

Why due diligence is not a rear-guard action for the patent-savvy company in a patent deal

Bruce D Sunstein considers how patent mapping tools can be used to gain business leverage in the IP sphere

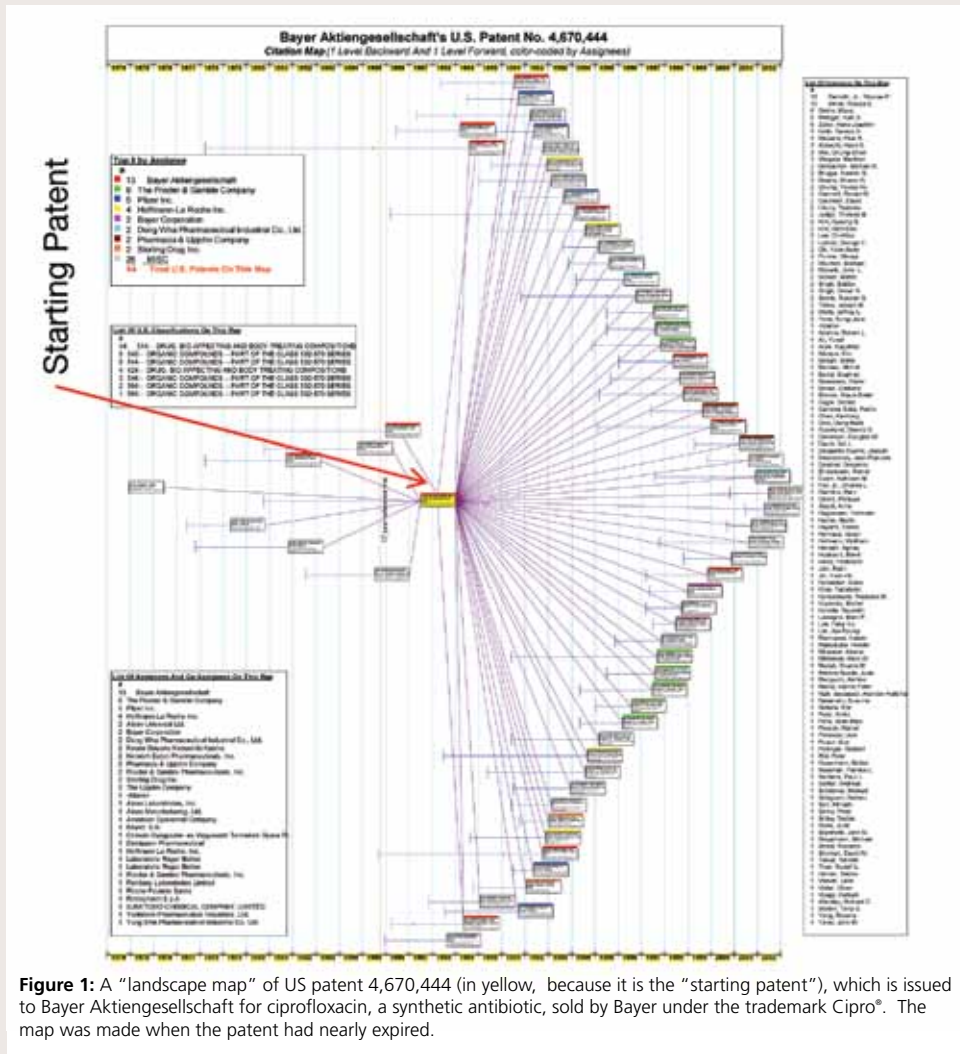


Figure 1: A "landscape map" of US patent 4,670,444 (in yellow, because it is the "starting patent"), which is issued to Bayer Aktiengesellschaft for ciprofloxacin, a synthetic antibiotic, sold by Bayer under the trademark Cipro®. The map was made when the patent had nearly expired.

