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Why the 2011 America Invents Act is Bad for Entrepreneurs, Bad for Startups, and Bad for America—and How to Fix It

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Now that the Leahy-Smith America Invents Act of 2011 (AIA) is law and is beginning to phase into effect, the patent community has begun to focus and understand what has happened. More and more attorneys are coming to recognize that the AIA will put entrepreneurs and startup companies in deep trouble. The reason? Despite recent data from the U.S. Census Bureau that shows that startups are responsible for *all* net job creation in the U.S. over the last 35 years,[12] the AIA takes away much of the legal framework that allows American innovators—*especially startups*—to innovate, conduct research and development, and attract investors. Adding insult to injury, the AIA favors Fortune 150 companies by making it easier for them to accelerate the trend of their export of technical jobs.[13]

Let's look at some of the problems, and then I'll offer some proposals to fix the AIA.

How Startups Used the Patent System before AIA

Not all startups rely on patents, but the *startup ecosystem* relies *crucially* on patents. Angel investors, venture capital, incubator firms, lab condominium developers, the Sand Hill Road and Wall Street professionals that foster new companies, and the other participants in the startup ecosystem all rely on *scale* of startup flow. The AIA will lead to a substantial reduction in patent-driven deal flow. That, in turn, will disrupt the entire startup ecosystem, much as reduction of a keystone species results in the collapse of an entire ecosystem.

There are two scenarios that are common to almost all startups as they transition from idea to investment to research and development to production at scale. Essentially all technology-based startups go through one of the two; many go through both. The AIA makes both far more difficult for all entities other than large integrated, market incumbent firms.

[12] Two recent studies by the Kauffman Foundation and economists at the U.S. Census Bureau tell us that "*startups aren't everything when it comes to job growth. They're the only thing*." Tim Kane, *The Importance of Startups in Job Creation and Job Destruction*, *(*http://www.kauffman.org/uploadedFiles/firm_formation_importance_of_startups.pdf); John C. Haltiwanger, Ron S. Jarmin & Javier Miranda, *Who Creates Jobs? Small vs. Large vs. Young* (http://www.nber.org/papers/w16300).

[13] Ron D. Katznelson, "Downhill Patent Harmonization with What?" Presented at the Forum on The Overhaul of U.S. Patent Law, Washington D.C. (August 30, 2011), http://www.bitly.com/Katznelson-Forum shows that the proponents of the AIA tended to be net destroyers of U.S. jobs, by exporting them.

Scenario #1: The conventional way startups have obtained venture capital and business partners

An entrepreneur with a great idea almost always needs to find an investor, and usually needs one or more partners for manufacturing, marketing, or some other function. Almost all entrepreneurs have to present their idea to several dozen investors and potential strategic partners before a new company can form.

Often new companies begin when an inventor makes a presentation in an open "inventor's forum" meeting, where many potential investors hear presentations from many inventors. In these settings, the inventor has to disclose confidential information to many people with only a "handshake" level of confidentiality. Even though these meetings entail some risk, these meetings happen often anyway, because pre-2011 patent law gave adequate protection to entrepreneurs and potential investors alike.

Scenario #2: The conventional way startups have conducted R&D in the real world

Once a startup is established, the hard work of R&D begins. Many high-tech products require extensive trial-and-error. Inventors conceive and discard dozens of ideas before hitting the magic combination that works technologically and commercially.

Real-world R&D, replete with both promising avenues and dead ends, often takes many years. Sometimes a hundred iterations of an invention are tried, explored, and discarded. A company may pursue one for a year or more before finding that it doesn't work or can't be commercialized, then go back and retry one of the discarded approaches based on insights gleaned from failure. The final product may embody only a tiny fraction of all the original inventions.

U.S. patent law before the AIA accommodated both scenarios; the AIA does not

Before the AIA, U.S. patent law provided a grace period with several prongs—that is, an inventor had time to develop an invention before the deadline for filing an application, subject to several time limits. The most relevant prong of the grace period, § 102(a), allowed inventors talk to potential investors and strategic partners, conduct trial-and-error innovation, deal with departing employees, secrets that weren't kept, trash that wasn't shredded, students' needs to publish and to discuss their research at job interviews, and the like. The mere fact that the inventor had *invented* and was working diligently on the invention was sufficient to create an "escrow" to hold rights.

