



David Teece

Opening Remarks

First Annual IP Management Conference:

“Intellectual Property Issues in a Global Context: Management & Policy Concerns”

Tuesday, July 14, 2015

Heynes Room, The Faculty Club, UC Berkeley

Haas School of Business

<http://businessinnovation.berkeley.edu/intellectual-capital/tusher-center/>

I. Introduction

It is an honor for me to welcome all of you here for this Inaugural Tusher Center event. There are two main reasons why the Haas School, with generous support from Cal Alumnus and former Levi CEO Tom Tusher, decided to setup this new center. The first is that intangible assets (not tangible ones) are the most significant for leadership and wealth creation in today's global economy. Tangible assets matter

too; but even in resource rich ecosystems like Australia and North Dakota, the path to riches sooner or later involves building and leveraging intangible assets. They generally cannot be bought and they can anchor the long run competitive advantage of nations.

More critically, the competitive advantage of the U.S. lies in innovation, and creativity, not manufacturing, although there may be some resurgence in the competitiveness of energy intensive manufacturing industries because of lower energy prices in the U.S. Accordingly, it is most important that US public policy support the US innovation ecosystem. This is quite difficult in the U.S. because we don't have an agency advancing innovation, but we have strong and well-funded agencies promoting antitrust, (the DOJ and the FTC). Unfortunately, innovation and antitrust are sometimes at war with each other, even though the FTC and DOJ would claim otherwise, seeing themselves as champions of innovation. Fortunately, we have a pro innovation patent office (well represented here today I might add) but it is relatively small.

The worlds of intellectual capital and intellectual property are complex ones, involving three different legal regimes shaping policy: antitrust, international trade, and intellectual property. In addition to different legal regimes, this area is also shaped by business strategy, business organization, (and business models) and complex business practices. Science and technology policy, communications policy, and U.S. competitiveness are also all implicated by intellectual capital and intellectual property issues. Accordingly, we are dealing with a very complex area. Few scholars and policy analysts are capable of transcending all of these topics. However, failure to do so could harm the innovation process and U.S. competitiveness, which is a primary concern and focus of the Tusher Center.

I. The Role of Scholarship

When the area of inquiry and policy action is important and complex, the burden on scholars to help policy makers get it right is amplified. Clearly, there are areas where scholarship[(or lack of it) let the policy makers down. I note just two areas:

1. The Recent Financial Crisis:

The world was blindsided by the subprime debt crisis. There were few if any warnings from scholars. Why? In my view, it required scholars in finance to understand both macroeconomics, capital markets, and banking institutions. Few, if any, experts in each area knew much beyond their own specialty. Most research in academic finance involves solving small puzzles and documenting small anomalies. The big picture economic historians like Charles P. Kindleberger are now dead, and generally haven't been replaced in their academic departments. Neither Stanford nor Berkeley, like other Business Schools, has the benefit today of historians on their faculty. Moreover, the finance faculty and the macro economists are cut from different cloth and do not usually work in concert. Perhaps the financial crisis will change this; but I see few signs so far.

2. The breakup of AT&T and the collateral damage to Science and Technology (S&T)

No matter how sensible the breakup of AT&T may have been from an antitrust perspective, it need not have been so damaging to US Science and Technology. The breakup was accomplished by a negotiated consent decree under Judge Greene. Bell Labs, in the eyes of many, was the greatest research organization that human civilization ever created. At the time of the divestiture in 1984, it was extremely unlikely that the new AT&T Technologies (the old Western Electric division of AT&T) which was spun out of the old AT&T could support Bell Labs at anywhere near the then current levels. The labs were supported historically by a user charge on subscribers phone bill.

Bell Labs (owned recently by Lucent-Alcatel) is basically today a poor shadow of what it once was. The pre divestiture Bell Labs campus was 20x the Googleplex of its day, and its focus was even more long run. Along with Xerox Parc, Bell Labs enabled Silicon Valley. The transistor, the laser, and cellular technology all started there.

With Bell labs gone, there are few champions of long run research left and as a nation we are eating our seed corn. This wouldn't be so bad if it was the intended consequence of the breakup. It wasn't. The role of the Bell Labs in the U.S. innovation system was ignored when the consent degree was crafted. The loss of Bell Labs was simply collateral damage caused by the government's antitrust case against AT&T. There could have been other ways to support the labs; but perhaps those instruments weren't available to Judge Greene and the DOJ, represented by William Baxter. But the sad part is that neither Judge Greene or Bill Baxter knew they had an issue. The U.S. innovation ecosystem process and all of our futures are the worse as a consequence.¹

II. Attacks on the patent system

If there is a similar situation that confronts us today, it may be resident in some of the attacks on the patent system, and our intellectual property system more generally. In my view, there are two reasons why the global system of intellectual property, which the U.S. fought so hard to establish, is of even greater importance on a go forward basis than it has been in the past.

a. Importance of intellectual property

¹ Bell Labs was acquired in 2015 by Nokia from Alcatel Lucent

In my view, there are two reasons why the global system of intellectual property, which the U.S. fought so hard to establish, is of even greater importance on a go forward basis than it has been in the past.

