

Patent Assertion Entities Activities Workshop

Hosted by the Federal Trade Commission
and the U.S. Department of Justice

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FTC Conference Center
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OPENING REMARKS

- **Suzanne Munck, Chief Counsel for Intellectual Property, Federal Trade Commission**
- **Jon Leibowitz, Chairman, Federal Trade Commission**

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SUZANNE MUNCK: Good morning, everyone. Thank you, very much for coming to our workshop. My name is Suzanne Munck, and I'm the Chief Counsel for Intellectual Property for the Federal Trade Commission. If you have any questions throughout the day, please ask me or my DOJ colleagues Erica Mintzer and Frances Marshall. Or my FTC colleague, Jessica Hoke. Or really anyone at the front desk. And speaking of the folks at the front desk, I'd like to thank them, very much, for all of their hard work at getting everyone checked in. In a few minutes, I'm going to introduce Chairman Jon Leibowitz. But before I do, I have a quick security briefing.

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So it is now my pleasure to introduce the Chairman of the Federal Trade Commission, Jon Leibowitz. As you will hear, Chairman Leibowitz is a true believer of the work that the agencies do at the intersection of Competition Law and Intellectual Property. And he's been a very enthusiastic supporter of this workshop. Now, I give you Chairman Leibowitz.

[APPLAUSE]

JON LEIBOWITZ: Actually, Suzanne, I repudiate everything you said about me. This is a great audience. This is a terrific audience. I can't recall – Kim, can you recall the last time on a patent or competition matter that we had a full house like this, in an overflow room? Kim cannot recall, and she is the voice of experience, although very, very youthful. Good morning. On behalf of my colleagues at the FTC, including Commissioner Edith Ramirez, and the Department of Justice, I am thrilled with the overwhelming response to this workshop, both among all of you in the audience today, and those of you, I gather, all over the world who are watching a webcast of this event.

A little over two years ago, the FTC, the Department of Justice, and the PTO (Patent and Trademark Office), gathered the public in Alexandria, Virginia to explore issues at the heart of competition and patent policy—the patent application backlog, permanent injunctions in district courts, and at the ITC, standard setting in patent rights. By working together with our sister Agencies, we increased our understanding of these issues. And here at the agency, we use this knowledge when deciding, for example, to weigh in at the ITC on the issue of injunctive relief for standards essential patents when a RAND commitment's been made. Judge Posner later relied on the FTC's analysis in his

decision to dismiss the case between Motorola Mobility and Apple. And I don't think he did that just because he used to be a law clerk at the Federal Trade Commission. Although it could be, but I don't think so.

Patent issues, as all of us in this room know, raise a minefield of problems. Poor patent quality tips the balance between exclusivity and competition. Unclear scope and poor notice hurts innovation. In recent years, though, we have begun to see improvements. Congress incorporated our recommendation for a more streamlined post grant review process into the America Invents Act, a less expensive means, short of litigation, to challenge patent validity. The Supreme Court expanded the standard for invalidating patents on obviousness grounds, opening a channel to improve patent quality.

Joining Congress, the antitrust agencies, and most economists, the Supreme Court rejected the presumption that patents alone convey market power. Similarly, when the Supreme Court issued its *eBay* decision, it ended an almost automatic injunction rule for patent infringement. *eBay*'s thoughtful equitable test now provides a critical framework to address a myriad of injunction issues, including those involving FRAND-encumbered SEPs, an area where you have probably seen that the FTC took action late last month. And an area where you may see more activity soon. Very soon, actually.

Today, we look at the related issue, though, of PAE activity, patent assertion entity activity, and its impact on innovation. Put simply, what, if anything, can the agencies do to promote competition? And should we do anything? But before we dive into what, I'm sure, will be a lively debate, let's talk for a moment about acronyms. And here in DC, of course, who doesn't love a good acronym? So we are looking today at PAEs, or patent assertion entity activity, not the more general non-practicing entity, or NPE activity. The term NPE includes any entity that does not manufacture or sell

products that use it to patented technology. For example universities. So they conduct research, they patent their innovations, and they work with companies who seek to include their technology to improve products. By contrast, PAEs focus on purchasing patents from existing owners. PAEs make money by licensing the intellectual property to, or litigating against, manufacturers who are already using the patented technology. Acronyms aside, we all know a few colorful street names for PAEs, but we are not going to use any of them today, I hope. Because here, as my former colleague, Bill Kovacic used to say, former Chairman, we are but seekers of the truth. With that in mind, here are some truthful facts.

It is clear that PAE activity is a growing issue in the United States. There were more than 4,000 patent lawsuits filed last year. James Bessen and Michael Meurer report, or at least they believe, that PAE generated activity—that PAE generated revenue—cost defendants and licensees \$29 billion in 2011, a 400% increase from 2005. They calculate that no more than 25% of this flowed back to innovation. Almost like lobbying in Washington DC. And by the way, I used to be a lobbyist. 75%, they claim, is dead weight loss. And let me exclude from that list, where's Manus, Manus Cooney? You're over there. Not dead weight loss. And of course Mr. Hand, Mr. Lloyd Hand, certainly not. Later today we'll hear a discussion on this point. Of course not a discussion about—I blew my joke and it really troubles me. But, of course, not a discussion of dead weight losses as it relates to lobbying, but as it relates to Patent Assertion Entities.

Another truthful fact. Congress is beginning to pay attention to PAE related issues. The America Invents Act directed the Government Accountability Office to study the costs, benefits, and consequences of PAE litigation, and to recommend how to minimize any negative impact—and that's a quote—of PAE litigation. The GAO report will issue shortly. And like many of you, we are eagerly interested and awaiting the results.

Yet another truthful fact. One of our panelists, Robin Feldman and her colleagues, who contributed to the GAO study, report that PAE lawsuits are on the rise. Five years ago 22% of all patent cases were filed by so-called patent monetizers. In the most recent year, this number increased to almost 40%. Now most of these cases settled before summary judgment, but of the five entities in the sample who filed the greatest number of lawsuits in the period studied, four were patent monetizers. The study also found that universities accounted for 0.2% of the cases in this sample. That means of all the patent litigation occurring, PAEs bring almost 40% of these cases. And they settle, generally, before determination on the merits. And it makes you really wonder whether we are witnessing a developing sort of combination of plaintiff attorneys and a new surge of patent rights that may very well drive us off a patent cliff. Another recent study found that when PAE suits proceed to merit judgment, PAEs lose 92% of the time. And that, to my mind, is just astonishing. Now, even if you're not bowled over by these statistics, it is clear that the time has come to think very, very seriously about PAE activity and its consequences on society.

What is to be done? That's a harder question. Now, the FTC has a number of tools in our arsenal should we decide to use them. We can bring enforcement actions based on violations of the antitrust laws. Our Section 5 authority prohibits unfair methods of competition, which is slightly or considerably broader. If a party engages in misrepresentation, we can use our authority to stop unfair acts or practices. We considered this approach, as some of you know, but did not use it, in our recent *Bosch* consent. In addition to enforcement authority, we have a number of policy and advocacy tools readily available. For example, the FTC will continue to recommend improvements to patent notice and remedies, and to address issues with the patent system that may encourage PAE related harms. We also have rulemaking authority on

the antitrust side, for example, to require more disclosures of patent ownership.

Although we have not exercised this authority in a number of years.

So today, we're going to learn more about these issues in a very thoughtful way. We're going to begin with presentations by Colleen Chien and Carl Shapiro. Professor Chien will explore the increase in PAE litigation, and the legal framework behind the PAE licensing model. Professor Shapiro, who we are always delighted to work with, will outline the economic framework of PAE licensing, exploring the ways in which PAE activity seeks to maximize revenue from IP transactions.

After they set the stage, we will gather industry representatives in our first session, to hear their real world experiences. And I think that's critically important. Panelists will include Patent Assertion Entities, large and small operating companies, defensive aggregators, and members of the open source community. The panel will explore questions such as, how do operating companies decide to transfer IP to PAEs? Do PAEs facilitate the transfer of patent rights? What is the reaction of operating companies to PAEs, when they seek to license or litigate their intellectual property? What do defensive aggregators play, what role, in this model?

After lunch, we're going to hear from Stuart Graham, the Chief Economist of the United States Patent and Trademark Office. And I'm especially glad Stu has joined us today. He's going to address the PTO's efforts to improve transparency, concerning the ownership of patent applications and patents. And, by the way, look, I am just a government bureaucrat, but let me just ask you this. Why is it that there's no disclosure of real-party-in-interest information of all patents in applications? I mean, I really just absolutely wonder this. Not with respect just to Patent Assertion Entities, but with respect to any patent holders at all. It just doesn't seem right to me. And I commend the PTO for holding an upcoming roundtable on this topic. And to the extent that panelists can sort of answer this question today, I would really like to hear their explanations.

And, by the way, there are some companies, including Patent Assertion Entities, like Mosaid, for example, who do disclose their patents. And good for them. But I think a more increased disclosure regime might be an improvement from what we have now.

In our second session, we're going to examine the potential efficiencies and harms of PAE activity. Supporters of the PAE business model believe that PAEs promote invention and investment in R&D by reducing transaction costs, managing the risks of monetizing inventions, maximizing revenue, and compensating small inventors. Not surprisingly, others believe entirely the opposite: that PAE activity imposes a virtual tax on innovation and undermines the ability to develop incentives to engage in R&D. Detractors also raise concerns about operating companies transferring IP to PAEs as a means of raising rivals costs, or engaging other anti-competitive conduct. Some of that, I suspect, may have to do with asymmetrical discovery. Some, it probably has to do with rivalry in the marketplace. But if it's happening, it seems, at least to my not entirely educated mind on this issue, kind of unsavory.

Finally, our last session brings together academics and outside counsel to discuss whether Competition Law can play a role in enhancing the potential efficiencies and reducing the potential harms of PAE activity. The Federal Trade Commission and the Department of Justice value your very important input on these very important issues.

We're holding the public comment period open until March 10, and actively do seek your observations. But for right now, we just look forward to learning how the agencies can be constructive in this area. That's how we determine whether we need to do more, whether we need to do less, or whether we should let the marketplace sort itself out, which is often our preference. And with that, I will stop bloviating. And Suzanne, do I turn it over to you? Or do we just bring Carl and Colleen up? How do you want to do this? OK. Come on up. Thank you, so much.

[APPLAUSE]

PRESENTATION

- **Colleen Chien, Assistant Professor of Law, Santa Clara University School of Law**
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COLLEEN CHIEN: Good morning, everyone. It's a pleasure to be here. And quite an honor. Thank you, Chairman Leibowitz, Suzanne, Frances, and others for inviting me here. I'm here to start the day by providing some information about Patent Assertion Entities. I have a reputation of talking quickly, and I have 80 slides. So I'm going to try to go through them as efficiently as possible. But if you do miss something, I have uploaded them to SSRN, if somebody out there is interested in following along. So I just wanted to mention that.

OK. So today is going to be really interesting. I think we'll have a lot of different perspectives about Patent Assertion Entities. And I want to just echo Chairman Leibowitz's comments about what our focus is today. So let's start with Justice Kennedy in *eBay*, where he talked about Patent Assertion Entities. He didn't call them that, but he talked about firms that use patents, not in the traditional sense of supporting goods and services, but for obtaining licensing fees. And that's a definition the FTC adopted in its report. And I think to simplify it, we can think about a company or an entity if it's an individual, that asserts patents on existing products as a business model. So generally we think of patents as coupled with products. Patent Assertion Entities have been able to break that link. And this definition, I think, allows us to distinguish Patent Assertion Entities from other types of NPEs. So if we're talking about universities, or start-ups, they're not focused on existing products, but hopefully having their technology become future products. If you're talking about aggregators, or corporate monetizers, again, their business model is not focused on patents, although they may do that as part of their work. So we're really talking about the inventor monetizers, and special purpose

patent monetizers who may incorporate and hold patents, as Chairman Leibowitz already referred to.

And why is this business model so interesting? I think we need to give that a few minutes. Chairman Leibowitz said the word unsavory, and I think that word is used to describe PAEs, but probably in an inaccurate way. What I think is so interesting about the business model of PAEs is that they really change the economics of patent litigation, which are, to be honest, stacked against enforcement, and against small plaintiffs.

What do I mean? Well as we all know, it's very expensive to bring a patent lawsuit. It can cost you a million dollars to pursue a suit that may only get you \$200,000 back in a judgment or settlement. And that's only direct cost. If you actually are in the marketplace, it's risky to bring a patent lawsuit, because you might invite a countersuit. You might also suffer your reputational or disruption. And you could see how the costs start to be staggering in comparison to the money you may yield. This is not a good business model, bringing enforcement under the traditional patent litigation economics. And because of these high costs, we have a high level of non-enforcement of patents.

RPX has estimated that 250,000 patents cover smartphone technology. Even if we take a tenth of those, that's still 25,000 patents. And even though we have a lot of smartphone litigation, that's nothing compared to the amount of litigation we could have potentially. So only a tiny fraction of patents are actually enforced. What PAEs do, though, is fundamentally change these economics. Because they don't make anything, they don't need to worry about indirect costs, such as countersuit, reputation, or disruptional impacts. Because they use contingent fee lawyers, they can save on their direct costs. Lawyers are estimated to be 75% of the cost of bringing a suit. They also can be using the same patents and the same venues to capture these economies of scale, and further drive down the cost per assertion.

When we view it that way, then, we can see how PAEs have really changed this dynamic, and made it economical both to bring suit, as well as to settle a suit. So if you look at the cost of defense, which is similar to the traditional cost of offense, you can see that there's a wide range of prices in which it's more attractive to settle than to actually go and take the case all the way. And this is a traditional model that's been used in tort litigation, and is well studied in other contexts. Even if it's a high value suit, you still have a wide range of settlement. Here, I think, it's harder to get these high value judgments, so it's more like a lottery. But you can see how this dynamic can be effective and really make it very different. So I think the moniker, which we're not use today, has been used. I'm going to put it on this board here. I don't think it's appropriate, because what patent assertion really is, is a path breaking and disruptive technology for monetizing patents that eliminates traditional obstacles to enforcement. And for people who don't have access to enforcement, it gives them a chance to do that.

It's also completely legal. It uses the patent system in the way that, in some sense, the patent system was intended to be used, as an exclusionary right. Patent assertion entities are also on the rise. As Chairman Leibowitz referred to, with respect to the Feldman/Jeruss work, there has been an increase over the last five or six years. Using data from RPX, which I will talk about a little bit more later, we see that this number has jumped up, to now 61% in 2012. So if we just take a minute to think about that. That means that the majority of suits in patent litigation that are being brought now, are being brought by entities that don't make anything, by Patent Assertion Entities. So what is patent assertion? It's this disruptive technology, I believe, that represent the majority of new patent cases.

And for every lawsuit that there is there are many demands. So we don't really know, actually, the full impact. Right, so one highly respected sell-side patent broker estimated that for every lawsuit filed there are 25 to 50 other demands made. In a

recent filing, the estimate was made on one particular campaign, that 8,000 letters were sent for 26 cases, which is a ratio of 307 to 1. Other people that I've talked to have mentioned campaigns that involve no lawsuits, but many, many letters. So it may be even greater to zero. We don't really know the answer.

But what we probably know is that most patent fights are not conducted in public. And those that are, and even those that aren't, are often resolved under NDA. So what this produces, then, I think, is this groundbreaking technology that is increasing the rate of enforcement about which we don't really understand the consequences, good or bad. And so that's why I'm really glad that we have this chance to talk about these issues. So now that we know what we are talking about, to some degree, the view that I'm going to present today—I think everyone is going to have their own perspective—is one that's empirical and descriptive, but it's also motivated by policy concerns.

And so here are some of my sources of data. I've also gotten data from, or referred to website information from, Intellectual Ventures and Acacia. In particular, I do rely heavily on data from RPX. And because of that I want to kind of talk about that data a little bit. And Mallun Yen is here from RPX, and they've been very generous in giving access to this data to me. And when we compare that data to the Feldman/Jeruss work that was done for the GAO, we want to kind of see, does it skew in one way or another? And when you do the comparison side by side, you see that some years RPX has been higher. If we compare it to a patent monetizer, both actual and suspected, versus the PAEs that RPX has tracked. But on average, some years were higher, some were lower. Net, on average, RPX does skew a little bit higher, about plus 1%. So you should use that to take that into account when I show the data from them. I'm also going to be drawing upon data that I've done in a survey, which was not random. But then some other work that I've done more recently, which has been more – some of

those issues have been dealt with. So I'll be referring to different data sets as we go along today.

So what I'm going to do is talk a little bit more about the economics. I want to talk about start-ups, in particular, because that's one of my areas of research. I'll talk about policy. And then a little bit about making the case for monitoring, or research agenda going forward.

