Unleashing Small Business Through IP

The Role of Intellectual Property in Driving Entrepreneurship, Innovation and Investment

Raymond J. Keating

Second Edition
IP Matters to Entrepreneurship and Global Prosperity

In today's global economy, the protection of intellectual property (IP) is especially critical for small businesses and entrepreneurs. No matter what industry or line of business - from local shops to manufacturers, Internet ventures to songwriters, fashion designers to specialty food makers - IP matters to the growth and competitiveness of the entrepreneurial sector.

In the Small Business & Entrepreneurship Council's second edition "Unleashing Small Business Through IP," chief economist Raymond J. Keating provides insights and hard data on the role of IP in our economy. This book reveals the heavy costs associated with IP theft, and IP's impact on innovation, entrepreneurship, investment and quality job creation. In our increasingly competitive yet interdependent global economy, the establishment and enforcement of IP rights is essential for all of its players - and especially small business.

About SBE Council

SBE Council is a nonprofit, nonpartisan advocacy, research and education organization dedicated to protecting small business and promoting entrepreneurship. For nearly twenty-four years, SBE Council has helped to advance policies and a broad range of initiatives both in the U.S. and across the world to strengthen the ecosystem for entrepreneurship and small business growth.

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American innovation has changed the world. It has vastly improved the lives of Americans and people around the globe. Our policies must encourage and strengthen our nation’s innovative capacity and protecting intellectual property (IP) is critical to that end.

Entrepreneurs and small businesses largely drive innovation, and IP rights and protections matter the most to this sector. Private-sector investment, which drives innovation and economic growth forward, doesn’t just happen. There has to be a sound economic, policy, and legal foundation upon which investment can be built. And again, a key part of that foundation is the establishment, protection and enforcement of property rights, including IP.

As noted in the U.S. Chamber of Commerce’s International IP Index, countries with strong IP environments produce nearly 70 percent more innovative output, enjoy significantly higher patenting rates, and are more likely to attract venture capital and private equity funding, among other benefits. For startups and entrepreneurs, a strong IP regime is key to raising capital, which is the very lifeblood of these promising growth companies.

In the U.S. Congress, we are working on a bipartisan basis and with the Administration to strengthen IP at home and abroad. Whether it is improving the patent system, creating a stronger standard for protecting trade
secrets, or ensuring IP protections are recognized and rigorously enforced by U.S. trading partners, there is a broad understanding that IP is essential to competitiveness and the health of our entrepreneurial sector.

SBE Council’s second edition of “Unleashing Small Business Through IP” will help the public, policy leaders, media, and Members of Congress fully understand the importance of IP protections for entrepreneurs and small businesses, and IP’s role in fostering an environment for strong investment, innovation, economic growth, quality job growth, and entrepreneurship.

The Honorable Tom Emmer  
U.S. House of Representatives  
Minnesota – Sixth District
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Intellectual Property: 
Best of Times, 
Worst of Times?

Small Business and IP...

Entrepreneurs will often talk about lessons from making mistakes. NerdWallet.com ran a story on small business owners identifying their biggest mistakes and what they learned. Grainne Kelly, founder of BubbleBum inflatable car booster seat, spoke about stolen intellectual property. Kelly visited a Chinese factory with an original design for her product, but did so without anyone signing a confidentiality agreement. She said, “While I was sitting in their office, the managing director of the factory drove to Shanghai, three hours away, and applied for a utility patent.” Kelly declared, “The biggest mistake I ever made was expecting others would have the same degree of integrity as I do.” The lesson? “It had cost us in the tens of thousands of dollars, but I have learned so much about intellectual property along the way.” (“Small Business Owners Reflect on Their Biggest Mistakes” by Steve Nicastro, May 15, 2015)
In the nineteenth century, Charles Dickens wrote in *A Tale of Two Cities*, “It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness...”

In the twenty-first century, that quote might be applied to the tremendous opportunities, as well as threats, that exist when it comes to vast leaps forward in assorted technologies and how they apply to assorted intellectual property (IP).

Few industries better illustrate this “best of time, worst of times” than the music business. It has been on the front lines of both opportunity and challenges over the past decade-and-a-half.

In its June 2014 publication “Labels at Work: The Music Business in the Digital Age,” the Recording Industry Association of America (RIAA) noted:

“Over the past two decades, digital, Internet and mobile technologies have revolutionized the way we create, find and enjoy music... Artists can create in new ways and reach fans with tools that weren’t even imaginable just a few years ago. Music lovers can share what we’re listening to with our friends, family and colleagues in real time, turning them on to new favorites the instant we find them ourselves. Record collections are going virtual. And new streaming services have stretched our car stereos far beyond five AM/FM presets.”

The RIAA also noted that the focus of the businesses it represents is finding artists, helping them create music, and getting that music to the public, while “embracing new digital tools” to make all of this happen. The RIAA explained, “We’re essentially venture capitalists for music:
investing in the great, unknown artists of today so they become the superstars of tomorrow.”

Indeed, like many other industries, advancements in digital, broadband technologies have created enormous opportunities for music entrepreneurs – including creators – and tremendous benefits for consumers.

However, on the flip side (or, B-side, if you will), digital theft of music has played a key role in the dramatic decline in music sales since the late 1990s, and diminished resources and incentives to develop new talent. (More on the music business follows in Chapter 11.)

Of course, the opportunities and challenges are not just about the U.S., but exist and are growing rapidly on a global scale as well.

One example of a leading tech firm capitalizing on opportunities while also facing challenges in international markets is Apple Inc.

Consider how in mid-December 2012, Apple iPhone 5 handsets established a record for sales during a weekend launch of an Apple product in China. It was reported that “Apple CEO Tim Cook called China a ‘very important market for us,’ and said ‘customer response to [the] iPhone 5 in China has been incredible.’”

Within a month, though, it was announced on January 3, 2013, that U.S. Customs and Border Protection officials seized counterfeit Apple adapters and USB cables in Anchorage, Alaska. Arriving by plane from China, the goods looked like “iPhone 5 USB ‘lightning’ connector...

2 Ibid.
cables and adapters [and] the products included fake Apple logos and Underwriters Laboratories (UL) trademark icons.”

The opportunity-challenge relationship between Apple and China has continued. For example, a month before it hit the market, Chinese counterfeiters already were offering Apple Watch lookalikes at a fraction of the selling price of the real thing, with some being offered on the counterfeit-plagued Taobao operated by Alibaba.

Meanwhile, at the end of April 2015, it was reported that Apple registered record sales from its Greater China sales region – thanks largely to the iPhone – with analysts pointing out that China stands out as Apple’s key growth market, and it could soon become the company’s largest market.

Of course, Apple has the resources and revenues to survive and fight IP thieves. The same, of course, cannot be said of small businesses. There are countless examples of small businesses finding unprecedented success via new technologies – both domestically and internationally – as well as facing costly challenges in protecting the IP.

In this global, knowledge-based, innovation-driven economy of the twenty-first century, a great deal of emphasis is placed on intellectual property – from large firms to small, entrepreneurial ventures – and for good reason.

In economics, business, government and public policy, it’s common to hear that it is imperative to establish, protect and enforce intellectual property rights. Yet, some

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4 Ibid.
observers actually are rather cavalier towards intellectual property rights, with a few even asserting that protecting intellectual property is counter-productive.

Let’s first define what we are talking about exactly.

Private property rights provide the property owner with the rights to the use of property (that is, possession, use and control); to legal protection against those who would invade or infringe upon that property without the owner’s permission; and to trade or transfer that property.\(^7\)

Through copyrights, patents and trademarks, legal protections are extended to the intellectual property of individuals and businesses. As defined by the *New Oxford American Dictionary*, intellectual property is “a work or invention that is the result of creativity, such as a manuscript or a design, to which one has rights and for which one may apply for a patent, copyright, trademark, etc.”

The World Intellectual Property Organization offered a more comprehensive explanation of intellectual property:

> “Intellectual property (IP) refers to creations of the mind: inventions, literary and artistic works, and symbols, names, images, and designs used in commerce. IP is divided into two categories: Industrial property, which includes inventions (patents), trademarks, industrial designs, and geographic indications of source; and Copyright, which includes literary and artistic works such as novels, poems and plays, films, musical works, artistic works such as drawings, paintings, photographs and sculptures, and architectural designs. Rights related to copyright include those of performing artists in their performances,

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producers of phonograms in their recordings, and those of broadcasters in their radio and television programs.”

In any economy, a central function of government is to protect private property. Specifically, the law must secure private property from violations by either government or other private actors. These property rights serve as a foundation for what might be called the four “I’s” – investment, improvement, innovation, and invention. After all, why invest, improve, innovate or invent, if others are free, in effect, to steal those investments, improvements, innovations or inventions? There must be the expectation of a return for one’s labor and capital. Without the establishment, protection and enforcement of property rights, economies, at best, simply stagnate and suffer relative decline. It’s natural to see how property rights extend from physical property to intellectual property.

Nonetheless, plenty of people inside and outside the U.S. fail to understand or choose to ignore the importance of intellectual property, and/or willfully violate rights when it comes to IP.

But just how different is the violation of physical property and intellectual property? Consider two scenarios, again, pertaining to the music business, but could just as easily play out in similar fashion for a movie, book, or TV show.

Scenario 1: Late one night, you happen to be strolling by a retail store advertising the arrival of the latest release from your favorite band. The store is open, but you don’t have any cash handy. At the same time, though, you really want to hear

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and possess those new songs. Inside the store, a clerk is paying absolutely no attention to what’s going on, and you notice no electronic detector at the door. In a few seconds, you have found the CD, slip it into your coat, and off you go, ready for a pleasant night of music listening.

Scenario 2: Late one night, you’re sitting on the couch cruising the Internet on a laptop, tablet or phone, and you discover that the new release from your favorite band came out earlier in the day. Without thinking about copyright, you quickly go to your preferred peer-to-peer site or digital storage locker. The songs are on your hard drive in just a few minutes, and you paid nothing. You’re ready for a pleasant night of music listening.

Is there really a moral, ethical or economic difference between these two acts? Most people would not even consider shoplifting, as in Scenario 1, but many of the very same people have no problem with or have played out the same or similar actions as in Scenario 2.

For most people, it’s clearly wrong to steal a CD from a store. Yet, millions of individuals apparently have no qualms about ignoring copyright laws and protections by going online to steal the very same songs that were on the CD. In the end, whether shoplifting a CD, buying a bootlegged CD from the back of someone’s van, or downloading copyrighted music without paying, it’s all the same – it’s stealing. Specifically, what we’re talking about is the theft of intellectual property, and the negative impact spreads to those who compose, perform and produce music directly, as well as to all of the businesses – most of them small firms, as we shall see later – and employees that work with and serve those in the music business.
Again, the same, of course, goes for computer software, movies, books, video games, and so many other products. And given how important these and other IP industries are to the U.S., IP theft undermines our own economy, entrepreneurs, businesses and jobs.

At the same time, though, we must not lose sight of the unprecedented expansion of opportunity for IP creators and owners served up by advancements in telecommunications, digital and computer technologies, for example, along with increased globalization. Entrepreneurs and other creators in the music, software, movie, book, video, and gaming industries have avenues for distribution and sales now that were unimaginable by most not that long ago. The opportunities are breathtaking.

In a February 2004 speech at the Stanford Institute for Economic Policy Research Economic Summit in California, then-Federal Reserve Board Chairman Alan Greenspan summed up the increasing importance of IP to the U.S. economy:

“Over the past half-century, the increase in the value of raw materials has accounted for only a fraction of the overall growth of U.S. gross domestic product (GDP). The rest of that growth reflects the embodiment of ideas in products and services that consumers value. This shift of emphasis from physical materials to ideas as the core of value creation appears to have accelerated in recent decades... If the form of protection afforded to intellectual property rights affects economic growth, it must do so by increasing the underlying pace of output per labor hour, our measure of productivity growth. Ideas are at the center of productivity growth. Multifactor productivity by definition attempts to capture
product innovations and insights in the way that capital and labor are organized to produce output. Ideas are also embodied directly in the capital that we employ. In essence, the growth of productivity attributable to factors other than indigenous natural resources and labor skill, is largely a measure of the contribution of ideas to economic growth and to our standards of living.”

More than a dozen years since Greenspan’s address, that process has only further accelerated.

In the same speech, Greenspan observed: “Market economies require a rule of law. A society without state protection of individual rights, especially the right to own property, would not build private long-term assets, a key ingredient of a growing modern economy.” Hence, the imperative to establish and protect IP rights.

As we shall see in the rest of this book, protecting IP is a very big deal for U.S. competitiveness, investment, innovation, economic and income growth, entrepreneurs, businesses and workers.

When it comes to the twenty-first century’s IP economy, let’s strive to paraphrase Dickens by stating: It is the best of times, it will be a time of great opportunity as long as it is the age of wisdom when it comes to protecting intellectual property.

By the way, Charles Dickens was a victim of intellectual property theft. When he visited the U.S. in 1842, Dickens, who was wildly popular with Americans, spoke of the need for international copyright protection, as at the time, books published in other countries could be taken without the author’s permission and re-printed in the U.S. It was not until the International Copyright Act of 1891 was passed that copyright protections were provided to foreign copyright holders in the U.S. – long after Dickens’ death in 1870.
2

IP Intensity in the Marketplace

Small Business and IP...

The music business ranks as an IP-intensive industry, and it has historic IP challenges. Consider one aspect of the industry from an April 30, 2015, Tampa Tribune op-ed by Cary Sherman, chairman and CEO of the Recording Industry Association of America. Sherman wrote: “Even more so than the broader music industry, the Latin market has endured an incredibly challenging 15 years. Latin music revenues have plummeted from $627 million in 2000, to $109 million this past year. More than for any other genre, rampant piracy — both traditional CD counterfeiting and digital piracy — has beset Latin music, and Florida’s Latin music labels have been forced to shed hundreds of jobs. It’s a testament to the power of Latin music that despite these painful reductions, the genre continues to enjoy a durable appeal throughout Florida and the entire United States... Last week, the Florida Legislature took a modest but important step to help the Latin music community, the vibrant Florida filmmaking community and, more importantly, consumers. By an overwhelming bipartisan margin, the Florida House and Senate passed
the True Origin of Digital Goods Act, a bill that would require websites that exist primarily to sell downloads of commercial movies and music to Florida citizens to simply inform consumers of their name and address — just as other retailers, including websites that sell CDs, already must do under Florida law. We all know that the Web has become a powerful and central vehicle for communication, commerce and culture. The Internet is where we live. For all it has unleashed, we also know that criminals prey upon the very openness we cherish. These criminals set up scam sites, usually rife with malware and viruses, and hawk illegal movies and music. Disclosure and transparency can be powerful tools... That’s all this legislation requires — disclosure — and only for websites that focus on offering commercial music and movies created by others. The legal remedy is consistent with existing law, is modest and only applies to the website operator, leaving all other parties — including Internet services and providers — immune to any claim... Fundamentally, this bill is about jobs. It’s about keeping Florida’s creative economy alive and protected from criminals who would benefit as Florida and its consumers lose.”

Governor Rick Scott signed the measure into law.

It’s hard to think of a business that is not directly — or at least, indirectly — involved in an industry where intellectual property plays an important role. That’s not surprising when considering the realities, including the numbers, regarding IP in the economy.

industries” and estimated their contributions to the U.S. economy.

Of a total of 313 industries, 75 were classified as IP-intensive.

Consider the size and role of patent-intensive industries.

Patents are defined by the USPTO as “a property right granted by the Government of the United States of America to an inventor ‘to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States’ for a limited time in exchange for public disclosure of the invention when the patent is granted.” It’s also noted that patents “are granted for new, useful and non-obvious inventions for a period of 20 years from the filing date of a patent application.”

The Commerce study focuses on utility patents, and only those issued to U.S. manufacturing corporations, “which accounted for about 45 percent of total patents issued between fiscal years (FY) 2004 and 2008 and 87 percent of all U.S.-owned patents for this time period.”

The study labeled “patent-intensive industries as ones with above-average patent intensity (patent/job ratio) when comparing all industries.” Those broad industry categories were:

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9 As noted in the study: “In addition to utility patents, there are two other types of patents: design and plant. Utility patents apply to processes, machines, articles of manufacture, composition of matter, or any new and useful improvements thereof. Design patents apply to ornamental designs for an article of manufacture. Plant patents apply to the invention or discovery of selected new varieties of asexually reproducing plants.”
<table>
<thead>
<tr>
<th>Industry Title</th>
<th>Patent Intensity (patents/1000 jobs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer and peripheral equipment</td>
<td>277.5</td>
</tr>
<tr>
<td>Communications equipment</td>
<td>264.8</td>
</tr>
<tr>
<td>Semiconductor and other electronic equipment</td>
<td>111.6</td>
</tr>
<tr>
<td>Other computer and electronic products</td>
<td>108.5</td>
</tr>
<tr>
<td>Navigational, measuring, electromedical, and control instruments</td>
<td>96.1</td>
</tr>
<tr>
<td>Basic chemicals</td>
<td>80.2</td>
</tr>
<tr>
<td>Electrical equipment, appliance and components</td>
<td>54.3</td>
</tr>
<tr>
<td>Pharmaceutical and medicines</td>
<td>46.8</td>
</tr>
<tr>
<td>Other miscellaneous</td>
<td>37.5</td>
</tr>
<tr>
<td>Other chemical products and preparation</td>
<td>32.4</td>
</tr>
<tr>
<td>Medical equipment and supplies</td>
<td>32.0</td>
</tr>
<tr>
<td>Machinery</td>
<td>31.6</td>
</tr>
<tr>
<td>Resin, synthetic rubber, fibers and filaments</td>
<td>26.0</td>
</tr>
</tbody>
</table>


The study also looked at trademark-intensive industries.

The USPTO defines trademarks as protecting “words, names, symbols, sounds, or colors that distinguish goods and services from those manufactured or sold by others.
and to indicate the source of the goods. Trademarks, unlike patents, can be renewed forever as long as they are being used in commerce.” As for trademarks in the Commerce report, it is pointed out, “Unlike patents, there is little academic research examining industry use of trademarks. Accordingly, this report offers what may be the first comprehensive analysis of trademark use by U.S. industries that is grounded in original research, data, and measurement theory.”

It was acknowledged, “Industries throughout the economy rely on trademarks registered at the USPTO to protect brands for the goods and services they market.” Trademark-intensive industries were identified as having a trademark-intensity measure (trademarks relative to employees) above the sample industry mean. Out of 235 industries, 55 were classified as trademark intensive. The top 15 were:
<table>
<thead>
<tr>
<th>Industry Title</th>
<th>Trademark Intensity (trademarks/1000 workers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio &amp; video equipment mfg.</td>
<td>82.5</td>
</tr>
<tr>
<td>Other miscellaneous manufacturing</td>
<td>64.5</td>
</tr>
<tr>
<td>Satellite telecommunications</td>
<td>35.3</td>
</tr>
<tr>
<td>Lessors of nonfinancial intangible assets</td>
<td>33.3</td>
</tr>
<tr>
<td>Other information services</td>
<td>14.8</td>
</tr>
<tr>
<td>Travel arrangement &amp; reservation</td>
<td>13.5</td>
</tr>
<tr>
<td>Other telecommunications</td>
<td>12.4</td>
</tr>
<tr>
<td>Lessors of real estate</td>
<td>11.2</td>
</tr>
<tr>
<td>Software publishers</td>
<td>8.2</td>
</tr>
<tr>
<td>Electronic shopping &amp; mail-order houses</td>
<td>7.7</td>
</tr>
<tr>
<td>Soap, cleaning compound &amp; toiletries</td>
<td>7.4</td>
</tr>
<tr>
<td>Cutlery &amp; handtool manufacturing</td>
<td>7.3</td>
</tr>
<tr>
<td>Other general purpose machinery manufacturing</td>
<td>6.1</td>
</tr>
<tr>
<td>Medical equipment &amp; supplies manufacturing</td>
<td>5.9</td>
</tr>
<tr>
<td>Newspaper, book &amp; directory publishing</td>
<td>5.8</td>
</tr>
</tbody>
</table>


Finally, there is the matter of copyright.
The USPTO notes that copyright “protects works of authorship, such as writings, music, and works of art that have been tangibly expressed.” A copyright lasts for the life of the author plus 70 years. The Commerce study focused on “the set of industries that are primarily responsible for the creation or production of copyrighted materials and designate them as copyright-intensive.”

Those industries are:

- Newspaper, periodical, book and directory and publishing
- Software publishers
- Motion picture and video industries
- Sound recording industries
- Radio and television broadcasting
- Cable and other subscription programming
- Other information services (news syndicates and Internet sites)
- Specialized design services (visual and graphic arts)
- Computer systems design and related services (software and databases)
- Advertising, public relations, and related services
- Other professional, scientific, and technical services (photography and translation)
- Performing arts companies
- Independent artists, writers, performers

Overall, it was reported that the full slate of IP-intensive industries account for 35 percent of GDP, and 28 percent of all jobs in the economy.

At the same time, however, it must be understood that this comes up short as to the full IP story in the U.S. economy. As noted in the study: “Because all U.S. industries rely on IP to some degree, the statistics reported here for the sectors that use IP most intensively may tend to under-represent the broad impact of IP in the American
Moreover, the statistics reported here may not fully reflect the long-run economic benefits and costs of IP in promoting innovation and productivity growth. For example, while this report shows that employment in trademark-intensive industries is almost six times as great as employment in patent-intensive industries, it may be that the kinds of innovation protected by patents play a larger role in driving the long-run growth of productivity throughout the economy.”

Consider also that over the four most recent years, growth in IP filings ran ahead of economic growth in general, according to data from the World Intellectual Property Organization and the World Bank.

As reported in WIPO’s “World Intellectual Property Indicators,” after declining by 3.5 percent in 2009, global patent applications increased by 7.3 percent in 2010, 8.1 percent in 2011, 9.3 percent in 2012, 9.0 percent in 2013, and 4.5 percent in 2014.

As for trademark applications and registrations, declines of 0.8 percent and 1.3 percent in 2008 and 2009, respectively, applications increased by 13.3 percent in 2010, 13.4 percent in 2011, 6.5 percent in 2012, 7.6 percent in 2013, and 6.9 percent in 2014.

As for the U.S. in particular (according to WIPO’s “Statistical Country Profiles: United States of America” at http://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=US, accessed in February 2016), annual U.S. patent applications grew from 1997 to 2007, but declined in both 2008 and 2009, by -5.7 percent and -12.3 percent, respectively during the U.S. recession. Growth then resumed, with increases of 12.4 percent in 2010, 10.2 percent in 2011, 3.5 percent in 2012, 5.8 percent in 2013, and 1.7 percent in 2014.

Meanwhile, annual trademark applications grew from 1997 to 2000, declined dramatically in 2001 and 2002 during a poor economy, and resumed growth from 2003 to
2007. But with the recession, like patents, trademark applications declined in 2008 and 2009, by -4.0 percent and -8.6 percent, respectively, with growth resuming at 5.3 percent in 2010, 8.4 percent in 2011, 2.0 percent in 2012, 3.4 percent in 2013, and 0.9 percent in 2014.

Even during recent tough economic times, growth in IP industries has become essential to U.S. economic growth, as well as for and reflecting the health of small business, as will be further highlighted in the next two chapters.
3

IP in
the U.S. Economy

Small Business and IP...

According to Forbes’ 2015 “World’s Largest Public Companies List,” Apple was first in market value and Microsoft fifth. These leading technology businesses rose from small beginnings. Steve Jobs and Steve Wozniak started Apple in Jobs’ garage. Bill Gates and Paul Allen formed Microsoft as Gates wrote code at Harvard. Regarding IP, Gates was called a “copyright guru” for keeping control of copyrights as he started up the business.\(^\text{10}\) In a talk at the 2013 Microsoft Research Faculty Summit, regarding his foundation working with drug companies to treat diseases, Gates said, “Thank God for patent laws that allow them to invent drugs...”\(^\text{11}\) As noted in Steve Jobs by Walter Isaacson, Jobs declared, “If protection of intellectual property begins to disappear, creative companies will disappear or never get started.”

\(^\text{11}\) See video at www.youtube.com/watch?v=YLUQ228sgJI.
No matter how the numbers differ from study to study, from estimate to estimate, the important role that intellectual property plays in the twenty-first-century economy comes through loud and clear.

IP represents a major share of the U.S. economy, while also being an area for high-valued, robust growth. For good measure, IP industries provide a big share of exports, a large portion of U.S. jobs, and pay a premium in terms of salaries and wages.

A wide range of economic studies has provided fascinating estimates on the economic impact of IP.

In April 2005, for example, the International Intellectual Property Alliance issued a valuable survey of findings regarding the role copyright industries play in economic development.\textsuperscript{12} The key point was: “The general consensus among economists and scholars is that enhanced copyright protection leads to positive economic growth. The statistical evidence suggests that economies with stronger copyright protection experience a greater contribution to GDP from those sectors.”

Following are key findings worth noting from the IIPA survey, not just about copyright, but also patents and IP protections in general:

- “An adequate and effective copyright regime creates jobs in developing countries, creates taxable income for the governments of those countries, and compels foreign investment by assuring protection for the investors’ intellectual property.”

- Economist Keith Maskus “notes that copyright protected products have extremely high investment costs but very

low copying costs, and points out the detrimental effects of
a regime that would allow piracy: ‘If other members of
society were allowed to free ride on works without
compensating their creators, the incentives to create would
be severely dampened...’ Maskus offers statistical
evidence of increased international trade in goods
protected by intellectual property rights in both developed
and developing countries.”

• “The strong suggestion is that strengthened IPRs [that
is, intellectual property rights] contribute to positive
growth by creating more attractive [foreign direct
investment] opportunities for foreign investors and thus
create a spill-over which leads to greater domestic growth.
Maskus identifies four implications of this dynamic. First,
weaker IPR regimes tend to isolate countries from
technological advances, including computer software
advances protected by copyright. Secondly, those countries
with weaker protection of IPRs receive fewer spillover
benefits that new technologies would bring. Third, the
technologies that are available to such countries tend to be
out of date. Finally, and perhaps most importantly,
countries with weak IPRs provide almost no incentive to
their people to create or innovate, nor do they attract new
technological investment.” (Emphasis added.)

• A 2005 study by World Bank economist “Smarzynska
Javorcik concludes that weak IPR protection acts as a
deterrent for investors. Furthermore, “[t]here is also some
evidence that weak IPR protection may discourage all
investors, not just those in the sensitive sectors.’ Finally,
Smarzynska Javorcik finds that where there is a ‘lack of
IPR protection,’ investors are discouraged ‘from
undertaking local production and encourag[ed]... to focus
on distribution of imported products.’ As with the general
statement about IPR protection, ‘this effect is present in all sectors, not only those relying heavily on IPR protection.”

