

Testimony of David Winwood
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Chairman Vitter, Ranking Member Cardin, Committee Members, I am grateful for the opportunity and the privilege to testify today.

I am the President-Elect of The [Association of University Technology Managers](#), which is a nonprofit organization dedicated to bringing research to life by supporting and enhancing the global academic technology transfer profession through education, professional development, partnering and advocacy. AUTM's more than 3,200 members represent managers of intellectual property from more than 300 universities, research institutions and teaching hospitals around the world as well as numerous businesses and government organizations. Since 1990, AUTM has collected detailed data related to the licensing activities of the home research institutions of its members.

I am also the Chief Business Development Officer of Louisiana State University's [Pennington Biomedical Research Center](#). The Center's mission is to discover the triggers of chronic diseases through innovative research that improves human health across the lifespan.

I am here today to talk to you about the importance that patents and academic technology transfer play in company formation, job growth, economic development, and ultimately the new products and services that make our world better.

It seems quite appropriate first to quote from [Abraham Lincoln](#), speaking in 1860:

"Next came the patent laws. These began in England in 1624, and in this country with the adoption of our Constitution. Before then any man [might] instantly use what another man had invented, so that the inventor had no special advantage from his own invention. The patent system changed this, secured to the inventor for a limited time exclusive use of his inventions, and thereby added the fuel of interest to the fire of genius in the discovery and production of new and useful things."

Lincoln signed the Morrill act into effect in 1862. The Act provided firm expectations and positioned many of our leading public universities to create the basic framework for development of the nation's infrastructure, education and research into those areas needed to forge a new country by pushing the frontiers of knowledge in science, engineering and agriculture. Even before the advent of the Morrill Act, universities played a key role the innovation ecosystem of the United States.

Today, our research universities play an even more vital role in creating a better future - not only by educating close to 600,000 graduate students in science and engineering every year, but also, and critically,

by performing more than 15% of U.S. R&D in 2011 - and according to 2012 [NSF](#) data, accounted for the majority (53%) of national basic research. This research, some basic, some applied or ‘translational’ creates new technologies, new products and services, medicines, diagnostics – the list is long and impressive – but also, this research gives rise to entire new industries.

My perspective today is based on my own experience in the field, which includes twelve years on the ground floor as an employee – not as an attorney, but originally as a scientist - for three different startup companies - two of which originated in a university, one of which provided early stage development of what is today an approved and marketed prescription drug for ocular inflammation and allergies, Lotemax, sold by Bausch & Lomb.

Since leaving employment in startup companies and joining the academic technology transfer community, I am now in my twentieth year helping to move technologies into the commercial world from universities across the United States including North Carolina, Alabama, Ohio, and now, I am pleased to say, Louisiana. I have been fortunate to have worked with some of the most creative minds in our university community. During this time, I have led teams that have managed more than 2,300 inventions, executed more than 500 license agreements and participated in the creation of and licensing to 73 new startup companies. More than 60 new products have become available on the market based on the university technologies licensed by my teams during my time at these institutions.

The products commercialized by new or emerging companies that licensed technologies from my employing institutions encompass a wide variety of inventions, including: new semiconductor manufacturing methods; approaches to keep fruits & plants fresh during shipping; new LED lighting materials; new crop varieties; innovative food science manufacturing techniques; environmentally friendly dry cleaning; medical devices; and cyber security applications. While these startup companies obviously address a very diverse set of industries and products, one thing is constant across all of the industries and technologies listed – the crucial and utter importance of intellectual property on the company’s ability to attract investment to grow a basic discovery made at a university into a fully-fledged company. Only in this way do the research investments and endeavors provide economic impact – including benefits to society and a valid return to the national investment made in basic discovery science.

How does this transformation from basic research into new products or new industries take place? Certainly not in a vacuum. Generally, academic technology transfer has three main steps: invention conception and evaluation, protection, and commercialization. Let’s look at each of these steps one at a time:

Invention Conception and Evaluation

U.S. Universities, Hospitals, Research Institutes, and Federal Labs are hotbeds for innovation. In 2013 alone, AUTM reported that those U.S. institutions accounted for over 24,000 inventions that resulted from \$65 billion in research expenditures – with almost \$40 billion coming from federal sources¹. A rigorous analysis of those 24,000 inventions by technology transfer offices examining such aspects as marketability and protectability identified a subset of those inventions that were commercially promising.