A patent-savvy company works with patent counsel to do more than reduce risk and uncertainty in a patent deal. Take the situation of a medical products manufacturer who would like to acquire another medical products manufacturer that has a large sales organisation and a revenue stream that approximately matches the revenue stream of the company. The target company has a few patents covering incidental aspects of its product line, such as an electric power cord reel that makes its equipment look neater in use, and a wheel-equipped rack that conveniently mounts two related items of equipment to facilitate their use together.

As lawyers, we are compelled to consider the risks of the deal. We do not want our client to make a deal that goes bad because the title to patents being acquired was not examined or because potential validity attacks on important patents in the portfolio were not considered. So before the closing of the acquisition, a due diligence investigation is conducted to consider these issues and more. Accordingly, as part of the due diligence, it should be confirmed that the assignments for the

target company's patents give it good title to its patents. The procedural history of the patents is studied to get a sense of their scope, and a prior art search conducted to spot any vulnerability of the patents of the target company to a validity attack.

Due diligence is a rear-guard action invented to expose hidden risks and to avoid painful surprises on closing of the deal. The main reason for a due diligence investigation in a patent deal involving my company is the same as for any other kind of deal: to make sure that, in doing the deal, my company is not disappointed.

However, not being disappointed is not the same as succeeding.

Instead of doing just a rear-guard action to fend off bad risks, one can engage in "front-guard" actions to identify smart opportunities in the IP space. One can investigate before a deal is inked, and even before a deal is conceptualised, to gain a sense of where your company's business and its technology fit into the competitive landscape. One can face the big questions:

- How well does my company's patent portfolio cover present and planned product offerings?
- How well does my company's patent portfolio fence out the competition?
- Are there patents of a competitor that cover any of my company's present or planned product offerings?
- For that matter, are there patents of a competitor that cover other products in the marketplace that have value?

Figuring out the answers to these questions takes you to the heart of what matters for the company, its products, and its patents in the marketplace. These are hard questions, because their answers depend on assessing your company's patents and of competitors in context – in relation to products of your company and of competitors.

To get a good assessment of these patents you need to:

- Identify your company's patents (that part is easy, because your company normally has its portfolio listing);
- Associate your company's patents with the company's corresponding products and, if relevant, of competitors (this means knowing about products of your company and its competitors in the marketplace and studying your company's patents to understand their fit with products);
- Identify patents of your competitors (maybe not so easy to do because competitors will not volunteer a patent portfolio listing, and title to their patents might be in a parent or subsidiary company, and some patents might be licensed in so as not to show up in an assignment search); and

- Associate patents of each of your company's competitors with their own products as well as products of your company and of other competitors (this requires studying all of these competitor patents, knowing the product space, and examining the fit of these patents in the product space).

How does one obtain this competitive intelligence? One should look in parallel across a number of sources. If your company is patent savvy, its management along with patent counsel will be looking at competitor web sites, industry trade journals (often on the web), and competitor Securities and Exchange Commission (SEC) filings as important starting places. Sometimes even when a competitor is not obligated to file reports with the SEC, it may have dealings with one or more companies that do file reports with the SEC and such dealings may show up in 10-K filings as a "material contracts". Some information can often be gleaned from filings made with licensing authorities like the FDA by competitors. For example, the FDA Orange Book, www.fda.gov/cder, is a source of information about patents on drugs.

Patent counsel is in a good position to collaborate with the company in the drive for competitive intelligence by running canned searches for published patent applications of competitors, by monitoring prosecution of published applications, and by associating competitor patent properties with products in the marketplace that have been identified by the company.

Part of the challenge in competitive intelligence lies in using the information developed. The information must be organised and analysed if it is to be useful. One natural way of organising the information is in patent portfolio listings: a separate portfolio listing for each competitor. Each separate listing can include not just bibliographical data (like the patent number, names of the invention and of the inventors, the issue date and the application filing date), but also products of the competitor that might be covered by the patent and a general category of the technology covered.