So I think it's important to walk through what it is like to be a patent assertion entity. I don't have experience doing this, but I have done a lot of interviews, and thought about what it means to be, and build a business around this. And when you think about it, you have to first have the asset in some form, either by buying or building it. You've got to pay money for that. You're not get any money in. You've got to get financing to finance your suits, as well as build the case. Figure out what product out there might be infringing, and the ones that you might be able to go after. When you start to bring your assertions, then, you start to get settlements. And as you continue to bring assertion campaigns you get more settlements. So we see that this is, in each of these cases, you're going to capture economies of scale. The first case you bring will probably be the most expensive. You're going to have to figure out all of your theories, think through all your experts, and figure out what you're going to do. But as you go on, if you're successful, you're able to capture these economies of scale by suing, or asserting over different defendants.

Now this is a risky business model. When I went back and looked at the public NPEs from just a couple of years ago, a lot of them had already gone out of business or changed form. There's no guarantee you're going to succeed. So you may never get your investment back. You may only get through the first two of these. But I think it is important to see that the economies of scale are what drive this business model and make it economic. And if we consider the NPEs that are out there, we see that most are

taking advantage of this economies of scale type of business model. The majority of defendants are sued by a PAE who has named more than 15 defendants over two or more suits. So we're not talking about PAEs as being one-off players, but rather those who have brought several cases, most cases, and over many defendants. And when we think about the defendant distribution, we also hear most from companies like Apple and Google.

And if you can look at this graph, what it represents is on the y-axis, the log revenue of the defendant, and on the x-axis, the number of litigations that are brought, on average, per year. So again, when we look on the top right, we see the companies that are making a lot of money, and are sued over and over again. And that's who we hear from, the Googles and Apples of this world. But you can see that, because you need to sue a lot of defendants, you're going to have to also bring in other types of defendants. So in the top left, you have brick and mortar companies, like Williams-Sonoma and Starbucks, who each, I think, had 12 suits brought against them, who don't make technology but may use it, and therefore, are potentially infringers. You have on the bottom left small companies, start-ups or small companies in general, this is one, Brainlab, that are being sued, not that frequently, but also don't have that much revenue. And then on the other side, with the Groupon, LinkedIn I realize now it's a little different for you guys-- on the right-hand side you see companies that are not necessarily having a lot of revenue, but are highly exposed, insofar as that they're on the radar. People know who they are. Groupon and LinkedIn are not high revenue companies, but they are household names by now, and their operations are fairly apparent. So they're being sued quite often. So again, when we think about PAEs, we can't think about them as just a problem for tech companies, it's really, now, something that—it's affecting—problem or opportunity, it's something that's affecting the industry and companies generally.

There are several things that drive settlement. One is to draw a quote from David Schwartz's great study on contingent fee lawyers, and also drawing upon Carl's work with Mark Lemley, the settlement number is really driven by the possibility of an injunction, or the economic value of the patent. So if I'm a company who makes a product, and I have a component there, the cost of switching that component, if there's an injunction against me, might be really high. I don't want risk that. Or the possibility of a large jury verdict is something that I worry about. And so this is one of the drivers of settlement. But another is the issue of looking at the other two parts of the chart, with looking at the costs, when it's cheaper for me to settle than to fight, that's also going to be a driver with respect to my settlement. So Carl coined the word "hold-up" I believe. And I think there are two different types of hold-up that are going on here.

One is kind of injunctions, or remedies-related hold-up. And this is cost-of-defense-related hold-up. OK. So I'm going to move on now to looking, in particular, at one sector. I wanted to focus a little bit on start-ups for a few minutes. And I think start-ups are really interesting for a number of reasons. One is that they are very important to our economy, right now in particular. Here's data from John Haltiwanger showing that start-up job creation is actually greater than the entire private sector between 2003 and 2007, which I think is quite astounding. And he's released a study more recently, a couple weeks ago, that shows the job creation, and also job destruction by firm age. Four out of 10 hires at young firms are for newly created jobs. And for older, existing firms, it's a much smaller ratio. Now the important thing to remember, though, is as much as they create jobs, they also fail. And they change course at a high rate. So they shed assets. So they're both interesting from the perspective of having an interesting new business model that might be growing, but also participating and contributing patents, potentially, to the marketplace.

So what are these benefits, then, that small companies might be able to realize from PAEs? Let's talk about those briefly. Here's some data from RPX that I printed in an earlier paper that shows that, in terms of the source of PAE patents, that the majority of them are still coming from small companies, companies making \$200 million or less in revenue. And that's the primary source of patents, at this point. Inventors also contribute a large share. But you know we think about, well bankrupt companies, other companies are the ones really, failed start-ups, those are much smaller in percentage. And a survey that I did showed that this was something that start-ups were very interested in.

I did this non-random survey of companies. And 4% of them said they had already monetized their patents. Another 20% said they had considered it. This was small companies, start-ups mostly. So they are interested in this transfer, in this monetization. Here it's not clear, by the way I asked the question, whether it was monetization for PAEs or for licensing, but you still get the picture, that they're interested in monetization.

What about the harms? Well, as we mentioned before, PAEs need to cast a wide net in suing people and assertions. So if we look at the suits, as they're distributed, the majority of them are small, have less than \$10 million in revenue in terms of unique defendants. Now in terms of the total defenses, still the top bracket dominates. But you do see that just because you're small doesn't mean you're going to get away without being exposed at all. Now, why are small companies being sued? I think these pictures try to kind of tell a story, that if you are able to collect a lot of small payments, then it's easier and it's more of a sure thing than collecting one large payment.

Now some new research that I've just completed looks at the CrunchBase database of start-ups, and tries to look at how many of them were sued in different revenue bands. And as you might expect, the larger you get in terms of your funding,

the more likely it is that you'll be sued. Remember these are just suits, they're not even patent demands. We don't know how to measure those. So this is fairly considerable. So if you may have 20 to 50 million in funding, there's a one in five chance that you're going to be sued. If you're larger, the chances go up to 40%. And so I think if you do it fifty to a hundred, it's like 35%, or something like that.

And some start-ups have a very significant effect from this. We're talking about nuisance suits and nuisance value. But some start-ups feel much more than nuisance. They feel a significant operational impact in terms of having to change their product, not being able to meet one of their major milestones. That's how start-ups operate. They kind of have to meet their milestones. A number of them exited or pivoted their business strategy. And this is not stuff that I really expected to find. And when I did my initial interviews to set up the questions, people told these stories of companies pivoting, or going out of business. And I thought that seems really extreme. The company probably was suffering, anyway. Not doing well. And then when I did the survey I was really surprised that a number folks said that that was their experience. I think we need to look further into this. Start-ups as a group, are more fragile. But it's interesting to think about these demands. It's potentially taking products or potential companies off the market. That's something we need to consider.

We don't really know these net benefits or costs, because a lot of people can't talk, they're under NDA. And so, I think, that leaves a lot of gaps in our understanding of what's really going on. I think one thing is that NPEs are unpopular right now. So people were also reluctant to talk to me about the benefits of their assertion strategies. I talked to one person who said it's really in vogue now to hate NPEs, but monetization helps some companies. That's something that we need to explore further, as well. So I want to talk now about what this means for policy.

Before we had PAEs we had the kind of normal state of non-enforcement of patents, only a tiny fraction being enforced. After PAEs we can see now that enforcement is much more economical, in terms of bringing suits and also settling suits. What are the pros and cons, then, of this rapidly increasing level of enforcement? I think those are the questions we need to consider. If we can think about this as being the baseline before, widespread non-enforcement and infringement of patents, we realize it has a lot of procompetitive benefits, if you don't enforce your patents. Because if the patent is enforced, one person gets to practice it, nobody else does. If their patent is practiced by a lot of folks, but it's not enforced, then the feature can appear in a lot of different forms, at different prices, and this is good for competition.

When companies can't win in the courtroom, then they must compete in the marketplace. So you see fundamentally different sources of competitive advantage, depending on which of the forums is more important. If the courtroom is your main forum, then you're focused on freedom to litigate rather than freedom to innovate. You're looking for great patents. And by great patents, I don't mean by, necessarily, groundbreaking inventors or technologies, but those where the infringement is very clear, you can look at the claim and say, oh yeah, that is what you do when you click on that button. And where the jury can understand the technology, and where you have great lawyers. In the marketplace you're looking at great products, great marketing, things that are going to make you more competitive and make you stand out among other choices. But we have to also remember that PAEs increase competition if they are transferring back to the small entities which don't have, otherwise, a chance to survive.

What they really are doing, then, PAEs, is increasing the velocity of transfers between the buyers and sellers of patent rights. Is that a good thing or a bad thing? We also need to consider that. Part of that question is, who's doing these transfers, and how much are they keeping? And how much is actually going back and forth? Which was

already alluded to in opening remarks. Repeat litigants ended up being very important. 81% of defendants were sued by a PAE who had sued eight or more times. And the question arises, should this transfer actually take place? Is it legitimate? Referring back to the Allison/Lemley work that Chairman Leibowitz referred to, showing that when they actually litigate these patents, they often lose.

So there's a question of yes, transfers take place, are they legitimate transfers, is one question. Another is, how efficient are these transfers? And here I'm going to just report on a survey that RPX conducted about 78 companies, over 900 litigations. In the majority of them the legal costs exceeded the payments that were given in settlement. So if we think about the efficiency of the transfer, if more money is going to the lawyers than is going back, in terms of settlement, and then think about settlement having to be split between the contingency lawyer and inventor, you can see that this pie can be shrinking for the inventor themselves. You couple that with the fact that many of these patents are being transferred and change hands many times, each of those hands gets a cut or has gotten some of the share of that upside. And you consider, then, what is the efficiency of that transfer?

So I want to talk briefly, then, about reforms in this policy section before I conclude. And I think a lot of reforms are going on. And a lot of them have been very healthy and have tried to address some of these asymmetries in cost, as well as exposure. In the judiciary, right now we have the progeny of *eBay*, so some different cases. The causal nexus case, and some of them now that are coming out on RAND patents, saying that, we're not going to award injunctions, in many cases. That's bringing down the kind of pressure that injunctions bear. We also have, on the damages side, a real effort by Judge Rader and others to say, we need real world evidence, we need better evidence to actually prove the damages case. So if the cost of assertion is going

up, you've got to hire more experts, you have to get witnesses to say this is the real value of this patent. So that's driving up the cost of assertion.

There are other reforms as well that don't go to the substantive law, but go more to the procedure. So post-grant review, and the PTO e-discovery form are meant to bring down the cost of defense. If I can say, this patent that I'm being sued on is not a good one, I want to put it right into the PTO, I can stop my litigation, hopefully. And turn off the clock on the expenses. In e-discovery reform, we can also reduce the expenses, and that brings down the cost of defense. The misjoinder rules, making it difficult to sue as many defendants in one case, are meant to increase those costs.

So I think a lot of this is in process, and we'll see how it goes. One-way fee shifting could, I think, dramatically change the courtroom economics, as well as the question of whether or not contingent attorneys take these cases. So that's a very interesting kind of proposal. And there's been more movement in the case law, as well as now looking at the SHIELD Act, which I think is very interesting, and I'm probably pretty helpful. I think we do want to draw upon past work, because fee shifting is not a new thing. We had two-way fee shifting in Europe, and in other jurisdictions. We've had a fee shifting in the United States, in Alaska and Florida. We've had one-way shifting in terms of civil rights litigation. And so we have some data to draw upon. It's, unfortunately, not totally tailored, but we know some things. That repeat players are more immune to fee shifting, because they are able to structure themselves. People who are judgment proof are also less sensitive to fee shifting regimes. And if you set up the fee shifting regime to be set on keyed towards invalidation of patent, or finding of non-enforcement, well very few cases get there, again, going back to Chairman Leibowitz's comments.

We also need to worry about the pre-suit dynamic. That should be 50 to 100. Because if we're talking about fee shifting in cases, well what about – what happens

before the case is even brought? I want to consider market based ways of reducing the cost of defense, briefly. Because I think those are also very interesting and important. And some of these, I think, capitalize on some of the different advantages that PAEs have been able to capture. They capture economies of scale. Could we use those economies of scale also in defense by having group defense, non-settlement, underwriting insurance policies, having a defense contingency type of offering? All these terms of self-help, I think, are ways that using the existing tools within the patent system, we can reduce the cost of defense. And a lot of these are discussed in this article that I wrote about a year and a half ago.

And I think what's really interesting is, when I did the survey of start-ups and asked them, "Well, how did you respond to suits?" 22% of them said they responded to the demand by doing nothing. They did nothing and that resolve the demand. And if we now understand the business model involves sending a lot of letters, there's not the energy to go after every single candidate. This is a place where greater education, more awareness of the economics, and of the business model, might produce great efficiencies in bringing down the cost of defense.

By the way, these types of costs of defense, reduction, market-based approaches have been used before. And I draw upon the work of Steve Usselman, the great historian at Georgia Tech. His literature is great. I commend it to you, and it's summarized in some my papers. But in the late 1880s, I think we see a very parallel time in history, and some others, and I think we'll hear from Adam and others about other related times in history. But here in the late 1880s, we had railroads that were under attack by a lot of patent speculators, as they called them, who were suing based on patents they had acquired. And what the companies did is get together and form these associations that mounted common defenses in patent suits. They got altogether. They paid annual fees in proportion to earnings. And they got full legal services for that. The

members, in exchange, agreed to provide information and to share information. To pool it, and to basically get that information together.

Importantly, they also agree that they would not settle. They would not settle cases. They would refuse to settle them, and would fight them, which is something that's, privately, not beneficial. If I have this suit against me, I'd rather just get rid of it and move on, and focus on my business. But because they belonged to these associations, they were bound to do so. And these protests seemed to work, according to these historical accounts. They overcame this kind of divide and conquer approach to say, we will combine our information. We will work together and overcome. Because they were facing united opposition, inventors didn't go forward on their litigations. And you can see that, again, the defendants had a lot of access to information that really helped them carry out their business.

Speaking of which, the competition authorities had a role in this story, as well. In terms of thinking about the combinations of these groups, a covenant not to settle could be construed as something that's anti-competitive and antitrust. There were suits that were brought to say these are anti-competitive collusions. They were rejected, I think, because the Congress understood the dynamics that were going on here.

I think we'll have more discussion about what is the appropriate role in this situation. What I would say, though, is right now we've got a lot of reforms in process. We also have a quick moving market, so I want to kind of make my final point by saying that we should continue monitoring and researching these issues. There's still so much that we don't know. And one approach is through looking at statistics. And thinking about issues of, well what happened with this money that small companies got? A lot of them have gotten money. What happened to that? Did that fund new companies, new products, new ventures? What is the nature of this negative impact? Let's really probe

more deeply, and try to figure out exactly how far that's distributed. And really looking at innovation impact.

I think that, besides data, though, we also need to look at case studies, and more kind of full understandings of the things that aren't easily measured. So looking at companies, looking at industries, and looking how the impact of NPEs has been. And Catherine Tucker's work in this regard, I think, is exemplary, where she looked at medical imaging software companies, and measured a delay in the introduction of new products by the ones that were impacted. I think we also need to see if legal and market reforms will work. Thank you, and I will end here. If you're interested in any of the data here, here's some of it.

[APPLAUSE]

PRESENTATION

- **Carl Shapiro, Transamerica Chair in Business Strategy, Haas School of Business, University of California Berkeley**

[Video 1 of 4, 0:56:00]

JON LEIBOWITZ: Thank you, Colleen. I thought that was just absolutely an excellent way to begin our workshop. Let me also thank the folks from the Antitrust Division, our own Policy and Planning Office, and our Bureau of Economics for their excellent work in putting together a real cross section of interests. The only unifying theme, or one of the unifying things being, how articulate our panelists are.

And in that regard, let me introduce Carl Shapiro, who is, again, no stranger to the antitrust agencies and who has been thinking about these issues for quite some time. So, Carl, why don't you come on up. And the microphone is yours.

CARL SHAPIRO: Thank you, Jon. Good. Good morning, everybody. Nice to be here. This is actually my first time back in Washington DC, giving a talk, since I left the Council of Economic Advisers in Spring, or in May. So it's great to be back in the antitrust and intellectual property crowd. I see a lot of familiar faces. If I start to stray and talk

about housing finance, or liquefied natural gas exports, or the fiscal cliff, just somebody stop me, because that was what I was doing for a while. So I was asked to talk here about – give an economic framework for the discussions about PAEs today. And since that was what I was asked to do, that's what I'm going to do.

I have a little trepidation about giving the framework, or the theory, as it were, before we hear from folks who live and breathe this stuff, day to day. But I will try to be very informed by the empirical literature in this area, which is growing, and of interest. But I have to quote Sherlock Holmes before I do that. Because he said, "It is a capital mistake to theorize before one has data. One begins to twist the facts to suit theories, instead of theories to suit facts." So I'll try not to do that. So I'll try to provide a framework, but very much informed by the evidence.

OK. I really think that ultimately, the big issue for policy purposes at least is, what is the impact of this emerging business form—or certainly of a growing importance, PAEs—on innovation? So that's why you're not going to see a lot of color in these slides, or pictures. But I colored that red. That means it means a lot. So look, these are the two narratives that we hear about. I just lay them out here. And then, how do we look for evidence that helps us distinguish which of these is going on, or which is going on more?

