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Valuation & Assessment of Intangible Assets, and How the America Invents Act Will Affect Patent Valuations

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By: Andrew J. Maas

**Abstract:**
Intangible assets have created value for hundreds of years. Valuation of intangible assets regularly applies to patents, copyrights, trademarks, and tradesecrets. A few current case studies included in the article cover current patents, copyrights, trademarks, and tradesecrets. In 2011 the America Invents Act was signed into law by President Obama and will have a significant affect on patent valuation. The America Invents Act will require some adjustments to how current patent valuation analysts approach early stage patent valuation. Specifically, analysts will need to understand: 1) inventorship, 2) potential undermining of patent value because of the prior commercial user defense, 3) a likely increase in patent cost, and 4) potential reduction in risk due to the new America Invents Act system. Ultimately, patent valuation has become more complex under the America Invents Act and requires that the typical patent valuation analyst apply additional skills and knowledge to be effective.
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I. Introduction

With the right [intellectual property], companies can command premium prices, increase market share, sustain lower costs, and even generate income directly. Without it, their products (and services) lack differentiation, and they can only compete on price. Businesses that have no [intellectual property] are, by definition, “commodity” businesses that, no matter how well run, lack any sustainable edge, and are destined to limp along on razor-thin margins, subject to the vagaries of supply and demand.1

Under Article I Section 8, Clause 8 of the United States Constitution, one of the enumerated powers assigned to Congress is the power to “promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”2 The value and benefit of intellectual property (specifically copyrights and patents) is not a new idea to the United States Constitution.3 As early as 1474, Venetian statutes offered protection for “any new and ingenious” inventions.4

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2 U.S. CONST. art. I, § 8, cl. 8. The Committee on Detail recommended the patent and copyright clause to the Constitutional Convention, and accepted the clause without recorded debate. “Such a constitutional clause is highly unusual in that it instructs Congress how to promote the progress of the useful arts … It is even more unusual in that nowhere else in the Constitution is there any provision for an exclusive right to be granted to any individual or group of individuals.” GORDON V. SMITH & RUSSELL L. PARR, VALUATION OF INTELLECTUAL PROPERTY AND INTANGIBLE ASSETS 6 (John Wiley and Sons 3rd ed. 2000).
3 See Giulio Manadich, Venetian Patents (1450-1550), 30 J. PAT. & TRADEMARK OFF. SOC’Y 166 (1948) (outlining the history of a patent regime from middle 15th century).
4 In 1474, the Venetians enacted a patent statute that requires that inventions be new, useful, and reduced to practice. Additionally, there were provisions for registration, remediation (to account for infringement) and a ten-year term. The Venetian Statute reads: “BE IT ENACTED that, by the authority of this Council, every person who shall build any new and ingenious device in this City, not previously made in our
Intellectual property is often lumped into the broader category of intangible assets. An intangible asset is one that has a value, but does not have a physical counterpart.\textsuperscript{5} Usually this is “generated by innovation (discovery), unique organizational designs, or human resource practices. Intangibles often interact with tangibles and financial assets to create corporate value and economic growth.”\textsuperscript{6} Intangible assets are not anything new, but the Brookings Institution identifies two forces that are leading to a surge in intangible asset valuation.\textsuperscript{7} First is “intensified business competition, brought about by the globalization of trade and deregulation in key economic sectors … [t]he second is the advent of information technologies.”\textsuperscript{8} Intellectual property plays a central role in creation and allocation of value.\textsuperscript{9} The typical types of intellectual property that is considered as value-creating intangibles include patents, copyrights, trademarks, and

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Commonwealth, shall give notice of it to the office of our General Welfare Board when it has been reduced to perfection so that it can be used and operated. It being forbidden to every other person in any of our territories and towns to make any further device conforming with and similar to said one, without the consent and license of the author, for the term of 10 years. And if anybody builds it in violation hereof, the aforesaid author and inventor shall be entitled to have him summoned before any magistrate of this City, by which magistrate the said infringer shall be constrained to pay him hundred ducats; and the device shall be destroyed at once. It being, however, within the power and discretion of the Government, iii its activities, to take and use any such device and instrument, with this condition however that no one but the author shall operate it.” Giulio, \textit{supra} note 3, at 177. \textit{See also} Michael P. Ryan, \textit{Knowledge Diplomacy, Global Competition and the Politics of Intellectual Property} 21, 24-25 (Brookings Institution Press 1998).


\textsuperscript{6} Id.

\textsuperscript{7} Id. at 9.

\textsuperscript{8} Id.

\textsuperscript{9} Blaxill & Eckardt, \textit{supra} note 1, at 11.
trade secrets. Other areas of intangible value creation are outside of the scope of this work.

The value of intangible assets has been slowly growing over time as a percentage of corporate valuation. Figure 1 shows how the total valuation of S&P 500® companies has been attributable to intangible value at an increasing rate.

![Figure 1: S&P 500® intangible value as a percentage of market capitalization over the past four decades.](indicating that research data came from Ned Davis Research, Inc.).

For example, “Microsoft’s net physical and financial assets in June 2000 … constituted less than 10 percent of its market value, and Cisco’s physical and financial assets accounted for 5 percent of its market value.” For the past 60 years, tangible assets

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13 Lev, supra note 5 at 31.
have consistently accounted for approximately 10% to 11% of the United States gross domestic product.\textsuperscript{14} From 1960 to 1980, intangible assets hovered around 4% of the United State gross domestic product.\textsuperscript{15} However, from 1980 until 2001, intangible assets grew from 4% to approximately 10%.\textsuperscript{16} To put Figure 1 in perspective, Figure 2 shows the percentage of the gross domestic product that is comprised of tangibles and intangibles.\textsuperscript{17} This data is from a recent study conducted by the Federal Reserve Bank of Philadelphia, which suggests that investment “expenditures have risen from roughly 4 percent of [United States gross domestic product] in 1977 to 9 or 10 percent in 2006.”\textsuperscript{18}

Intangible assets have grown and changed significantly over the past two decades, and the methods for assigning valuation have not changed nor have they adjusted quickly enough or with sufficient magnitude to account for the increased importance of intellectual property and intangible assets in valuation calculations. Adjustments to and recommendations for how to place a value on intangible assets and intellectual property require deep technical, legal, business, and historical knowledge in order to provide meaningful valuation assessments.

\textsuperscript{15} \textit{Id}.
\textsuperscript{16} \textit{Id}.
\textsuperscript{17} \textit{Id}.
\textsuperscript{18} \textit{Id}. at 6.
II. Background: Patents, Copyrights, Trademarks & Trade Secrets & How They Create Value

Some of the categories of intellectual property that can create value are patents, copyrights, trademarks, and trade secrets. Below is a brief summary of how each one of these separate types of intellectual property can create value, including some advantages and disadvantages of each. The advantages and disadvantages outlined bring to light the need for a deep technical, legal, and business background when dealing with each type of intellectual property.

19 Id. at 31.
a. **Patents**

The federal government provides an inventor with patent protection through federal law dictated by the Constitutional language in Article I Section 8.\(^\text{20}\) Through the Constitution, Congress has the “Power To promote the Progress of Science … by securing for limited Times to … Inventors the exclusive Right to their respective … Discoveries.”\(^\text{21}\) At the most basic level, “patents grant exclusionary rights to their owners … the owner of the patent has the right to exclude others from making, using, offering for sale, selling, or importing the patented invention.”\(^\text{22}\) These rights are limited in time and the government grants these rights in exchange for full enabling disclosure of the invention.\(^\text{23}\) “[T]o be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention.”\(^\text{24}\) In order to understand patent valuation an analyst needs a deep understanding of patent law, the technical subject area, and business rationale and purposes the future or current patent will serve (i.e. market understanding).

There are significant changes coming concerning United States patent law. On September 16, 2011, President Obama signed the America Invents Act (AIA) into law.\(^\text{25}\) In general, the AIA has modified the “first to invent” standard to the “first inventor to

\(^\text{20}\) U.S. CONST. art. I, § 8, cl. 8.
\(^\text{21}\) U.S. CONST. art. I, § 8, cl. 8.
\(^\text{24}\) In re Wright, 999 F.2d 1557, 1561 (Fed. Cir. 1993).
\(^\text{25}\) Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat 284.
file” standard along with many modified or new post grant review mechanisms. This new system brings the United States much closer to being in harmony with the rest of the world. The potential effects of the AIA to patent valuation are discussed in Section VI: Potential Effects of the America Invents Act on Patent Valuation.