The increased speed of diffusion of new ideas and the loss of “natural” lead times has been dramatic. With the internet, , and the ease of transferring information, and low cost global transportation, the ability of the creative classes and inventors to profit from their activities and investments is getting harder.

The economic system continues to benefit from specialization. Those industries and companies that are good at invention are not necessarily good at innovation even if they do have the resources to invest in innovation. They often don't.

Inventors and creative people need intellectual property to give them a shot at being rewarded for what they do best. Put differently, in the world of networked technologies, those who invest in enabling technologies necessarily rely on licensing because it is impossible to supply the entire system competitively if you are only good at part of it. Likewise, platform users need to incent providers of basic technology to bring forth innovation to enhance platform performance.

However, in the world of platform technologies and standards essential patents, much mischief has recently been created. A failure in scholarship... or at minimum a misuse of scholarship... has taken place... much as it did in the financial crisis, and in the destruction (collateral wipeout) of Bell Labs. The problem stems from the same source: a failure to understanding complex problems that transcend disciplines, in this instance antitrust, intellectual property, innovation economics, international economics, and politics.

Let me explain the policy concern that I have in mind. I'm referring to what on its face seems to be an effort to undermine both the patent system and standard setting through the misapplication of academic research.

On this issue, UC Berkeley is ground zero, and for that reason it is important to highlight these issues. I'm referring to the so-called "hold-up" problem that has become accepted wisdom (despite the lack of any empirical evidence to support it) with respect to standards essential patents. It has triggered a major attack on the patent system by antitrust authorities.

It all began when our Haas School Nobel Laureate Oliver Williamson kicked off an important set of ideas around incomplete contracts. In the Williamson formulation, the theoretical problem stems from a combination of "small numbers" and "opportunism" which he defined as self-interest seeking coupled with guile². This results in the investor not getting a sufficient share of the returns because of ex post bargaining. Klein Crawford & Alchian³ elaborated on the problem and were the first to use the "hold-up" language. Williamson was careful to point out that the problem only arose if transaction specific investments were involved and he pointed out that hold up was in practice likely to be rare.

The hold-up problem has played an important role in the foundation of modern contract and organization theory. As far as I know, I was the first scholar to endeavor to measure transaction specificity and show that it could explain vertical integration (in the auto industry). Neither

² See Oliver Williamson "Markets & Hierarchies" NY Free Press 1975

³ B. Klein, R. Crawford, and A. Alchian "Vertical Integration, Appropriable Rents, and the Competitive Contracting Process", Journal of Law and Economics, 1978

Williamson or Klein, Crawford, and Alchian saw hold-up as something that required antitrust intervention; private ordering solutions would generally suffice.

b. Patent Hold up

In a 2007 article, Lemley & Shapiro, in a paper supported by Apple, Cisco, Intel, Microsoft, and SAP and titled "Patent Hold-up & Royalty Stacking" published in the Texas Law Review endeavored to apply the Williamson/KCA framework to standard essential patents, and claimed that a patent holders threat to obtain an injunction would lead to royalty rates that exceed "a natural benchmark range based on the value of the patented technology and the strength of the patent" leading to royalty stacking. The benchmark royalty was $r = \theta BV$, where V is the per-unit value of being able to use the patented technology (measured relative to the next-best alternative), B is a bargaining strength parameter reflecting the way that the parties to licensing negotiations split the "gains from trade," and θ is the probability that the patent would be found valid and infringed if it were litigated.

Lemley and Shapiro claim that "hold-up is not just a theoretical problem" (p.2009), although, as a general issue, Oliver Williamson has commented that he thinks that hold-ups are rare.

Interestingly, the only evidence cited by Lemley and Shapiro supposedly comes from Teece & Sherry's reference to Rambus, where Lemley & Shapiro mis-cite Sherry and Teece. Lemley & Shapiro seem to imply that the 2.75% royalty rate difference between the .75% rate for SDRAM and 3.5% for DDRSDRAM reflects merely that DDRSDRAM was standard essential and DRAM

was not.⁴ However, this is not correct. First, both SDRAM and DDRSDRAM were standardized under different JEDEC standards. Moreover, Rambus charged higher royalties for DDRSDRAM than for SDRAM because the former incorporated two more of Rambus' patented technologies into the DDRSDRAM standard than were incorporated into the SDRAM standard – notably a technology termed “dual edge clocking”.

