



# **THE INNOVATION IMPERATIVE:**

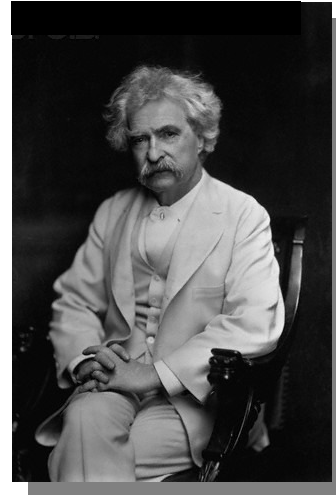
**Building America's *Invisible Edge*  
for the 21st Century**

**By Mark Blaxill and Ralph Eckardt  
Winter 2009**

**T**he very first official thing I did in my administration—and it was on the very first day of it too—was to start a patent office; for I knew that a country without a good patent office and good patent laws was just a crab, And couldn't travel any way but sideways or backwards.”

### **Mark Twain**

*A Connecticut Yankee in King Arthur's Court, 1889*



**T**he very fact that this crisis is largely of our own making means that it is not beyond our ability to solve. Our problems are rooted in past mistakes, not our capacity for future greatness. It will take time, perhaps many years, but we can rebuild that lost trust and confidence. We can restore opportunity and prosperity.

We should never forget that our workers are still more productive than any on Earth. Our universities are still the envy of the world. We are still home to the most brilliant minds, the most creative entrepreneurs and the most advanced technology and innovation that history has ever known. And we are still the nation that has overcome great fears and improbable odds. If we act with the urgency and seriousness that this moment requires, I know that we can do it again.



### **President - Elect Barack Obama**

*Economic Policy Speech, January 8, 2009*

## Executive Summary

Today, the chief export of the U.S. economy is innovation. American inventors have built a strategic reserve of intellectual property rights that is every bit as strategic as our domestic energy reserves – in our view, it is America’s “invisible edge.” In fact, the American economy, now reeling from the mortgage crisis and its ripple effects, has typically found its most sustainable competitive advantage in precisely this resource: innovation.

The single exception was one tragic period from the 1950s through the 1970s when overconfident regulators squandered American innovation assets. Their misguided policy interventions gave away American know-how to overseas competitors at fire-sale prices, compromising our national competitiveness and economic wellbeing.

Today we are in danger of repeating those mistakes.

Policymakers appear not to have learned the lessons of history. In recent years, the American patent system, long one of our greatest institutional strengths, has come under increasing attack, with policymakers not only leaving this strategic reserve undefended, but also in some cases actively undermining its integrity.

We argue that now, in this time of economic crisis, restoring America’s “invisible edge” in innovation is critical to both a sustainable recovery and sustainable leadership in an increasingly global economy.

Thus, the most effective near-term “economic” policy the Obama Administration can pursue is a comprehensive “innovation policy” that focuses on strengthening the patent system, supporting the price of American innovation in global the marketplace, enhancing America’s terms of trade with the rest of the world, and building the strategic reserve of U.S. intellectual property for the 21st century.

## Innovation Boom, Patent Bust: THE CAUTIONARY TALE OF ROCHESTER, NY

Not very long ago, Rochester, New York, was a hotbed of growth in the American innovation economy. Often described as “America’s first boomtown,”<sup>[1]</sup> it once ranked among the top 20 cities in America – ahead of cities like Houston, Denver, Portland and Atlanta.

Today, however, few Americans think of Rochester as a major center of any industry. How Rochester went through this transition – from boomtown to relative obscurity – is a cautionary tale for an economy in crisis that is looking to innovation to pave the road out.

### **Rochester’s Riches: A Century of Innovation & Technology Leadership**

With the completion of the Erie Canal in 1825, Rochester’s economy was booming, and the city was launched on a road to growth and prosperity that lasted well over a century.

Early on, it was known as “The Flour City.” Spurred by its competitive advantage of being on the Erie Canal, the city became the grain-processing center for New York City. This early agricultural emphasis was soon to fade, however, as Rochester transformed itself into a center of high-tech innovation and commerce.

Western Union, the company that built America’s first “information superhighway,” was founded there in 1851. George Eastman, a long time resident, filed his breakthrough photographic plate patent in Rochester in 1877. Eleven years later, after also patenting the first camera to use film in rolls instead of plates, he formed the company that bears his name, Eastman Kodak, in 1888.

As in any dynamic, high-technology cluster, Rochester’s economy wasn’t reliant on a single company; it was simply the place cutting-edge technologists went to start their businesses.<sup>[2]</sup>

Over time, Rochester changed its identity from “The Flour City” to “The World’s Imaging Center.” George Eastman’s breakthroughs in imaging, optics, film and printing gained steam alongside his talented neighbors in the optics business at Bausch & Lomb (founded in 1853), the photographic paper and equipment products at Haloid Corporation (founded in 1906) and the newspaper publishing empire at the Gannett Company (founded in 1923).

[1] Warren Kling, *America’s First Boomtown - Rochester, NY: The Early Years and the Notables Who Shaped It* (Rochester: History Alive Publications, 2008).

[2] Die-hard movie buffs may remember the scene in “It’s a Wonderful Life” when Sam Wainwright told George Bailey that he planned to build his plastics factory in Rochester; George told him to build it in the fictional town of Bedford Falls instead.

Rochester's leading corporations were also prominent civic forces, and they took their economic responsibilities seriously. Their enlightened approach to business included establishing the *Institute of Optics* at the University of Rochester. The aim of the Institute, funded in 1929 by Eastman Kodak and Bausch & Lomb, was to expand the local engineering talent pool.

Despite its dynamism, however, Rochester was hit hard by the Great Depression, in some ways harder than other cities.<sup>[3]</sup> At first, Rochester adopted a can-do attitude. Local businesses organized an unprecedented program of civic activism around a "Pledge for Prosperity,"<sup>[4]</sup> which exhorted local residents to spend more. When this vain attempt failed, Rochester was left with little sense of what to do next. Morale dropped, and for a time, residents fled the city. In a symbolic blow, George Eastman committed suicide in 1932.

Rochester came roaring back during the 1940s, not because of economic spending initiatives, but because of its longstanding spirit of innovation. And one local company in particular – the Haloid Corporation – led the way.

Haloid executives saw the potential of an invention by Chester Carlson, a New York City patent attorney, whose technology had been spurned by the likes of General Electric, IBM and RCA. Unlike those other companies, Haloid's experience with photography and paper gave it unique insight into the potential of Carlson's invention. After several years of intensive development, Haloid bet its future on a new imaging technology that they dubbed: *xerography*.

Like many fundamental technologies, xerography took many years to make it to market:

- Carlson filed his first patent in 1937.
- He made his first electrostatic copy in 1938.
- During the 1940s he was able to prove the technical feasibility of his inventions.
- Over a decade after beginning work on his inventions, the first Haloid Xerox copier was sold in 1950.
- The Haloid copier was such a huge success that the company changed its name to Xerox in 1961.

[3] In addition to the loss of jobs, Rochester was hit in succession by the only tornado in its history (1932), a record cold spell that froze the waters of Lake Ontario for the only time in recorded history (1934) and a record heat wave (1936). "Weather tested Rochester's mettle during Great Depression," *Democrat and Chronicle*, 1 Dec. 2008.

[4] Sarah Elvins, "Shopping for Recovery," *Journal of Urban History*, 2003: 670-93.

For more than a decade, the company prospered in a spectacular fashion. Xerox entered the Fortune 500 in 1963, and ten years later, it was ranked #40, a growth trajectory that made it the fastest growing company in the history of the New York Stock Exchange. Revenues and stock price soared upward together with local jobs, and, along with xerography's success went the fortunes of the Rochester economy.

Then one day, a group of officials in Washington D.C. made a decision that would change the economy of the city and region forever.

### **The Great Patent Give-Away: Washington Guts Rochester's Innovation Economy**

In a 1975 antitrust settlement, the Federal Trade Commission (FTC) compelled Xerox to adopt a new pricing scheme by which it agreed to provide access to any and all comers to its entire patent portfolio.

Practically speaking, they forced Xerox to license their patents to the world. The company agreed to license any three of its patents for free, the next three for a maximum royalty of 1.5% and then the entire remainder of its portfolio for nothing.

The compulsory license scheme, designed by economists at the FTC, was based on the notion that a sustained program of technology investment had made Xerox too big and too powerful. But rather than work directly on Xerox's alleged abuses of market power, the FTC decided to target its technology instead. This was the FTC's view, in the words of FTC chief economist F. Michael Scherer:

*[Xerox] had somewhere between 1,000 and 2,000 patents in the mid-1970's. They were adding to their portfolio at a rate of several hundred patents a year. They had the technology completely encircled, and a consideration that prompted our decision to intervene with compulsory licensing was that the 914 Copier was introduced in 1959. The case came for a decision in 1975. They had enjoyed 16 years of a spectacular patent monopoly. How long should a monopoly last?*

*We intervened because we thought essentially that 17 years was what the law had in mind, 17 years was enough.[5]*

At the time, the FTC thought they were providing market access to Xerox's domestic competition. Other American giants like IBM wanted a piece of the action. They had tried for years to develop their own products, but they couldn't get around the Xerox patents.