With regard to patent valuation, there are some distinct advantages and disadvantages in relation to the other types of value-creating intellectual property.

i. Advantages

Some major advantages of patenting an invention include securing a government-imposed monopoly for a limited time, as well as high damages allocated for willful infringers. Patent protection creates an artificial market limitation for a technology that a patentee embodies in the claims of a granted patent. Under classic economic theory, this limitation on the market allows for a patent owner to increase prices above what the market would normally (under no artificial influence) allow, in turn leading to a potential for abnormal profits. The benefit associated with this level of market influence is unique to patent protection. Additionally, there are significant statutory advantages to

26 Leahy-Smith America Invents Act, Pub. L. No. 112-29, §§ 3, 6, 7, 12, 125 Stat 284.
28 PELLEGRINO, supra note 10 at ch. 2, at 1.
29 Id.
30 Id.
patent protection. Under 35 U.S.C. § 284, if a patent infringer is found to be infringing willfully, then the patent infringer can be levied treble damages.\textsuperscript{31}

ii. Disadvantages

Some of the disadvantages that are associated with patents include a high cost to acquire and maintain, a relatively short useful life in comparison to other forms of intellectual property, and a requirement to fully disclose the entire idea so that someone skilled in the art could replicate the invention. Currently, and under the new AIA, the costs associated with patenting a technology are high.\textsuperscript{32} The hard costs associated with patent filing are just a small percentage of the actual cost of obtaining a patent, which includes inventors’ time and legal services costs, which can outpace the patent filing costs.\textsuperscript{33} Costs climb even high if the patentee begins to pursue patenting his/her technology in foreign jurisdictions.\textsuperscript{34}

In relation to other types of intellectual property, patents provide a relatively short useful life. Patents are granted a useful life of twenty years for the earliest effective filing date of the patent application.\textsuperscript{35} This is unique to patents, that the application, review, and examination process consume a portion of the useful life.\textsuperscript{36} In comparison, copyrights

\textsuperscript{31} Under the current law and under the future AIA, 35 U.S.C. § 284 provides for treble damages if the infringement is found to be willful. 35 U.S.C. § 284 (2006).
\textsuperscript{33} PELLEGRINO, supra note 10 at ch. 2, at 2.
\textsuperscript{34} Id.
\textsuperscript{36} PELLEGRINO, supra note 10 at ch. 2, at 2.
provide protection for the life of the author plus seventy years, while trademark and trade secrets have a possibly infinite useful life."

One additional constraint on patents that is a disadvantage compared to trade secrets is the disclosure requirement. The courts have solidified the fact that disclosure is part of the quid pro quo to obtain a patent. "[T]o describe one’s invention is basic to patent law. Every patent must describe an invention. It is part of the quid pro quo of a patent; one describes an invention, and, if the law’s other requirements are met, one obtains a patent."

iii. Additional Considerations

Writing on patent valuation, one expert identified the value of a patent as diminishing over the life of the patent on an increasing rate of diminution as shown in Figure 3 and labeled as “Pellegrino Patent Value Over Time.” With respect to this valuation template, Pellegrino indicated that “the newer the patent, the more valuable it is

38 PELLEGRINO, supra note 10 at ch. 2, at 2.
40 Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co., 598 F.3d 1336, 1345 (Fed. Cir. 2010).
41 Id.
42 Michael Pellegrino is the founder and president of Pellegrino and Associates an Indiana based intellectual property valuation firm. For more information see http://www.pellegrinoandassociates.com/. See also Vernon v. Cuomo, No. 06CVS8416, 2010 WL 935745 at *1 (N.C. Super. Mar. 15, 2010) (“The second phase of trial involved the remaining issue of valuation. The parties designated Michael J. Pellegrino (“Pellegrino”) to serve as the Court's independent valuation expert. Pellegrino has been recognized as one of the world's leading experts in intellectual property (“IP”) valuation. He is the founder and president of Pellegrino & Associates, LLP (“P & A”), a boutique valuation firm that specializes in early stage IP valuations. The parties retained P & A to provide its opinion as to the value of TriboFilm's IP portfolio.”)
43 PELLEGRINO, supra note 10 at ch. 2, at 3.
… [t]he older the patent, the less valuable it is … the value drops to zero when the patent runs out of statutory protection, because there is no legal stick the patent owner can swing to prevent one from using the patent … once the patent expires.”44

A template to patent valuation over time must be determined based on the type of patented technology. For instance, a mechanic arts patent might follow the template labeled “Patent Value Over Time Diminishing S-Curve.” The shape of this curve is attributable to a high patent value at the beginning of the patent life because mechanical arts patents are often easy to validate due to the physical nature of the product affected. The value often diminishes quickly in the middle life of the patent after the patent has been granted and the product has spent several years in the market because competitors who see the value in the mechanical arts technology work hard to replace the technology with newer, better mechanical patents. Ultimately, the patent value is low in the last portion of a mechanical art patent life because the market has adjusted to the technology and has replaced it with cheaper, non-infringing comparables.

Compare the potential mechanical arts template with that of a pharmaceutical drug that might follow the template labeled “Patent Value Over Time Increasing S-Curve.” The shape of this curve is attributable to the high risk, and therefore lower potential value, at the beginning of the patent life because pharmaceutical drugs require large investments and many years of testing before they become marketable. If a pharmaceutical drug is successful getting through the many Food and Drug

44 Id.
Administration requirements as well as clinical testing and trials, then the patent value quickly increases in the middle life of the patent. Ultimately, the value will be the highest in the last portion of patent life as the pharmaceutical drug has significant market penetration and minimal to no competition by replacement technologies due to the difficulty to enter the market. Even under this increasing s-curve template, the patent valuation drops to zero at the expiration of the patent.

Another template, shown in Figure 3 and labeled as “Patent Value Over Time Increasing Modified S-Curve” would be identical to the line labeled “Patent Value Over Time Increasing S-Curve” for the life of the patent, but instead of immediately dropping to zero at the patent expiration date, it would gradually reduce to zero depending on market conditions\textsuperscript{45} and difficulty to replicate or reproduce the technology protected in the patent. The overall dollar value associated with this last useful life diminution should not be over looked, as it could be substantial in comparison to the total dollar value associated with the patent from year 0 to year 20.

\textsuperscript{45} Such as brand loyalty, market penetration, and barriers to entry for competitors.
Figure 3: Patent value over time with several different potential value models over the lifetime of a patented technology.\textsuperscript{46}

All of these predictions are consistent with the idea that “[t]he most difficult patents for which to estimate economic life are those involving embryonic technology that may be emerging well ahead of any practical use and those related to faddish consumer products such as toys. An educated guess may have to suffice.”\textsuperscript{47} This, along with the many advantages and disadvantages associated with patents further solidifies the need to understand the minute distinctions in patent law and the science behind the technical subject area. Without this deep understanding, an analyst will not be able to appreciate the different templates that address different technical subject areas.

\textsuperscript{46} Pellegrino, supra note 10 at ch. 2, at 3.
\textsuperscript{47} Smith & Parr, supra note 2, at 297-98.
Additionally, without a strong business and market understanding, an analyst will not be able to adequately project a patent’s true useful life. This projection may be an educated guess, but with historical knowledge of similar patent types and a case law understanding on infringement and licensing, an analyst will be better prepared to make this educated guess, especially with early stage patent valuation and licensing negotiations.

b. Copyrights

Through the Constitution, Congress has the “Power To promote the Progress of … useful Arts, by securing for limited Times to Authors … the exclusive Right to their respective Writings.” \(^{48}\) Under 17 U.S.C. § 102, copyright protection applies to works of authorship, which include: “(1) literary works; (2) musical works, including any accompanying words; (3) dramatic works, including any accompanying music; (4) pantomimes and choreographic works; (5) pictorial, graphic, and sculptural works; (6) motion pictures and other audiovisual works; (7) sound recordings; and (8) architectural works.” \(^{49}\) Additionally, 17 U.S.C. § 106 stipulates the rights that a copyright owner has, and states:

> [T]he owner of copyright under this title has the exclusive rights to do and to authorize any of the following: (1) to reproduce the copyrighted work in copies or phonorecords; (2) to prepare derivative works based upon the copyrighted work; (3) to distribute copies or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending; (4) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and other audiovisual works, to perform the copyrighted work publicly; (5) in the case of literary, musical, dramatic, and choreographic works, … to display

