

The Four Classes Of Patent Licensing

By Kelce S. Wilson

Not all patent licensing programs are the same; their impacts on innovation and technology progress can vary widely. This essay introduces four representative (and hopefully iconic) classes: (1) Tech Transfer licensing, (2) Industry Practice licensing, (3) Independent Invention licensing, and (4) Landmine licensing.

The idyllic representation of the patent system, in which patents are directly responsible for the innovative technology progress in the public marketplace, typically fits within the Tech Transfer licensing model, whereas the widely-scorned abuse of the legal system by some patent assertion entities (PAEs) often qualifies as Landmine licensing. PAEs are defined by the U.S. Federal Trade Commission (FTC) as firms whose business model primarily focuses on purchasing and asserting patents. See [1] for comments by the FTC regarding abuses of the patent system by some PAEs.

These four proposed classifications are primarily for reference; the patent licensing environment is so complex that actual real-world deals often may show aspects of multiple classes. However, this proposed classification system does provide some guideposts that can assist with clarity in discussions regarding public policy and legislative proposals. This is a companion to two other essays: The Three Classes of Patent Usage [2], and The Four Phases of Patent Usage [3].

Tech Transfer Licensing

With Tech Transfer licensing, an inventor and patent holder (or patent applicant) seeks to convince a manufacturer to purchase or license patents and contemporaneously introduces a new or improved product that fits within the patent claims. This often occurs when an inventor lacks the resources to transfer an inventive idea into a saleable product in sufficient quantity to meet market demand. In this class of licensing, a manufacturer typically learns about the technology and the patents at approximately the same time. The patent owner typically attempts to market the patent, possibly through a patent marketing agent or invention assistance organization [4], to introduce the invention to the industry.

The hopeful licensor has hurdles to cross with at least three of the manufacturer's internal groups: (1) the design team; (2) the legal team; and (3) the marketing team. See [4] for an example of an organization that attempts to assist inventors with the three aspects by (1) optimizing product design for cost-effective pro-

duction; (2) obtaining a patent; and (3) crafting product pitches. The design team must be convinced (a) that the invention can be produced in a cost-effective manner, and (b) that there is no superior version that lies outside the patent coverage (i.e., no feasible, cost-effective design-around exists). This second decision by the design team should properly be made cooperatively with the manufacturer's legal team. Design-arounds can be precluded by many factors, including cost of implementation, time-to-develop, the lack of necessary components, and compatibility or regulatory compliance requirements.

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The manufacturer's legal team must be convinced that the patent has sufficient strength, for both (a) a high likelihood of surviving a validity challenge, and (b) broad claim coverage, that failing to obtain a license to the intellectual property rights (IPR) would present an undesirable risk in the event that the patented invention is used. Additionally, the manufacturer's marketing team must be convinced that the manufacturer could profitably launch the new or improved product. If even just one of these groups is unconvinced, the hopeful licensor probably won't find a deal with the manufacturer.

Industry Practice Licensing

Many consumer products, such as telecommunications and computing devices, are so incredibly complex that potentially hundreds or maybe even thousands of patents, separately owned by countless patent holders, could plausibly read on commercially viable products. There are several contributing factors for this. Manufacturers may purchase components as commodity items, so that competing manufacturers often each use the same or equivalent components from a common pool of suppliers. With each of those manufacturers' engineers creating inventions based on the same limited set of building blocks, it should be easy to understand how different manufacturers could independently develop similar product designs—even without any collaboration or study of each other's products. Additionally, the different manufacturers' engineers may have attended the same schools, be reading the same technical journals, and attending the

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same conferences, and are thus subject to similar influences that can ultimately affect design solutions.

If many entities in the industry, up and down the supply chain, are filing patent applications on incremental improvements that are relevant to the use of common commodity components, the predictable result is that multiple manufacturers may then be inadvertently practicing each other's patents. Cross licensing deals among competitors are common in order to achieve patent peace and freedom of operation. Alternatively, competing manufacturers may choose to not "rock the boat" and have an understanding that they won't enforce patents against each other. In either situation, cross licensing or benign neglect, it is not the patent system that drives most innovation, but instead it is the result of manufacturers' competition for market share.