- Economist Edwin Mansfield found that “IPR protection afforded by the patent system provides a way for inventors to get back some of the benefits to society at large that would not be theirs were there no patent system at all. Mansfield’s findings indicate that the existence of the patent system is thought to be crucial for innovation in both the chemical and drug industries.”

- Economists Claude E. Barfield and Mark A. Groombridge “make the compelling point that the kinds of growth the United States has seen as a result of the contribution of the copyright industries, will go to any country that institutes a strong intellectual property regime.”

- “The general consensus of the academic literature is that stronger copyright protection contributes to positive growth. This is arguably the case regardless of a country’s level of development. Strong intellectual property rights provide incentives for local creators to bring the products of their mind to their local markets. By doing so, they help to lay the groundwork, in their countries, for strong growth the likes of which have been seen in countries which have effective regimes for IPR protection.”

Subsequently, various studies have reconfirmed the importance of IP rights and protections for economic growth, incomes, jobs, investment, trade, etc. Consider the key findings from various studies published over the last few years that provide a powerful message as to IP and the economy.

- In 2005, Stephen E. Siwek and Economists Incorporated did a study commissioned by NBC Universal titled
“Engines of Growth: Economic Contributions of the US Intellectual Property Industries.” It was billed as “the first study that quantifies the economic contributions of intellectual property (IP) industries to the U.S. economy.” Among the key findings were:

1) IP industries “had an approximate 20% share of U.S. private industry GDP in 2003,” but were “responsible for nearly 40% of the growth achieved by all of U.S. private industry during that year.”

2) IP industries “had approximately 40% of the GDP of U.S. exportable products and services yet contributed nearly 60% to the growth of the U.S. exportable high-value-add products and services.”

3) IP industries “are essential to the future growth of the U.S. economy. GDP 10-year growth estimates would be approximately 30% lower than current predictions without the contributions of the IP industries.”

4) IP industries account for nearly 18 million workers, and pay higher wages than most other industries.

5) “For all IP industries, gross exports in 2004 exceeded $455 billion.”

• In the Economic Report of the President 2006, an essay titled “The Role of Intellectual Property in the Economy” served as an excellent primer on intellectual property’s economic significance.

   It was reported that IP industries, that is, those “highly dependent” on patent or copyright protections, “represented approximately 17.3 percent of total U.S. economic activity and approximately one-fifth of private economic activity” in 2003.
As for public firms, it was noted, “Intellectual property accounts for approximately 33 percent of the value” of publicly traded U.S. corporations, and in all, the value of IP in the U.S. could top $5 trillion. But this estimate excluded trademarks due to the difficulty in separating the value of trademarks from the value of branding. It was pointed out that “the combined value of branding and trademarks represents approximately 14 percent of the total value of publicly traded U.S. firms.”

Indeed, it was noted that the economic importance of IP is under-estimated in the analysis, as “many industries that are not counted among the intellectual property industries ... generate innovations and rely on patent and other intellectual property protection to create incentives for innovation and growth.” In addition, the economy still benefits from previous IP advances even though IP protections have expired, and the information and innovations have moved into the public domain.

Robust growth in the IP sector was highlighted as well: “Other studies have indicated that intellectual property-related industries tend to grow at approximately twice the rate of the economy as a whole and are an important contributing factor not only to the productivity growth of the intellectual property-related sectors of the economy but also to the growth of all sectors of the economy.”

And then there is IP’s role in U.S. trade. From 1991 to 2002, but for one year, “exports from copyright industries grew at a faster rate than total exports” — on average six percentage points higher and becoming “an increasing share of our total exports.”

And finally, other studies highlighted made clear the “direct link between greater intellectual property protection and capital investment.”

- In April 2010, NDP Consulting published a study titled “The Impact of Innovation and the Role of Intellectual
Property Rights on U.S. Productivity, Competitiveness, Jobs, Wages, and Exports.” It provided a wealth of information on IP and the economy, but it’s worth highlighting here key points on trade and investment.

On trade: “IP-intensive industries promote exports and America’s competitiveness abroad. Investment in IP creates new products and services that strengthen America’s competitiveness in global markets. IP-intensive industries, which made up nearly half of output and sales of all 27 U.S. tradable industries and employed more than 30 percent of American workers in all 27 tradable industries, accounted for about 60 percent of total U.S. exports. During 2000-07, the annual value of exports per employee in IP-intensive industries was 235 percent higher (3.4 times) than in non-IP-intensive industries, $91,607 and $27,369, respectively. Employment and economic activities to support exports in IP-intensive industries were also higher than in non-IP-intensive industries.”

And on investment: “IP-intensive industries create jobs and spur economic growth resulting from high investments in research and development (R&D) in comparison to non-IP-intensive industries. While the direct outputs of R&D are typically the development of new forms of intellectual property, R&D spending also affects the economy by creating jobs and economic activities in R&D industries as well as in their supporting industries. During 2000-07, IP-intensive industries spent almost 13 times the R&D per employee that non-IP-intensive industries spent—averaging $27,839 and $2,164 per employee per year, respectively.”

- In January 2011, NDP Consulting published a study titled “Employment and Gross Output of Intellectual Property Companies in the United States.”

As for economic output, the key findings were: “IP companies in the manufacturing and non-manufacturing
sectors generated more than $7.6 trillion in gross output in 2008, accounting for 33.1 percent of total U.S. gross output. IP companies in the manufacturing sector alone generated $3.9 trillion in output, constituting 75.2 percent of total U.S. manufacturing output. IP companies in the non-manufacturing sector generated $3.7 trillion in output, accounting for 20.8 percent of U.S. non-manufacturing gross output.”

And in terms of employment: “Based on the latest U.S. official data, we estimate that, in 2008, IP companies in manufacturing and non-manufacturing sectors employed more than 19 million full- and part-time (headcounts) workers and accounted for 16.3 percent of U.S. full- and part-time employment. Nearly 70 percent of U.S. manufacturing jobs and 9.3 million workers (full- and part-time) were in IP companies and less than 10 percent of U.S. non-manufacturing jobs and 9.8 million workers (full- and part-time) were in IP companies.”

• In the World Intellectual Property Organization’s “2011 World Intellectual Property Report: The Changing Face of Innovation,” the role that IP rights play in explaining differences in income between nations was laid out. It was reported, “As early as the mid-1990s, the economic literature suggested that innovation accounted for 80 percent of productivity growth in high-income economies; whereas productivity growth, in turn, accounted for some 80 percent of gross domestic product (GDP) growth.” In addition, it was stated: “Differences in innovative activity and related technological gaps between countries are a significant factor in explaining cross-country variation in income and productivity levels. According to several studies, roughly half of cross-country differences in per capita income and growth can be explained by differences in total factor productivity, a measure of an economy’s long-term technological change or dynamism.”
• In a 2011 study, economists Kevin A. Hassett and Robert J. Shapiro looked at IP assets for the entire U.S. economy, while also identifying key industries. They found, “The value of the intangible assets – which includes intellectual capital plus economic competencies – in the U.S. economy totals an estimated $14.5 trillion in 2011.”

Looking at 24 industries, the authors reported that “the ten with the largest stocks of intellectual capital are energy; software and software services; insurance and other finance; capital goods; pharmaceuticals, biotech and life sciences; technology hardware and equipment; food, beverages and tobacco; media; materials; and healthcare equipment and services.”

Hassett and Shapiro also noted, “The ten industries whose intellectual capital represents at least 50 percent of their market value – the ten most intellectual-capital-intensive industries – are media; telecommunications services; automobiles and components; household and personal products; food, beverages and tobacco; commercial and professional services; software and services; healthcare equipment and services; pharmaceuticals, biotech and life sciences; and consumer services.”

• As noted in the previous chapter, the 2012 report titled “Intellectual Property and the U.S. Economy: Industries in Focus,” published by the U.S. Department of Commerce, and prepared by the Economics and Statistics Administration and the United States Patent and Trademark Office, found that “IP-intensive industries” are major contributors to GDP and jobs. Specifically, IP-intensive industries “contributed 34.8 percent to gross

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domestic product (GDP), with total value added of $5.06 trillion in 2010,” while “[d]irect employment in the subset of most IP-intensive industries ... amounted to 27.1 million jobs in 2010, while indirect activities associated with these industries provided an additional 12.9 million jobs throughout the economy in 2010, for a total of 40.0 million jobs, or 27.7 percent of all jobs in the economy.”

A further breakdown on employment pointed to copyright industries providing big job gains. As reported, “Due primarily to historic losses in manufacturing jobs, overall employment in IP-intensive industries has lagged other industries during the last two decades... [However,] copyright-intensive industries provided a sizeable employment boost, growing by 46.3 percent between 1990 and 2011.” That was more than twice the rate of non-IP-intensive industries.

More recently, IP-intensive industries have been ahead of general job creation: “Between 2010 and 2011, the economic recovery led to a 1.6 percent increase in direct employment in IP-intensive industries, faster than the 1.0 percent growth in non-IP-intensive industries. Growth in copyright-intensive industries (2.4 percent), patent-intensive industries (2.3 percent), and trademark-intensive industries (1.1 percent) all outpaced gains in non-IP-intensive industries.”

For good measure, employment in IP-intensive industries paid better – by significant margins. It was reported in the study: “Average weekly wages for IP-intensive industries were $1,156 in 2010 or 42 percent higher than the $815 average weekly wages in other (non-IP-intensive) private industries. This wage premium nearly doubled from 22 percent in 1990 to 42 percent by 2010. Patent- and copyright-intensive industries have seen particularly fast wage growth in recent years, with the wage premium in patent-intensive industries increasing from 66 percent in 2005 to 73 percent in 2010, and the
premium in copyright-intensive industries rising from 65 percent to 77 percent.”

Once again, IP proves to be critical to U.S. trade. It was noted that 60.7 percent of U.S. merchandise exports came from IP-intensive industries in 2010, and despite limits on data, that 19 percent of U.S. private services exports came from IP-intensive service-providing industries in 2007.

- In May 2012, the U.S. Chamber of Commerce Global Intellectual Property Center (GIPC) published a report titled “IP Creates Jobs for America.” This analysis was unique in that it broke out the impact of intellectual property on jobs, output, wages, and exports on a state-by-state basis.

  The GIPC study found that, nationally, IP-intensive industries accounted for 55.7 million direct and indirect jobs, generated more than $5 trillion in GDP, and produced 74 percent of total U.S. exports.

  As for the state aspect, it’s worth noting the IP impact in the four largest states – California, Texas, New York and Florida.

  - In California, 7.38 million jobs, or 55 percent of private sector employment, are supported by IP, while 58 percent, or $922.8 billion, of economic output is created by IP-intensive firms. In addition, 76.8 percent of exports are IP exports. Average wages in IP-intensive companies are higher than non-IP businesses – $65,171 and $47,571, respectively.

  - In Texas, 4.61 million jobs, or 49 percent of private sector employment, are supported by IP, while 54 percent, or $541.3 billion, of economic output is created by IP-intensive firms. In addition, 85.4 percent of exports are IP exports. Average wages in IP-intensive companies are
higher than non-IP businesses – $55,148 and $41,320, respectively.

- In New York, 2.78 million jobs, or 36 percent of private sector employment, is supported by IP, while 49 percent, or $385.8 billion, of economic output is created by IP-intensive firms. In addition, 63.7 percent of exports are IP exports. Average wages in IP-intensive companies are higher than non-IP businesses – $69,581 and $53,660, respectively.

- In Florida, 2.05 million jobs, or 28 percent of private sector employment, is supported by IP, while 36 percent, or $225.5 billion, of economic output is created by IP-intensive firms. In addition, 75.3 percent of exports are IP exports. Average wages in IP-intensive companies are higher than non-IP businesses – $49,550 and $36,366, respectively.

• The 2014 edition of “Copyright Industries in the U.S. Economy,” prepared by Economists Incorporated for the International Intellectual Property Alliance, reported seven key findings:

1) “In 2013, the value added by the core copyright industries to U.S. GDP reached more than $1.1 trillion dollars ($1,126.59 billion), accounting for 6.71% of the U.S. economy.”

2) “In 2013, the value added by the total copyright industries to GDP exceeded $1.9 trillion ($1,922 billion), accounting for 11.44% of the U.S. economy.”

3) “The core copyright industries employed nearly 5.5 million workers in 2013, accounting for 4.03% of the entire
U.S. workforce, and nearly 4.81% of total private employment in the U.S.”

4) “The average annual 2013 compensation paid to core copyright workers – $87,860 – far exceeds the average annual compensation paid to all U.S. workers – $65,723 – amounting to a 34% ‘compensation premium’ over the average U.S. annual wage.”

5) “The total copyright industries employed more than 11.2 million workers in 2013, accounting for 8.26% of all U.S. employment, or 9.85% of all private employment in the United States. The average annual compensation paid to employees of the total copyright industries in 2013, $77,942, exceeds the U.S. average annual wage by around 19%.”

6) “During the period 2009-2013, the core copyright industries grew at an aggregate annual rate of 3.9%. The average annual growth rate of the entire U.S. economy over the same period was only 2.25%. The core copyright industries grew at a rate more than 70% greater than the remainder of the U.S. economy.”

7) “During the same period, the total copyright industries grew at an annual rate of 3.45%, also well surpassing the growth rate for the remainder of the U.S. economy.”

• According to “Infinite Possibilities: U.S. Chamber International IP Index” (Fourth Edition, February 2016) published by the U.S. Chamber’s Global Intellectual Policy Center, the United States scored the best IP environment among 38 economies. As explained: “The Index covers all major forms of IP rights from patents, copyright, and trademarks to trade secrets and membership in
international IP treaties.” Each economy is measured according to 30 different measures.

As for why this matters, it was noted in the report:

- “Economies with state-of-the-art IP environments produce nearly 70% more innovative output.”

- “The top 10 economies in the Index exhibit patenting rates more than 30 times greater than the Index’s bottom 10 economies.”

- “Firms in economies with advanced IP rights in place are nearly 50% more likely to invest in R&D activities.”

- “Economies with favorable IP protection possess on average 2.5 times more research and development (R&D)-focused personnel within their workforces.”

- “Economies with robust IP regimes are more likely to attract venture capital and private equity funding.”

- To sum up: “Countries with a legal framework underpinned by robust IP protection create infinite possibilities to foster economic growth and global competitiveness.”

The importance of IP to the U.S. economy was perhaps made most clear in mid-2013. The U.S. Bureau of Economic Analysis periodically revises and updates its measurement of gross domestic product (GDP). The 2013 revision to the data actually updating the estimates going back to 1929. That revision sought to more accurately capture the role of intellectual property in the economy. As noted in the GDP release, the comprehensive revision included the following changes in definitions, classifications and presentations:
• “[E]xpenditures by private enterprises for the creation of entertainment, literary, and artistic originals are recognized as fixed investment, further expanding BEA’s measures of intangible assets.”

• “In the NIPA fixed investment tables, a new category of investment, ‘intellectual property products,’ consists of research and development; entertainment, literary, and artistic originals; and software.”

In terms of the revisions, the key results were: “For 1929–2012, the average annual growth rate of real GDP was 3.3 percent, 0.1 percentage point higher than in the previously published estimates. For the more recent period, 2002–2012, the growth rate was 1.8 percent, 0.2 percentage point higher than in the previously published estimates... For 2009–2012, the average annual growth rate of real GDP was 2.4 percent, 0.3 percentage point higher than in the previously published estimates. The percent change in real GDP was revised up 0.1 percentage point for 2010, was unrevised for 2011, and was revised up 0.6 percentage point for 2012.”

Consider that over the most recent dozen years, from 2004 to 2015, the rate of growth in real investment in intellectual property products exceeded the overall GDP growth rate in 11 of those years. In fact, that’s been the case in 17 of the past 20 years as well.

Also, consider that the average annual real growth rate in IP investment from 2004 to 2015 came in at 3.9 percent. That was well ahead of the average rate of 1.8 percent for overall real GDP growth, and the 1.8 percent rate of real growth in fixed private investment.

An even longer view – the four decades covering 1976 to 2015 – shows an average annual growth rate in real IP investment of 6.5 percent. That compared to an annual
average 3.8 percent growth rate in private fixed investment, and annual average real GDP growth of 2.8 percent.

All of this speaks to the resiliency, robustness and importance of IP industries to the U.S. economy.

Indeed, IP matters to economic growth on an international level, the national level, by state, and therefore, right down to local cities and towns. In turn, it must be understood that the significant role that IP plays in the economy, and the major economic role of small business, mean that IP and small business basically go hand in hand. That is made clear in the following chapter, as well as in chapters focused on specific IP industries.
4
IP Matters Most to Small Business

Small Business and IP...

SylvanSport was founded in 2004, as noted on the company’s website, “to develop great gear, to support our evolving sense of adventure.” The SylvanSport GO multi-use camping trailer, launched in 2007, has been “hailed by National Geographic Adventure as the Coolest Camper. Ever.” SylvanSport has earned awards from Men's Journal, National Geographic, and IDEA (International Design Excellence Awards). But as reported in The Wall Street Journal (“Entrepreneurs Bemoan Counterfeit Goods,” April 28, 2014), the company has faced IP theft: “In 2012, SylvanSport Inc. founder Thomas Dempsey says he thought he succeeded in getting Alibaba.com to remove listing for a China-made recreational camper-trailer that closely resembled a product he had designed, after he showed proof of his company’s patent filings in the U.S.” As of the report, though, counterfeits were still being sold. Dempsey worried about confused customers and lost business, and noted that chasing down copycats “would be a full-time job.”
What does it really mean when someone says, “Small businesses are the backbone of the economy”? It’s not unusual to hear politicians making such proclamations, for example. Is it mere rhetoric, devoid of any substance?

Actually, when elected officials sing praises about small business, they’re absolutely correct. In fact, the centrality of the entrepreneurial sector to the U.S. economy was the case yesterday, is the case even more so today, and if the U.S. remains friendly to entrepreneurship – including protecting property rights – then it promises to be increasingly the case far into the future.

The Small Business Administration’s Office of Advocacy – in its “Frequently Asked Questions” (March 2014) publication – notes that of the nation’s 28.2 million businesses, 99.9 percent had fewer than 500 employees. If that does not make clear that the U.S. economy is a small business economy, it’s hard to figure out what might.

But there’s more. Small businesses generate 46 percent of private-sector output, account for 98 percent of all identified exporters, and employ 42 percent of private payrolls. And in terms of job creation, small firms created 63 percent of net new jobs over the period of 1993 to mid-2013, according to the SBA.

Another recent study focused on the role start-ups play on the employment front. In July 2010, the Kauffman Foundation published “The Importance of Startups in Job Creation and Job Destruction” by economist Tim Kane. Using “a relatively new dataset from the U.S. government called Business Dynamics Statistics (BDS) ... that incorporates the age of firms in a dynamic format,” Kane concluded that “startups aren’t everything when it comes to job growth. They’re the only thing.” Specifically, looking at nearly thirty years of data, Kane reported, “Startups create an average of 3 million new jobs annually. All other
ages of firms, including companies in their first full years of existence up to firms established two centuries ago, are net job destroyers, losing 1 million jobs net combined per year.”

Given the prominent role that small business plays in terms of GDP, exports and employment, combined with the striking reality that among 28.2 million businesses in the U.S., a mere 17,700 were defined as “large” with 500 or more workers, it’s not all surprising to learn that intellectual property very much is about small business.

I had the opportunity to join a panel on Capitol Hill on March 19, 2014, addressing the issue of intellectual property (IP) – specifically, the importance of protecting IP for small business.

The briefing for congressional staff was organized by the Committee on Small Business, chaired by U.S. Rep. Sam Graves (R-MO). The other panelists were Liz Fields, co-owner and head designer for Liz Fields, LLC, Daniel Zadoff, co-founder and CEO of Nutritionix, and Michael McDonald, manager of government relations for the American Apparel & Footwear Association. And the moderator was Frank Cullen, executive director of U.S. intellectual property policy for the U.S. Chamber of Commerce’s Global Intellectual Property Center.

The two small business owners brought firsthand experiences of their battles in trying to protect IP.

Ms. Fields relayed how she must expend enormous amounts of time against online counterfeiters of her wedding and bridesmaid dresses. In an op-ed she later penned for the website of the U.S. Chamber’s Global Intellectual Property Center (“When a Dream Becomes a Nightmare,” February 13, 2015), Fields wrote:

“About six years ago, I created Liz Fields, LLC, a bridesmaid and wedding dress designer,
manufacturer, and wholesaler. I was on top of the world and living my dream. I had made it.

“My dresses were everywhere - from celebrities to my childhood friends. They were all wearing the dresses that I designed. They were wearing my ideas that I created for the Liz Fields line. They were wearing my intellectual property (IP)...

“But then one day, shortly after launching my first collection, I began to realize that my name and the images of dresses I created were being used illegally by websites claiming that they were selling my genuine product.

“I started to get angry phone calls from customers and stores that were selling my actual dresses, demanding price matches on styles they found on various counterfeit sites. These counterfeit sites were not selling the dresses I designed. It became overwhelming.

“These sites were selling cheap counterfeit dresses under the Liz Fields brand, and they were seriously cutting into my sales. We estimated our losses due to counterfeit dresses amounted to about $160,000 – $200,000 per year in sales (for perspective, our 2013 sales were about $2 million)...

“We were a small company - we didn't have the money to hire a slew of lawyers to track down every one of the more than 1,400 sites selling counterfeit versions of our dresses.

“The loses we suffered meant we couldn't hire more employees, as much as I wanted to give people more jobs. It was bad enough that the counterfeiter were stealing my money, but they were also diminishing the integrity of my
brand, which is my name. It was personal, and it became a nightmare...

“Trademarks and intellectual property are important to businesses and industries of every size, not just the big ones. Protecting IP is just as important, maybe more important, for me and the viability of my business as it is for the largest corporations. For a small business like mine, it can actually mean closing our doors. Indeed, I eventually had enough of fighting with counterfeiters that I decided to accept a small licensing deal to turn over my brand name to a larger manufacturer.”

Mr. Zadoff – whose company, according to its website, has “built the world’s largest open database of nutritional information, with over 320K unique foods, and growing” – told of the fight against patent trolls. That is, bad actors who abuse the patent litigation system by bringing frivolous lawsuits to extract unfair settlements from assorted targets who cannot undertake the often-back-breaking costs of fighting back.

Meanwhile, on its website, the American Apparel & Footwear Association has made clear its fight against unscrupulous patent trolls, design piracy and rogue websites. It was noted regarding design piracy, “Since 2006, Congress has been working to pass legislation to stop the narrow problem of design piracy, or the direct copying of an original artistic design in apparel, footwear, or other fashion accessories. The main congressional proponents of design piracy legislation have been Congressmen Bob Goodlatte (R-VA) in the House and Senators Chuck Schumer (D-NY) and Orrin Hatch (R-UT), in the Senate.”

Earlier, on November 8, 2013, the Global Intellectual Property Center hosted the “2013 Global IP Summit” in Washington, D.C. The gathering actually can be re-played
in full on the center’s website. It’s worth taking some time to watch, as the conference communicated the importance of protecting intellectual property at home and internationally for a wide range of businesses and industries, for advancing innovation and economic growth, for expanding opportunities for entrepreneurs and small businesses, for national and corporate security, for consumer safety and choice, and for supporting all kinds of creative endeavors.

As former U.S. Commerce Secretary Carlos Gutierrez pointed out in his keynote address, protecting intellectual property promises to be a decades-long battle, and it is nothing less than a fight for the “heart and soul of our system.”

The importance of strong IP protections for small businesses was made clear on a panel featuring small-midsize film, sportswear and health care firms. Consider, for example, Blue Sky Studios. Blue Sky’s COO Brian Keane noted that the firm was started by six people in a dentist office, and now employed more than 500. Their films include the four “Ice Age” films, “Rio” and “Rio 2,” “Robots,” “Horton Hears a Who,” “Epic,” and “The Peanuts Movie.” Keane pointed out that “IP is incredibly important” in terms of getting financial investment, as well as investments in time and human capital.

Similar points regarding the need for financial capital investment were stressed during another panel when it came to pharmaceuticals, namely, if we want new and improved medicines and vaccines to treat diseases, protecting intellectual property is critical.

Meanwhile, Tony Chen, president and CEO of Osiris Shoes, highlighted the ills of IP theft in terms of brand dilution regarding sportswear, and the formidable IP problems the company has faced in international markets, especially in Russia and with China.
The tie in between innovation, IP and small business must not be missed or under-estimated, either.

The World Intellectual Property Organization’s “2011 World Intellectual Property Report: The Changing Face of Innovation” offers some key insights, trends and findings on innovation at the firm level. For example:

- “Innovation is a central driver of economic growth and development. Firms rely on innovation and related investments to improve their competitive edge in a globalizing world with shorter product life cycles.”

- “Turning to the IP system, there is every indication that IP ownership has become more central to the strategies of innovating firms. IP policy has, therefore, moved to the forefront of innovation policy. Demand for patents has risen from 800,000 applications worldwide in the early 1980s to 1.8 million in 2009. This increase has occurred in different waves, with Japan driving filing growth in the 1980s, joined by the United States (US), Europe and the Republic of Korea in the 1990s and, more recently, by China.”

- “Demand for other IP rights – which firms often use as a complement to patents – has also seen marked growth. Trademark applications worldwide increased from 1 million per year in the mid-1980s to 3.3 million in 2009. Similarly, industrial design applications worldwide more than doubled from about 290,000 in 2000 to 640,000 in 2009. Greater internationalization is also an important factor behind the rising demand for protection of these forms of IP.”

- “Innovation is a driver of economic growth and development. Importantly, innovative capability is no longer seen only in terms of the ability to develop new
inventions. Recombining existing inventions and non-technological innovation also counts.”

Combine the importance of small business and innovation, and it’s fair to say that IP is the backbone of America’s innovative small businesses.

Again, the U.S. Small Business Administration’s Office of Advocacy has provided some valuable information and findings on small business and innovation.

For example, a February 2003 report titled “Small Serial Innovators: The Small Firm Contribution To Technical Change” noted that “small patenting firms produce 13-14 times more patents per employee as large patenting firms.” For good measure, “small patent firms are on average more technically important than large firm patents,” in that the smaller businesses produce “more highly cited patents.” It also was observed that “small firm innovation is twice as closely linked to scientific research as large firm innovation on average, and so substantially more high-tech or leading edge.”

And in January 2004, an Advocacy study titled “Small Firms and Technology: Acquisitions, Inventor Movement, and Technology Transfer” found that “the technological influence of small firms is increasing” as the number of small firms with 15 or more patents over the previous five years increased from 33% in 2000 to 40% in 2002. Also, from the mid-1990s to the early 2000s, the share of highly productive inventors at small firms rose while the share at large firms fell.