So the pro-PAE version would be, basically, look, this is a way to efficiently monetize patents. Patents are a reward to invention. And, this, for example, the small inventor who's otherwise going to be completely ignored by a big company stealing their ideas and infringing, they turn to a specialist to assert those patents. Sounds very desirable. So that's the poster child, is the small inventor who is benefiting from this.

The other version, the other narrative, is a tax on innovation. And you saw that was in my title there. At least it flashed by. And this is—you've already got some overtones of this from Chairman Leibowitz—basically, the notion PAEs don't actually

make things, they are just extracting money. And this money isn't really funding innovation, it is, in fact, a tax on those who are building products, and innovating, and implementing. And we have two poster children here, at least I thought of. One is sort of a large innovative tech company that is just a juicy target. They have a lot of revenues and they're, as we see from the data, are defending a lot of these suits, and getting a lot more letters. We also have the poster child that Colleen highlighted a little bit more, of a tech start-up, really any start-up, but I'd say a tech start-up that's facing these suits that they might see as nuisance suits.

Now one way to resolve all this is to note that there is a 2 to 1 in poster children. So maybe that resolves the issue. But perhaps we should do a little more deeper analysis here. So what I want to do is lay out some economic theory, or framework. Use that to filter and structure the empirical evidence. I'm going to fairly quickly glide through a bunch of evidence that we have about what PAEs are doing, and how they've grown over time to see how that fits with these narratives. It's not going to be all or nothing. I mean, there's a lot of variety here. So we're just looking for what are the patterns. And then, also, where would we gain from more further study? I'm not here to give answers to all this, it's really to listen, to provide framework, where can we learn more? And one of the things that I think we're going to see, at least, I feel after looking through these materials, is that there are these different studies. A bunch of them are inconsistent. So some more systematic look at evidence would be quite valuable. Because different data sets and different approaches are giving, apparently, inconsistent findings. And that's a signal for some more work. Then I'll talk about, at the end, about policy implications, both for patent and antitrust policy.

So first, just let's make sure we know what we're talking about. So I'm happy to go with the definition that the FTC has used in its report last year of what a patent assertion entity is. I think it's the same one Colleen's used. And, in fact, talked about

here, just a moment ago. But this is a lot narrower than a non-practicing entity. So this is one of the issues. When you start to measure stuff, or think about this, PAEs are a subset of NPEs, because they're purchasing and asserting patents. And I'll talk about this in a moment. I would distinguish between what I would call a pure PAE and a hybrid-pure PAE, basically, it's what you think. It's the company that that's their business, of asserting patents. They're good at it. They're trying to make the most money, monetize those patents as the best they can.

Versus what I'm calling a hybrid, where some operating company is exerting control, either through ownership or through some contractual provision that changes the incentives, the requirements of the PAE. And this is quite a different creature, because now we've got the PAE that has essentially a financial interest, or as though they have a financial interest, or certainly acting in a way that can directly affect competition in some product market, and not just the technology markets in which PAEs operate. And of course, we've seen a bunch of transactions, in particularly in the last couple years, where there were hybrid PAEs that are involved. And that's a very different analysis. I think we'll turn to that somewhat, in this afternoon's antitrust panel.

So here is—Colleen has already, and actually Chairman Leibowitz also has already alluded to this. This is from this the recent study, the Feldman/Walker/Jeruss study that was done for the GAO, based on looking at 100 patent litigations per year, each of the last five years. The red is the monetizer category. You heard the 40% number. So it's definitely gone up. This particular chart – there's others in the paper of course – it is not just PAEs, though. That includes individuals and trusts, in the monetizer category. So we see, as you'll see in a few moments, exactly how you define these categories matters a lot in terms of what you're measuring, the numbers you get. But there's no question these monetizations are an increasing share of patent litigations. So the levels depend a lot on what you're measuring, but the trends are very clear.

Basically, in this category, the trend is going up. And Colleen mentioned the RPX data indicating that in 2012 it's gone up quite a bit more, even from the 40% to perhaps 60%.

And it's always important to remember, a lot of the data that you're going to see, and that's available, is litigation. That of course is just the tip of the iceberg. Because so much stuff, there's demand letters, and there's settlement, and there's just licenses that happened prior to litigation. But we don't actually know that the underwater part of the iceberg looks the same as the above water part that we see. This has been a research problem-- well, I remember back in the '80s, working on licensing issues, and it's very hard to get licensing data because it's private. Well, it's just, it's private and proprietary. The only way you usually get it is through financial statements when they're significant enough to a company that they have to report it. And that's not a very reliable data set. So this is the tip of the iceberg. But I think it's pretty indicative. And I'm pretty sure we're going to hear later today, people who are out there going, oh yeah, this stuff is growing a lot. So I think we can take as given that this is an important category that's growing in economic significance and frequency.

I am going to continue to issue these warnings, for a few minutes here, about how you classify different types of patent owners. What's a PAE, what's an NPE, et cetera. So here's a classification used by Allison, and I believe this is originally Lemley had come up with this, of different owners. The category 8 is the product companies. Most of the patent litigations are brought by product companies. You saw that in the previous—operating company was up here. They're still the majority.

But then you have all these other categories, all of which would be some type of nonpracticing entity, or at least, not a product company. And I just think slicing between these different types is a dicey exercise. I would say it, as an economist. And I'll talk a little more about that. I color coded some of these. So the university is one category. But we see those are very few lawsuits. So maybe that doesn't matter that much. The

individual, and the individual inventor-owned companies, those seem very similar to me. And that's quite a few lawsuits. And that's always been quite a lot. Individual patent owners tend to be pretty litigious. Or if you look at the most litigious plaintiffs, it's often individuals. Lemelson, or Katz, were the classic examples of that. And then the failed start-ups, the corporate heritage, I am going to issue a warning here about making too much of a distinction between that category and the PAEs, who happened to acquire the patents. A portfolio of patents coming out of a failed company and being asserted, is not that much different than if they then sold those patents to a specialist who asserted them. So a bit of a caution there.

All right. Now onto the economics. Breaking news: Economists welcome trade and specialization. You heard it here first. Why is that my title here? Look, at least at, maybe a somewhat abstract level, that's what patent assertion entities are. They're an additional layer in the chain of value of taking the property, and extracting money from it. If we thought of real property, or other types of business, we would normally welcome these specialists.

We don't have a problem with trucking companies as intermediaries, if they're more efficient in terms of transportation services. We don't have problems with cloud computing specialists, if that's more efficient in delivering IT services of various sorts. So we should not be focusing on the form of the entity, the PAEs. The question is, is the activity that they're good at something that is socially valuable and beneficial? The trucking companies, we don't really stop to think of the fact, oh, yeah, it's a good idea to transfer stuff more efficiently. And they get scale economies, and logistical whatever. No. And we do the same thing with cloud computing. But here, we have these specialists, but we're kind of wondering, or at least some of us, wait, is this thing that they're good at a really good thing, or is it not? So that's an important frame. Now trade

in patents in and of itself, not that new. And in general, economists at least, have tended to welcome that.

There's some nice studies by Carlos Serrano, looking at, basically, the patent assignment data through the '80s and '90s. And finds that a good fraction, about 1/6 of all patents trade once during their lifetime. This is, like I said, the late 20th century time period. And somewhat more for patents that are initially granted to individuals. And this other study, Galasso, and Serrano, and Schankerman finds actually when the patents trade, there tends to be less litigation afterwards, if they were initially owned by an individual. They think that what's going on during that period of time, was that larger companies would buy the patents, maybe to settle a threat, and then they're not planning to assert them, so you actually get less litigation.

And the way economists have generally conceived of why are these patents trading? It's to facilitate technology transfer. There's a very large literature on technology transfer, which has high transaction costs, generally. And buying patents sometimes with trade secrets surrounding them, as well, is useful. I think it's pretty clear that PAEs are not facilitating technology transfer. I can return to that. There are various indicators that they're not doing that. So at least one of the primary benefits of sales of trade in patents is not applicable to PAEs.

My title here, overall, was PAEs, are they effective monetizers, or tax on innovation, or both? Well let me just say, they are effective monetizers. Or at least, it sure seems that way. And the economist would presume that very strongly. Look, that's the source of the gains to trade. I mean, they're buying patents. They're going to lose money if they can't make more money out of those patents. The fact that they're doing this, the economist says, well unless they're massively making some mistake and losing a lot of money, they must be more efficient monetizers. I don't think there's any reason to think this is some business fad that's about to fade out. It's certainly on the

ascendancy, in fact. And while they may not be making tons of money, as best we can tell from the publicly traded PAEs, it looks like a profitable line.

So that leads the economist to say, well, all right, what are these gains from trade? What is their source? We could do that for the trucking companies. Figure out why they have trucking specialists, or cloud computing, or we can do it here too. It's a typical type of analysis and value chain for a vertical layer that develops a specialist. And we'll hear more about this, I think, from the panelists who work at some of these companies. But it's pretty clear. And Colleen mentioned some of these. Certainly foreign inventor selling the patents, you can get liquidity. The PAE can pool and share risk among different patents, in terms of what you can get out of them. Clearly there's specialists that have economies of scale in what they do. Presumably, they're good at selecting patents to assert. This is a part of having a good lawyers, and just being good at patent litigation, and negotiating and litigating.

And then, there's some reputational issues that come into play. Reputation for litigating, not accepting small offers. And what people often point out, their immunity from retaliation. At least they don't have ongoing business operations. So those are all private gains from trade. OK? Those should be beyond question. I mean, we can ask which of these gains from trade applies in different circumstances. If a large portfolio of patents is coming out of a bankrupt company and being bought up, that's not going to be about liquidity and risk sharing. Those gains would apply more for an individual inventor selling the patents. But this is the list of factors that comes in. At the same time, private gains from trade do not mean social value. So they are effective monetizers. There's money to be made. That's why we're seeing it.

Why now? Again, any time we look at an economic phenomenon, it's good to understand why is it happening now, so I can understand what's going on. It seems that, to me at least, a primary factor is there's lots of raw material. Raw material in this

business is patents. Particularly if they're not being asserted, or used very much. And a lot of these are software patents. Not all of them, to be sure. And we see the activities in the computer and communications areas. So basically, there's a lot of raw material lying around. Arguably, not monetized as much as it could be. That's the point. That seems to me a primary driver. As Colleen has mentioned in some of her work, this is kind of an ironic legacy of the building up of patent portfolios by a lot of tech companies, for defensive purposes. And then some of those patents have gotten out into the wild, as it were, either because those companies or lines of business have gone bankrupt or gone under, or just they've been spun off, too, because of this added private value that can be unlocked.

Now I wrote here, this was inevitable given the accumulation of patents. Basically, Americans are very good at being ingenious and finding where there's money to be made. But I wouldn't have written that—let me put it this way, let me spin the clock back 15 years ago—when I first got into this, I left DOJ in '96, I went back to Berkeley. And one of the first cases I started working on, I did some work for Rockwell. They were having a big fight with Motorola over modems, and modems standards, and patents in that area. These modems, like they're so slow by today's standards. Right? OK. This was a patents and standards situation. And it was question about the reasonable. What was reasonable? All that stuff, which I hadn't really thought about that much before, I started working on. And then around the same time, I started doing some work for Intel that actually was involved with the FTC's challenge to Intel, back then, having to do with cross-licenses, portfolio cross-licenses.

All this led to a paper I wrote on patent thickets, that has gotten some attention since then. And during that work I saw—first of all, with Intel facing all these lawsuits, including companies that basically were not doing well, and then were seeking injunctions against Intel. And so that was a great example of the patent thicket. But

even more so, in the Rockwell case and in other matter, I saw a situation where there was a portfolio of patents that was being asserted against a company that happened to be my client. And they were negotiating, trying to get to pay the rates. And then they realized that the company that owned the patents had sold off a portion of them to another company that was also asserting separately. They're like, holy shit. Right? We thought we had to have a license here, but now like that license doesn't cover all of the patents, we've got to have these other patents. And I'm doing these models that Cournot complements.

As economists will tell you, you break up the patent portfolio, the profits of the portfolio go up, total social value goes down. It's really bad for the customer. And let's say these are complementary patents, but absolutely need to have every one of them. So I'm like, uh oh, this is trouble. Cournot didn't see this. Cournot had brass that was made of zinc and something else. I can't remember. So I'm like, this is trouble. And I realize this is like a money machine here. You start to do this. What are the limits? So I started thinking about that. I said, we're in trouble. And again, whether you like them or not, this is what PAEs are doing. This was predictable. So that's some of the underlying economics.

In order to figure out the impact on innovation, I think we just really, basically, got to follow the money, see who's benefiting, where the money's going, and who's paying it. That's what we need to figure out. Because that's how it effects all the incentives. Now this work by Bessen, Ford and Meurer, I guess, is very interesting. And part of this got mentioned by Chairman Leibowitz. If you would find that a very small share of the money that the targets are paying to PAEs, ends up going back to anybody who actually does invention—call those patentees—that would be pretty much a killer point. Because then you would say, look, in the short run, all these people, these targets, assuming they are actually doing some invention and innovation, which they

are, small companies or big, they're paying all this money and it's a very leaky bucket. As the money's getting brought back to the patentees, almost all of it is spilling out somewhere or other. That would be a killer point. And they claim that, let's say, less than 10%, 2%, 4%, 9%, depending how you measure it, a small amount of the cost to defendants is going back to patentees. OK. They do this through stock market event studies.

I think this is a good line of work. I'm not convinced by the studies, partly because they have 574 litigation events. Defendant losses are \$87 billion, \$152 million loss per litigation event. And that just doesn't line up with what I think the average litigation event is costing to defendants. But it hasn't been peer reviewed yet. Maybe it's right. I'm skeptical. I'm just saying, it seems a little off, to me. But good to be doing it, maybe it's right.

This is, I think, a very valuable line of inquiry. Where does the money go? How much of the money that's being paid ends up funding the invention? So how leaky is the bucket? If the bucket's not too leaky, then we basically—and this is, I think, the fundamental economic analysis you want to do here, which is not about the form of the PAE—it's about the target companies are paying all this money. And there's a lot of different ways in which they pay the money. Right? It's not just the licensing fees. They have legal costs. They have to invent around. They have business disruption. Whatever. All these costs. So that's got to be a drag on innovation, in and of itself. Because, look, we look at these target companies, as I said big or small, these are the companies that are innovating. And remember, innovation is a much broader concept than invention. Innovation means commercializing, putting together different things, different pieces of technology one has to in this day and age, and so forth. So that's the drag on innovation.

On the other hand, the benefit is more money going to those who are getting these patents. Now, there is a question, are these patents actually reflecting true

invention, or just what the patent office will issue? But the first place, you want to look at how much money is going back to the patentees. And that's why, if the bucket's very leaky, not much gets back there, this whole enterprise can't be useful for innovation.

So that's, I think, the place to look. And look, this is obviously going to depend case by case. It's a very different situation if you have a small inventor who is going to be ignored by big companies, who then has an intermediary efficiently represent them and try to get the money. That's going to give a different ratio, or leakiness to bucket, then a situation where it's a large paper patent that didn't really amount to anything, asserted against a large company that has revenues.

So if you think about that as a fundamental economics, in terms of the cost to the implementers and the money going back to the inventors, the form of the PAEs is really not the thing to focus on. So I just want to say, don't get hung up on whether the inventing and patenting function is vertically integrated with the patent assertion function. So if you go back to that classification a whole bunch of patents that came out of a failed company, or maybe that company is asserting those patents, that's not a PAE, because they were an operating company, still are an operating company, and then they exit a line of business, and then start to assert the patents. In terms of the economics, that's almost the same thing as a patent assertion entity buying those up and then asserting them.

Now let's look at, if we're going to try to figure out, follow the money, this is where there's a good amount of empirical work, and more needs to be done. So let me zip through this. Some of this, pieces of this, you've heard from Colleen, too, as well. And I'm not going to give all the cites here, but you can sort it out.

PAEs appear to be acquiring more of their patents from smaller companies, than are practicing firms. So that tends to support the narrative that this is a way for smaller companies or individuals to monetize and take advantage of these specialists. It's very

clear our PAEs are focused on information, communication technologies, a lot of software patents. And there's some evidence that their patents tend to be these kind of vague or broader patents that we often get in software. That's the space they're in. We also have a good amount of evidence on the type of comparing PAE litigation to other litigation, remembering that's the tip of the iceberg. They do appear to target small companies more, than do practicing entities. I think the timing, I'm going to put a lot of weight on, in a moment. The PAEs assert much older patents than do product companies. There's a very nice work by Brian Love on this, that is quite striking, in terms of years left in patent at time of first assertion. PAEs doing it much later. And there's also some evidence, although this is one of the areas where things are a little bit mixed, that PAEs end up with a higher fraction of non-infringement findings. Not invalidity findings, by the way, but non-infringement. So they're more aggressive about going after people who are outside the bounds of the patent. Or that's what the jury ultimately finds.

