



Intellectual Property for Managers and Investors

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**A Guide to Evaluating,
Protecting, and Exploiting IP**

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Conducting an IP due diligence means investigating and evaluating a company's IP assets, practices, and risks. How strong are the patents? Will they help the company succeed? Do outsiders – an inventor's former employer or university, competitors bristling with their own patents – have any potential claims? Most commonly, IP due diligence precedes a transaction such as a round of venture funding, a merger, or an acquisition. Not only do professional investors hate to watch their money fund lawsuits, but also must measure the worth of IP assets in order to place a realistic value on prospective investments. A company's market projections may ultimately rest on its ability to secure a strong IP position, and, moreover, that position can itself prove a valuable asset even if the company fails.

Too bad, then, that IP due diligence can often seem a ritual ticking off of checklist entries rather than an effective search for meaningful issues. The grand menu of items that might be considered is enormous – if you do not believe it, feast on the banquet that ends this chapter. But performing an IP due diligence should not feel like being lost in an endless, expensive buffet, and, if it does, it's time to find a different restaurant. Context and common sense dictate the proper tasks. If a company's patents do not figure strongly into its business strategy (or an investor's estimation of what that strategy should be), why spend time reviewing them? If its products have been on the market for years with little change and no legal challenges, does it really make sense to investigate third-party rights?

Perhaps it's fear of high cost and mechanical execution that has led to underutilization of this important forensic exercise. IP due diligence is not just for venture capitalists and M&A players. An IP-centric technology company should have the internal expertise to undertake its own periodic self-examination – particularly after reorganizations, when new management may be tempted to change nothing or too much. Similarly, outside candidates for executive positions should scrutinize the IP profiles of their prospective companies – the blemishes as well as the flattering features – before signing up.

And no one should license a patent before investigating its pedigree as well as the possibility that someone else out there has blocking rights.

Consumers of IP due diligence need an understanding of what they are getting and, more importantly, not getting. No amount of effort can identify all possible problems or erase them. It is important, rather, to think in terms of minimally acceptable comfort levels. It is also useful to distinguish between inward-looking due diligence, which explores the quality of a company's own IP, and outward-looking efforts that consider defensive risk. The distinction is imperfect and spillover inevitable, but beginning a project assessment by deciding which is more important can help focus broad priorities at the outset, avoiding premature descent into checklist-level detail.

CASE STUDY #4: Sandy Pope, a principal in the venture capital firm of Hope Springs Eternal LP (HSELP), is trying to make sense of a business plan. The company is some outfit called True Blue, Inc. and they hope to corner the world market for blue lasers. The risk factors all look great – huge customer base, high margins, working prototype developed in less than a year, no professional investment yet. On the other hand, their competition includes immense industrial powerhouses, and, as yet, True Blue has no patent protection. It isn't clear if they even have an IP strategy, despite all the R&D work. Very odd. Maybe it's just a case of inexperience, yet they've raised nearly a million dollars in "angel" funding and even amateur investors don't usually plunk down so much cash on an unprotected idea.

Sandy knows something about semiconductor manufacture, and the business plan's description of the facility mystifies him further. These guys have a full-featured clean room, for crying out loud, Sandy thinks. It must have cost millions. Where did True Blue get all that expensive equipment? Certainly not from its angel investors, if the financials are to be believed; their invested capital would barely cover the first year of operations at starvation salary levels. And that Ovkorsky guy. Something secretive about him. Maybe Sandy has read too many Cold War novels, but he wonders if Dmitri is holding anything back.

Still, the deal terms are too good to ignore, misgivings aside. HSELP's limited partners will plant their pelf in savvier soil if True Blue hits big after Sandy turns them down.

What should Sandy investigate?

What's the strategy?

Almost every IP due diligence begins with an inventory of the target company's IP assets. A status list of all current patent and trademark applications, as well as disclosures being evaluated for patent potential, should be requested immediately. While Sandy is waiting, though, he ought to consider exactly how patents will fit into True Blue's business strategy. It is clear they will be central:

True Blue is an innovation enterprise, one whose market prospects rest solely on its proprietary advantages. Whereas some companies may hope to succeed based on service or consulting capabilities, price competition in a commodity market, or custom product tailoring in a differentiated market, True Blue's fortunes are hitched solely to the demand-fulfilling value of its innovations – a value that will disappear the moment its heavy-hitting competitors gain uncontrolled access to them. Put differently, a True Blue investor's ability to realize a return, whether by acquisition or public offering, will depend on the company's ability to prevent or ration competitive use of its technology. Sandy is thinking of investing not in True Blue's brains, but, ultimately, in its IP. And, in an IP play, inward-looking due diligence must be the first priority. At a minimum, Sandy should consider:

- The likelihood that True Blue will obtain worthwhile IP protection for its core innovations.
- Whether True Blue has taken, and has established routine practices for taking, steps to secure ownership in its IP.
- Whether that ownership is free of claims by outsiders.

Quality of protection

Let us say Sandy receives a status list along the lines of table 4.1, and that it contains half a dozen entries – all relating to process recipes. Dmitri and True Blue's CEO have convinced Sandy that the control software is best protected as a trade secret. Very nice, Sandy thinks, but what does the list tell me?

Not much, other than the level of True Blue's efforts and commitment to a patent strategy. The patent office has reviewed nothing at this point, so those applications represent no more than humble requests. True Blue's commitment, therefore, may represent anything from a solid foundation to a complete waste of resources to an expensive smokescreen – an attempt, that is, to project the appearance of IP value where none exists. A Potemkin patent village, Sandy muses. Could Dmitri be one of those Potemkin types?