Anthony Breitzman and Diana Hicks authored a 2008 study – “An Analysis of Small Business Patents by Industry and Firm Size” – that updated and expanded upon this type of analysis. It looked at nearly 1,300 technology firms with 15 or more patents issued over the period of 2002 to 2006, and examined “the relative strengths of small and large technology businesses.” The
authors concluded: “The results demonstrate that small businesses that innovate are indeed special and that the technology they create helps define the cutting edge in a number of industries. The report presents a convincing case that small firms in emerging industries are one of the greatest engines of American economic growth.” Among the studies findings, two were key:

- “Small firm patents outperform large firm patents on a number of impact metrics including growth, citation impact, patent originality, and patent generality. These metrics have been used for decades to measure the innovativeness of firms, labs, and agencies. The metrics have been validated and shown to correlate with increases in sales, profits, stock prices, inventor awards, and other positive outcomes. This suggests that the patents of small firms in general are likely to be more technologically important than those of large firms.”

- “[S]mall firms are much more likely to develop emerging technologies than are large firms. This is perhaps intuitively reasonable given theories on small firms effecting technological change, but the quantitative data here support this assertion. Specifically, although small firms account for only 8 percent of patents granted, they account for 24 percent of the patents in the top 100 emerging clusters. This means that they produce three times as many patents as one would expect in this special patent set. Put another way, approximately one in 31 small firm patents are contained in the top emerging clusters, compared with one in 117 large firm patents.”

It’s expected that innovations from small firms are going to be more technologically important than those from large businesses, and that small firms are more likely to develop emerging technologies. After all, the little guy or
start-up is far more willing to partake in the Schumpeterian process of “creative destruction,” whereby innovation, invention and efficiencies overturn old businesses, and/or create entirely new industries.

Continuing with the focus on small business and innovation, a July 2005 Congressional Research Service analysis (“Patent Reform: Innovation Issues”) not only summed up the role played by small business, but also explained that IP protections tend to be more important to smaller businesses. It was noted: “Entrepreneurs and small, innovative firms play a role in the technological advancement and economic growth of the United States. Several studies commissioned by U.S. federal agencies have concluded that individuals and small entities constitute a significant source of innovative products and services. Studies have also indicated that entrepreneurs and small, innovative firms rely more heavily upon the patent system than larger enterprises. Larger companies are said to possess alternative means for achieving a proprietary or property-like interest in a particular technology. For example, trade secrecy, ready access to markets, trademark rights, speed of development, and consumer goodwill may to some degree act as substitutes to the patent system. However, individual inventors and small firms often do not have these mechanisms at their disposal. As a result, the patent system may enjoy heightened importance with respect to these enterprises.”

As for the self-employed, some believe that IP protections are not as important under the assumption that the self-employed are not as innovative as other businesses. But economists Andrew Burke, from the University of Cranfield in the United Kingdom and the Max Plank Institute of Economics in Germany, and Stuart Fraser, from the University of Warwick in the U.K., examined the issue in a paper titled “The Impact of Intellectual Property Rights on Self-Employed
Unleashing Small Business Through IP

Entrepreneurship: An International Analysis,” and found the exact opposite. Based on their research, they offered the following on how IP protections tie in with or affect the self-employed:

• “Cumulatively, the analysis indicates that a well developed IPR regime has a net positive effect on the self-employed sector.”

• There is “a positive effect of international IPR conventions and agreements. Contrary to some of the most vocal objections to the TRIPS [Trade-Related Intellectual Property Rights] Agreement we find that rather than undermine the self-employed enterprise base it actually boosts it. We also note that there appear to be spillover effects from industry specific conventions to self-employment rates and that these are positively related to the strength of commitment to IPRs inherent in these conventions.”

• “[D]emocracies boost self-employment rates which is what one would expect in terms of the political conditions necessary to promote free enterprise thought and expression,” and “that the most fundamental tenets of IPR laws, namely the existence of the laws themselves, their specificity and strength, and a democratic society in which to accommodate them are three very positive drivers of self-employment.”

Focusing on the U.S., the 2012 report “Intellectual Property and the U.S. Economy: Industries in Focus” (published by the U.S. Department of Commerce, and prepared by the Economics and Statistics Administration and the United States Patent and Trademark Office) noted that while the self-employment share of employment is roughly the same in IP-intensive industries as non-IP-
intensive industries overall – which itself is noteworthy – that was not the case in copyright industries. As reported: “The highest self-employment share, however, was in the copyright-intensive industries, in which the 0.8 million self-employed workers filled 16.5 percent of all jobs. This high share is not surprising as many jobs in the creative and performing arts are contract rather than payroll jobs, usually related to the completion or performance of a specific authored work.”

To drive home the importance of IP protections to the entrepreneurs, one of the great tech entrepreneurs and innovators made the point quite clearly. In his biography *Steve Jobs*, Walter Isaacson quoted the late Steve Jobs, observing: “From the earliest days at Apple, I realized that we thrived when we created intellectual property. If people copied or stole our software, we’d be out of business. If it weren’t protected, there’d be no incentive for us to make new software or product designs. If protection of intellectual property begins to disappear, creative companies will disappear or never get started.” As a broader matter, which by the way is just as critical to business, Jobs added, “But there’s a simpler reason: It’s wrong to steal. It hurts other people. And it hurts your character.”

For good measure, it’s critical to point out that invention and innovation need investment, and IP rights and protections obviously affect that investment.

In the policy arena, again, it seems to come quite naturally for elected officials to celebrate inventors, innovators, and entrepreneurs. At the same time, though, politicians often dismiss or even demonize investors.

Just consider terminology: the returns gained by investors – such as capital gains and dividends – are labeled as “unearned income.” But given that investing in new ideas and expanding businesses are risky endeavors, and that entrepreneurs and innovators would get nowhere
without investors, the returns from such risk taking clearly rank as “earned income.” In terms of their roles and importance in the economy, alongside the inventors, innovators and entrepreneurs, investors deserve to be celebrated.

As for IP and investment incentives, the question is: Why would investors risk their resources without strong protections for intellectual property? History is strewn with nations and regimes where property rights were ignored or abused, and investment and economies suffered accordingly.

In order to fully flourish, venture capital and angel investment – both important to small and growing entrepreneurial firms – need strong patent and copyright protections.

Mario Cardullo, former counselor on technology and entrepreneurship to the U.S. Department of Commerce, provided a valuable reminder of this economic reality in an analysis for the World Intellectual Property Organization titled “Intellectual Property – The Basis for Venture Capital Investments.” He observed: “While technology has been seen as one of the engines for the dramatic economic growth and productivity the United States has experienced over the last several decades, an underlying factor has been the strength of the intellectual property developed during that period. Intellectual property provided the basis for investors to place their resources at risk. Intellectual property is an integral part of value creation in a technology-based enterprise and as such is a critical element in obtaining venture capital for SMEs [small and medium-sized enterprises].”

He added that “venture capitalists want to maximize returns and minimize risks.” In turn, it follows: “Without the strength of the intellectual property and its protection, little if any investments would be made into new or growing enterprises.” The economics are anything but
mysterious. As Cardullo explained: “Exclusive rights offered by the intellectual property system are often the main assets from which an SME technology-based enterprise can benefit. The appropriate use of the intellectual property system may contribute to bring high rates of return on capital, which is crucial in order to attract venture capital investors to an SME.”

Again, given how critical and elusive financial capital is for start-up and small businesses, strong and clear IP protections arguably are more crucial to the well being – indeed, the very survival – of smaller firms than to the health of large businesses.

In the sixth edition of the National Venture Capital Association’s “Venture Impact: The Economic Importance of Venture Capital-Backed Companies to the U.S. Economy,” it was reported: “While investment in venture-backed companies only equates to between 0.1 percent and 0.2 percent of U.S. gross domestic product each year, these companies employed 11 percent of the total U.S. private sector workforce and generated revenue equal to 21 percent of U.S. GDP.” In addition, during the 2008-2010 downturn, the contraction in both revenue and employment among venture-backed firms were smaller than the larger U.S. economy. It was noted: “The ability of VC-backed companies to outperform their non-venture counterparts – during good times and bad – flows from venture capital’s focus on highly innovative, emerging growth companies.”

The previous (fifth) edition of the NVCA report brought the importance of VC investment back to IP rights: “For decades, the U.S. venture capital industry has garnered the envy of the world. It has spurred the development of many high-tech industries ... and has helped to build innovative powerhouse companies that are now household names: Amazon, Google, Apple, Cisco, Staples and eBay. These successes have made the U.S. a magnet for the
globe’s best and brightest scientists and entrepreneurs. Today, countries around the world have begun to emulate the U.S. model by adjusting their tax and regulatory policies and by strengthening intellectual property protection.”

The entire entrepreneurial process is dependent upon strong property rights and protections, including intellectual property. Without strong IP rights, entrepreneurs, innovators and investors simply would be far less likely to undertake the tremendous risks involved with creating, and bringing a new or improved good or service to the marketplace. In turn, of course, consumers wind up with fewer choices and benefits, economic growth falters, and workers face reduced job opportunities and lower incomes.
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Property Rights Lessons from History

Small Business and IP...

BBC.co.uk offers the following on Scottish inventor and entrepreneurs James Watt (1736-1819): “The first working steam engine had been patented in 1698 and by the time of Watt's birth, Newcomen engines were pumping water from mines all over the country. In around 1764, Watt was given a model Newcomen engine to repair. He realised that it was hopelessly inefficient and began to work to improve the design... His first patent in 1769 covered this device and other improvements on Newcomen's engine... In 1775, ... Matthew Boulton who owned an engineering works in Birmingham... and Watt began to manufacture steam engines. Boulton & Watt became the most important engineering firm in the country, meeting considerable demand. Initially this came from Cornish mine owners, but extended to paper, flour, cotton and iron mills, as well as distilleries, canals and waterworks... By 1790, Watt was a wealthy man and in 1800 he retired and devoted himself entirely to research work.”
Given the technological revolution that our economy has undergone over the past three or four decades, some people might believe that intellectual property only came to the forefront of the economy, business, entrepreneurship and investment during these recent times. That would be a mistaken assumption.

In reality, intellectual property has played a critical role in economic development for a few hundred years. And the difference before and after the establishment of IP rights is quite striking.

Throughout much of history, government abused, never acknowledged any substantive notion of, or failed to adequately protect property rights.\(^{14}\)

Under Europe’s feudal system, for example, with arbitrary assessments by the sovereign on property a constant threat, it was “prudent for any considerable accumulation of assets of the subject to be held in mobile and concealable form.”\(^ {15}\) This was anything but conducive to economic development.

Nobel Prize winning economist Douglass C. North and Robert Paul Thomas made clear the importance of property rights at the open of their book *The Rise of the Western World*. The authors stated: “The affluence of Western man is a new and unique phenomenon. In the past several centuries he has broken loose from the shackles of a world bound by abject poverty and recurring famine and has realized a quality of life which is made possible only by relative abundance... Efficient economic organization is the key to growth; the development of an efficient economic organization in Western Europe accounts for the rise of the

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West. Efficient organization entails the establishment of institutional arrangements and property rights that create an incentive to channel individual economic effort into activities that bring the private rate of return close to the social rate of return.”¹⁶

Where property rights were recognized and protected against governmental abuses, economic development jumped forward. England’s Magna Carta in 1215 obviously must be noted, which is “accepted conventionally as establishing the right of subjects to the enjoyment of their property without arbitrary expropriation by the Crown.”¹⁷ Additional legal advancements after the Middle Ages made a significant difference.

As for IP, the first true patent system that promoted invention and innovation came in the United Kingdom with the Statue of Monopolies in 1624. The UK also gets credit for the first copyright law with the Statute of St. Anne in 1710.

In the U.S., the nation’s Founders overwhelmingly saw the wisdom of protecting intellectual property. As a result, Article I, Section 8 of the U.S. Constitution includes that Congress has 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.” In Federalist XLII, James Madison wrote: “The utility of this power will scarcely be questioned. The copy right of authors has been solemnly adjudged in Great Britain to be a right at common law. The right of useful inventions, seems with equal reason to belong to the inventors. The public good fully coincides in both cases, with the claims of

individuals.” (In the U.S. currently, the term for a new patent is 20 years from the time the application for the patent was filed, while copyright lasts for the life of the author plus 70 years.)

For good measure, in his first address to Congress on January 8, 1790, President George Washington urged Congress to act to ensure the protection of IP: “I cannot forbear intimating to you the expediency of giving effectual encouragement, as well to the introduction of new and useful inventions from abroad as to the exertion of skill and genius at home.”\(^\text{18}\) Congress acted by passing patent legislation in 1790, 1793, and 1836, for example.\(^\text{19}\)

North and Thomas noted that the key aspect of the Statute of Monopolies in 1624 was that it “embodied in the law a patent system to encourage any true innovation.”\(^\text{20}\) Later, they continued: “In effect the rewards of innovating were no longer subject to royal favor, but were guaranteed by a set of property rights embedded in the common law.”\(^\text{21}\)

In *How the West Grew Rich*, Nathan Rosenberg and L.E. Birdzell, Jr., acknowledged the role that greater security of property played in the expansion in trade between 1300 and 1750.\(^\text{22}\) They also explained how innovation and economic growth benefited from patents. Note that the authors speak of patents under the umbrella of competition, not monopoly. They observed:


“Competition also became involved in innovation. The market rewards of innovation depended largely on the innovator’s ability to charge a high price for a unique product or service until such time as it could be imitated or superseded by others. The rewards deepened, in other words, on the innovator’s margin of priority in time over imitators and successors. This was true even of patents, which go to the first inventor, and whose economic life is measured by the time it takes to find a better alternative. Given the multiplicity of Western enterprises, the possibility of forming new ones, and the possibility that old ones could shift to new activities, the process of gaining the rewards of innovative ideas takes on the characteristics of a race, informal but still competitive. The competitive nature of the process was intensified by the Western practice of leaving the losers to bear their own losses, which were often substantial. This use of a competitive spur to stimulate change was a marked departure from tradition, for societies and their rulers have almost always strongly resisted change unless it enhanced the ruler’s own power and well-being.”

In his *Structure and Change in Economic History*, Douglass C. North made the case that “the Industrial Revolution was an acceleration in the rate of innovation” due to “better specified property rights,” which raised “the rate of return on innovating.”

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North later went on to show and explain that “throughout man’s past he has continually developed new techniques, but the pace has been slow and intermittent. The primary reason has been that the incentives for developing new techniques have occurred only sporadically. Typically, innovations could be copied at no cost by others and without any reward to the inventor or innovator. The failure to develop systematic property rights in innovation up until fairly modern times was a major source of the slow pace of technological change.”

North added that “a systematic set of incentives to encourage technological change and raise the private rate of return on innovation closer to the social rate of return was established only with the patent system... More important than patent law per se is the development and enforcement of a body of impersonal law protecting and enforcing contracts in which property rights are specified.”

As for the twenty-first century economy, Harold Furchtgott-Roth, a former FCC commissioner, made clear the effect of protecting IP in an April 18, 2002, American Enterprise Institute speech:

“Intellectual property is in some ways the highest form of economic activity. It is a form of property that would not exist absent law. Many of the most subtle and complex forms of contracts in the world involve intellectual property. We also have a natural experiment: a few countries, including the United States, take intellectual property laws seriously; and much of the rest of the world does not. Not surprisingly, the countries

with serious intellectual property laws have substantially more intellectual property and investment than the countries that do not take the laws seriously.

“The U.S. is the international intellectual property leader not because of any natural resource allocation. It is not because we have great forests, or natural resource deposits. Nor is it because we are smarter than other people.

“The United States is strong in intellectual property because we take intellectual property serious. We have laws that protect intellectual property more here than in most countries around the world. And, even more importantly, we have a government that takes enforcement of those laws seriously. Not as seriously as some would like, but seriously nonetheless.

“As a result, and precisely because we are not smarter than other people, smart people from around who want to capitalize on their own intellectual property gravitate to the United States. Whether it is software engineers to Silicon Valley, recording artists to Nashville, video artists to Hollywood, writers to New York, manufacturing geniuses to Chicago, medical geniuses to Boston, many people with ambition to develop their own intellectual property wants to be in the United States.”

That is a notable summation of the power of IP as properly protected in our high-tech, modern economy. It also jibes with the excellent summation of the historical lessons on property rights offered by Rosenberg and Birdzell:
“Governments also affect economic growth by the nature of the property rights that they establish and enforce. People are, for example, not very likely to invest in expensive enterprises unless they have some assurance that the fruits of investment will accrue to the investor. Property rights are not a simple matter of supplying police protection, but rather of formulating legal rights and liabilities in such a way that the benefits and costs of economic action accrue, so far as possible, to the actor. Through this service, if well performed, is of great economic benefit...”

The need to protect intellectual property does not change in our current economy. At the same time, though, it does not mean that it will be easy to do so. Indeed, technological advancements and economic change mean that new challenges will emerge in terms of protecting property. History teaches this lesson as well. North and Thomas noted examples, including the expansion of ocean shipping. The benefits of expanding trade were apparent, but pirates and privateers raised cost and reduced trade. Before it became economical to squash high seas piracy via navies, the English chose to use bribes, as “the income gains from trading freely in the Mediterranean were sufficiently greater than the bribes to leave the nation better off.”

The following point from North and Thomas about the varying challenges faced in protecting property over the centuries apply today as well in terms of protecting IP: “Right to the present day, technical problems have made it

similarly difficult, and therefore costly, to develop and enforce property rights in ideas, inventions, and innovations... Property rights are always embedded in the institutional structure of a society, and the creation of new property rights demands new institutional arrangements to define and specify the way by which economic units can co-operate and compete.”

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Small Business and IP...

Milton Friedman, the late Nobel Prize winning economist, pointed to the importance of rewarding creators – clearly including entrepreneurs as represented by the inventor and the author – in his classic 1962 book Capitalism and Freedom. Friedman wrote: “In both patents and copyrights, there is clearly a strong prima facie case for establishing property rights. Unless this is done, the inventor will find it difficult or impossible to collect a payment for the contribution his invention makes to output. He will, that is, confer benefits on others for which he cannot be compensated. Hence he will have no incentive to devote the time and effort required to produce the invention. Similar considerations apply to the writer.”  

The economics of IP is foundational to business, investment and innovation. Therefore, it’s important for entrepreneurs to have a basic understanding of the economic logic supporting property rights in general, and how those arguments address or relate to intellectual property.

Some of the great economic thinkers over time have highlighted the centrality of property rights.

For example, Adam Smith, the father of modern-day economics, noted in 1776 that industry developed and prosperity flourished in towns because of the protections offered for private property. Smith explained:

“Order and good government, and along with them liberty and security of individuals, were, in this manner, established in cities, at a time when the occupiers of land in the country were exposed to every sort of violence. But men in this defenceless state naturally content themselves with their necessary subsistence; because to acquire more might only tempt the injustice of their oppressors. On the contrary, when they are secure of enjoying the fruits of their industry, they naturally exert it to better their condition and to acquire not only the necessaries, but the conveniences and elegancies of life.”

It’s easy to see how this phenomenon extends to intellectual property today. For example, why invest the time and resources in an invention if anyone can come along and copy that invention due to a lack of patent protection? Or why be involved in writing, performing and producing music, if online thieves are free to steal it?

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The issue really is the reach and development of the market. Smith noted that even in a “defenceless state,” a subsistence level of activity occurs. But when property rights are truly secure, that’s when markets, innovation and economies flourish. Shift to our twenty-first century economy, when thinking about how much opportunity and growth have been created courtesy of broadband and digital technologies, consider how much wider and deeper those opportunities would be with greater security of intellectual property both at home and internationally.

French economist Jean-Baptiste Say left no doubt as to how important property rights were. He boldly declared in the early 19th century: “Political economy recognises the right of property solely as the most powerful of all encouragements to the multiplication of wealth.”

On protecting private property, Say wrote:

> “Without this protection of each individual by the united force of the whole community, it is impossible to conceive any considerable development of the productive powers of man, of land and of capital; or even to conceive the existence of capital at all; for it is nothing more than accumulated value, operating under the safeguard of authority.”

Say makes clear the necessary role government plays in establishing and protecting property rights. And again, reflecting on Say’s points, can one really conceive of development occurring to its fullest extent in the twenty-first century without the full protection of intellectual

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property? That goes for developed nations, like the U.S., as well as developing nations, including locales like China.

As for the specifics of copyright and patent protections, in his *Human Action*, originally published in 1949, Austrian economist Ludwig von Mises highlighted the importance of incentives in economics, and to the functioning of individuals and firms in the economy:

> “But it is obvious that handing down knowledge to the rising generation and familiarizing the acting individuals with the amount of knowledge they need for realization of their plans require textbooks, manuals, handbooks, and other nonfiction works. It is unlikely that people would undertake the laborious task of writing such publications if everyone were free to reproduce them. This is still more manifest in the field of technological invention and discovery. The extensive experimentation necessary for such achievements is often very expensive. It is very probable that technological progress would be seriously retarded if, for the inventor and for those who defray the expenses incurred by his experimentation, the results obtained were nothing but external economies.”

In his book *Applied Economics: Thinking Beyond Stage One*, Thomas Sowell explains how property rights affect everyone throughout the economy, including small entrepreneurs in need of capital. Sowell noted “the role of property rights as a key link in a chain of events that enable people without property to generate wealth for

themselves and the whole society.”

To make his point, Sowell focused on woes illustrated in some Third World nations that do not vigorously protect property. He continued:

“In short, although property rights are often thought of as things that are important primarily to the affluent and the rich, these legal recognitions of existing assets may be especially needed by poor individuals in poor countries, if they do not wish to continue to be poor. Millions of Third World people have already demonstrated their ability to create, in the aggregate, vast amounts of wealth, even if their tangled legal systems have not yet demonstrated an ability to let that wealth readily become property that can be used for further expansion and development... What property rights provide, in countries where these rights are readily accessible, is the ability of people to convert physical assets into financial assets, which in turn enables them to create additional wealth, whether individually or in combination with others... In short, property rights are an integral part of a price-coordinated economy, without which that economy cannot function as efficiently. This in turn means that its people in general – not just property owners – cannot prosper as much as if it did operate more efficiently.”

Sowell’s case certainly can be made for intellectual property as well. The legal recognition and protection of

intellectual assets allow for greater efficiency, development and growth. Indeed, consider as an example what Sowell wrote in a November 2001 column (“Drugs and Politics,” Townhall.com, November 23, 2001) regarding patents and medicine development:

“The United States has been one of the few countries resisting political pressures to impose price controls on pharmaceutical drugs, or to water down the patent laws which allow the original discoverer of new drugs to have a monopoly for a fixed number of years, so as to recover the costs of discovery before other companies get to use their formula free of charge.

“The United States also produces a wholly disproportionate share of all the new life-saving drugs in the world. But politicians ignore this connection. Other countries have scientists capable of developing new medicines, but the economics and politics of the situation discourage companies in those countries from making the huge investments made by American pharmaceutical companies under American patent law.”

Michael Novak ably summed up the economic logic of protecting intellectual property:

“Regimes without patents penalize inventors and reward freeloaders. Patent regimes recognize the right of inventors and authors to the fruits of their own labors as a right in common law. They do so because the right serves the common good by stimulating useful inventions and creative works from which a grateful public benefits. Far from protecting private interests at the expense of the
common good, patent protection advances the common good by means of private interests.”

But what about the argument – again, occasionally even put forward by some advocates of free markets – that copyrights and patents are government-created monopolies, and therefore amount to unwarranted government interference in the marketplace? Indeed, even Sowell used the term “monopoly” above.

In an MBA class in international business that this author taught, the textbook – *International Business: Competing in the Global Marketplace* by Charles W.L. Hill – did a solid, straightforward job of explaining what intellectual property is, and why it’s important that nations adequately protect IP through strong copyright and patent systems, for example. Hill correctly pointed out, “Such laws stimulate innovation and creative work. They provide an incentive for people to search for novel ways of doing things, and they reward creativity.” Hill went on to highlight the pharmaceutical industry, noting, “Without the guarantees provided by patents, companies would be unlikely to commit themselves to extensive basic research.” However, it also was stated in the text: “A patent will grant the inventor of a new drug a 20-year monopoly in production of that drug.” There’s that word “monopoly” again.

Does it really make sense to refer to copyright or a patent as a “monopoly”? The clear answer is that a patent in no way stops a competitor from developing a similar product that serves or accomplishes the same purpose for the customer. For example, when it comes to pharmaceuticals, the creation and patent of a drug that deals with a certain disease does not stop another company

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from bringing another drug to the market targeted at the same illness.

Milton Friedman noted that

“...the grant of patents to inventors and copyrights to authors ... are different, because they can equally be regarded as defining property rights. In a literal sense, if I have a property right to a particular piece of land, I can be said to have a monopoly with respect to that piece of land defined and enforced by the government. With respect to inventions and publications, the problem is whether it is desirable to establish an analogous property right. The problem is part of the general need to use government to establish what shall and what shall not be regarded as property.”

Novak labeled the widely accepted concept of copyright and patents being government-granted “temporary monopolies” as “a terminological mistake.” He went on to show that copyright and patent protections effectively are the exact opposite of a true monopoly in that these means for protecting IP promote competition. He wrote:

“Monopoly belongs to the language of domination over competition, but copyright belongs to the language of private property and establishes a right to enter into markets. The point of a monopoly is to extinguish competition, but the point of protecting the copyright of authors is to ignite competition. The recognition of copyright

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increases the number of competitors; its aim is the opposite of monopoly... Critics further forget that existing patents and copyrights often inspire new rounds of competition to ‘go around’ the existing claims, with the hope of launching more successful creations. This is especially true in medical and pharmaceutical research. Patents and copyrights do not end competition; often, their success inspires it in surrounding areas.”

Novak’s explanation is the best I’ve come across in terms of a concise explanation as to the actual economic role and effect of intellectual property rights.

In the end, the economic logic of protecting intellectual property is straightforward. Incentives for creativity, invention and innovation – all critical to entrepreneurship and economic development – are secured and enhanced. At the same time, equating patents and copyrights with monopolies is fallacious. To the contrary, as Novak and others have argued, such legal protections of intellectual property don’t impede competition, but instead boost beneficial rivalry, innovation and growth.

Once it is understood that patents are not in reality a grant of monopoly, but instead a critical part of the competitive market process that advances invention and innovation – i.e., that the economic foundation has been established – then it follows that policymakers in the U.S. and around the world should be focused on establishing and maintaining a strong system of protecting intellectual property, and be very leery of arguments pushing for undermining or undercutting patents or copyright.

The first duty of government is to protect life, limb and property. Economics makes clear that this most certainly includes intellectual property.
7

IP in a Digital World: Opportunities and Challenges

Small Business and IP...

In a Harvard Business Review article⁴¹, Bhaskar Chakravorti, Christopher Tunnard, and Ravi Shankar Chaturvedi reported, “The opportunities to serve the e-consumer were growing – if you knew where to look.” For small e-commerce ventures, opportunities abound: “Private equity and venture capital money have been concentrating in certain markets in ways that mimic the electronic gold rush in Silicon Valley. During the summer of 2014 alone $3 billion poured into India’s e-commerce sector, where, in addition to local innovators like Flipkart and Snapdeal, there are nearly 200 digital commerce startups flush with private investment and venture capital funds... Nimble e-commerce players are simply working with and around the persistence of cash.”

