

# **Cross-Licensing**

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## **Introduction**

Cross-licensing occurs when businesses share patent rights through licensing agreements so that they can use each others' inventions. Unilateral license here means that a licensor unilaterally licenses to a licensee with no payment of a license in return, and cross-license means that the licensee pays by cross-licensing at least partly. Such a relationship usually begins when one company sends another company a letter saying that the sender has a patent that may be relevant to the recipient's business. This is done because the sender does not want to initially precipitate a lawsuit. If the other party does not respond or replies that it does not infringe on any of the sender's patents, the only remedy is to file a lawsuit. In the recent case of Intel v. Via, before Intel filed the lawsuit, Via did not come to the negotiating table [5]. Typically the company that is sued will countersue that the attacking company is violating its patents or that the attacking company's patents are invalid.

This paper will cover motivations to license, offensive and defensive tactics, negotiations, the dangers of not licensing, and some types of licensing. I will then discuss the benefits of cross-licensing over unilateral licensing and also the limitation of the benefits of cross-licensing. Finally, I will conclude and provide some recommendations.

## **Motivations to License**

The expense and dangers of litigation are potent motivations for both companies to enter into a licensing arrangement.

Litigation is expensive and can be much like a competition between David and Goliath. A small company may not be able to afford to litigate. A normal case can cost \$2-5Mn from start to end of trial, while a large case can cost \$10Mn/quarter [1].

Litigation is also a distraction from a company's focus on issues of developing and selling its technology. Settling and licensing allows a company to stop investing its time and resources in litigation.

The dangers of the result of litigation can in most cases be greater than the cost of litigating. A patent might be held invalid which can cripple the business of a company which relies on the patent for licensing revenue or to exclude competition. For the company being sued, the judgment might be huge. A large judgment that is upheld on appeal can put a company out of business. Cross-licensing can eliminate the large risks and give a company a predictable result.

In addition to eliminating the risks and costs of litigation, cross-licensing gives a company access to complementary patents.

## **Offense**

When a company attempts to assert a patent, there are a number of factors in its favor: US courts are more favorable to a patent holder, treble damages and attorneys' fees for willful infringement, injunction, strength of the patent, and whether others are licensing.

Patents have more bite than they had 20 years ago because the Court of Appeals for the Federal Circuit (CAFC) [2], which was created to handle most patent appeals, has done a lot to rationalize the patent law and to make it easier to enforce patents than in the past. The economic stakes in patent litigation are significant, often running into millions of dollars.

In cases of willful infringement treble damages, tripling of actual damages, and attorneys' fees may be awarded [1]. In the recent case of Kodak v. Sun, the jury found Sun infringing and Kodak claimed it was owed treble damages [12]. This added to the pressure on Sun to settle. Treble damages are intended to punish the guilty party and discourage others from similar behavior.

An injunction is a court order requiring a party to stop a particular activity [13]. At the very core of injunctive relief is a recognition that money damages can't solve every problem. An injunction may be permanent or it may be temporary. An injunction may be issued in a patent dispute because a patent owner has the right to exclude use and ongoing use of the patent violates that right. A company does not want to risk injunction because an injunction can shut down your business.

An important aspect to consider is the strength of the patent. If a patent has been previously litigated, there is a lower chance that the patent will be invalidated. How easy the patent is to design around is an important factor in the strength of the patent. A distinction would be the difference between fundamental and improvement patents [2]. A telephone would be an example of a fundamental patent, while a twisting phone cord would be an improvement. A fundamental patent can be blocking and is worth more money.

Process patents not only affect one patent but cut across entire product lines. A process patent is more valuable in negotiation. An injunction on a process patent can put the target company out of business. This is critical in the semiconductor industry. Semiconductor process patents have many independent steps in the production process. The inability to use one step in the process will stop the entire process because the process must be reformulated.

A company that is successful in licensing a patent can use that fact as a negotiating tool to show the value that other companies have in its patent. The company can announce that "...interest in licensing our...patent is an important validation of the value this patent holds within the industry and of the technology we create..."[10] Any other company that is approached to license the patent will have to carefully consider why another company may have seen value in the patent.

Patents have become much more important to business. They are major assets that companies will protect.

## **Defense**

A company that is approached by another company to license a patent that it may use has defenses available to it. The primary defenses are design around, finding that the patent does not infringe, and invalidating the patent.

