

# PATENTQUARTERS™

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## Patent Strategy and Game Theory

Welcome to another issue of *PatentQuarters*™, the quarterly newsletter of O'Connor & Company. We hope you find this information interesting and useful, and we would love to hear from you. Please e-mail us at PatentQuarters@mchsi.com.

As competitive business instruments, patents can be understood in the context of "game theory," which is a popular theory of economics. Below, we draw analogies between the game of poker and many of the strategic decisions involved in patenting inventions.

On page 3, the PCT system for international patent applications is discussed. *PQ*

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## Hold 'Em or Fold 'Em?

The popularity of poker has never been greater than it is today. An estimated 75 million Americans play poker, and many readers of this column probably call themselves poker players as well! Poker is fundamentally a game of skill, not chance. Of course, luck is certainly involved—especially on any given hand—but over time, over the course of many games, skills matter most. *Poker* and *patents* have so much in common that useful comparisons can be made between the two "games."

The hottest game of them all is definitely a version called Texas Hold 'Em, and it serves as a particularly apt model of the game of patents. There are some basic strategies that apply. One is to practice *value maximization* at all times during the game. Always think in terms of expected value (payout) in poker, similar to net-present value (NPV) in business. Just as NPV needs to be adjusted for risk and opportunity costs, think about what you need to put at stake versus what you can possibly win—and the likelihood of actually winning. *Expected value* is basically the pot size multiplied by your odds. If the pot is \$100 and you have a 10% chance of hitting your straight, you might not want to match a \$50 bet since it far exceeds your expected value of \$10. A lot of players fall victim to the sunk-cost fallacy, saying something like "I've already invested so much, I can't fold now." They just can't stand the thought of throwing so much money into the pot, only to give away any chance of possibly winning. However, knowing when to fold your cards is one of the most important abilities in poker. In business, you need to know when to "fold" your patent filings, i.e., let them go abandoned. You cannot take back any of your bets, but you can save money going forward if you're unlikely to win the pot. On the other hand, you need to bet (venture) chips to win (enhance revenue). Going "all in," or betting all your chips, is like directing all corporate assets towards one major patent portfolio. It is risky but can also pay off very well.

At every single point in a game of poker, you should carry out some type of decision-tree analysis involving (1) your cards, (2) the community cards (shared by all players), (3) the size of your chip stack, (4) the pot size, (5) the odds governing the hand, and (6) the strategies of the other players still in the hand. Patenting your technologies is no different...

(1) Your *cards* are your patents and your competitive advantages in the market.

(2) The *community cards* represent the overall industry your company is playing in—i.e., the rules that preside over all competing firms.

(3) Your *chip stack* of course epitomizes your available investment capital for business opportunities enabled by your patents.

(4) The *pot size* is the size of the market for your patented product or process. Note that it is often easier to win small pots than big pots, because big pots can attract more players willing to invest (fight for IP). In big pots, there are more ways to lose, and the temptation to go after that large pot (market) can mean you go broke.

(5) The *odds* for the hand are important, and it's good to have a sense for the mathematics and how your chances evolve throughout the hand. In poker, a feel for the odds comes with practice. Likewise with patents: companies that are successful (or not) in a particular industry acquire knowledge over time that helps them assess probabilities of success for new, but related, inventions.

(6) Finally, the *strategies of other players* cannot be overlooked. In fact, one definition of a "game" is a set of activities in which the strategy of player A must depend on the actions of all other players. Think of any sport—obviously players react and change strategies mid-course, to avoid a tackle or to break free for a goal. A single, fixed strategy will usually not work. You need to get to know your competition and what motivates them to make decisions. How will they react to something you might do? A great example is the poker bluff. When you bluff, you place a bet with a poor hand and hope nobody calls you. If everyone else folds, you win the pot regardless of the quality of your hand. The frequency of bluffing in poker has to depend on the strategies of other players: some will call bluffs more than others, just to "keep you honest" or maybe just to keep you guessing. Good poker players modify their strategy dynamically in response to what everyone else tends to do. Even better poker players alter their strategy *in anticipation* of what other players will *probably* do. Competitive analysis of patents is virtually identical. Companies bluff by announcing new technologies and filing patent applications, with the hope that smaller players exit (fold). Watch for "tells" of others (and yourself!). Don't give away what you are holding or how much you might bet. Similarly, be careful not to divulge critical IP which can happen in many ways—and sometimes neither side even knows it happened until later.