[5] "Roundtable Discussion on Competition Policy, Intellectual Property and Innovation Markets," in Robert D. Anderson & Nancy T. Gallini, *Competition Policy And Intellectual Property Rights In The Knowledge-Based Economy (1998)*, 448-49 (remarks of Professor F.M. Scherer, chief economist at the Federal Trade Commission from 1974-1976.) cited by Willard K. Tom, "The 1975 Xerox Consent Decree: Ancient Artifacts And Current Tensions", *Antitrust Law Journal*. 2001;68: 967-90.

However, the unintended consequence of the FTC's compulsory license was to donate Rochester's technology to the Japanese, who were able to take decades of American investment and deploy it in their own products for free. Within a few short years after the consent decree, Xerox's market leadership withered as Japanese competitors like Canon, Toshiba, Sharp, Panasonic, Konica and Minolta each claimed a significant share of the U.S. market. (Kodak made a run at the copier business as well. IBM never got very far.)

After years of explosive growth, the juggernaut that once was Xerox was stopped dead in its tracks: market share plummeted almost overnight, profits tanked, the company went through huge layoffs and, despite a series of the obligatory corporate turnaround books<sup>[6]</sup>, never fully recovered its old luster and leadership.

All of this leaves one wondering: What were the policy makers at the FTC thinking?

### **The Policymakers' Prerogative: Using Bureaucratic Power to Enforce "Competition"**

What happened to the longstanding American tradition of entrepreneurial capitalism, which rewards innovators and entrepreneurs with intellectual property rights not based on abstract notions of product category, but on legal rights (consistently applied) to specific inventions?

It seems that Scherer and his colleagues didn't pay much attention to that tradition: in the FTC's view of competition policy, Xerox's property rights were subordinate to, and thus appropriable by, the U.S. government. So, policymakers decided to take away Xerox's property rights, replacing the company's market power with their own:

*That was the essence of our case. There were all sorts of peripheral practices that, at least I thought, were entirely peripheral. We used them for fighting purposes. But the essence of the case was, frankly, social engineering. It was time to break open this monopoly and create competition. The theory about acquisition and some of the price discrimination practices, and so forth, was fluff. The center of the case was the extension over time of the monopoly through patent accumulation.<sup>[7]</sup>*

More alarming, this dismissal of patent owner rights was part of a broad assault on the patent system by the FTC, which went well beyond Xerox. That was just one of the most visible cases.

Some of America's most valuable technologies – a list that included AT&T's computer and telecommunications patents, IBM's semiconductor and computer patents and DuPont's patents for nylon and other synthetic fibers – were expropriated from their developers in furtherance of the FTC's social engineering agenda. And Xerox wasn't the only target in the Rochester economy. The FTC slapped a compulsory patent license decree on Bausch and Lomb <sup>[8]</sup> and also pursued George Eastman's business, albeit a bit less directly its patents.

[6] David T. Kearns and David A. Nadler, *Prophets in the Dark*, (Harper Business, 1992) Gary Jacobson, and John Hillkirk, *Xerox: American Samurai* (Scribner, 1987).

[7] Scherer, op cit.

[8] F. M Scherer, *Innovation and Growth* (Cambridge: MIT, 1984) 210.

A 1954 consent decree put Eastman Kodak on notice that its attempt to protect its film processing technology would be heavily constrained. One effect of the FTC's intervention was to allow Fujifilm to enter the U.S. market for film essentially unimpeded.

It is a great irony that companies like Xerox and Kodak were powerful and innovative enough to point the way out of the Great Depression for Rochester, offering it a dynamic future as *The World's Imaging Center*. Yet these iconic businesses were no match for policymakers in Washington D.C., who blocked their progress and undermined their promise.

In the end, giving away property rights to the world's most exciting imaging technology to any company around the globe – for fire sale prices – essentially threw the entire body of work of generations of local technologists out the window. And while the Rochester economy had proven resilient in the face of many challenges during its history, the 1975 Xerox Consent Decree was a crucial turning point.

It was a body blow to the competitive advantage of the region – a blow from which Rochester's economy has not recovered.

# I Innovation & IP: CORNERSTONES OF THE AMERICAN DREAM

From our very beginnings, and far more than any other country in the world, America’s continuous, large-scale investment in intellectual assets has built up our reserves of technology and given American innovation its competitive edge.

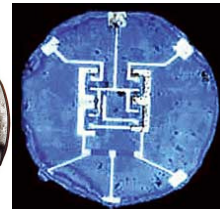
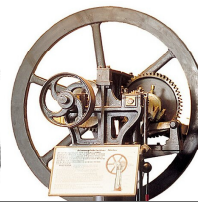
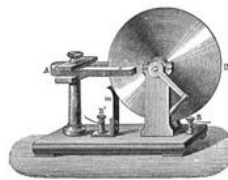
The Founding Fathers even enshrined this unique tradition in the U.S. Constitution, the first country ever to do so:

*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.*-Article 1, Section 8, the United States Constitution

Indeed, in almost any technical domain you can think of, American technology developers have been important, if not central, to some of the most powerful waves of technology in world history.

According to an Encyclopedia Britannica listing of the world’s greatest inventions, American inventors have been responsible for half of the greatest inventions in history, not bad for a country that’s only been around for 230 years.[9] In a shorter (and more recent) list, focused on transformational kinds of technologies – clusters of innovation like steam power, electricity, internal combustion engines or integrated circuits [10] – American inventors have led the way even more clearly. In these waves, even when the inventors themselves weren’t born in the United States, men like Nikolai Tesla and John von Neumann, they often came to the U.S. to do their most important work and eventually became American citizens.

## AMERICAN LEADERSHIP IN TRANSFORMATIVE WAVES OF GENERAL PURPOSE TECHNOLOGY



<i>Era</i>	<i>Steam Engine</i>	<i>Electricity</i>	<i>Internal combustion engine</i>	<i>Integrated circuit</i>
<b>Core technologies</b>	Steamships Railroads Telegraph	Electrical generator Electrical grid Telephone	Oil drilling/refining Automobiles Aerospace	Computers Networks Optics/lasers
<b>Key derivative industry</b>	Textiles	Steel	Plastics	Internet
<b>Non-U.S. inventors</b>	James Watt (UK) George Stephenson (UK)	Michael Faraday (UK) Nikolai Tesla (-> US)	Otto/Daimler/Benz (Germany)	John von Neumann (-> US)
<b>U.S. inventors</b>	Robert Fulton Samuel Morse	Thomas Edison Alexander Graham Bell	Edwin Drake Henry Ford Wright Brothers	Kilby/Noyce Robert Metcalfe Gould/Townes

[9] Both George Eastman and Chester Carlson made the list.

[10] See Carlota Perez, *Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages* (Northampton: Edgar Elgar Publishing, 2002).

Surely, many other factors have contributed to the innovative capacity of the American economy. The list is too long to catalog here, but certainly it includes: a large, legally integrated national market with free internal movement of capital and labor; a long tradition of checks and balances on the power of large institutions; a cultural tradition that embraces change, reinvention, individual liberty and the freedom to compete; and of course a long legal tradition that defends both personal and business property rights.

But while these foundations provide the conditions for a prosperous free-market economy, and while the American economy shares many of such attributes with other capitalist economies, the *specific* magnetism of the U.S. economy is no accident.

### Protecting and Promoting Innovations: A Unique American Tradition

If one factor has contributed more directly to America's capacity for innovation than any other, it is our unique commitment to a legal tradition of protecting intellectual property. Such protections have sustained a parallel American commitment to innovation investments – promoting a cycle of technological dynamism that feeds on itself to sustain the growth and value of innovation assets.