If a company can design around the patent it can still make the product. The value of the patent is only the cost of designing around and implementing the design around. While the patent holder may still assert a claim for previous use, this removes the future value and the more potent threat of an injunction. Referring to the

telephone/cord (fundamental/improvement) example, the telephone cannot be replaced, but one can just use a different cord. This may even motivate innovation, such as the cordless phone.

Determining whether a company is infringing a patent requires both an examination of the patent and the accused infringer's particular application. It is necessary to carefully examine the patent's "claims." Claims are terse statements of the scope of the invention. The elements of each claim must be compared with the elements of the accused infringer's application. If the elements of a patent claim match the elements of the application, an infringement has occurred. Even if the claims don't literally match the elements of the infringing device, the claims may be sufficiently equivalent in what they do and how they do it to warrant a finding of infringement ("doctrine of equivalents") [22].

An even more potent defense is to attempt to invalidate the patent. When prior art is not disclosed at the time of the patent, the patent can be invalidated. If there is valid prior art, there is a high danger to the patent holder of having the patent invalidated. If the patent holder is in the business of licensing the patent to other companies or dependent upon the patent to exclude others from use, invalidation of the patent can cripple the patent holder's business. Therefore, the payment should be proportional to chances of the patent not being invalidated and found to be infringing.

The offensive and defensive tactics are pertinent and should be considered and weighed carefully in the negotiations.

## **Negotiations**

In negotiations the companies should look at accused products. They should consider such factors as how many are sold and what the prevailing party going to get in damages if they win. A company should settle if it is not prohibitively expensive and as long as the company is not out of market. In some cases though, margins might be thin. A company has to consider whether it can still pay the fee and make money.

While this may seem like a straight forward process, different parties will evaluate worth and risk differently. As a result, different parties may reach a different result in negotiation on the same patent.

In the case of Wang v. Microsoft, Microsoft bought into Wang in 1995 to settle a long-standing patent infringement allegation Wang had made and licensed Wang's patent portfolio in the process. Microsoft used the IP in NT and Windows 95 and Wang got its name on the screen of every copy of Windows. Wang and Microsoft were pretty close once they cut the deal [12]. Making an investment in another company has value, both in the equity and in the influence with the company. This may be used as a stick by either voting or selling the shares to influence future litigation or broader alliances.

In the case of Kodak v. Sun, the case proceeded to trial and the jury found Sun's Java guilty of infringing three patents that Eastman Kodak got from Wang Laboratories in 1997 when it bought Wang's imaging software business. Right before a trial to decide whether it would have to pay Eastman Kodak a possible \$3 billion (Kodak wanted a lump sum \$1.06 billion in royalties but Kodak's suit claimed it was due both compensatory and treble damages) for trespassing on three of its patents, Sun decided to settle out-of-court and pay Kodak \$92 million in cash to get out from under the risky litigation [12].

Understanding the motivations of the other party can help facilitate a settlement that is beneficial to both parties. Also, settling at a later time can shift the risk that the parties face, and therefore change the settlement.

### **Dangers of Not Licensing**

There are many dangers due to the unpredictability of litigation as discussed in the Offense and Defense sections. These are most clear when illustrated in the recent case of Agere v. Atmel.

In 2002, Agere sued Atmel for infringement of three patents related to Tungsten processes, and a patent related to integrated circuit packages. Agere sued Atmel for more than \$100Mn. This created a significant risk for Atmel creating an incentive to settle.

Agere had licensed these patents to other companies, but for single digit millions of dollars. Agere had a desire to “win big” to increase the value of its patents. Atmel pointed to prior art in negotiation and trial. The lawsuit proceeded to a jury creating a great risk for both companies. The judge even questioned why this case had not been settled due to the great risk to both companies.

The jury found each of the process claims invalid in light of prior art. On the integrated circuit package patent, the jury found that Atmel did not infringe the asserted claims. Accordingly, Agere was awarded no damages. While Agere can appeal this decision, for the time being, Agere is placed in a weakened position, not only with Atmel but with any other company that it attempts to license these patents. This verdict may also affect Agere’s negotiation over other patents because after this loss Agere may be perceived a “gun shy.”

Atmel released a statement saying “This is a significant victory for Atmel because it validated our long felt belief that Agere’s claims were unmeritorious...When wrongly accused, Atmel will defend its legitimate business practices vigorously, as we did here.”[11] While this was a victory for Atmel, it was an even bigger loss for Agere.

