

Introduction

From acorns to oak trees: how patent audits help innovations reach their full potential

What can Aristotle teach us about intellectual property? A core component of the ancient Greek philosopher's world view was the idea that the true meaning of any object can be understood only by examining its fullest potential. So, for example, the essence of an acorn is not a round nut or squirrel food or even a seed; it is an oak tree. This higher calling is what guides the acorn along its path from a tiny seed to germination and growth to become one of the largest, strongest trees in the forest.

Fast-forward 2,340 or so years and this metaphysical observation can be translated for the modern-day IP professional: the full potential of your IP portfolio can be realised only by thoughtfully maximising its inherent ability to enhance your business.

The desire to have a rationally grown portfolio stands out in sharp relief against the backdrop of a global recession that has caused everyone involved in the research and development (R&D) process – from researchers and inventors to litigators and senior management – to look closely at the bottom-line impact of protecting every new idea. In this type of business environment, where the entire world is a marketplace and intangible assets are currency, the innovators that win will not necessarily be the most creative or the fastest-moving, but those with the best roadmap. Only those with both the vision and the direction to synchronise inventive strategy with big-picture corporate strategy will succeed.

This chapter presents some thoughts on developing an IP management roadmap that makes financial sense. It looks at some ways to audit an existing portfolio, as well as how simultaneously to gain necessary competitive intelligence to help intangible assets reach their fullest potential within the confines of a tightly managed company.

A top-down approach to IP management

The secret ingredient that makes intelligently managed portfolios possible is the clear setting of expectations by senior management. The companies with the most

successful records of innovation are those whose management makes innovation and IP awareness part of the cultural fabric. They make intellectual property a part of the R&D stage-gating process so that throughout the idea-to-product continuum there is a clear sense of where any invention fits into the larger IP portfolio. Ideal management requires follow-through with IP risk assessment and review of the competitive landscape for that technology. To follow Aristotle's analogy, these companies begin identifying the potential oak trees for their acorn ideas before they start watering the seeds, and continually check on the health of the seedlings. Clear lines of communication between senior management and researchers are essential to achieving a balance of creative spirit and business efficiency.

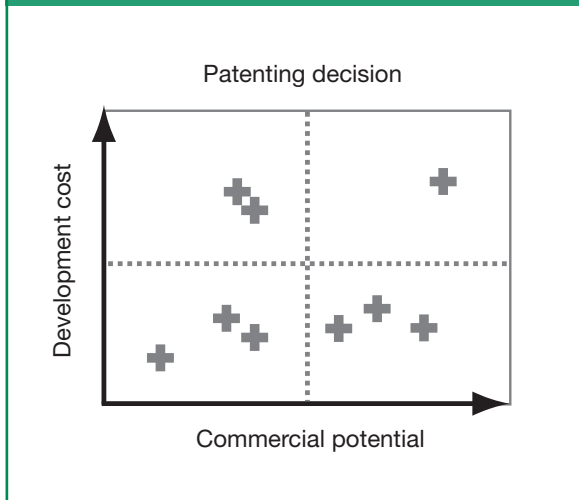
Most of us know about and have tried to implement methods for balancing the ideal IP portfolio:

- evaluating new inventions for business relevance and protectability;
- aligning and realigning the existing portfolio with business direction;
- overlaying competitive intelligence information on IP holdings; and
- incorporating market intelligence into product development and demand into IP decision making.

Assessing new inventions and reviewing existing intellectual property in the portfolio

The quadrant system is a frequently used tool to help IP decision-making. Whether the decision is about patenting a new idea or continuing to support existing intellectual property, the quadrant system helps to prioritise the expenditure of funds. The key players in the decision process may be a formal or informal IP review panel, and the process may involve inventors, patent managers, marketing and product managers, business development managers and information professionals. The ideal is that this team has facts to help it make informed choices and the discipline to apply business-relevant criteria. What makes patenting

Figure 1



evaluation different in today's world is not only that budgets are tighter, but also that most of these people have a great many other responsibilities and do not have much time for review. They need an efficient process that does not drown them in paper or require huge support teams to orchestrate.