How do we test the narratives? I put a lot of weight on the timing, I have to say. These lawsuits are coming, and I think this is—I hesitate to say there's a consensus, but I think it's pretty clear that PAEs typically assert their patents against targets who have already introduced products. Not just that, but I guess in the sense, this is well after the patent was issued, they're not copying the invention from the patent, this is exactly the sort of *ex post* licensing the FTC report talks about, as being where there are concerns about the patent system not operating very well, because of the failure of notice. It's somewhat hard to see how boosting the awards to these software patents is really a good thing for innovation. So PAEs are operating, to a large degree, in the area where a number of folks have identified what they at least call flaws in the patent system. That doesn't seem to me to be a coincidence. And that fits one narrative much better than the other.

So here's, kind of, as far as I've gotten with this line of thinking, which is—and you can tell, I'm kind of leaning more towards that interpretation—but then the way I think about is just, look, are the PAEs, or really, are patent owners who have these types of patents and are asserting them? These types of patents that may be a little bit vague, or overly broad, maybe of low quality. The high probability of non-infringement or invalidity. Are they getting too much? Are they getting too much when they assert them, and that's the source problem? And then the PAEs are just doing that more efficiently.

Well how do they get too much? What's the argument for over reward to these types of patents? I think there's three buckets you have to look at. One is, they're trying to get injunctions, and there's a hold-up value associated with that. And I've been concerned about that for a long time. You see that in my own writings. But the fact is, after *eBay*, I think the course of—by and large, taken that off the table for a pure PAE. So then you're into maybe the ITC. But I think it's harder, it seems to me, to make out the case that the injunctions are the source of the bargaining power that a PAE has, post-*eBay*, the way the trial courts are implementing *eBay*.

So then the next group would be, well the royalties they're getting are too high. And that's why they have undo bargaining power, again. And that's probably true. Could well be true. But hasn't really been established empirically. And the courts are struggling with, what should the reasonable royalties be? Whether it's in a standard essential patents context, or any context, for patents covering minor features, complicated products, how the courts are going to deal with royalty stacking issues. They're moving in the right direction, away from a total market value rule. So this seems to me it could be an argument if the PAEs are getting too much, but it's not proven.

And then you've got the nuisance suit argument, which seems to particularly have some salience with start-ups. And Colleen's work, Catherine Tucker's work she

mentioned, there's some pretty convincing evidence that start-ups, they really are set back by a lot of these lawsuits. And that's got to be a drag on innovation, in and of itself. The nuisances, I think, is where we should look for some creative counter defense strategies. If the PAEs are establishing reputations for bringing suits, even when any given one suit won't pay for itself, well the defendant should find a way to establish a reputation to defend the suits, even though any given one wouldn't pay for itself, and to fight back. And maybe the example from the railroad industry, in the 19th century, is one we can pick up.

Policy implications, in my last couple minutes. Patent policy, look, there's nothing wrong with intermediaries. I don't think we want to go after intermediaries, as a form. I just don't see how that takes us anywhere. We should try to really go after the—and this is not a surprise to most of you in the room—there are ongoing flaws in the patent system. And those are being, I could say exploited. And exploited I don't mean as a negative word, it's just American ingenuity at work. And the American Invents Act is taking steps in this direction. Written description enablement, there's more through Section 112 the PTO can do. Maybe the most important thing is to convince Dave Kappos to stay longer at the PTO. And that's probably not going to work. I think he's already is going. This issue about reasonable royalties, the FTC has weighed in on this, but the game continues. Fee shifting. So those seem to me, those are the policy responses.

And better disclosure of real-party-in-interest, it seems to me, there's a lot of shell companies and subsidiaries, and I know Stu Graham is going to talk about this, Chief Economist at the PTO, later today. And Chairman Leibowitz, you mentioned this, as well, I think. This seems to me a promising area. For example, I found myself wondering, well wait a moment, if an operating company spins off a bunch of patents to a PAE, and then they assert them against the company's competitor, part of what

everybody says about the PAEs is, oh, they don't have any blow back. Right? Because they don't have any operations. So if I'm the competitor I'm like, well, what the hell? Why did you sell your patents to that jerk? I'm still going to hold you accountable. I don't see why, if it's retaliation, you could retaliate against the person who sold the patents as your competitor, if they have an operation, if you know who it is. So one of the competitive advantages of PAEs could be neutralized, in part, with better disclosure, as an example. But there are a lot of other benefits of that.

Antitrust policy, Jon, I love antitrust, Jon. I don't know so much. I don't know from Section 5, so much. That I don't know. But even with your powerful Section 5, I'm not sure you can fix the whole patent system. So we're going to talk about this this afternoon on the panel. I don't quite see how asserting patents in good faith is ever going to be an antitrust violation. There's more room for antitrust if one's talking about the acquisition of the patents. But assembling a portfolio of patents that are not substitutes for each other, kind of hard to see exactly what's the problem with that.

The interesting antitrust questions, I think, come up, not so much with pure PAEs, but with the hybrid ones, where the PAE has an interest in operations. All right. I will wrap up. Let me skip to the last two lines here. Look, if you believe the patent system is functioning well, you will see PAEs as an efficient layer of specialists. If you believe the patent system has some big flaws, you will see the PAEs exposing these flaws. So this is a bit of a Rorschach test, in terms of what you think of the patent system. This reminds me in the Microsoft antitrust case, one of the lines I love was people, when the DOJ came up with the remedy, some of us, including myself, thought it was too weak. The line I loved at the time was, about the remedy, if you call it that, in the Microsoft antitrust case, was, if you love the case, you'll hate the remedy, if you hate the case, you'll love the remedy. And here, if you like the patent system—well I

don't want to put it that way. If you believe it's functioning smoothly, PAEs are just a natural part of that ecosystem. If you think it has flaws, they're exploiting them.

All right. Thank you. Here I am, I thought I'd close—a little holiday. This is now that I'm back in the nation's capital—these really are gingerbread. This was in the White House last Christmas. I regret, for those lawyers here, there's no Supreme Court showing here. But we do have some other highlights in the Capital.

[APPLAUSE]

Q & A

- **Colleen Chien, Assistant Professor of Law, Santa Clara University School of Law**
- **Carl Shapiro, Transamerica Chair in Business Strategy, Haas School of Business, University of California Berkeley**

[Video 1 of 4, 1:34:40]

JON LEIBOWITZ: We're running a little bit behind, but why don't you guys take about five minutes of questions, if that makes sense. And I also want to just note that some of our participants are fogged in. Those who were coming from the Northeast, including Fiona Scott Morton, who along with our Suzanne Munck, was instrumental in putting today's workshop together. We hope and anticipate many of them will actually be able to fly in later this morning. And again, although there is fog in the Northeast, there is considerably more clarity on this issue, in part, because of our first two panelists. So thank you, so much. And why don't you take a few questions, and then we'll go to our break.

AUDIENCE MEMBER:

CARL SHAPIRO: Speak up.

AUDIENCE MEMBER: What has prevented the creation of platforms, sort of defense facilitation platforms like insurance companies, defense-cost-oriented insurance companies, that could solve also for the problem of data sharing?

COLLEEN CHIEN: I think that it's a great question. And if you think about insurance actuaries who make insurance markets, they need a lot of data. They need a lot of information. If you think about how an underwriter figures out how much you should pay for your car insurance, they want to look at your driving history, your profile as a person, how long you—what kind of car you're driving. And in order to come up with a rate, they're going to be trying to figure out what's happened in the past, and they need a lot of data. In the patent litigation space, as Carl's already mentioned, and we've talked about, is not one that has been data rich in the past. Now we have more big data, kind of analytics to bear. But in terms of settlements and licensing rates, and things like that, I think we're still at the tip of iceberg with respect to information. So it has been difficult, I think. There also is the question of adverse selection, which also, I think, always besets insurance, in general.

So I gave a presentation last year in Las Vegas, where I talked to a number of insurance companies about their efforts to underwrite patent litigation exposure. And they said, no one wants to underwrite the big tech companies. Those are the ones who want insurance. You want to underwrite companies that don't get sued very often, so you have a big pool of distributed risk. And so I don't think we've got that pool yet of everyone who's willing to jump in, and have symmetric, or a basically distributed risk sharing.

CARL SHAPIRO: Two words, adverse selection. Much of what—like Collen said, people who need insurance are ones for—these risks are big relevant to their operations of start-up smaller companies. Adverse selection's a killer there, for any type of insurance model.

The other type of defense, though, that I think could work, joint or coordinated, is really like I said, establishing a reputation and maybe getting some of the scale

economies on the defense side. That could happen. And maybe we'll see it. I don't know. Maybe industry participants will have more to say about that later.

AUDIENCE MEMBER: Carl, I wonder how you think we should try to calculate what a typical NPE or PAE case looks like? And I wonder what your intuition is about what looks like a plausible number?

CARL SHAPIRO: OK. First, I don't think there is any typical case, so I'll take your questions to mean average or median.

AUDIENCE MEMBER: Actually, that was the question, really is, were you referring to mean or median? The number that you said was, mean, but I think your intuition is based on median. Is that right?

CARL SHAPIRO: No. With all due respect. Look, I want to hear about that. You guys have been looking at this, and if you believe—I don't see how the mean case out of 500, can be \$150 million either, when the very largest ones we hear about are \$1 billion. And there's like a couple of those. So I don't get that either. I don't think I'm being confused between mean and median. I'd love to have this conversation. And like I said, I think it's a great line of work to be pursuing. And maybe these numbers will hold up, I'm just not yet convinced.

Stand up, and/or wait for a mic. Talk loud or wait for a microphone.

AUDIENCE MEMBER: OK. Michael Cohen from NBC Financial Research. And my question is to Professor Shapiro. You talked a lot about the leaky bucket. And I was wondering what kind of market forces would prevent solving that naturally? I mean, wouldn't the incentive create an incentive for additional Patent Assertion Entities to just drive up the price of patents, and greater reward inventors?

CARL SHAPIRO: I agree that competition among PAEs would tend to reduce their profits. But, look, if there's just a lot of costs associated with this activity, that is a leaky bucket. That's sort of the leak from the bucket, inevitably. This is very common with rent

seeking activities. You can have competition among rent seekers, and still there's a lot of debit loss.

We have a hand in the back here.

AUDIENCE MEMBER: Hi, Jorge Torres. I think a lot of the monetization activity that we see is driven by financial speculation and money chasing returns in a low yield environment. And you, Professor Shapiro, mentioned one of the questions we should ask, is patent assertion effective? And I think one of the measures of effectiveness is whether or not patent assertion campaigns are generating financial returns. And anecdotally, we've heard, and we know that, they're not. They're not generating risk adjusted returns that justify all the liquidity that's been pumped into the space. So my question is, do you think if we did absolutely nothing and just waited, would this problem correct itself? Or would we continue to see people pump money into patent assertion because of the ancillary financial gains to be made on managing money through transaction fees, or litigating patents on behalf of clients?

CARL SHAPIRO: Well, there's no indication that this is about to fade. Maybe it's reaching a peak, maybe it is a bit of a fad and will decline. If it declines 50%, which is a lot, I guess, I don't care to make predictions about that. I can just look at the trends we've had so far, which are upward, upward.

I would just say, I guess, as from a policy perspective, whatever that market equilibrates itself, OK, maybe there'll be some pulling back, maybe there's more money has been brought in than should have, whatever. I want to ask, where that market and the capital that you're talking about equilibrates itself, is that a place that is attractive from the point of view of innovation? And if we've got flaws in the system that are being exploited, wherever that market ends up, it's going to have too much of that activity.

COLLEEN CHIEN: Jorge, I just was wondering if I could also reach out to you. I've read some of your articles before. And I wonder if you could comment on why you think

that some of these campaigns have not been successful. What have been the investments that have been made that have not paid off? Or is there a change in the legal reforms that have produced this result? Or is it just that the low hanging fruit is gone, and so now it's harder to get the really good assets? It would be great to hear your insights.

AUDIENCE MEMBER [JORGE TORRES]: So I'll just preface what I'll say by saying, I'm not an academic. I don't do research, I don't have data, but I have a lot of anecdotal information that I've obtained through one-on-one interviews and discussions with folks who are in this business. It's just really hard, bottom line, to find portfolios that are going to, when they're asserted, yield financial returns. It's like anything else in private equity. It's hard to pick the winners, when you invest in start-ups. It's really hard to pick those portfolios, even if they're being actively infringed, because of the vagaries, idiosyncrasies, and inherent uncertainty of litigation, to predict which portfolios are going to be the winners. And which ones aren't.

COLLEEN CHIEN: Thanks.

CARL SHAPIRO: We should stop to have a chance to have a break, here.

FRANCES MARSHALL: That's great. I really want to thank Professor Shapiro, and Professor Chien, for coming and sharing their views with us. And we're going to now take a 10 minute break. And we'll meet back here at 5 of 11:00 to continue. Thank you, very much.

PANEL: REALITIES OF LICENSING AND LITIGATION PRACTICES

Moderators:

- **Erica Mintzer, Senior Counsel for Competition and Technology, Antitrust Division, Legal Policy Section, U.S. Department of Justice**
- **Suzanne Munck, Chief Counsel for Intellectual Property, Federal Trade Commission**

Panelists:

- **Cynthia Bright, Associate General Counsel, IP Litigation and Public Policy, Hewlett-Packard**

- **Scott Burt, Vice President & Chief Intellectual Property Counsel, Mosaid Technologies, Inc.**
- **John Desmarais, Partner, Desmarais LLP; Founder, Round Rock Research LLC**
- **Peter Detkin, Founder and Vice-Chairman, Intellectual Ventures**
- **Sarah Guichard, Vice President of Patent & Standards Strategy, Research In Motion (RIM)**
- **Paul Melin, Chief Intellectual Property Officer, Nokia**
- **Neal Rubin, Vice President Litigation, Cisco Systems Inc.**
- **Mary Stich, Vice President and Associate General Counsel, Rackspace Hosting**
- **Mallun Yen, Executive Vice President, RPX Corporation**

[Video 2 of 4, 0:02:20]

FRANCES MARSHALL: OK. Welcome back. And we're going to start with our first panel discussion. This is our Realities of Licensing and Litigation Practices. This panel will be moderated by Suzanne Drennon Munck from the FTC and Erica Mintzer from DOJ. Take it away, ladies.

ERICA MINTZER: Thanks, Frances. And thanks to all of our panelists for coming and for Professors Shapiro and Chien for that great morning. That's hardly anything for us to absorb right now.

I also do want to thank Suzanne. And it's just been great working with her. And I do want to point out some important facts about Suzanne you may not know. She's a Costco member, and responsible for the coffee out there. And as our acting Assistant Attorney General Renata Hesse once said is, a conference without coffee is a sad, sad day. So I think everyone has Suzanne to thank for that.

And we are short one panelist today, I want to point out, because of the fog, John Desmarais was unable to come. We are going to try to—there was some debate over how to divvy up his time. We thought that would be a fun little thing that we could have everybody fighting over. But instead, given the time that we're at, we're hopefully going to be able to compress our panel by about the 10 minutes that he was going to speak.

SUZANNE MUNCK: Thank you, Erica. And it's just been wonderful working with Erica and Frances and everyone at the Justice Department. I think it's wonderful when we're looking at antitrust IP issues that we can bring the agencies together.

So with this panel, what we want to do is start out by looking at the realities of what's happening for some of the participants in this space. And the idea is right now we'll be asking questions really about these company-specific experiences. Later in the afternoon, when we're doing the efficiencies and harms panels, they'll sort of relate back up to these panels, and then also when we're looking at the antitrust issues on the last panel.

So really, we're very, very grateful for all of our panelists today. They've worked quite hard to prepare for this morning. And I'd like each of them to just give sort of a quick, two-minute introduction of their companies. And then Erica and I will each be asking them questions about their experiences in this space. So we hope this will be quite informative, and I've been looking forward to this for quite a while. So I'm ready to get started. Thank you. Maybe we could just start on the end and sort of work our way down.

CYNTHIA BRIGHT: Hi. I'm Cynthia Bright. I'm leading the team that handles IP litigation for Hewlett-Packard. We have 325,000 employees worldwide, one of the largest portfolio of patents in the country, 85,000 employees in the United States. We make desktop computers, assembled in Indianapolis. We make servers in Houston. We have a wide variety of products, PCs, printers, also for the enterprise space we help build all the products that go into data centers, things that run stock exchanges, health care systems. And I could go on, but I will stop there.

PETER DETKIN: And I'll take the rest of her time. My name is Peter Detkin. My background is I first started prosecuting patents in New York City a long time ago. I moved to Silicon Valley in the late '80s and was Wilson Sonsini's first patent lawyer,

where I represented a lot of companies, both big and small. I then move to Intel where I was vice president in charge of licensing, litigation, patents, and antitrust. I was there for the better part of a decade, where I first met Carl Shapiro and launched him on his now brilliant career, analyzing this space. I had nothing to do with the natural gas stuff he also does.