### **Types of Licenses**

There are a few main types of licensing. A company may want to pay a fixed cost, also called a straight fee, paid up fee, or fully paid fee. This would be the preferred method for the licensee if the licensee plans to use it in many products and does not want to have to go back to the licensor for each different use. This fee can be spread out over time to spread out the expenses for the licensee. The licensee may also pay a per item royalty rate in the form of a flat fee or percentage. The licensee will typically want a volume discount with a cap and declining prices over time. A volume discount is also favorable to the licensor because it acts as an incentive for the licensee to increase production. Another option is a straight cross-license. This can involve a narrow cross-license between two companies with complementary technology or a very broad cross-license as Sony and Samsung recently signed [9]. The licensing agreement can include a combination of these different types of licenses such as a cross-license with an initial fee and/or royalty if one company’s patents as evaluated as more valuable.

## **Benefits of Cross-Licensing over Unilateral Licensing**

There are a number of benefits of cross-licensing over unilateral licensing. Patents can be used to barter with in a cross licensing transaction to reduce the fee that is paid. But cross-licensing is a forward-looking alliance, not merely a barter of patents. Added knowledge flow between cross-licensing parties encourages post-licensing innovations. The duopoly profit attained through cross-licensing can be greater than expected monopoly profit (both technologies). Another reason for cross-licensing is that it allows for design freedom by leveraging access to other companies' technologies. A single merger or license is not likely to fulfill all technological requirements for the industry participants. Cross-licensing can also act as a safeguarding mechanism for transfer of knowledge.

A licensor may not be able to fully utilize the patent and experiences a monopoly deadweight loss. Cross-licensing allows a licensor to extract value from a patent that it otherwise would not obtain. Patents can be used to barter with in a cross licensing transaction to reduce the fee that is paid.

Cross-licensing is not only an exchange of existing technologies, but also an exchange of future innovation possibilities. Cross-licensing can be viewed as repeated relationship (not necessarily as a sequence of formal contract renewals), which facilitates knowledge sharing[3]. Added knowledge flow between cross-licensing parties results in greater post-licensing innovations. Therefore, cross-licensing is a forward-looking alliance, which results in a future collaborative relationship.

Fershtman et al. [14] modeled a race for a set of two complementary technologies. Two companies can obtain both technologies by their own innovation, or they can obtain one of the technologies by licensing from the other. Cross-licensing arises when the duopoly profit attained through cross-licensing is greater than the expected monopoly profit (with both technologies). The implication of the model is that the companies prefer cross-licensing if they can assure higher profit. Thus, cross-licensing is modeled as an imperfect means for monopoly rent extraction. The conclusion depends on the assumption that the only alternative to monopoly by way of innovating all technologies is that of cross-licensing. Given the complementary technologies distributed among many companies in reality, the assumption is very strong [3].

Another reason for cross-licensing is that it allows for design freedom by leveraging access to other companies' technologies. Sony and Samsung recently made an agreement to cross-license a large number of their respective patents, probably to avoid litigation down the road [9]. An interesting part of the agreement was the exclusion of key technologies of proprietary products that would not be part of the deal. This will be discussed under the Limitation of the Benefits of Cross-Licensing section.

Patent portfolios of major electronic companies are so large that when a new product is launched, there is a real risk that there will be infringements of another company's patent(s). Even though issued patents are public information, a company can research just so much. For example, most of the innovative effort being evaluated by the company may lie in a new circuit design but there may be a patent on a particular shape of a housing being used by the company. Companies don't want to be surprised by

litigation for patent infringement of non-ground-breaking products but there may be too many patents to look at practically. To avoid such litigation, companies can enter into a broad cross-licensing agreement. For companies to enter into a such a cross-license and not pay any money, they have to be roughly equal in the harm they could do to each other.

Surviving and growing in business often mean making deals to license patents. In terms of complexity, there are more parts and technologies involving patents than ever before, such as System on Chip and nuances in electronic circuits that all need their own patents. Such complex systems have many highly complementary patents [15].

These types of “cumulative systems technologies” such as semiconductors are distributed among at least several companies, so that a single merger is not likely to fulfill all technological requirements for the industry participants. Therefore, companies need to have access to other companies’ technological assets through contract [15].