Although the patent system didn't begin here, many of the most important firsts took place in the United States. And for a long time, this was also no accident; for the role of intellectual property rights in stimulating technological change was axiomatic for businessmen and progressive thinkers for much of our nation's history. As Mark Twain's Connecticut Yankee said when he took charge of King Arthur's court,

*“The very first official thing I did in my administration—and it was on the very first day of it too—was to start a patent office; for I knew that a country without a good patent office and good patent laws was just a crab, and couldn't travel any way but sideways or backwards.”*<sup>[11]</sup>

## NOTABLE FIRSTS IN THE HISTORY OF PATENTS

June 19, 1421	First patent for invention granted to Filippo Brunelleschi for a barge design	1861-65	Abraham Lincoln is first patent owner to serve as U.S. President
March 19, 1474	First formal patent law protecting inventors' rights enacted in Venice	March 20, 1883	Paris Convention sets first international standards for protecting patent rights
1617	First numbered English patent granted to Rathburn & Burges for mapmaking	Feb. 4, 1947	First patent with a citations section granted to JD Andrew for a tube spacer
1623-24	The Statute of Monopolies, first national patent law, enacted in England	April 2, 1982	U.S. Congress establishes first Federal Circuit level court for patent appeals
Sept. 17, 1787	First patent right set out in a national constitution, U.S. Article 1, Section 8	April 1, 1985	The first patent law for the People's Republic of China goes into effect
April 10, 1790	First U.S. patent statute signed into law by President George Washington	April 15, 1994	TRIPS agreement links patent protection with the global trading system for first time
1790-93	Thomas Jefferson serves as one of first three U.S. Patent Commissioners	Feb. 4, 2002	Japanese Prime Minister Koizumi announces first national IP strategy
July 31, 1790	First U.S. patent granted to Samuel Hopkins for method of making potash	April 11, 2002	First company labeled a "patent troll", TechSearch, loses patent suit against Intel
Oct. 24, 1856	I.M. Singer and Elias Howe form first patent pool in U.S. for sewing machines	Feb 10, 2006	First Chinese company, Netac, files a patent suit in U.S. courts vs. a U.S. company

[11] Mark Twain, *A Connecticut Yankee in King Arthur's Court*, Charles L. Webster & Co. 1889 (New York: Bantam Classic Reissue Edition, 2005) 49.

Thanks in large part to our philosophical and legal commitment to IP protections, America has been, from its very beginnings, a land of opportunity – holding out unique promise to the world’s most talented and creative people, encouraging the best and brightest from around the world to build their businesses, careers, indeed, their families’ futures in America. For many decades, from immigrants like Tesla and von Neumann onward, scientists and engineers all over the world have come to the United States to fulfill their dreams. (A migration pattern, in fact, that has long generated complaints of a “brain drain” from other countries.)

### **The Ultimate Under-Valuation: Economists Give Away a National Treasure Trove of Intellectual Property**

The 1975 Xerox Consent Decree, however, marked the beginning of a pattern of activism by Washington-based economists, who failed to comprehend the larger economic importance of IP protections.

*“Nearly a hundred of America’s most innovative companies were forced to give away their patents.”*

*“By one estimate, the give-away reached 50,000 patents as early as 1960... what one observer called ‘the largest “white sale” in technology history.’”*

In fact, the economics field has long struggled with the entire concept of giving exclusive rights to any business. In the lexicon of the profession, that’s a monopoly. And as every economist knows, monopolies are bad. In 1958, Princeton’s Fritz Machlup said:

*“If we did not have a patent system, it would be irresponsible, on the basis of our present knowledge of its economic consequences, to recommend instituting one. But since we have had a patent system for a long time, it would be irresponsible, on the basis of our present knowledge, to recommend abolishing it.” [12]*

Since the patent system is older than the economics profession, perhaps it shouldn’t surprise us that its importance remains a mystery to generations of economists who grew up knowing nothing else. But as we learned from the FTC’s Scherer, when you don’t know how to value a unique form of property, it makes it easier to give it away.

And starting in the 1950s, “give it away” is exactly what these economists did. Nearly a hundred of America’s most innovative companies were forced to give away their patents. By one estimate, the give-away reached 50,000 patents as early as 1960. [13]

Japanese companies, actively supported by the Ministry of Trade and Industry (MITI), were perhaps the single largest beneficiaries of American largesse. Between 1950 and 1980, Japanese companies consummated more than 35,000 technology license agreements with foreign, mostly

(12) An Economic Review of the Patent System, Study No.15 of Committee on Judiciary, Subcommittee On Patents, Trademarks, and Copyrights, 85th Congress, 2d Session (1958).

(13) Marcus A. Hollabaugh and Robert Wright, Compulsory Licensing under Antitrust Judgments, staff report of the Subcommittee on Patents, Trademarks and Copyrights, Senate Committee on the Judiciary (Washington: 1960) 2-5.

U.S., companies, many of which included the free or low-cost patent licenses made possible by the numerous consent decrees issued by the U.S., FTC and DOJ.<sup>[14]</sup>

It's worth taking a moment to place the magnitude of this technology transfer in perspective—what one observer called “the largest ‘white sale’ in technology in history.”<sup>[15]</sup>

In the 1950s, American companies were received something less than 50,000 patents annually.<sup>[16]</sup> But, according to studies, only about 10% of patents present any significant commercial value (about 5,000 annually during that period).

Thus a forced licensing of more than 50,000 patents would represent more than a decade of American innovation and technology leadership – based on the reasonable assumption that the forced licenses were made up disproportionately of the most valuable American technologies.

We believe this is a conservative estimate of what was donated to the world during this era of forced licensing.

*“As we learned from the FTC’s Scherer, when you don’t know how to value a unique form of property, it makes it easier to give it away.”*

Consider a parallel in the form of energy policy: Hydrocarbon reserves, which include oil and natural gas deposits, are commonly considered among the most valuable strategic resources a nation can possess. Through history, numerous wars have been fought over security of energy supplies, including the First Gulf War aimed at removing Saddam Hussein’s armies from Kuwait.<sup>[17]</sup> Indeed, oil reserves and energy independence are a major focus of U.S. policy today, at the highest levels of government.

Would anyone seriously consider forcing America to donate more than a decade’s worth of its oil reserves to the world?

In today’s global economy – one which is driven by technology even more than by energy, and where prosperity depends in large part on the export of technology products – many nations increasingly consider IP to be among their most valuable strategic resources.

Viewed in this light, can anyone imagine U.S. policymakers simply turning over a decade’s worth of our innovation reserves to the rest of the world, for free? But that is essentially what the FTC did in the 1970s.

[14] James C. Abegglen and George Stalk, Jr., *Kaisha: The Japanese Corporation* (New York: Basic Books, 1985) 126–127.

[15] Robert J. Girouard, *U.S. Trade Policy and the Japanese Patent System*, Working Paper 89, August 1996, 14, [brie.berkeley.edu/publications/WP%2089.pdf](http://brie.berkeley.edu/publications/WP%2089.pdf), quoting the president of the American Chamber of Commerce-Japan (accessed 8 Aug. 2008).

[16] During that period, the USPTO granted an average of 56,000 patents per year, 14,000 of these to foreign residents. American companies received an average of 42,000 per year, with a peak year of 55,000.

[17] Part of the Japanese strategy in launching World War II was an attempt to create a “greater East-Asian Co-Prosperity Sphere”, a regional economy that would guarantee their access to Indonesian oil. The strike on Pearl Harbor was designed to cripple the U.S. fleet so that the Japanese army could secure the strategic reserves it really cared about: Indonesian oil reserves. The strike on Pearl Harbor came on December 7, 1941, and December 15, the Japanese invaded Borneo.

## Beyond Rochester: The Devastating Impact of “Technology Transfer” on the U.S. Economy

Economists may have thought they were simply opening up markets for domestic competitors, allowing IBM to benefit from Xerox’s investments, or Chrysler from General Motors’. But these assets traveled much farther and faster than just down the Hudson River Valley, or to the other side of Detroit.

***“Once the property protection for innovation was decimated, the incentive to invest in innovation disappeared, and corporate investment in intellectual assets suddenly ceased its long-term upward trend.”***

The biggest beneficiary of the FTC’s compulsory licensing program was Japan. As the Committee on Japan observed many years later:

*“It would be hard to exaggerate the advantages of being in a position to buy foreign technologies ‘off the shelf.’ With modifications, leading-edge technologies could be put to immediate use in manufacturing. For Japanese companies, the immense benefits included crucial time saved, large uncertainties eliminated, promising R&D pathways clarified, rapid movement down technological and commercial learning curves, resources freed to focus on incremental adaptations, and new commercial opportunities opened up.”<sup>[18]</sup>*

During the 1970s and 1980s, U.S. corporations were falling behind fierce new Japanese competitors. Economists and policy makers were wringing their hands over what seemed like, to them at least, a sudden and unexplained decline in America’s competitiveness.

As the U.S. recession of the 1970s dragged on, numerous theories were offered for Japan’s rise and America’s decline. Economists, policymakers and business analysts bemoaned what some termed a “crisis in R&D.” Some blamed American companies for laziness, short-term focus and lack of vision, while others praised the Japanese for their superior culture, stronger work ethic and visionary long-term planning.

What really happened was this: once the property protection for innovation was decimated, the incentive to invest in innovation disappeared, and corporate investment in intellectual assets suddenly ceased its long-term upward trend.

It’s hard to imagine this kind of concern today, when academic “innovation experts” spend more time bemoaning the opposite concern: that there are too many patents and that patent rates are increasing too fast.

[18] U.S.-Japan Strategic Alliances in the Semiconductor Industry: Technology Transfer, Competition, and Public Policy, Committee on Japan, Office of Japan Affairs, Office of International Affairs, National Research Council, (Washington D.C.: National Academy Press, 1992) 3-4.