The only way to find out is to perform a patentability search. We made brief mention of such searches earlier; they involve a relatively shallow but broad perusal of the prior art to locate the literature likely to be considered by the patent examiner, with the goal of predicting the degree of protection he will likely grant. A patentability search is like a biopsy – it should be thorough enough to locate obvious problems, but not so comprehensive (that is, expensive) as to reach the point of diminishing returns. Professional searchers

know how to plumb the literature with ruthless efficiency. Often they confine their efforts to patent literature, however, in which case Sandy (or his lawyer) should supplement those results with a more focused search of databases covering relevant conference proceedings and academic journals, or at least a Google query. Searches can also be staged; perhaps a quick biopsy will tell Sandy everything he needs to know, and, if not, further effort may be undertaken. At the end of the search process, Sandy's patent lawyer can easily review the results and forecast whether True Blue's patenting efforts will succeed.

Unfortunately for Sandy's wallet, patentability searches are performed on a feature-by-feature basis. It really is not possible, in other words, to search at the "product" level if a product has multiple potentially patentable features. Unless those features are just different versions of the same new idea, rather than new ideas in themselves, they cry out for separate searches. Listen to their cries. A search for gasoline engines will turn up improvements to carburetors and valves, plus a few railroad cars full of unrelated junk. Do not cast too broad a net in an effort to economize; it just does not work.

On the other hand, perhaps Sandy can avoid this undertaking by leveraging the efforts True Blue has already made – or can be persuaded to make. True Blue should be obtaining patentability evaluations as a matter of routine. Now, it may be reluctant to share these with Sandy; a patentability analysis represents legal advice, and, as such, falls within the "attorney–client privilege." Created to encourage candid discussion between lawyers and their clients, the privilege shields communications (such as opinions) from the prying eyes of an opponent in litigation. But the privilege can be waived if communications leak outside the attorney–client relationship. So, True Blue's CEO may protest, we cannot divulge those patentability analyses to you now without sacrificing the privilege, which may compromise us if we ever sue on our patents. To which Sandy may respond in any of three ways. Fine, he might say, just send us the references – they are public anyway – and we will evaluate them ourselves. Or he might offer a "common interest agreement," which attempts to extend the attorney–client privilege to HSELP by outlining the alignment of legal interests between it and True Blue. Or, finally, Sandy can simply insist, contending that the risks are minimal even if the privilege is lost. No competent lawyer writes a negative opinion, lest it leak out and potentially cause far more harm than its informational value could ever justify. (Imagine the courtroom histrionics: "Ladies and gentlemen of the jury, True Blue's own patent counsel cautioned them – nay, virtually pleaded with them! – not to file for this patent, knowing it could never withstand scrutiny . . .") And a positive opinion only helps. So cough it up.

Let us say that Sandy obtains the opinion. How does he evaluate it? Lawyers often go to great lengths to put the best face on a pathetic patentability case, particularly if they know their client's financial survival may depend on a favorable impression. A "clean" opinion tells a simple story, unburdened by mental gymnastics, of an invention that is different from prior work and why it is different enough. The more an opinion deviates from this platonic ideal, the less likely its rosy predictions are to come true. A common tactic, for example, is to attack the *quality* of an obviously relevant piece of prior art. While it is true that a reference must provide a sufficient teaching before it can dash the fond hopes of a patent applicant, the level of teaching required is actually quite modest. A reference can *invalidate* a patent claim, for example, based on far less teaching content than is required to *support* that claim in the application. Questioning the adequacy of a reference's teaching, like pounding one's shoe on the table, is often the last refuge of the desperate and the damned.

Sandy will also want to get his hands on True Blue's patent applications. Since these are confidential until they are published 18 months after the priority date, True Blue may ask HSELP to sign a nondisclosure agreement first (although professional investors, wary of limiting their freedom to consider related investment opportunities, often resist such agreements). Sandy should consider the quality of the applications according to the criteria outlined in chapter 4. But his most important focus as an outside investor is the degree to which the patent claims coincide with True Blue's business strategy. If, for example, the claims focus on specific process recipes – or if the claims are broad but the prior art is likely to restrict them to recipes – then True Blue may be in trouble. Sandy must look for any gaps between the market exclusivity True Blue needs to prosper and the patent coverage it seeks (and is likely to obtain). An easy analysis this is not, often requiring the assistance of an industry expert or technical consultant. For example, even a narrow patent can cover the universe if nothing outside the claims will work. How sensitive are True Blue's recipes? Does crystal growth diminish gradually outside the range covered by the patent applications, in which case the patents will only confer an incremental advantage (since non-infringing conditions may be good enough)? Or does the process fail entirely outside that range, offering the possibility of market-dominating IP protection? No analysis confined to the IP itself can answer these questions. It requires highly specialized expertise (or an in-depth discussion with, and a great deal of trust in, Dmitri).

Those who perform inward-looking due diligence generally seek to assess patent strength; they are often surprised to learn that without an industry perspective, diligence can only reveal weaknesses.

International protection must also be considered. If a company plans to address foreign markets, as True Blue does, at the very least it should have preserved foreign rights with PCT applications. But assessing quality goes beyond reservation of rights. Patent applications must be drafted based on the broadest protection available in any country in which the applications might be filed. Methods of therapy, for example, while mostly unpatentable in Europe and Japan, qualify in the United States. Therefore, a European application drafted for compliance solely with, say, European law will be inadequate for the United States if it contains insufficient support for therapy claims; such an application needlessly leaves the possibility of valuable US protection on the table.

Does True Blue have all the rights it needs?

Sandy and his lawyer have reviewed True Blue's patentability opinions and patent applications. The opinions are convincingly positive and the patent applications seem effective. HSELP's industry consultant confirms that the patent coverage sought, and likely to be obtained, will prove potent. One omission noted by the lawyer is the apparent absence of patent assignments from the inventors to True Blue. The files, and patent-office records, show nothing recorded for any of the applications. Just make sure it's done before closing, she says.

But Sandy is troubled. He knows that without a written assignment, True Blue's ownership of the patent applications is in doubt. He wonders if the omission is innocent. A colleague once told him about the president of a small company who thought he could keep key patents for himself and license the company later; naturally HSELP steered clear of that investment. Could Dmitri be pursuing a little self-dealing? Of course, if this were an espionage novel, the truth would involve more intrigue. Dmitri might be working for someone, some shadowy Mr. Big. Or someone could be blackmailing him. Someone from the old country – someone who knows something about Dmitri's past.