Under pre-2011 law, commercially important patent rights were determined based on ordinary, non-burdensome business activities (the legal jargon was "conception" and "diligence"). That is, a company's pursuit of an invention with normal business diligence gave the company a reasonable-risk right to conduct ordinary business for a reasonable period of time, before being obligated to bear the costs of patent filings. Pre-2011 § 102(a) gave everyone time to talk, think, and perfect the invention before taking the expensive and legally demanding step of applying for a patent.

Pre-2011 § 102(a) allowed inventors to wait until they had quality inventions, which enabled them to file quality patent applications. Quality patents only emerge after iterative design and testing, and valuable patents emerge only after enough information exists to sort good ideas from bad. America's unique and strong *right to file in the future*, after the inventor and investor knew whether the invention was valuable, made business easy, prevented wasted costs for inventions that proved worthless, and gave inventors and attorneys time to prepare high-quality patent applications.

Unfortunately, the AIA eliminated the § 102(a) prong of the grace period. Deadlines for filing patent applications will be much earlier. Under the AIA, it's far more risky for an entrepreneur or startup to obtain investment capital via Scenario #1 or conduct R&D

through Scenario #2, because both take longer than the new deadlines permit. Starting in 2013, activities undertaken in the ordinary course of business are no longer legally relevant in securing a patent. From March 2013, patent rights will turn solely on legal technicalities controlled by the lawyers. This is a major shift of power from company management to patent counsel, and a major shift of convenience in favor of government bureaucrats and lawyers, but a great increase of burden on business.

Entrepreneurs and investors can no longer speak freely the way they did under Scenario #1. These conversations are now too risky. Inventors will have to file patent applications *before* they talk to investors and potential business partners. Investors will have to insist that entrepreneurs file patent applications before discussions can begin, let alone before they invest. But many inventors can't afford to file patent applications until they already have the investment in hand. When entrepreneurs and investors can't get funding until they have a patent application, and can't file a patent application until they have funding, inventions and businesses die.

The AIA also requires startups to file patent applications before the invention is ready. This means their applications will be premature, often hasty, and almost certainly more expensive to prosecute. And they will have to file on every baby-step idea that comes up along the way because they can't know in advance which baby step will turn out to have been critical. Under pre-2011 law, companies routinely conducted multi-year trial-and-error R&D and thrived. Under the AIA, they will face potentially ruinous patenting costs. Perhaps not coincidentally, they will also be vulnerable to predation by the large companies that advocated for the AIA.

While the AIA was pending, I discussed the needs of startups and investors, and Scenarios 1 and 2 with many knowledgeable and influential proponents of the Act, including key legislative staffers, and members of the relevant committees of the American Bar Association and American Intellectual Property Law Association. Every conversation reached the same point, the proponent conceding "We didn't think about that; the bill doesn't work in those two scenarios." If the AIA doesn't allow companies to get through these two scenarios, it won't work for American startups, American innovation, or American jobs.

Scenario #3: The AIA makes startup innovation commercially impractical

The proponents of the AIA promised that the law would provide a "robust" grace period. Let's look at how it would work. Suppose a startup company invents a new widget in January 2013, gets a prototype working in July 2013, and decides to rely on that "robust" grace period to delay patent expenses during field testing. In latter 2013, someone else invents something similar, but not identical, and publishes an article describing the similar-but-not identical idea. (*Identical* reinvention is rare, while reinvention with slight difference is common enough to present commercially unacceptable risks.) The startup files a patent application covering a fully-tested invention in early 2014, as planned. Maybe the second inventor pursues commercialization, maybe not; that doesn't matter in scenario 3.