Appropriability is the share of the return that accrues to the innovator, rather than to other companies in the form of spillover. Licensees and licensors in cross-licensing have higher potential appropriability than in unilateral licensing. This is due to the larger pool of patents that is available to the companies which allows each company to capture some of the other’s spillover benefits. A larger pool of patents to draw from also results in accelerated innovation. This cumulative innovation benefit of cross-licensing is most apparent in industries with highly complementary patents.

Intel filed a patent infringement lawsuit against Via in September 2001 [5]. Intel alleged Via's P4X266 and P4M266 chip sets violate five patents related to chip sets for Intel's Pentium 4 processor. Intel sought injunctive relief and unspecified damages. Via officials have pointed to a cross-licensing agreement between Intel and S3 Graphics, which is a joint venture between Via and Sonicblue. Via and its subsidiary company Centaur Technology countersued Intel a few days later, alleging its Pentium 4 chips infringed a patent jointly held by Via and Centaur. Via sought monetary damages and asked the court to block the sale of Intel's Pentium 4 chips. The dangers to each company were great, as illustrated by *Agere v. Atmel* earlier in this paper, and there was a great incentive for each company to settle.

The result was that Intel and Via reached a settlement that resolved all pending patent infringement lawsuits between the companies relating to chip sets and microprocessors [6]. As part of the settlement, Intel will grant Via a license to sell microprocessors that are compatible with the x86 instruction set at the heart of Intel's chips. In addition, Intel agreed that for three years it will not assert its patents on Via's pin-compatible or bus-compatible microprocessors. It also granted Via a four-year license to design and sell chip sets that are compatible with Intel's microprocessor bus. For an additional year, Intel will not assert its patents against Via, its customers, or its distributors over such chip sets. The agreement requires Via to pay royalties to Intel relating to some products. The settlement benefits both companies because it frees Intel and Via to focus on technology issues and stop investing substantial amounts in litigation. Litigation is a bigger drain on Via than Intel. Intel also removes any risk to its core P4 chips.

The result was similar in the case of F5 v. NetScaler. F5 and NetScaler entered into a cross-license agreement where NetScaler will license the F5 “Cookie Persistence” patent and F5 will license NetScaler’s “Internet Client-Server Multiplexer” patent that frees servers from processing loads and improves the performance of network infrastructure; NetScaler will also pay F5 an undisclosed licensing fee. NetScaler announced that it “is pleased to have settled on this matter and enter into this cross-licensing agreement...Given the strengths of our core technologies, our customers will ultimately be the winners with this mutually beneficial agreement, which protects both parties’ intellectual property.” [10]

Unilateral licensing can be used for a patent with less need for know-how transfer, and for a patent that does not have significance in sequential innovation [3].

Although a patent becomes public knowledge once the patent claim is disclosed, complementary know-how is often essential to implement the transferred technology [3], as well as to do further innovation. In many cases, tacit knowledge is a necessary component for a technology licensing. Although bundling tacit knowledge with patent licensing may mitigate the difficulty in know-how trading [18, 19], tacit knowledge transfer that is useful for implementation and follow-up innovation has problems in specification and enforcement [3].

Explicit know-how transfer is not the only conduit through which licensees have access to future innovation. Reverse engineering is sometimes used to gain access to knowledge without the help of an original technology owner. In addition, many

companies obtain know-how through learning-by-doing. Production experience itself may induce further innovations in basic technologies as well as in applied technologies [16].

As a result, allowing production by patent licensing, even without any know-how transfer, can spur follow-up innovations against the licensor's intention. Licensing in general is a way to learn about competitive technology [17].

This result is that follow-up innovations and patents are captured by the licensee against the intention of the original patent holder. This leads to an appropriability problem because too much of the return of the innovation may spillover to the licensee [3].

Cross-licensing can mitigate the hazards of the appropriability problem by acting as a safeguarding mechanism for transfer of knowledge. Cross-licensing is different from unilateral licensing because company A's license to B is tied with B's license to A.

Fehr et al. [20] state that "... people are frequently willing to forego some money in order to punish unfair behavior... somebody who offered a generous contract which the trading partner subsequently violated might be willing to punish ... Yet, if the trading partner anticipates this willingness to punish, she has a reason not to violate the contract." For example, a licensing party may be able to "punish" its partner by terminating know-how transfer when it believes that the other supplies an unfair amount of know-how. Consequently, implicit R&D collaboration along with patent licensing could be facilitated under cross-licensing, because tacit knowledge exchange is supported even though it is non-verifiable.

