selecting a tool for IP competitive intelligence include, whether the search tool offer unlimited data downloads at a fixed price (as one needs lots of data for analysis) and whether the tool offer "value-added" or "standardized" comprehensive data. Other factors that can be used for consideration include currency (how up-to-date), global coverage, integrated platform (patents, non-patent literature, news, business intelligence, finance, product information, market data, trademark data, sales data), ease of use and advanced search capabilities (custom indexing and taxonomies beyond traditional patent classification, structure search, bio-sequence search, family based citations, cluster search). Furthermore, it is sometimes more useful to target more limited but specialized databases that only cover your

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