But in 1984, at a conference convened to discuss the R&D crisis, attendees voiced their concerns over “a worldwide decline in patenting” that some felt was implicated in the “longer term total factor productivity growth slowdown which may have started in the late 1960s.” [19] Some presented evidence of what they called “depletion theory,” the idea that “the pool of inventive possibilities became ‘fished out’ during the 1960s and 1970s.” Former FTC economist Scherer was a featured contributor and noted that he found this evidence “consistent with my own qualitative observations on what happened in a number of industries that experienced technological maturity.”[20] In Scherer’s view, in addition to “electrostatic copying machines,” this list included such sleepy industries as “digital electronic computers,” “coaxial and microwave message transmission” and television.[21]

None of the economists present (perhaps because Scherer was one of the attendees) drew the connection between the patent expropriation decrees of the FTC and any reduction of incentive for patenting.

### **A Welcome Resurgence of IP Protection, and U.S. Competitiveness**

Thankfully, since the decades of the competitiveness crisis, America’s innovation economy has come roaring back, due at least in some measure to a change in the regulatory approach to the patent system.

Starting in the 1980s, an emerging consensus began to form that IP rights were worth defending. As a result, Congress passed multiple pieces of legislation, covering all aspects of intellectual property protection.

No less critical was a philosophical shift away from the antitrust activism of the 1960s and 1970s. The “Rule of Reason”[22] was invoked as part of a general scaling back of the interventionist ambitions of the antitrust regulators – men like Scherer who simply forced Xerox to give away its competitive edge, without considering the larger economic and business impact of what they were doing.

And so for several years, America moved back toward the same protective regulatory posture that had long given the U.S. its “invisible edge.” The American innovation economy has since made a strong comeback, and is once again the envy of the world.

Yet, there is a persistent lack of awareness among policymakers regarding this cornerstone of America’s economic success – i.e., the “invisible edge” of our innovation economy. And recently, the regulatory pendulum has begun a slow swing back toward interventionism and a weakening of patent protections.

Now, it is in danger of going well beyond helpful corrective measures, potentially threatening our innovation economy once again.

[19] Zvi Griliches, ed. *R&D, Patents and Productivity* (Chicago: University of Chicago Press, 1984) 15.

[20] *Ibid.* 123. Depletion theory’s most extreme form is the comment often attributed to former U.S. patent commissioner Charles H. Duell, “Everything that can be invented has been invented.” Neither Duell nor any other patent commissioner ever said anything like this, but a review of Scherer’s writing subsequent to his stint at the FTC indicates that he clearly believed in the depletion hypothesis.

[21] Scherer. 265.

[22] The rule of reason is a doctrine developed by the United States Supreme Court in its interpretation of the Sherman Antitrust Act. The rule, stated and applied in the case of *Standard Oil Co. of New Jersey v. United States*, 221 U.S. 1 (1911), is that only combinations and contracts *unreasonably* restraining trade are subject to actions under the anti-trust laws and that size and possession of monopoly power are not illegal.

## 2 Intellectual Property: America's Advantage for the 21st Century?

During the recent presidential campaign, Senator John McCain was roundly attacked for claiming, in the midst of the current financial crisis, that “the fundamentals of our economy are strong.” After absorbing much criticism, McCain attempted to reframe his views by repositioning his comment as a defense of America’s capacity for innovation:

*"My opponents may disagree, but those fundamentals, the American worker and their innovation, their entrepreneurship, the small business, those are the fundamentals of America and I think they're strong," [23]*

Politics aside, there certainly is reason to believe in these “fundamental strengths” of the American innovation economy.

And based on past experience, we believe that all Americans ought to be more concerned about our economy’s innovation fundamentals, which have long provided the resiliency that allowed our economy to bounce back from adversities like the Great Depression and the stagflation of the 1970s.

***“America’s competitive advantage in IP is an invisible edge, one that’s hard to see, tricky to analyze and easy to take for granted.”***

### Valuing Innovation: A Positive Balance of Trade

Innovation and IP are critical to our nation’s economic health. How critical? As any businessperson knows, the best test of the value of an asset is the market test. And in the case of IP, the health of our strategic reserve is best measured by this simple market test: our ability to license our IP to the world.

Many technical products, like a Boeing airplane or pharmaceutical products, embed IP reserves within them. But such products embed a lot of other types of value as well. Collectively they all end up embedded together in America’s trade account, either as surplus or deficit – so it is difficult to separate the specific value of American patents from all the other attributes that are generating value.

That’s why, in some respects, America’s competitive advantage in IP is also an *invisible edge*,<sup>[24]</sup> one that’s hard to see, tricky to analyze and easy to take for granted.

[23] Robert Barnes and Michael D. Shear, “McCain: Fundamentals of Economy are ‘Strong’ but ‘Threatened’” *The Washington Post*, 15 Sept. 2008.

[24] See Mark Blaxill and Ralph Eckardt, *The Invisible Edge: Taking Your Strategy to the Next Level Using Intellectual Property*. (New York: Portfolio Books, 2009).

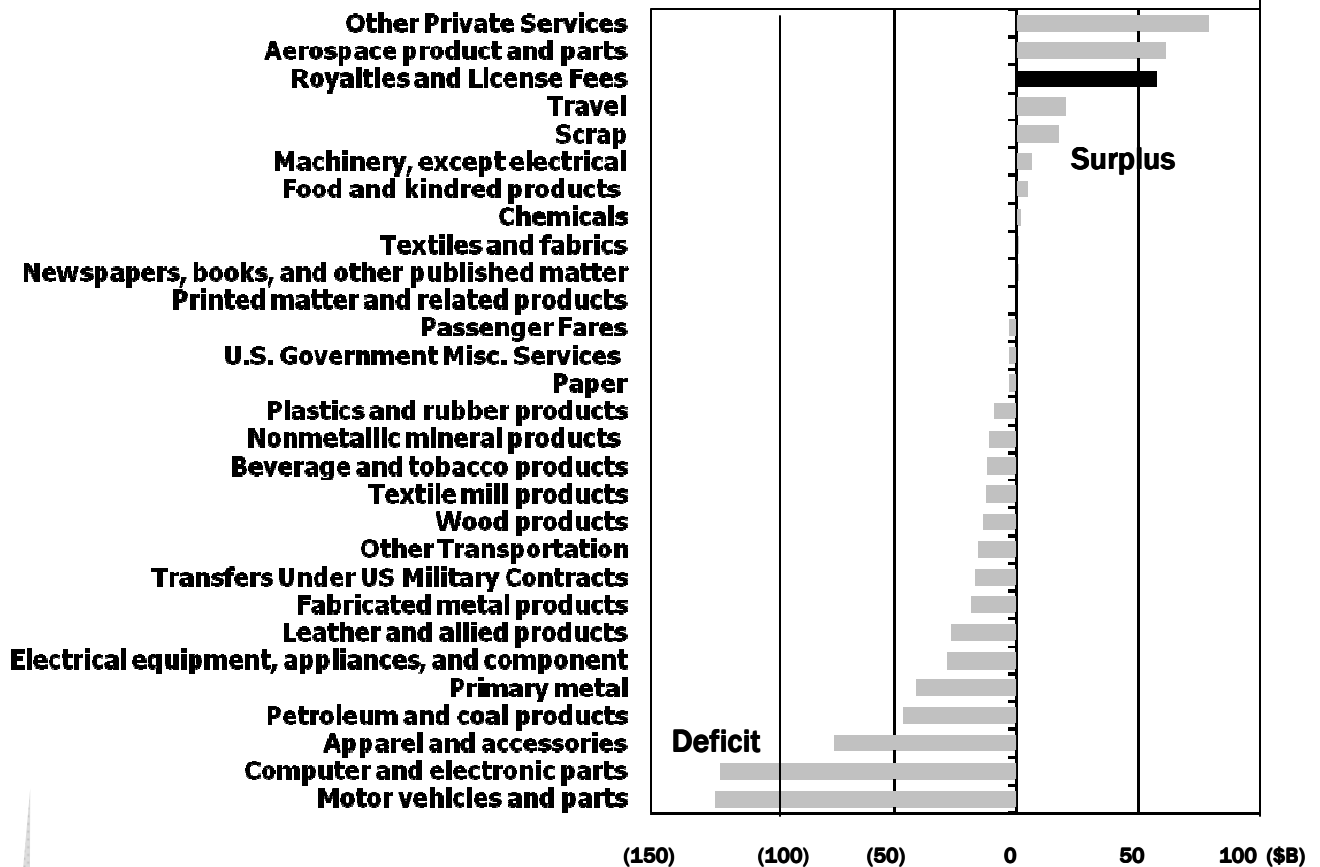
There are, nevertheless, some market tests available for IP alone, those that take the measure of America’s invisible edge using the purest measure of IP trade available: the balance of trade in royalties, licenses and fees. Although this measure certainly understates the net effect of America’s IP reserve on its global competitiveness, it provides a clear signal of our relative standing.