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\(^{48}\) U.S. CONST. art. I, § 8, cl. 8.
the copyrighted work publicly; and (6) in the case of sound recordings, to perform the copyrighted work publicly by means of a digital audio transmission.\(^{50}\)

An analyst needs a clear understanding of copyright law and the potential impact copyrights can have on other forms of intellectual property, such as patents and patentability. With regard to copyright valuation, there are some advantages and disadvantages when compared to the other types of value-creating intellectual property.

i. Advantages

Some of the advantages associated with copyright protection include a longer useful life, significantly higher statutorily enumerated damages, difficulty to design around, registration simplicity, and lower costs.\(^{51}\) Copyrights have a much longer useful life than patents, 17 U.S.C. § 302 provides that “Copyright in a work … subsists from its creation and, … for a term consisting of the life of the author and 70 years after the author’s death.”\(^{52}\) Often, a copyrighted work is protected for well over 100 years.\(^{53}\)

On infringement, a copyright owner is entitled to “actual damages and any additional profits of the infringer … or statutory damages.”\(^{54}\) Section 504(c) stipulates that statutory damages range from $750 to $150,000, which is dependent upon the specific circumstances around the infringement.\(^{55}\) Specifically, if the infringement was

\(^{51}\) Pellegrino, supra note 10 at ch. 2, at 5.
\(^{53}\) Pellegrino, supra note 10 at ch. 2, at 6.
willful, then the higher end of the range can be assessed against the infringer.\textsuperscript{56} Interestingly, other categories of intellectual property “do not provide such explicit, absolute damages in statute of the magnitude of those associated with copyrights.”\textsuperscript{57} In addition to higher statutory damages, there are clearly enumerated controls on derivative works such that “the owner of [a] copyright … has the exclusive rights to … authorize … derivative works based upon the copyrighted work.”\textsuperscript{58}

Copyrights are very simple to obtain, and all an author needs to do is fix a work “in any tangible medium of expression.”\textsuperscript{59} However, if an author wishes to bring a claim against an infringer, the author must register the work with the United States Copyright Office.\textsuperscript{60} Registration is a simple process that only requires a one-page form and a nominal fee. The United States Copyright Office “does not attempt to judge the legal sufficiency or to interpret the content of any document submitted for recordation. It does not screen the document for errors or discrepancies. It does not screen the documents for content.”\textsuperscript{61} The United States Copyright Office is simply the cataloging and storage facility of copyrighted works.\textsuperscript{62}

\textsuperscript{56} Id.
\textsuperscript{57} PELLEGRINO, supra note 10 at ch. 2, at 6.
\textsuperscript{60} 17 U.S.C. § 411 (2006).
\textsuperscript{62} PELLEGRINO, supra note 10 at ch. 2, at 7.
ii. Disadvantages

Copyrights are valuable for some things, but “[u]nlike a patent, a copyright gives no exclusive right to the art disclosed; protection is given only to the expression of the idea not the idea itself.”63 For instance, a copyright will protect the article that a professor publishes about the new biocompatible polymer he created in his lab, but a patent will be needed to protect the composition of matter (i.e. the polymer), the process for creating the polymer, and the method of using the polymer. This example illustrates the importance of understanding the interaction between copyrights and patents, the illustrated publication could bar the professor from obtaining a patent in the future depending on a number of additional factors. On the other side of the coin is an assessment of the value added to the professor, and potentially the university, if the publication is out in the world for scholarly review and critique. It is also more difficult for an analyst to attribute value directly to a copyright, as many copyrights do not provide value until much later in their useful life, which requires a much more difficult long-range projection.

c. Trademarks

Just like patents and copyrights, trademarks have advantages and disadvantages. Trademarks are most commonly recognized as brands, and while a patent can often be worth millions of dollars, trademarks are often valued at tens of billions of dollars.64 For instance, “[t]he accumulated estimated value of the four top-ranking brands for 2008 (comprising Coca-Cola, IBM, Microsoft, and General Electric) amounted to

64 PELLEGRINO, supra note 10 at ch. 2, at 7.
approximately $240 billion." In 2011, business analysts placed a value on the Coca Cola brand of $71 billion, $69 billion for the IBM brand, $59 billion for Microsoft, and $44 billion for Google. With such large potential valuations on the line, it is critical that the key decision makers at brand-dependent companies understand, or have a team to help them understand, the potential impact that different business or legal decisions could have on the brand and ultimately the company valuation. This requires an analyst to understand trademark law, business and market assessment, as well as historical information that will help the analyst better project future effects of current activities.

i. Advantages

Based on potential valuation, a trademark has a significant advantage over other types of intellectual property because trademarks can be worth much more. Trademark protection, although not constitutionally mandated, are protected mostly under the federal Lanham Act. Additionally, there is no statutory limitation for the useful life of a trademark. As long as a trademark does not become generic and continues to be used in commerce, then a trademark can have an infinite useful life. A trademark is relatively

67 Id.
69 PELLEGRINO, supra note 10 at ch. 2, at 7.
inexpensive to file and register at the United States Patent and Trademark Office.\textsuperscript{71}

Ultimately, a trademark can be used to create demand for a commodity type product and “[w]hatever the means employed, the aim is … to convey through the mark, in the minds of potential customers, the desirability of the commodity upon which it appears. Once this is attained, the trade-mark owner has something of value.”\textsuperscript{72}

ii. Disadvantages

The major disadvantage associated with trademarks is the high costs to effectively build a valuable worldwide brand, which brings with it the risk loss due to misfortune and bad market perception. To build a truly valuable world brand, it usually takes “significant resources … amounting to tens or hundreds of millions of dollars. Much of the expenditures focus on building buyer awareness, generating interest, formulating desire, and ultimately compelling buyers to purchase the branded product.”\textsuperscript{73} Congress determined that “trademarks foster competition and the maintenance of quality by securing to the producer the benefits of good reputation.”\textsuperscript{74} The problem arises when something occurs at or to the trademark owner’s business, which puts the quality and reputation of the trademark owner in question. Examples of this include the 1993 Jack in the Box E coli outbreak that sickened over 400 people and lead to more than a 30%
decline in stock prices of Foodmaker Inc., the parent company of Jack in the Box.\textsuperscript{75} This effect can also occur in entire industries, such as the savings and loan crisis of the 1980s where the savings and loan industry almost entirely vanished.\textsuperscript{76}

One risk associated with trademarks is what is called genericide.\textsuperscript{77} “Genericide occurs when a formerly protected mark, like aspirin, loses its protection status because it has become the common name of the product itself and not a word that identifies and distinguishes a particular product made by a specific producer.”\textsuperscript{78} This ultimately leads to a loss of the trademark, which renders the trademark value meaningless.\textsuperscript{79}

d. Trade Secrets

The last type of intellectual property reviewed is trade secret. Under the Economic Espionage Act, a trade secret is

all forms and types of financial, business, scientific, technical, economic, or engineering information, including patterns, plans, compilations, program devices, formulas, designs, prototypes, methods, techniques, processes, procedures, programs, or codes, whether tangible or intangible, and whether or how stored, compiled, or memorialized physically, electronically, graphically, photographically, or in writing if – (A) the

\textsuperscript{79} PELLEGRINO, supra note 10 at ch. 2, at 9.
owner thereof has taken reasonable measures to keep such information secret; and (B) the information derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable through proper means by, the public.\textsuperscript{80}

The Uniform Trade Secrets Act is consistent with this definition and has been adopted in most states.\textsuperscript{81} Common examples of trade secrets are “any formula, pattern, device or compilation of information used in one’s business, and which gives an opportunity to obtain an advantage over competitors who do not know or use it.”\textsuperscript{82} In order to maintain trade secret status, the information must be maintained as a secret and the Restatement states that a “trade secret is any information that can be used in the operation of a

\textsuperscript{81} The Uniform Trade Secrets Act, defines a trade secret as follows: “Trade secret” means information, including a formula, pattern, compilation, program, device, method, technique, or process, that:

(i) derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, and

(ii) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy. UNIF. TRADE SECRETS ACT § 1(4), 14 U.L.A. 433 (1990) available at http://www.law.upenn.edu/bll/archives/ulc/fnact99/1980s/utsa85.htm (complete text of Uniform Trade Secrets Act); See also http://www.ndasforfree.com/UTSA.html (list of states adopting the Uniform Trade Secrets Act); See also Forro Precision, Inc. v. Int’l. Bus. Machines Corp., 673 F.2d 1045, 1057 (9th Cir. 1982) (the court stated: “It is now settled that a trade secret may consist of any formula, pattern, device or compilation of information which is used in one’s business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it. It may be a formula for chemical compound, a process of manufacturing, treating or preserving materials, a pattern for a machine or other device or list of customers.”).

business or other enterprise and that is sufficiently valuable and secret to afford an actual or potential economic advantage over others.”