In a variant of scenario 3, suppose the startup test markets its new widget in July 2013, but the device as sold is a "non-disclosing use" that doesn't permit reverse engineering (for example, the invention might be an improved rubber compound for golf ball cores—as a practical matter, it's impossible to reverse engineer the curing techniques from the rubber itself). A few months later, a non-commercial article describes the invention.

Before the AIA, this all worked out. The startup's patent rights and investment in R&D were safe. The § 102(a) grace period allowed the startup and its investors to follow a sensible, low risk and low cost test-first/patent-later plan. The startup could obtain R&D

capital, both the initial round and further rounds as the company matured, and spend it carefully.

However, under the AIA, the startup will only be able to obtain a patent so narrow that it covers only its *exact* prototype—not the subsequent product that emerges from field testing, and not the second company's reinvention. Such a patent has little or no commercial value. In the non-disclosing use variant, the startup is barred from *any* patent at all. The startup will find it all but impossible to secure further rounds of funding for commercialization. Many companies and first investors will be wiped out. Perhaps not coincidentally, those startups will be susceptible to predation by the large firms for whose benefit § 102(a) was removed.

Once a few examples become generally known to the investment community, venture capital will flee the U.S. startup market, just as venture capital fled Canada after Canada adopted an AIA-like statute in 1987. It will take only a few years for today's startup ecosystem to collapse, and decades to rebuild it—unless Congress passes corrective legislation soon.

Empirical data show how the AIA will deter innovation

We know that the AIA will have these disastrous consequences for startups. The AIA is, to a commercial reality, similar to the system Europe has had for decades. European patent attorneys counsel their inventor and investor clients not to talk to each other until after applications are filed. In Europe, applications have to be filed shortly after an idea is conceived—before they are fully vetted, before testing occurs outside a company's four walls. Of course that means that inventors and investors have a much more difficult time meeting than they do in the U.S. Inventors' forums occur monthly in many American cities, but they are essentially unknown in Europe. Startups in Europe have a much more difficult time finding strategic partners and testing their inventions.

The data confirm what one would expect: in Europe, R&D investment and new business formation are half the rate in the pre-2011 United States. A study by Dr. Ron Katznelson compares European data and U.S. data and concludes that the earlier deadlines of the AIA will raise the cost of the patent system, and that those costs will be borne primarily by American inventors.[14]

Canada's experience is instructive, since Canada adopted an AIA-like system in 1987. Economists at McGill University studied two decades of results, and found "virtually no positive effect."[15] What they did find is that innovation shifted from small firms like startups to large corporations, the same distributional effect I predict will occur under the AIA. Another study of Canada's experience, by a Canadian colleague and myself,[16] analyzed data from the U.S. and Canadian patent offices. We showed that if data from the Canadian transition in the late 1980s and early 1990s are extrapolated to the U.S., the loss of the § 102(a) grace period will cost American businesses about $1 billion per year.

I know of no empirical analysis showing that AIA's repeal of the § 102(a) grace period will produce any net benefit to America.

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[14] Ron D. Katznelson, The Perfect Storm of Patent Reform?, Fenwick & West Lecture Series Symposium, UC Davis School of Law (Nov. 7, 2008), http://works.bepress.com/rkatznelson/54/

[15] Shih-tse Lo & Dhanoos Sutthiphisal, Does It Matter Who Has the Right to Patent, First-To-Invent or First-To-File? Lessons From Canada, Nat'l Bureau of Economic Research, NBER Working Paper 14926, http://www.nber.org/papers/w14926 (Apr. 2009).

[16] David Boundy & Matthew Marquardt, Patent Reform's Weakened Grace Period: Its Effects On Startups, Small Companies, University Spin-Offs And Medical Innovators, Medical Innovation & Business 2:2 27-37 (Summer 2010), http://journals.lww.com/medinnovbusiness/Fulltext/2010/06010/Patent_Reform_s_Weakened_Grace_Period__Its_Effects.6.aspx

Claims made in support of the AIA's revision to the grace period do not survive scrutiny

Proponents of the AIA's change to the grace period made a number of claims. These claims do not appear to operate as advertised. Here are a few examples.

