

Patent mining in a changing world of technology and product development

Patent mining is one of the buzz words of intellectual property management and for many seems to promise untold riches generated from rights portfolios that would otherwise lie dormant. In reality, however, this is very rarely the case. Patent mining is no quick fix, neither is it a solution that will work in all organizations. But for those that are willing to take risks and invest time and money in the process, the benefits could be considerable. By Edward Kahn

When I got off the plane recently in San Jose, California, the first display ad on the airport wall read: "Who owns the patents owns the market." Looking at that, I realised how much has changed in the world of intellectual property management, joint product development, and high technology business, generally, since 1986 when EKMS was launched.

The very concept of proactively studying one's own patent portfolio and conveying those patent rights to anyone else (much less a competitor!), would have been alien to companies holding patents. Today, high-tech companies, like Proctor & Gamble, proudly teach that they will license competitors, sometimes before the technology is even used in their own products. According to Jeff Weedman, P&G's Vice President of external business development and global licensing: "Competitive advantage used to mean 'I've got it and you don't'. Now it can mean, 'we both have it and can make money off of it'."

Patent mining in today's environment

In this atmosphere, patent mining should be defined in the broadest context of a technology company's strategic view. No one has yet said it better than Dr. Joe Daniele, former Director of Licensing at Xerox, when he stated in a 1993 speech (given with the author) before the Licensing Executives Society (LES): "IP management is the direct connection of R&D to the marketplace." It is not a coincidence that the speech was given the same year as Dow went public with its then revolutionary Intellectual Asset Management programme.

Those companies that were only willing to tentatively dip their toes into the water of change began to limit patent mining's reach to the study of underutilised patents in their

portfolio (the so-called "Rembrandts in the Attic" of Messrs. Rivette and Kline). While the pruning of the underbrush that such embryonic efforts provided occasionally led to more strategic programmes, like at Dow or Proctor & Gamble, more often, the limited financial return of such efforts discouraged those companies from moving forward to discover the more significant meaning of patent mining.

That is not to say that on the tactical level, patent mining can't offer useful information for distinguishing patents that could be licensed in non-competing fields of use, abandoned or donated – saving money and providing valuable tax donations. But it is not what should or will motivate a company, competing for internal financial resources, to devote the serious commitment the practice deserves.

Patent mining for the enduring company

Today, patent mining can no longer be limited to a self-reflective study of your own patents. It must mean the active scanning and analysis of ALL patents that can directly affect your business and technology development practice. Patent mining is a strategic and core function for any IP-centric corporation seeking to tie technology development to business strategy and provides a foundation to help managers make strategic decisions regarding IP acquisition and technology development.

Mismanagement of IP can be as lethal to competitive positioning and new product development as poorly drafted patent filings, or worse, picking the wrong technology platform. But if patent mining is more than an operational task for the IP law department, who "owns" it in a typical corporation: legal, the CTO or the CEO? Harry Gwinnell, Chief IP Counsel at Cargill Inc., says: "The greatest likelihood of success lies in

establishing a business group, visible throughout the company, to identify and execute hidden opportunities." The business group, notes Gwinnell, should contain staff members from "technical, marketing and financial" and will provide "a point person inside the company for capturing IP value".

Mine your own business

We have seen an explosion of software tools and IP search engines that make our forays into this domain much, much easier than our efforts of the late 1980s. Companies once sent researchers to review the patents within a small section or subsection of a portfolio, with an eye on narrow freedom of action. Today, patent management applications and robust search engines allow internal IP managers to quickly pull together organised sets of patents from within their own portfolios, those of specific competitors, and those patents citing relevant technical or industry terms.

With the advent of such patent analysis software, IP managers have pushed the patent mining process toward studying larger and larger patent sets. Companies, once only interested in understanding the patents within their own portfolio, are now interested in knowing about the patents held by competitors. Where patent searches were once aimed at determining prior art during prosecution, they are now aimed at winnowing out patentable new technologies before the research and development teams spring into action.

When mining a large portfolio, software provides the essential first step in organising and triaging. However, even the best software does not take the place of "human analysis", experts with technical and business aptitude and the ability to understand a patent claim. These experts are needed to review the output, confirm which patents are important and WHY. Experts can also refine the initial search to confirm that it captures relevant information and to tweak the categories to ensure accuracy and alignment with business objectives.