Contractual agreement should be used to protect trade secrets, and “it is prudent for the trade secret owner to obtain a confidentiality agreement from the other party to protect the trade secret.” Another important protection mechanism is a non-competition agreement, which prevents the other party from creating a competing product or service based on a properly maintained trade secret.

In order to protect trade secrets fully, there is a need to have competent legal understanding, as well as business and technical knowledge. Understanding the technical side of things helps an analyst determine whether a trade secret has been inadvertently released to the public because the analyst will know what should be marked as confidential, and what does not need to be marked as confidential in order to maintain the trade secret. The need to have legal, business, and technical understanding is just increased by the different facets of the advantages and disadvantages of trade secrets.

i. Advantages

There are several advantages to trade secrets, specifically, trade secrets can cover many different types of intellectual property, may be hard (if not impossible) to reproduce, have a long useful life, and do not require registration or approval with any

85 Pellegrino, supra note 10 at ch. 2, at 10.
regulatory entity.\textsuperscript{86} Often a company will protect patents and trademarks through trade secret initially before it receives formal governmental protection.\textsuperscript{87} A company can employ trade secrets to protect virtually anything, including inventions that may or may not be eligible for patent protection, works of authorship that may or may not be eligible for copyright protection, or brands and phrases that may or may not be eligible for trademark protection.\textsuperscript{88}

As a trade secret must be maintained in secrecy, many difficult-to-reverse-engineer products are protected by trade secret.\textsuperscript{89} “In general, the more difficult the inventor believes it will be for others to duplicate his innovation, the greater his incentive will be to opt for trade secret protection.”\textsuperscript{90} As a trade secret may be difficult to reproduce, and there is not a disclosure requirement, a trade secret can potentially last indefinitely.\textsuperscript{91} Ultimately, trade secrets are easier to obtain than patents, copyrights, and trademarks (\textit{i.e.} all you have to do is keep your information secret), and they do not require formal registration or approval, which often makes trade secret an attractive choice for many companies.\textsuperscript{92}

\begin{thebibliography}{99}
\bibitem{86} PELLEGRINO, \textit{supra} note 10 at ch. 2, at 11.
\bibitem{87} Id.
\bibitem{89} Id. at 391.
\bibitem{91} PELLEGRINO, \textit{supra} note 10 at ch. 2, at 11.
\bibitem{92} Id.
\end{thebibliography}
ii. Disadvantages

Some of the attributes and even advantages can also expose some disadvantages of trade secrets. First, a trade secret is just that, a secret, and as such, there is no way to prevent someone from developing an identical or very similar trade secret independently. 93 Along the same lines, the inadvertent public disclosure of a trade secret could render it worthless. 94 To protect against the inadvertent disclosure, the trade secret holder must exercise “attention to the administration and enforcement of non-competition and non-disclosure agreements, the marking of documents, limiting information access, and consistent enforcement,” 95 all of which could be too burdensome for the trade secret owner. As mentioned previously, many states have adopted the Uniform Trade Secrets Act. 96 However, this means that state law controls the enforcement of trade secrets, and each jurisdiction may have a different judicial standard for review. 97 Finally, there is a disadvantage based on the number of people that need to have access to the trade secret, and “[a]s this number increases, both the costs and the difficulty of maintaining secrecy will typically increase. Moreover, the greater the number of persons who have knowledge

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93 See supra notes 88-90 and accompanying text; PELLEGRINO, supra note 10 at ch. 2, at 11.
94 See In re Shalala, 996 F.2d 962, 965 (8th Cir. 1993) (public disclosure of trade secret destroys property rights in trade secret).
95 PELLEGRINO, supra note 10 at ch. 2, at 11.
96 See supra note 81 and accompanying text (the states not adopting the Uniform Trade Secret Act are Massachusetts, New York, and Texas.).
97 PELLEGRINO, supra note 10 at ch. 2, at 12.
of the trade secret, the higher the risk of disclosure due to accident, deliberate conduct or inadvertent disclosure by a former employee to a new employer.”

These advantages and disadvantages make it imperative that a company that is working under trade secret protection understand the legal, business, and technical landscapes. In order to fully appreciate the value of these trade secrets an analyst needs to be well versed in the same areas. Additional understanding of historical situations will help an analyst project a value of a specific trade secret during licensing negotiations.

### III. Concepts & Roles of Intangible Asset Valuation in Free Enterprise

“Every business enterprise … comprises three basic elements: monetary assets (net working capital), tangible assets, and intangible assets. These are the elements that comprise a business, and it also can be said that their aggregate value equals the value of the business enterprise.” While the basis and background of accounting principles is beyond the scope of this work, there is a need to outline some basic accounting theories. This section provides a brief synopsis of some of the business considerations that lead to a valuation of intellectual property and intellectual assets. Furthermore, it is important to have a strong technical, legal, and business understanding while reviewing and analyzing intangible assets for a business enterprise.

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98 Beckerman-Rodau, supra note 88 at 400.
99 SMITH & PARR, supra note 2, at 55.
Gordon Smith and Russell Parr, often quoted as experts in the field of intangible asset valuation, explain that a business enterprise is comprised of monetary assets, tangible assets, and intangible assets.\textsuperscript{101} The following equations show these relationships:

\begin{equation}
V_{bev} = V_m + V_t + V_i \quad \text{Equation IV-1}
\end{equation}

where

\begin{align*}
V_m, V_t, V_i & : \text{The fair market values of the monetary, tangible, and intangible assets respectively, and} \\
V_{bev} & : \text{The fair market value of the business enterprise.}\textsuperscript{102}
\end{align*}

\begin{equation}
V_{bev} = V_e + V_{ltd} \quad \text{Equation IV-2}
\end{equation}

where

\begin{align*}
V_e, V_{ltd} & : \text{The values of the equity and long-term debt respectively.}\textsuperscript{103}
\end{align*}

With a little manipulation, and a substitution \textit{Equation IV-1} into \textit{Equation IV-2} we get the following:

\begin{equation}
V_i = V_e + V_{ltd} - V_m - V_t \quad \text{Equation IV-3}
\end{equation}

The \( V_e \) value can be determined directly by multiplying the number of outstanding shares by the share price at any point in time. The \( V_{ltd}, V_m, \) and \( V_t \) can all be obtained directly from a public company’s quarterly or annually filed balance sheet. In theory, the

\textsuperscript{101} \textit{SMITH \& PARR, supra} note 2, at 59.
\textsuperscript{102} \textit{Id.}
\textsuperscript{103} \textit{Id.}
value that a company lists on its balance sheets for intangible assets should match up with the value obtained through performing the above outlined calculations.

Unfortunately, only occasionally do successful companies account for intangible assets, but “[g]iven the microscopic level of study devoted to other elements of a company’s financial statement, it is surprising to note the scant attention given to intangible assets … More often than not, the value of these intangible assets is not reflected anywhere in a company’s financial statements.”

There are two main scenarios that require the valuation of intellectual property, those needed for prospective purposes, and those needed for retrospective purposes. The prospective purpose of intangible asset valuation is to help establish current value of a future intangible asset and is often done in support of financing and investment deals, mergers and acquisitions, and licensing and royalties. With prospective valuation exercises, there are many different unknowns, many of which the asset owner does not have much control over. Retrospective valuation, on the other hand, is often employed in litigation when two parties are arguing over the value of past situations. Since this is backward-looking, it uses historical data that is easily discoverable.

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104 Clarkson, supra note 100 at 714.
105 Ashley J. Stevens, President, Focus IP Group LLC, AUTM 2012 Annual Meeting Valuation Course (Mar. 16, 2012).
106 Id.
107 Id.
108 Id.
valuation efforts occur on the prospective level, while the majority of the knowledge and publicity occur on the retrospective level.\textsuperscript{109}

Below are case studies on intellectual property valuation from areas based on patents, copyrights, trademarks, and trade secrets. While some of these case studies are historical in nature, the purpose is to point out that it is difficult to value intangible assets in a prospective situation. Each presents different difficulties and rationale as to what is important and critical for a meaningful assessment of intangible assets and intellectual property. Additionally, each reinforces the need to have knowledgeable, trained analysts that understand legal, business, technical, and historical context with relation to a specific type or area of intellectual property. Often the valuation assigned to a retrospective equivalent is used as a baseline for a prospective determination.\textsuperscript{110} An introduction to some of the more interesting and meaningful methods used to value intellectual property and technology follows the case studies.