Advancement in computer, digital and telecommunications technologies have created an explosion of opportunity for consumers, entrepreneurs, small businesses, and other innovators and creators.

Entrepreneurs, for example, are able to reach new markets and customers, to provide new and improved goods and services, to gain greater access to financial capital, and to achieve increased efficiencies and productivity gains due to the combination of increased power in computer hardware and software, and the expansion of broadband Internet service.

Consider how the costs of getting a business off the ground have been reduced in substantial ways.

In April 2012, the Small Business & Entrepreneurship Council and the Internet Innovation Alliance released a report titled “Start-Up Savings: 10 Ways Entrepreneurs Can Save Money Through Broadband Internet.” Comparing traditional means versus online offerings, the study found that entrepreneurs could save a potential $16,000 in start up and annual costs.

In percent terms, comparisons revealed small business owners could save 87 percent in accounting services going the online and software route. On printing costs, 43 percent could be saved through online services for a basic package of business cards, brochures, postcards, letterhead and envelopes. As for setting up a website, online, do-it-yourself options can save as much as 88 percent compared to what might be considered a more traditional website designer/developer. Similarly, online logo design services can provide savings reaching 92 percent compared to the low-cost end of fees charged by freelancers or independent firms.

Some of the biggest savings that broadband access can provide start-ups come on the office front, specifically, the option of a home office. According to recent office rental
rate data for 60 metro areas from Grubb & Ellis, the average asking rent is $20.60 for Class B office space on an annual basis. For a 300 square foot office, making the home office choice means cash savings topping $6,100. It should surprise no one then that so many businesses initially open their doors in a home office. In fact, 52 percent of U.S. firms are home-based businesses, according to the SBA.

As for travel costs, according to the numbers from the U.S. Department of Transportation, average domestic airfares registered $372 in the third quarter of 2015. For a start up, just a few flights a year can add up quickly. Compare that to online video calls/conferencing. For example, the Skype for Business plan costs $5.50 per month, or an annual cost of $66.00 (as of February 2016).

The potential thousands of dollars saved by start ups due to broadband Internet translates into more resources available for innovating, hiring, and additional marketing and advertising, for example.

Another SBE Council study – “Saving Time and Money with Mobile Apps: A Small Business ‘App’ortunity” published in June 2011 – highlighted the growth in mobile technologies and the impact on small businesses. The study surveyed small business owners and found that mobile apps help these entrepreneurs squeeze more productivity from their workweek and enable their employees to do the same. Specifically, the use of mobile apps among small business owners reduced overhead costs, increased revenues and sales-related activity, improved competitiveness, and even allowed firms to add employees.

“Saving Time and Money with Mobile Apps” found that small business owners who use mobile apps estimated that they personally saved an average of 5.6 hours weekly. And 75 percent of small businesses using mobile apps reported employee time savings as well – an average of 11.33 hours on a weekly basis. The study estimated that small
business owners were saving 372.8 million hours of their own time, and 725.3 million employee hours annually. In total, it was estimated that small businesses saved almost 1.1 billion hours annually by using mobile apps. The study conservatively estimated that an additional 3.54 billion hours could be saved annually by small businesses through wider mobile app adoption.

Hours saved, of course, translate into dollars saved. Small business employee hours saved, for example, are worth an estimated $17.6 billion each year, under conservative assumptions. If all small businesses were to take advantage of mobile apps, annual owner hours saved could reach an estimated 1.2 billion, with employee hours saved hitting a projected 2.34 billion. The 2.34 employee hours potentially saved were valued at $56.9 billion annually.

Nearly 50 percent of the small businesses surveyed for the study believed they have been able to spend more time on growing business revenues due to their use of mobile apps. Fifty one percent of these small businesses say their firms were more competitive, 36 percent were able to reduce overhead costs and 10 percent were even able to add workers because of mobile app usage.

A variety of additional studies and reports have pointed to the broader benefits from IT investment, including broadband, experienced by small businesses and the economy.

In a December 2005 study from the SBA’s Office of Advocacy (“Broadband Use by Rural Small Businesses” by Stephen B. Pociask), it was reported:

“There are numerous studies showing an inextricable link between IT investment and the health of the U.S. economy. While total IT manufactured output accounted for a mere two percent of Gross Domestic Product GDP during
1990-1995, IT capital investment contributed to nearly thirty percent of GDP growth for the same period. Thus, IT investment appears to have large stimulative effects, meaning that an increase in IT investment produces a much larger increase in U.S. economic output. According to a number of studies, IT investment, including investment in broadband networks, has provided an important catalyst for operational efficiency in the U.S. In one such study, Kevin Stiroh showed that industries with higher capital stock in telecommunications and computing equipment experienced higher productivity gains. His conclusion is consistent with other studies. For the period 1989 to 2001, IT-intensive industries experienced a 3.0% increase in productivity, while less IT-intensive industries had productivity growth of only 0.4%.

In 2008, a study titled “The Increasingly Important Impact of Wireless Broadband Technology and Services on the U.S. Economy” (written by Roger Entner and published by CTIA—The Wireless Association) reported that in 2005, “the productivity value of all mobile wireless services was worth $185 billion, greater than the total value of the U.S. pharmaceutical industry (according to BizStats.com).”

More recent, consider Darrell M. West, who is vice president and director of Governance Studies and a senior fellow at Brookings, while also being the founding director of the Center for Technology Innovation. In December 2011, his report – “Top Facts About Mobile Broadband” – cited the importance of broadband to entrepreneurship:

“Entrepreneurs play a major role in the economies of many countries. They launch companies, build businesses, and provide jobs. Increasingly, as the
globe moves towards a digital economy, they require mobile technology to develop their businesses. Mobile devices allow them to stay connected even while they are on the go. They can reach bank officers, suppliers, and customers as they travel around the area. This helps them remain in close contact and build the required relationships.”

In addition, Connect Michigan offered a report in May 2012 (“Broadband: Empowering Small Businesses to Grow and Thrive”) that “surveyed Michigan business establishments to measure their current state of technology adoption and usage.” The survey found that businesses with fewer than 20 employees tended to use broadband services at a “significantly lower” rate than larger firms. As for those using broadband services, it was found:

“Many small Michigan businesses use broadband to help themselves grow and increase their sales. Nearly three out of four broadband-connected Michigan businesses with fewer than 20 employees (72%) stay in touch with their current customers via the Internet, while 61% advertise their products online to find new customers. More than two out of three of these businesses (68%) use broadband to research ways to make their businesses more efficient. Plus, one in four broadband-connected Michigan businesses with fewer than 20 employees accepts payments online, and 44% sell or accept online orders for their goods and service. The result of these applications can be seen in those businesses’ bottom lines: broadband-connected Michigan businesses with fewer than 20 employees report median annual revenues of
approximately $300,000, compared to just $100,000 among similarly-sized competitors that do not use broadband.”

Again, the computer, digital, telecommunications revolution has empowered the entrepreneur in ways never before imagined. Paradoxically, though, challenges come with many of these same technological advancements, in particular threats to intellectual property of entrepreneurs and businesses.

One of the factors working in favor of the creator, innovator or inventor over the centuries, even far into the twentieth century, was the cost of copying or duplication, according to Tom Bethell in his book The Noblest Triumph: Property and Prosperity Through the Ages. Bethell added: “The digital revolution, on the other hand, may have changed everything. Once information is digitized, its physical embodiment drops away. It then becomes much more difficult to protect, and therefore to own... What took the scribe a year, and the Xerox machine an hour, can now be copied in seconds. And when copies multiply, value collapses. Information can be multiplied almost without cost and transmitted to any number of distant terminals. Furthermore, it can be copied exactly, not in a form that becomes increasingly inexact with each succeeding ‘generation.”

Bethell did not miss the irony here: “An information economy is one in which the value added by intellectual goods, such as songs and films and software, is higher at the margin than that added by steel or oil. But thanks to the possibility of almost costless replication, that ‘value added’ is threatened with collapse. Such goods are like pillars of sand – perhaps one should say silicon. They will tumble down unless shored up. If a borrowed car could be

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‘copied’ as easily as borrowed software, the automobile industry would collapse immediately.”

Keep in mind, Bethell made these points in 1998. The challenge Bethell explained has only grown, with faster computers, the vast expansion of broadband, and an increasingly integrated global economy. Some wonder: Can – or even should – copyright and patent protections survive in such a world?

Economist Douglass C. North noted that controversy has long swirled around the value of patents, and he acknowledged that rules will be imperfect and carry costs. However, he made a fundamental point worth recalling in today’s shrinking, digital world: “But as compared to no protection at all, the value of some property rights over invention is not an issue. Idle curiosity or learning by doing will produce some technological change of the type we have observed throughout human history. But the sustained devotion of effort to improve technology – as we observe in the modern world – is stimulated only by raising the private rate of return.”

In a Wall Street Journal column, Alan Murray seemed to take the issue of online/digital theft as a given. He wrote: “In the digital age, there is no marginal cost, or at least very little, for copying ideas. Great books and movies, clever software, life-saving drugs, breakthrough computer chips, all are difficult to create, but are replicated with ease... There are no clear-cut answers to these problems, and no free-market solutions. Ultimately, governments must decide how to balance the need to encourage innovation against the need to spread its benefits.”

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Murray was dead wrong. In reality, there is a clear-cut, free market answer. The copying that Murray refers to, of course, is not about spreading the benefits of innovation. Quite the opposite, the theft of creations and innovations limit the pace or existence of such creativity and innovation, which means, by definition, that innovation is limited. Protecting property is the key fundamental role for government in a free market economy. No conflict exists between encouraging innovation and spreading its benefits.

As for the impact of piracy, three professors – Vibhanshu Abhishek, Rahul Telang and Yi Zhang – looked at the interplay of IP theft and technology adoption, along with the impact on IP suppliers and consumers. The authors reported: “We find that in general piracy hurts the adoption of new innovative distribution platform contrary to the belief held by several critics of the media industry.” As for producers of IP, “piracy always hurts the producer and reduces his profits.” Meanwhile for consumers, the authors find a more mixed story on piracy in that some consumers “are able to consume the product for free. However, when the threat of piracy increases, the producer is reluctant to adopt the digital platform, which can hurt the consumers from the lost opportunity of purchasing legal version... [I]f the level of piracy is too strong, the consumer welfare might be even lower than a market when there is no piracy.”

History shows how this all works: protect private property (both tangible and intellectual); entrepreneurship, investment and innovation are encouraged; productivity advances; consumers benefit; and the economy grows, with higher incomes and more jobs

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resulting. A global, high-speed, digital economy does not change the fundamentals of human nature and economic common sense.
8

Why Protect IP?
The Ills of Piracy

Small Business and IP...

The following IP challenge for a small business was reported by The Wall Street Journal (“Entrepreneurs Bemoan Counterfeit Goods”) on April 28, 2014: “Take Wayne Fromm of Kenmore, N.Y., for example. Surfing the Internet two years ago, he found five Chinese manufacturers selling an extendable camera stick he invented, complete with photos of his family and friends using it. The problem was, he hadn't licensed any of the sellers to make or sell his patented and trademarked Quik Pod. And he lacked the resources to do much about it, aside from contacting the site where the sellers are hosted, Alibaba.com, a place where global businesses search for suppliers in China, run by Chinese e-commerce giant Alibaba Group. Alibaba promised to look into it, but the copycat products remain and about a dozen new ones have since cropped up. ‘They copy my product to a T,’ says Mr. Fromm. ‘It's like a dagger sticking into my heart.’”
When listening to the various arguments against intellectual property – that is in favor of reducing or even eliminating the creation and protection of intellectual property rights – many seem to boil down to the basic notion that ideas cannot be owned. At first glance, there might be a certain appeal to this assertion. But it rests on a flawed understanding of IP.

The problem is that copyrights and patents, for example, do not mean that an individual or business owns an idea. Rather, it’s about the particular expression of an idea, such as in a particular book, in a song, in a machine, in a prescription drug, or in software.

In his book *The Fire of Invention: Civil Society and the Future of the Corporation*, Michael Novak countered the “own an idea” notion with the correct formulation of what copyrights and patents actually are and accomplish. Novak pointed out that

“...patent and copyright laws do not protect ideas or concepts, considered in their immateriality and shareability. On the contrary, copyright laws protect the concrete expression of ideas, their incarnation in the precise particulars of language and song singled out by their creators. Similarly, patent laws protect the concrete reduction to physical practice of practical insights. In both cases, it is not the general idea that is protected but the concrete incarnation... [A] patent covers a practical insight reduced to practice – that is the trick of the thing, the hard part – and a copyright covers the unique, personal way of presenting something by a writer or an artist.”

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That is an essential difference that undermines one of the theoretical protests, if you will, against IP.

Nonetheless, for a variety of reasons – from the mistaken theory about “owning ideas” to claims that it’s too difficult to protect IP today to government simply not adequately fulfilling its responsibilities to cultural biases and trends – the undermining of intellectual property persists, with significant negative results. Indeed, the ills of piracy – that is, IP theft – create real-world ills.

In April 2010, NDP Consulting published a study titled “The Impact of Innovation and the Role of Intellectual Property Rights on U.S. Productivity, Competitiveness, Jobs, Wages, and Exports.” That report highlighted the six most commonly cited negative effects of IPR infringement:

• Number one was lost revenue. It’s noted: “Legitimate businesses – the backbone of employment and economic growth – suffer sales losses when consumers, knowingly or unknowingly, buy counterfeit or pirated products.”

• Number two was lost employment. It was reported: “Legitimate businesses lose jobs when counterfeit and pirated products establish a presence in the market. IDC estimates that a 10 percent reduction in global computer software piracy would add 600,000 legitimate jobs, contribute $141 billion to global GDP, and raise an additional $24 billion in global tax revenues. A 10 percent reduction in U.S.-based computer software piracy would create 32,031 jobs, add $41 billion to U.S. GDP, and add $6.7 billion to U.S. tax revenues.”

• Number three was damaged reputation and compromised brand value. The point was made that “the loss in reputation and brand value attributable to counterfeit or pirated products ... makes consumers lose trust in the genuine product.”
• Number four were health and safety concerns. It’s explained: “These concerns arise in connection with counterfeit and pirated products ranging from fake auto and aerospace parts to medical devices and pharmaceuticals. Counterfeit drugs in particular pose a major health and safety problem. According to the World Health Organization, between 30 percent and 40 percent of the drugs sold in developing countries – and in some cases up to 50 percent – can be counterfeit. Indeed, hundreds if not thousands of deaths can be attributed to counterfeit medicines.”

• Number five is the resulting discouragement of investment. It was noted: “Companies invest in R&D to achieve innovations and boost their competitiveness in global markets. Bringing new innovations to market requires large, upfront R&D investments and entails the risk that the competitive gains will not be realized. Counterfeiting and piracy, on the other hand, allow illegitimate firms to avoid the investment and the risk and to reap immediate profits. This discourages legitimate firms from making the R&D investment and, in turn may discourage breakthrough drug innovations that demand large R&D investments. For example, a 2003 study by DiMasi, Hansen and Grabowski estimates that it costs $802 million for a pharmaceutical company to take a drug from Phase I trials through to approval, including the cost of drugs that fail to be approved. Counterfeit drug makers skirt the approval process altogether, use untested substitute chemicals, and steal revenues from legitimate producers.”

• Finally, number six is lost tax receipts. NDP explained: “Businesses and employees suffering economic setbacks pay less taxes. The loss of legitimate business revenues
and jobs owing to counterfeiting and piracy requires corporations and employees to pay higher taxes. According to a 2009 study commissioned by the International Chamber of Commerce’s BASCAP, lost business revenues and jobs from counterfeiting and piracy cost the Group of Twenty (G20) countries about $85 billion annually in lost tax revenues and increased welfare spending.”

What are the overall costs of such woes? It’s pointed out in the NDP Consulting study that the “OECD estimates that international trade in counterfeit and pirated goods grew from $200 billion in 2005 to $250 billion in 2007.” For good measure, “IP experts estimate that when the costs of domestic production and consumption of counterfeiting and piracy, internet digital piracy, health and safety consequences, and other related costs are added to the OECD’s estimates for international trade, the overall economic impact of counterfeiting and piracy could top $600 billion.”

Of course, an assortment of studies has served up estimates on the lost economic output due to IP violations.

For example, a January 2011 study from MarkMonitor titled “Traffic Report: Online Piracy and Counterfeiting” presented some daunting findings in the online environment. MarkMonitor used 22 major brands, “ranging from pharmaceuticals, luxury goods, and apparel to entertainment titles and software,” and scanned the Internet searching out sites suspected of offering counterfeit goods and/or stolen digital content. As noted in the study’s accompanying release: “Global piracy affects a wide range of digital content, including movies, music, games, software, television shows and e-books while the trade in counterfeit goods online touches almost every item, including apparel, footwear, electronics, luxury items, sports merchandise and pharmaceuticals.”
Through its own scanning technology, filtering and examinations, MarkMonitor found the following:

- Sites offering pirated digital content produced 146 million visits per day, or more than 53 billion visits annually.

- Sites selling counterfeit goods produced “more than 240,000 visits per day on average or more than 87 million visits per year.”

- Of the sites classified as “digital piracy,” 67% had their host locations in the U.S. and Western Europe. As for sites classified as “counterfeit,” 73% had host locations in the U.S. and Western Europe. However, this most certainly is a global endeavor, as MarkMonitor noted: “In previous ‘test buys’ of prescription pharmaceutical products from some of these sites, MarkMonitor found that payment processing and order fulfillment took place in countries other than that used to host the site or register its domain name. These findings demonstrate that while reliable infrastructure is a key factor for sites hosting piracy and counterfeit goods, many of these sites conduct business across multiple national boundaries.”

- “The combined traffic to the 26 sites selling counterfeit prescription drugs is more than 141,000 visits per day on average or more than 51 million visits per year.”

Unfortunately, this is far from comprehensive in scope. As noted in the report, “Since the study used a sample of only 22 brands, it provides a small glimpse of the nature of online intellectual property (IP) theft and the dark side of illicit e-commerce. However, given the large number of popular brands, it is reasonable to assume that hundreds of thousands of other rights-holders, brands and content
creators are suffering the same damage.” In fact, MarkMonitor has estimated global annual losses due to counterfeiting and digital piracy at $200 billion.

The MarkMonitor study correctly concluded: “The bottom line is that online IP theft ultimately affects the most creative and innovative sectors of the economy, contributing to billions in lost revenue and millions of lost jobs. Protecting IP rights is a critical component of our economic resurgence, and vitally important to our future; stopping the spread of pirated and counterfeit goods is a necessity.”


Of course, the challenge of stopping IP violations is not just a domestic issue. In the increasingly integrated economy of the twenty-first century, it’s very much a global concern.

The importance of trade to the U.S. economy should not be underestimated. From 2000 to 2015, for example, the growth in real U.S. exports equaled 22.5 percent of the growth in real GDP, and the expansion in real total trade (i.e., exports plus imports) came in at 41.6 percent of real GDP growth.

Over the longer haul, consider that in 1960, real exports equaled 3.7 percent of real GDP, and total trade was 7.8 percent. In 2015, real exports had risen to 12.9 percent of real GDP, and total trade to 26.2 percent. That’s a breathtaking shift in the U.S. economy.

So, trade matters in a major way to the U.S. economy, including for small businesses. Consider that, according to the U.S. Census Bureau, 97.7 percent of all U.S. exporters and 97.1 percent of importers have less than 500 workers.
The international marketplace, especially with the vast advancements in technology in recent decades, has become far more accessible and presents many more opportunities for small businesses than ever before in history.

Again, though, there are increased challenges in terms of protecting the IP of U.S. entrepreneurs and businesses. Where some of the key challenges lurk is highlighted in an annual report from the United States Trade Representative (USTR). Regarding the 2015 edition of the “Special 301 Report,” which examines how effective our trading partners are in protecting and enforcing IP rights, U.S. Trade Representative Michael Froman noted, “Tens of millions of Americans owe their jobs to intellectual property-intensive industries. Strong and balanced protection and enforcement of intellectual property are critical for promoting exports of U.S. innovative and creative goods and services, and sustaining those jobs here at home. The Special 301 Report is an important tool – and a demonstration of this Administration’s resolve – to ensure that Americans can bring their inventions and creations to people all over the world without their work being infringed or misappropriated.”


“China remains on the Priority Watch List. The Report draws attention to China’s wide-ranging intellectual property law reform effort and certain positive enforcement initiatives, but also to new and longstanding concerns about IPR protection and enforcement, including with respect to trade secret misappropriation and technology
localization. Such new measures include conditioning market access on use of Chinese indigenous IPR, R&D being conducted in China, and the provision of source code to the Chinese Government.”

Indeed, China remained a land laden with opportunity, along with significant IP risks. Most nations, including the U.S., have gaps in protecting intellectual property, and therefore, need to make improvements that are important to innovation, investment and economic growth. However, certain nations, like China, have much more to do.

And each nation’s historical and cultural roots must be understood as well. For example, it must be recalled that given China’s communist history, the basic notion of “intellectual property” has a thin, at best, background.

Writing in the December 15, 2010, Wall Street Journal, Tian Lipu, commissioner of China's State Intellectual Property Office, noted: “Before the end of the 1970s, the Chinese people's knowledge about intellectual property was all but nonexistent—there was no concept of linking knowledge to property. It took over a decade, beginning in the 1980s, to enact some core IP-protection laws, including trademarks, patents and copyrights. It was only at the end of the last century that the term ‘intellectual property’ was formally included in the Xinhua Dictionary, which is used by hundreds of millions of Chinese students.”

No doubt, it’s a mighty undertaking to move from communism to an understanding of the importance of intellectual property. But how hard the Chinese government actually is working in that direction remains open to question. For example, part of the U.S.-China agreement announced on December 2010 was to push for the Chinese government itself to use, for example, legal software. All efforts to enhance IP rights in China are most
welcome, but the fact that the government, which had been saying for some time that it is working hard to enforce such rights, needed to pledge to expand the use of legal software in government – therefore, acknowledging the use of pirated software in government – was a striking indictment of China’s IP efforts up to that point.

In its “Special 301 Submission” of February 6, 2015, the BSA noted, “The commercial environment in China for information and communication technology (ICT) generally, and for commercial software in particular, has become more challenging during 2014.” And later in the same filing regarding China: “The intellectual property environment remains extremely challenging.”

The size and scope of those IP challenges regarding software will be highlighted in the next chapter.

In the end, though, whatever the industry, and whether domestically or internationally, the ills of piracy come down to lost output, lost competitiveness, lost businesses and lost jobs.
Small Business and IP...

The need for strong IP protections is critical around the globe. The challenge of protecting IP for small businesses reported is being helped along by one the world’s largest companies: “U.S. technology giant Microsoft decided to set up a portal that allows developers to protect their content. Microsoft launched Microsoft 4Africa IP Hub, a digital intellectual property (IP) portal to offer developers and independent software vendors a chance to protect and commercialize their innovation. The firm said that as more products roll out, the need for protecting work is becoming more relevant. ‘Most African innovators function on the premise that the idea is theirs until someone else takes it to market, or duplicates it,’ said Louis Otieno, director for Legal and Corporate Affairs, at the launch of Microsoft 4Africa in June. ‘As Africa’s innovation continues to flourish, the future remains uncertain if these promising ideas are not supported and protected properly.’” (“African Entrepreneurs Slowly Waking Up To Intellectual Property Rights” by Frank Mutulu, AFKInsider.com, July 23, 2014)
Software, whether system software or application software, serves as the brain of computers and computer systems, from the tablets to personal laptops to server farms to the Internet itself. In the end, hardware needs software to accomplish anything.

Computer hardware and software permeate nearly every endeavor in daily life, such as acquiring and preparing food, delivering health care, communications, entertainment, transportation, and most other forms of work and leisure.

Therefore, the brains – from operating systems to Microsoft Office applications, for example – provide tremendous value to the consumer, including individuals, families, students, entrepreneurs, investors, businesses and their employees.

That value, combined with the reality that software can be easily copied and exchanged, means that software piracy looms large, imposing serious losses on software firms, their workers, and the many businesses that serve software enterprises and employees.

According to “The Compliance Gap: BSA Global Software Survey”48: “Unlicensed software use continued to be a major problem in 2013. Indeed, 43 percent of the software installed on PCs around the world was not properly licensed, an uptick from 42 percent in 2011. The commercial value of the unlicensed installations was $62.7 billion.” The U.S. rate of 18 percent was well below the global average, while China’s rate of 74 percent was far worse.

Among the reasons not to violate IP when it comes to software, it was noted that “a large majority of IT managers (62 percent) cited security threats from malware

as the chief reason not to use unlicensed or mislicensed applications. Topping their list of concerns was the risk of losing data, followed by unauthorized access to company information, the time and costs involved in disinfecting, and loss of intellectual property or proprietary information.”

It also must be recognized that the negative fallout from software piracy is not limited to large software makers, but small firms as well. In fact, as noted in the following table, small and mid-size firms overwhelmingly populate the computer software industry.

### Software publishers

<table>
<thead>
<tr>
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<th>Employer Firms</th>
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<tbody>
<tr>
<td>Total Employer Firms</td>
<td>6,021</td>
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<tr>
<td>Firms with &lt; 500 Workers</td>
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<tr>
<td>Percent &lt;500</td>
<td>96.3%</td>
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<tr>
<td>Firms with &lt; 100 Workers</td>
<td>5,476</td>
</tr>
<tr>
<td>Percent &lt;100</td>
<td>90.9%</td>
</tr>
<tr>
<td>Firms with &lt; 20 Workers</td>
<td>4,345</td>
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<tr>
<td>Percent &lt;20</td>
<td>72.2%</td>
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Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013
Computer, equipment and software merchant wholesalers

<table>
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<tr>
<td>Total Employer Firms</td>
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<tr>
<td>Firms with &lt; 500 Workers</td>
<td>6,706</td>
</tr>
<tr>
<td>Percent &lt;500</td>
<td>98.1%</td>
</tr>
<tr>
<td>Firms with &lt; 100 Workers</td>
<td>6,492</td>
</tr>
<tr>
<td>Percent &lt;100</td>
<td>95.0%</td>
</tr>
<tr>
<td>Firms with &lt; 20 Workers</td>
<td>5,558</td>
</tr>
<tr>
<td>Percent &lt;20</td>
<td>81.3%</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2012

The last row in each of the above two tables is the most striking, i.e., that among employer firms, 72 percent of software publishers, and 81 percent of wholesalers that include software among their products have fewer than 20 workers. Those truly are small businesses, which certainly are affected by software piracy.

For good measure, it’s worth noting that large software firms wind up generating a host of small businesses that work with, benefit from, and serve those larger businesses.