And when one focuses attention on this single measure, despite an overall national trade deficit of over \$300 billion, the American IP sector *all by itself* provides one of the strongest surpluses in our balance of trade accounts: a net balance of over \$57 billion in 2007. If one includes as a “pure IP surplus” the surplus on *other private services* (basically the surplus on trade in expert know-how, much of which is protected by intellectual property laws), the American IP surplus comes to \$250 billion in 2007 – nearly as large as the entire U.S. balance of trade *deficit* of \$328 billion.

Without these “pure IP” surpluses, the American trade deficit in 2007 would have totaled well over half a trillion dollars.

*“The American IP sector all by itself provides one of the strongest surpluses in our balance of trade accounts.”*

## UNITED STATES BALANCE OF TRADE BY SECTOR; 2007



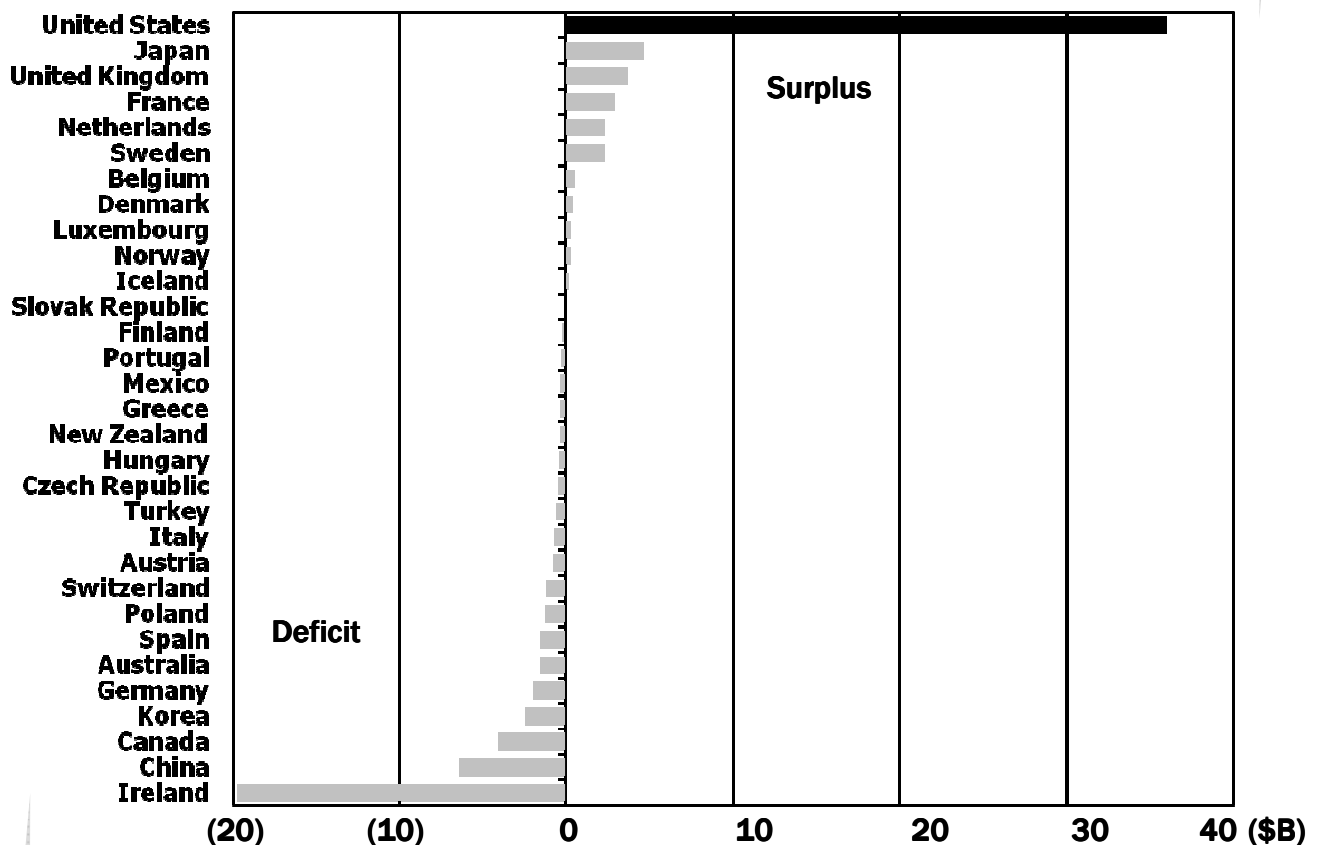
Source: Bureau of Economic Analysis, U.S. International Trade in Goods and Services, September 2008:

The United States is unique in holding such a strong trade position in IP. In 2006, an Organization for Economic Co-Operation and Development (OECD) database reported that total U.S. *exports* of royalties and license fees came to \$62 billion – by far the largest of any of the world’s leading economies, and more than three times larger than Japan’s IP exports, which came in second at \$20 billion.

With regard to reported *surplus* in 2006, only a handful of countries actually reported an IP surplus.<sup>[25]</sup> America’s surplus of \$36B<sup>[26]</sup> was nearly eight times larger than Japan’s. And most major economies, including China, Canada, Germany and Korea, are net importers of IP, much of it from the U.S.

In fact the American surplus in its “royalties and license fees” account is twice the size of the combined surplus of *every other country in the world* that reported a surplus. Clearly, the American strategic IP reserve dwarfs any comparable stock of intellectual assets anywhere else in the world.

## Balance of trade in “Royalties and license fees”: Selected countries in 2006



Sources: Organization for Economic Cooperation and Development, OECD Statistics on International Trade in Services; Chinese Ministry of Commerce, China Trade In Services, 2008

[25] Beside the U.S. and Japan, only the U.K. France, the Netherlands and Sweden ran surpluses of over \$1 billion in 2006.

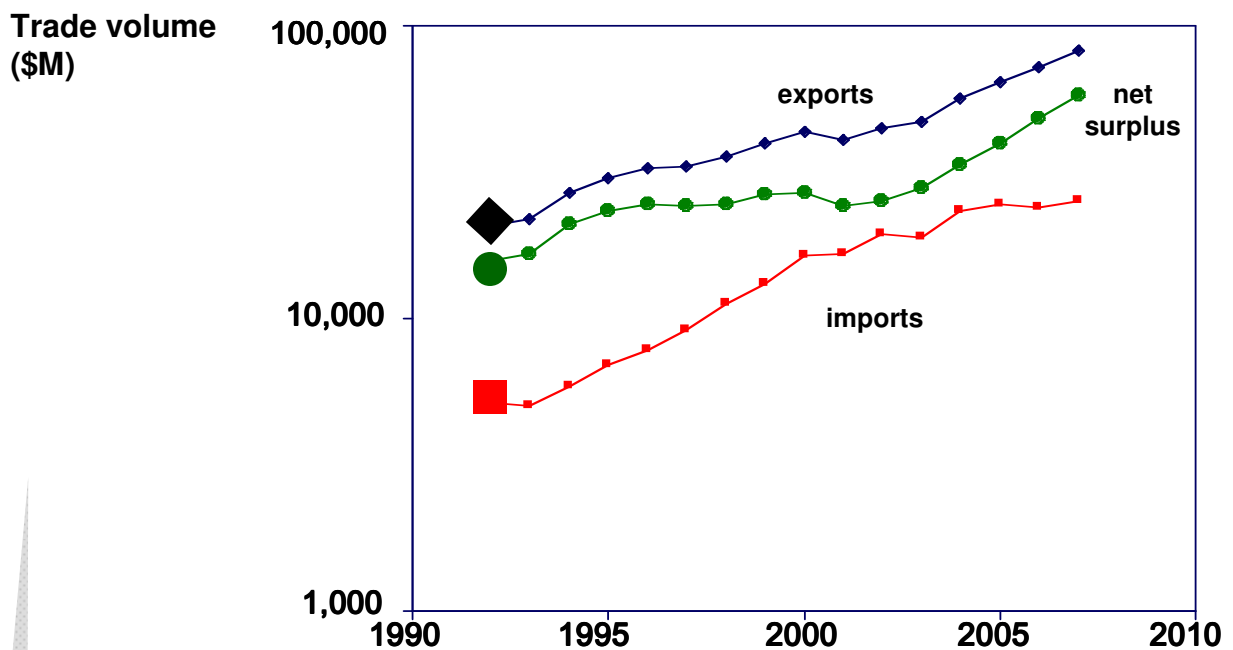
[26] An estimate that is smaller than the \$48 billion reported by the U.S. Bureau of Economic Analysis.

### Vigilance is Required to Maintain America's Strong IP Position

Yet while the invisible edge of the U.S. economy in IP is strong, and rests on the most valuable reserve of IP in the world, the trends give little reason for excessive optimism.

U.S. royalty exports are high and rising, but our imports are rising rapidly as well (albeit from a lower base). So, while the net balance has been rising, it has risen at an inconsistent rate. From 1996-2002, the U.S. royalty surplus grew hardly at all, and only began rising strongly after imports turned flat in the period since 2004.