\textit{a. Case Study: Google & Why it Bought Motorola Mobility Holdings}

This study will take a closer look into the valuation of intangible assets for Google, Inc. Specifically, this review is based on data from the end of December 2010.\textsuperscript{111} Google, Inc. is considered to be a company that is based on a large and growing patent portfolio. Based on a publicly available balance sheet, the cash and cash equivalents

\begin{flushleft}
\textsuperscript{109} \textit{Id.}  \\
\textsuperscript{110} \textit{Id.}  \\
\end{flushleft}
totaled $13.6 billion, with total current assets listed at $57.9 billion.\textsuperscript{112} Net value of fixed assets was listed at $7.8 billion.\textsuperscript{113} On the books, the intangible assets account for only $1.0 billion.\textsuperscript{114} Based on the above information, and the previously discussed equations, the following calculations result.

<table>
<thead>
<tr>
<th>Shares</th>
<th>321,300,000.00\textsuperscript{115}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>$593.97\textsuperscript{116}</td>
</tr>
<tr>
<td>Value of Equity</td>
<td>$190,842,561,000.00</td>
</tr>
<tr>
<td>Long-Term Debt</td>
<td>$379,000,000.00\textsuperscript{117}</td>
</tr>
<tr>
<td>Value of Invested Capital</td>
<td>$191,221,561,000.00</td>
</tr>
</tbody>
</table>

Below is the calculation for the residual value of the intellectual property and intangible assets, for Google, Inc.

\textsuperscript{112} Id.
\textsuperscript{113} Id.
\textsuperscript{114} Id.
\textsuperscript{115} Id.
\textsuperscript{116} Id.
\textsuperscript{117} GOOGLE, INC., supra note 111 at 49.
The intangible assets on the books only account for $1.0 billion, which is only 1.80% of the total invested capital of the balance sheet. Doing the calculations outlined above, Google, Inc. has intangible assets of approximately $162.9 billion, which account for 85.34% of the companies invested capital. Clearly, there is a significant gap between the book value and the market value of Google’s intangible assets.

Add to this the recent development that Google, the powerful search engine company and maker of the Android mobile phone operating system, announced the acquisition of Motorola Mobility Holdings.\(^{119}\) The purchase, for $12.5 billion, equates to $40 a share in cash.\(^{120}\) Google’s announcement came on Monday, August 15, 2011, and was 63% above the $24.47 closing share price of Motorola Mobility Holdings from Friday, August 12, 2011.\(^{121}\)

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invested Capital</td>
<td>$191,221,561,000.00</td>
<td>100.00%</td>
</tr>
<tr>
<td>Net Working Capital</td>
<td>$13,630,000,000.00</td>
<td>7.14%</td>
</tr>
<tr>
<td>Fixed Assets</td>
<td>$7,759,000,000.00</td>
<td>4.07%</td>
</tr>
<tr>
<td>Other Assets</td>
<td>$6,587,000,000.00</td>
<td>3.45%</td>
</tr>
<tr>
<td>Intellectual Property &amp; Intangible Assets</td>
<td>$162,866,561,000.00</td>
<td>85.34%</td>
</tr>
</tbody>
</table>

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\(^{118}\) GOOGLE, INC., supra note 111 at 49.


\(^{120}\) *Id.*

\(^{121}\) *Id.*
Gene Marks expressed that “[m]ost experts believe that [Google’s purchase is] motivated by certain patents that Motorola owns which will help Google defend itself against infringement lawsuits brought on by Apple.” Larry Page is Google’s chief executive and “[o]n the company’s official blog, Mr. Page said Google was purchasing the handset maker to bolster its Android mobile operating system and increase the number of patents it owned.”

Mayuresh Masurekar, an analyst at Collins Stewart, a leading independent international financial advisory group, indicated that “[w]e believe the key benefit of this acquisition to Google is Motorola Mobility’s large patent portfolio, with 17,000 patents and 7,500 more applications in progress.” Masurekar continued that the patent portfolio garnered the lion’s share of the purchase price and that “Google paid the market rate for patents and obtained the manufacturing business for next to nothing.”

Another rationale, albeit not as compelling, behind the acquisitions is that “Google also wants to have the option of producing its own hardware devices so that it

124 Rusli & Miller, supra note 119.
125 Larry Dignan, By the numbers: Google, Motorola Mobility deal values hardware at 'next to nothing', Aug. 15, 2011, available at http://www.zdnet.com/blog/btl/by-the-numbers-google-motorola-mobility-deal-values-hardware-at-next-to-nothing/55024?tag=content;siu-container.
126 Id.
can build prototypes, concept hardware, and leading edge devices to demonstrate its vision and point its ecosystem partners in the right direction.”

If Google truly paid the market rate for the Motorola Mobility Holdings patent portfolio, as hypothesized above, then Google’s intangible assets would be worth at least $12.5 billion after this acquisition. This is more in line with the calculations that show that Google’s intangible assets before the acquisition are valued around $162.9 billion, as it would likely not be a sound business decision if Google spent approximately $12.5 billion on additional patent rights that it previously claimed as only having a value of approximately $1.0 billion on the balance sheet, but it is logical and plausible, to pay $12.5 billion for additional patent rights if your current patent portfolio is worth, say, approximately $160.0 billion.

b. Case Study: The Walt Disney Company & its Copyrights

This case study is a closer look into the valuation of intangible assets for the Walt Disney Company, which, it could be argued, is largely based on the valuation of copyrights. As of the writing of the work, The Walt Disney Company has 14,543 registered copyrights with the United States Copyright Office.

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127 Id.
128 SMITH & PARR, supra note 2, at 123 (this case study is reworked with more current data from a recent financial balance sheet).
129 Id.
The Walt Disney Company review for this study is based on publicly available data from the end of December 2011. The cash account showed $3.8 billion, with total current assets listed at $15.1 billion. In the area of gross fixed assets, the Walt Disney Company listed $35.5 billion, and after a depreciation of $19.7 billion, the net value of the fixed assets (including projects in progress and land) was listed at approximately $19.8 billion. On the books, the intangible assets account for $5.1 billion and the total assets of the company is listed at $73.9 billion. Based on the above information, the following calculations result.

<table>
<thead>
<tr>
<th>Shares</th>
<th>1,798,000,000.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>$37.50</td>
</tr>
<tr>
<td>Value of Equity</td>
<td>$67,425,000,000.00</td>
</tr>
<tr>
<td>Long-Term Debt</td>
<td>$6,825,000,000.00</td>
</tr>
<tr>
<td>Value of Invested Capital</td>
<td>$74,250,000,000.00</td>
</tr>
</tbody>
</table>

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132. Id.
133. Id.
134. Id.
135. SMITH & PARR, supra note 2, at 125-26 (this case study is reworked with more current data from a recent financial balance sheet).
136. THE WALT DISNEY COMPANY supra note 131 at 15.
138. THE WALT DISNEY COMPANY, supra note 131 at 15.
“Using the market value of invested capital and the book value of fixed assets, working capital, and other assets allows a calculation for intellectual property and intangible assets as a residual.”¹³⁹ Below is the calculation for the residual value of the intellectual property and intangible assets.