For example, an October 2009 study from IDC, sponsored by Microsoft, was titled “Aid to Recovery: The Economic Impact of IT, Software, and the Microsoft Ecosystem on the Global Economy.” Among the areas examined was how large firms like Microsoft wind up working with and being served by small businesses.

It was reported, “IT spending provides revenues for more than 1.2 million companies selling or distributing hardware, software, and services.”
As for the Microsoft ecosystem, it encompassed nearly 700,000 companies. It was noted in the report: “This ecosystem is not only large but also diverse, ranging from large, name brand OEMs to small firms that build a few systems a year for a handful of customers, from the big application software companies to small, entrepreneurial companies writing applications in local languages, from multinational service firms to three-person shops selling value-added solutions into niche markets.” Furthermore, it was estimated “that more than two thirds of the companies in the ecosystem are small, local companies – often dealing with equally small, local IT using organizations.”

As for the impact of piracy on this Microsoft ecosystem, an earlier study, published in June 2008 by IDC (sponsored by Microsoft and the International Association of Microsoft Certified Partners), found, “For every dollar Microsoft realizes from lower software piracy in 2008, other companies in the software ecosystem will realize, in aggregate, $5.50.”

The ills of software theft were summed up nicely in “Powering the Digital Economy: A Trade Agenda to Drive Growth”\(^\text{49}\): “Ineffective protection and enforcement of software intellectual property is a significant barrier to international companies’ ability to sell and compete in key markets — and a huge security risk for end users, because when they use unlicensed software they do not always have access to critical patches and upgrades that can protect against viruses and other malware. Moreover, widespread use of unlicensed software hampers economic growth. According to a recent study conducted for BSA by the leading graduate business school INSEAD, global GDP could grow by $53 billion for each 1 percent increase in the use of licensed over unlicensed software.”

\(^{49}\) The Software Alliance, “Powering the Digital Economy: A Trade Agenda to Drive Growth,” January 2014.
As with music and movies (as we shall see), many people rationalize stealing software by claiming that the big software companies like Microsoft can afford to make a little less money. Of course, stealing is stealing, whether one steals from a big company or a small firm, or from a rich person or a poor person. In addition, the shareholders who own Microsoft include pension plans and small investors. Finally, as illustrated here, it’s not just large software firms that are affected, but also the small businesses that make up a huge share of the firms that populates and serves the software industry.
Small Business and IP...

The issue has not gone away since the late 1990s. For example, at one point during a late August 2006 concert, Mike Love, original lead vocalist and lyricist of the Beach Boys, jokingly introduced a song as coming from a time when “people used to pay for their music.” There it was, the twenty-first-century issue plaguing the music business, i.e., people illegally downloading music.

A few days before the August show, I had the chance to interview Love. Our conversation about the Beach Boys and their music wandered to the issue of IP theft in the music business. He split the effects into two camps.

Love argued that “for a group like the Beach Boys or the Beatles or anybody that has a catalogue, the whole iPod thing, the whole downloading thing, it just serves to expose your music to successive generations, more and more millions of people than you probably would.” He added a bit later: “I like to make money as well as the next guy, but if the song is heard by kids that would have never heard it because they would have never bought one of your things, then great.”

How does it pay off? Love said: “So what that does for us is it impacts a little bit on record sales … but where it really impacts is concerts because we notice children, more and
more young people, teens, pre-teens and young adults, they’re all getting exposed to the Beach Boys’ music through the means that they’re interested in.”

Love saw the big downside to music piracy falling on new creators and acts. He said: “If you’re not established, it’s tough. If you’re a record company breaking an artist, or if an artist is trying to get established ... and the people are just taking their music and they’re not getting compensated for it, then that’s really adverse. It’s not beneficial to them.”

So, rather than hurting the big companies and major acts, as so many of those involved in illegal downloading seem to assume, it’s the little guy, according to Love, who gets hurt most.

Perhaps the most interesting award given at the 54th Grammy Awards in February 2012 did not go to a singer, songwriter or musician. Instead, it went to a businessman. The late Steve Jobs, co-founder of Apple Computer Inc., received a Trustees Award.

At the Recording Academy's Special Merit Awards Ceremony, as noted on the Grammy's website, “Jobs’ Trustees Award was accepted by Eddy Cue, Apple’s senior vice president of Internet software and services, who made note of Jobs’ love of music. ‘Music shaped his life and made him who he was,’ said Cue. ‘When he introduced the iPod in 2001, people asked, “Why are you doing this?” He said, “We love music and it’s always good to do something you love.””

It has been argued by many, and rather persuasively, that Steve Jobs saved the music business.

Keep in mind that online theft of music took off in the late 1990s. According to RIAA data, album units shipped climbed ever higher from the early 1970s to 1999. What happened to change things at the end of the twentieth
century? Napster kicked off the explosion in music piracy, with other copyright-breaking services following over the subsequent years.

It was Jobs and Apple Computer that introduced the iPod and iTunes in 2001, which made online purchases of songs affordable, easy and appealing. It was something that, amazingly, the music industry was unable to accomplish on its own.

Of course, iTunes did not mean that music piracy went away. Rather, it remains a major problem and challenge. On its website, the RIAA has reported:

“While industry revenues from digital formats continue to grow, surpassing $4 billion for the first time in 2012, and reaching nearly $4.4 billion in 2013 while accounting for 64% of industry revenues, digital music theft has been a major factor behind the decline in sales over the past 15 years. And although use of peer-to-peer sites has flattened during recent years, other forms of digital theft have emerged, including unauthorized digital storage lockers used to distribute copyrighted music, streamripping programs, and mobile applications that enable digital content theft... Since peer-to-peer (p2p) file-sharing site Napster emerged in 1999, music sales in the U.S. have dropped 53 percent, from $14.6 billion to $7.0 billion in 2013.”

The RIAA: “The successful partnership between a music label and a global superstar – and the revenue generated –

finances the investment in discovering, developing and promoting the next new artist. Without that revolving door of investment and revenue, the ability to bring the next generation of artists to the marketplace is diminished – as is the incentive for the aspiring artist to make music a full time professional career.”

In the RIAA’s June 2014 publication “Labels at Work: The Music Business in the Digital Age,” it was explained: “Major record labels are still focused on what we do best: finding great artists, helping them reach their creative potential, and connecting them to fans. The difference is that we’re embracing new digital tools to do a better job than ever before. We’re essentially venture capitalists for music: investing in the great, unknown artists of today so they can become the superstars of tomorrow.” Specifically, it was reported: “In 2011, record companies worldwide invested 16 percent of their revenues in A&R [artists and repertoire], which handles talent scouting and artist development. That investment tops other R&D-intensive industries including pharmaceuticals and biotech, computer software, and high-tech hardware.” It is further pointed out, however, that these “are risky investments, since so few songs or albums end up as hits.” Consider:

- “Out of 8 million digital tracks sold in 2011, 7.5 million sold less than 100 copies.”

- “80% of albums released in 2011 sold less than 100 copies and 94% sold less than 1000 copies.”

- “In 2011, only one-half of one percent of all albums that sold even a single copy sold more than 10,000.”

- “Most record companies recovered their investments in only one out of every five or six new albums.”
The RIAA also notes a striking correlation between the decline in music sales and a decline in the number of people working as “musical groups and artists” according to Bureau of Labor Statistics numbers. The RIAA analysis sums up: “Selling music is an important motivator to creating music, and ... the decline in sales has correlated with fewer people making a living in music.”

As is the case with piracy of software, there is a great deal of flippant justification for illegal downloading of music by writing it off as big music companies and famous stars able to afford some lost sales. Again, this in no way justifies stealing. But it’s also dead wrong in terms of the make up of the music business, as noted in the following:

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</thead>
<tbody>
<tr>
<td>Total Employer Firms</td>
<td>4,428</td>
</tr>
<tr>
<td>Firms with &lt; 500 Workers</td>
<td>4,422</td>
</tr>
<tr>
<td>Percent &lt;500</td>
<td>99.9%</td>
</tr>
<tr>
<td>Firms with &lt; 100 Workers</td>
<td>4,349</td>
</tr>
<tr>
<td>Percent &lt;100</td>
<td>98.2%</td>
</tr>
<tr>
<td>Firms with &lt; 20 Workers</td>
<td>4,157</td>
</tr>
<tr>
<td>Percent &lt;20</td>
<td>93.9%</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

### Sound recording industries

<table>
<thead>
<tr>
<th>Categories</th>
<th>Employer Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Employer Firms</td>
<td>3,444</td>
</tr>
<tr>
<td>Firms with &lt; 500 Workers</td>
<td>3,430</td>
</tr>
<tr>
<td>Percent &lt;500</td>
<td>99.6%</td>
</tr>
<tr>
<td>Firms with &lt; 100 Workers</td>
<td>3,406</td>
</tr>
<tr>
<td>Percent &lt;100</td>
<td>98.9%</td>
</tr>
<tr>
<td>Firms with &lt; 20 Workers</td>
<td>3,302</td>
</tr>
<tr>
<td>Percent &lt;20</td>
<td>95.9%</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

### Music publishers

<table>
<thead>
<tr>
<th>Categories</th>
<th>Employer Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Employer Firms</td>
<td>726</td>
</tr>
<tr>
<td>Firms with &lt; 500 Workers</td>
<td>720</td>
</tr>
<tr>
<td>Percent &lt;500</td>
<td>99.2%</td>
</tr>
<tr>
<td>Firms with &lt; 100 Workers</td>
<td>710</td>
</tr>
<tr>
<td>Percent &lt;100</td>
<td>97.8%</td>
</tr>
<tr>
<td>Firms with &lt; 20 Workers</td>
<td>689</td>
</tr>
<tr>
<td>Percent &lt;20</td>
<td>94.9%</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013
### Sound recording studios

<table>
<thead>
<tr>
<th>Categories</th>
<th>Employer Firms</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Employer Firms</td>
<td>1,672</td>
<td></td>
</tr>
<tr>
<td>Firms with &lt; 500 Workers</td>
<td>1,669</td>
<td>99.8%</td>
</tr>
<tr>
<td>Percent &lt; 500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firms with &lt; 100 Workers</td>
<td>1,663</td>
<td>99.5%</td>
</tr>
<tr>
<td>Percent &lt; 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firms with &lt; 20 Workers</td>
<td>1,624</td>
<td>97.1%</td>
</tr>
<tr>
<td>Percent &lt; 20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

### Radio broadcasting

<table>
<thead>
<tr>
<th>Categories</th>
<th>Employer Firms</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Employer Firms</td>
<td>3,431</td>
<td></td>
</tr>
<tr>
<td>Firms with &lt; 500 Workers</td>
<td>3,376</td>
<td>98.4%</td>
</tr>
<tr>
<td>Percent &lt; 500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firms with &lt; 100 Workers</td>
<td>3,288</td>
<td>95.8%</td>
</tr>
<tr>
<td>Percent &lt; 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firms with &lt; 20 Workers</td>
<td>2,764</td>
<td>80.6%</td>
</tr>
<tr>
<td>Percent &lt; 20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013
Sound recording industries: Nonemployers (self-employed with no paid employees)

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total establishments</td>
<td>22,825</td>
</tr>
<tr>
<td>Corporations</td>
<td>1,433</td>
</tr>
<tr>
<td>Individual proprietorships</td>
<td>20,325</td>
</tr>
<tr>
<td>Partnerships</td>
<td>1,067</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

All five of the music industries highlighted here are overwhelmingly about small employer firms with less than 20 employees, i.e., 94 percent of musical groups and artists; 96 percent of sound recording industries; 95 percent of music publishers; 97 percent of sound recording studios; and 81 percent of radio broadcasting.

Jobs’ love of music, combined with his business common sense, led him to understand the need to protect intellectual property if the music business were to survive.

Of course, while piracy is a major challenge, broadband and digital technologies have provided benefits for consumers and the music industry, including services such as iTunes that allow the immediate purchase, download and consumption of music.

In the “IFPI Digital Music Report 2015: Charting the Path to Sustainable Growth,” it was reported:

- Global recording industry digital revenues registered $6.85 billion in 2014, with the proportion of digital revenues matching revenues from physical sales for the first time (46 percent each). Music subscription services were a major growth driver, up 39 percent in 2014 to $1.57
billion, and making up 23 percent of global digital revenues. Meanwhile, physical format sales in 2014 were down 8.1 percent and downloads fell by 8.0 percent. In the end, “overall recorded music revenues in 2014 fell slightly by 0.4 per cent to US$14.97 billion.”

• “The US saw overall revenues increase by 2.1 per cent in 2014, as increasing digital income offset the fall in physical format sales.”

• “IFPI estimates that in 2014 there were four billion music downloads via BitTorrent alone, the vast majority of which are infringing, and this does not take into account other channels such as cyberlockers, linking sites and social networks.”

In addition, broadband Internet, and assorted services and sites, like YouTube, have allowed musicians to get their music out through new and varied avenues, without the need for backing from a recording company.

No doubt, the music industry of the past decade has been altered in dramatic fashion, requiring new thinking and new business models in the face of technological upheaval and dramatic declines in overall revenues.

But the idea that the music business, as well as government, should simply give up the piracy fight is rooted in an astounding economic ignorance.

In contrast, Steve Jobs understood the realities of music and protecting IP. In his biography Steve Jobs, Walter Isaacson wrote about Jobs, piracy and protecting IP:

“At this point Jobs could have decided simply to indulge piracy. Free music meant more valuable iPods. Yet because he really liked music, and the artists who made it, he was opposed to what he
saw as the theft of creative products. As he later told me:

“From the earliest days at Apple, I realized that we thrived when we created intellectual property. If people copied or stole our software, we’d be out of business. If it weren’t protected, there’d be no incentive for us to make new software or product designs. If protection of intellectual property begins to disappear, creative companies will disappear or never get started. But there’s a simpler reason: It’s wrong to steal. It hurts other people. And it hurts your character.’

“He knew, however, that the best way to stop piracy – in fact the only way – was to offer an alternative that was more attractive than the brain-dead services that music companies were concocting.”

Steve Jobs combined an understanding of the importance of IP with an incredible talent for innovating, and the result allowed the music industry to have a fighting chance in competing with “free,” that is, online piracy.
Small Business and IP...

According to a November 2014 avclub.com report (“The Expendables 3 producer vows to hunt down online pirates”), one of the producers of The Expendables 3, Avi Lerner, is looking to track down every person that illegally downloaded the movie. The avclub.com story opened: “One of the producers of The Expendables 3 says he will individually hunt down every one of the 10 million people who illegally downloaded The Expendables 3, presumably with extreme prejudice. Avi Lerner believes that the leak of a DVD-quality torrent of the film weeks before its theatrical release date cost him and his colleagues a quarter of a billion dollars in revenue—a quarter of a billion dollars he has vowed to avenge. ‘I want to protect our property and the thousands of people who made our movie,’ Lerner tells Variety, presumably while strapping on a bandolier and smearing eye black on his cheeks. ‘We want to go after those 10 million people.’”

On April 19, 2015, The New York Times noted (“Small Film Producers Form a Group to Counter Piracy”) that Lerner, and his company Millennium, is a major force behind a new antipiracy coalition – the Internet Security
Task Force – aimed at “mobilizing small businesses in the television, music, game and software industries against online theft.”

Later in the article, it was reported, “Millennium’s president, Mark Gill, described it as a last-ditch effort by relatively fragile companies with fewer than 50 employees to avoid what they say is the near destruction of their prospective blockbusters, as happened to Millennium and its partners with ‘The Expendables 3’ last year. ‘Maybe larger businesses can afford to take a hit,’ Mr. Gill said in a phone interview last week. ‘But we don’t have that luxury, we can’t survive.’”

IP theft of Hollywood productions is not just about hurting big studios and glamorous stars. Rather, it’s primarily about inflicting harm on small businesses and their employees. Serious efforts to protect IP are good news for small business – and it’s kind of cool that the Expendables have the backs of small businesses.

What’s the most pirated television show?

According to a Variety.com story, the top television shows that were downloaded illegally in 2014 were “Game of Thrones” at 48.369 million downloads, “The Walking Dead” at 47.642 million, “The Big Bang Theory” at 33.431 million, “Arrow” at 29.296 downloads, and “The Vampire Diaries” at 22.921 million.\(^5^2\)

What about films?

Again, according to Variety.com, the top illegal downloads in 2014 were “The Wolf of Wall Street” at

30.035 million downloads, “Frozen” at 29.919 million, “Robocop” at 29.879 million, “Gravity” at 29.357 million, and “The Hobbit: The Desolation of Smaug” at 27.627 million.\(^53\)

At the same time, of course, enormous opportunities and benefits have emerged and will continue to do so due to advancements in computer, telecommunications and digital technologies. Those opportunities and benefits exist for current movie and television businesses, as well as new creative entrepreneurs – or one might say, for both old and new Hollywood – and most obvious perhaps, for consumers, who reap the rewards of increased choices, improved picture and sound quality, vastly enhanced special effects, and expanding avenues for viewing films and television, including services like iTunes, and video streaming from Netflix to Amazon.com to Hulu.com to YouTube.

In terms of longtime studios, for example, in March 14, 2011, testimony before the U.S. House of Representatives Subcommittee on Intellectual Property, Competition and the Internet, Frederick Huntsberry, chief operating officer for Paramount Pictures, said, “At Paramount Pictures, we believe in coming years consumers will increasingly choose to view our motion pictures via authorized online and mobile distribution. Paramount currently licenses more than 200 online digital distribution platforms across more than 70 countries covering more than 750 films in more than 25 languages.”

Meanwhile, various firms are chipping away at the traditional television model through original online content. That, of course, has included “House of Cards” on Netflix, “The Man in the High Castle” on Amazon Prime, Crackle’s “Comedians in Cars Getting Coffee,” Netflix’s

revival of “ Arrested Development,” “ Daredevil” also on Netflix, and many more.

Some ponder about the next steps. Consider the following from a February 2012 column of mine for the Dolan Company (running in Long Island Business News and the Colorado Springs Business Journal):

“But one of the most interesting people talking up the enormous opportunities at hand is Zachary Levi, who starred as the tech-nerd-turned-spy in the NBC show ‘Chuck’ that just finished its five-year run in January. Levi is quite entrepreneurial, with his own company and website called The Nerd Machine, which hosted “NerdHQ” in July [2011] during Comic-Con International in San Diego. Levi brought in various TV buddies to talk to fans, with the idea to have fun and raise funds for charity.

“During a ‘Chuck’ panel, Levi spoke about his own vision for television, which is far bolder and more exciting than what others are considering.

“Using shows like “Chuck” and the cult classic ‘Firefly’ to make his points with a sci-fi heavy audience, Levi noted that with the technology at hand, no reasons exist for such shows to ‘be on the chopping block any more.’ He explained that the livelihood of such shows could be put directly in viewers’ hands ‘because you have the power already... If all of a sudden we were to say, hey look, “Chuck” is not going to be on TV any more, but we can make it online and we’re going to sell it for two bucks an episode, would you guys buy ‘Chuck’ for two dollars an episode?”

“Levi recognized the challenge of offerings being ‘free’ on the Internet, whether due to advertising or piracy. He noted the role consumers
must play: ‘In the next five years, as everything goes to a subscription model, or goes to an iTunes-type of model, if you guys decide somebody else is going to pay for it – I’m just going to enjoy it – it will die. But if you support it, it will live. And then 2 million people, by the way, can keep a show on the air.’

“That model makes a lot of sense in the Internet age. But being an avid video gamer, Levi’s vision is even more expansive: ‘I want to make fun video-game television shows or movies. I want to go fly around in space and go kill aliens... Maybe you can watch that, you can just sit back and passively watch it like all the other shows you’ve known and loved ... or at any given time, maybe your Xbox goes, ‘Hey, pick up your controller if you want to participate in the fight.’ ... You finish a level and then the story picks up again.’

“That’s what today’s technology should be about, i.e., more consumer power and choices. And make no mistake, that’s where it’s headed.”

It’s increasingly a digital world, and entertainment entrepreneurs and companies realize that embracing digital means embracing opportunity.

At the same time, the threat of losing one’s intellectual property is real and significant, as noted in the aforementioned numbers on pirated movies and TV shows, and by Levi’s mentioning that if consumers don’t pay but just choose to enjoy, it will die.

Movie and TV piracy, of course, can happen via various tools. Advancements in digital camcorders mean high-quality versions of films recorded in movie theaters to be distributed online or via bootlegs. Peer-to-peer networks have been a major source of pirated content for more than
a decade now. And digital storage lockers and streaming videos via rogue website have become a more recent favorite for distributing copyrighted material.

Indeed, piracy via streaming has grown as a problem. As reported by Money-CNN on May 20, 2015 – “Now it’s easier to watch illegal movie streams” – “Popcorn Time, a controversial streaming service for pirated movies, is now easier than ever to use. All you need to access the so-called Netflix for pirated movies is a Web browser. Previously, Popcorn Time viewers had to download separate software onto their PCs, Macs or Android smartphones... Though not all torrents are illegal, Popcorn Time has had a reputation for disregarding copyrights.”

In November 2011 testimony before the House Judiciary Committee, Michael O’Leary, executive vice president of global policy and external affairs for the MPAA, reported: “Currently, the most pernicious forms of digital theft occur through the use of so-called ‘rogue’ websites or cyberlockers. These platforms – I will refer to them today as ‘rogue sites’ for simplicity – facilitate the illegal distribution of copyrighted works through many different forms, including streaming, downloading, or linking to another site or service offering unauthorized content. These rogue sites, whose content is hosted and whose operators hide around the world, are increasingly sophisticated in appearance and take on many attributes of legitimate content delivery sites, creating additional enforcement challenges and feeding consumer confusion.”

Four professors – Liye Ma, an assistant professor at the Smith School of Business at the University of Maryland; Param Vir Singh and Alan L. Montgomery, both associate professors at the Tepper School of Business; and Michael D. Smith, a professor at the Heinz College and Tepper
School of Business – looked at the issue of pre-release of movie digital theft.\textsuperscript{54} The explained the debate this way:

“Motion picture studios have limited resources to fight piracy, and must allocate these resources intelligently across different portions of a product’s lifecycle. Many in the industry believe that piracy could be particularly harmful in the period prior to a movie’s official release for two main reasons. First, there are no legal alternative channels where consumers can consume the movie. Second, because pre-release piracy presumably comes disproportionately from those individuals most passionate about and most interested in watching the movie. However, some argue that pre-release piracy will have no impact on movie revenue, or could even help theatrical revenue by increasing the buzz for the movie or by complementing the higher quality experience consumers get from viewing the movie in the theater.”

The authors’ found the following: “Using data collected from a unique Internet site which provides information about the timing and quality of pirate sources, and by combining this with information on box office revenue and various other movie characteristics, we find that pre-release piracy significantly reduces a movie’s expected box office revenue and that this impact is stronger earlier in a movie’s lifecycle than in later periods. When these effects

are combined, we find that, on average, pre-release piracy reduces box office revenue by 19% compared to an environment where piracy occurs after the theatrical release."

No doubt, entertainment entrepreneurs and businesses must stay at the cutting edge of serving customers, meeting their needs and desires, and therefore, at the cutting edge of technology. At the same time, though, competing with free – i.e., stolen – remains a formidable business feat.

Does such IP theft really matter, though? Again, as with music and software, plenty of people say that big movie and television companies can afford to lose some business. But that, once more, is mere rationalization for stealing. For good measure, IP theft in the movie and television industries is not just about big Hollywood studios. Indeed, far from it. Harm comes to small business.

In his testimony, the MPAA’s O’Leary noted:

“Our industry also includes more than 95,000 small businesses across the country that are involved in the production and distribution of movies and television, the vast majority of which employ fewer than 10 people. These are businesses like Fletcher Camera & Lenses in Chicago, whose full-time staff of 25 employees works to provide equipment for film, television, and commercial productions in the Midwest.

“And beyond even these are the hundreds of thousands of other businesses that every year provide services to productions, like the local drycleaner that served the cast and crew on location or the local hardware store that supplied paint and lumber. For example, Budecke’s Paints & Decorating of Baltimore, Maryland, a fifth-generation family-owned and-operated retailer,
which has supplied paint for virtually every major production filmed in the area in recent years. The motion picture and television industry made $38.9 billion in payments to more than 208,000 such businesses in 2009. On average, a major motion picture shooting on location contributes $225,000 every day to the local economy.”