Foolish, idle thoughts, Sandy realizes. Must . . . stop . . . spinning B-movie plots. But still. Is there some way to allay suspicions, however unreasonable?

As explained in chapter 4, IP assignments are essential and must be obtained at the earliest possible stage. Employees and consultants move on, not always on pleasant terms, and a resentful former employee may, shall we say, interpret his residual obligations narrowly. Sandy should ask True Blue who, exactly,

contributed to the development of the core technology. Hopefully the same people named as inventors on the patent applications, but it is always good practice to ask the question directly. Start-ups do not always understand how limited their discretion is in naming inventors, and patent lawyers do not always probe as searchingly as they should. The sooner discrepancies are recognized, the more likely it is they can be corrected.

In addition to invention assignments, Sandy should have his lawyer review True Blue's employment agreements and contracts with consultants. He should verify, first, that all individuals who have contributed to the company's research have actually signed an agreement. He should also assess whether it is sufficient. A solid contract cannot transform a resentful departing employee into a cheerful contributor, but at least it can restrict his legal options. A good agreement should contain:

- A nondisclosure obligation to refrain, both during and after employment, from divulging confidential business or technical information.
- An invention assignment clause that includes an obligation not only to assign rights, but also to promptly disclose the invention to the company (which cannot pursue what it does not know about) and to assist, even after termination of employment, in securing IP rights.
- An assurance that the engagement will not breach obligations to prior employers (for example, with respect to proprietary information or a covenant not to compete).
- A list of prior inventions that the company and the employee agree were made before employment.

True Blue should happily provide Sandy with copies of these agreements and whatever invention assignments exist (preferably after HSELP signs a nondisclosure agreement). For his part, Sandy should make sure everyone listed as an inventor on True Blue's patent applications has signed an agreement, and if not everyone has that at least they have executed invention assignments for the specific patent applications on which they are named. This exercise will help clarify the research staff's obligations to the company and the degree to which True Blue has secured its rights.

What it will not provide is an outward-looking sense of whether any of True Blue's employees owe a conflicting duty to someone else. While it is nice if everyone has signed an assurance against such conflicts, assurances will not satisfy the likes of Sandy. At least with respect to the core research personnel, Sandy may want to determine where they came from and when they began work for True Blue. Then he might investigate the possibility of

conflict. This review begins with simple questions concerning past inventor affiliations, and should be supplemented with an electronic search for patents and applications naming those inventors – a worthwhile means of verification that can also provide a more detailed picture of researchers' past experience. It can also reveal potentially problematic patents owned by others.

Suppose, for example, that one of Dmitri's co-inventors recently earned her doctorate. Should Sandy worry if her thesis topic seems uncomfortably close to her work for True Blue? Universities typically have policies in place defining the obligations of graduate students and faculty. In the United States, most academic institutions minimally insist on owning all IP growing out of research conducted on campus, using university-owned facilities. But the obligation can be broader than that. While faculty may enjoy the prerogative to devote a certain percentage of their time to outside ventures, free of university commitments, graduate students rarely have that option. Some universities have adopted aggressive IP policies that claim ownership of everything students think up during their period of graduate servitude. Others are less draconian. In Canada and Europe, for example, institutional ownership is not automatic; many universities have ambiguous policies that share rights with the faculty. Whatever the policy, it probably covers students and faculty regardless of whether they have signed an agreement to that effect. So, if any True Blue inventors have had recent academic affiliation, Sandy should consider how much time passed between the end of that affiliation and the beginning of employment at True Blue, and how similar the academic research was to that performed for True Blue. Nearness in time and subject matter should prompt a review of the institution's policies, and may ultimately precipitate a request to the university for an ownership waiver or, more likely, a license.

Similar concerns apply to past employment. (*Maybe, it occurs to Sandy, Mr. Big is Dmitri's former employer! Dmitri knows he can't assign to True Blue what his old company owns, so he's holding back on True Blue, hoping he can cut a deal with the mentor he betrayed . . .*) Here the question is one both of contract – is there a written agreement with the former employer? – and law, which may supersede onerous contract terms. Courts attempt to balance the proprietary interests of employers with the right of workers to seek gainful employment. A business may legitimately restrain its former employees from divulging specific, identifiable trade secrets. But it cannot prevent their use of general knowledge and skill learned on the job. So True Blue is ordinarily free to hire experts in crystal growth, for example, even if they worked for a competitor, so long as secret information is not divulged.

Two exceptions to this principle must be considered. The first is the possibility that True Blue's employee has entered into a noncompetition agreement with his previous employer. As overt restraints on workers' ability to pursue their livelihoods wherever they choose, such agreements usually face a hostile reception in court – particularly where the only real concern is preservation of trade secrets, which can be protected without punishing the departing employee in advance. But often they can be enforced at least to some degree.

Sometimes courts will allow this form of pre-emptive punishment even in the absence of a noncompetition agreement, if they view disclosure of trade secrets as “inevitable.” This second exception to the usual principles occurs only in narrow circumstances and many courts reject it altogether. But where, for example, a court senses opportunism or bad faith, it may view the former employee as too radioactive to release into a competitive environment – particularly if that environment is limited to one or a few direct competitors and the employee can make a living elsewhere.

Once again, Sandy might do a little homework, beginning with mild inquiries about True Blue employees' former positions, progressing to more focused questions on the nature of their earlier duties, and perhaps an express request to see prior employment agreements.

Finally, delving into the past also includes checking whether any of True Blue's inventions was made outside the United States; True Blue makes no secret of the fact that Dmitri's expertise was honed in Russia, for example. If so, apart from questions of ownership, it is important to ensure that foreign-filing licenses were obtained before the US patent applications were filed.

Has True Blue given anything away?