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invested Capital</td>
<td>$74,250,000,000.00</td>
<td>100.00%</td>
</tr>
<tr>
<td>Net Working Capital</td>
<td>$3,766,000,000.00</td>
<td>5.07%</td>
</tr>
<tr>
<td>Fixed Assets</td>
<td>$19,671,000,000.00</td>
<td>26.49%</td>
</tr>
<tr>
<td>Other Assets</td>
<td>$2,620,000,000.00</td>
<td>3.53%</td>
</tr>
<tr>
<td>Intellectual Property &amp; Intangible Assets</td>
<td>$48,193,000,000.00</td>
<td>64.91%</td>
</tr>
</tbody>
</table>

As indicated from the publicly available balance sheet, the intangible assets account for $5.1 billion, which is only 6.82% of the total invested capital.¹⁴¹ Doing the calculations outlined above, the Walt Disney Company’s intangible assets account for 64.91%, or $48.2 billion. This significant gap between the book value and the market value illustrates, in mathematical terms, the difficulties with accounting for the value of intangible assets.¹⁴²

As noted above, The Walt Disney Company had approximately 14,500 active copyrights in December 2011. Based on the value attributable to intangible assets from the balance sheet, each copyright would be worth approximately $350,000, while under

¹³⁹ SMITH & PARR, supra note 2, at 126.
¹⁴⁰ THE WALT DISNEY COMPANY, supra note 131 at 15.
¹⁴¹ Id.
¹⁴² SMITH & PARR, supra note 2, at 123.
the calculated value above, each copyright would be worth approximately $3.3 million. This higher value might be justifiable in light of individual copyrights. Although the most famous, in 2008, brand experts valued Mickey Mouse at more than $3 billion (Mickey Mouse is both copyrighted and trademarked).143 If Mickey Mouse is the most famous of all Disney Company copyrights, then it is plausible that the aggregate value of over 14,000 copyrights is close to, say, $48.0 billion.

c. Case Study: Sabre’s Brand Value as a Subsidiary of American Airlines

Similar to the mathematical exercise conducted above for The Walt Disney Company, Sabre was valued by the market well above what the book value indicated the American Airlines subsidiary should be worth.144 Sabre was a successful airline reservation system that allowed travelers to “book reservations with more than 350 airlines, 55 car-rental agencies and 190 hotel companies,” and was the predecessor to travel website Travelocity.145 The idea for Sabre was born in 1953 when C.R. Smith, then president of American Airlines, and R. Blair Smith from IBM met on a flight from Los Angeles to New York.146 Sabre “was the first real-time business application, and it enabled American Airlines to replace the handwritten passenger reservations system of

144 LEV, supra note 5 at 24.
the 1950s with the automated reservations system for the future.”¹⁴⁷ As such, by 1996
Sabre had significant brand awareness and more than “40 percent of all airline bookings
through travel agents in the United States last year went through Sabre, making it by far
the largest domestic distributor of travel arrangements.”¹⁴⁸

“On October 11, 1996, AMR Corporation, the parent company of American
Airlines, sold (an equity carve out) 18 percent of its Sabre subsidiary in an initial public
offering.”¹⁴⁹ On the previous day of trading, AMR shares closed at $36 per share making
the market value of AMR about $6.5 billion.¹⁵⁰ The initial public offering raised a total of
approximately $662 million for Sabre.¹⁵¹ At the end of the first day of trading after the
initial public offering, Sabre shares rose from the $27 per share initially offered to almost
$32 per share. The initial public offering valued Sabre just over $3.3 billion.¹⁵² This
would mean that just the reservation system that AMR operated was worth more than half
of the total market value of AMR. Sabre started as a $40 million research and
development investment for AMR in the 1960s and 1970s, and grew to a market value of
$3.3 billion, which grew further until in 1999 when Sabre accounted for 60% of AMR
market value.¹⁵³ This is just one example of how “[i]ntangible assets and intellectual

¹⁴⁷ Id.
¹⁴⁸ Canedy, supra note 145.
¹⁴⁹ LEV, supra note 5 at 24.
¹⁵⁰ LEV, supra note 5 at 24.
¹⁵² LEV, supra note 5 at 24.
¹⁵³ LEV, supra note 5 at 24.
property usually do not appear on a company’s balance sheet, but they are present in any case.”

d. Case Study: The DuPont Company & its Trade Secrets

DuPont is one of the few large, publicly-traded companies that makes a concerted effort to protect its trade secrets. As recently as February 2012, several individuals “were charged with conspiring to steal trade secrets about titanium dioxide technology from DuPont.” DuPont is the maker of Kevlar, a synthetic fiber used in police and military gear protected under trade secret. In September 2011, a jury awarded DuPont more than $919 million over the theft of trade secrets about the manufacture of Kevlar. This is clearly a valuable trade secret for DuPont, as it is “spending more than $500 million to boost Kevlar production and … Kevlar and Nomex, a related fiber used in firefighting gear, accounted for about $1.4 billion of DuPont’s $31.5 billion in sales” in 2010.

154 SMITH & PARR, supra note 2, at 58.
155 E. I. duPont deNemours & Co. v. Christopher, 431 F.2d 1012, 1013 (5th Cir. 1970).
158 Id.
159 Id.
The DuPont Company review for this study is based on publicly available data from the end of December 2011.\textsuperscript{160} The cash account showed $3.6 billion, with total current assets listed at $18.1 billion.\textsuperscript{161} The gross fixed assets totaled $32.8 billion, and the balance sheet indicated a depreciation of $19.4 billion, the net value of the fixed assets of property, manufacturing plants, and equipment was listed at approximately $13.4 billion.\textsuperscript{162} The intangible assets account for $5.4 billion and the total assets of the company are $48.5 billion.\textsuperscript{163} Based on the above information, the following calculations result.

<table>
<thead>
<tr>
<th>Shares</th>
<th>926,120,000.00\textsuperscript{164}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>$45.78\textsuperscript{165}</td>
</tr>
<tr>
<td>Value of Equity</td>
<td>$42,397,773,600.00</td>
</tr>
<tr>
<td>Long-Term Debt</td>
<td>$28,154,000,000.00\textsuperscript{166}</td>
</tr>
<tr>
<td>Value of Invested Capital</td>
<td>$70,551,773,600.00</td>
</tr>
</tbody>
</table>

\textsuperscript{161} Id.
\textsuperscript{162} Id.
\textsuperscript{163} Id.
\textsuperscript{164} Id.
\textsuperscript{166} DuPont Annual Balance Sheet, \textit{supra} note 160.
Below is the calculation for the residual value of the intellectual property and intangible assets, which in the case of the DuPont Company is largely based on trade secrets.

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invested Capital</td>
<td>$70,551,773,600.00</td>
<td>100.00%</td>
</tr>
<tr>
<td>Net Working Capital</td>
<td>$3,586,000,000.00</td>
<td>5.08%</td>
</tr>
<tr>
<td>Fixed Assets</td>
<td>$13,412,000,000.00</td>
<td>19.01%</td>
</tr>
<tr>
<td>Other Assets</td>
<td>$5,079,000,000.00</td>
<td>7.02%</td>
</tr>
<tr>
<td>Intellectual Property &amp; Intangible Assets</td>
<td>$48,474,773,600.00</td>
<td>68.71%</td>
</tr>
</tbody>
</table>

Again, as indicated from the publicly available balance sheet, the intangible assets account for $5.4 billion, which is only 7.65% of the total invested capital. Doing the calculations, the DuPont Company’s intangible assets account for $48.5 billion, or 68.71%, of the company’s total assets.

These case studies validate the need to have a strong understanding of legal, business, historical, and technical subject areas. While each type of intellectual property evaluated is a subset of intellectual assets, the most compelling discussion occurs around those valuation assessments geared toward patents and patent portfolios. In addition, patent valuation and patent portfolio valuation could be significantly influenced by the implementation of the new patent law, the AIA. The remainder of this work will drill

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167 DuPont Annual Balance Sheet, supra note 160.
168 DuPont Annual Balance Sheet, supra note 160.
down further into the specific area of patent valuation, and provide critical commentary on the potential effect that the new law, the AIA, could have on patent valuation analysis.

IV. **Purposes for Patent Valuation**

One federal district court has indicated that Patents are unique by definition. Determining the value of any patented technology at an early stage inevitably leads to a great amount of uncertainty. Such value may range from zero to tens of millions of dollars, depending on future events … The Court recognizes that its determination involves a number of unknowns concerning market conditions, trends, and the physical, legal, and economic characteristics of the … technologies, including: The level of interest the technologies will garner and whether the timing of such interest will be immediate or delayed; The amount of time it will take for a [third-party] company to perform [necessary] testing and whether the company will decide to introduce the product after six months or two years of testing; The … royalties, which will vary depending on the value of the specific [technology]; The best way to commercialize the technology, whether that be through [third-party] companies or equipment suppliers; [third-party] continued interest in the … technology; The value, if any, in the [multiple] market[s]; The application of the … technology to other materials … The possibility of packaging [the] IP portfolio for sale as opposed to licensing the technologies; The patent protection against competitors in foreign countries; The development of new … technologies and whether such technologies will render the [current] technology obsolete; and The reliability of [third-party valuation] modeling techniques.¹⁶⁹

As the North Carolina Court indicates, the reliability of third-party valuation modeling techniques is critical. While the North Carolina Court was looking back at historical valuations in the litigation world, these same elements can be emphasized in the prospective forward-looking transactional world. Patent valuation can become important

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in several scenarios: (1) during the financing and investment due diligence process, (2) during mergers and acquisitions, and (3) during the licensing and royalty negotiation.