Standard essential patents (SEPs) are a special category of Industry Practice licensing. In some industries, such as telecom, devices and systems from different manufacturers must operate in a compatible manner. For example, cellular phones made by many different manufacturers must all function with cellular base station tower equipment made by multiple other different manufacturers. The interoperability of these cellular systems is exceptionally complex. The technical documentation describing how each part of the system must act, and what it can expect from other parts of the system, can run thousands of pages.

The European Telecommunications Standards Institute (ETSI) website lists 10 different industry areas in which standards are used by manufacturers to ensure product interoperability [5]. The cellular industry is just a component of one of the 10 areas. The standards documents are typically created by industry working groups, comprising representative members who are employees of the different competing manufacturers. These competing manufacturers must actually cooperate, through their representative employees, in order to produce coherent designs that are properly engineered. During the creation of these standards documents, different representatives propose various contributions for inclusion in the final design. If a contribution solves a technical problem, it can often form a basis for a patent application. If the patent is granted, in accordance with the contribution, and the contribution is accepted by the industry working group for inclusion in the standards document, the resulting patent is said to "read on the standard" and is an SEP. Essentially, anyone who builds a product that complies with that portion of the standards document unavoidably practices the patent. Special rules apply to licensing these patents [6].

Basically, Industry Practice licensing results from a

large number of overlapping patents on incremental improvements to complex products—each of which grants a right to exclude competitors—but none grants a right to build. Without Industry Practice licensing deals providing cross-licensing rights, many patents could exist, but no complex products could be legally built or sold.

Complex products, for which thousands or tens of thousands of patents may be licensed simultaneously by the manufacturers in that industry, can be identified as "thousand patent products." For example, a smartphone manufacturer might license tens of thousands of patents in an effort to obtain relative freedom to operate. With an unknowable number of patents potentially reading on a highly complex device, no matter how many are already licensed, a manufacturer of a highly complex product should expect a never-ending stream of later-asserted patents. In contrast, within "single patent product" industries, cross licensing is not a practical necessity; a manufacturer can supply products without necessarily stepping on a competitor's IPR. See reference [2] for a detailed discussion of the labels "single patent products" and "thousand patent products" that are used here.

It should be noted that the label "single patent products" suggests that a product is covered by, at most, only a few patents or patent families. This is not a term of disparagement, but instead a way to differentiate from other products ("thousand patent products") that have so many components and sub-systems that thousands or tens of thousands of patents could potentially be relevant. Both highly specialized pharmaceutical inventions, which require years of intense and expensive research, and also relatively simple consumer products both fit within the class of "single patent products." There is a significant item to note here: the telecom industry makes "thousand patent products" and relies on cross-licensing in order to operate at all, whereas the pharmaceutical industry makes "single patent products" and relies on product differentiation (exclusion) to obtain profits to pay for expensive research. This difference in operating environments explains why the telecom and pharmaceutical industries are often on opposite sides of patent policy debates.

An exception to Industry Practice licensing in complex, "thousand patent products" merits a mention here. Patents that cover certain product aspects, which the manufacturer regards as unique, are used to achieve product differentiation. Product differentiation is the act of specifically preventing sales of market-acceptable substitutes, in order to secure market share that provides the manufacturer with a profit-enhancing price premium. Some manufacturers may withhold "look and feel" patents, including design patents and

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some select utility patents, from cross-licensing agreements in order to achieve product differentiation.

Independent Invention Licensing

Independent Invention licensing occurs when a first inventor obtains a patent and then, at some later time, a second inventor introduces a product that fits within the first inventor's patent coverage, but the second inventor had no knowledge of the first inventor's ideas. In these situations, there is no nexus between the first inventor's patent and the second inventor's product. The first inventor (i.e., the patent owner) may have had an idea that was years ahead of its time or may have lacked the funding to successfully launch a product, so perhaps the idea fell into obscurity.

The U.S. patent system evaluates infringement under strict liability, rather than requiring evidence that the patent owner has suffered any competitive harm, or that the alleged infringer was unjustly enriched by learning about the idea from the earlier inventor and failing to pay for that teaching [7]. Thus, the patent owner can demand that the second inventor take a license, even in the context of truly independent invention. Acts of independent inventing occur in both Industry Practice licensing and Independent invention settings. However, the licensing class of Independent invention, as defined here, is reserved for only a subset of independent inventing acts. This convention is because the circumstances that produce independent invention acts can be so widely divergent.