And about 10 years ago, I joined with three others to found a company called Intellectual Ventures. Intellectual Ventures is a company that invests in invention. That's our basic motto. We've raise over \$5 billion in a few separate funds. And we invest in invention in three ways. We buy, build, and partner. We buy inventions. We build our own inventions. We have a lab up in Seattle with over 100 employees. And we partner with research institutions worldwide.

But no matter what I do in my life, past or future, I'm confident that my epitaph is going to have one thing on it, that I coined the phrase patent troll. That, and I launched Carl Shapiro. Let's not lose sight of that. But that was a rhetorical device that I was using to describe what I was seeing and what Carl was seeing as—I'm going to invoke your name a lot here Carl—what I was seeing as problems in the market at the time, most of which he identified. Some flaws in the patent system, with respect to both remedies and quality.

Now, the market's changed a lot since then. We've had a lot of business models come up, including our own, including some that we see here on the panel, that I never envisioned back in the day. But the flaws remain the same. And those are the issues, I think, that we should be really focusing on. We're going to hear about academic studies today that go both ways. Carl mentioned some. We have a one-pager out there that lists some other academic studies that we think counter some of the ones that Commissioner Leibowitz was mentioning, excuse me Chairman Leibowitz. There are anecdotes that go both ways. We'll hear about small companies that have gone under

because of assertions by patent assertion entities. And I could tell you stories about inventors that never would have gotten paid but for the existence of patent assertion entities. Both are right. There are bad actors in this market. There are bad actors in every market. There are bad actors in the—there are ambulance chasers. There are people who commit securities fraud. Doesn't mean we should do away with the securities market. What we need to do is focus on the flaws in the system that allow these bad actors to exist. Let's focus on the patents, not on the owners of the patents.

And again, to echo what Carl said, we really need to focus on quality, which is something Dave Kappos has been focusing laser-like the last few years. And let's hope it continues after he leaves. We need to focus on remedies, and that's an area where, I think, discussions like this, and agencies such as the DOJ and FTC, have a role to play, as well as the courts. This is something that Judge Rader, of course, is focusing on significantly, and others. There's a lot of swirl around here. There are a lot of red herrings though in this industry. We're going to talk a little bit about those as well. Let's not follow the trails of the red herrings. Let's focus on what really needs to be fixed, namely patent quality and remedies.

SARAH GUICHARD: I'm Sarah Guichard. I work for Research In Motion, maker of the BlackBerry. And the reason I came to work for RIM was because of NTP. Probably every time we talk about PAEs, RIM and NTP always come up. And it was after NTP or during NTP where RIM decided they really had to beef up their in-house patent counsel staffing, because of the challenge and the continued challenge that we've seen to our business as a result.

PAUL MELIN: OK. Paul Melin from Nokia. Nokia was leading mobile phone company. And we're working on our comeback on smartphones. We also have joint venture, Nokia Siemens Networks, which is a very substantial vendor of infrastructure and equipment. And Nokia is in a very uniquely balanced position in this debate, as we

are both a frequent target of assertions. Nokia has been sued nearly 100 times since 2007. And most of those lawsuits have settled. We have only a handful of longstanding disputes. And that's OK, because we take the view that this is just a sign of the patent system working as it was intended to. We respect third party IP. When we need to pay for licenses that we require when we integrate complex technologies, we do that.

And can something be done to improve the efficiency of the system? Absolutely. Of course. In too many cases, we get the lawsuit, out of the blue, being the first contact. We would very much like to negotiate with these companies ahead of the time, before the lawsuits are filed. So if incentives can be changed to reduce that kind of behavior, that would be great. But is there any fundamental reform needed in our view? Absolutely not. The costs cited earlier today are just totally not matching up to our experience in the in-house world at all.

On the other side of the coin, Nokia also has a very large patent portfolio of approximately 10,000 patent families, more than 30,000 individual patents and applications worldwide. And we need to monetize this very valuable asset that we have built over the years with research and development investments of nearly \$50 billion US dollars. And often, we do not have the resources or otherwise are not best positioned ourselves to exploit those inventions, either through our own products or through our own licensing activities. And as a result, the divestments of patents have become a very important channel for us to monetize and realize the value of our research and development. Over the past five years, we have completed more than 20 patent divestments, many of them to patent assertion entities, not all of them. And we see these as a very important channel and source of liquidity.

And it's not the leaky bucket. Based on our experience when we're talking about high quality assets, we expect to get there 65% to 80% of the gross revenue eventually

collected on those assets. And that all goes back into research and development. So it's, from our point of view, a very important channel.

And I would just like to point out that there is, in this type of debate in many conferences, often a sense of entitlement. And people tend to forget that you are not supposed to infringe patents. In many countries, patent infringement is a crime. And it's, of course, possible in complex technology areas to inadvertently infringe. But in those cases when that happens, we try to settle those things and pay all dues. The reality of patent licensing is that there is an incredible amount of cynicism on the market and sense of entitlement.

In numerical terms, the vast majority of companies we tried to negotiate licenses with totally refused to offer anything absent litigation, even when the value of the patents themselves is not put in question. Because the economics on the defendant's side also take into account the probability of you ever getting sued. And if you face on the other hand a large patent holder with a lot of activities, especially the small companies, and many of those small companies reside on very large markets in the Far East, rather take their chances and refuse to even engage in negotiations. So in these circumstances, having the ability to divest patents and realize the value through investors who are willing to take the risk upfront on our behalf, or basically share the risk with us going forward, is absolutely critical for us to realize the value.

SUZANNE MUNCK: Thank you very much. I'm looking forward to asking you about that later. Thank you.

NEAL RUBIN: Good morning. My name is Neal Rubin. I'm the Vice President of Litigation at Cisco Systems in California, one of the world's largest manufacturers of telecom equipment. Cisco has approximately 70,000 employees and about \$50 billion in revenue. And that's relevant to give some context to the fact that the company spends approximately \$6 billion a year in research and development, designed to make the

future of the internet and communications faster, more secure, and more reliable. We have more than 9,500 issued patents, 3,700 pending applications. And we file approximately 1,000 patents a year globally.

Effectively all of Cisco's litigation, patent litigation, is brought by PAEs. And we are now spending twice as much money defending those cases as we are prosecuting and filing the 1,000 plus patents we have all over the globe. Indeed, we've had to reduce our patent filings to in some sense compensate and pay for the defense costs of PAE litigation. So needless to say, I think we're grateful that the FTC and the Justice Department and all these various different views are coming here today to discuss how we can improve the system.

MARY STICH: Hello. I'm Mary Stich. I'm an Associate General Counsel in charge of litigation at Rackspace Hosting in San Antonio, Texas. We appreciate being included today to talk about what is for us our most pressing legal issue. Rackspace is the open cloud company. And we're here today for two primary reasons. First, we'd like to provide a perspective on how PAE activity is harming smaller, more organically growing businesses. Second, we want to discuss how PAE activity threatens open source development and innovation.

At Rackspace, we're at an interesting place in the market. We're only a fraction of the size of HP or Cisco. We have a shorter history. And really within the last three or four years, we've come into our own as a leading provider in cloud computing services. While our older products and services still provide the bulk of our revenue, our cloud computing business is growing year over year, and this is where we see our future. Rackspace is growing in headcount, R&D spending, and the technology that we develop and provide. But PAE activity, we believe, is a direct obstacle to our growth. Our fastest growing expense category, faster than salaries, faster than R&D, is PAE litigation defense.

Like other smaller companies, we've seen an explosion in the number of PAE infringement suits. Smaller companies are being forced to divert an ever larger amount of time and resources to these cases. The number of PAE suits filed in 2011 almost doubled over the number filed in 2007. And most of the companies being sued are smaller. Companies with under \$1 billion in revenue accounted for 63% of the unique defendants in PAE cases in 2011. On average, smaller companies are paying \$1.5 million per case to resolve them in fees or settlements, or they're making operational decisions that put them at a competitive disadvantage.

In our belief, these suits are poison to ordinary business. The root cause of the problem is flaws in the patent system, as we've been discussing. And we believe the flaws are being exploited by PAEs. The flaws in the system have a disproportionate impact on small business and open innovation. We don't think this issue should wait. We think the AIA was a strong effort by Congress, but we think the patent system should be a level playing field.

SCOTT BURT: Good morning. My name is Scott Burt. I'm Vice President and Chief IP Counsel at a company called Mosaid Technologies. I'd like to thank Suzanne and Erica for the invitation today. I would also like to thank Chairman Leibowitz for the kind of word in his remarks. Although, Mr. Leibowitz, it is "Moss-aid." Nobody can pronounce our name correctly. It is "Moss-aid."

Let me tell you briefly what we do and who we are at Mosaid. We're a 37-year-old technology company. We were founded in 1975 as a designer of semiconductor DRAM memory chips. By the late 1990s or by the '90s, we found that our innovative patented technology was being used throughout the DRAM industry. The problem was primarily without our permission. We responded by actively and successfully licensing our DRAM patent portfolio. Over time, Mosaid focused increasingly on IP management as a way to capitalize on our patenting and our licensing expertise.

Mosaid continues to obtain patents from our own memory research and development. But lately, most of our portfolio of about 5,500 patents and applications has come from acquisitions. We acquire patents from a wide spectrum of IP owners, but most of them come from established semiconductor and communication technology companies that for years invested in research and development and now seek to benefit from the value and the resulting patent portfolios. While there's no typical transaction in most of our deals, Mosaid buys a patent portfolio or a company that holds the portfolio outright. We then license or sometimes sell our patent portfolios, primarily to leading, established companies in the relevant technology. In some cases, we share part of our later revenue stream with the original patent innovators.

As an example, and to follow up on Paul's introduction, I would like to outline a transaction that I expect will be a topic of this roundtable session. In September 2011, Mosaid purchased from Nokia a company known as Core Wireless and its approximately 2,000 wireless patents originally developed and held by Nokia. Nokia spent many billions of dollars in research and development to build a substantial patent portfolio in wireless communications. Core Wireless is now using Mosaid's specialized IP management and our proven licensing model to obtain the value of the core wireless portfolio. Under the arrangement with Nokia, Core Wireless independently conducts all of the licensing and, if necessary, enforcement efforts and in turn shares part of the revenue.

As you can see from the Core Wireless example, Mosaid is a licensing company. Our goal is to license our patents to companies who are not our competitors, and not to restrict access to those patents. We succeed and innovators succeed when the technology we license is valued and adopted by our licensees, and in turn, our licensees also succeed.

SUZANNE MUNCK: Scott, I don't want to cut you off, but if you keep going I'm not going to have anything to ask you later on. Thank you.

MALLUN YEN: I'm Mallun Yen. And I'm with RPX. RPX was started about four years ago to help operating companies work together to more effectively reduce risk from NPEs or PAEs. The core service we provide is called defensive patent aggregation. It's the combining of resources from a broad group of companies, in our case, more than 125, to buy patents before they fall into the hands of PAEs. So in short, it's proactively buying patents to head off the problem before it starts and before the high transaction costs of litigation kick in.

And since RPX can't buy all the risky patents out there in the open market, some patents do end up in the hands of PAEs and are then litigated. When that happens, we can often resolve the case collectively on behalf of our members far more efficiently than can be done on a defendant-by-defendant basis. To date, we've spent over \$500 million on rights to about 3,000 patents with nearly 300 litigation dismissals for our clients. These clients range from the largest public companies to small, privately held start-ups. Our success is the direct result of companies realizing that with respect to patents, one company alone simply can't make enough of a difference. It takes an industry working together to shift the uneven playing field and drive change, whether it's through legislative reform, case law evolution, or market-based solutions like RPX.

One key to our business model is aligned interest. We proactively identify and buy patents that could be a problem. Every member gets a license to every patent that we buy. And we do not assert our patents. We also continuously monitor all NPE litigation activity, open market transactions, and also track all patents that are being marketed, sold, or assigned. As a result, as you've seen as a sliver of it today, we've amassed an unprecedented amount of data, which we openly share with our clients.

Earlier this year, we also launched a small insurance business that insures companies against NPE risks defense costs. So we now have an even more vested interest in reducing patent risk and also reducing costs. So ultimately, our goal is to help make patents a predictable, manageable risk for operating companies by using typical market-based mechanisms, access to information, efficiency, low transaction cost, and efficiency.

SUZANNE MUNCK: Thank you, Mallun. And Cynthia, I'd like to start with you. As I mentioned before, one of our goals with this panel is to understand the realities of PAE and licensing and litigation for a broad range of market participants. And as a large operating company, I'd like to ask you broadly how PAE activity impacts HP.

CYNTHIA BRIGHT: Certainly. I'll go back and fill in some of our statistics. We currently have a docket of 50 patent cases here in the United States. Those are defensive cases. We have an additional three cases in which we are a plaintiff seeking to enforce our IP against folks that are cloning our products. That has ranged since 2008 from anywhere from 50 up to 70 or even 72, something like that. It's been pretty steady. Cases come and go. They turn over. 25 or 30 per year get settled. Pretty average.

Cases last 12 months. They last 24 months. They may last longer. I went back and looked at what percentage would fall into this definition that has been used this morning of PAE. That would comprise 60% of our docket. We have one competitor case. We have one university case. The remainder in that other 30 something percent are either an operating company, although we would not consider them a competitor, a failed operating company, it may include some individuals.

A couple more things I will call out, most of the patents we're seeing right now are very old. They're from the 1990s. We saw this study that Professor Shapiro cited that, if I recall correctly, and it's the same study, the average age of patents being asserted is approximately eight years between that priority date and the time of the

issuance of the patent. We did our own informal study internally on our docket, and the average age was 12 years between the priority date and the time that the patent issued. In connection with that, we see a lot of what I would call continuation abuse, where patents are being intentionally written out onto products on the market, or they're being written onto standards.

SUZANNE MUNCK: Thank you. And you mentioned that about 60% of your docket is PAE activity. Has that trend changed over time?

CYNTHIA BRIGHT: I think it depends on when you are looking back in time and when you started. I think the debate has become more sophisticated separating NPEs from PAEs. I think it's growing. There seems to be—and the real uptick for us is somewhere around 2008.

SUZANNE MUNCK: And what has HP done in response to both PAE litigation and PAE licensing efforts?

CYNTHIA BRIGHT: We are looking at those cases on the merits. We've done a variety of things. We are managing them from in house. We are also talking about what we see as issues in this space, particularly around patent hold-up issues, PAEs becoming more sophisticated, going to the International Trade Commission. As well as what the right price should be in these cases, so essentially issues around remedies and damages.

SUZANNE MUNCK: And one of the things we're trying to figure out today is the right role for the agencies to play in this area. I'm wondering if you have any thoughts on that.

CYNTHIA BRIGHT: I do. I think that there's been an incredible amount of thought leadership from the FTC, particularly in the 2011 report. I think there has—I do appreciate also the PTO's focus on patent quality. And that's an issue where we see—let me circle back to one point, and I think one of the assumptions in the presentation this morning is that there is a very strong quality of patents, that you have a patent, if you

read the specification, it's tightly linked to the claims, it's tightly linked to innovation or an invention that can be used in innovation. That's where we see a great deal of slippage. So having the PTO focus on quality is particularly important. We see a lot of patents that get stretched from whatever their gee whiz idea—that's now being asserted against something very different.

We also see a lot of patents where there are instances that the most valuable patent to an NPE is a broad, loosely-worded patent, where a patent assertion entity is arbitraging the cost of defense, the time that it takes to get to any type of judging, whether it's summary judgment or trial—and I think there are different camps out there—and setting the price accordingly. Some patents assertion entities come in with very low settlement amounts to begin with. And then some are much more sophisticated and come with much larger demands, often still relying on, essentially, an entire market value rule, even if the patent that they're focusing on is just a feature.

SUZANNE MUNCK: How often do you see PAEs coming in, as you mentioned, smaller demands as opposed to a larger PAE request based on the EMVR?

CYNTHIA BRIGHT: I don't know if I have an exact number on that. I think there are a handful of very sophisticated patent assertion entities. I think there are a lot more that are smaller that come in with—from the get go, they've got a demand that's \$500,000 or less. And the message is, we don't want to litigate. We want you to settle. What the settlement price is, you can negotiate from there. At most, they're staffed up to take the matter through claim construction, if they even try to get it that far. And then we've also seen a new phenomenon, which is going after end customers for even tinier amounts, \$50,000 or less.

SUZANNE MUNCK: And I think that Cisco may be addressing that, too. So I don't want step on each other's toes. But is there any point you'd like to make with respect to that?

CYNTHIA BRIGHT: No. I think Neal has some comments there. So I'll not comment on that one.

SUZANNE MUNCK: This actually may be a great time transition into Cisco, unless there are other points that you'd like to make.