Clustering or categorising the information (whether in your portfolio or in those of others) is important. Ideally, you should maintain two parallel organisation structures – one that is generic and categorised by technology and one that is specific to your company's products – thus tracking both what you need and how it fits into the "big picture". By capturing both perspectives, managers are better equipped to make decisions about moving IP inbound and outbound.

With this information in hand, it is necessary to ensure that the right people have access to the mining data and know how to use it to make sound business decisions: having the

information visible to the entire company, from R&D, to product marketing, to the highest levels of management, will raise IP-consciousness within the organisation.

With this new found consciousness, more people could be engaged in everything from spotting infringers at a trade show to recognising a complementary technology that could enhance an internal effort. The more you know about your own IP, the better able you are to recognise intersections with the outside world. On its own, IP is just a pointer to the underlying technology that is really needed. Nevertheless, an IP portfolio that is organised by technology area and mapped to the company's products is highly useful in providing the right information.

Exploiting the gold mine

Success in refining the "ore" of promising opportunities that are identified by patent mining can be constrained by limiting executives to a narrow menu of "plain vanilla" licensing deals. IP transfers can provide the basis for donations to not-for-profits to licensing alternate fields of use, all the way to spin-offs – the list is only limited by imagination.

Companies may naively suffer from IBM envy – striving to achieve the multi-billion dollar licensing success of Big Blue. Yet, when you consider that only five out of every 100 patents is licensed and that one out of every 100 patents actually generates revenue, it is apparent that IP mania has skewed the facts and produced a surreal belief that every company with patents can enjoy the success of IBM. It is often difficult for a company to embrace the reality that a patent or technology is not so priceless. Many who suffer from IBM envy would not be willing to confront an infringing player in court under any circumstances.

Limiting commercialisation activity to licensing leftovers, or non-core, patents and technologies is another means to usher in failure. Often, success in licensing and commercialisation activity lies much closer to core. According to Gwinnell: "Most of the major value (in a portfolio) lies in your core technology and it takes hard work and creative thinking to extract that value." IP professionals are obligated to seek new channels of exploitation, welcome risk and bring their creative deal-making skills to life.

Large-scale successes will often involve the sharing of technology that is uncomfortably close to core, or what used to be referred to as the untouchable "crown jewels". The following deals demonstrate that the "Rembrandts" will often reside in your living room, not in your attic:

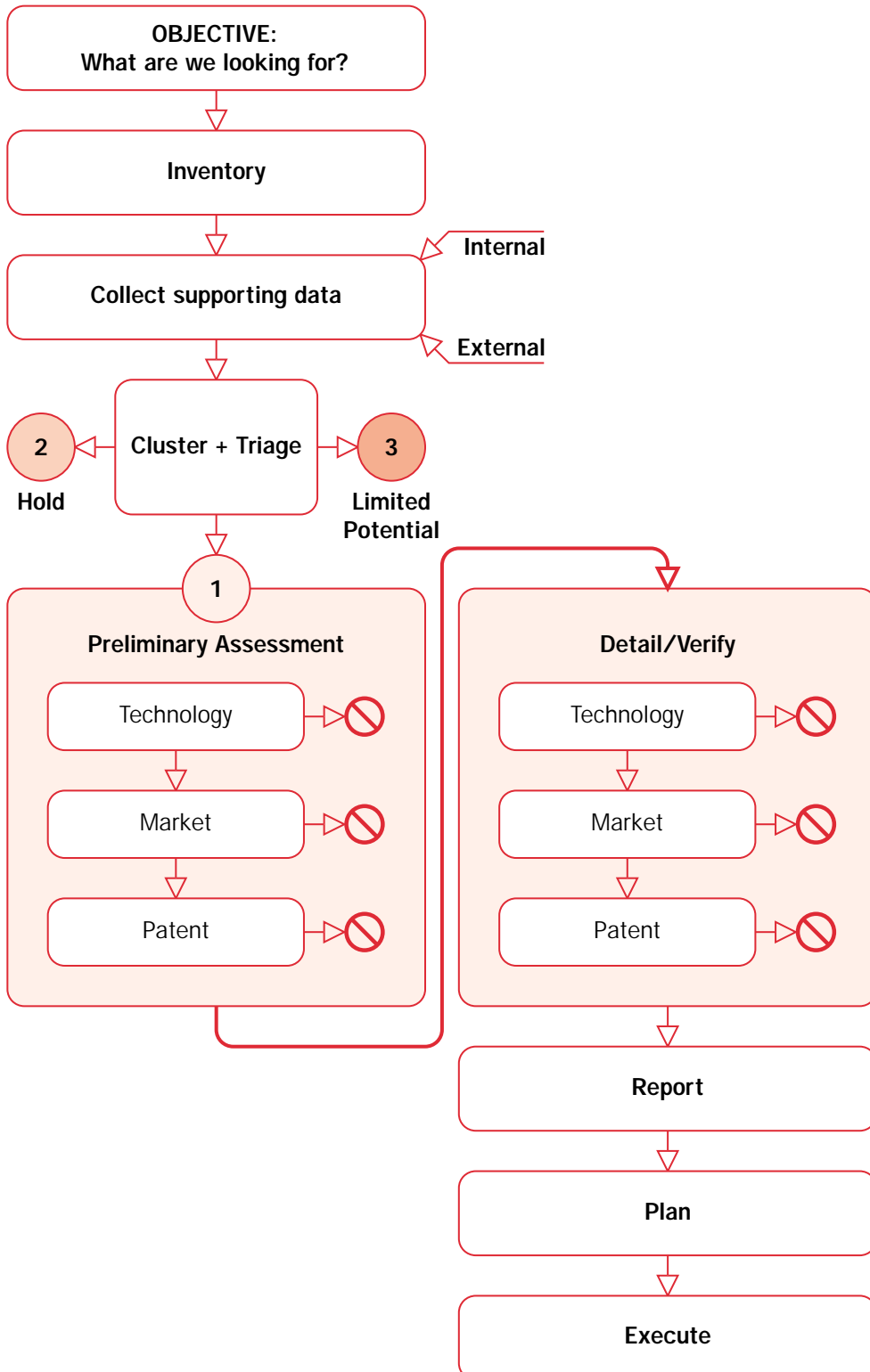
- In 2002, Raytheon entered into a strategic partnership with Surmet Corporation to

Distractions from what's real

The new wave of "IP-mania", as recognized by Karl Jorda, Professor of Intellectual Property Law and Industrial Innovation at the Franklin Pierce Law Center in Concord, New Hampshire, has created a distraction from what's real. As reflected in *Les Nouvelles*, the *Journal of the Licensing Executives Society* (June 2003), Jorda notes these new entrants to the marketplace have produced distraction from the real meaning of strategic IP management by generating "a lot of hype and hoopla about producing 'patents on demand' in 'patent factories' and valuing a patent in a 'matter of minutes'" by providing what Jorda calls, "solutions in search of needs".

Only an academic could go first and risk offending the well-meaning, but ill-conceived IP ventures that have sprouted in recent years. Were Professor Jorda only an academic, his evisceration of the recent years of "IP-mania" might be taken with a grain of salt. But in fact, Jorda was the long-time Chief Patent Counsel of Ciba-Geigy. Thus, his experience as both a corporate IP executive and an academic should force all practitioners of IP creation, protection and exploitation to sincerely reflect on his thoughts before practising the truly significant business discipline known as patent mining.

Mining process flowchart



develop its aluminium oxynitride (ALON) technology. ALON was originally developed by Raytheon as an alternative to sapphire and for use in military equipment. However, it was soon learned, with its impact resistance and structural stability over a wide range of temperatures, that ALON could be applicable for commercial development in a wide range of industries, including semiconductor equipment, bio-medical and homeland security. Seeking to generate new revenues from a core technology in unfamiliar commercial fields, while reducing production cost for a material needed in ongoing, internal defence programs, Raytheon licensed the technology to Surmet for development in non-military applications.

- In the late nineties, TRW licensed a set of gallium arsenide (GaAs) patents to RF Micro Devices (RFMD) in exchange for a 37% equity stake in the company. Originally used in satellites by TRW for government customers, RFMD licensed the technology with an intent to develop it for commercial use in its line of wireless headsets. At the time, RFMD was still a privately held company (it went public in 1997), but TRW retained its stake in RFMD until 2000. At the peak of the technology market, TRW sold its stake, netting a considerable profit of nearly \$695 million.