Based on Census Bureau industry codes, consider the following tables that show the important role of small businesses in Hollywood:

<table>
<thead>
<tr>
<th>Categories</th>
<th>Employer Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Employer Firms</td>
<td>18,175</td>
</tr>
<tr>
<td>Firms with &lt; 500 Workers</td>
<td>18,074</td>
</tr>
<tr>
<td>Percent &lt;500</td>
<td>99.4%</td>
</tr>
<tr>
<td>Firms with &lt; 100 Workers</td>
<td>17,891</td>
</tr>
<tr>
<td>Percent &lt;100</td>
<td>98.4%</td>
</tr>
<tr>
<td>Firms with &lt; 20 Workers</td>
<td>16,886</td>
</tr>
<tr>
<td>Percent &lt;20</td>
<td>92.9%</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013
## Motion picture and video distribution

<table>
<thead>
<tr>
<th>Categories</th>
<th>Employer Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Employer Firms</td>
<td>372</td>
</tr>
<tr>
<td>Firms with &lt; 500 Workers</td>
<td>365</td>
</tr>
<tr>
<td>Percent &lt;500</td>
<td>98.1%</td>
</tr>
<tr>
<td>Firms with &lt; 100 Workers</td>
<td>359</td>
</tr>
<tr>
<td>Percent &lt;100</td>
<td>96.5%</td>
</tr>
<tr>
<td>Firms with &lt; 20 Workers</td>
<td>340</td>
</tr>
<tr>
<td>Percent &lt;20</td>
<td>91.4%</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

## Motion picture and video exhibition

<table>
<thead>
<tr>
<th>Categories</th>
<th>Employer Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Employer Firms</td>
<td>2,025</td>
</tr>
<tr>
<td>Firms with &lt; 500 Workers</td>
<td>1,988</td>
</tr>
<tr>
<td>Percent &lt;500</td>
<td>98.2%</td>
</tr>
<tr>
<td>Firms with &lt; 100 Workers</td>
<td>1,916</td>
</tr>
<tr>
<td>Percent &lt;100</td>
<td>94.6%</td>
</tr>
<tr>
<td>Firms with &lt; 20 Workers</td>
<td>1,448</td>
</tr>
<tr>
<td>Percent &lt;20</td>
<td>71.5%</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013
## Postproduction services and other motion picture and video industries

<table>
<thead>
<tr>
<th>Categories</th>
<th>Employer Firms</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Employer Firms</td>
<td>2,417</td>
<td></td>
</tr>
<tr>
<td>Firms with &lt; 500 Workers</td>
<td>2,401</td>
<td>99.3%</td>
</tr>
<tr>
<td>Percent &lt;500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firms with &lt; 100 Workers</td>
<td>2,369</td>
<td>98.0%</td>
</tr>
<tr>
<td>Percent &lt;100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firms with &lt; 20 Workers</td>
<td>2,228</td>
<td>92.2%</td>
</tr>
<tr>
<td>Percent &lt;20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

## Television broadcasting

<table>
<thead>
<tr>
<th>Categories</th>
<th>Employer Firms</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Employer Firms</td>
<td>893</td>
<td></td>
</tr>
<tr>
<td>Firms with &lt; 500 Workers</td>
<td>836</td>
<td>93.6%</td>
</tr>
<tr>
<td>Percent &lt;500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firms with &lt; 100 Workers</td>
<td>757</td>
<td>84.8%</td>
</tr>
<tr>
<td>Percent &lt;100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firms with &lt; 20 Workers</td>
<td>577</td>
<td>64.6%</td>
</tr>
<tr>
<td>Percent &lt;20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013
Unleashing Small Business Through IP

### Cable and other subscription programming

<table>
<thead>
<tr>
<th>Categories</th>
<th>Employer Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Employer Firms</td>
<td>400</td>
</tr>
<tr>
<td>Firms with &lt; 500 Workers</td>
<td>370</td>
</tr>
<tr>
<td>Percent &lt;500</td>
<td>92.5%</td>
</tr>
<tr>
<td>Firms with &lt; 100 Workers</td>
<td>353</td>
</tr>
<tr>
<td>Percent &lt;100</td>
<td>88.3%</td>
</tr>
<tr>
<td>Firms with &lt; 20 Workers</td>
<td>300</td>
</tr>
<tr>
<td>Percent &lt;20</td>
<td>75.0%</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

### Video tape and disc rental

<table>
<thead>
<tr>
<th>Categories</th>
<th>Employer Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total employer firms</td>
<td>1,655</td>
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<tr>
<td>Firms with &lt; 500 Workers</td>
<td>1,650</td>
</tr>
<tr>
<td>Percent &lt;500</td>
<td>99.7%</td>
</tr>
<tr>
<td>Firms with &lt; 100 Workers</td>
<td>1,645</td>
</tr>
<tr>
<td>Percent &lt;100</td>
<td>99.4%</td>
</tr>
<tr>
<td>Firms with &lt; 20 Workers</td>
<td>1,582</td>
</tr>
<tr>
<td>Percent &lt;20</td>
<td>95.6%</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013
Motion picture and video industries: Nonemployers 
(self-employed with no paid employees)

<table>
<thead>
<tr>
<th>Total establishments</th>
<th>70,602</th>
</tr>
</thead>
<tbody>
<tr>
<td>corporations</td>
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<td>individual proprietorships</td>
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</tr>
<tr>
<td>partnerships</td>
<td>4,177</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

According to the MPAA\(^{55}\), the motion picture and television industries supported 1.9 million jobs and $113 billion in wages in 2013, “contributed $130 billion in sales to the overall economy in 2013,” and generated $15.8 billion in exports. And like so many other industries, as we have seen, the movie and television business is mostly about small business. The MPAA estimates that the entire industry is “comprised of more than 94,000 businesses in total, located in every state in the country,” with 85 percent employing less than 10 people.

Finally, what about consumers? Well, considering the impact that IP theft has on creativity, it is notoriously hard to disentangle the piracy effect from other factors. In a recent study, two authors – Rahul Telang from Carnegie Mellon University and Joel Waldfogel from the University

of Minnesota and NBER – looked at the case of India to examine the link between copyright theft and the supply of new creative works. The authors explained:

“In the decade and a half since Napster, copyright research has found substantial negative impacts of piracy on revenue. Given the costs of bringing works to market, one might expect evidence of a negative impact of piracy on the supply of products. Yet, such evidence has been elusive. In the music context, substantial cost reductions seem to have offset revenue reductions, leading to net growth in the number of new products as well as their appeal. In this paper, using the experience of the Indian movie industry during the diffusion of VCR and cable piracy, we offer direct evidence of an impact of piracy on the supply of new products.”

What did they find? According to the authors:

“We find that during the period of widespread unpaid consumption, revenue fell by a third to a half. Over the same period, the number of new products released fell substantially, suggesting a supply elasticity on the order of 0.5-0.7. While our results provide clear evidence that piracy can undermine the creation of new products, a comparison of the Indian context with others shows that the impact of shocks to revenue depends on other

facts as well, such as how technological change affects costs.”

When intellectual property is undercut regarding television and movies, tens of thousands of small businesses and millions of jobs are undercut, as is creativity.
Small Business and IP...

The impact that gaming piracy can have on new game developers is real and negative. Peter Ong, co-founder “Epic Mickey 2: The Power of Illusion” studio DreamRift, was quoted: “We definitely found that piracy was a significant factor in our Nintendo DS development efforts. When we approached publishers to propose potential game projects with them, most of them brought up their concerns about piracy at some point. Many publishers even cited the issue of piracy as a specific reason why they decided to back away from our game project, especially with it being an original intellectual property concept. The publishers' fear was that, in a climate where piracy is commonplace, original games and new mechanics are far less likely to be successful than games based on previously successful mechanics, established licenses, sequels, and sports.”

Video gaming is not just for kids anymore, not by a long shot.

Consider some key points from the Entertainment Software Association (ESA) publication titled “Essential Facts About the Computer and Video Game Industry: 2015 Sales, Demographic and Usage Data”:

• 155 million Americans play video games and four out of five households own a device used to play video games.

• 51% of U.S. households own a dedicated game console.

• 42% of Americans play video games regularly (3 or more hour per week).

• The average game player is 35 years old, with 26% under 18 years old, 30% between 18 and 35, 17% from 36 to 49, and 27% are 50 years or older.

• 56% of game players are male and 44% female.

• And as for the economic impact, consumers spent $22.4 billion on games industry in 2014, with $154 billion spent on content, $5.08 billion on hardware, and $1.93 billion on accessories. Sales have moved dramatically towards digital content – from 71% physical and 29% digital in 2010 to 48% physical and 52% digital in 2014.

Once again, small businesses are the dynamic innovators, with technological advancements creating new opportunities. Consider, for example, the following from a September 2015 article on The Motley Fool website (“3 Ways the Video Game Industry Is Changing”):
“The barrier to entry for small game developers has eroded, making it possible for hit games that sell millions of copies to be made by a small group of developers with few resources.

“Services like Steam have made it possible for developers to reach millions of potential customers without the need for a big publishing company and a network of retail stores. Top-of-the-line game engines and development tools, which would previously need to be developed in-house or licensed for thousands or even millions of dollars, are now affordable for even the smallest of development teams. Epic Games, the company behind the Unreal Engine, switched to a $19 per month plus 5% royalty model last year, drastically broadening its reach.

“Even the process of funding games is being upended. Crowdfunding sites like Kickstarter and Steam's early access program, where developers can sell access to unfinished games, have created new options for small developers. Incredibly, half of the games that have sold over 1 million units on Steam so far this year have been early access titles.

“All of this points to a broadening of the video game industry, which is a great thing for consumers. The success of Steam's early access program, in particular, demonstrates that there's plenty of pent-up demand for the types of games that big game companies simply aren't interested in producing. While big-budget games certainly aren't going away, the major game companies are facing more competition than ever before.”

But like other software and entertainment industries, theft, or piracy, is a serious problem. The Entertainment
Software Association of Canada summed up the costs of piracy, including the effects on small firms, as follows:

“Piracy is estimated to cost the U.S. and Canadian entertainment software industries more than $3.5 billion annually. This figure only includes hard goods and does not include losses from Internet piracy. Piracy levels in Canada are abnormally high and have significant negative impacts on the Canadian video game industry. Piracy siphons the revenue necessary to recover the enormous investments associated with video game production. This can often have a disproportionate impact on smaller, independent studios whose success often hinges on the release of a single game it has spent years developing. If the company is unable to generate significant revenue from the royalties of game sales, it may not be capable of weathering such a staggering financial loss. The impact of piracy, then, can be ruinous.”

Similarly, the ESA notes the importance of IP on its website:

“U.S. intellectual property laws provide important protections to ensure that video games continue to be enjoyed by the millions of gamers worldwide. Copyright law in particular aims to protect the creative contributions of programmers, developers, and artists, along with the millions of dollars invested by publishers to bring a game to market by

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providing creators’ the right to recoup these substantial investments.”

In response to the formation of a new Department of Justice Task Force on Intellectual Property in early 2010, Michael D. Gallagher, president and CEO of the ESA, observed: “Intellectual property is the lifeblood and backbone of entertainment software. Consumers benefit with the lower cost, high-quality and more diverse title offerings that are made possible by strong measures protecting the creative works of our industry’s artists.”

Gallagher, of course, was absolutely correct. And his sentiments apply both domestically and in the international marketplace.

Again, it is small businesses that suffer most when intellectual property rights are violated – including in the video gaming industry.

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13

IP Industry: Pharmaceuticals

Small Business and IP...

Pharmaceutical manufacturing is “IP-intensive” and is filled with smaller midsize entrepreneurial firms. A May 8, 2015, Boston Globe section titled “Cutting-edge medical procedures and novel prescriptions for health” highlighted game-changing breakthroughs. One company written about by Robert Weisman was Alnylam Pharmaceuticals, which “gained important momentum last year for its promising technology known as RNA interference, which fights diseases by silencing genes that cause unwanted overproduction of proteins in cells.” Alnylam, founded in 2002, also was noted for its “pipeline for rare-disease drug candidates” and experimental drugs against such diseases as hemophilia. Go to Alnylam’s website and you find a major emphasis on intellectual property, noting that their “patents and pending applications place Alnylam in the strongest possible position to ... build our company over the long-term and accelerate our efforts to bring life-saving drugs to patients in need.”
U.S. firms lead the global pharmaceutical industry.

For example, in its “2011 Profile: Pharmaceutical Industry,” the Pharmaceutical Research and Manufacturers of America (PhRMA) reported the following: “Today, much of the pharmaceutical research formerly done in other countries – especially in Europe – is conducted in the United States. In fact, a recent study found that about 64% of research on new medicines approved in the last 10 years was done in this country. In addition, the United States generates 80% of global biotechnology R&D.”

The International Trade Administration (ITA) has reported: “According to an industry survey by Ernst and Young, the U.S. accounts for over 60 percent of the world’s employment in dedicated biotechnology firms and 70 percent of R&D.”

In an April 2014 PhRMA report evaluating future growth prospects for the U.S. biopharmaceutical industry, key points of U.S. leadership in biopharmaceutical innovation were highlighted:

• “The U.S. stands out in biopharmaceutical research, with 37 percent of the publications in peer-reviewed medical journals worldwide.”

• “The U.S. leads the world in biopharmaceutical IP generation, with 37 percent of biopharmaceutical patents.”

• “The U.S. leads the world in both overall clinical trial activity and early stage clinical research.”

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• “Over 70 percent of worldwide venture capital investments in high-growth potential start-up biopharmaceutical companies are made in the U.S.”

A variety of reasons exist for this U.S. leadership, but in an increasingly competitive, integrated and mobile global economy, the lack of price controls on drugs in the U.S., coupled with stronger intellectual property protections compared to most other nations, are central.

Given the tremendous costs and risks involved with developing new medicines, the ability to create, protect and earn returns on intellectual property is paramount in making sure that crucial investments and innovation occur.

In the Economic Report of the President 2006, it was noted in an essay titled “The Role of Intellectual Property in the Economy”: “Industries such as chemicals, pharmaceuticals, information technology, and transportation are highly dependent on patent protection to provide the incentives to innovate.”

Later, it was explained:

“The link between improved intellectual property protection and increased innovation can be seen at the firm level for companies in developing and developed countries. One study showed that 80 percent of 377 firms surveyed in Brazil would invest more in internal research if more legal protection, such as improved intellectual property-right protection, were available. A similar study of U.S. firms showed that the availability of patent protection in the United States was a critical factor in research and development decisions. Using a random sample of 100 U.S. manufacturing firms, this study found that had it not been for the availability of patents, 60 percent of the inventions
in the pharmaceutical industry and nearly 40 percent of the inventions in the chemical industry would not have been developed.”

The ITA also pointed out, “The United States has a supportive domestic environment for the development and commercialization of pharmaceuticals. Its strengths include a robust intellectual property system that recognizes and rewards innovation and a science-based regulatory system that is considered the most rigorous in the world. FDA approval facilitates regulatory approval in other countries, especially in developing economies. The U.S. is the world’s largest market by value and its reimbursement and pricing environment is considered by industry as the most favorable in terms of recognizing the value of innovative drugs.”

Again, in that April 2014 PhRMA report on future growth in the U.S. biopharmaceutical industry, three policy factors were identified as “most critical for enabling innovation and the resulting economic contributions in biopharmaceutical R&D and manufacturing...: (1) coverage and payment policies that support and encourage medical innovation; (2) a well-functioning, science-based regulatory system; and (3) strong IP protections.” It was continued in the report: “Of the 38 sub-attributes assessed, the single most important attribute identified as critical to driving future biopharmaceutical industry growth in the U.S. is a domestic IP system that provides adequate patent rights and data protection to sustain continued investment in the lengthy and costly R&D process needed to develop new medicines.”

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The study highlights the centrality of IP to the pharmaceutical industry: “The biopharmaceutical industry stands 2nd to the semiconductor industry in both patent applications and patents issued, outpacing the automotive and aerospace industries. Based on R&D expenditures per issued patent, a reflection of the complexity of the technology and the level of investment needed to produce a patentable invention, the biopharmaceutical industry requires twice the level of investment per patent than the automotive industry, the next highest industry.”

It’s important to understand that price controls amount to government-imposed theft of returns on intellectual property investment. Then consider the fact that bringing a drug to market is a costly and risky endeavor. According to the “2015 Profile: Biopharmaceutical Research Industry,” PhRMA reported:

• “On average, it takes more than 10 years for a new medicine to go through the entire R&D process, from the time the compound is identified to when it receives approval from the US Food and Drug Administration (FDA).”

• “The average cost to develop a new medicine is estimated to be $2.6 billion. This number accounts for the cost of failures, as many of the initial investigate compounds that are developed will not make it through to FDA approval. Reflecting the growing complexity of the process, the total cost of development more than doubled in the last decade.”

Again, this is a high risk, high cost venture. Consider that in real 2013 dollars, the average cost of developing a new medicine has risen from $179 million in the 1970s to $413 million in the 1980s, $1 billion in the 1990s and early 2000s to the current estimate of $2.6 billion in the 2000s-
early 2010s. So, when government steps in to set prices and limit returns, no one should be surprised that investment and innovation are diverted elsewhere. As noted, by the ITA: “Sometimes pricing levels can make it difficult to generate returns to compensate for investment into high risk, innovative drugs.”

Likewise, the failure to explicitly protect intellectual property means reduced industry activity. When it comes to pharmaceuticals, there are numerous problems looming internationally on the IP front, such as “the lack of protection against unauthorized disclosure of test data generated to obtain regulatory marketing approval for pharmaceuticals, ... unfair commercial use of regulatory test data, ... laws that limit the scope of patentability for certain chemical forms, inadequate protection and enforcement of patented products on the market, the proliferation of counterfeit medicines, and lack of an effective system to prevent the issuance of marketing approvals of generic copies of patented drugs.”

Indeed, such IP worries were confirmed in, for example, IMAP’s “Pharmaceuticals & Biotech Industry Global Report – 2011,” where it was pointed out that “protection and enforcement of IP rights remains a difficult issue in many emerging markets, with counterfeit and first-copy products rife. For example, India’s patent system fails to reach the required standard, with the recent rejection of the patent for Bayer’s Nexavar (sorafenib) as one notable example. Unless such issues are sorted out, pharma companies must adapt their drug portfolios and commercialization strategies to the particular local market conditions.”

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For good measure, there is the matter of compulsory licensing, whereby a government authorizes a company to produce a drug without the consent of the firm holding the IP rights on the drug. A January 2013 report noted that the government in India “appointed a panel to look into issues related to compulsory licensing of drugs and whether cheaper versions of cancer medicines Trastuzumab, Ixabepilone and Dasatinib can be launched under the provision…” Unfortunately, it’s easy to see how compulsory licenses would move beyond legitimate health emergencies, and become a policy of government to undermine IP. In a June 2012 statement on India’s compulsory licensing, PhRMA President and CEO John Castellani noted, “While India has not routinely issued compulsory licenses (CL), PhRMA believes it is not an appropriate tool even if granting CLs may be a legal option. Assessments of particular compulsory licensing policies and decisions need to be made on a case-by-case basis, taking into account a number of factors. Legitimate health emergencies that require making exceptions to intellectual property rights can and should be accommodated under the international framework, but only after exhausting all other efforts and under extraordinary circumstances… If countries begin to routinely use CLs, we could see a ‘race to the bottom’ in which governments in the developing world walk away from their responsibility to support research and innovation in public health. In the absence of the investment made by our members, and the resulting research and development, there would be no generic medicines for the world’s patients.”

In the midst of sorting out all of these issues, many people, including various policymakers, think of the pharmaceutical industry as being all about big businesses. For the reasons cited already, half of the top 10 pharmaceutical firms are headquartered in the U.S. But for much the same reasons, the U.S. has a very entrepreneurial pharmaceutical industry, populated by small and mid-size firms. For good measure, that’s coupled with a drug distribution network overwhelmingly about small businesses.

Consider the following breakdown of the industries:

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**Pharmaceutical and medicine manufacturing**

<table>
<thead>
<tr>
<th>Categories</th>
<th>Employer Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total employer firms</td>
<td>1,678</td>
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<tr>
<td>Firms with &lt; 500 Workers</td>
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<td>Percent &lt;500</td>
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<td>Firms with &lt; 100 Workers</td>
<td>1,329</td>
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<td>Percent &lt;100</td>
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<td>Firms with &lt; 20 Workers</td>
<td>953</td>
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<td>Percent &lt;20</td>
<td>56.8%</td>
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</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

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### Drugs and druggists' sundries merchant wholesalers

<table>
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<th>Categories</th>
<th>Employer Firms</th>
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<tr>
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<td>Percent &lt;20</td>
<td>81.8%</td>
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</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

### Pharmacies and drug stores

<table>
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<tr>
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<td>Percent &lt;500</td>
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<tr>
<td>Firms with &lt; 100 Workers</td>
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<tr>
<td>Percent &lt;100</td>
<td>98.1%</td>
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<tr>
<td>Firms with &lt; 20 Workers</td>
<td>16,681</td>
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<td>Percent &lt;20</td>
<td>87.7%</td>
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Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013
### Pharmaceutical and medicine manufacturing: Nonemployers (self-employed with no paid employees)

<table>
<thead>
<tr>
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<tr>
<td>partnerships</td>
<td>126</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

### Drugs and druggists' sundries merchant wholesalers: Nonemployers (self-employed with no paid employees)

<table>
<thead>
<tr>
<th>Total establishments</th>
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<tr>
<td>individual proprietorships</td>
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<td>partnerships</td>
<td>269</td>
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</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013
Pharmacies and drug stores: Nonemployers (self-employed with no paid employees)

<table>
<thead>
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<th>Total establishments</th>
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<td>corporations</td>
<td>843</td>
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<tr>
<td>individual proprietorships</td>
<td>5,898</td>
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<tr>
<td>partnerships</td>
<td>234</td>
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</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

The U.S. needs to recognize the value presented by the pharmaceutical industry. For example, on the health care front, the ITA points out: “Pharmaceuticals have brought tremendous benefits for public health and economic productivity by saving lives, increasing life spans, reducing suffering, preventing surgeries, and shortening hospital stays.” PhRMA has pointed out: “More than 7,000 medicines are in development globally and the pipeline has never been more promising. PhRMA member companies invested an estimated $51.2 billion in biopharmaceutical research and development (R&D) in 2014, accounting for the majority of private biopharmaceutical R&D spending. Development of new medicines is a rigorous and long process, and it has become more costly and complex over the last decade. Less than 12% of the candidate medicines that make it into phase I clinical trials will be approved by the FDA. Companies ‘race’ to bring the first medicine in a

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class to market, and just 2 in 10 approved drugs are ultimately commercial successes.”

Also, in terms of the economy in general, according to the “2015 Profile: Biopharmaceutical Research Industry”:

- “The industry employs more than 810,000 people, supports nearly 3.4 million jobs across the country, and contributes nearly $790 billion in economic output on an annual basis when direct, indirect, and induced effects are considered.”

- “The average wage of those employed by the biopharmaceutical sector is higher than the average wage across all other private sector industries. In 2011, the average total compensation per direct biopharmaceutical employee was $110,490, twice the average compensation per US worker of $54,455.”

And central to these contributions to America’s health and economy, as noted in the tables above, are small, entrepreneurial firms. Such entrepreneurship, along with the accompanying innovation and investment in new and improved medicines, will be restrained or destroyed if the U.S. weakens its own IP protections, fails to fight for improved intellectual property rights internationally, and/or goes down the path of price controls.

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14

IP Industry: Medical Devices

Small Business and IP...

On April 20, 2015, the U.S. Chamber’s Global IP Center named Joe Kiani, founder, CEO and chairman of the Board of Masimo a 2015 IP Champion Award. In a company release, it was noted, “Mr. Kiani has more than 65 patents in his name and more than 575 patents issued or filed by Masimo in medical technologies related to noninvasive patient monitoring.” Kiani said, "Innovation is not only vital for improving patients' lives but is also the cornerstone of our economy. My company was built on breakthrough innovations that not only made noninvasive pulse oximetry reliable, but made noninvasive monitoring of hemoglobin, carbon monoxide, and many other blood constituents possible. Without the promise of a strong IP system to defend our innovation, we wouldn't have been able to raise the more than $90 million in venture capital financing we needed to break even. However, to be a champion of innovation means so much more to me. In the middle of more than 100 billion galaxies each with billions of stars and all of the forces around us, innovation is crucial for the survival of the human race. To be on the side
In a speech titled “Intellectual Property and Medical Entrepreneurship” before the Medical Device Manufacturers Association (MDMA) on June 9, 2011, Under Secretary of Commerce for IP & Director of the USPTO David Kappos declared, “IP isn't just important, it's become all important. It isn't just a big thing. It's the only thing that enables innovations to benefit from the fruits of their labor.”

Earlier in that speech, he explained:

“Universities, start-ups and small, high-growth enterprises have often played a crucial role in the development of new products in the biotech and medical device industry. Because of your adaptability, ability to identify market niches and huge innovative potential, your firms form a vital component of the health care industry worldwide... Time and time again, the story of American growth is written by the daring drive of entrepreneurs who are willing to roll the dice on a great idea. It's the story of CyberHeart Inc in California, which is leveraging the power of robotic radiology to design non-invasive heart treatments. And it's the story of K2M Innovations, right here in Virginia, which is using patented spine technologies to treat deformity and degenerative trauma. The entrepreneurial drive on display throughout our country is not only about making sure an ailing parent gets to see their grandchild graduate, or lending a patient a renewed sense of hope. In unleashing human creativity and genius to address our most human of problems,
innovation is also being leveraged to drive our economy forward.”

Getting back to the role of protecting IP in this industry, Kappos added, “[I]n the IP domain we also realize that the medical device and indeed the health care innovation sector are highly dependent on effective patent protection... Now sustaining that robust IP system is especially important to all of you because the dynamics of the medical device industry are rapidly evolving. Historically, device development was grounded in the mechanical sciences. But as this industry continues to leverage the cutting-edge potential of digital technologies, it is becoming increasingly more cross-disciplinary. Great new products have one foot in neuroscience, another in software, and yet another in nanotech.”

In a statement on May 7, 2015, regarding patent reform, Mark Leahey, president and CEO of the MDMA, summed up, “The ultimate goal of policy makers is to strike the right balance between putting an end to abusive practices, while strengthening the rights of true patent holders to protect their intellectual property.”

The point made by Secretary Kappos, and many others, about the medical device industry being dominated by small businesses is clearly illustrated in the data.
Medical equipment and supplies manufacturing

<table>
<thead>
<tr>
<th>Categories</th>
<th>Employer Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total employer firms</td>
<td>10,392</td>
</tr>
<tr>
<td>Firms with &lt; 500 Workers</td>
<td>10,205</td>
</tr>
<tr>
<td>Percent &lt;500</td>
<td>98.2%</td>
</tr>
<tr>
<td>Firms with &lt; 100 Workers</td>
<td>9,910</td>
</tr>
<tr>
<td>Percent &lt;100</td>
<td>95.4%</td>
</tr>
<tr>
<td>Firms with &lt; 20 Workers</td>
<td>8,917</td>
</tr>
<tr>
<td>Percent &lt;20</td>
<td>85.8%</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

Medical equipment and supplies manufacturing: Nonemployers (self-employed with no paid employees)

<table>
<thead>
<tr>
<th>Total establishments</th>
<th>6,740</th>
</tr>
</thead>
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<td>corporations</td>
<td>1,072</td>
</tr>
<tr>
<td>individual proprietorships</td>
<td>5,088</td>
</tr>
<tr>
<td>partnerships</td>
<td>580</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

The importance of protecting IP in the medical device industry is clear for businesses of all sizes. A March 7, 2015, report – “IP priorities: five tips for medical device entrepreneurs” – at the Today’s Medical Developments website noted, “A weak (or poorly defined) IP position can also be one its greatest liabilities. All this is particularly true for developers in the medical device space, where jockeying for IP position often occurs.” The report went on
to quote Frank Becking, IP counsel and co-founder of Panthera MedTech, explaining, “For medical device entrepreneurs, intellectual property rights don't just protect technology and products from poaching by the competition. They can also be a key strategic asset in positioning for merger or acquisition.” Becking offered “five tips for maximizing the value of their IP portfolio,” which featured the following:

1. “Control access to sensitive information: Don't talk publicly about your idea before pursuing the necessary protection…”
2. “Make sure your company owns its intellectual property: This might seem obvious but it is easy to overlook key steps, like putting in place and enforcing agreements that ensure that work produced by employees and independent contractors becomes the property of the company…”
3. “Don't neglect country-by-country protection: IP protection opportunities differ around the globe…”
4. “Actively avoid third-party IP entanglement: Too often, corporate executives focus on the patentability of their own IP. Understanding and tracking third-party patents and the progress of their pending claims (i.e., handling questions of Freedom to Operate) often has a greater effect on corporate valuation. A startup with technology that infringes upon another company's IP can be dead in the water…”
5. “Formulate an IP enforcement strategy: It is important to monitor the market to ensure that your IP rights are not being infringed…”

Indeed, in any industry, it’s not just about creating, but about being smart in protecting one’s intellectual property.
Does online theft hurt small content creators? Consider the following from an op-ed by David Butler in Australia, writing in TheAustralian.com.au (“Internet piracy harms small content-creation companies” April 10, 2015): “The critical thing is the therapy is principally education via a book. Everything my company does relies on books. We have sold more than 70,000 copies of Explain Pain in English. It retails for $70 (three packets of cigarettes) or half that as an e-book. This small success meant our little company was cruising — funding research, developing new products, taking new risks. We invested in a radical education science-based return-to-work scheme with Work Cover and created links with universities. We even employed a full-time artist. Then the torrenting started, linked to an observable decline in society’s morals related to intellectual property. Sales slowly dropped off. We estimate from torrent sites, where we can get numbers, that 100,000 copies of Explain Pain have been stolen... It hurts. I can’t look at the web for the list of websites that have stolen it and debased the product with sales of everything. We have long given up trying to get people to take it down. And equally...
hurtful is the linked decline in IP morality: ‘If it’s out there, it’s free.’ Now anything we produce, including hard copies, quickly gets copied, reframed and sold. In our experience, the Americans and the French do that the most. It seems they have forgotten how to create. So where do I head? Where does my 25-year-old company of eight full-time staff and 12 contractors go? We are not sure. It may be time to get out... I have just co-authored another book using our research and collaboration with scientists — but I have had to turn the book into a gadget to limit the stealing. That means fold-out inserts, and fancy inclusions. How crazy is that? And the cost of the book goes up and up. But more than anything, it’s the assault on creativity that gets me and will probably get our company, too.”