To dig still further, Sandy can perform various electronic searches: in the United States, the files of many federal and state courts, the Securities and Exchange Commission, and numerous secretaries of state are available online. A litigation docket search will reveal whether True Blue is (or recently has been) embroiled in a lawsuit. The secretary of state in True Blue's jurisdiction will have records of security interests covering True Blue's assets – which, if they exist, should be in the names of the company's bank and other financial creditors. Unexpected security interests can reveal otherwise hidden creditors,

even the sinister Mr. Big! And, although True Blue's stock is not publicly traded, any significant agreement between it and a public company may show up in the latter's periodic filings with the SEC.

Sandy and his raging suspicions have decamped to True Blue, which owes him a tour of its facility. Located in a one-story building with a corrugated roof and peeling paint, True Blue's equipment and facilities are belied by its modest exterior. The showpiece is a state-of-the-art clean room surrounding a crystal growth reactor. Dmitri Ovkorsky is explaining its operation as Sandy's mind wanders to the round of golf he has scheduled. Rain is forecast but what do they know? Finally something Dmitri says catches on a mental barb.

"Did you say 'open source'?" Sandy asks.

"Yes," Ovkorsky beams, "this is one reason we have been able to come so far with so little funding. Our neural network framework, our webserver, all based on open-source software – and therefore all free."

Sandy hasn't done many software deals, but others at HSELP have, and Sandy often hears them groaning about "open-source problems." Something to check into.

"How is your due diligence going, by the way?" Ovkorsky asks. "Do you have everything you need?"

"Good, good," Sandy says, grateful for the opening. "Have the patent applications been assigned yet?"

"Of course," says Ovkorsky.

"Oh. Well, we haven't seen the documents yet."

"Wait here, I'll make you copies. Apparently my lawyer forgot to include them in the files he sent. It didn't occur to your lawyer to ask why they were missing."

"He checked the records at the patent office –"

"Which are months behind," says Ovkorsky. "Not very surprising. How long did your town's registry take to record the deed to your house? Mine took a year."

"I guess."

"Perhaps your lawyer wasn't that concerned."

"Perhaps not."

Sandy bides his time wandering around the clean room, a box-like structure of steel trusses and acrylic windows, a humming room within a room. Inside, workers in spiffy white head-to-toe hazard suits fiddle busily with the refrigerator-sized reaction chamber. As he walks around the transparent enclosure, Sandy notices a legend etched into one of the panels. It's been scratched out. Stealthily Sandy eyes the legend as he pretends to watch the activity inside. Dmitri is coming back, copies in hand. The inscription appears to be a long serial number followed by – Sandy is almost sure – the words "US Army."

"Nice reactor," Sandy says with nonchalance.

"On loan," Dmitri replies.

Sandy is surprised. "I've heard of renting power tools and floor polishers, but semiconductor fabrication equipment?"

“We are actually beta testing it for the manufacturer. It’s a new model. We fine-tune our recipes, they get performance reports. We’re both happy.”

“Can we see the beta agreement?”

“Of course,” says Ovkorsky.

Dangerous liaisons

It is critical, in any due diligence, to determine whether the target company has “in-licensed” any of its technology from external sources, or “out-licensed” it to outsiders. Such licenses can range from the routine – end-user license agreements (EULAs, as they are often called) for commercial software, for example – to the highly particular. All out-licenses must be considered carefully. Even a seemingly innocuous EULA given to customers can contain potentially extravagant obligations or expose the licensor to unreasonable risks. For example, the Uniform Commercial Code presumes that goods (including, in most places, software) are sold with certain implied warranties, such as a warranty against IP infringement. Unless expressly disclaimed, implied warranties are automatically read into a contract.

In many cases, the seller’s exposure for breach of warranty is limited to the purchase price of the goods: all is forgiven if the seller issues a refund. But not always. If the buyer suffers some additional harm, for example, lost profits due to the sudden withdrawal of the goods, the buyer can sue for damages beyond the purchase price. Particularly in transactions involving software, the difficulty of identifying competing IP rights frequently motivates sellers to disclaim the warranty against infringement altogether, or at least responsibility for “consequential” damages above the purchase price.

Sophisticated buyers, on the other hand, especially when negotiating large purchases from new or small sellers, will not let them get away with that. They want the warranty and more, often demanding an indemnification against IP infringement. IP indemnification provisions should strike fear into the heart of any potential investor. Without limitations on the seller’s financial exposure, it could face a ruinous obligation to defend customers against lawsuits that arise unforeseeably and evolve unpredictably. British Telecom, for example, filed a lawsuit in 2000 claiming a patent applied for in 1977 covered hyperlinking – which, of course, did not even come into existence as we know it until much later. Broad patent claims can cover quite a bit of still-uncharted territory and technical terminology changes rapidly, making it all but impossible for anyone to locate every IP right that could be asserted.

The general principle, when evaluating licenses, development and joint-venture agreements, or even seemingly routine distribution agreements, is to look for terms that compromise the future. It is a sad fact of life that young, unfunded companies often strike deals – whether out of eagerness or naïveté – that trade exclusivity for the prestige and/or cash of a relationship. Prematurely committing the company’s fortunes to a single partner, often on questionable terms, can limit business strategies. Sometimes the best service a venture capitalist can provide to a prospective portfolio company is a strong hand in renegotiating agreements before closing. Although the company may chafe at the prospect of re-opening what was probably a painful dialog, resentment will give way to gratitude when the other side learns that professional investors cannot live with imprisoning terms, and that the alternative to a realistic deal is a bankrupt partner.

Even arrangements having only tangential relevance to IP can involve compromising commitments. True Blue’s beta agreement with the reactor manufacturer, for example, may compel True Blue to provide test results – that is, after all, why manufacturers enter into beta agreements – with sufficient specificity to divulge its recipes. Absent appropriate confidentiality safeguards, such information can become public. Of even greater concern is the proclivity among beta providers to claim ownership of IP developed using the beta product. To a point this is understandable: no manufacturer can permit development partners to own discoveries they make about its product, lest those partners turn the tables on the manufacturer and demand tribute for their use. This legitimate concern, however, does not justify overreaching – for example, seeking a foothold in the user’s own IP by means of an overly broad reservation of IP rights. The manufacturer, in other words, may be entitled to any discoveries True Blue makes about the quirks and limitations of its reactor, but cannot be allowed to own, say, True Blue’s recipes merely because True Blue devised them using the reactor – especially if nothing about those recipes is tied to use of that *particular* reactor. Sandy must peruse the beta agreement to ensure that True Blue has not permitted leakage of its trade secrets or signed away any IP rights inadvertently.