Hold-up theories were put forward by Lemley and Shapiro and latched onto by infringers and the antitrust agencies without (1) any evidence to support them, (2) any consideration given to the “hold-out” or “reverse hold-up” problem... i.e. inventors have already sunk their money into R&D so they are even more vulnerable to infringers expropriating the fruits of their investments. Clearly, if there is a “hold up” problem there is also a “hold out” problem too. Both need to be considered.

To their credit, Lemley & Shapiro have gone no further than to raise theoretical possibilities. As noted, they claim that hold-up is more than a theoretical problem, but they provide no evidence, other than to cite Sherry & Teece which does not support them.

On this modest amount of exploratory scholarship, the DOJ has, despite our warnings, rushed in and on February 2, 2015 provided a business review letter to the IEEE, endorsing the patent

⁴ In an earlier paper, Sherry and Teece (2003) had noted that concern had already been raised about “lock in” (p.____), but this was the reason for SSO's having patent disclosure rules and FRAND requirements. We suggested that hold-up concerns have “natural limitations”, including the ability of the SSO to revise standards and the ability of users too update their patents. We did, however, recognize the theoretical problem of active “manipulation” of standards, which we explained meant an improper effort to “capture” the standard. The remedy we saw was for SSOs to be clear on their patent disclosure and related policies. We counseled that the “antitrust authorities should tread warily in intervening in this area. Intervention runs the risk of reducing the clarity and predictability of rules, thereby increasing uncertainty and making participation in SSOs by firms with calculable intellectual property more risky and, therefore, less likely. As such intervention runs the risk of delaying the adoption of standards, therebyreducing social welfare” (p.27).

hold-up ideas, and providing support for the notion that SSOs can make rules requiring that patent owners eschew even the opportunity to seek (much less receive) injunctive relief, despite the importance of this threat to getting license agreements out of the courtroom and into the market place. The DOJ also appears to buy into the notion that any value from the standard must go in the first instance of the implementor, and not the inventor. The DOJ then softly endorses the use of the “smallest saleable patent practicing unit” or SSPPU as the damages base for patent infringement damages (which is a plain nonsense). The DOJ then concludes that the IEEE provisions “have the potential to benefit competition”.

Once again, the DOJ has unfortunately favored static efficiency over dynamic efficiency and dynamic competition. As noted earlier, Sherry and Teece warned that this was a complicated area, and that the antitrust authorities should tread warily. They have not. There was clear evidence that a number of concerned parties were omitted from the Ad Hoc group that proposed the changes at the IEEE. This should have been a red flag to our Department of Justice, but apparently it was not.

I conclude that the DOJ (i) doesn't know what it is doing and (ii) has once again shown that it is biased against innovation and (iii) has chosen to listen to users of IP, not inventors. There is almost always going to be more users/implementors than developers of IP. It is unfortunate that the DOJ has made a political decision, not a reasoned public interest decision.

This is not a storm in a teacup. The collateral damage from the DOJ's endorsement of hold-up is considerable:

1. Some foreign competition authorities (e.g. India, China) have seized on the positions set forth in the IEEE changes and the DOJ's approval of those to justify/excuse their own domestic firms who are infringing U.S. patents.
2. Some inventors who participate in SSOs are no longer giving Letters of Assurance (LOA) (Ericsson, Qualcomm) so that FRAND protection is now being eroded i.e. the DOJ apparently didn't bother to think how their endorsement of the IEEE might in fact undermine the standards-setting process. This is most disappointing.
3. The DOJ may have inadvertently endorsed a buyer's side cartel in technology markets for licensing IP, which is especially unfortunate and unforgivable for an antitrust agency.
4. Some parties are apparently no longer writing separate LOA's. If in response IEEE responds by slowing down the standard setting processes, then it will retard innovation.
5. As a consequence of DOJ/IEEE action, standard setting activity could bypass the standard setting bodies altogether, which is an outcome that would be a step backwards for the economy and society.

Not surprisingly, there is now another problem. The European Union doesn't see it the same way as the United States DOJ. DG Comp correctly sees FRAND issues as industrial policy issues. They have brought a broader aperture to this issue than our DOJ has, which to me is one more indicator that a multi-disciplinary approach is needed, but was never sought here in the US. This is another reason why we need forums with a global perspective, which is the focus of the Tusher Center..

The point here is a simple one. Intellectual property issues are complex and global. If in doubt, policy makers should favor the future, and reward those who invest in R&D and who innovate. A FRAND royalty rate should be one sufficient to draw forth the investment needed to sustain the level of

progress society wants. Policy makers should give the back seat, not the front seat, to free riders. Also, before making policy pronouncements, they should do their homework. We are here to help.