Patenting decisions

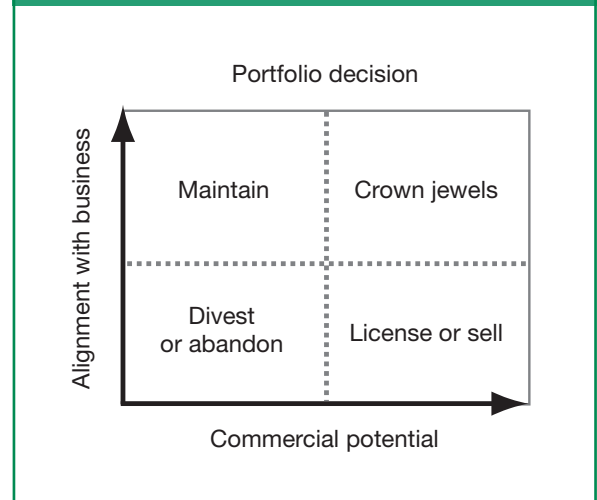
For patenting decisions (Figure 1) the team works from an invention disclosure and may consider a number of criteria, including preliminary patentability assessments, technical feasibility assessments, a product concept and market information. However, all these pieces of information may not be available. Internal or outsourced patentability assessments could provide a quick way of making a first cut, so that available time can be spent on the most likely candidates. When the number of candidate inventions is reduced, the team's time can be spent on examining the scope of protection that should be sought, and the breadth or narrowness of filing in the context of the expected technology impact, competitive advantage and feasibility of development.

Portfolio evaluation

One company we know was spun off from its parent a few years ago. The new IP counsel for the spin-off walked into her office to find 147 cartons of paper patent files and no indication as to where to start or even if there was anything about to lapse. Needless to say, it took some time for her to sort out all that information.

If the regular review of your patent portfolio is less frequent or less robust than you would like, one way to start fresh is to do a portfolio audit and then implement a follow-up plan that keeps the portfolio nimble

Figure 2



responsive to changes in business direction.

A quadrant process can be used for a portfolio audit to ensure that new technologies are mapping to your current business strategy. The legacy portfolio can be categorised (Figure 2) to put intellectual property into four basic categories:

- crown jewels that provide maximum competitive advantage;
- patents in the business pipeline that cover new development or offer defensive or offensive advantage;
- patents not supporting the core business that may be spun off through out-licensing or strategic mergers and acquisitions; and
- patents that are not germane to the broader business goals and represent an opportunity cost.

Value of citation metrics

One of the quickest ways to get a handle on evaluation is to use citation metrics. By tracking citations to an existing portfolio, IP professionals can spot potential licensees, potential infringers, developers that are adding value or finding new uses for a technology and competitors. Patterns of behaviour revealed in the citation data help to isolate those components of an IP portfolio that are receiving the most outside attention, while also identifying friends and foes. For example, an audit at a large software company led to some surprises as a result of analysing citation metrics. A long-neglected business unit was sitting on patents that were unused by the company itself, but highly cited by others. The company capitalised on this by divesting the under-utilised technology to one of the frequent citers, which was able to make more of it.

Competitive intelligence

Sometimes it takes a patent examiner to illuminate the most valuable segments of an IP portfolio. A surprising amount of competitive business intelligence can be gleaned from examiner references. Companies inventing in your technical space do not always put your prior work in their invention disclosure statements, but examiners – particularly in Patent Cooperation Treaty or European patent examination reports – will often point you to competitors which are getting close to your space or potentially moving into position to challenge you in your own market. You can use an audit to look systematically for examiner references that link tightly to the competition to get insight into competitive risk and enforcement opportunities. Once the basic study is complete, it is highly recommended that you monitor your ‘crown jewel’ patents and applications to spot potential threats – and opportunities – while they are still in their infancy.

Monitoring an IP portfolio in this manner involves equal parts defence and offence. While the primary

motivator is to keep tabs on the competition, the exercise of tracking the inter-relationships between citations helps managers to identify related art. The citation map in Figure 3 tracks from the original patent through several generations of references.

In this particular case, the basic technology was not on the critical path for the home company (evidenced by the lack of self-citation), but this citation map showed that Companies A and B were pursuing the technology for one purpose, while Company C was taking a different tack and moving the technology into a different market. Investigation revealed that Company C’s technology was actually dominated by the base patent and the home company was able to strike a licensing deal.

When competitors build on your art, it could be an indication that your strategic advantage is being strengthened, as much as it could be potentially threatened. The only way to distinguish an opportunity from a threat is to build the monitoring and evaluation process necessary to evaluate competitor actions against your IP roadmap.