### UNITED STATES TRADING TRENDS FOR "ROYALTIES LICENSES AND FEES ": 1992-2007



Furthermore, as companies around the world are focusing increasingly on building their own IP reserves, relying on a continuing flatness in IP imports is unlikely to provide a sustainable foundation for a rising long-term surplus.

In order for America to stay competitive with the rest of the world, we must deepen and expand our advantage in innovation – America's *invisible edge*.

This edge won't come from suppressing imports of IP, far from it. It is clearly in America's interest to make use of the best innovations from all over the world and license them in when necessary. Our edge will come from continuing to build the stock of valuable American IP reserves (one measure of that stock is patents), while also continuing to monetize that strategic reserve through cross-border royalties and licensing fees. Protecting the overall value of those IP assets, then, means defending the volume of licensing, *as well as its price*.

For these reasons, we argue that a key defining feature of America's economic interest must be the value of its domestic innovation reserves as compared to the reserves held by the rest of the world. And as a direct result, we would urge the incoming Administration to adopt a strong national "innovation policy."

*"Protecting the overall value of IP assets means defending the volume of licensing, as well as its price."*

## 3

## The Innovation Ecosystem: BUILDING UP AND DEFENDING AMERICA'S TERMS OF TRADE

“Terms of trade” is a concept that gets little attention from undergraduates taking basic economics. Yet it is a key area of concern for regulators and policymakers seeking to promote the national interest. And it is a key concept supporting the argument for a strong national “innovation policy.”

The basic idea is this: while trade, in general, raises the welfare of both sides of the trading exchange, it is always better for any individual country when it earns a higher price for its exports than it pays for its imports. In its simplest form, economists compare the price of a country's exports to the price of its imports and calculate a relative price ratio called the *terms of trade*.<sup>[27]</sup>

To the extent that the action of government regulators can influence those terms of trade (even unintentionally), it is critical that they keep the national interest in mind when considering policies and regulations that have an impact on relative prices.

### Innovation and IP Reserves: Essential Components of America's Terms of Trade

In America, our dependence on foreign energy sources is well known – as well known as our reliance on the off-shore manufacture of labor-intensive products.

*“In the simplest terms, when the value of an American patent is high, and the cost of an OPEC barrel of oil is low, that's good for the American economy.”*

But in today's complex global economy, few serious observers would argue that we should stop importing foreign oil completely (though we might want to improve our terms of trade with OPEC) or discontinue off-shore manufacturing in China (though we might want to level the playing field for American workers when it comes to occupational health and safety standards).

The shock to our economy from eliminating imports would simply be too great. And American consumers benefit to the extent that they can buy a gallon of gas or high-quality consumer product from abroad at low prices. In both of these examples, the American economy benefits when our “terms of trade” improve.

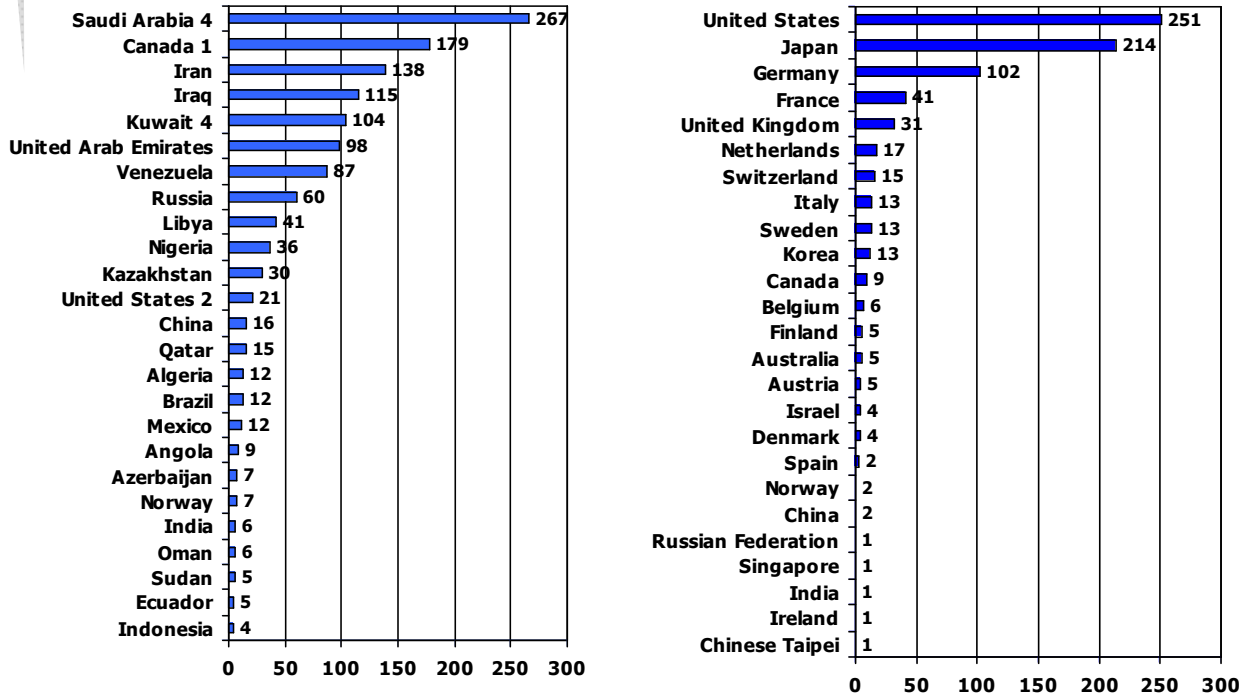
At first blush, simple economics like this may seem so obvious they're hardly worth mentioning. But we mention them because we seem to so easily forget about our national interest on the flip side of the terms of trade calculation.

[27] The terms of trade ratio is only calculated in simple models of international trade; in a world with many countries and many traded product prices, the terms of trade is considered more as a concept than a reported statistic.

It's quite easy to calculate the value of oil reserves: the U.S. Energy Information Administration regularly publishes estimates of "proven oil reserves." In a similar vein, it's also quite easy to calculate a measure of IP reserves: the OECD provides an estimate of the world's most valuable innovation in a listing of what it calls "triadic patents."

Triadic patents are a kind of "gold standard." They are patents that have been considered important and inventive enough that they've been filed – and passed by patent examiners – in the United States, Europe and Japan. In a world concerned with patent quality, a triadic patent is clearly one that has passed a high hurdle for quality. In the chart below, we've displayed a ranking of countries in terms of both triadic patents and proven oil reserves. As the chart shows, while the OPEC nations may lead the world in terms of oil reserves, the United States is the Saudi Arabia of IP reserves.

### The U.S. is the Saudi Arabia of patent reserves



*Saudi Arabia holds 20% of the world's oil reserves, while the U.S. holds 33% of the world's patent reserves*

Source: Energy Information Administration Estimate 2008; 2008 OECD Compendium of Patent Statistics  
 (1) Triadic patents granted over the last 20 years

In the same way that OPEC nations benefit from an increase in the value of their strategic oil reserves, so our focus on innovation gives us a strong national interest in the value of our own *strategic IP reserves*. In simplest terms, when the value of an American patent is high and the cost of an OPEC barrel of oil is low, that's good for the American economy.

Some might argue that by framing the benefits of global trade in such simple terms, we're taking a short-term view. In some cases it makes sense to keep the prices of strategic resources high enough so that consumption reflects their true economic value.

This is certainly true in the case of an imported resource like oil, where in the longer term, higher oil prices will drive alternative energy development. Nor would an enlightened observer ever argue that Chinese wages should *always* remain low so as to support low cost production facilities. But if such long-term, policy-driven arguments are true when one considers the price of America's *imports*, it's even more the case when one considers the price of American innovation *exports*.

Keeping the price of innovation high provides not only short-term benefits to the American innovation economy, but longer-term benefits as well. When the world places a high value on America's innovation, they not only buy our products and license our technology, they also are more likely to invest in the American enterprises that most directly produce innovation. Those may be Silicon Valley information technology start-ups, or the life-saving biomedical research on the fringes of the MIT campus.

The leading edge of the American innovation economy is a magnet for the investment capital of the rest of the world. These capital flows are not philanthropic commitments from foreign benefactors to inquisitive American professors. Quite the contrary, they're investments in the innovation industries of the future: and they're investments made in the expectation of a return.

### **Apple's iPod: A Case Study in "Terms of Trade" and the Innovation Ecosystem**

In practice, measuring terms of trade has become somewhat tricky. It used to be that the return on a particular innovation was completely bundled into the returns on the product in which it was embedded. As recently as the 1970s, the value of Chester Carlson's innovations to Xerox were simply built into the market price of a Xerox copier.

In the same way, the terms of trade could be observed only at the bundled level, by observing American exports of cars and copiers. Over time, however, the nature of innovation has changed.

We have moved away from a world in which the cutting-edge of innovation took place in corporate laboratories – like Bell Labs and IBM's research department – and these large corporations were the only ones that could monetize their own innovation by producing many of the most strategic components and products themselves.