I've often been told by many colleagues in the business that "if IP management and patent mining is not about core (business), it's not worth doing". While many IP managers hold this to be true, too few have been empowered by top management to act in a manner that can produce deals like the ones mentioned above. Instead, such deals are done on an ad hoc basis, not inherent as part of an IP management programme.

Panning for gold outside your portfolio

Your own patent mine contains only a small bit of the gold that stands to create strategic advantage for your company. The technology landscape is spotted with patents and technologies that can hold danger and opportunity.

Examining the IP landscape will reveal that the aftermath of the technology bubble collapse has left the technology landscape strewn with patents available for licensing or sale from distressed and bankrupt companies looking for quick cash and willing to sell their technology assets for pennies on the dollar. Licensing or purchasing the rights to these patents and technologies can be valuable in several ways. First, it can help companies bolster IP position and avoid the risk of defending their product position against infringement claims

(particularly to be guarded against is allowing key IP to fall into the hands of “trolls”. With no products of their own, these patent-holding companies troll for patents in the IP marketplace with the goal of enforcing the patents against product-holding companies – often at outrageous prices). Second, it can help contribute progress to the development of and reduce the time to market for new products. Finally, it can help maintain competitive advantage as companies develop new product features and improvements in the face of alternative products being brought to market.

Mining your patent portfolio and conducting a technology landscape analysis is the key to knowing exactly what patents you’ve got, what patents you need, and how much they are worth. The scrutiny of patents has skyrocketed and in the face of a weak economy and heavy belt-tightening, it is important for companies to learn from past mistakes and utilise this new found knowledge to make savvy decisions before buying up more IP than necessary.

An antidote to M&A

Is it possible that in the late 90s, had the large telecom companies only licensed the seminal IP of the emerging upstarts just a scant year earlier than full-scale acquisition, many of the ill-fated mergers and acquisitions that took place could have been avoided? Such hapless bargaining cost shareholders billions of dollars and forced many companies into bankruptcy.

Frank Chambers, former Director of Innovation at Eaton Corporation, states that M&A is a “very expensive and very cumbersome” way to acquire technology.

Once again, the wreckage and subsequent fire sales of these massive acquisitions can provide a place to locate and acquire good, long-term IP.

Buy-in from on high

The new era of patent mining involves creativity, assumes a higher degree of risk, and most importantly, requires engagement from upper management. However, the rewards stand to be much higher, beyond licensing fees or royalties.

In order to be successful at extracting value in unconventional ways, and especially if such transactions involve strategic IP platforms, companies will ultimately need executive level support. As Harry Gwinnell notes: “It is difficult to make a significant change within an organisation. The first thing that is often spotted is the additional cost of undertaking this new approach. The only likelihood of success is to propose a programme at the executive level. Only then will people further down the chain be committed to making it work.” ■

Edward Kahn is founder and president of EKMS, Inc., an intellectual property management firm established in 1986 and based in Cambridge, Massachusetts (www.ekms.com). ekahn@ekms.com

Software Tools Chart

Vendor/Tool	Focus	Key Utility
Delphion www.delphion.com	Patent searching	Standard patent searching tool. Contains some robust tools for organising and mining your search results.
MicroPatent/Aureka	Patent clustering and mapping	Provides useful patent landscaping tools but suffers from steep pricing
Metrics Group www.metricsgroup.com	Patent clustering and mapping	Provides reasonably robust clustering and landscape reports at a fraction of the price. Consultants are very amenable and work closely with clients to deliver custom results
M-Cam http://www.m-cam.com/	Patent association	Demonstrates particular strength in locating patents that are “similar” to a given patent. Identifies the strongest patents in any given set.
IP Vision www.tecpatents.com	Patent management support tools	Full range of patent management solutions, including patent to product mapping. Assesses the status of patents and products held by your competitors.
CHI www.chiresearch.com	Patent database with added clustering capability	Patent clustering and market assessment services. Carefully maintained patent databases that stress accurate assessment of patent assignment and ownership.
ClearForest	Information organization	Provides tools that can sift through extremely large datasets, whether internal file information or downloaded patent set information. Companies that take the time to install and learn ClearForest Systems may have an advantage in synthesising large amounts of disparate data (patents, research articles and new articles) to make strategic decisions.