The remaining grace period—a diversion

Proponents justified the AIA to Congress because it preserves one small sliver of the grace period, a part of § 102(b) of pre-2011 law. But § 102(b) was not the concern of the startup community—the concern was § 102(a). Under the remaining sliver grace period, the risks are much greater than under old law, and impossible to hedge. The remaining sliver is commercially useless. Businesses have to assume there is no grace period—the rule will be patent first, test later.

Interferences—the main selling point—is a non-issue

The main "selling point" of the AIA was doing away with complex and costly contests called interferences. But only about 200 patent applications per year (out of about 450,000) have been the subject of interferences, so eliminating them will have negligible benefit—perhaps tens of millions of dollars per year. In contrast, the repeal of the § 102(a) grace period of pre-2011 law affects commercial decisions for *hundreds of thousands* of inventions per year, and will cost startups and small business *$1 billion* annually. Spending a billion dollars to save a few tens of millions is obviously a poor legislative choice.

The provisional application bait-and-switch

Proponents told Congress that the harms of the AIA would be ameliorated because inventors would be able to file provisional applications for only $110. Under pre-2011 law, inexpensively-prepared provisional applications had business value because they documented the ordinary-course business activities, and legal conception and diligence, discussed above. But under the AIA, conception and diligence are irrelevant, so the legal relevance of provisional applications changes entirely. Under the AIA, a provisional application only has value if it is prepared with care and expense comparable to a full-blown formal application. Under the AIA, a startup's typical "provisional" application will average $10,000 or more in attorney fees and inventor time — a formidable barrier to an entrepreneur's first conversation with an investor. The $110 provisional is a thing of the past, a meaningless right.

The "publication grace period" for universities is commercially worthless

At the behest of university parties, the bill was amended to provide a grace period after publication of a paper. While this apparently sounded plausible to academics on the technology *transferor* side, the entrepreneurs and investors on the *transferee* side pointed out that it's commercially worthless. First, this grace period suffers from the "Scenario 3" defect discussed above. Second, no business commits suicide by publishing its future business plans at the very outset of a project. Third, this technique would cause a company to forfeit patent rights in almost every other country. This right is commercially meaningless.

University technology transfer is only viable if a transferee company has access to all the resources needed to turn an invention into profitable business. This "publication grace period" will work acceptably well for technology transfer to market incumbents, but it cuts off access to several business resources that are crucial for technology transfer to startups. The days of new companies founded by faculty members to develop their inventions are all but over.

The illusory benefits of "harmonization"

There is nothing inherently wrong with "harmonization" as a rationale for the AIA, but harmonization makes sense only if the benefits exceed the costs. But partial harmonization creates very little benefit. As long as there are even small differences between the laws of two countries, an attorney in one country cannot opine on a patent from the other, reducing or eliminating the potential savings.

The AIA does not harmonize U.S. law with the law of any other country: the 2011 AIA departs from any other country's definition of novelty (though it's somewhat close to Canada), and obviousness (where the AIA is similar to no other country), the two key issues in patent law.

The anomalous definition of obviousness in the AIA discriminates against U.S. inventors in a way that no other country discriminates against its own inventors.[17] It's not clear why Congress favored this provision.

The AIA does not bring U.S. law close enough to any other country's to create any significant savings. The transition costs from old law to new will be immense—and will probably never be recovered by "harmonization" benefits.

Several other features of the AIA selectively harm startups and small business

Startups have used the patent system differently than large, established firms. Startups tend to bite off "bigger," higher-risk technology problems, and thus need the longer deadlines of pre-2011 law. Startups use their patents to secure financial backing, and thus laws that reduce the security of patents will tend to harm the ability of startups to secure financing.

The bill has a number of provisions that disadvantage startups with those characteristics.

Provisions that only benefit the big

The AIA adds several new provisions that favor companies with old technology that they held as trade secrets, companies that are so large that the same invention is rediscovered multiple times, and companies that can obtain all of their financing, R&D, testing, manufacturing, and marketing internally.