CYNTHIA BRIGHT: I just wanted to focus on two other things, particularly the patent assertion entities going to the ITC and the issue of hold-up. If you do not make a product, and you go to the ITC and ask them—which is the International Trade Commission—and ask them for an exclusion order, that makes no sense. You don't want an exclusion order. You only want a licensing deal. So you're only looking for leverage and the threat that you'll exclude either 100% of the market if you're heavily focused on the United States, or 30% of the market, depending on what your worldwide reach is, from coming to the United States. It's an opportunity for someone to gain hold-up leverage, because whatever their patent focuses on, the entire product is excluded.

But that abuse is also not limited to patent assertion entities. It can be abused by operating companies as well. It's particularly dangerous in the standard setting—context with standard-essential patents. So I appreciate the FTC's leadership in the public comments it has made to the ITC on this matter. Unfortunately, I don't see the ITC reforming itself, although it could, and it should. It's an area where HP has made a lot of comments and will continue to focus. So with that and a more rational damages system, where our courts focus on the court-led reforms that have come from the Federal Circuit through gatekeeper function, I think would help all of the abuses that we see in the patent system.

SUZANNE MUNCK: Cynthia, thank you very much for your time.

CYNTHIA BRIGHT: Thank you.

ERICA MINTZER: Cynthia teed that up nicely for you, Neal. If we could maybe just start out with a discussion of some of the most significant issues and trends that you're

seeing at Cisco and the impact on both Cisco and the marketplace that you believe is happening from this patent assertion activity.

NEAL RUBIN: Sure, thanks Erica. So I think that the FTC and the Justice Department should focus their attention on three emerging trends that we think can have and are having anticompetitive implications and that result in a significant overvaluation of patent rights. The first is actually one that Professor Chien commented on earlier this morning. And that is, PAEs whose business model is to focus on threatening or suing hundreds, if not in some cases, thousands of end-users. In other words, companies that are using the accused product. Now obviously, there's nothing unlawful about suing an end-user. But we think it as anticompetitive implications in two ways. One is with the high transaction costs, unfortunately it's often in these smaller businesses' best economic interest, the wisest choice for them, given the high transaction costs, are often to settle the cases. And so you end up rewarding sometimes weaker patents or even invalid patents, because it's easier for these businesses to settle. The second related problem, though, is that in these suits against an end user, the PAE is seeking a damage model related to a different level or a different business model and potentially a different revenue stream than if they were to go after the manufacturer who has a competing product. So that's one area which is looking at large lawsuits against end users.

The second area is when a PAE model is to amass a significant patent portfolio and then seek to threaten or sue, and asking companies to take a portfolio-wide license under the theory that I have 1,000 patents, and I'm sure you're infringing a few of them, and we'll start here. These are the first three or five you should look at now. It's not like you can invalidate all these 1,000 patents. You'd go broke trying. And so you're looking at the threat of seriatim lawsuits that even if you effectively defend against the first few, you're going to have more coming. And I think this problem is particularly pernicious

when there are both RAND-encumbered and non-RAND-encumbered patents within this larger portfolio, because then if you end up deciding that it's in your best interest to take a portfolio-wide license, you're not really sure what the effective rate is for the RAND patents or the non-RAND patents. And I think again, that's a way to sort of camouflage this issue and not allow them to be licensed. Of course, these large portfolios sometimes have standard-essential patents involved in them too. And sometimes those are not even included in the possibility of the license. They're reserved to sue an end user later.

And the third problem we see is what we think is a deceptive practice of not disclosing exactly what patents it is that this PAE actually owns. And so you don't really know the true ownership there. There's a Byzantine sort of hidden structure of multiple affiliated organizations and multiple entities. And that is a problem for the target of a threat or of a lawsuit, because you don't know if what you're getting in a license is actually what you need, or whether it's too broad. And are you really getting as much as you need? If you really want to take, in those instances where it's cost effective, to take a portfolio-wide license, you're not even sure if in doing that you're actually getting the patent peace that you want that would allow you to make products without the risk of patent infringement.

So Cisco has experienced all three of these different things. We see them as growing trends. They're more prevalent today than they were a few years ago. And we think that they're having a potentially anticompetitive impacts in the marketplace.

ERICA MINTZER: When you talk about the uncertainty with respect to patent peace, there's not a disclosure of everything that's owned necessarily by the entity that you're settling with at the time of settlement?

NEAL RUBIN: Well, you hope there is, and at least, to a very complicated negotiation as part of the license. But our view is that there should be enough

transparency so that if you are going to take a license from this particular entity and you've decided to license what it is that it owns, you're not going to find out later that, oh well, actually, we had this affiliate, and it doesn't meet the definition of affiliate. And their patents are different, and you're actually infringing those. You want to have transparency, so you can make effective decisions in the marketplace. You can allocate capital properly. And I think the lack of transparency is an impediment to that.

ERICA MINTZER: So you've identified some concerns and some problems that you see with the system. And in your introductory remarks, you talked about using this as a forum for discussing possible solutions. What do you think could be done? And in particular, what recommendations do you have for the FTC and the DOJ?

NEAL RUBIN: Well, there are a lot of ways to attack the problem. And some of our speakers talked about it earlier today. I think that one potential solution here would be to have the FTC have a filing requirement when patent assertion entities make a material patent acquisition. Now, we can debate about what's material and what's not material, and that would be healthy discussion. But allowing the FTC to inquire as to why is this entity selling this patent or this group of patents, and what is the PAE acquiring it for? And let's assess what impact that's likely to have on the market on the front end. It goes a little bit to the point the Professor Shapiro made about, well let's follow the money. My point is not to say that this filing requirement is going to prohibit these transactions. It's just to say that more information is better than less. We've talked about some of the problems of not having very good information in this. And our sense is that if regulatory agencies can understand on the front end, impact to competition of these kinds of larger patent transactions, it'd probably be in everyone's best interest.

ERICA MINTZER: And then to the system more generally, are there specific areas that you think are particularly open for exploitation that—are the courts addressing adequately some of these issues?

NEAL RUBIN: Well, I think the Federal Circuit and the courts are doing a great job at looking at the damages issue. Again, it was another one of the issues that was brought up this morning. Is a patent owner—again, when he or she is litigating, are they getting a value and are they getting damages that's really commensurate with the contribution that that patent makes in the marketplace above the next available alternative. And if the answer to that question is yes, then I think you discourage this kind of overinvestment in patents, and you discourage operating companies, maybe even successful operating companies, from seeking to divest their patents. If an operating company thinks that it can make more money selling and licensing its patents than it can actually practicing the patented invention, then that suggests that damage awards are high enough—that would not be true if damage awards really gave value that's commensurate with the patented technology.

ERICA MINTZER: I saw you testify on the Hill this summer. You made a distinction between revenue-driven licensing activities and production-driven licensing activities. And we also heard Professor Shapiro talk a little bit about the effects of *ex post* licensing. Just wondering if you could explain what you see as the relevance and significance of those distinctions.

NEAL RUBIN: Sure. Whatever the remedy here I think needs to take into account the difference between *ex ante* and *ex post*. If *ex ante* is helping to contribute to new products and new industries for professors, inventors, others to come to operating companies and saying we have this great invention, you should license it—obviously, companies like ours spend an enormous amount of money on inbound licensing. And that helps drive and seed new businesses, new industries. It's pro-competitive. It's

wonderful. The flipside though is to wait in the wings on *ex post*, and to say, I'm going to wait until the company has its first billion dollars of revenue, and then I'm going to bring a lawsuit. And to our mind, that's a tax on an existing product. These are two different things. And when we're seeking to give a remedy here, I think we have to take that distinction into account.

ERICA MINTZER: And then I would just ask if there's anything that you haven't address that you'd like to address. As I'm watching the clock closely.

NEAL RUBIN: I think there are lots of people on the panel who have important things to say. I'll be happy to defer to them. Thank you though, Erica.

ERICA MINTZER: Thanks. Now if we could turn to Peter Detkin. I've read with interest your blog on Friday. I don't know how many people got a chance to see it, where Peter was addressing some of these issues of transparency and recordation of patent ownership. I thought maybe if you could just talk a little bit about that and give everyone the benefit of—

PETER DETKIN: Sure. Thank you. Thank you for the opportunity to address that, because that's obviously a question on a lot of people's minds this morning. This is an example of what I mean by it's a red herring of an issue. I was responding—well, it's come up in a couple different contexts, most recently from a blog post from a crowd-funded effort that claimed, and I'm quoting here, almost quoting, that we use thousands of shell entities to hide our assets from our licensees and to file a bunch of lawsuits in anonymous names. Let me say right here, right now, in front of the assembled masses here, the overflow room and all the ships at sea, we have never filed a lawsuit in any name other than Intellectual Ventures. Got it? We filed about six lawsuits—I'm sorry. That sounded very defensive. Let me step back. We filed about six lawsuits in our ten-year history, never sued a start-up. Only one of those could even kind of be called software related. It wasn't e-commerce or a method of doing business.

It's on a complicated security product. But the fact is, we've never sued in any name other than our own.

Are we using it to hide patents from our licensees? That's really kind of absurd. We've done over \$2 billion worth of licensing. And every single one of those deals has been with sophisticated companies who have asked us lots of questions, interminable questions, it seems, about what assets we have, lots of negotiation about affiliates to make sure that they captured everything. A number of our licensees are here on the panel. A number of our investors are here on the panel. A lot of our licensees are here in the room. Anybody have any doubt what they're getting when they're doing a license with us? OK, I see no hands. Let's move on.

Why do we do it? So let me answer the question. Why do we do it the way we do it? It's really actually not as interesting as you might think. The reason we have a lot of different acquisition entities is purely logistical. We have a number of different investors, both financial investors and strategic investors. Again, two are on the panel here. Nokia and Cisco are big investors with us. But not all investors are investors in each IP group that we buy. And we have to carefully track who owns what. And we have to carefully track our revenue and expenses on an IP group by IP group basis. The way to do that is to keep them each in a separate entity. So we have costs associated, we have accountants that keep track of it all. We have costs associated with it, and revenue associated with it, so we can track it on behalf of our investors.

Ah, you ask them. Why do you have all those names? Last I heard, I was asked in deposition about our random name generator. Again, all ships at sea, there is no such thing. Please stop asking me about in deposition. You can save yourself 15 minutes of deposition. We keep it confidential for the same reason Warren Buffett keeps his information confidential. We spend a lot of money and a lot of effort figuring out where to invest. And we don't feel like tipping our hands on our investment policies and our

investment intentions to our competitors. Warren Buffett doesn't tell people where he's investing until he's forced to when he's practically ready to take over a company. Disney doesn't tell people when it's buying swamp land in Florida that, hey, we're planning to put a theme park over there. They keep it confidential. In fact, I often hesitate to use the real estate analogy, because I know it breaks down in many levels. But here, it works. Real estate is often held in the name of a trust. It's often held in the name of a holding company. Nobody thinks twice about that. Why all the sudden are we making a big deal out of it here? I would argue it's reasons having something to do other than with the actual patent system itself.

ERICA MINTZER: Could I jump in, just with a couple questions?

PETER DETKIN: I'm on a roll. You were actually going to hear me criticize Carl Shapiro about something, the only thing I disagree with him on. But go on.

ERICA MINTZER: There were two things. I know you indicated that IV has never filed a suit in anyone's name but itself. Has an Intellectual Ventures retained a stake in any litigation proceedings or royalty generations for sales of patents that it may have engaged in?

PETER DETKIN: Yes. We have sold some patents. We actually sold a lot of patents. And some of the patents we've sold have ended up in litigation. And for some of those, not for all, but for some, we have what you might call a back end. But we have no control over what happens in that litigation. We have no ability to indicate whether they should settle, whether with whom and on what terms. We simply, like Nokia does, as Paul was just describing with some of his deals, we have a back end share of the revenue.

ERICA MINTZER: How important is control if the incentives are aligned in a certain direction?

PETER DETKIN: I would argue it's extremely important. If you don't have any control, it doesn't matter what the incentives are. If I've sold to Paul and he's asserting that I can't control what Paul does then—I may choose to sell to Paul, because I think he's good at monetizing. I'm sorry Paul. I don't mean to pick on you. But I may choose to sell to Paul because I think he's good at what he does. And if I'm going to benefit from it, so much the better. But then it's completely hands-off.

ERICA MINTZER: And then if we could go to the real estate analogy. We heard some questioning this morning about how leaky is the bucket. So if you're talking about Disney and that situation, Disney doesn't want to let anyone know they're buying the swampland because they know how much value can maybe come out of it. Are they being undercompensated, that holder of that property? And do you see an issue here as to what value the inventor might be getting vis-a-vis Disney inventions.

PETER DETKIN: That question, I think, is a little above my pay grade. All I can tell you is we think we are fairly compensating inventors. We are pumping billions of dollars into the invention economy. We're buying from inventors big and small. We haven't heard any complaints from the inventors that they feel like we have unfairly capitalized upon their inventions. But you're asking a question that's better answered by an economist, frankly. Can I do one more?

ERICA MINTZER: I was just going to turn back to you.

SUZANNE MUNCK: Actually, quickly I want to jump in with a question on the fair compensation to investors.

PETER DETKIN: Investors or inventors?

SUZANNE MUNCK: Inventors. Pardon me. Do you have any data that represents that, or how much money the inventors are receiving because they're working with you versus what they would be able to obtain on their own?

PETER DETKIN: Wow. That's a tough question. I can answer the first part, which is, as I've said, we have paid out—I can't give exact numbers, but—well over \$1 billion in terms of to inventive entities when we purchase their rights. A good portion of that has gone to individual inventors. Our last number, we looked at this a couple of years ago—we don't track this kind of data, which is why, I'm sorry, I don't have it for you—but a few years ago, we looked, and we determined that we paid well over \$400 million to individual inventors. But that doesn't count, for example, a small start-up that had two people in it, that would fall into our small company bucket. And we don't track that. We do track in terms of deals. And my data sitting in my briefcase over there, I forgot to bring it up, but I did notice it pretty much tracked what Professor Chien showed in terms of where our deal flow is. But in terms of hard data, hard dollar figures, the best I can tell you is the money we pay all goes to inventive entities. And \$400 million plus now goes to individuals.

SUZANNE MUNCK: I thank you. And I'll just turn this back really fast. One of the things that we're looking for in the public comment is more empirical evidence, if possible, of the efficiencies and harms of PAE behavior.

ERICA MINTZER: I just want to make sure you get to make the points you wanted to make.

PETER DETKIN: OK. I wanted to make one last point, since I was on a roll. The last criticism I've heard of the lack of transparency is that people looking to take a license don't know who to contact. That is, with all due respect, something an academic could only think of. Anybody in this room ever tried to take a license but didn't know who to contact? OK. For the ships at sea, not a single hand went up. I've never heard of that behavior in the real world. I actually don't think it would be really hard to find out who it is. In fact, according to that entity that was trying to raise money, it would cost about \$80,000 to do a downtown analysis of our portfolio. Our portfolio is over 40,000

patents. So at an average cost of \$2 per patent, I think people could figure it out if they really wanted to. But again, this is a solution in search of a problem. I'll stop.

ERICA MINTZER: Thank you very much.

SUZANNE MUNCK: Thank you very much. OK. So now we're going to shift gears just slightly and talk to Mary Stich. Mary, you're with Rackspace. And as we talked about, Rackspace is a smaller company. For example, you don't have independent IP counsel. And I'd like to ask you what the realities of PAE activity are for smaller companies, in particular if you have any sort of examples—one of the things we've talk about privately is nuisance suits. So if you could address that as well.

MARY STICH: Yes. Thank you. I mentioned earlier that our fastest growing expense is defending PAE patent cases. We've been sued eight times in the last three years. All the cases are PAE cases. And for us as a smaller company, that's a lot. The trial budgets for each case are in the millions, as most of you know. 90% of our legal spend on defense cost in 2012 was on PAE cases. 90% of our legal spend on defense costs in 2012 was on PAE cases. Since 2010, we've seen a 500% increase in our legal spend on defense cases because of PAE cases. A 500% increase. We believe the cost to litigate is being used as a club to force settlements. Quite often, we and other small companies are presented with this scenario, a damage claim in the millions, budgets in the millions, and a very early opportunity to settle in the low six figures. Is a small business going to go to trial at a cost of over \$2 million or settle for, say, \$100,000?

Many of you in the room are probably private practitioners. Do we have any private practice lawyers in the room? Raise your hands proudly. Have any of you heard or experienced clients say, I know the cost to defend is reasonably set forth by you and your budget. I get that. It's not about you. It's about a flawed system. But the cost to defend causes us to think we probably ought to consider an early settlement. Anybody have a client that said—OK, raise your hands—this is happening over and over again for

smaller businesses. These cases actually remind me, at times, of what the court in the Eon-Net case called the indicia of extortion. Quite often, this is how it feels to us. It's not about the merits of the case. It's not about the value of the invention or the patent. It's about exploiting the costs of defense. It's happening over and over and over again.