The use of equipment or materials as bait to troll for IP rights is hardly limited to beta-testing arrangements. Particularly in the life sciences, manufacturers of patented or difficult-to-make biological products may release such products only pursuant to “material transfer agreements” that claim rights to *anything* the user discovers. Though that seems like a pretty bad deal for the user – why bother to perform research someone else will own? – young companies or uninformed researchers may enter into such grantback

agreements without adequate thought, delighted to exchange speculative rights for tangible enticements.

The pleasures and terrors of open source

When professional investors examine a potential portfolio company, the scent of “open-source” software can cause an allergic reaction. Although such software has been around for decades and represents perhaps the fastest-growing category of software worldwide, the obligations imposed by open-source licenses have only recently attracted widespread attention – and most of that negative, at least in the investment world. Adopt even a thimbleful of open-source code, so goes the fear, and invite a flood of disclosure obligations that will wash away proprietary rights in your entire system.

While overstated, the fear is far from irrational. Open-source obligations, when they exist, limit the user’s ability to enforce private rights. But the allure of open source is considerable – readily available, tested software to perform routine or specialized chores, often at no cost. Telling developers to spend months reinventing what they can download in a moment offends them as absurdly wasteful. Most open-source software is well-documented and constantly refined by a worldwide community of committed, bug-sniffing volunteers. Some programs have become *de facto* standards. These temptations can blind otherwise careful engineers to the risks; how can something so pleasant and easily ingested, they may wonder, make anyone ill?

Complicating matters is the sheer number of licenses out there. Open-source software is not always free of charge and is almost never free of obligations and restrictions. An important basic principle is “copyleft”: in contrast to traditional copyright, which gives the owner of a work the exclusive rights of use, modification and distribution, open-source licenses give the user free rein. Copyleft means that you must pass on to others the same freedoms that were available to you.

At the same time, copyright is hardly foreign to the open-source scheme. In fact, copyright law and its notion of a “derivative work” form the axis on which the open-source world turns. A derivative work arises when an original work is changed in some way that does not alter its essential character (for example, translated from one language into another) or when it is absorbed into something new. As long as a substantial part of the original work persists in the new work, it does not matter if the original forms only a tiny part of the new; a short open-source subroutine slipped into a massive system program

in effect produces two derivative works: one of the subroutine, and one of the subroutine-free system program. Copyright law respects both perspectives. Pin a moustache on the Mona Lisa and you have, on one hand, a Dada desecration of Leonardo's masterpiece, and, on the other hand, that moustache set against a colored background.

Absent permission in the form of a license, only the owner of an original work may make derivative works. Which means that, if you incorporate open-source software into your product but fail to comply with the relevant terms of use, you are a copyright infringer. Copyright makes it almost impossible to avoid licensing obligations when open-source software is used in any way.

Although open-source licenses are legion, the most widespread (and widely misunderstood) agreement is the General Public License (GPL), which covers all sorts of open-source programs. The GPL is also among the most onerous of open-source licenses; others typically limit proprietary rights to a lesser (and often far lesser) extent.¹ A program that incorporates code subject to the GPL is, as a derivative work, itself covered by the GPL. Thus, GPL-covered software is "viral" in the sense that, even if minuscule, an open-source component will "infect" (that is, make subject to the GPL) the entirety of any program that contains it. Hence investors' fitful reaction.² What obligations does the GPL impose? First, it prohibits royalties or other license fees based on use. But nothing prevents a developer from charging a one-time purchase price (in effect, a delivery fee) for programs subject to the GPL. The developer may also charge for warranties, support, service, updates and revisions, and indemnifications. The GPL covers none of these extras.

Second, the developer must give purchasers the software's source code or the right, exercisable for 3 years, to receive it for no more than the cost of its distribution. This is where any possibility of maintaining proprietary rights becomes untenable. In addition to furnishing source code, the developer must allow customers to freely modify the program, and then (pursuant to the "copyleft" principle) to distribute it to others on the same GPL-dictated terms.

¹ For example, the "lesser" GPL (LGPL), another open-source license, usually permits users to maintain proprietary rights in their own program code. The LGPL distinguishes between dynamically linked libraries, which are called only when needed and remain separate from the main program, and statically linked libraries that are swallowed whole and form part of the program's execution code. If a program links dynamically to a library covered by the LGPL, a derivative work has been created, and the LGPL applies. But the obligations are minimal.

² On the other hand, works merely "aggregated" with material subject to the GPL – for example, supplied on the same CD-ROM but not incorporating or becoming integrated with the open-source code – lie outside the GPL's reach.

The prospect of sacrificing proprietary rights may seem ludicrous, but, as a business strategy, often it can make sense. The very transparency of open-source products may provide customers with far greater comfort than a walled-off system, particularly one sold by a small, potentially vulnerable company. The prospect of a worldwide community of users correcting errors and patching security flaws, free of charge, can also hold great appeal. So long as customers (and others likely to encounter the source code) are unlikely to become competitors, a deliberate open-source strategy may be quite viable.

What if a user disregards open-source obligations? Will he be smitten by a mighty source of wrath? So far, despite its elaborate terms and reasonably long history, the GPL has never been tested in court. Moreover, there is no central enforcement authority; while the Free Software Foundation (FSF) wrote the license, it is generally not a party to lawsuits involving open-source software unless its own rights are at stake – for example, if FSF itself created the software in question. FSF characterizes the “free” in free software as referring to freedom, not costless use. (“Think free speech,” they explain, “not free beer.”) To this one might add, at least in the case of the GPL, that there is no free lunch for those averse to becoming part of the meal. But the extent of open-source obligations is not monolithic, and only becomes an issue when used in conjunction with products sold commercially.