A primary difference between Independent Invention licensing and Industry Practice licensing arises due to product complexity. With Industry Practice licensing, a common driver of infringement is the high degree of complexity in the products, cramming thousands or tens of thousands of inventions into a single product, while simultaneously, a relatively limited set of common components and subsystems across an industry's supply base drive different manufacturers into a crowded solution space for cost-effective designs. In contrast, for Independent Invention licensing, an infringement situation often results from mere chance—or sometimes from the fact that the patented solution is of the type that multiple people, anyone attempting to solve the same problem, are likely to try. Because the primary drivers of Industry Practice licensing are product complexity and the large number of overlapping patent rights, relatively simple products (“single patent products,” see [2]) will rarely fit within the Industry Practice licensing class, but can easily fit within the Independent Invention licensing class.

Landmine Licensing

Landmine licensing is the use of obscure patents to tax manufacturers, often with creative stretching of the patent claim coverage. There are some notable

differences between Landmine licensing and the other three classes that have been introduced. With Tech Transfer licensing, the named inventor on the patent is the one who presented the industry with a solution to a problem that the industry would otherwise have been unlikely to solve without the inventor's cleverness. Essentially, there is often (although not always) a “but-for” relationship between the inventor's work and the availability of the technology in the marketplace, in the Tech Transfer licensing context. In Tech Transfer licensing, a patent is effectively a technology roadmap, teaching the industry how to solve a problem it would otherwise not know how to solve (thereby fulfilling the commonly-touted rationale for permitting an inventor to collect monopoly profits). In Landmine licensing, however, the manufacturers are surprised to learn that they had inadvertently stepped on a landmine with their own inventions, thereby providing a label for this type of practice.

One difference between the Industry Practice and Landmine licensing classes is in whether the patents are used in cross-licensing to achieve patent peace, or are instead wielded by a PAE that has beneficial immunity from a patent infringement counter-claim. A PAE's beneficial immunity from counter-suit permits the assertion of lower quality patents. See [2] for a detailed discussion of this topic, explaining how a patent owner's exposure (or lack thereof) to counter-suits limits (or fails to limit) assertion opportunities. There are also differences between Independent Invention licensing and Landmine licensing. Landmine licensing often occurs in the setting of highly complex products. Even if the patent itself does not teach a complex product, the complexity of the accused product can be used advantageously to find claim elements.

Some real-world examples of patent stretching can be helpful here: U.S. patent 6,150,947 purports to cover a child's toy lightsaber that makes noises from the Star Wars movies when waved around. According to the patent, the lightsaber toy makes a hum unless it is moved rapidly, in which case it plays either a “waving” or “clashing” sound. Specifically, the patent states, “The hum can be an ambient energy hum or similar sound effect, an example being the sound emanated from an activated lightsaber in the popular Star Wars movies.” See column 6, lines 58-61 of the patent; the paragraph preceding that sentence describes when the toy makes the “waving” and “clashing” sounds.

The patent application presented to the U.S. Patent and Trademark Office (USPTO) an invention for a rather simplistic child's toy; the claim limitations required effectively only an accelerometer (to sense how rapidly a child was waving the toy lightsaber around), a processor to interpret the accelerometer measurements, and a sound playback circuit. Faced with an invention

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purporting to be a child's toy, the USPTO searched the applicable prior art for children's toys and granted the patent. Cellular phone prior art was not searched during the examination for that patent. However, the granted patent was later asserted against multiple smartphone manufacturers.

How? Many smartphones have an accelerometer (to detect the orientation of the device for possibly re-orienting displayed images), and a processor, and (in order to play ringtones) a sound playback circuit. In this situation, the complex accused products may have contained each of the claimed components, but not because the complex products were attempting to solve the same problem as the alleged invention. Instead, the accused products contained those components out of sheer complexity, even though they were unrelated to the patent. Because the USPTO only searched prior art that was in the field of the purportedly simple invention, the allowed claims may have not been allowable had the USPTO also searched the prior art in the cellular phone field.