For entrepreneurs and authors, it’s an exciting period to be in the book publishing business. At the same time, for longtime publishing industry firms and executives, it can be a tumultuous time.

Consider the story of Borders as an initial example.

Borders Group Inc., once the nation’s second largest bookstore chain, was liquidated in 2011, falling prey to a combination of gross failure to keep up with industry changes, bad business decisions and a poor economy.

Previously, Borders helped change the industry by spreading book superstores across the nation, particularly in the 1990s. Shoppers appreciated the big selections, along with the inviting store environments. Interestingly, that superstore trend challenged many small, independent bookstores.

But poor decision-making took over at Borders in the 2000s. The firm failed to grasp the significance of two fundamental industry changes.

First was the impact of Internet book sales. As it struggled online, Borders handed over the operations of its
Internet business to top-competitor Amazon.com in 2001. By the time Borders retook the reins of its online business in 2008, Amazon.com was the Internet book king.

It’s hard to imagine a worse decision in the book business, but then Borders also came to the ebooks trend far too late. By the time Borders partnered with Canada’s Kobo Inc. to introduce the Kobo e-reader in 2010, it was nearly three years after Amazon.com had launched the Kindle. Barnes & Noble’s Nook and Apple’s iPad also beat Borders to the market.

Missing the initial shifts on broadband Internet and ebooks were monumental fumbles. Few businesses would be able to recover from coming too late to the biggest revolutions hitting books since Gutenberg’s printing press in the 15th century.

On top of all of this, Borders took on too much debt; jumped from CEO to CEO in a short period of time; and faced one of the worst recessions since the Great Depression running from December 2007 to mid-2009, followed by a dismal recovery.

The end of Borders clearly is an example of Joseph Schumpeter’s “creative destruction,” that is, innovation, invention and new ways of doing business destroying old companies and even industries to make way for new enterprises.

Indeed, technological changes have expanded, and will continue to expand opportunities for authors, publishers and retailers. And consumers make the final call as to what works and what does not in the marketplace.

On the old side of the book business, authors try to get agents (the industry gatekeepers) interested in their work; and agents have access to major publishing houses. The big hit occurs when an agent sells the book to a big publisher, the author gets a substantial advance, well-financed marketing occurs, and everyone gets wealthier from profitable hardcover sales. But without an agent, the
writer tries to get a small publisher interested. That house might do a small print run, and, despite promises to market aggressively, the serious marketing efforts too often are left to the author. The writer gains the satisfaction of a published book, and gets a very small cut per book after the publisher’s take.

But technological change has dramatically opened up, and is in the midst of destroying much of this closed system. Quite simply, improvements in print-on-demand publishing, and ebook readers like Amazon.com’s Kindle have empowered authors and readers. Author publishing – or Indie publishing – include options such as Lulu.com, AuthorHouse, SmashWords, or Amazon’s CreateSpace, to name a few.

For authors, Indie publishing means that the least known author has the same, or at least similar, “shelf space” as the hottest writers around via sites like Amazon.com; greater speed to market, as print-on-demand books can be available for sale in less than two weeks, or, in the case of an e-book, mere days; and complete author control.

But the biggest plus for the author clearly is revenue. The per-book author revenue is far higher than it ever would be with a small, traditional publisher.

Of course, there also are added responsibilities and costs. Most notable are editing, creating book covers, and marketing. Many authors do not like or are not adept at these aspects of publishing business, and/or do not have the resources to tackle such important undertakings. The good news is that Indie publishing services and others can help authors meet these challenges.

But in the end, readers get the best deal of all. They see more choices at lower prices, and in a greater variety of formats. Books that might never have been published before – whether due to quality questions, or due to agents and publishers missing good works or making bad
decisions – are increasingly available for people to read, enjoy, discuss and debate. Upending the book industry is an exciting development for readers and authors, even if agents and old-line publishers probably feel uncomfortable.

These are exciting developments. At the same time, though, risks exist in terms of protecting intellectual property. That risk comes via the same broadband and digital technologies that have created big problems for music and video industries.

Make no mistake, though, the publishing business has not faced anything near the woes confronted by the music and movie industries, for example, when it comes to piracy. Why is that?

Writing in *The Wall Street Journal*, Rob Reid, who founded Listen.com, the company that created the Rhapsody music service, compared the differences between the music and book businesses in their online strategies. Reid pointed out, “Both industries saw a roughly 20% drop in physical sales four years after their respective digital kickoffs. But e-book sales have largely made up the shortfall in publishing—unlike digital music sales, which stayed stubbornly close to zero for years.”

Reid sums up the beginnings of the digital book business as follows: “Although it had some small-time forerunners, the Kindle, like the Rio MP3 player, brought portability to a mass market. But the Kindle launched with licenses rather than lawsuits from the key rights-holders in its domain, and offered more than 90% of the day’s best sellers when it shipped. This meant that consumers discovered digital books through a licensed experience that delighted them. Exciting hardware, a critical mass of titles and Amazon’s retail sensibilities were all integrated into a single elegant package that piracy has never matched.”

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Of course, piracy does exist in the digital book world. There always is that problem of how one can compete with “free.” Reid offered the following take: “Countless unlicensed e-books can be found online, and millions of people use them. But sales figures suggest that relatively few of these downloads represent foregone purchases. Most Kindle, iPad and Nook owners seem to view piracy as a low-rent and time-consuming experience compared with the sanctioned alternatives.”

Others, though, rank as far more concerned than Reid about the potential ills of book piracy. For example, writing on June 4, 2012, for TechCrunch.com71, columnist John Biggs warned:

“Arguably, book piracy is a small problem but that could quickly change. Bestsellers are always available on pirate sources but the vast majority of books won’t appear on The Pirate Bay. However, as a poll commissioned a year ago shows, book piracy draws in a fairly unique demographic – in this case older women. Whereas a publisher was once secure in knowing that romances, thrillers, and other popular fiction could keep folks coming back, title after title, the fact is that many of these best sellers quickly appear on pirate sites.

“More important, these books are easy to grab. You can download a dozen books in a few seconds, filling up an e-reader in an hour or so. Although it is amazingly easy to buy books on a Kindle, it’s far cheaper and now far easier to grab a few dozen e-pubs.”

As is the case with music and movies, Biggs explained, "Publishers need to make e-books worth the download. They need to explain the value of the book to a plugged-in audience and they need to grab fans' attention before the pirates do."

*The Financial Times* reported ("Publishers win landmark case against ebook pirates" by Henry Mance, May 26, 2015) of a case where the publishing industry won in court against book thieves:

"British publishers have won their first ever blocking order against pirate ebook sites, as the battle over online copyright spreads beyond music and film.

"A ruling by the High Court in London means that internet service providers, such as BT, Virgin Media and Sky, have 10 days to block access to the sites, which are hosted in Russia and the US.

"The book industry has been less affected by piracy than music labels, thanks partly to the early development of a legal market in ebooks by Amazon. But piracy has nonetheless become a 'huge issue' that is "particularly problematic in some genres, such as student textbooks", researchers at Enders Analysis wrote last year...

"Between them the sites purport to hold around 10,000,000 ebook titles and have been making substantial sums of money, primarily through referral fees and advertising,' said the Publishers Association, which represents publishers including Penguin Random House, part-owned by Pearson, parent company of the Financial Times. 'None of this money has been
going back to either the publisher or the author(s) of the works.’

“One of the websites, Ebookee, offers titles from academic textbooks to the complete series of Harry Potter novels.”

Clearly similar to music and movies, though, protecting IP is not just about protecting large book publishers, but about protecting entrepreneurs, small businesses and individual creators from the negative consequences of theft.

The book industry, as noted in the following tables, is largely about small businesses.

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**Book stores**

<table>
<thead>
<tr>
<th>Categories</th>
<th>Employer Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total employer firms</td>
<td>2,959</td>
</tr>
<tr>
<td>Firms with &lt; 500 Workers</td>
<td>2,929</td>
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<tr>
<td>Percent &lt;500</td>
<td>98.7%</td>
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<tr>
<td>Firms with &lt; 100 Workers</td>
<td>2,875</td>
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<tr>
<td>Percent &lt;100</td>
<td>97.2%</td>
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<tr>
<td>Firms with &lt; 20 Workers</td>
<td>2,687</td>
</tr>
<tr>
<td>Percent &lt;20</td>
<td>90.8%</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013
### Book publishers

<table>
<thead>
<tr>
<th>Categories</th>
<th>Employer Firms</th>
</tr>
</thead>
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<tr>
<td>Total employer firms</td>
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<tr>
<td>Firms with &lt; 500 Workers</td>
<td>2,209</td>
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<tr>
<td>Percent &lt;500</td>
<td>96.6%</td>
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<tr>
<td>Firms with &lt; 100 Workers</td>
<td>2,130</td>
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<tr>
<td>Percent &lt;100</td>
<td>93.1%</td>
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<tr>
<td>Firms with &lt; 20 Workers</td>
<td>1,880</td>
</tr>
<tr>
<td>Percent &lt;20</td>
<td>82.2%</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

### Book, periodical and newspaper merchant wholesalers

<table>
<thead>
<tr>
<th>Categories</th>
<th>Employer Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total employer firms</td>
<td>1,650</td>
</tr>
<tr>
<td>Firms with &lt; 500 Workers</td>
<td>1,596</td>
</tr>
<tr>
<td>Percent &lt;500</td>
<td>96.7%</td>
</tr>
<tr>
<td>Firms with &lt; 100 Workers</td>
<td>1,537</td>
</tr>
<tr>
<td>Percent &lt;100</td>
<td>93.2%</td>
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<tr>
<td>Firms with &lt; 20 Workers</td>
<td>1,376</td>
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<tr>
<td>Percent &lt;20</td>
<td>83.4%</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013
Books printing

<table>
<thead>
<tr>
<th>Categories</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Total employer firms</td>
<td>544</td>
</tr>
<tr>
<td>Firms with &lt; 500 Workers</td>
<td>530</td>
</tr>
<tr>
<td>Percent &lt;500</td>
<td>97.4%</td>
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<tr>
<td>Firms with &lt; 100 Workers</td>
<td>494</td>
</tr>
<tr>
<td>Percent &lt;100</td>
<td>90.8%</td>
</tr>
<tr>
<td>Firms with &lt; 20 Workers</td>
<td>425</td>
</tr>
<tr>
<td>Percent &lt;20</td>
<td>78.1%</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

Publishing industries (except Internet):
Nonemployers
(self-employed with no paid employees)

<table>
<thead>
<tr>
<th>Total establishments</th>
<th>76,300</th>
</tr>
</thead>
<tbody>
<tr>
<td>corporations</td>
<td>6,621</td>
</tr>
<tr>
<td>individual proprietorships</td>
<td>65,309</td>
</tr>
<tr>
<td>partnerships</td>
<td>4,370</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013
## Book, periodical and newspaper merchant wholesalers: Nonemployers

(self-employed with no paid employees)

<table>
<thead>
<tr>
<th>Type</th>
<th>Total Establishments</th>
<th>Corporations</th>
<th>Individual Proprietorships</th>
<th>Partnerships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>11,434</td>
<td>522</td>
<td>10,596</td>
<td>316</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

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## Book stores Nonemployers

(self-employed with no paid employees)

<table>
<thead>
<tr>
<th>Type</th>
<th>Total Establishments</th>
<th>Corporations</th>
<th>Individual Proprietorships</th>
<th>Partnerships</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>9,121</td>
<td>690</td>
<td>7,868</td>
<td>563</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013
Independent artists, writers, and performers: Nonemployers (self-employed with no paid employees)

<table>
<thead>
<tr>
<th>Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total establishments</td>
<td>765,790</td>
</tr>
<tr>
<td>corporations</td>
<td>17,756</td>
</tr>
<tr>
<td>individual proprietorships</td>
<td>737,820</td>
</tr>
<tr>
<td>partnerships</td>
<td>10,214</td>
</tr>
</tbody>
</table>

Data Source: U.S. Census Bureau, Statistics of U.S. Businesses, latest numbers from 2013

Indeed, the book business is about very small businesses, in particular and overwhelmingly about self-employed authors. Indeed, no group, arguably, is more deeply affected by the theft of intellectual property than are the authors whose very livelihood is directly tied to IP protections.
Small Business and IP...

Are t-shirt designs about IP? Yep.

As reported by Entrepreneur.com on May 13, 2015 (“This Etsy Entrepreneur Claims Target Stole Her Trendy Tank Top Design”), “Last May, Melissa Lay realized her dream as a small business owner, when she founded her own clothing company -- a one-of-a-kind T-shirt maker called SandiLake -- so that she could work and be at home with her two small children. Selling matching tees for children and adults on Etsy and her own website, each of the shirts is hand-printed in Lay’s garage. But the Oregon resident was in for a shock when a friend texted her a photo of a Target tank top that was nearly identical to one of her top-selling designs: a loose, black shirt with the word ‘#Merica’ embedded within a rough sketch of the American flag.”

Fortunately, the outcome turned out to be the right one, as noted in an ABCNews.com report (“Target to Stop Selling Shirt Claimed by Designer as Copycat), Target agreed to no longer sell the shirt.
At first glance, it seems pretty easy to identify businesses and industries that fall under the classification of “intellectual property” industries. But there’s more to the IP story than might be typically assumed.

In terms of the obvious industries, several already have been highlighted in earlier chapters of this book – software, music, movies and television, video gaming, pharmaceuticals, and book publishing.

In Chapter Two, IP-intensive industries and their contributions to the U.S. economy were noted. Among patent-intensive industries were computer equipment, semiconductor, communications equipment, chemical, electrical equipment and component, medical equipment and supplies, and synthetics industries. And among the copyright-intensive sectors were newspaper and periodical publishing, advertising and public relations, and performing arts industries.

In reality, though, the reach and importance of intellectual property goes far beyond businesses and industries deemed to be IP “intensive.” Indeed, any business with a trademark, a copyright or a patent obviously is a business dependent to some degree on IP rights and protections. As noted in the following examples, IP theft through counterfeiting ranks as a widespread, formidable problem.

Indeed, the importance of protecting intellectual property cuts across industries, and that is clear from the latest report regarding counterfeit seizures courtesy of the U.S. Customs and Border Protection (CBP) and U.S. Immigration and Customs Enforcement’s Homeland Security Investigations (HSI).

In an April 2, 2015, U.S. Customs and Border Protection statement, CBP Commissioner R. Gil Kerlikowske highlighted the scope of the seizures of counterfeit goods: “In 2014, strong partnerships with our federal enforcement
counterparts, effective targeting of high risk shipments and frontline interceptions of cargo at America’s ports of entry produced more than 23,000 seizures of fake products worth an estimated $1.2 billion that could have cheated or threatened the health of American consumers.”

Meanwhile, ICE’s Director Sarah Saldaña accurately pointed to the broad economic ills of IP violations: “To be clear, intellectual property theft is not a victimless crime. The victims are American businesses, and the employees whose jobs are dependent on IP-intensive industries. Counterfeiting is a crime of global proportions, and when property rights are violated, American jobs are lost, business profits are stolen and ultimately, consumers are cheated.”

China and Hong Kong were identified as the top two offenders by far, with China being the primary source of 63 percent of all IPR seizures, and Hong Kong 25 percent.

The top ten counterfeit commodities seized by authorities during fiscal year 2014 in terms of number of seizures were:

1. Wearing apparel/accessories
2. Consumer electronics
3. Pharmaceuticals/personal care
4. Handbags/wallets
5. Footwear
6. Watches/jewelry
7. Optical media
8. Computers/accessories
9. Labels/tags
10. Toys

As ICE Director Saldaña noted, U.S. businesses and workers are among the victims here. And that very much includes small businesses and their employees.
It is a fundamental duty of government to protect private property, and that includes intellectual property. And the benefits of enforcing IP rights and protections spread throughout the economy, including, as noted by the data above, among small businesses. Consider the following as well.

Golf

The May 26, 2003, issue of *Sports Illustrated* published a fascinating article ("Pssst ... Wanna Buy Some Clubs?") by E.M. Swift and Don Yaeger that explored the intellectual property challenges confronted by golf club manufacturers.

Swift and Yaeger took a behind-the-scenes look at the burgeoning business of counterfeit golf clubs. While golf club manufacturers spend significant sums of money to design new golf clubs, counterfeiting those clubs ran rampant in China. The authors explained what could be done with some photographs of the latest hot driver or set of irons: “Those photographs, industry experts say, could have been digitally transmitted to a tooling factory in China, converted into three-dimensional form by means of a computer program and used to create a copper master of a head that could be ready for mass production in two weeks.”

They went on to try to explain what’s legal and illegal: “There are different levels of counterfeiting,’ says Debra Peterson, a U.S. Customs official ... There is the direct counterfeit, which is a dead-on copy that carries the legitimate product’s trademark, and that’s illegal. Also illegal is a club that is very close to a direct copy and is termed either ‘confusingly similar’ (if it infringes on company trademarks) or ‘substantially similar’ (if it infringes on design patterns). What is legal is the generic look-alike that does not infringe on a company’s
trademarks or patents. Some features of a driver – its head size, for instance – cannot be protected, while others can. But with confusingly or substantially similar knockoffs, the line between legality and patent or trademark infringement is often fuzzy and is subject to legal challenge and interpretation. A counterfeiter tries to alter a company’s protected features just enough to avoid prosecution. Whether the result is illegal can be established only in court, on a case-by-case basis; in other words, the aggrieved company has to sue.”

The issue of counterfeit clubs has persisted in the years following this article. On its website, for example, PING, the golf club manufacturer, has noted: “PING has successfully built its premium brand based on quality and innovation. Unfortunately, that success attracts a growing number so counterfeiters who offer fake PING products using websites, internet auctions and retail stores. We continue to work hard to stop these activities.”

A June 2012 report on NationalClubGolfer.com noted, “A recent raid in Shanghai has resulted in the seizure of more than 7,500 counterfeit golf products, bringing the total number of seizures over the last 18 months to 110,000 pieces of equipment - including clubs, balls, bags and apparel. Although the issue may not be apparent to the majority of everyday golfers, it is estimated that approximately two million counterfeit golf clubs are produced every year. With the internet market becoming a rapid source for people buying golf equipment, the problem is growing at an alarming rate. The recent raid in China, a stronghold source for the production of counterfeit golf clubs, was the result of a month-long investigation by the Shanghai Public Safety Bureau and resulted in three arrests along with the seizure of goods.”

In fact, golf equipment manufacturers formed the U.S. Golf Manufacturers Anti-Counterfeiting Working Group in 2004, “dedicated to stopping production, distribution and sale of counterfeit or ‘fake’ golf equipment across the globe.”

Years after the formation of that group, the fight to protect golf IP continues.

On November 18, 2014, the U.S. Chamber of Commerce Global Intellectual Property Center hosted the “2014 IP Summit.” The second point from the 2014 IP Summit has to do with two speakers from the golf industry. Interestingly, one was a representative of a large, established firm – Joseph Nauman, executive vice president at the Acushnet Company – and the other was an owner of a small business – Vikash Sanyal of BRAINstorm Golf. And they both were highlighting that protecting IP was vital to the golf business.

Nauman pointed out that 20,000 golf-related patents have been granted since 1970, which is more than any other competitive sport. He also noted that the biggest IP challenges come in developing nations, making the case for IP protections in trade agreements, and that more resources spent on IP enforcement and protection by businesses like Acushnet due to counterfeiting means fewer resources available for innovation.

Sanyal reinforced the strong IP message from a small business perspective. But he drove home the point powerfully when noting that, without intellectual property rights and enforcement, the entrepreneurial dream turns into a nightmare. Indeed, startups and small businesses do not have the resources to battle IP thieves, and therefore, rely more heavily on sound governmental policies and enforcement of IP rights.

NFL

The NFL is a huge revenue generator, including dollars from stadium revenues and, of course, television rights. For good measure, there are sales from merchandise. NFL merchandise revenue estimates range, but no matter the exact number, they are significant.

Pellegrino and Associates reported in a February 22, 2013, story (“Top Five Revenue Sources That Drive Value for the NFL”): “Hats, key chains, cups, socks, and of course jerseys name just the surface of available NFL merchandise. In 2010, NFL merchandise sales reached $2.1 billion. Merchandise is one of the most effective revenue sources because the reach extends beyond the United States—a reach that is more difficult for other revenue sources such as ticket sales and venue revenue.”

In a September 18, 2014, story (“NFL merchandise sales up from 2013”), ESPN.com reported, “Data from Fanatics, which sells more than 10 million pieces of NFL gear a year, shows that team sales are up 23 percent from Sept. 1 to Sept. 18, as compared to that exact time period last year. That’s better than the company as a whole had been performing and above baseline ecommerce growth in the retailing industry.”

Unfortunately, but not surprisingly, NFL playoffs merchandise sales are subject to counterfeit knock offs.

On January 30, 2014, just before the Super Bowl, the DailyCaller.com reported (“DHS seizes $21.6 million in fake NFL merchandise, arrests 50 involved”) that “federal officials announced a crackdown on counterfeit National Football League merchandise, revealing the seizure of more than $21.6 million in fake NFL merchandise.”

And on December 23, 2014, it was reported by ABC.com (“You May Be Getting Duped When Buying ‘Official NFL Merchandise”), “The Council of Better Business Bureaus said Tuesday that an investigation by one of its member
bureaus found numerous websites claiming to sell ‘official’ NFL merchandise while misappropriating the BBB’s famous torch logo. The organization plans to issue cease-and-desist letters to the websites, spokeswoman Katherine Hutt said. Counterfeiters, often based overseas, have plagued professional sports for years. They often pop up in the postseason when demand for jerseys and other fan items is hot.”

Finally, a 2013 WTHR.com story (“NFL cracks down on counterfeit merchandise”) summed up, “According to the NFL, its officially licensed merchandise sales are worth about $3.5 billion per year. The Super Bowl alone generates about $100 million in sales. Yet it's unclear how much the league annually loses to counterfeit sales on the street. ‘Counterfeit merchandise is ripping off our fans. It's detracting from sales your local retailers can make and the fans think poorly of this experience with the NFL and the Colts and we don't want that so we're warning our fans to be on the look-out for counterfeit merchandise,’ said Brian McCarthy” of the NFL.

In the end, it’s not just about the NFL and other big names being victims of counterfeiting. From the smallest businesses to the largest, intellectual property theft is a huge concern, both here at home and in international markets.

The Olympics

Before the start of the 2012 Olympics in London, the International Trademark Association issued a warning about counterfeit Olympic merchandise. A July 16, 2012, an AG-IP-News report noted: “Unsuspecting tourists and fans are targeted by counterfeiters looking to take advantage of the excitement over the Olympic Games. In fact, British authorities have already seized thousands of fake Olympic merchandise such as shirts, vests, bags and
cigarette lighters in ports around the country... Counterfeiters use sub-par materials that leave consumers with second-rate merchandise and without any recourse to recover the money they have spent. In addition, counterfeit goods may not be manufactured in accordance with safety standards.”

**Toys**

In late June 2012, three individuals in Queens, NY, were charged with the distribution of counterfeit toys.

As reported by the *Queens Tribune*\(^ {73} \): “The seized goods allegedly contained false trademarks from toy giants such as Disney Entertainment Inc. and Rovio Entertainment Ltd, the company responsible for the Angry Birds franchise. According to Queens DA Richard Brown, ‘a private investigation service went to the warehouse and observed these items on display shelves in cardboard boxes.’” Brown also was quoted, “The defendants are accused of not running some small mom-and-pop operation, but rather, a well-organized business that catered to retailers throughout the metropolitan area.”

**Clothing/Apparel**

On June 14, 2012, NBC Miami reported that U.S. Customs and Border Protection on June 8 found $11 million of counterfeit Burberry and Louis Vuitton clothing and jewelry in a shipment from China in the Port of Miami.\(^ {74} \)

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\(^{74}\) NBC 6 South Florida, “$10.9 Million in Counterfeit Clothing, Jewelry Seized at Port of Miami,” June 14, 2012, at
A Newsnet5.com story out of Cleveland focused on a shopper who mistakenly bought a shoddy knockoff North Face jacket. The problem was explained, “The company determined the garment was a counterfeit adding, ‘It appears to be an attempt to copy the Mens Denali Jacket in Heather Grey Fleece colorway. The team reported that it is a very poor fleece fabric quality with unbranded zippers (centerfront zipper is broken with slider missing). Trim fabric, cordlocks, and cuff snaps are not our specified materials. It is lacking our standard care, content, country-of-origin, tracking, and The North Face security labels.’”

In New Jersey, a woman was arrested for selling counterfeit goods out of a fake butcher shop, according to a May 23, 2013, report on NJ.com.

It was reported: “According to a joint statement from Passaic County Sheriff Richard Berdnik and Clifton Police Chief Gary Giardina, Clifton Officer Adam Droubi was on Crooks Avenue when he noticed customers leaving the market with shopping bags full of purses... Eventually, an employee invited him inside and began to show him bags bearing the trademarks of Coach, Louis Vuitton, Michael Kors, Chanel and others. The worker also quoted him prices ‘which he immediately recognized as inconsistent with the true prices of designer women’s bags,’ Berdnik and Giadiana said... In all, detectives took more than 1,475 items from the shop, including sunglasses, belts, watches, suitcases, wallets and cell phone cases. Representatives of


the designer brands were also called in to verify that the inventory was counterfeit, Berndik and Giardina said.”

Food

A June 17, 2012, WPRI report noted that warnings have been issued about counterfeit foods, and the risks to consumer health. As noted, “According to Dr. John Spink, Associate Director of the Anti-Counterfeiting and Product Protection Program at Michigan State University, ‘The bad guys aren’t following good manufacturing practices. There’s such a risk for contamination that can be very lethal.’” According to the report, the top percentages of counterfeit food include olive oil (16%) diluted with other oils, milk (14%) watered down, and honey (7%) altered with corn syrup and sugar.