With respect to financing and investment, companies that are looking to raise needed capital often try to raise capital through bank financing or private investment. If a company is based heavily on a patented technology or patent portfolio, it will be hard to obtain financing or investment without strong proof that the patent is valid, the company is not infringing another’s patent, and the patented technology is difficult to design around. Financing and investment due diligence often requires an analyst to look closely at the requesting company’s patent portfolio, which, as indicated previously, needs to be done by someone with strong technical, legal, business, and historical knowledge.

During the merger and acquisition process, a company will often have a patent portfolio that needs to be evaluated and valued. More often than not, the business analysts that evaluate a merger or acquisition and make recommendations to the key decision makers do not concern themselves with patent portfolio valuation and review. One reviewer noted that in performing patent due diligence for a merger, an analyst must consider: (1) the implications of recent case law, (2) an assessment of the business value,

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171 Id. n.99.
173 Id. at 322.
(3) additional burdens associated with licensing the technology, (4) the procedural due diligence, and (5) patent portfolios and trade regulations.\textsuperscript{174} All of these elements require that an analyst understand the legal, business, and technical composition of the target company.

Finally, in the licensing and royalty negotiation process, it is critical that those that are licensors and licensees understand the implications of each different patent valuation method. Just like the other two categories discussed above, in licensing, a valuation puts the licensee or licensor in a position to negotiate a price for a license.\textsuperscript{175} This information will help determine the terms of the license agreement, including: (1) upfront payments; (2) ongoing pre-commercial payments such as patent costs, milestone payments, annual minimum royalties, and research support; (3) sublicense income sharing; and (4) the royalty rate.\textsuperscript{176} Upfront payments are often based on the actual cost of technology development to date.\textsuperscript{177} Patent costs are often bourn by the licensee and are part of the cost of obtaining the technology.\textsuperscript{178} Milestone payments are paid to the licensor when the licensee reaches certain predetermined goals in the development of the technology.\textsuperscript{179} Often a licensee continues to support further research in the technology area.\textsuperscript{180} The license agreement should delineate the allocation of sublicensee income.\textsuperscript{181}

\\textsuperscript{174} Id. at 331-37.
\textsuperscript{175} Stevens, supra note 105.
\textsuperscript{176} Id.
\textsuperscript{177} Id.
\textsuperscript{178} Id.
\textsuperscript{179} Id.
\textsuperscript{180} Id.
Ultimately, the license agreement will outline a royalty rate, which should be based on the future market value of the technology once commercialized.\textsuperscript{182}

\textbf{V. Potential Effects of the America Invents Act on Patent Valuation}

The new patent law, the AIA, has many different provisions that could affect patent valuation in the near term and in the future.\textsuperscript{183} This section attempts to categorize these effects into several discrete categories, including patent life, breadth and scope, costs, potential risks, and prior art. In reviewing these categories, the emphasis will be on comparing the state of the law currently to the future state of the law once the AIA is in full force. There are several different effective dates in the AIA, but the time for which the comparison will apply will be after March 16, 2013.\textsuperscript{184}

In the following discussion, the term pre-AIA refers to the state of the law prior to September 16, 2012, and the term post-AIA refers to the state of the law after March 16, 2013. As mentioned before, the most significant change due to the AIA is the movement from a “first to invent” system to a “first inventor to file” system. Pre-AIA, 35 U.S.C. § 102 states “[a] person shall be entitled to a patent unless … the invention was known or

\textsuperscript{181} Id.
\textsuperscript{182} Ashley J. Stevens, President, Focus IP Group LLC, AUTM 2012 Annual Meeting Valuation Course (Mar. 16, 2012).
\textsuperscript{184} March 16, 2013 is 18 months after the law was signed, and the point at which all significant provisions are in full force.
used by others in this country … before the invention thereof by the applicant for patent.” Post-AIA, the language changes to

[a] person shall be entitled to a patent unless … the claimed invention was patented … or otherwise available to the public before the effective filing date … or the claimed invention was described in a patent issued … or in an application for patent published … in which the patent or application … names another inventor and was effectively filed before the effective filing date of the claimed invention.

a. Patent Life & Inventorship

Under the AIA, the patent life of a granted patent will remain at a maximum of 20 years from the non-provisional application date based on 35 U.S.C. § 154 which reads “[s]ubject to the payment of fees under this title, such grant shall be for a term beginning on the date on which the patent issues and ending 20 years from the date on which the application for the patent was filed in the United States.” Additionally, post-AIA, as in pre-AIA, filing of a provisional application is allowed.

Pre-AIA applicant A could maintain an invention as a trade secret before filing for patent protection. As mentioned before, all applicant A needs to do to maintain a trade secret is keep the information secret. Under the pre-AIA system, if applicant A is truly the first inventor, then that applicant A could maintain his idea as a trade secret

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186 Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat 284 (emphasis added).
188 The operable language in 35 U.S.C. 102 is the phrase “the invention was known or used by others.” See supra note 185.
189 See supra notes 80-98.
indefinitely as long as there is diligence from conception to reduce the idea to practice.\textsuperscript{190} In this scenario, applicant A is the first inventor and is able to file and obtain a patent, even if applicant B is a later inventor and subsequently files for a patent.\textsuperscript{191} This requires diligent record keeping on the part of applicant A to ensure the true inventor can prove that he is the first inventor and that he has exercised diligence from the date of conception. The pre-AIA system also makes the question of prior art determinative upon what applicant A can prove through his records.\textsuperscript{192}

Post-AIA, there is no need to look to the date of conception and diligence, as the determinative date is the date that the application is filed.\textsuperscript{193} Under this scenario, there are a couple of wrinkles that relate to disclosure.\textsuperscript{194} If applicant A is the first inventor and the first applicant to file a patent application, and nobody has made any disclosures of the invention prior to the filing, then applicant A will get the patent. If applicant A and applicant B are both inventors (irrespective of who invented first) and applicant B discloses his invention then subsequently files a patent application within one year from

\begin{footnotesize}
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\item \textsuperscript{190} Huelster v. Reiter, 168 F.2d 542, 545 (C.C.P.A. 1948).
\item \textsuperscript{191} Spero v. Ringold, 377 F.2d 652, 659 (C.C.P.A. 1967).
\item \textsuperscript{192} i.e. for an invention the prior art is only art from before the date of conception, which may only be known to the true inventor and in the true inventors records.
\item \textsuperscript{193} Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat 284.
\item \textsuperscript{194} Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat 284 (under section 3 there is a disclosure exception to being the first to file. A disclosure may be made within one year of the effective filing date as long as the disclosure was made by the inventor, or made by someone that received the information directly from the inventor.).
\end{itemize}
\end{footnotesize}
the disclosure date, then even if applicant A files first, applicant B will be awarded the patent because applicant B disclosed the invention first.\textsuperscript{195}

These two scenarios translate into the following general rules: (1) The first applicant to file before disclosure wins (where nobody party has disclosed prior to filing), (2) The first to disclose and file within one year wins (where one party discloses prior to the other party’s filing).\textsuperscript{196}

In the post-AIA ecosystem, patent life is unchanged, but the determination of who is the inventor is more certain. This modification will lead to patent due diligence being more certain, which will potentially increase the value of pending patent applications because it will be easier to ensure that the applicant is truly the first inventor to file, especially at 30 months from filing, because at that point, there will be complete knowledge of all other patents that were filed up to 12 months after the applicant’s filing. This allows a due diligence team to determine if any subsequent applicant disclosed the invention prior to the applicant’s filing.