Protection

Once the inventions are evaluated, intellectual property protection of various types is sought for promising inventions including copyright, trademarks, and most frequently, patents. In 2013, AUTM reported on the filing of approximately 15,000 new patent applications.

This patenting step is absolutely crucial for the commercialization of inventions. In the absence of a strong intellectual property system – specifically patents – most of those inventions will never see the light of day. Why is that? The answer is quite simple – the cost to develop those inventions to a marketable product are significant and in the absence of intellectual property protections that the patent system provides, no one will ever invest in the promise of an invention. Said another way, how many of you would invest in a company that will spend tens to hundreds of millions of dollars on a product knowing that a competitor will be free to offer the same product at a fraction of the cost since they invested substantially less in R&D? So in the end, although \$65 billion is invested in research at leading institutions around the country, the fruits of that labor will wither on the vine in the absence of a strong patent system. Seeking patent protection is but the start of a complex, lengthy, unpredictable and expensive process, yet it is fundamental and crucial to establishing and building value in the initial investment in basic research.

Commercialization

Ultimately, it is the translation of those inventions and patent-protected innovations to products and services that is the ultimate goal of university technology transfer offices worldwide, and judging by the latest data, we have been successfully doing just that. In 2013, we [reported](#) 719 new commercial products being available and the net product sales arising from research at U.S. Universities, Hospitals, Research Institutes, and Federal Labs exceeded \$22 billion dollars annually. To clarify, that revenue was received by the various licensees of our various inventions, *not* by our institutions – either existing companies or some of the many start-up companies that arise from University research. In fact, 818 startup companies arose from those institutions in 2013 alone and 3,441 in the last five years. Not all of those companies will survive, but some will and will follow in the footsteps of other startup companies arising from University research such as Cree Incorporated, out of North Carolina State University – now a market-leading innovator of lighting-class LEDs, LED lighting, and semiconductor solutions for wireless and power applications.

One of the very attractive ways that university technology transfer officers fulfill their role is by working, usually with local entrepreneurs, to establish new companies to develop a product or service incorporating a university-owned patent.

Indeed, as mentioned, data from the AUTM survey show that startup company formation from US universities and other research institutions has been robust for the last several years, rising from 651 in 2009 to 818 in 2013 – this for a combined 5 year total of 3,441 startup companies initiated from university licensing activity.

Of the 818 startup companies mentioned above, 611, or around 75%, had their primary place of business in the licensing institution's home state. This percentage has remained fairly constant over the last two decades, lending credence to the notion that our universities help to establish entrepreneurial ecosystems that benefit their regional economies.

In fact, over the almost 25 years that AUTM has been collecting licensing data, we can count 4,206 companies started from university licensing activities that are still active and operating at the end of 2013.

Most of these are companies which are more resistant to "off-shoring" – in large part because they enjoy the benefits of US patent protection as a core asset.

In addition, and in keeping with requirements under the Bayh-Dole Act, universities exercise a preference for licensing to small entities, including startup companies, who with their limited resources, are not in a position to engage in substantial patent litigation.

AUTM survey data show there are close to 10,000 patented products currently being sold that originated in academic research laboratories.

Most often, a startup company's sole asset is a patent application or issued patent, upon which the company's fortune lays. Our historically strong patent system has provided some limited comfort for our entrepreneurs to pursue these risky endeavors. Sometimes they fail, sometimes they are wildly successful but in the absence of a robust patent system, these innovations most likely never would have progressed any further than the inside of an inventor's laboratory.

The continuum of building value from research investment to commercialization is evident in several successful programs at both federal and state levels. The SBIR and STTR programs, started in 1982, were very useful to the first startup company in which I worked. The SBIR program was created to boost innovation by providing federal funds to drive national priorities. In the words of program founder [Roland Tibbetts](#):

“SBIR was created to address a need that is still critical: to provide funding for some of the best early-stage innovation ideas – ideas that, however promising, are still too high risk for private investors, including venture capital firms”

The STTR program explicitly *requires* involvement of an academic partner – highlighting the close relationship between academia, startup company formation and growth.