So rest easy, Sandy. True Blue uses its software internally; it never becomes part of a product they sell. Open-source obligations, no matter how oppressive, should not affect its proprietary rights.

Five-putting on the sixteenth green – it hadn’t rained after all – Sandy tries to focus on True Blue’s beta agreement with the maker of the reactor, but he can’t tear his thoughts away from that immaculate, airy clean room. His exertions have turned up nothing – no litigation, no security interests, no apparent source of funding for that fancy equipment. In trying just to estimate the enormous cost, Sandy is becoming an expert in air filters and humidity controllers. It came from the Army, that much is clear. The only question is how.

The whole setup is too neat. All of True Blue’s inventors have signed employment agreements and none has a questionable past relationship. Open-source problems have been neatly sidestepped. The company’s entire history could have taken place inside that clean room, it’s so spotless. Which can mean only one thing: this Ovkorsky is one diabolically clever character. Probably he’s feeding the CIA everything he knows about Russian military research and his payoff took the coin of fancy equipment.

No, Sandy realizes, taking his eyes off the little white ball. Too simple. If the clean room came legitimately from the US government, why the amateurish attempt to obscure its origin?

The ball sails past the hole as the picture becomes all too clear: Dmitri must have gotten it from the Russians in some fiendishly complicated deal – desperate to jumpstart his

research, he gave the Russians something so valuable they took his shopping list and lifted a high-end clean room with HEPA filters and ceiling grids, humidity control and tear drop lighting *out from under the noses of the US Army!* An astonishing feat. Sandy can't decide whether to lead the investment syndicate or call the FBI.

Government funding

Let us suppose, just suppose, that True Blue came into its high-end government equipment through official channels. If the government has a hand in funding True Blue, whether by way of cash or capital equipment, what rights does it obtain? Can it limit True Blue's ability to pursue its business and enter into exclusive relationships?

In 1980 the United States adopted an explicit policy³ of allowing universities and businesses operating with federal contracts to retain full ownership of government-funded inventions – including the right to obtain and own patents – for the purpose of further development and commercialization. Contracting universities can exclusively license the inventions to manufacturers; contracting businesses can do the same or commercialize the technology themselves. The rationale is to stimulate the domestic economy through ultimate manufacture of products in the United States. All the university or business must do is formally elect title to the invention no more than 2 years after its disclosure to the government.

The federal government does not step out of the picture entirely, however; it retains “march-in” rights, which kick in if the invention is not being made sufficiently available to the public. March-in rights permit the government to license the invention to another company, without the consent of the patent holder or the original licensee, in order to get things moving – to issue, in other words, a compulsory license. The government also gets a royalty-free, non-exclusive license to use the invention for official purposes (including use by government contractors). These modest, mostly theoretical rights rarely raise due-diligence eyebrows; if they come into play at all, it is because the electing company (or licensee) – the entity of concern to a prospective investor – has lost interest anyway. While it is important to review the funding contract to verify compliance with disclosure and election requirements (since failure to comply can strip the university or business of title permanently), government

³ Embodied in a federal law called the Bayh–Dole Act.

rights, at least in the United States, generally should not worry prospective investors.

In other countries it is a different story. Few have adopted as aggressive a policy to privatize government-funded inventions; instead, most view such inventions as a public trust, and it is therefore critical to investigate both the nature of the government contract and its consistency with national law, which may well override it. Moreover, many countries exhibit far less hesitation in granting compulsory licenses to a technology developer's local competitors if, for example, the developer fails to get a product to market fast enough, or at a low enough price (in the view of the government) – *whether or not the government provided funding*. The threat of compulsory licensing, in such countries, applies to every issued patent. World Trade Organization rules place some limitations on compulsory licensing practices, but it is important to investigate them (particularly in the case of pharmaceuticals) for important foreign markets.

"Let me ask you something, Dmitri," Sandy says, trying not to betray the edge in his voice. "Who are you – that is to say, True Blue – most afraid of?"

"Competitively? Well, as you know, there are some big players –"

"Not competitively, necessarily," Sandy says carefully. There's a pause and an odd noise in the phone, as if Dmitri is fidgeting with his handset.

"Ah," he says at last, "you mean whether we can be threatened. Whether someone has the goods on us, yes?"

"Exactly!" Sandy exclaims, and it all comes spilling out. "Come clean, so to speak, Dmitri! I can hear the hum of those HEPA filters! Where'd you get 14 million dollars' worth, give or take, of high-end isolation equipment?"

"Oh, that," Dmitri replies with apparent relief. "This is something I merely can't tell you. I was afraid you were concerned about competitive patents."

Sandy feels himself reddening. "What competitive patents?"

"We swim with some very big sharks. Sharks covered with more patents than scales."

"Yes, yes, of course. I knew that."

"Well, I'm pleased you aren't worried. Most VCs probably would be. But here all you're concerned with is the origin of some equipment."

"Which is?"

Ovkorsky is positively mirthful. "If I told you that," he chuckles, "I'd have to kill you."

Sandy really should have thought about competitive patents much earlier. An expedition to locate them takes time and money, and this expensive journey – the ultimate outward-looking due-diligence task – should not be undertaken lightly. If a patentability search is like a biopsy, a "freedom-to-operate" or clearance search is more like open-ended exploratory surgery. Whereas a patentability search canvasses the literature for subject-matter relevance

and largely ignores the claims of prior patents, a freedom-to-operate search focuses almost entirely on patent claims. Moreover, while duplicative or cumulative references can be disregarded in the course of a patentability search, the clearance searcher must not only gather every patent currently in force that may have possible relevance, but must venture beyond the “usual suspects” to scrutinize patents that may seem irrelevant but have broad claims. She should also provide copies of published but as-yet-unissued patent applications. In general, busy searchers expect a two- to three-week lead time before delivering raw search results. They usually work within an initial budget (\$1,500–2,000 is common) and report back if additional search time is likely to yield further results. A patent attorney reviews the patents and published applications located in the search, and supplies an overview of the competitive picture. The total cost is rarely much below \$10,000 and can easily climb.