For smaller companies, these litigation dollars are a real hardship. And they divert resources away from innovation and advancements for consumers. My colleagues at smaller companies are experiencing the same type of hold-up or exploitation of the flaws in the system. Last week, I participated in a roundtable on litigation efficiencies for the Association of Corporate Counsel, in San Antonio. Most members are in-house lawyers at smaller companies, like me. We don't have large litigation budgets. We don't have teams of IP specialized lawyers defending the cases. And my colleagues shared experiences very much like mine. One colleague said, just hold your nose, settle early, get out cheap. You'll save a lot of money if you do. Another colleague talked about operational decisions that his company made because of PAE threats. They didn't put Wi-Fi in their stores, and they didn't implement a calorie counter on their website, because the risks and the threats were too high. Their competitors, however, did take the advantage of a nuisance value settlement and put my colleague's company at a competitive disadvantage.

The smaller company is simply not big enough to fight in most cases. We believe the flaws in the system have a disproportionate impact on small business. And we believe that recent studies have shown that early settlements are the least expensive ways for smaller companies to defend themselves, and do not necessarily lead to bigger expense down the road.

SUZANNE MUNCK: Thank you. I just have a quick question on this point before we move onto your here open source experience. And that is, how often do you challenge nuisance suits?

MARY STICH: Well, it depends on how you define challenge.

SUZANNE MUNCK: Litigate.

MARY STICH: Well, we have never litigated a nuisance case to trial. We've never gone to a Markman hearing. We've never gone that far, because the cost of defense is always much higher than our opportunity to settle.

SUZANNE MUNCK: So Rackspace is also heavily involved with non-proprietary open source technology. And as sort of one of the open source representatives on the panel, I'd like to hear your opinions on how PAE activity impacts open source technology and innovation.

MARY STICH: As the open cloud company, we're especially concerned about the impact of PAE activity on open source innovation. At Rackspace, we collaborate with developers from dozens of other companies to create open source software to power cloud computing. This is the future of technology and the internet, in our view. Most of the innovation around computer systems and software now happens in the open source community. Open source projects allow large numbers of software developers to collaborate on ways to improve the internet and how businesses and governments work.

Open source is important to this discussion for several reasons. Open source development touches almost every company in America, large or small. Rackspace is best known for our development with OpenStack, a cloud computing system that we created open sourced, and now have spun off into its own foundation. This one open source project is creating value, providing jobs, and driving innovation at hundreds of companies, not just ours. Today's largest and most important software projects are open source. Linux, Android, OpenStack, Hadoop, Git, are just a few of the projects that are enabling small and large enterprises to innovate, create, and grow.

PAE threats and lawsuits are the single biggest threat to open source innovation. There is no effective way for a technology innovator to discover if they're infringing patents that are simply too numerous and are written in a patent argot that's accessible only to patent professionals. The flawed patent system is a disincentive to publication of innovations. Open development is also an easier target for PAEs. There's less effort needed to discover potential infringement. We've even heard suspicions of PAEs attending development sessions. This is a complete distortion of the goals of the patent system. Open innovation models lend themselves to rapid innovation, exacerbating the disparity between the pace of innovation and the life cycle of patent. The pace of innovation in the technology industry, there is no relationship to the 20-year life of a patent.

Large distributors of closed technology have the incentive and the means to address patent risk for their user base and perhaps achieve more efficient resolution of disputes. But there's no single rights holder in an open source community. So each user is left to defend itself, multiplying the aggregate cost of defending a patent assertion. We can think of open source developers as the ultimate small business.

Over the past 15 years, open source has developed into a surprising fount of innovation. For example, much of the big data driving investment right now came about because of an open source project called Hadoop. Many of the people that work on Hadoop or OpenStack or any other open source project are individual developers that do this work mostly in their spare time and for the love of the art. These developers have no legal team and no support structure. The mere existence of patent assertions in this area of technology has been sufficient to induce developers to pull projects, limit features, and redirect their efforts.

Good examples are the gif and jpeg patents. These were patents that purported to cover the uses of common image formats used extensively on the internet. At the

time the patents were being asserted and litigated, a number of open source projects modified their projects to pull out support of the formats. This was a pure loss to society. Consumers would have had the option of using the open source code for free. Instead, they got nothing. And there wasn't a patent holder or an innovator anywhere that was better off because of it.

SUZANNE MUNCK: Thank you very much.

ERICA MINTZER: Sarah, if we could turn to you now. You mentioned that you were brought to RIM because of NTPs. And you have all of this to thank.

SARAH GUICHARD: I do.

ERICA MINTZER: So you've been in since day one. If you could maybe tell us a little bit about some of the trends you're seeing, and whether you think this activity can or is impacting competition?

SARAH GUICHARD: So I joined RIM right after NTP. And we have only seen increases. We've seen increases in suits. We've seen increases in settlement costs. We've seen increases in litigation costs. So it definitely has an impact. Large portions of the budget are now devoted to fighting. Internally, we've staffed up. I guess it's good for lawyers, but all of these activities seem to be good for lawyers. We've staffed up internally to be able to support the fight.

Because at the end of the day, the patent assertion entities, they just have a different leverage. They're not subject to counter suits. And we can argue about whether or not, if a practicing entity has divested their patents and you know that that practicing entity did that, what you can do. But at the end of the day, even if you file a suit against the practicing entity who owned the patents before they divested it, you're still in a litigation. You're in another litigation, with discovery, with all the costs that are associated with that.

So basically, the transfer of patents to these non-practicing entities, or patent assertion entities, because they have the ability to bring suits without the counterweight of having to think about what an entity that manufactures has to think about. We have to think about the effect of the injunction. We have to think about the effect of the settlement, think about the effect of a jury's verdict. All of those things. The PAE doesn't have to worry about a lot of that. And so it's an imbalance.

To my colleague's point about a right to infringe people's patents, RIM absolutely respects the right of third parties. One of the things that we're seeing are a lot of these suits are stretches of what the actual invention was. One of our cases, the lawyers used the concept of a chocolate chip cookie. And I kind of like that one, because I've got young children, and it's a way to explain it to them. Did you invent the chocolate chip cookie, or do you have a new recipe where you added a new ingredient to the chocolate chip cookie? And I feel like a lot of the PAEs want the juries to believe that they invented the chocolate chip cookie, when in fact they didn't invent the chocolate chip cookie. They may have tweaked the recipe slightly. And RIM doesn't follow the recipe, the slight tweak, that this assertion entity has, but they've taken this patent that may not have been written as clear as it should have been. And the claims may be broader than they should be. We've talked about some of the quality issues. And yet, they have decided that they invented the chocolate chip cookie.

And I think that that's one of the problems that we're seeing, is that these patents that are in their hands have been tweaked, or changed, or art has been washed, or however you want to think about it, to read on product that was not intended. It wasn't what they were inventing. It's not what they were doing. It's not the space they were working in. But someone's gotten a hold of it and thought, oh, if I just do this, it'll read on this mass market that's developed independent of the patent.

I do think that patent assertion entities bring higher prices. They do reduce the pace of innovation. They reduce consumer choice. We throw around—it can be used to raise rivals' costs. We throw around this concept of what 250,000 patents that might cover a smartphone. And even if we said only 10% of them were litigated, that's 25,000 patents. And not every patent is equal, not at all. But even if you wanted to go with that assumption, and you said it was one cent per patent, OK, now we're at \$25,000. There aren't a lot of things I'll buy for \$25,000 that include electronics. So the fact that we look at patents in a vacuum. When a company is looking at the patent and saying, OK, in a court case, did you infringe this one patent, instead of what factor is it as an overall part of the product? How many other patents are out there in that space? So that goes to the damages theories.

But with the PAEs, they don't have any incentive to put forth a reasonable damage argument. Because they don't have anything that you can infringe. If you take two operating companies, you're going to be disincentivized to put together a crazy damage argument, because you will have to follow that when the sides are flipped. But with PAEs, that's not the case. They don't have to suffer the consequences of any of the case law that they develop in this space.

ERICA MINTZER: And you mentioned PAEs asserting one patent. Do you see a difference in strategies and how operating companies may react to a PAE based on the different sizes of the portfolios?

SARAH GUICHARD: I do. I think with the serial litigation, if you know that there's going to be patent after patent after patent. But not every patent's created the same. There are patents that you take a license to, because that's what the patent is, and you know that that's what they invented, and you can feel good about it. A lot of the times, it's more like my colleague from Rackspace was saying that it's so expensive to litigate it, it's cheaper to pay them to settle it. And even if you don't think you infringe it, even if

you think the patent is wildly invalid, the proof of that and the amount of time and effort and resources and distraction it's going to take greatly exceeds going down that path.

ERICA MINTZER: And are you seeing general pressures on operating companies internally to monetize their patents based on the marketplace that's developed?

SARAH GUICHARD: I do. I think so. I mean, my colleague from Nokia has said that that's one of things that they do. And I do think that we see companies being pressured, being increasingly pressured, to say, well, if everyone else is doing it, why aren't you doing it? Your boards may be saying, if we're paying out all of this money in settlement costs, and all of this money in litigation costs, why aren't we getting the same return of value on our portfolio? Why aren't you taking advantage of these systems and efforts.

And being a patent attorney and having been in this industry and watching—I mean, I can remember the first time back in 2000 when a firm came in and said, hey, there's this great court. It's called the ITC. It's a great place to do patent litigation. You should really look into it. Watching all of these changes, I do think that companies are being—If you're going to spend the money, you should be making the money. And we've spent all this money to develop patent portfolios, what are you doing about it? We're in the same position as Cisco. The amount of money we spend defending ourselves against patent assertions way outpaces the amount of money we spend developing our patents internally.

ERICA MINTZER: Many more questions, but don't have time. Thank you very much. I appreciate it. Now Mallun, you're on. In your opening remarks, you were talking about PAEs and about RPX. So if you could just tell us. It sounds like you do see a difference between RPX and a PAE, and what you believe those distinctions may be.

MALLUN YEN: Sure. So there are many reasons why we're not a PAE, but let me focus on just three, for the sake of time today. So per Colleen and per the FTC definition,

a PAE is a company that asserts patents against existing products as a business model. RPX's entire business model is based on quite the opposite. First, by definition, we're not an NPE because we never assert or litigate the patents that we bought. Second, our mission is to reduce our clients' costs and risks from PAEs. So clients don't join RPX to avoid being sued by us. They know we won't sue.

In fact, it's worth noting that a number of companies join RPX, even though we may not have a single patent in our portfolio that's applicable to them. It's the idea of proactively coming together, efficiently, with a number of other companies, to reduce the risk from patents. So in fact, if a client determines that we're not clearing the risk and we're not reducing their costs, then we assume they're not going to renew their membership. So you can see, our interests are aligned. Our business model and our business is only successful, and we can only grow our business, if we help our clients be successful in reducing their costs and risks from NPEs.

And then third, PAEs don't have a relationship of trust with their licensees. One of the benefits of having aligned interests is that you can develop relationships of trust. We can be remarkably transparent, and we are. Anyone can visit our website, calculate our rates. All of our patent assignments are recorded with the PTO in our own name. Every client gets a license to every patent that we own. Every client can choose to, if they want to, look at all of the patents that we're looking at acquiring. And we even have a client portal, where we put a lot of this information that Colleen has referenced and otherwise on a self-served basis. Anything that we can do in sharing all this market intelligence and information to help our clients in this battle, we do.

So the answer is, no, we're not a PAE. By definition, by mission, and by alignment of interests we're not a PAE.

ERICA MINTZER: Does RPX sell off some of its patents?

MALLUN YEN: So RPX does periodically sell off its patents. And in fact, our clients encourage and prefer that we actually do so periodically. RPX is a for-profit company and our duty is to our members. How can we maximize the amount of capital that we deploy to clear risk from patents for our members? But then we can actually recycle that capital and buy more risky patents and clear the risk from those.

But because we sell the patents subject to all the licenses that we've granted in the case of currently over 125 licenses, no matter what happens to the patent in the future, our clients are covered. So whether we hold a patent or whether we sell it, our clients are protected. Some people call this the catch-and-release model.

And one other point to make here is that when we sell off our patents, we always offer them first to our operating companies. And to date, we've sold nine portfolios. And eight of those portfolios have been bought by operating companies. And one of those portfolios was bought by a trust.

ERICA MINTZER: And how do you respond to some who may argue that this catch-and-release—how do you distinguish that from assertion or threat of assertion?

MALLUN YEN: So like I said, we're a for-profit company. We're not a public service organization. The idea of defensive patent aggregation really only works if there's a network effect. If there's enough companies that join together to defend themselves, similar to what Colleen had talked about, although we never tell people not to settle. And if people thought that when we bought the patents they would never see the light of day, then this business model would have never gotten off the ground. And so everyone has the opportunity to join RPX. It's a preset rate card based on a portion of your net operating income, so similar to what Carl said in terms of what you need for economic efficiency. And so this only works as a defensive tool because of the fact that we do periodically sell off the patents.

ERICA MINTZER: And you have both been at an operating company and now at RPX. Maybe you've got some insights into what you see as the transaction costs of the PAE activity.

MALLUN YEN: Yes. Yes, the high transaction costs that we are all painfully aware of. We estimate, at RPX, that in most cases less than 10 to 30% of what operating companies spend resolving, and PAE matters actually flows this into the hands of inventors. And so let me give you an example that actually is indicative of a number of transactions. The Mosaid-Nokia transaction I put in probably a different category, as we've heard today. But let me just walk you through this example, because it's very telling.

About a year ago, a prominent PAE advisory firm was raising money for a patent assertion campaign. And here's the economics that they pitched, which is consistent with what we're seeing. So they estimated that they would bring—there's a portfolio—they estimated that they would bring in \$40 million of revenue by suing 40 companies. And they estimated that they would collect \$1 million from each. Of that 40 million—this is very laid out in this nice little chart—of that 40 million, 5 million would go to pay for plaintiff's attorneys. And 27 million would go to the advisory firm, investors, and other costs, like expert fees, et cetera. And so, when you do the math, if you've done the math, only 8 million of that 40 million was going to the inventor.

Now, don't even stop there. Because given that—based on our experience, defendants of this size and this magnitude in these types of cases would spend, let's say, an average of \$1 million defending themselves per case. So that's \$40 million of defense costs plus \$40 million in settlement costs, which is frankly roughly the same split that we're seeing as Colleen mentioned. And so it's \$80 million churn or transaction costs to net—I'm sorry, \$80 million of total spend by operating companies to net the patent

holder or the inventor \$8 million. And so that's a 90% transaction cost, to which I think that no one would argue is an efficient market.

And I can't stop but just make this point, which is think of how much better off we would be if that \$72 million that did not go to the patent holder or the inventor— what if that \$72 million could be spent by operating company on innovation, R&D, and bringing new products to market? And then just one more point on this, because I feel so strongly about this. And by the way, this doesn't take into account the distraction from senior management, the hours of your engineers having to go to faraway jurisdictions or reading through these patents, or the diversion of resources from your own R&D budget, from your own filing of patents, et cetera. So this is just one little example. Thought I'd share.

ERICA MINTZER: And one last question. You mentioned that as part of your business, you monitor the marketplace and patent litigation. Could you just tell us a little bit about what you're seeing in terms of trends?

MALLUN YEN: Sure. So just a note on the data first. Because as everyone's talked about, there's a lack of transparency. It's also incredibly hard to get clean data in this area. And so we meticulously track every patent litigation, every PAE plaintiff, every company, every litigated patent, every portfolio put up for sale, every assignment. There's otherwise no marketplace or data source that you can go to to look this stuff up. And then you need to clean this and analyze it. For instance, I don't know if you're aware, unless you clean this data, is that there's 2,424 ways that Samsung appears in the court docket when you take into account different corporate entities. And so when we talk about unique defendants, as some of the folks have talked about here, that is counted as just one. So it's incredibly challenging to clean the data. But because we're using this data every day in our business, we are meticulously cleaning it every day.

So just a few trends. First, no surprise here, PAEs remains a significant issue for many companies. In 2011, we tracked a 1,509 PAE cases against 2,995 distinct companies in US District Court. That's up from 453 cases against 933 distinct companies or unique companies in 2005. So a 221% percent increase in number of companies sued in the past six years.

Second, everyone is feeling the pain, as we've heard here. It's not just the biggest tech companies. It's a small company. The big tech companies are certainly feeling the brunt of it. Apple was sued 48 times by PAEs last year, almost once a week, and currently has 74 PAE cases pending against it. However, a surprising number of smaller companies—or maybe not surprising, given the panel—a number of smaller companies and non-tech companies are also impacted. Companies under \$1 billion of revenue, as Mary mentioned, account for 63% of the unique PAE defendants in 2011. And private companies account for 76% of the cases. And companies that use technology are also being tagged, Build-A-Bear, Dunkin' Donuts, IHOP, Burberry, et cetera. They've all been targets.

Third, much of the PAE activity comes from a handful of very prolific PAEs. One PAE we tracked had brought 1,780 different actions. And another brought 1,872. And so what we consider serial or programmatic PAEs account for 25% of the defendants in 2011. Colleen also had some notes on this.