Patent mapping

To make effective use of information with this granular level of detail can be daunting, particularly where competitors have tens, and sometimes hundreds – and even thousands – of patents. It is here where a unique tool can be valuable. Specifically, patent mapping provides a method of visualising how patents in any collection of patents are related to one another. For example, the collection of patents may be my company's patent portfolio, or it may be a competitor's patent portfolio, or it may be the merged combination of my company's patent portfolio and a competitor's patent portfolio.

The relationships, among the patents, shown visually in a patent map are patterns of citation of prior art. An issued patent typically lists one or more items of prior art considered by the examiner before the patent was issued, and these items of prior art are often issued patents; that information gets captured visually in the patent map. This discussion of patent mapping focuses on the patent maps of IPvision¹, because these maps show patterns of citation of

prior art. The patents in the map are represented by rectangles. Each time one patent on the map has cited another patent on the map as prior art, the map includes a line connecting the rectangles corresponding to the two patents. Connecting patents on the map with lines according to patterns of citation as prior art provides a visual indicator of the relevance of the patents to each other. Consequently, patents having technological relevance to one another tend to be linked to one another on the map.

Patents on the map are coloured according to the name of their owners, so patents belonging to a given company can be identified instantly. Patents appearing on the map are represented by rectangular boxes placed horizontally according to the date of issuance, with more recently issued patents appearing to the right of older patents.

In figure 1 (on p76), it can be seen that the yellow rectangle (the starting patent) has many red lines going to it. Each one of these red lines goes to another rectangle, corresponding to another patent. Each of the patents located to the left of the yellow starting patent has a line connected to the starting patent – indicating that each of these patents was cited by the starting patent as prior art. Similarly, each of the patents located to the right of the yellow starting patent has a line connected to the starting patent – indicating that each of the patents to the right of the starting patent cited the starting patent as prior art.

The rectangle corresponding to each patent typically includes a coloured bar at the top. Each patent rectangle includes a blue tail to its left to indicate the filing date of the patent application. Also, each patent box on the map is live, and, upon a mouse click, provides access to considerable information about the patent including the text of the patent, a pdf copy of the patent, procedural history of the patent, and members of the patent family associated with the patent. In fact when a pdf is made directly from the patent map, the pdf copy is similarly live.

As shown in figure 2, the map includes a colour code to indicate the most commonly occurring owners of patents shown on the map. In particular, it can be seen that 13 of the rectangles are coloured red, indicating ownership by Bayer Aktiengesellschaft, and two are colored pink, indicating ownership by Bayer Corporation, so that nearly one fourth of the 64 patents are owned by the Bayer group. The prominence of Bayer patents on the map is an indicator that Bayer filed patents in this area in a strategic manner: its patent for ciprofloxacin is not an isolated outcome, but rather is associated with a substantial number of filings in this technological field. Clustering of patents in this manner tends to be an indicator of a pattern of strategic filings.

The map includes other details, including a listing of all owners of patents indicated on the map, a listing of the inventors for the patents shown in the map, with the inventors listed in order of frequency of appearance, and a listing of classifications into which patents appearing in the map have been placed by the US Patent and Trademark Office.

The patent landscape map is only one of several types of patent maps, there are also other maps called "cousins" of the starting patent. They can show all later-issued patents (called "forward references") that cite the starting patent as prior art and also show all patents that are cited as prior art