Cross-licensing has other features to mitigate contractual hazards. Production by getting a license implies that production can be held up if the license terminates before the asset life expires. If a patent is licensed through a unilateral license contract, the licensee will be placed under weak bargaining position at a renewal stage due to this hold-up problem. Bi-directional licenses tied as cross-licensing are renegotiated together at the renewal stage. A threat of termination or higher fee means that the party faces a possibility of similar threat from the counterpart. Thus, in comparative terms, cross-licensing is preferred over unilateral licensing if greater hazards are projected [3].

A patent within the core technology of a licensor and has broad innovation potential. Patents differ in the magnitude of contractual hazards due to different future prospects for the patent holders, and cross-licensing has advantage for the mitigation of hazards compared to unilateral licensing. Important “basic” patents, which offer richer follow-up innovations for the patent holder, do not only have high value themselves, but also raise high contractual hazards of follow-up innovation by the licensor if they are licensed. The impact of these hazards can be mitigated by cross-licensing [3].

Licensees as well as licensors in cross-licensing have higher prospective appropriability than in unilateral licensing because each of them can capture some of the spillover from the other [3]. Also, the transfer of tacit knowledge is useful, and often necessary, component of patent licensing. Cross-licensing facilitates the transfer, and the licensing parties are appropriating the returns of R&D better in cross-licensing [3].

As a result, cross-licensing is not only an exchange of existing technologies, but also an exchange of future innovation possibilities. Cross-licensing transforms the transaction into “mutual reliance relation.” [3]

## **Limitation of the Benefits of Cross-Licensing**

For all of its benefits, cross-licensing has limitations for solving the appropriability problem. Patents vary enormously in their technological and economic significance. A core patent has broad innovation potential and produces many follow-up innovations. If the patent is within the licensor's core technologies, continuing innovation is a key asset for the licensor, whereas blocking innovation severely jeopardizes the competence of the technology. Accordingly, "companies are invariably reluctant to license their core technologies." [21] A patent is thought to be more within the core technology of the patent holder under circumstances where innovations occur sequentially, because it is on the future technology path for the patent holder [3].

Core technology has greater hazards and companies are reluctant to license a technology from which they expect many follow-up innovations obtainable by themselves. While such technology has rich potential for the owner, licensing the technology will promote subsequent innovations by the licensed party, and the outcome such as blockage could have seriously negative effect for the original owner. In other words, if a technology supplies a larger innovation window for a licensor, it is hazardous to give the innovation window to other companies. When the patent is within the core technologies, the original patent holder is likely to obtain a large number of follow-up patents by itself [3].

Thus, continuing innovation is a key asset for the licensor and companies are reluctant to license core technologies. Also, while R&D spillovers may be controlled to some extent by bilateral contracts, blocking patents on core technology may not be solved with the bilateral alliance-like characteristics of technology collaboration such as cross-

licensing due to the higher unpredictable risk [3]. This is evident in the industry contracts. A part of the Sony/Samsung cross-licensing agreement was the exclusion of key technologies of proprietary products that would not be part of the deal [9]. Therefore, we see that the preferred solution to these problems is selective cross-licensing of non-core patents.

## **Conclusion**

In summary, cross-licensing can bolster both companies' patent portfolio. This results in decreased risk and cost of litigation, cumulative innovation especially in industries with highly complementary inventions, and higher appropriability.

Litigation is a distraction from a company's focus on issues of developing and selling its technology. Settling and licensing allows a company to stop investing its time and resources in litigation. Cross-licensing also eliminates the large risks and gives a company a predictable result.

Cross-licensing is accelerating innovations by licensors and licensees in post-licensing periods by increasing innovation possibilities available to each other, through an increase in the companies' patent portfolio size and technological categories. This cumulative innovation benefit of cross-licensing is most apparent in industries with highly complementary patents, such as semiconductors.

Licensees and licensors in cross-licensing have higher prospective appropriability than in unilateral licensing. This is due to the larger pool of patents which allows each company to collect some of the other company's R&D spillover benefits in commercialization. Also, given that company A's license to B is tied with B's license to

A, cross-licensing can mitigate the hazards of the appropriability problem by acting as a safeguarding mechanism for the transfer of knowledge.

All parties should be reasonable to avoid any pitfalls and effectively exploit all of the benefits of cross-licensing. Gambling to win big is a huge risk. In the end, if everyone makes money, everyone wins.

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