An initial evaluation of a project should determine whether outward-looking due diligence will be important and, if so, prompt early planning for a clearance search. Part of this planning involves recognition of any search’s limitations, and part centers around cost management. The grim reality is that clearance searching involves a cascade of guesses, and the error probabilities of all the guesses combine to produce, in the end, a more uncertain guess. Still, the exercise is not without usefulness; just do not expect more risk reduction than the process can feasibly deliver.

The first task is to identify the product or process features of greatest interest. Like patentability searches, a clearance search can cover only one or a small group of highly related features. Unfortunately for the due-diligence consumer, the typical product contains several features that might impart a market advantage, and what is worse, even *uninteresting* features can infringe competitors’ patents. The first guess, therefore, derives from the inability to search every potentially infringing feature. Pick the important ones and live with that.

The second source of guesswork lies in evolving technical vocabularies. Consider once again British Telecom’s claim that their 1970s-vintage patent covered hyperlinking. Too bad the term did not appear in the patent or even enter common parlance until well over a decade later. If a cautious Internet service provider wanted to test the IP waters before plunging in, it is inconceivable that its search efforts would have turned up British Telecom’s patent.⁴ Indeed, even current technical terminology can vary among companies and

⁴ On the other hand – and fortunately for Prodigy, the first defendant – the court disagreed with British Telecom’s contention. So perhaps the likely invisibility of this patent to search efforts was correct after all.

regions. So no clearance search, regardless of the budget, is likely to turn up every issued patent.

Then there are the *unissued* patents. Patent applications usually reach the publication stage long before grant. The claims in such applications are merely entreaties for protection and may have been written in ignorance of the prior art. But there they are, in print, covering tremendous swaths of territory. The psychological burden shifts: having discovered what they perceive as a palpable threat, investors may demand proof of harmlessness as if the patent had already issued. That is an overreaction, but concern is surely warranted; someone has, after all, staked out a claim to critical strategic rights. Soothing words will not coax the genie back into the bottle. But an overview of the prior art (which may well be supplied by the clearance search itself, perhaps supplemented by a patentability search that includes expired patents), demonstrating that broad rights will likely be unavailable, can at least curtail his potency.

And then, finally, there are the patent applications that have been filed but as yet remain unpublished. These applications represent the “dark matter” of the patent universe – invisible, unsearchable, and of unknown extent. The eighteen-month lag between filing and publication, therefore, represents still another source of uncertainty. A competitive application could publish the day after the search is performed and thereby elude discovery. Clearance searches are not easily updated; although the patent office classifies each application according to a massive list of technology categories, the typical clearance search covers many such categories. It may be productive, if substantial time passes between the search and closing, to check the most relevant ones for intervening publications. But, depending on the interval and the categories involved, reviewing them can itself represent a substantial undertaking.

Given the cost and time involved in a clearance search, it may be tempting to cut corners in some fashion – for example, by confining the search to patents owned by known competitors or issued within a specific time frame. Such artificial limitations can dramatically reduce the value of an already inherently imprecise process. A search limited to competitors, for example, ignores many published applications (which have not yet been assigned or had their assignments recorded), patents attributable to key inventors before they joined a competitor, patents still registered to a predecessor entity (which may have changed its name, merged, etc.) or to a holding company for tax purposes, patents licensed to but not actually owned by a competitor, university efforts, and work by large companies that only dabble in the area but whose dabbling produces reams of patents. If clearance is called for, do it right or do not bother; a false sense of security is far worse than a business risk undertaken with open eyes.

When, then, is clearance called for? The less time a product has been on the market and the greater the quantity of new features, the more a clearance search should be considered. Some also consider the size differential between the producer and its competitors, but, in truth, even in the hands of an individual a patent can – with the help of litigators who work on a contingency basis – prove as deadly as one owned by General Electric. True Blue has no products in the marketplace, lots of features it considers novel, and enormous competitors; evaluating its freedom to operate is clearly wise. Indeed, many companies routinely perform clearance searches before seriously exploring a new invention, recognizing the relatively small cost of the search compared with that of product development.

“Tell him where you got the clean room, Dmitri,” True Blue’s lawyer deadpans, “before he calls the feds.”

“I wasn’t going to –”

“I know, I know. Cool it, Sandy,” the lawyer says. “Dmitri is afraid of having this information leak out. But I said he could trust you. I’m right about that, Sandy, am I not?”

“Certainly.”

“I assured him we have a strong nondisclosure agreement in place, and that I’d hand him your butt if word got out. Right, Sandy? So go ahead, Dmitri.”

Dmitri’s studied glare has something impish behind it – the look of a prankster annoyed at being caught but pleased with the cleverness of it all.

“We purchased it,” he finally admits with a sigh, “on eBay.”

Sandy eyes him skeptically. “eBay?”

“Military surplus.”

“And you paid . . .”

“Fourteen dollars and ninety-five cents. Including the hazard suits. Some real bargains out there.”

Sandy’s jaw drops. “Fourteen *dollars*? For all this?”

“I was the only bidder. The listing just said ‘clean room.’ Maybe people thought that sounded high for a little sprucing up.”

“But fourteen *dollars*? Not fourteen million?”

“That’s why we don’t want the word to get out,” the lawyer says. “There are other items on our shopping list, and, if the media gets hold of this, it may embarrass some bureaucrat into more, shall we say, unfavorable pricing.”

“Anyway, it was almost fifteen dollars. And besides,” Dmitri says, still annoyed, “the shipping was murder.”

IP due diligence checklist

No discussion of IP due diligence would be complete without the obligatory checklist. So here you go. But do not approach a project by resorting to the list and ticking off the fetching items. That would betray Nietzsche and his injunction to plan. Instead, consider the company broadly and narrow your

focus gradually. What role will IP play in executing the business plan? Which is more important to the company – a strong offensive IP enforcement position or freedom to operate? (Do not say “both.” It’s never both in equal measure. The weighting depends on the nature of the company’s innovation, its relationship to the market, and the size and strength of its competitors.)