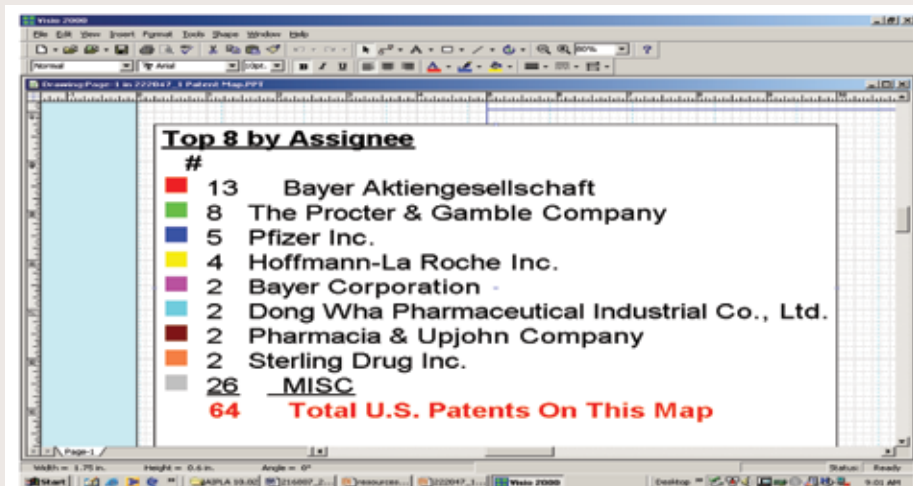


Figure 2: A colour code to indicate the most commonly occurring owners of patents shown on the map from figure 1.