Obviously these features discriminate against startups: startups don't have old trade secrets, startups do not have multiple inventors working independently to create "self-collision" problems, startups do not have integrated in-house functions.

These provisions transfer immense wealth to big companies and market incumbents, but offer no benefit at all to startups and small companies.

Provisions that favor trade secrets over disclosure

Until 1999, U.S. law favored disclosure of inventions through the patent system over keeping inventions trade secret. The 2011 AIA tips the balance toward trade secret.

Consider the scenario where two inventors both come up with the same invention, one chooses to patent, and the other chooses to practice the invention as a trade secret. Under pre-2011 law, the inventor that chose to maintain trade secret ran two risks. First, after a year of commercial use of a trade secret, that inventor forfeited the right to ever obtain a patent. Second, the patent to the other inventor is good against the world, including against the trade-secret inventor. The *quid pro quo* of the patent system is the reward of a right to exclude competitors, in return for disclosure. Under the 2011 AIA, both of these

[17] Clyde Prestowitz, *The Prevent American Invention Act*, Foreign Policy (May 16, 2011), at http://prestowitz.foreignpolicy.com/posts/2011/05/16/the_prevent_american_invention_act

change: a long-duration trade secret is no longer a bar against a patent, even many years later, but the trade secret use may be a defense against a patent of another who made the disclosure for the patent right.

On average, a shift to trade secret tends to favor big firms over small ones, and old companies over startups. Bigger, older companies are much more likely to have the kinds of trade secrets that move from disadvantageous under pre-2011 law to advantageous under the 2011 AIA.

No more handshakes—the AIA requires lawyers, paperwork, and contracts

The AIA will raise transaction costs, by injecting legal uncertainty and the need to negotiate a written agreement into every collaboration, commercialization, or technology transfer transaction.

The startup ecosystem needs a fast way for parties to reach a zone of trust with each other, in which they can start conversations. Pre-2011 law allowed parties to start discussing technology transfer or investor/entrepreneur deals on a "handshake basis." The AIA repeals the provisions that provided that zone of trust by default, and instead requires written nondisclosure agreements and joint research contracts. Corporations with large in-house legal staffs—and their lawyers—are preferentially advantaged. But startups that don't have an in-house staff to gin up a contract at the drop of a hat are disadvantaged. This will be especially problematic for angel and venture capital—they never sign nondisclosure agreements for first conversations. Pre-2011 law allowed the startup ecosystem to function without formal agreements, and no credible replacement has been suggested for a post-AIA future.

The AIA disrupts definitions of legal terms "public use" and "on sale" that have been stable for 180 years—two legal terms that affect the vast majority of all patents. The replacement in the AIA is painfully ambiguous—the record shows the proponents interpreting and spinning the same language in two opposite ways to different audiences. The ambiguity will take decades and tens of millions of litigation dollars to sort out, creating many billions of dollars of commercial uncertainty. Further, where pre-2011 law decided these issues on black-and-white facts, on one of the proponents' interpretations (the one discussed in Senate debate), the AIA introduces new legal tests that can only be resolved through dueling expert testimony, which will make litigation settlement far more difficult. These legal costs will be bearable for big firms, but ruinous for startups.

Repeal of law that favored U.S. inventors

The AIA repeals several features of American law that favor U.S. inventors. For example, pre-2011 law gave American inventors several filing date advantages vis-à-vis foreign inventors. Among them, the rules in the two *In re Hilmer* cases, 359 F.2d 859 (CCPA 1966) and 424 F.2d 1108 (CCPA 1970) gave American inventors a "head start" in their filing dates vis-à-vis non-Americans, typically by a year. Pre-2011 §§ 102(a) and (b) and § 119(a) gave advantages to those that invent "in this country" over those that invent elsewhere. All these asymmetries and benefits to American inventors are repealed. As noted above, the AIA replaces them with asymmetries that discriminate *against* U.S. innovation.

Post-grant review: bait and switch

The AIA dramatically expands "post-grant review" proceedings that allow competitors to challenge patents at the Patent Office rather than in court.