In Louisiana, the state provides up to a 40% refundable tax credit on qualified research expenditures incurred in the state. Louisiana is among only a handful of states that offer this type of incentive for SBIR/STTR award recipients. Over the past six years, the universities in the LSU system have produced a number of startup companies commensurate with or greater than predicted based on their research expenditures.

At the state level, similar investments have been made with the goal of leveraging basic university research and helping to turn the output into new companies and industries. For example, in Louisiana, the LSU LIFT2 program was created by the LSU Board of Supervisors in January 2014 to help “Leverage Innovation for Technology Transfer” across all the campuses of the LSU system. Grants are awarded to faculty on a competitive basis twice a year, in amounts up to \$50,000, to validate the market potential of their inventions. The LSU Board of Supervisors has already committed \$4million to this initiative. The Louisiana Board of Regents is currently evaluating the creation of a statewide competitive proof of concept fund modeled closely after LSU's LIFT2 program.

A constant for successful applications to any of these programs is that reviewers must be convinced that meaningful and strong intellectual property protection will be available for funded projects. To invest

absent this expectation – and indeed requirement - would be poor use of national and institutional resources.

Access to intellectual property may be a necessary component for the growth of technology based companies from our universities – but it is not sufficient. It is also crucial that it is possible to enforce the rights embodied in the intellectual property - rights granted to the owner under the US constitution.

This is a key concern for universities and small businesses as we observe the proposed sweeping changes to the US patent system that some in Congress are advocating.

One might ask - if the path to patenting is so perilous and expensive, why should universities participate?

As stated eloquently by [Jacob Rooksby](#) recently:

“A patent issued to a university represents years of costly research investment by taxpayers and faculty, and thousands of dollars of human capital by the university’s TTO and patent counsel.”

“A university’s failure to enforce one patent when warranted sends a signal to industry that it may not be willing to enforce other patents it owns. Many – if not most – companies will feel no obligation to take a license to a university’s patent when they perceive no consequence for declining to take a license.”

And:

“Most universities are ‘reluctant participants’ in infringement lawsuits. Universities primarily are in the business of innovating, not litigating, and most would like to keep it that way.”

Recently introduced bills, such as the Innovation Act, [H.R.9](#) present real cause for concern to universities in our efforts to fill a vital role in the innovation ecosystem.

Universities are indeed in the business of innovating – as they have been since before the Morrill Act – and not litigating; but if universities fail to enforce – or as may be the case if some of the sweeping legislation currently under consideration becomes law, are **unable** to enforce their legitimately granted patent rights then it is a poor use of the university’s (and taxpayers’) investment and sends the wrong signal to investors and industry – namely, that university licenses are worthless. In particular, H.R.9 would have the dual effect of making it more costly and risky for universities and for our startup companies to litigate and would impose various financial liabilities upon those universities for lawsuits that they decline to pursue for financial, prudential, or other reasons.

The dual specters of fee shifting and joinder provisions proposed in pending legislation give significant cause for concern that if enacted, universities – and their licensed startup companies – would be effectively excluded from enforcing legitimate patent claims. This, we believe, would result in significant losses to the entrepreneurial and innovation ecosystem that has for so long propelled the US economy.

On fee shifting, former USPTO Commissioner [Kappos](#) recently stated that:

“Federal courts have always had the discretion to award attorney fees to the prevailing party in exceptional cases, although historically they rarely used that discretion. Last term’s Supreme

Court decisions in Octane Fitness v. Icon and Highmark v. Allcare have required that courts grant such awards more readily and that these awards be afforded greater deference on appeal”

The matter of joinder is equally troubling – by allowing the inclusion of additional parties into a lawsuit, likely in an involuntary manner, universities may be seen as particularly appealing candidates for joinder, as the perception exists that they have a greater ability to pay damages than do many of the startup entities to which we license our technologies.

We believe that this situation would significantly limit opportunities for startup company formation & licensing. We have heard clearly that the investment community – recall that most of our startups are initially funded by friends, family and angel groups - would be much less inclined to risk making early stage funding commitments including to startups, as the Innovation Act’s joinder provision applies to everyone with an interest in a patent and not just ‘trolls’. As such, joinder could include universities & their inventors – faculty members, post docs, students and staff.