\textit{b. Prior Commercial Use}

Pre-AIA 35 U.S.C. § 273 is directed at a defense to infringement by an earlier inventor.\textsuperscript{197} Post-AIA 35 U.S.C. § 273 is significantly modified and now deals with defense to infringement based on prior commercial use.\textsuperscript{198}

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\textsuperscript{195} Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat 284.  
\textsuperscript{196} Whittle & Samardzija, \textit{supra} note 183.  
\textsuperscript{198} Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat 284.  
\end{flushleft}
Under the pre-AIA regime, applicant A could maintain an invention as a trade secret and then file at any point after the date of invention.\textsuperscript{199} The determination as to first to invent is determined during examination.\textsuperscript{200} If applicant A invents, reduces to practice, and then begins to use the invention as a trade secret under the pre-AIA system, applicant A could become an infringing user if a subsequent inventor, applicant B, files a patent application and is granted a patent.\textsuperscript{201}

Post-AIA prior user rights shield third parties who can show that they are commercially using an invention for at least one year before applicant A files a patent application concerning the invention.\textsuperscript{202} There are some limitations on the prior user defense and in a report to Congress, the United States Patent and Trademark Office explained that “the defense is geographically limited to cover only those sites where the invention was used before the” filing date of the patent application.\textsuperscript{203} This defense has been criticized by some as pushing inventors to maintain inventions as trade secret.\textsuperscript{204}

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\textsuperscript{199} See supra note 38, 88.  
\textsuperscript{200} See supra notes 186-92.  
\textsuperscript{201} See Sinclair v. Aquarius Elecs., Inc., 116 Cal. Rptr. 654, 661 (Cal. App. 1st Dist. 1974) (“It is well recognized that a trade secret does not offer protection against discovery by fair and honest means such as by independent invention, accidental disclosure or by so-called reverse engineering.”); See also National Tube Co. v. Eastern Tube Co., 69 Ohio 560, 70 N.E. 1127 (Ohio 1903).  
\textsuperscript{202} THE UNITED STATES PATENT AND TRADEMARK OFFICE supra note 27 at 1.  
\textsuperscript{203} Id.  
\textsuperscript{204} Id. (“While a few comments took a view that prior user rights may have the unintended consequence of promoting secrecy over disclosure in a manner that could be detrimental to the patent system, many others noted that the ability to maintain trade secrets is vital to American competitiveness and job growth, and that a limited prior user right defense is an appropriate complement to a first-to-file system.”).
With respect to patent valuation, this change in the law may lead to more inventors maintaining secrecy with an invention, which will make patent valuation more uncertain and potentially more risky. This higher risk will come from the fact that a prior user could already be using the idea in a commercial product, and as such, obtaining a patent on the technology will not bar the prior user from continuing to use the technology.\footnote{Id. ("U.S. law already provided a prior user rights defense that was limited to patents directed to methods of conducting business. The AIA, by contrast, extends the prior user rights defense to patents covering all technologies, not just business methods.")} Although a significant change to United State law, it should be noted that under the pre-AIA system there not a single case in the United States where a patent holder tried to enjoin a prior user trade secret owner.\footnote{Karl F. Jorda, Patent and Trade Secret Complimentariness: An Unsuspected Synergy, 48 WASHBURN L.J. 1, 27 (2008).} This lack of challenge may be because the prior law only touched business methods, but it seems more likely that the reason not to try to enjoin a prior user is the difficulty in building a case against a trade secret holder of a business method. This may change post-AIA, however, since it may be easier to build a case when the technology is a more tangible invention, such as a mechanical device. With all of these considerations, it is unlikely that the prior user defense will have much, if any, impact on the valuation of patents other than accounting for the potential increase in risk mentioned earlier.
c. **Costs**

In the pre-AIA system, United States patent filing is costly, but usually the cost in the United States is less than the cost in other countries.\(^{207}\) Additionally, under the pre-AIA system, all involved understand the system and therefore prosecution and litigation are more predictable.\(^{208}\) This predictability naturally reduces the cost of doing business with the United States Patent and Trademark Office.

Post-AIA, the cost will likely be higher than under the pre-AIA system.\(^{209}\) This cost will likely approach that of other countries as the United States Patent and Trademark Office will have fee setting authority over patent prosecution and filing costs.\(^{210}\) Additionally, post-AIA the United States patent system regulations will be significantly different, there will be less predictability in prosecution and litigation, both of which will likely increase the costs of patent preparation and defense.\(^{211}\)

While changes to the patent system may be warranted and necessary, the changes will likely lead to increased patent costs. These increased costs will ultimately reduce the value of a patent that is early in the prosecution pathway. While it is true that this change may effectuate a reduction in patent value, the amount of additional cost will likely be so

\(^{207}\) Whittle & Samardzija, *supra* note 183 (*i.e.* European Patent Office and Japanesse Patent Office.).
\(^{208}\) Id.
\(^{209}\) Id.
\(^{211}\) Whittle & Samardzija, *supra* note 183.
minimal that it will have little, to no effect on the actual value of a single patent. Once patent portfolios are aggregated together, it will similarly have little effect on the valuation of an entire portfolio.

d. Potential Risks & Prior Art

Within the pre-AIA scheme, there are some risks. Since the pre-AIA system is based on first to invent, there is less certainty as to who actually has a patent right when there are two competing applicants.\textsuperscript{212} It is also possible that that a patent examiner may not have uncovered or considered all prior art that could adversely affect a patent application, which could ultimately lead to a patent being rendered invalid through any number of after-grant proceedings.\textsuperscript{213} This shortcoming of the pre-AIA system inherently places some risk on a granted patent, as there are always unknowns about the strength of the patent.\textsuperscript{214} Furthermore, pre-AIA does not allocate a method to directly object to a granted patent.\textsuperscript{215}

Under the post-AIA format, there will be more predictability in patent rights because the new system is based on the first inventor to file. As such, if a patent applicant is awarded a patent, the patent is more likely to be valid and enforceable because of the new standard.\textsuperscript{216} In addition, there is more opportunity for a patent examiner to have meaningful prior art as the post-AIA system allows for preissuance submissions by third

\textsuperscript{212} Id.  
\textsuperscript{213} Id.  
\textsuperscript{214} Id.  
\textsuperscript{215} Id.  
\textsuperscript{216} Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 3 125 Stat 284.
parties.\footnote{Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 8 125 Stat 284.} This will be a valuable tool for patent examiners, current patent holders, and patent applicants. For patent examiners, this addition allows the patent examiner to receive on-point prior art through third parties, which will lead to a more robust prior art review by the patent examiner, and potentially make the patent examiner’s job more thorough, in turn strengthening a patents claims. For the current patent holder, this provides an opportunity to monitor published patent applications and submit prior art that may bar a patent applicant’s claims, or require claims to be modified or adjusted, allowing a current patent holder to strengthen his own patent by minimizing litigation prone overlapping patent claims from a subsequent patent. For the patent applicant, this process provides a positive situation because it give the patent examiner more eyes on the problem and potentially makes the granted patent more robust because of the higher level of prior art review done by the patent examiner. Unlike the pre-AIA system, the post-AIA system has a process called post-grant review which allows any person to file a petition to invalidate a patent within the first nine months after patent issuance.\footnote{Id.} When the post-grant review period ends, individuals who want to contest an issued patent may only do so on a narrow set of after grant proceedings delineated in the AIA.\footnote{Id.}

Ultimately, under the post-AIA system, it will be important for a patent holder to monitor competitors’ published and issued patents in order to provide prior art to the patent examiner and to petition granted patents on invalidity grounds. Over time, this
process will lead to more definitive patent rights, which will lead to more valuable patents because of the removal of many uncertainties that are currently involved under the pre-AIA format. Additionally, the more patents in a specific field, then the more valuable a patent in that field will be because it will have to overcome comparison to many more competing patents.

VI. Conclusion

Intangible assets are a large, new body of assets that are changing rapidly. The change over the last two decades has been impressive and as such the methods for assigning valuation must change in order to account for these drastic shifts. Analysts, accountants, attorneys, and company leaders must account for the increased importance of intellectual property and intangible assets in valuation calculations now and more so in the future. In order to derive a meaningful value on intellectual property assets, a full complement of knowledge is required in the technical, legal, and business areas.

As seen in the case studies outlined in Section III Concepts & Roles of Intangible Asset Valuation in Free Enterprise, there is a clear disconnect in that corporate balance sheets underestimate intangible assets when compared to the actual market value of the intangible assets. Combine these underestimations, with the incredible shifts in corporate valuations in such a short amount of time, and the mixture could lead to the perfect storm in the financial, business, and legal arenas as these incongruous forces try to merge into one.

Add to this mix, the fact that the most often valued intangible asset in the world today is the patent right, and there is one more layer of complexity to the perfect storm
that is brewing. The AIA will have huge effects on the valuation of patented technologies and patent portfolios. These effects include more certainty as to inventorship, potential undermining of patent value because of the prior commercial user defense, a likely increase in patent cost, and potential reduction in risk due to the new AIA system.

Ultimately, the valuation of patents along with other forms of intellectual property requires a strong technical, legal, and business understanding. Additional historical knowledge is essential to keep the valuation in perspective. These attributes may not be available in one person, so it is critical that a good due diligence team is comprised of multiple individuals with these backgrounds. Often, an analyst lacks one or more of these attributes and unknowingly produces erroneous or misleading valuation results.