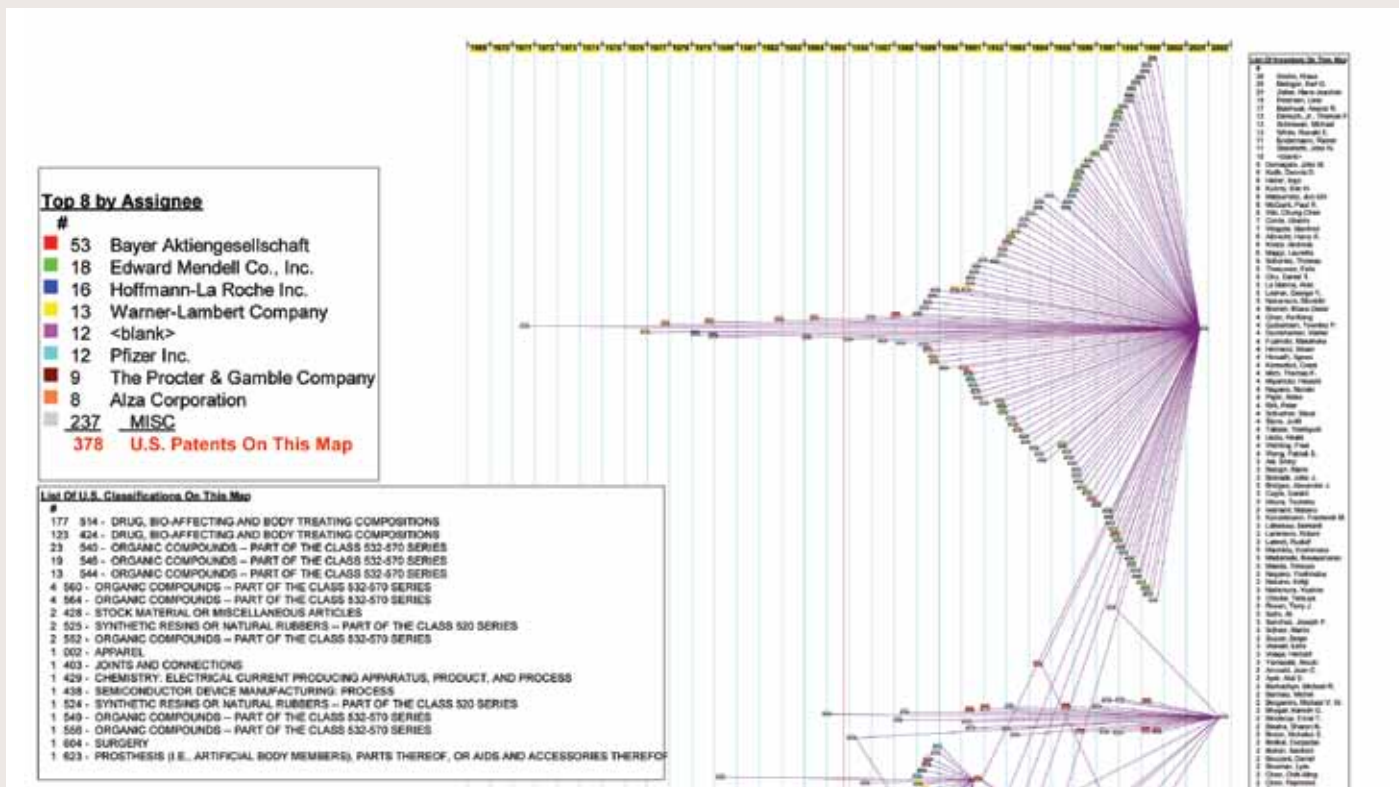


Figure 3: This map identifies an interesting patent, having citation links to many other patents on the map as well as a ray-fish like pattern, and of prior art. It is patent 6,261,601 (far right rectangle), owned by Ranbaxy Laboratories Limited, an Indian pharmaceutical company. An investigation shows that this patent was licensed in by Bayer. The Ranbaxy patent concerns technology that would increase the transit time of an antibiotic in a subject to which the antibiotic has been administered and perhaps enable Bayer to introduce a proprietary once-per-day form of ciprofloxacin, at a time when its ciprofloxacin product was coming off patent.

by these forward references. It is also possible to make a “backward cousin” map, which starts with cited prior art to the starting patent and then shows all the other issued patents, in addition to the starting patent, that cite this prior art.

The forward cousin map in figure 3 can be used for a variety of purposes. Some of the cousins on the map might be prior art that is pertinent to the starting patent, and some of them may not have been cited by the starting patent. It helps in the identification of the cousins on the map (other than cited prior art to the starting patent) that have been cited the most often by the forward references – those cousins might be expected to be highly relevant to the starting patent and might even be invalidating prior art. (A cousin map that shows the frequency of citation of these cousins as prior art by the forward references is called a “co-citation” map) As in the case of the patent landscape map, the patent rectangles are colour coded according to the most common owners of the patents on the map, and the inventors and the patent classifications are listed.

Patent mapping facilitates the strategic analysis of patent portfolios for a wide variety of purposes. In the case of our assumed business deal – the acquisition of the medical products manufacturer – a study of the target’s patent portfolio could reveal that the portfolio’s protection is thin. Even though the target company has large revenues, it has potential vulnerability to a competitor with a more strategically developed patent portfolio. Our patent-savvy company has, with our assistance, figured out this vulnerability and decides to forego the acquisition. Indeed, in a similar manner, patent mapping studies on behalf of potential acquirers have sometimes led to important discoveries that could change the calculus of the deals being considered.

While competitive intelligence activities are important at deal time, they are equally important in the more mundane activities of

patent portfolio management and development. For example, armed with this competitor intelligence, one can steer development of your company’s patent portfolio in a direction to give your company additional leverage in the marketplace. For instance, your company’s pending patent applications can be manoeuvred to include some claims that cover one or more products of a competitor. Competitive intelligence could even inspire the development of a new product line and a new suite of patent filings covering that product line. When this kind of thinking becomes prevalent, then when deals are actually in prospect, it will be second nature to view them in the context of their relation to your company’s strategic patent and technological position in the marketplace. When that happens, due diligence is no longer a rear guard action, but rather logistical support for strategic deployment of your company’s resources.

Footnote

1. IPvision, Inc holds patents covering its patent mapping technology. It is a client of the author’s law firm.

Author



Bruce D Sunstein is the founder of the Boston intellectual property law firm Sunstein Kann Murphy & Timbers LLP. Bruce is a named co-inventor in a business method patent, number 6,985,887. Bruce holds degrees from the Massachusetts Institute of Technology, Indiana University, and Boalt Hall School of Law of the University of California at Berkeley.