Automobiles

In January 2013, a Virginia man was sentenced to jail for “selling counterfeit General Motors diagnostic equipment that mechanics use to identify problems in motor vehicles.”

It was pointed out in the story, “Prosecutors contended that the counterfeit merchandise DeMatteo sold posed health and safety risks because drivers and mechanics relied on the accuracy of the devices' diagnoses. ‘Intellectual property theft is a crime which hurts U.S.


businesses and endangers U.S. consumers,’ prosecutors wrote in a sentencing memorandum.”

Military

On May 21, 2012, the Senate Armed Services Committee published the findings from a yearlong investigation. It was announced that it “discovered counterfeit electronic parts from China in the Air Force’s largest cargo plane, in assemblies intended for Special Operations helicopters, and in a Navy surveillance plane among 1,800 cases of bogus parts... The year-long investigation launched by Sen. Carl Levin, D-Mich., the committee’s chairman, and Ranking Member Sen. John McCain, R-Ariz., found a total number of suspect counterfeit parts involved in those 1,800 cases exceeding 1 million. ‘Our report outlines how this flood of counterfeit parts, overwhelmingly from China, threatens national security, the safety of our troops and American jobs,’ Levin said. ‘It underscores China’s failure to police the blatant market in counterfeit parts – a failure China should rectify.’”

Senator McCain observed, “Our committee’s report makes it abundantly clear that vulnerabilities throughout the defense supply chain allow counterfeit electronic parts to infiltrate critical U.S. military systems, risking our security and the lives of the men and women who protect it.”

The committee also noted: “While the investigation focused on the risk that counterfeit parts pose to U.S. national security and the safety of military personnel, the rampant theft of U.S. intellectual property also severely impacts the U.S. economic security. According to the Semiconductor Industry Association (SIA), counterfeits

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79 Ibid.
cost U.S. semiconductor companies more than $7.5 billion annually in lost revenue, a figure SIA says results in the loss of nearly 11,000 American jobs.”

Among a variety of important facts about intellectual property, the Global Intellectual Property Center has pointed out the following on counterfeiting costs:

• “Rogue websites selling counterfeit luxury goods receive nearly 36 million visits per year. (MarkMonitor, Traffic Report: Online Piracy and Counterfeiting, January 2011.)”

• “Rogue websites selling counterfeit physical goods attract more than 87 million visits per year. (MarkMonitor, Traffic Report: Online Piracy and Counterfeiting, January 2011.)”

• “G20 governments and consumers lose $125 billion annually, including losses in tax revenue, from counterfeiting and piracy. (Frontier Economics, Estimating the Global Economic and Social Impacts of Counterfeiting and Piracy, February 2011.)”

• “The global economic value of counterfeiting and piracy amounts to $650 billion annually. (Frontier Economics, Estimating the Global Economic and Social Impacts of Counterfeiting and Piracy, February 2011.)”

Again, it is important to point out that the firms affected often are smaller businesses. Just consider the following on the manufacturing front (2013 Census Bureau data):

• Among sporting and athletic goods manufacturers, 98.4 percent had less than 500 employees, and 82.0 percent less than 20 workers.
• 98.5 percent of doll, toy and game manufacturers had fewer than 500 workers, and 85.6 percent less than 20.

• Among apparel manufacturers, 99.3 percent of employer firms had fewer than 500 workers, and 83.1 percent less than 20 employees.

• And as for food manufacturing, 97.4 percent of employer firms had less than 500 employees, and 73.3 percent with less than 20 workers.

Jayne O’Donnell, the “Confident Consumer” columnist for USA Today, looked at the rise in counterfeiting in an early June 2012 column. She noted that the FDA recently reported that counterfeit versions of cancer drug found their way into some doctors’ offices; a grand jury indicted someone selling counterfeit versions of rare wines; and counterfeit versions of Apple iPhones, iPads, and iPods were being sold in a New York City store. O’Donnell summed up, “U.S. Customs and Border Protection says agents seized 24% more shipments of counterfeit goods in the last fiscal year (ended Sept. 30, 2011) than in its previous year. And 325% more counterfeit goods were confiscated from 2002 to 2012 than in the previous decade.”

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The previous chapters have focused on the importance of intellectual property rights and protections for entrepreneurs, businesses of varying types and sizes; for invention, innovation and investment; and for economic growth and job creation.

But what about more practical questions for small businesses regarding patents, copyright and trademarks? After all, it is crucial that entrepreneurs and small firms understand how IP protections work, and how they can be used for their own ventures.

The USPTO has provided a very helpful website that answers some basic questions that small business owners might have about protecting their intellectual property. The site is at http://www.stopfakes.gov.

More specifics regarding the process for applying for patents or trademarks are available on the USPTO’s main site at http://www.uspto.gov.

Similarly, more detail regarding copyright is available from the United States Copyright Office at http://www.copyright.gov.

For our purposes, let’s look at a few basic points worth keeping in mind when it comes to patents, copyrights and
trademarks courtesy of the USPTO and the Copyright Office.

**Patents**

Regarding what can and cannot be patented, one must consider the following points:

- “In the language of the statute, any person who ‘invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent,’ subject to the conditions and requirements of the law. The word ‘process’ is defined by law as a process, act or method, and primarily includes industrial or technical processes. The term ‘machine’ used in the statute needs no explanation. The term ‘manufacture’ refers to articles that are made, and includes all manufactured articles. The term ‘composition of matter’ relates to chemical compositions and may include mixtures of ingredients as well as new chemical compounds. These classes of subject matter taken together include practically everything that is made by man and the processes for making the products.”

- “In order for an invention to be patentable it must be new as defined in the patent law, which provides that an invention cannot be patented if: ‘(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent,’ or ‘(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country more than one year prior to the application for patent in the United States . . .’”
• “The subject matter sought to be patented must be sufficiently different from what has been used or described before that it may be said to be nonobvious to a person having ordinary skill in the area of technology related to the invention.”

• In addition, there is the question of patents in the international marketplace. The USPTO makes clear that U.S. patents only protect an invention within the United States: “Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in other countries must apply for a patent in each of the other countries or in regional patent offices. Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country, in accordance with the requirements of that country.”

• Finally, there is the question of whether or not one needs an attorney. The USPTO points out: “The preparation of an application for patent and the conducting of the proceedings in the United States Patent and Trademark Office (USPTO or Office) to obtain the patent is an undertaking requiring the knowledge of patent law and rules and Office practice and procedures, as well as knowledge of the scientific or technical matters involved in the particular invention... While a patent may be obtained in many cases by persons not skilled in this work, there would be no assurance that the patent obtained would adequately protect the particular invention. Most inventors employ the services of registered patent attorneys or patent agents.”
Trademarks

As for trademarks, the USPTO explains that a Federal trademark registration offers assorted advantages, such as:

- “Constructive notice to the public of the registrant's claim of ownership of the mark;
- “A legal presumption of the registrant's ownership of the mark and the registrant's exclusive right to use the mark nationwide on or in connection with the goods and/or services listed in the registration;
- “The ability to bring an action concerning the mark in Federal court;
- “The use of the U.S. registration as a basis to obtain registration in foreign countries; and
- “The ability to file the U.S. registration with U.S. Customs and Border Protection to prevent importation of infringing foreign goods.”

In terms of how long a trademark lasts, “Rights in a federally-registered trademark can last indefinitely if the owner continues to use the mark on or in connection with the goods and/or services in the registration and files all necessary documentation in the USPTO at the appropriate times.”

When looking at the international marketplace, “if you are a qualified owner of a trademark application pending before the USPTO, or of a registration issued by the USPTO, you may seek registration in any of the countries that have joined the Madrid Protocol by filing a single application, called an ‘international application,’ with the International Bureau of the World Property Intellectual Organization, through the USPTO.”
Copyright

Finally, as for securing copyright, “No publication or registration or other action in the Copyright Office is required to secure copyright... Copyright is secured automatically when the work is created, and a work is ‘created’ when it is fixed in a copy or phonorecord for the first time.”

However, there are advantages to copyright registration, including:

• “Before an infringement suit may be filed in court, registration is necessary for works of U.S. origin.”

• “If made before or within five years of publication, registration will establish prima facie evidence in court of the validity of the copyright and of the facts stated in the certificate.”

• “Registration allows the owner of the copyright to record the registration with the U.S. Customs Service for protection against the importation of infringing copies.”

Finally, in international markets, “There is no such thing as an ‘international copyright’ that will automatically protect an author's writings throughout the entire world. Protection against unauthorized use in a particular country depends, basically, on the national laws of that country. However, most countries do offer protection to foreign works under certain conditions, and these conditions have been greatly simplified by international copyright treaties and conventions.”

The above information is a very basic introduction, barely scratching the surface. As noted earlier, exploring the USPTO and Copyright Office websites provide a wealth of information, and a lawyer with expertise in areas of
intellectual property is invaluable to small businesses looking for the right information about and actions needed to adequately protect intellectual property.
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IP Policymaking and Our Economic Future

By now, the importance of intellectual property rights for innovation, for investment, for entrepreneurs, for small businesses and their employees, for consumers, for U.S. competitiveness and for our economy in general should be clear.

Indeed, the technological or digital revolution of the twenty-first century is as dependent upon intellectual property rights and protections as was the Industrial Revolution of the eighteenth and nineteenth centuries.

That being the case, the role of government must be recognized.

But what exactly is that role?

First, let’s make clear what it is not.

Government should not be in the business of using taxpayer resources to try to pick winners and losers in intellectual property industries. That is, government should not be providing handouts and subsidies to IP businesses. Elected officials and their political appointees do not possess the proper incentives or knowledge to be making resource allocation decisions in any economy, but most certainly not in a high-tech, digital economy where innovation and change come at breakneck speed.

Nor should elected officials be providing special tax treatment for certain businesses or industries. Again, this
is the same situation as with subsidies and handouts. Government simply cannot know what firms will succeed, nor can it know where entire industries might be headed.

The risks and opportunities tied to investing in IP businesses and industries are best left to entrepreneurs, private investors and lenders, and the competitive marketplace, with consumers ultimately deciding what works and what does not.

So, what does government need to do?

**Establish and Enforce Strong IP Rights**

Government must establish, enforce and protect intellectual property rights through sound systems of patents, copyright and trademarks; strong laws protecting IP with the accompanying enforcement mechanisms; and maintaining a fair system of courts whereby creators are able to affordably protect their intellectual property and law enforcement can prosecute IP violators.

The joint effort to fight those who seek to undermine and steal intellectual property was spelled out in the conclusion of an August 2015 study from the World Intellectual Property Organization:

“The research suggests that antipiracy efforts are most effective when both government and firms take action to deter piracy and promote legal content. If a government passes an antipiracy law in a country where convenient legal platforms do not exist, the law is unlikely to have much effect. Likewise, if a firm offers its content in a timely and convenient fashion but government does nothing to enforce copyright, then the firm is effectively competing against a ‘free’ version of its product and its strategies will not have as much
success as they would if piracy were harder to consume.”

Compared to most other nations, the U.S. does a fairly good job at this. As noted earlier, according to “Infinite Possibilities: U.S. Chamber International IP Index” published by the U.S. Chamber’s Global Intellectual Policy Center, the United States scored the best IP environment among 38 economies. The U.S. featured perfect scores in terms of copyright, trade secrets and membership in and ratification of international treaties. But there are negatives in the area of enforcement, for example, as noted in the report, “Inconsistent enforcement against counterfeit and pirated goods, especially online.” Enhanced enforcement and education would be clear positives.

**IP International**

The work of policymakers regarding IP rights and protections cannot stop at the border in today’s increasingly global economy. The White House, with the full support of Congress, must be advancing free trade, that is, removing barriers to economic opportunity for entrepreneurs, innovators and businesses; and expanding choices, placing downward pressure on prices, and enhancing quality for consumers. That free trade agenda must include treaties and other joint efforts at improving IP rights, protections and enforcement in other nations. Not only will such improvements in other nations benefit

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81 Dr. Brett Danaher, Assistant Professor, Department of Economics, Wellesley College, Dr. Michael Smith, Professor, Heinz School of Public Policy and Management, Carnegie Mellon University, and Dr. Rahul Telang, Professor, Heinz School of Public Policy and Management, Carnegie Mellon University, “Copyright Enforcement in the Digital Age: Empirical Economic Evidence and Conclusions,” World Intellectual Property Organization, August 2015.
U.S. businesses and workers competing internationally, but it also will improve economic growth in those nations.

To put this in perspective, in the 2015 edition of *Index of Economic Freedom* (published by the Heritage Foundation and *The Wall Street Journal*), 132 nations out of 178 nations scored as “mostly unfree” or “repressed” on property rights. Given that intellectual property rights usually are more prone to neglect compared to the protection of tangible property, the IP story is even worse than this indicates internationally. Much work needs to be done.

Consider what the BSA had to say in its 2015 Special 301 trade filing to the United States Trade Representative:

“BSA members invest enormous resources to develop cutting edge technologies and software-enabled solutions for business, governments and consumers. It is therefore critical that countries provide effective patent protection to eligible computer-implemented inventions, in line with their international obligations. Unfortunately, a number of countries have established or are considering policies that make obtaining patent protection for such inventions impossible or difficult. Such countries include Brazil, India, and Thailand, among others. Some countries have adopted or are considering policies that could significantly constrain the freedom of patent holders to freely negotiate licenses for their inventions. For example, China has proposed a variety of policies that could unfairly restrict the ability of patent holders to exercise their legitimate rights to enforce their patents or to negotiate mutually acceptable licensing terms.”
In an accompanying release, BSA President and CEO Victoria Espinel observed that “the amount of unlicensed software being used around the world is valued at $62 billion, which is simply unacceptable. Ensuring open market access, the free flow of data across borders and effective intellectual property protection are indispensable for continued innovation and growth of the global digital economy.

Quite simply, it is critical for U.S. policymakers to take the lead globally in advancing free trade agreements that reduce barriers to trade and strengthen property rights protections.

The International Intellectual Property Alliance – whose members include the Association of American Publishers, Entertainment Software Association, Independent Film & Television Alliance, Motion Picture Association of America, and Recording Industry Association of America – has made an important point regarding the importance of free trade accords: “The negotiation of multilateral trade agreements (such as the WTO TRIPS Agreement), as well as regional and bilateral free trade agreements (FTAs) or Trade Promotion Agreements (TPAs) over the past two decades, has proven to be of great value to the U.S. economy. These agreements feature enforceable obligations for our trading partners to modernize their copyright law regimes and improve enforcement procedures. They have helped U.S. copyright industries to compete fairly in foreign markets, and have helped our trading partners develop their domestic copyright industries, a true win-win for all parties.”

In a November 2014 report titled “Trading Up: The Evolution and Implementation of Intellectual Property Rights in U.S. Free Trade Agreements,” the U.S. Chamber of Commerce was more expansive in discussing international trade agreements and their impact on IP:
• “Protecting intellectual property globally through effective laws and enforcement is essential to encouraging its development and capturing its benefits. Recognizing the growing role of IP in the global economy and the significant global costs of weak or uncertain IP enforcement across jurisdictions, members of the World Trade Organization (WTO) negotiated the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) in 1995 to establish minimum levels of IP protection and enforcement. The TRIPS Agreement was also the first multilateral IP treaty of its kind to include mandatory dispute settlement procedures. By securing core global protections for IP, TRIPS established the legal infrastructure necessary for a globalized economy increasingly reliant on innovation.

“The United States has continued to build upon the IP protections in TRIPS through subsequent bilateral and regional trade agreements. The Trade Act of 2002, which provided ‘fast-track’ authority for considering U.S. trade agreements, called for heightened protection of intellectual property rights as a key negotiating objective.”

• “Over the past 20 years, the U.S. has secured more robust protections for innovators and creators through bilateral and regional FTA negotiations. While the evolution of these provisions has not always been linear, the general trend in U.S. FTAs has been toward the inclusion of more detailed and robust FTA IP obligations.”

• “More robust FTA obligations have translated into improved protections for innovators and creators. Achieving high standards for IP protection in FTAs is not the entire story, but it is an important first step. Efforts of U.S. negotiators to secure strong IP commitments have led directly to positive results.”
• “Further consideration should be given to how best to ensure ongoing implementation of robust IP commitments in U.S. trade agreements. In light of the observations above, it is critically important that the U.S. ensure that its trading partners have the appropriate laws and regulations in place to implement their FTA obligations fully before entry-into-force. If those efforts fall short as a practical matter, or a country becomes non-compliant with its FTA commitments after entry-into-force, the U.S. should use all tools at its disposal to ensure the United States’ trading partners are living up to their IP obligations.”

A huge plus for the U.S. in terms of international trade and investment is our leadership in knowledge-intensive industries. That is, our leadership in terms of intellectual property, or intangible property.

A study released in June 2013 – “The Contributions of Intangible Property to the U.S. Economy” by Matthew J. Slaughter who is the Associate Dean for Faculty and Signal Companies’ Professor of Management at the Tuck School of Business at Dartmouth – did a nice job at highlighting both opportunities and potential policy pitfalls. Most critically, Slaughter explained that U.S. companies investing abroad is not a negative for our domestic economy – indeed, quite the contrary.

Slaughter explained the central role that IP has played in U.S. economic growth. For example, he noted: “In 2010 the 75 IP-intensive industries in America—defined based on the intensity of their creation of copyrights, patents, and trademarks—employed about 27.1 million Americans. Through their supply chains, these IP-intensive industries supported another 12.9 million U.S. jobs that year. Because of the high productivity of IP-intensive companies, their 34.8% share of U.S. gross domestic product (GDP) exceeded their 18.8% share of U.S. jobs. The average
compensation in these IP-intensive industries was 42% higher than in the rest of the private sector—an income premium that had nearly doubled from just 22% in 1990.”

Next, he highlighted how these firms use their global operations to maximize creativity and benefits. He pointed out: “Globally engaged U.S. companies have long performed the majority of America’s IP discovery and development. In 2010, the U.S. parents of U.S.-headquartered multinationals performed $212.5 billion of R&D. This was about 68.8% of the total R&D performed2 by all U.S. companies—and was 84.3% of the worldwide R&D performed by these companies. Increasingly central to America’s IP success is the ability of its companies to deploy that IP abroad... Contrary to what is sometimes presumed, connecting foreign customers with U.S. ideas tends to complement, not substitute for, American IP investments—both in terms of the quantity and the quality of U.S. innovation.”

He later explains the reality of complementing and not substituting for American IP investments with three points:

• “For some given level of firm-wide output, when firms employ many kinds of workers and many non-labor factors of production, affiliate and parent labor can often be complements in which more hiring abroad also means more hiring in the United States. Complementarity is quite common in global production networks, in which U.S. workers operate not in isolation but rather in close collaboration with colleagues around the world.”

• “When affiliates are expanding abroad to boost their revenues, the resulting reduction in costs and boost in profits (thanks to greater scale and richer returns on IP) often spurs higher output in the company around the world, which can mean more U.S. hiring.”
• "Affiliate expansion often not only boosts firm scale but also ... refines the mix of activities performed across parents and affiliates. U.S. parents’ employment can rise as they shift their scope into higher value-added tasks—especially R&D and other IP investments."

These are critical points to keep in mind to fight off the zero-sum thinking that tends to undergird misguided tax and regulatory policies that seek to punish firms for investing internationally.

Slaughter further explained: “Aggregate, industry and company-level research to date shows that foreign-affiliate expansion tends to complement U.S. parent employment, investment, sales—and innovation efforts via R&D. One such recent study examined industry-level data for 58 U.S. manufacturing industries from 2000 through 2007. It found that the productivity gains and cost savings from expanding global production networks tended to boost overall U.S. employment in these industries—albeit with changes in the scope of U.S. activities being performed. It also found that more immigrants working in the United States in those industries boosted their overall U.S. employment. Similar studies to this one have repeatedly found that when American manufacturing industries invest more abroad, this outward investment stimulates U.S. exports.”

Therefore, as Slaughter wrote, “because foreign-affiliate production and sales tend to complement American IP investment, raising the U.S. tax burden on IP-related income of U.S. multinational companies—especially if this burden fell differentially on IP income compared to other sources of income—would tend to reduce the quantity and quality of IP activity in the United States.”

Finally, let’s look at the potential benefits of moving ahead with one of the trade accords being negotiated as
In a February 2014 study titled “The Economic Benefits of Intellectual Property Rights in the Trans-Pacific Partnership,” NDP Analytics reported:

- “IP-intensive industries — those that rely far more heavily on IP than others — take up a vast swathe of the economy, and include pharmaceuticals, aerospace, computers and the software to run them, electronics, medical equipment, chemicals, and automobile manufacturing. These industries, in turn, have a far higher rate of innovative research and development. Not surprisingly, a host of studies have shown that these IP-intensive industries generate more skilled jobs, pay higher wages, and produce more than double the sales per employee of non-IP-intensive industries.”

- “Our empirical studies estimate that IP creates 19 million direct jobs and supports 55 million direct and indirect jobs in the United States. In addition, we find that IP-intensive manufacturing industries, led by the pharmaceutical industry, create both high- and low-skilled jobs and provide nearly 60 percent greater compensation to their employees than non-IP-intensive industries. Both output and sales per employee in IP-intensive manufacturing industries more than double those of non-IP-intensive manufacturing industries. With such a large productivity advantage over non-IP-intensive industries, IP-intensive manufacturing industries account for approximately 60 percent of U.S. manufacturing exports.”

- “Our results indicate that previous FTAs boosted U.S. manufacturing exports by an average of 7.3 percent after the trade agreements entered into force. Our results also show that IP-intensive manufacturing industries have stronger trade effects than non-IP-intensive industries.
Previous FTAs raised annual exports of IP-intensive U.S. manufacturing industries by 10.9 percent and annual exports of the U.S. pharmaceuticals and medicines industry by 15.0 percent. In contrast, exports of non-IP-intensive industries to those 16 FTA countries rose by only 3.0 percent.

• “We estimate the formation of TPP will boost U.S. annual exports by between $20.6 and $26.2 billion, will contribute between $9.0 and $11.3 billion to U.S. GDP, and will create between 38,811 and 47,586 jobs. The spillover effects of U.S. companies’ exports to their foreign affiliates in the other 11 TPP countries are more than $26.9 billion in additional sales, $6.4 billion in additional GDP, and 68,240 jobs. More than two-thirds of these benefits come from IP-intensive industries that rely heavily on IP rights.”

• “Our analysis demonstrates the importance of IP-intensive industries partner countries to the United States and its TPP. The economic gains, job growth, and value-added to these 12 economies are mainly the direct results of increased activity in IP-intensive industries, which are likely to thrive and spawn local benefits in an environment with strong IP protection. We estimate approximately two-thirds of the annual benefits come from IP-intensive industries. These economic gains will not be realized in the TPP, or in future free trade agreements, without strong IP rights.”

Regarding the TPP, the Office of the U.S. Trade Representative explained in October 2015, “TPP’s Intellectual Property (IP) chapter covers patents, trademarks, copyrights, industrial designs, geographical indications, trade secrets, other forms of intellectual property, and enforcement of intellectual property rights, as well as areas in which Parties agree to cooperate. The
IP chapter will make it easier for businesses to search, register, and protect IP rights in new markets, which is particularly important for small businesses.”

The Executive Summary of the TPP’s chapter on intellectual property noted: “The chapter combines strong and balanced protections with effective enforcement of those protections, consistent with existing U.S. law. This will promote high standards of protection, safeguard U.S. exports and consumers against IP infringement, and provide fair access to legal systems in the region to enforce those rights. Drawing from and building on other bilateral and regional trade agreements, it includes commitments to combat counterfeiting, piracy and other infringement, including trade secret theft; obligations to facilitate legitimate digital trade, including in creative content; and provisions to promote development of, and access to, innovative and generic medicines.”

At the same time, though, questions were raised as to some weakening of IP protections compared to U.S. levels regarding biologic medicines.

In the end, the economic realities of protecting IP must win out in trade agreements over any kind of political grandstanding that ignores the link between strong IP rights and the incentive to invest, innovate, improve and invent.

**Pro-Entrepreneur, Pro-Investment Tax System**

In the June 2013 study – “The Contributions of Intangible Property to the U.S. Economy” – Matthew J. Slaughter highlighted the negatives that increased tax burdens have on the IP economy:

“A higher U.S. tax burden on IP-related income would stifle, not stimulate, the attractiveness of innovating in America. For IP-intensive
industries, this tax burden would likely be borne in several ways. It would tend to mean fewer start-up IP companies being created in the United States—at a time when new companies, which have long been a key source of America’s innovation, have been born at declining rates in America. It would also tend to mean more innovation being done abroad in foreign-headquartered global companies that would not face the same U.S. tax burden on IP income.”

Indeed, the tax system must do as little as possible to hinder innovation, entrepreneurship, and investment. Ideally, that means a low, flat-rate, simple income tax that does not punish risk taking and success. This includes eliminating multiple layers of taxation being imposed on savings and investment (such as capital gains taxes).

For the U.S., tax changes in recent times, unfortunately, work against entrepreneurship, investment and innovation. Consider the tax increases imposed at the start of 2013:

• The top personal income tax rate for individuals earning more than $400,000 ($450,000 for married filers) went from 35 percent to 39.6 percent. But once the ObamaCare Medicare income tax increase is included, the total top tax rate moved from 37.9 percent to 43.4 percent. For good measure, due to the “cliff” deal re-imposing phase-outs of standard exemptions and itemized deductions, the effective tax rate climbed still higher.

• The capital gains and dividends tax rate moved from 15 percent to 20 percent. But, again, the ObamaCare tax increase must be added in, moving the top rate to 23.8 percent.
• And the death tax rate climbed from 35 percent to 40 percent.

Each of those tax increases reduces the incentives and resources available for entrepreneurship, running a business, investment and innovation.

**Light Regulatory Touch**

As with taxes, the government’s regulatory touch must be light in order to allow creativity to flourish. That includes restraint from having governmental entities imposing regulations – such as with so-called net neutrality regulation – that limit the freedom of business to try various business models and compete to best serve consumers in this incredibly dynamic twenty-first century economy.

For example, price controls – a *de facto* limit on the returns of investments made in IP – on prescription drugs will only serve to undermine the incentives for investing and innovating in new and improved medicines.

Or, on the software front, governments need to refrain from dictating what types of software should be used when it comes to doing business with government, for example, and instead, simply establish clear performance objectives.

In the end, when government gets the policy mix right on intellectual property – that is, strong IP protections at home, coupled with a pro-free trade, pro-IP international agenda, and sound tax and regulatory policies – the foundation is set for creators, entrepreneurs, investors and businesses to work to serve others in the competitive marketplace, thereby, pushing productivity, choice, income, GDP and job creation higher.

The twenty-first century already is the IP century. We just have to make sure that our policymaking keeps up
with, while not attempting to direct or undermine, developments in this exciting, dynamic economy.
About the Author