Today, the value of innovation could just as well be reflected in license fees, like the ones Samsung pays Qualcomm for the rights to make phone handsets using Qualcomm's revolutionary CDMA technology.

Consider the example of an iconic American product like the Apple iPod. The value of Apple's innovation, like that of a Boeing 747, is embedded in its final product price. But unlike Boeing, and *like* many leading American innovation companies, Apple no longer does any iPod manufacturing itself.

Instead, Apple orchestrates a global ecosystem of parts manufacturing and assembly, generating its return almost entirely based on its invisible assets. This new model of innovation can play some tricks with the trade accounts, as a recent analysis of the supply chain for American buyers of iPod shows.

## THE GEOGRAPHY OF VALUE FOR APPLE'S IPOD

	United States	Japan	Korea	China	Other/ unknown	Total activity
<b>Company value capture (\$/unit)</b>						
Apple in US	90	-	-	-	-	
Other US HQ	81	-	-	-	-	
Japanese HQ	-	26	-	-	-	
Other HQ	-	-	1	58?	5	
Unknown	-	-	-	-	100	\$299
<b>Wages (\$M)</b>						
Production	1	28	18	18	26	92
Retail and other	219	-	-	-	97	316
Engineering and professional	525	74	18	6	34	657
<b>Jobs</b>						
Production	30	700	600	11,715	6,145	19,190
Retail and other	7,789	-	-	-	4,825	12,614
Engineering and professional	6,101	1,140	600	555	970	41,170

*“Apple orchestrates a global ecosystem of parts manufacturing and assembly, generating its return almost entirely based on its invisible assets.”*

Here, we have summarized a report from researchers at the University of California at Irvine that provides some surprising insights:[28]

Taking a simple export/import view of the iPod supply chain would provide only the most limited insight into the iPod's true value geography: since Apple outsources all of the iPod manufacturing (both components and assembly) and at least 70% of the total cost of the bill of materials is imported, the primary place that American trade accounts would show a purchase of an iPod was as a deficit in the consumer electronics account.

*“When one looks at the overall iPod ecosystem, it's clear that the American economy gains the lion's share of the benefits.”*

[28] Greg Linden, Jason Dedrick and Kenneth L Kraemer (September 2008), “Innovation and Job Creation in a Global Economy: The Case of Apple's iPod,” Personal Computing Industry Center, UC Irvine; Greg Linden, Kenneth L. Kraemer and Jason Dedrick (2008). “Who Captures Value in a Global Innovation Network: The Case of Apple's iPod,” Personal Computing Industry Center, UC Irvine.

But as the Irvine analysis shows, the geographic distribution of value in the iPod ecosystem (*for iPods sold in the U.S.*) reveals the invisible edge that goes to American innovation:

First, the largest single component of value captured goes to Apple itself, which by this estimate captures \$90 of every \$299 iPod sold at retail.

Add in the \$81 from American distribution and you see that over half of the value of an iPod sale is captured in the U.S.

Over a third of the jobs are created in the U.S. and a clear majority of the highest paying jobs, since over two thirds of the wages are earned by American workers.

This is true despite the absence of any visible assets, like factories or manufacturing machinery.

The authors' analysis also demonstrates that the financial return to the innovative parts of the ecosystem is high compared to other, non-innovative parts of the system (e.g., assembly). There are virtually no production jobs in America and most of the production jobs for the iPod are located in Asian countries like China, Singapore and the Philippines. However, most of these non-U.S. components generate relatively little value for the companies involved, creating mostly low-wage jobs.

By contrast, the Apple IP and design activities generate a healthy number of relatively high paying jobs. So when one looks at the overall iPod ecosystem, it's clear that the American economy gains the lion's share of the benefits, capturing economic value that policy-makers in countries like China and Korea drool over.

### **Saving Apple from the Fate of Xerox and Rochester**

It is critical to remember that American domestic economic value is protected only as long as American IP is secure. The quickest way to take a bite out of Apple's competitiveness would be to lower the price of the iPod below \$210 (\$299 minus \$90), without changing any of the inputs or the basic design.

And one should not doubt for a moment that Chinese or Korean competitors (most likely companies already in the supply chain) could rip apart an iPod, clone the design, and sell it for a healthy profit in the U.S. market – if they could legally replicate Apple's *invisible edge*, for free. Thanks to the Apple trademark, its proprietary technology and its steady stream of consumer-friendly designs, that has not happened. And so economic value – and Apple's IP reserves – are captured in an American company, while the terms of trade in the iPod ecosystem remain healthy.

As secure as that picture might seem at the moment, however, it is worth noting how fragile Apple's position truly is. If American regulators don't defend the American IP that sustains Apple's invisible edge, Apple's fate and the Silicon Valley jobs that go along with it could easily vanish.

In short order, the Apple story would look like a rerun of the story of Xerox and Rochester.

## 4

### **In Defense of the Innovators: “PATENT REFORM” AND THE ASSULT ON OWNERSHIP RIGHTS**

America’s strategic reserve of intellectual property lies at the heart of our competitive position in an increasingly global economy. And while we would be inclined to agree with Sen. McCain’s claim that these fundamentals are strong, we would also argue that America’s strategic IP reserve is being placed at risk in ways we haven’t seen since Scherer’s days at the FTC.

Just as Sen. McCain understated the overall weakness of America’s current economic performance, so would we argue that American policy makers have recently started to understate the vulnerability of the American innovation system.

Specifically, the rapidly developing economies of the world are increasingly hungry to capture innovation and IP reserves, and leverage them for the benefit of their own citizens. In addition, the defensive bulwark of the IP legal system is increasingly vulnerable to the well-funded lobbying campaigns of those who seek to weaken the property interests of innovators and entrepreneurs – campaigns by domestic and foreign interests alike.

Such initiatives are often conducted under the guise of “patent reform,” and if such efforts are allowed to gain momentum, America may find itself facing a deficit in innovation reserves, just at a time when we need them most.

*“America’s strategic IP reserve is being placed at risk in ways we haven’t seen since Scherer’s days at the FTC.”*

#### **Global Competition for IP Reserves is Quickly Heating Up**

Some of the most fundamental challenges to American economic leadership are coming from Asian economies like Japan, Korea and China. Recognizing the importance of innovation to their own local economies, every leading country in the region has implemented an “innovation policy” and is working to direct the fruits of global invention toward their own citizens.

As economic policy makers in China know all too well, it’s certainly not bad to have local manufacturing jobs created by Western multinationals, but those kinds of jobs have uncertain benefits in the long run. As the Apple iPod shows, the best jobs are those associated with the innovative elements of a high technology ecosystem.

Chinese policy makers are extremely concerned that the companies creating low-wage manufacturing jobs will not sustain their commitment to local work force, and that they will move to the next cheapest location if such companies don't have deep connections to the local talent that developed and holds their knowledge reserves.

*“In many different forms and in many different ways, leaders from around the world are all saying the same thing: that they are targeting innovation and IP.”*

Thus, China has made the aggressive pursuit of IP assets a national priority. China's Premier Wen Jiabao said in a 2004 speech:

*“The future world competition will be for intellectual property rights.”*

And the chief scientist for China's Academy of Science, Niu Wenyuan, a thoughtful development economist, said recently:

*“[Intellectual Property Rights] are the No 1 strategic reserve in the 21st century and its significance is not inferior to any other strategic reserve, be it food or energy.”*<sup>[29]</sup>

Meanwhile, in nearly every policy speech he made from 2001 to 2006, Japan's Prime Minister Koizumi has made some version the following statement: that our goal is to “bring about a nation founded on intellectual property.”

In many different forms and in many different ways, leaders from around the world are all saying the same thing: that they are targeting innovation and IP.

### **Defending America's Innovators From Threats Here at Home**

At this critical economic juncture, however, America seems to be waffling on its commitment to developing its national innovation and IP reserves.

*“Increasingly, the interests of the U.S. economy are separating from those of America's largest global companies.”*

The same kind of commitment we see from other nations is rarely voiced at the highest levels of the American government. To the extent that IP issues are debated at a high level, the public debate is dominated by the positions and interests of the largest of America's global corporations.

[29] “Focus of IPR Strategy to Be Broadened,” *China Daily* 28 Mar. 2007  
us2.mofcom.gov.cn/aarticle/chinanews/200704/20070404525475.html. (accessed 8 Aug. 2008).

On one side of this debate are industries like big pharma, which supports strong IP protections because they help sustain drug prices. On the other side are industries like big tech, which favors weaker IP for small firms, so the big fish can more easily gobble up their nimbler, smaller competitors.

Neither of these arguments, however, makes the best *economic* case for American innovation, and both are increasingly taking a global rather than a domestic focus – i.e., these companies can source innovation effortlessly from anywhere in the world. And many of America’s largest multi-nationals are increasingly moving their R&D centers, and the highest quality jobs, outside of the United States.

Increasingly, the interests of the U.S. economy are separating from those of America’s largest global companies. And the role of these companies in orchestrating global commerce presents a fundamental challenge to America’s innovation economy.