Figure 3: Thomson Innovation® citation map showing the evolution of the base technology, as well as potential partners and possible threats

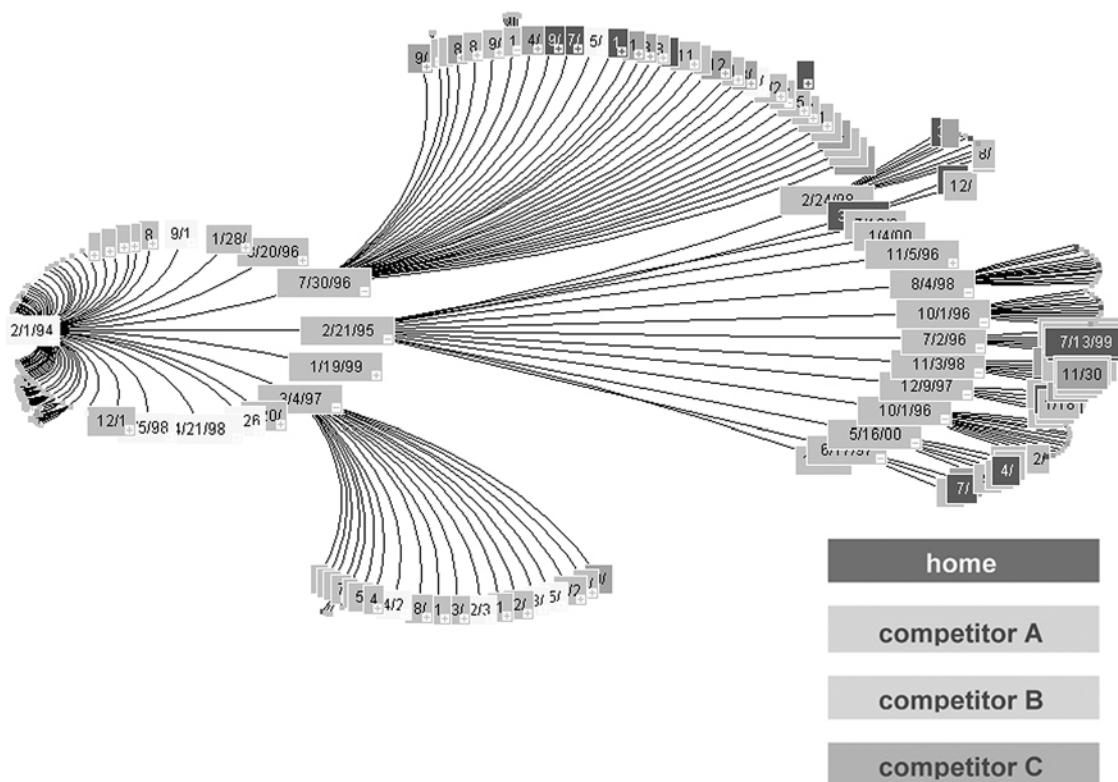


Figure 4: ThemeScope Map from Thomson Innovation of Optoelectronics documents linked by citation to the founder document (arrow)



Landscaping to grasp the competition quickly

One way of leveraging citation information with IP landscaping is to find the handful of patents that are well-known founder technologies for a whole technical area in which you participate. Follow the citation maps through to their end and you will accumulate a large collection linked by multiple generations to the founding patents. You can then put the whole collection through a landscaping exercise. The landscape can be time-sliced to find the divergent areas into which that technology is penetrating. It can lead to the discovery of adjacent market opportunities, potential partners or acquisition targets, 'hot' technologies, new players and new geographic involvements.

An example of this is shown in the ThemeScope™ map (Figure 4), which depicts clusters of activity in optoelectronics, starting from a founder document (arrow) and developing through various technologies over time. The heavily dotted area on the top right covers wave guides and was one of the later developments coming out of the original technical insight.