In April 2010, the Patent Office advocated passage of the legislation in a white paper co-authored by the Office's Chief Economist.[18] The Patent Office estimated that costs of a post-grant review would "not exceed $100,000"—that is, $50,000 per side. But in 2012, the Patent Office now proposes to set the *agency fee alone* at over $47,000.[19] The Patent Office now estimates that attorney time for each review will run about 1,200 attorney hours—that is, over $400,000 in fees.[20]

During the legislative debate, the Patent Office assured Congress that post-grant review would not disadvantage small companies. Now, after passage of the bill, the Patent Office has begun to analyze the data—data it had before passage of the bill. Now, the Patent Office projects that the rate of challenge of small company patents will be about 167% as high as the challenge rate for large company patents.[21]

Strikingly, a year before the bill passed, Japan abandoned a system much like the new U.S. system, because it was simply too costly and inefficient.

Honesty—repealed by the AIA

Pre-2011 law required that patent applicants present their cases to the Patent Office "without deceptive intention," and without perjury. The AIA strikes all seven occurrences of the phrase "without deceptive intention" from pre-2011 law. The chief proponents of this change were the big pharma companies, who have to defend charges that their patents were acquired by deceiving the Patent Office. Most of these charges turn out to be meritless, but they affect litigation costs and settlement value.

Likewise, pre-2011 law required an inventor to disclose the "best mode contemplated by the inventor of carrying out [the] invention" as part of the *quid pro quo* for the right to exclude. The AIA effectively removes this requirement, and now allows an inventor to disclose *some* way of carrying out the invention, and hold the *best* mode secret—while obtaining a patent that covers *all* modes. This request to compromise the integrity of the overall patent system was another key "ask" of big pharma.

When the patent system loses credibility, it's the most innovative companies that most depend on it for survival that will suffer. Technology startups live or die by the patent system, and the patent system depends on public support. Removal of requirements for honesty and disclosure has long term risks for the innovation ecosystem far out of proportion to a small reduction in litigation costs for a limited sector of the patent community.

Where do we go from here?

Corrective legislation—fix it, don't make it worse

In spring 2012, drafts of a "technical corrections" bill are being circulated in Washington. The corrections are anything but "technical:" the proposed bill makes large substantive changes, and makes several things worse. To date, small companies, startups, and technical professionals have been excluded from these negotiations.

University stakeholders have complained about the problems we raise as "Scenario 3" above; the "technical corrections" offers no meaningful relief to this problem. Further,

[18] Patent Reform: Unleashing Innovation, Promoting Economic Growth & Producing High-Paying Jobs, http://www.commerce.gov/sites/default/files/documents/migrated/Patent_Reform-paper.pdf, p. 7, note 18, ("$100,000 is a conservative (meaning high) estimate of the maximum cost for an enhanced post-grant review proceeding").

[19] Changes to Implement Post-Grant Review Proceedings, RIN 0651-AC72, 77 Fed. Reg. 7060, 7078 (Feb. 10, 2012)

[20] Changes to Implement Post-Grant Review Proceedings, RIN 0651-AC72, 77 Fed. Reg. 7060, 7078 (Feb. 10, 2012). The average cost includes cases where a challenger requests review, and the Patent Office states immediately that the patent is valid, and there is no contest to resolve.

[21] U.S. Patent and Trademark Office, Rules of Practice for Trials Before the Patent Trial and Appeal Board and Judicial Review of Patent Trial and Appeal Board Decisions, Notice of Proposed Rulemaking, 77 Fed. Reg. 6879, 6894 (Feb. 9, 2012).

technology transfer will still be hamstrung by scenarios 1 and 2, and the inability of transferee companies to focus their efforts and capital on business and R&D instead of on patent attorneys. Ironically, the 2012 "technical corrections" may somewhat aid technology transfer of pharmaceutical and chemical inventions to market incumbents (because of differences between these technologies and computers, medical and mechanical inventions, and everything else), but it offers no benefit to any other kind of transaction. A helpful corrections bill would restore major features of the pre-2011 grace period, particularly § 102(a) and (e) of pre-2011 law. At the very least, the grace period of § 102(b) of the 2011 Act should be clarified so that it provides a grace period for *all* public uses and offers for sale (even non-disclosing uses), and the like.