Another example to consider is U.S. patent 5,787,174. It would be rather illustrative if you, the reader, would pause now to read the patent and independently form your own opinion of what the patent covers, prior to continuing. If you do not perform this exercise, you may not fully appreciate the patent owner's stretching act.

Here is the author's description: The patent covers placing radio frequency identification (RFID) tags inside integrated circuit (IC) chips for inventory management and to prevent pilfering by factory workers. The RFID tags that clothing stores use to catch shoplifters are quite common, and thus were prior art to the patent. Also prior art to the patent was RFID-based inventory management systems. The alleged inventive concept is to place tags inside an IC chip, instead of affixed to the outside.

According to the patent, some chip factories had a problem with workers stealing expensive IC chips, but externally-applied RFID stickers were (again, according to the patent) not a good solution. External identifications could easily be removed by thieves. See column 1, lines 36-39 and 46-53 of the 5,787,174 patent, along with column 2, lines 9-11. Also note how the patent itself describes the invention: "For security purposes, the invention makes it difficult or impossible for a thief to alter the identification number without destroying the IC... For inventory purposes, the invention overcomes the need to affix an external identification tag to the IC package." See the patent abstract. The patent mentions that the invention is for defeating a "thief" more than a dozen times in its six pages of text, and also admits that the use of RFID for both loss prevention and inventory management was prior art.

So then, is this description of the alleged invention fair and reasonable?

During litigation, however, the patent was represented by the current patent owner as an SEP, covering smartphones that provide Bluetooth connectivity [8]. How did the patent owner justify the accusations? Similar to the toy lightsaber patent, it is a result of the patent applicant representing the invention to the USPTO as something relatively simple and then, armed with claims that should only be patentable in that relatively simple field of art, asserting the patent against a highly complex product.

Ramifications for Public Policy

Measures to reform or modify the patent system may be more productive if proposed changes are assessed relative to these four iconic classes of patent licensing. In some situations, proposals may be drafted with scenarios in mind that fit only one of these licensing classes, and may thus be counter-productive for scenarios in other classes. Additionally, by defining the classes, debates regarding which changes should be promulgated, may be more productive.

For example, many assertions that are widely scorned as "patent troll" assertions fall within the Landmine licensing class—even while the purveyors of such assertions attempt to cloak their activities with the language of Tech Transfer licensing, in order to push back on changes that could curtail the profitability of Landmine licensing. Thus, debates regarding how to reduce harm to businesses by "patent trolls" may be conflating arguments regarding Landmine licensing with arguments regarding Tech Transfer licensing. That is, some parties may present valid arguments for limiting "patent trolls" and are met with equally-valid counter-arguments for preserving the right of bona fide inventors to profit from their inventions. The key to resolving the impasse is recognizing that these arguments do not apply to the same class of patent licensing—but instead apply to different scenarios. Perhaps public policy debates could expand to include suggestions for refining changes to patent licensing activities so that new rules can be better tailored to the realities of the different scenarios.

Conclusion

The four proposed representative classes for patent licensing, (1) Tech Transfer licensing, (2) Industry Practice licensing, (3) Independent Invention licensing, and (4) Landmine licensing, were proposed, in this companion to two other essays: *The Three Classes of Patent Usage* [2], and *The Four Phases of Patent Usage* [3]. The four classes correspond respectively with various different scenarios and realities in the licensing environment: (1) the patentee is the one who taught the innovation to the industry, (2) multiple independent inventors of complex products work within the same crowded solution space, (3) two or more separate inventors independently arrived at the same solution outside a crowded solution space, and (4) issued pat-

ents on one invention are subject to creative revision in order to read on independently-invented complex products. The importance of recognizing the different scenarios and realities was then briefly described for public policy debates. ■

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References

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[5] <http://www.etsi.org/> and <http://www.etsi.org/technologies-clusters>.

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[7] Samson Vermont, Independent Invention as a Defense to Patent Infringement, 105 Mich. L. Rev. 475 (2006). Available at: <http://repository.law.umich.edu/mlr/vol105/iss3/1>

[8] *Round Rock Research, LLC v Dell, Inc.*, U.S. District of Delaware, 1:11-cv-00976.