Build the outline first. Fill in as much as you can with specific tasks. Then use the list as your palette to complete the fill, making sure nothing is left out.

Be prepared to deviate. Although a due diligence usually does not turn into the paranoid odyssey that Sandy experienced, the process can take unexpected turns that demand exploration. It’s important to approach problems constructively, with a view toward solution, preferably before a transaction takes place or is even agreed upon. Unpaid fees can be submitted, assignments obtained and recorded, omitted references cited, and troublesome open-source components replaced with home-grown alternatives.

First things first

- Obtain and review business plan.
- Identify key technology drivers, differentiators from competition.
- Identify primary competitors.
- Determine if products on sale. Have they been publicly disclosed or used? Ascertain dates.
- Evaluate company’s IP strategy: patents vs. copyright vs. trade secrets; foreign protection program.
- Evaluate company’s IP procedures for identifying, evaluating and protecting inventions.
- Perform SEC search for IP-related company filings or third-party filings mentioning company.

IP Assets

Patents

- Obtain a status list of all patents and patent applications worldwide.
- Verify accuracy with electronic search.
- Determine if foreign rights been preserved.

- Review patents, patent applications, analyze claims; for important cases, review file histories.
 - Do claims cover company's products?
 - Do claims advance the business plan?
 - Any weaknesses? Can they be designed around?
 - Can likely claim coverage be predicted? Is prosecution strategy sound?
- Ascertain whether any applications are involved in oppositions or re-examinations.
- Verify that all maintenance fees, annuities have been paid.
- Assess cross-citation of prior art among related or similar applications.
- Ensure small entity fees appropriate if selected.⁵
- Patentability studies
 - Review patentability opinions obtained by the company.
 - Consider performing patentability search on key features.

Copyrights

- Identify copyrightable subject matter, particularly software, and determine if registered.⁶
- Obtain list of copyright registrations, and review them.
- Verify accuracy of list with electronic search of Copyright Office records.
- Determine whether proper copyright notices and legends accompany literature, instructional material, software distributed to customers.

Trade secrets

- Determine whether company relies on trade secrets, and, if so:
 - Determine what they are, and whether they are more appropriately protected by patents.
 - Determine what procedures company employs to guard against theft (site security, access restrictions, document and computer security).
 - Review employee exit procedures.
- Review employment and consulting agreements for proper confidentiality provisions.

⁵ The US PTO gives individual inventors and companies qualifying as "small entities" a discount on official fees. But it is up to the applicant to ensure, each time a fee is paid, that small-entity status remains appropriate; improperly paying the reduced fee can, in some circumstances, result in invalidation of the resulting patent.

⁶ Registration can be important in the United States; seldom is it necessary, or even possible, elsewhere. See chapter 1.

- Review noncompetition agreements for enforceability.
- Review nondisclosure agreements company has used with third parties for important collaborations or relationships, ensure they were actually signed.
- Investigate whether company has been sued in connection with others' trade secrets, or has sued others.

Trademarks

- Obtain a status list of all trademark registrations and applications for registration worldwide.
- Obtain and review trademark searches performed by company, attorney opinions concerning them.
- Ensure that all registered trademarks have been renewed, and that all necessary filings have been made to keep the registration in force.
- Determine if ® symbol is being used, and, if so, whether that mark is in fact registered.
- Determine if any oppositions or cancellation proceedings have been filed against applications for registration.
- Verify proper identification of trademarks in literature, on packaging.
- Investigate policing efforts to prevent marks from become generic.
- Investigate any domain-name disputes.

IP ownership

- Perform title search to confirm ownership of all patents and patent applications, trademark registrations and applications for registration, registered copyrights.
- Investigate past employment, recent academic affiliations of key inventors.
- Learn whether core members of development team are still employed at company.
- For copyrights, determine:
 - For employees, whether employment agreement covers copyrights.
 - For consultants, whether consulting agreement not only characterizes work product as “work for hire” but also requires express copyright assignment.
- For patents, determine whether employees and consultants have a contractual obligation to notify the company of inventions, to assign them, and to provide any further assistance needed to secure patent rights.

IP encumbrances

Out-licenses

- Will rights interfere with company's future? Dangerous exclusivity, for example, or excessively broad scope?
- Transferability restricted?
- Breached by licensee? Profitable?
- Grantbacks reserved?
- Has licensee declared bankruptcy?
- Trademark licenses: adequate provisions for quality control?

Government rights

- Have title-retaining elections been properly and timely made?
- Have government contracts been fully complied with?

Security interests

- Perform UCC search for security interests in IP.

Other agreements

- Review any other agreements implicating IP rights for potentially harmful provisions (exclusivity, IP grantbacks). Examples:
 - Joint development or collaboration agreements
 - Distribution agreements
 - Material-transfer agreements
 - Confidentiality agreements

IP liabilities and third-party rights

- Identify all IP-related lawsuits brought by or against company, all IP-related threats (oral or written) received from third parties.
 - Perform electronic litigation docket search
 - Review judicial opinions and orders
 - Review settlement agreements

- Identify all offers of IP licenses received from third parties.
- Identify and analyze all in-licenses.
 - Are granted rights (definition of licensed product or process, field of use, territory, duration) broad enough?
 - Transferable without consent of licensor?
 - Onerous grantbacks?
 - Has licensor declared bankruptcy?
- If possible, review all opinions of counsel relating to infringement of third-party IP rights and/or third-party infringement of company-owned IP.
 - If not possible to review, at least learn and assess reasoning.
- Consider freedom-to-operate search for competitive patents.
 - Review any freedom-to-operate searches performed by or for company, and, if not possible to review opinion, at least obtain references considered.
- Assess employment history of key innovators, review their prior employment agreements. Any basis for possible misappropriation claims from third parties?
- Open-source issues
 - Identify open-source components in company's *operations* as well as its *product offerings*.
 - All license obligations complied with?
- Standards issues
 - Does company implement any industry standards?
 - If so, are license agreements in place?
 - If company has contributed to an industry standard, did it comply with standards organization's IP rules?