Likewise, the "technical corrections" bill proposes to weaken the estoppel provisions of the post-grant review provisions. That is, an infringer who has only one bite at the apple under the 2011 AIA would have multiple bites under the 2012 "technical corrections" bill. The current language was one of the most heavily-negotiated parts of the bill and one of the biggest concerns of the small company and startup group of stakeholders—this certainly appears to be a "bait and switch" by the bill's proponents. As noted above, this will differentially harm small companies: even if the patentee startup succeeds on the law, many will be bled to death by attorney fees. This provision should be left alone.

Corrections relying on administrative rulemaking are misguided

In recent testimony to Congress, proponents of the bill acknowledged oversights, ambiguities, and weaknesses in the drafting of the AIA, and have suggested that they can be cured "in the USPTO's examination guidelines."[22] But in the United States, the Patent Office has no authority to interpret substantive law, let alone set it through informally-issued "examination guidelines." This proposal would simply add additional cacophony atop the drafting ambiguity. The problems are in the statutory language, and have to be cured there.**The AIA will harm American jobs, and redistribute wealth to entrenched international market incumbents, thereby reducing American innovation**

The AIA reflects the needs of a tiny slice of American business, and a narrow understanding of the cause-and-effect relationships and capabilities of the American legal and business systems. The AIA simplifies *ex post* litigation for lawyers, but complicates managers' ability make *ex ante* decisions to control risk and run their businesses. The AIA reduces irritants for market incumbents, but takes away the legal tools that are vital to the ability of innovators to establish new companies that turn ideas into disruptive innovation.

In many conversations that I had with proponents of patent reform about the needs of startups, small companies and investors that create jobs, the AIA's proponents admitted "We never thought about that." The AIA was tailored by and for multinational firms, companies that export jobs from the U.S., market incumbents that rely on stability instead of innovation, and government bureaucrats. The AIA is based on illusory promises, and poor analysis by its proponents. The unintended consequences of the AIA will harm startups and small business, and the jobs they create, and the innovation seeds that drive world commerce. The "technical corrections" bill offers opportunities to fix many of the problems, and at the very least should do no harm.

[22] Statement of Robert A. Armitage before the U.S. House of Representatives, Committee on the Judiciary, on Implementation of the Leahy-Smith American Invents Act (May 16, 2012).

Losers **(parties and inventions that were better off under pre-2011 law, and are put in worse position under the 2011 AIA)**	**Winners** **(better off under 2011 America Invents Act)**
disruptive innovations and new market entrants (it was easier for a new invention to gain a foothold and displace an old technology under pre-2011 law; it will be harder under the AIA)	incremental improvement inventions
	market incumbents
inventions that take time to develop, test, perfect, and require larger, more thorough patent applications	inventions that can be conceived, tested, and perfected, and application can be prepared for filing in very little time
foundational discoveries that open new fields, *e.g.*, universities, startups	specific products based on the foundational discovery ("downstream innovators"), *e.g.*, drug companies' specific molecule or slow-release formulation
cross-firm "open innovation"	large companies that integrate financing, R&D, manufacturing, and marketing in-house
startups that need to team with outsiders to obtain financing, manufacturing, marketing	
inventors	aggregators that use others' technology
American inventors	foreign inventors
companies that use their patents to secure investment—generally younger and higher tech	companies that have other pools of capital—generally older and lower tech
companies that build themselves around their patented technologies	companies whose markets are protected by economic factors other than patents
inventors	reexamination and post-grant review specialists, litigators
flexibiity of business managers to manage	attorney intervention in business decisions
patents and open disclosure of inventions	trade secrets (the AIA makes trade secret protection relatively more attractive than it was under pre-2011 law)
The U.S. Patent Office: the number of applications will go up, but their quality will go down, making examination more difficult, with a higher abandonment rate, with no post-issue maintenance fees—worsening the backlog	No offsetting winners

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