

## Other Research

### Patenting model lets companies assess IP strength

By Nancy Edwards Cronin

Many high-tech companies build and protect the value of their assets through intellectual property (IP). But gauging how their patents stack up within their industry is a challenge, especially in dynamic sectors such as renewable energy and environmental technology. ipCapital Group (ipCG) developed a patent-scoring tool that allows companies and their investors to compare relative value of patents within a dataset. The system provides a way to determine if companies and portfolios have a greater perceived IP value or if they require "shoring up" to better compete with others.

To illustrate the process, ipCG conducted a patent scoring analysis on biofuels to find "best in class" patents and suggest how other companies can build valuable portfolios. For this study, a dataset of global patents/applications (jurisdictions of the United States, Europe and Japan from 1985 to present) was examined. Using a patent search strategy of keywords and class codes, ipCG identified 849 biofuels-related patents and applications across varied aspects of biofuels production. For example, multiple sources of biofuels (such as palm oil, switchgrass, sugarcane, corn, rapeseed, etc.) were sought as well as raw material modification, fermentation techniques, equipment and processing patents, fuel cells designed for biofuels and business models if available. The study was aimed to provide a very high-level snapshot of the sector rather than focus on a specific sub-technology.

ipCG developed a proprietary method of relative ranking for patents based on studying patterns in successfully monetized patents in the marketplace. Thus the factors in our model correlate to value in a business transaction rather than hypothetical measurements of patent value. Not all patents are created alike, and those that exhibit key characteristics such as technical breadth and citation by other companies correlate with more valuable IP. Particularly when it comes to shareholder value, M&A, licensing, or IP litigation, strength of patents does matter, and in a business deal, stronger IP becomes an attractive piece of the overall value proposition. Below are excerpts of the study results.

- The rate of patenting in this area has skyrocketed. Since 2001, there has been an order of magnitude increase in issued and published patents/applications. The rate of increase is unusual compared with other categories, and indicates extremely high interest. But beware: "Gold rush" behavior in patenting can increase difficulty in differentiation between companies and technologies. For example, the organic LED display category has more than 10,000 patents on the stack structure alone, thus diluting individual value.
- There are a tremendous number of companies in the patent space and few leaders. The dataset includes 849 patents/applications, but only 35 companies hold more than five patents; more than 285 companies occupy the remainder of the study. Charting a course for "freedom to operate" may rapidly become difficult. Companies that stake an IP position early will be better protected and retain value.
- The patents cover a wide range of technology and product development, from raw material inventions for improved fuel yield, to equipment and conversion/fermentation methods, final fuel composition and biofuels cell structures. Establishing a solid supply chain position will be critical, as patents are being filed in the space by many different companies across the entire biofuels process.
- Highest-scoring patents included both companies and academic institutions. ZeaChem, Ethyl Corp. and Danisco Sweeteners scored in the top 50 percent as did California Institute of Technology and University of Southern for biomass fuel cells and the University of Florida for lignocellulose and microbes. An association with a reputable academic institution may help increase overall portfolio value with quality patents.
- Top patent holders found in the study did not always match the top scoring patents. For instance, Mitsubishi and the University of Queensland each had 12 patents or applications but both scored below the 50th percentile.

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## Top patent holders do not always match top scoring patents

Assignee	# of Patents Applications	Patent Ranking
University of Florida	19	>50 <sup>th</sup> Percentile
Caltech/USC	19	>50 <sup>th</sup> Percentile
Weyerhaeuser	14	<50 <sup>th</sup> Percentile
University of Queensland	12	<50 <sup>th</sup> Percentile
Mitsubishi	12	<50 <sup>th</sup> Percentile
Novozymes	12	<50 <sup>th</sup> Percentile
George Weston Foods	12	<50 <sup>th</sup> Percentile

Source: ipCapital Group

It is important to remember that patent scoring results can and do change dynamically. Patents continue to be cited by others as time goes on, and the technology develops over time to become more widely practiced and core to the space. New patents and applications are published daily. Scoring is a snapshot in time and needs to be considered in that regard. Further, there are myriad of market and business issues that must be combined with the scoring data for a more complete view.

High-scoring patents often share characteristics that can serve as guidelines for building and managing IP value. Three examples of actions a company can take to help increase their patent portfolio's value include:

- Consider your business' value chain and your position in it. Ensure that your patents under development consider the full spectrum of the value chain and claim the key territory to provide the best return on investment.
- Understand and measure the patent holdings of others and add strategic patent filings to your portfolio that are in ahead of, block, or develop other advantages over competitors. You will be positioned to own a space that others do not.
- Build a strong invention team trained in recognizing and connecting market to IP when creating innovation. Your inventions will have inherently better market value and solve the "right" business issues.

Managing and maximizing the value of inventions developed by an innovative company require an informed IP strategy. Companies in biofuels and other cleantech segments that follow this path are more likely to build solid IP protection around their products and services, and thus have better value propositions to offer investors, licensees and purchasers of the technology.

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