Unlike American multi-nationals, which can innovate anywhere in the world, the U.S. economy needs local innovation to thrive. These activities are, more often than not, led by small companies.

Far more than the large corporations orchestrating large global supply chains, these smaller innovative companies struggle with defending their invisible edge. And the smaller they are, the harder it is to defend their innovations.

In short, competitive challenges to American innovation can come from competitors both *inside* and outside the American economy.

### **Legalizing Piracy? Lobbying for the Roll-Back of IP Protections**

Competition is, of course, the normal course of business. Piracy, however, is not. And it presents two kinds of challenges that are unique to IP reserves – both involving the legal system.

*“When it comes to bolstering America’s innovation reserves, managing the legal economy is far more important than controlling the illegal one.”*

The first is illegal piracy, which comes in many forms, from teenagers to the Mafia – the most well known being criminal enterprises in Asia. Against such pirates, U.S. regulators have been strong supporters of American innovation, appropriately spending a great deal of time defending U.S. companies from the illegal piracy of both trademarks (e.g., knock-off labels) and copyrights (e.g., movies and songs).

However, the second type of piracy – more dangerous and more to the point here – comes in the form of *legal* copying. The picture of a copyist is much different than that of a pirate hawking knock-offs of designer sunglasses.

Where patents are concerned, copyists are often large corporations. And legal copying happens when the system of IP protections is weakened or undermined.

The challenge of the IP legal system, of course, is balancing the rights of buyers and sellers in a way that makes the market liquid and reliable. In a stable world, technology purchasing negotiations work themselves out as long as the property interests of innovators are fairly defended. But unlike criminal enterprises that flout the rules to steal brands and creative works, the most serious *legal* threat to IP and innovation lies in the ability of influential technology purchasers to *re-make the rules* in their favor. The danger lies not in their bargaining power, but in their *lobbying* power.

Said another way: just as the price of oil is greatly influenced by the decisions of the members of OPEC, the price of American innovation is largely determined here at home, by policymakers, legislators and regulators. When powerful and well-organized corporate interests sit down with sympathetic authority figures, bad things can happen. Small groups of people can, with the stroke of a pen, make it far easier to *legally* co-opt (i.e., “steal”) intellectual property.

So, when it comes to bolstering America’s innovation reserves, managing the legal economy is far more important than controlling the illegal one. In the legal economy, innovation has a price that is almost entirely determined by the legal rules that surround it. And as the experience of Rochester and Xerox can show us, nearly the entire value of America’s strategic IP reserves can disappear in an instant, just by someone sitting in a room in Washington DC and changing a rule.

#### The Road Back to Rochester: Big Tech Pushes for Weaker IP Protections

*“The particularly insidious part of the ‘patent reform’ movement is that it completely inverts the truths surrounding innovation and IP.”*

Over the last several years there has been a concerted assault on U.S. patent rights. Some of the reforms have been necessary and corrective, such as limiting the reach of patents on business methods and providing new discipline within the patent examination function; for a while applicants were treated as “customers,” and examinations sacrificed rigor in an attempt to improve customer satisfaction.

But in the last several years, the momentum of “reform” has taken on a life of its own, turning into a sustained campaign to reduce the rights of patent owners. Much of this short-sighted effort is being driven by large technology companies, which are trying to reduce the short-term costs of technology acquisition.

From Congress to the Supreme Court, a series of decisions – eBay v. Merc Exchange, KSR v. Teleflex – have radically revised the balance of power between technology sellers and buyers. It may take years to sort out the impact of these changes, but almost all of them run in a single direction: toward weakening the rights of patent owners.

Their net effect has generally been to lower the price of technology, the return earned on invention investment and the value of innovation in a dynamic economy. This would be a concern all by itself. But in addition to the changes to date, and just as their effects are rippling through the courts and the economy, there is additional pressure to further weaken patent owners’ rights – cloaked in the language of “patent reform.”

These efforts have led to a paradox: in a world where innovation and IP is more important and valuable than ever, regulators are under pressure to make it easier to use technology without paying for it.

This emphasis on reforming the patent system is based on a number of fallacies and, like the disinformation around WMD in Iraq, has gained momentum without sufficient critical examination of either the facts or the national interest. Few people are thinking about innovation and competitiveness, or even understand their unique linkages. And the particularly insidious part of this “patent reform” movement is that it completely inverts the truths surrounding innovation and IP, arguing that patents themselves are an obstacle rather than a defender of innovation.

In reality, patent protections are some of our most important national institutions, protecting critical strategic reserves of innovation and IP. Unfortunately, the pendulum may be swinging against them, putting America on the cusp – at a time of severe economic distress when we can least afford it – of a return to the errors of a previous generation and another “Rochester moment” for the U.S. economy [see sidebar].

As the saying goes, those who forget their history are doomed to repeat it.

#### What Happened to Rochester?

Rochester, once the rival of major American cities like Atlanta and Houston, has been rapidly dropping out of the top 100. The city center has lost over a third of its population since its heyday in the 1950s and 60s and the population of Monroe County-Rochester’s metropolitan region hasn’t grown since the 1975 Xerox Consent Decree. Downtown streets that were once bustling are now separated by that tell tale sign of urban stagnation, large expanses of public parking in otherwise vacant lots. Over the last 30 years, only two new buildings rising above fifteen stories have been built in downtown Rochester, less than one per decade. Clearly, a good part of the once-dynamic city region has turned stagnant.

That’s not to say that Rochester is a ghost town, far from it. The city and its surrounding metropolitan area continue to attract a lot of science and engineering talent and the Rochester area continues to host some excellent universities while also providing a good quality of life. And the ongoing business activity of traditional leaders like Xerox and Kodak continue. But both companies have been eclipsed by technologies and competitors that were once years behind.

But there is little question, in comparison to “America’s First Boomtown” and “The World’s Imaging Center,” Rochester is now a shadow of its former self.

*“Unfortunately, the pendulum may be swinging against [innovation and IP], putting America on the cusp of another ‘Rochester moment...’”*

## 5

### **National Innovation Policy: SECURING AMERICA'S FUTURE AND OUR VITAL ECONOMIC INTERESTS**

Different nations bring different advantages to global competition, ranging from natural resource endowments to low labor cost to skilled science and engineering talent. More than perhaps any other nation, the strongest competitive advantage that the United States possesses is its capacity for innovation.

In practice, IP is the incentive that brings markets, talent and invention together to monetize our innovation and deliver benefits to the nation. For much of its history, the American economy has had a unique ability to put all these pieces together to create value from its innovations.

**“America may find itself facing a deficit in innovation reserves, just at a time when we need them most.”**

But rather than bolster our strategic reserves of innovation and IP, our ability to foster innovation is increasingly under threat – from at home and abroad. As competition heats up for IP and innovation reserves, our systems of legal protection are under pressure to wrest control of IP rights from their owners.

We have already seen the devastating effects such policies can have. Rochester was once a top-25 American city, a hotbed of innovation. Its leading companies, like Xerox, were the envy of competitors everywhere. But with a few strokes of the pen, their decades of innovation and investment were taken and donated to the world. And current “patent reform” efforts could very well bring America back to another “Rochester moment.”

There is, however, in the next few years, a window of opportunity for the Obama administration to focus on defending innovation, rather than enabling another wholesale give-away.

As a candidate, President Obama talked about “investing in America.” We would argue that the most important investment he can make to restore and secure America’s economic vitality is to support the development of our nation’s strategic IP reserves. Such an effort will provide significant, long-term benefit to both our balance of trade and terms of trade.

A national innovation policy for his administration should include:

- Protecting the U.S. patent system and the renewable strategic reserves that it generates.
- Sustaining America’s terms of trade and defending the pricing of America’s invisible assets through regulation and legislation.
- Adapting the USPTO to the needs of the modern patent development process.
- Building talent locally through quality science and engineering education.
- Providing incentives for inventive talent to live and work in the U.S.
- Making science and engineering financially rewarding careers.
- Supporting returns on invisible asset investments.

At this time of great national distress, we need to fall back once again on the spirit of American innovation, and as we have in the past, we must look to the foundation of American invention to pull ourselves through this latest crisis.

The Founding Fathers put in place a framework to protect the rights of intellectual property holders. Their aim was to ensure America’s continued resilience and prosperity. And, for the most part, it has been a success these past two centuries. It is now incumbent upon us to preserve and defend it – to ensure America’s future.



**Mark Blaxill**



**Ralph Eckardt**

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For more information or to receive a copy of *The Invisible Edge: Taking your Strategy to the Next Level Using Intellectual Property (Portfolio, March 2009)*, please contact Adria Greenberg at Sommerfield Communications at 212-255-8386 or [Adria@sommerfield.com](mailto:Adria@sommerfield.com). Or, contact the authors directly at [Ralph.Eckardt@3LPAdvisors.com](mailto:Ralph.Eckardt@3LPAdvisors.com) or [Mark.Blaxill@3LPAdvisors.com](mailto:Mark.Blaxill@3LPAdvisors.com).