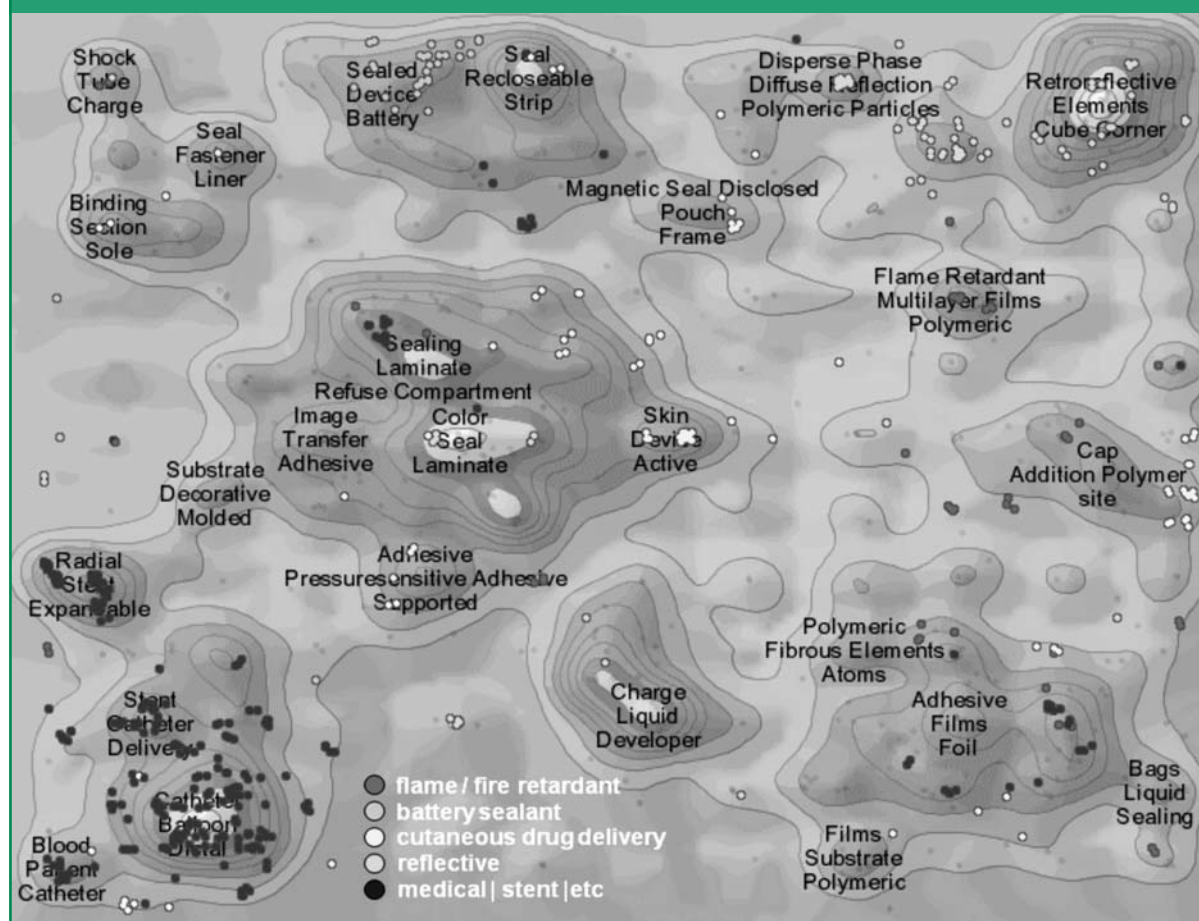
Trademark IP information

Other ways to obtain a view into the competitive landscape include following the registration of trademarks with intent to use and looking for use of trademarked materials in downstream products. In the ThemeScope map (Figure 5) the use of DuPont's trademarked polymer Surlyn® was followed in the patents of companies other than DuPont. This map shows clearly how Surlyn is being used and the companies that are likely to buy Surlyn from DuPont.

Non-IP data

Not all critical IP intelligence is found in patent data; some of it comes through more traditional sources such as trade journals, news reports, press releases and product announcements. It is important for IP professionals to augment their systematic IP analysis process with outside information on joint ventures, mergers, acquisitions, licensing agreements, litigation and financial performance results, which can all yield material information about the relative direction of a particular technology area.

Figure 5: ThemeScape map from Thomson Innovation showing the use of Surlyn based on trademarked materials



Map to the future

In the current economy, intangible assets account for approximately 80 per cent of the market cap of the Standard & Poor's 500. The average cost, including preliminary search costs, drafting costs, patent filing fees and maintenance fees for a single patent, is approximately \$6,000 for a 20-year patent in the United States and \$26,000 in Europe. Large innovators often have portfolios of well beyond 10,000 active patents. British Telecom, for example, currently maintains a portfolio of more than 15,000 patents

representing over 1,700 inventions.

While the costs associated with maintaining a large IP portfolio pale in comparison to the market potential of a blockbuster invention, they are too significant to be left to chance. Only by developing a rigorous and systematic approach to patent auditing can IP professionals be certain that they are maximising their investment in technologies that carry the greatest potential. To work effectively, the process needs to be applied to new inventions and the existing portfolio, and must take into account competitor portfolios and external market factors.



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Susan E Cullen PhD has 16 years' IP management experience. Since 2000 she has worked as a consultant in IP analysis and aims to help make people and companies successful through effective IP management. Her consulting clients include over 80 companies in industries as diverse as semiconductors, medical devices and digital security. Dr Cullen has a PhD in microbiology from Albert Einstein College of Medicine and a BS in chemistry, and is a registered US patent agent.