Together, fee-shifting and joinder militate against legitimate, good faith university patent enforcement.

OUTCOMES

We are fortunate to have been able to partner with our colleagues in [BIO](#) – the Biotechnology Industry Organization – to obtain detailed economic analysis of the impacts of university technology licensing.

Several prominent economists recently updated a study to evaluate the impacts of academic technology licensing.

Highlights include the following observations:

Using an input output “I-O” approach to estimating the economic impact of academic licensing, and summing over the 18 years of available data for academic U.S. AUTM Survey respondents, the total contribution of these academic licensors to gross industry output ranges from \$282 billion to \$1.18 trillion, in 2009 \$US Dollars; contributions to GDP range from \$130 billion to \$518 billion, in 2009 \$US Dollars.

Estimates of the total number of person years of employment supported by U.S. universities’ and hospitals’ and research institutes’ licensed-product sales range from 1,130,000 million to over 3,824,000 million over the 18 year period.

A long term trend is that other nonprofits, as well as universities, are performing a larger share of total U.S. R&D.

The Challenge

The university community is not oblivious to the concerns of many lawmakers and industry groups regarding what has become known as the ‘Patent Troll’ issue: indeed, in a February 5, 2015 press release, six higher education associations (AAU, APLU, AAMC, ACE, AUTM & COGR) commenting on the Innovation Act, (H.R.9) stated:

“To be clear, our associations want Congress to pass legislation this year that would put an end to the abusive behavior of patent trolls. However, such legislation should promote, not discourage,

technology transfer. And it must sustain our fair and strong patent system, which is the envy of the world. We believe that Chairman Goodlatte's bill has the potential, if properly redrafted, to accomplish this goal. We look forward to working with him to achieve such a positive outcome for patent holders and the American public."

We believe that among the current legislation offered for consideration, H.R.9 has great potential to break the established and well-functioning value chain from basic discovery research funding in our universities to translation and commercialization incorporating small business partners – and perhaps to do so irreparably. Invariably, these small businesses rely on robust patent protection as leverage to allow them to secure the financing necessary to grow their operations. Many of these small businesses in turn rely on universities as their source of licensed intellectual property. If both small businesses and universities are excluded from participation in the patent system, the consequences for future growth and innovation are bleak.

In contrast, we believe that legislation recently proposed by Senator Coons (the [STRONG Patents Act of 2015](#)), appears to address problems that may currently exist in regards to abusive patent legislation – typically involving the issuance of threatening, vague and often fraudulent demand letters to small businesses – by targeting the bad actors responsible for such activity with great specificity. Rather than attempting to wreak widespread changes to the US patent system, we support the targeted approaches in the STRONG Act aimed at protecting small businesses, universities and entrepreneurs from abusive patent litigation without unnecessarily burdening these crucial drivers of our innovation economy.

We believe that there is concrete evidence today that contradicts the arguments regarding massive increases in patent litigation made by many supporters of sweeping patent reform included in H.R.9, and nominally targeted at 'patent trolls'. Former USPTO Commissioner [David Kappos recently stated](#) quite plainly:

"...every credible study of 2014 patent litigation trends has reported that, from 2013 to 2014, there was a roughly 18% decline in the total number of patent suits nationwide."

Mr. Kappos also points out that:

"...adjusting for procedural changes of the America Invents Act, patent litigation at the end of 2014 was actually commensurate with 2009-2010 levels. And in a recent comprehensive study of 2014 trends, it was revealed that the number of litigants in new district court patent cases declined over 23% from 2013 to 2014, down to 16,089—the lowest level since 2009."

"...All this data taken together screams that the AIA is working, and that whatever further tinkering is needed, it should take a light touch."

We support the development and implementation of approaches targeting bad actors but leaving intact the US patent system – the global benchmark – so that our universities and small businesses may continue to participate and provide opportunities for technology and innovation based growth.

Thank you for providing the opportunity for us to make these comments.

I will be happy to answer questions either now or later at david.winwood@pbrc.edu or by telephone on 225 763 2619.