There are many other analogies that could be discussed: optimal betting and raising (investment theory with capital constraints), folding, risk tolerance, distribution of chips at the table, betting position, cheating, and so on. Space is running out, so I'll conclude with a final word: the best player does not always win. Here is the luck component. Sometimes, in poker *and in patents*, despite the best efforts of all involved—and the high degree of their skill/knowledge—simple bad luck can indeed lead to failure. Nevertheless, I believe that poker and patents are both about 80% skill and 20% luck.

Now, who's in for some poker? **PQ**

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This article was adapted from a version by Ryan P. O'Connor first published in the March 2005 AIChE Upper Midwest newsletter, *The Packed Column*.

*"Opportunity is missed by most people because it is dressed in overalls, and looks like work."*

—Thomas Edison (1847–1931), American inventor and industrialist

## International Patent Cooperation Treaty (PCT) Strategies

The Patent Cooperation Treaty (PCT) was concluded in 1970 and modified as recently as 2001. It is open to states party to the Paris Convention for the Protection of Industrial Property (1883). There are currently 130 contracting states. The PCT makes it possible to seek patent protection for an invention simultaneously in each of a large number of countries by filing an international patent application. U.S. applicants can use the USPTO as a receiving office for PCT applications; alternately, applications can be filed with the PCT office directly (which also allows e-filing). The international application is then subjected to an "international search" carried out by one of 12 patent offices appointed by the PCT Assembly as an International Searching Authority (ISA). A PCT application itself will never issue as a patent, but rather enter specific geographies in which patents can ultimately be granted. Basic PCT information can be found at the web site, [www.wipo.int/pct](http://www.wipo.int/pct).

The PCT has achieved a lot of success. Over one million PCT applications have been filed to date. That success has also given rise to a host of challenges, including issues of timeliness, quality, and an unpredictable political landscape. The PCT may one day lead to a truly global patent, but global harmonization is currently in disarray as the IP interests of developing and industrialized countries collide. WIPO doesn't *really* have authority over contracting states—yet it needs to exert influence and leadership across the globe.

O'Connor & Company participated in an international PCT symposium in February 2006, held at William Mitchell College of Law (St. Paul, MN). Some interesting perspectives were shared at the conference. Jay Erstling, Director of the World Intellectual Property Organization (WIPO) and the Office of the PCT in Geneva, Switzerland, discussed the current state of the PCT. Erstling highlighted recent efforts to reform and streamline the PCT legal framework.

One speaker, Harry Gwinnell (Vice-President and Chief IP Counsel at Cargill, Inc.) departed from the opinion of most others at the conference by saying he believes global patent harmonization could be at little as 10 years away, driven by economic forces. True harmonization could literally mean that a single issued patent becomes legally effective in most countries around the world.

Many participants at the international PCT symposium emphasized that the PCT should be viewed as more than a way to buy time. The PCT process has many advantages for applicants, some of which are highlighted below. **PQ**

### Advantages of the PCT

- Gain time to identify markets and evaluate the technical value of inventions
- Increase chances for obtaining stronger foreign patents
- Draft final version of claims when commercial value is better known
- Gain information about possible conflicting applications by competitors prior to national entry, enabling adjustment of filing strategy
- Inform third parties about designated states in which protection may be sought
- Delay patent decisions by nearly 30 months from the priority date
- Retain more claims in a single U.S. application claiming priority to a PCT application, since "unity of invention" standards apply, which can reduce costs for applicants

## Free Consultation!

O'Connor & Company is happy to provide new clients a free 30-minute initial consultation to discuss your IP-strategy and/or patent-prosecution needs. If we cannot serve your interests, we will gladly refer you to other IP professionals within our network.

*To request a free consultation, simply contact our office using the information boxed below.*

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