And then the final point—because I could go on and on, but I will save you the time—is that the marketplace for patents remains vibrant. As we've talked about here, are we just at the beginning? Is it going to trickle out? No. There's lots of activity. There's lots of patents. We see virtually every brokered patent transaction in the market. And we've tracked 3,213 brokered portfolios, multiple patents in the portfolios, since 2008. On average, we see about 70 such brokered portfolios for sale every month. And when they transact, we estimate that 50% to 60% of them transact to PAEs. And so,

the market activity for the sheer number of portfolios has remained about constant, although the absolute number of patents within those portfolios has increased.

ERICA MINTZER: Thank you so much.

SUZANNE MUNCK: So we're going to end this panel by talking to Nokia and Mosaid. And one of the reasons why we wanted to do this was because Nokia, you have been a target of PAE suits, and then you've also decided to transfer your IP to a PAE. And so, honestly, I think we could do an entire panel with the two of you. So I do apologize for the short amount of time. But I'd like to spend just a couple minutes now talking about your experiences as a target of PAE suits. If you could explain that to us, please.

PAUL MELIN: Yeah, so as I mentioned earlier, we are a very frequent target. We have been, according to some statistics, among the top 10 most sued companies in the US. And I have to say that I agree with a lot of the things that people, who generally have had different points of view than we are representing here today, have said about the inefficiencies in the system. So we would very much welcome clarification in the standard for domestic industry in the ITC, for example. Issues like working on fee shifting, erasing some of the barrier for filing lawsuits on questionable patents, in terms of the merits, as well as reducing the cost of discovery. And a lot of these things are being worked on by the respective authorities. And that's all very good and welcome work.

SUZANNE MUNCK: And you mentioned that you're one of the top 10 most sued in the United States. Has that trend changed over time, or has it been relatively consistent?

PAUL MELIN: I haven't seen any time series on that. That was just kind of—RPX, thank you for your statistics.

SUZANNE MUNCK: Also, I really want to talk to you about the transfer to Mosaid. But I also want to give you an opportunity to say anything else you'd like to say as a target. Is there anything else you'd like to raise?

PAUL MELIN: I just mentioned the kind of, the point of view that has been raised in this panel, that this imbalance between a non-practicing entity and an operating company holding patents. And in those arguments, there is kind of an inbuilt assumption of an entitlement to a royalty-free cross license. And we often see negotiations, this kind of argument, that if we are offering a license under thousands of patents with billions of dollars of investment behind them, and on the other side is a mid-sized competitor, who has 10 patents. And their argument is that you sue us on, at most, 10 patents. We'll sue you back on 10 patents, and we are even. Right? Is that fair to force our paying licensees, to force our shareholders, to expect to get for free such substantial licensees? Of course not.

And the fact that we have been able to tap into this liquid effective layer of monetizers, to a certain extent, has not only directly enabled us to realize some of that value in our own investment, it has also supported the discussions that we have based on the rest of our portfolio. And in fact, we have been able to save substantial litigation costs by not having to enforce our own patents, because some of their prospective licensees recognize that there is actually value behind the larger portfolio that we are able to bring to them. And that is a statistic that you don't see anywhere. It's lawsuits that were never filed because the existence of a more efficient market.

SUZANNE MUNCK: Thank you. So turning, as you mentioned your transfer to Mosaid, how did Nokia decide to engage in that transfer? Was there pressure to monetize? And how did you choose which intellectual property you were going to transfer out?

PAUL MELIN: So we decided quite some time ago that 10,000 patent families is a big enough portfolio. We are not able to manage a larger portfolio effectively—know exactly what's in there. That provides a large enough asset base for us to protect our proprietary technologies and product differentiation. It provides a sufficient scope to have a strong portfolio in the core areas where we can operate our own licensing. And it requires substantial investment. So the cost of growing the portfolio beyond 10,000 patent families, we just decided we are not going to do. Now however, we have a relatively young portfolio. So not much of the patents are yet expiring. We still want to invent more and renew the portfolio and protect the new innovation that Nokia is engaging on. So we file about 1,000 new patent priority applications each year. So keeping the portfolio at this stable level while continuing to file more within these costs constraints means that we have the capacity or imperative to divest or otherwise get rid of somewhere between 600 to 800 patent families per year. And that's what we do.

And in the case of Mosaid, that was an example of where we identified a certain focus portfolio from our product portfolio, which we thought would be suitable for other investors. We were lucky enough to find a passive investor who wanted to take an economic share in that portfolio and provide us certain guaranteed return. It's been publicly said that Microsoft took that road. They are a passive investor in this portfolio. And then thereafter, through competitive process, we found a good buyer in Mosaid, who were able to take on the portfolio and carry the risk from there on.

SUZANNE MUNCK: Thank you. And could you further explain Microsoft's role in the transaction? How does Nokia monetize the IP that you transferred to Mosaid? How does the money come back to Nokia?

PAUL MELIN: Well, as I said, when we divest patents, we truly divest them. So we have absolutely no operational involvement or any level of control in these. They are Mosaid's patents, they have been sold. So we have a passive economic interest in those

patents. It was not entirely paid up front, so we do have a delayed payment, partly, for the assets. And Microsoft's role is equally passive. They just funded part of the transaction, from our point of view.

SUZANNE MUNCK: And how does the delayed payment work?

PAUL MELIN: Well, maybe Mosaid can answer this better, because it has been published in their security reports. But I don't want to step over what has been said in public.

ERICA MINTZER: Just one question. We had mentioned litigation in the US, and Nokia being one of the top targets. I was just wondering if you're seeing different things across geographies. Is this patent assertion something that's mostly a US-centric issue?

PAUL MELIN: We do have a significant amount of patent litigation also in Europe, in Germany in particular, and in various countries such as China. But in terms of the number of cases, in terms of the intensity, of course, the US is unparalleled.

ERICA MINTZER: What about just the plaintiffs being operating companies or what were called patent assertion entities? Do you see differences there?

PAUL MELIN: Not much differences.

SUZANNE MUNCK: The intellectual property that you transferred out, is there an average age of that IP where you're transferring out applications or older IP?

PAUL MELIN: We rarely transfer out patents in the early application phase for two reasons. If the technology's not yet proven, we may not yet know what the actual value for it. We may want to keep some of those technologies proprietary. And that's also one of the reasons we can't ourselves licenses everything. We want to retain the option to protect proprietary features as well. It's much easier to make that determination at a later stage when the portfolios are mature and the technology is either proven or at least the risks are more contained. So on average, we would divest the older and more proven technologies.

SUZANNE MUNCK: And just one final question—because as I mentioned, I could talk to you all day—why are you choosing to divest proven technologies? Wouldn't that be bringing money back to Nokia?

PAUL MELIN: Of course when we divest patents, we don't divest that we want to differentiate with. So those are technologies that either have been broadly taken into use in an unauthorized manner by our competitors or otherwise relate to technologies where somebody else is willing to take the investment. So things that we want to keep proprietary we, of course, keep for ourselves.

SUZANNE MUNCK: And thank you very much for openness on this point. Is there anything that you think that the agencies should be doing as sort of a final wrap up before I move on to talk with Scott?

PAUL MELIN: As I said earlier, I don't think there is any need for a grand reform. But many of these smaller things can definitely be improved by the various things. And maybe just one final comment that has been several times mentioned today that the number of patents in the smartphone industry could be even 250,000. That's an absurd number. And just an example that was mentioned, that if you paid one cent for each such patent that you would end up with \$2,500 per phone. Of course nobody's paying that kind of amount. It would be impossible. And that kind of proves the point. So what you see on the market is vigorous competition. And patents are not preventing anybody's entry into mobile phones.

SUZANNE MUNCK: Well, thank you very much. And Scott, we've saved the best for last.

SCOTT BURT: So I'm between everybody and lunch.

SUZANNE MUNCK: That's what I'm saying.

SCOTT BURT: I'll keep it short.

SUZANNE MUNCK: I cut you off earlier when you were talking about the Core Wireless. And I apologize for that, but I did want to get everyone to lunch. So is there any other point that you want to make on that you finish up? Because I did sort of cut you off in the middle.

SCOTT BURT: No. I think that for us it's an unusually large transaction. But in many ways, it's very typical, where we have an arrangement with a technology leader, someone who's established, who's done a lot of work, has a portfolio to prove it. And then we take that portfolio and we monetize it and, in a lot of cases, return a substantial amount of money back on the back end.

SUZANNE MUNCK: So one of things we're going to look at this afternoon is the potential efficiencies of the PAE model. And one of the things you hear is that it facilitates tech transfer. And I wanted to get your opinion on that.

SCOTT BURT: Well, I think it represents tech transfer. We certainly have our own research and development, where we're working in flash memory field right now. And we are developing a substantial portfolio of that. And we are licensing that portfolio. But we also hope to do some sort of tech transfer as well to develop that into a full-fledged business, because we're a small company. So that's an example of where we're doing it directly. I think otherwise, what we're doing represents a transfer of the value from the people who created the market, created the technology to the people who are currently implementing or using the technology.

SUZANNE MUNCK: And we asked this before. One of the things we're interested in collecting is some sort of evidence or experiences of inventors who may have made more money by working with a PAE than they would have been able to do by themselves. And I'm not sure that that's something that you have today, because we've talked about this. But if it's something that you're able to provide us going forward, that would be--

SCOTT BURT: But I think in a sense the proof is in the pudding, because the people that we work with tend to be pretty large, sophisticated companies that have their own portfolios, very often their own licensing programs. And so they recognize the efficiencies. They wouldn't be coming to us if they didn't think we could do it maybe better, or at least as well.

SUZANNE MUNCK: And before we turn to sort of the Nokia issues, I was wondering if there are other efficiencies you think we should be thinking about in the afternoon?

SCOTT BURT: No. I don't think so. I think I generally agree with Paul. I'm in the camp that thinks the patent market is generally working pretty well.

SUZANNE MUNCK: And so I actually apologize. One more question I wanted to ask you before moving into Nokia. Does Mosaid publicize its real-parties-in-interest?

SCOTT BURT: I'm sorry?

SUZANNE MUNCK: Do you publicize the ownership of your intellectual property and real-parties-in-interest? Because one of the questions that we're looking at is the transparency of PAEs.

SCOTT BURT: Yeah. Of course we do. One of the things we want everyone to know is what is in our portfolio, the size of the portfolio, but really the value of the portfolio. So with some exceptions, Core Wireless being a notable one, the patents that we own are held in the name of Mosaid. And so you can go to the USPTO website and do a search.

SUZANNE MUNCK: Do you ever sell intellectual property that you own?

SCOTT BURT: Absolutely.

SUZANNE MUNCK: And how do you decide to do that?

SCOTT BURT: Absolutely. It's not a large part of our business, but it is a consistent part of our business. We do it in two instances. One is where, perhaps, we

have bought a larger portfolio that fits with our strategic interests, and there's part of that portfolio that doesn't quite fit. We may sell that off. Or we have a portfolio, for whatever reason, that is simply not something that we want to pursue. And then the other reason is where people come to us and they say, we're looking for a portfolio. Maybe we're going into a new technology field where we don't have any patents, because we haven't been in this field before, but we need patents. And what do you have? And again, that goes to some of the transparency. They can find out what we've got in our portfolio.

SUZANNE MUNCK: How often does that happen?

SCOTT BURT: Which one? You mean just general sale or--

SUZANNE MUNCK: Both general sale and then companies coming to you asking for specific IP.

SCOTT BURT: I would be surprised if we didn't do at least one sales transaction of some size every month or two. Like I say, it's not a big part of our business, but it is a steady part.

SUZANNE MUNCK: And do you have any limitations on the parties to whom you will assign intellectual property?

SCOTT BURT: No. Absolutely not.

SUZANNE MUNCK: And why is that?

SCOTT BURT: We're trying to be efficient here in the marketplace. And we want the patents to be where people value them. And so we have no restrictions on what they do, nor would we want restrictions on what we do when we buy patents.

SUZANNE MUNCK: And one of the points that Paul made was on the monetization of the Nokia IP. I was wondering if you could answer the question that I'd asked him, how the monetization worked and flowed?

SCOTT BURT: Well, from our perspective, it's pretty straightforward. Core Wireless, which is the entity that owns this portfolio, Mosaid essentially helps Core Wireless do that. We have a dedicated team that works very much on that portfolio. And we, Core Wireless, and/or Mosaid, we put up all the upfront in what we've done. We do the claim charts. We go to the meetings. We meet with people. We fly to Asia. We do everything to monetize that, ideally, through license agreements. And then whenever we get revenue, the split is essentially we keep a third. 2/3 goes back to Nokia. And then they do what they will with it.

SUZANNE MUNCK: And you mentioned license agreements. How often are you able to achieve license agreements versus moving into litigation?

SCOTT BURT: Well, I think that's an important point here, because we are a licensing company. We're an IP management company, which means we take patents, we take patent applications. We think we really improve upon whatever comes into our company. And we license it. That is our model. We're not a patent litigation company. Now, that's not to say we don't litigate. But for us, litigation is what happens when you have a license negotiation that hasn't come to an agreement. And so very typically, that can be after years of license negotiations with the company.

SUZANNE MUNCK: As I mentioned, I could talk to you all day. And I've got about 100 other questions. But we're also standing between these guys' lunch. So is there anything else that you think that the agency should be doing on this score, as sort of a wrap-up point?

SCOTT BURT: Well, I just really appreciate the opportunity to—that you have these workshops and you have invited us to the panel. Because it is a complicated market out there. There's a lot of different people doing a lot of different things in this area. And I think the more we understand, the more we understand there aren't cartoon heroes and there aren't cartoon villains, that there's a lot of different people

doing a lot of things, there's not a one-size-fits-all solution to this. And I think for the most part, I think I really appreciate the opportunity just to educate everyone, including yourselves, about what's going on.

SUZANNE MUNCK: Great. Well, I'd like to thank everyone on the panel.

ERICA MINTZER: I would like to thank everyone as well. I know time was short, so we do encourage everyone to please take advantage of the public comment period that we're going to have. It's until March 10.

SUZANNE MUNCK: We're holding it open longer than usual, because we absolutely want to hear from all of you.

So we're running a little bit behind. Why don't we come back from lunch in an hour? So that'd put us at 1:25. Now, the most important thing is that you don't lose your badge. Because we cannot be responsible for what happens to you if you lose your badge. Seriously. I'm not kidding. So hold onto those, and get something good to eat, and we'll see you in an hour. Thank you very much.

REMARKS

- **Suzanne Munck, Chief Counsel for Intellectual Property, Federal Trade Commission**
 - **Stuart Graham, Chief Economist, U.S. Patent & Trademark Office**
- [Video 3 of 4, 0:00:00]

SUZANNE MUNCK: Dr. Graham is the chief economist at the United States Patent and Trademark Office, where he manages a team of economists researching the impact of intellectual property on the economy. His research focuses on the economics of the patent system, intellectual property transactions and the relationship of IP to entrepreneurship and the commercialization of new technologies. He received his Ph.D. at the University of California and holds other advanced degrees in law, business and information systems. An attorney licensed in New York state, he has written on companies' intellectual property and litigation strategies, patenting by high tech start-

ups and entrepreneurs, and comparisons of the United States and European patent systems. His recent research has been published in the journal Science, the Berkeley Technology Law Journal, Management Science, the Journal of Entrepreneurship and Management Strategy, the Annals of Economics and Statistics among other venues. Dr. Graham is currently serving the United States while on leave from his academic post at Georgia Tech. And I'd like to join everyone for a round of applause to welcome Dr. Graham.

[APPLAUSE]

DR. STUART GRAHAM: So thanks very much. Thanks for everyone for coming back from lunch in a relatively timely manner. I promise not to spend the entire 30 minutes with my comments. That will enable us to get to a bit more on time, because I know we're waiting to hear from Dr. Cockburn and others this afternoon. So, good afternoon. I am very happy to be here today representing the United States Patent and Trademark Office to speak about what the USPTO has been doing to help make the marketplace for innovation work more effectively. Our office is committed to that goal, and we appreciate the opportunity our colleagues at the commission and the department have given us to comment at this timely and important workshop.

Innovation is an increasingly important driver for the US economy and for our national competitiveness. As President Obama's innovation strategy makes clear, high quality intellectual property rights are an important part of the equation for continued growth. But IP must work within our system of competition to ensure that we are not creating and supporting an environment that unnecessarily undermines economic activity. Patents create legal incentives to invest in invention, but research from economists—some of whom you'll hear speaking today—increasingly shows that patenting is doing more than just incentivizing invention. Patents are also playing a positive role in technology commercialization, in technology transfer, in technology

entrepreneurship by providing a platform for effective market entry and vertical specialization among companies and in smoothing the markets for entrepreneurial capital.

Of course, a strong vibrant IP system is part of a strong competitive environment. Competition is the great engine of growth. Patents and the limited exclusive rights that they provide by their nature represent an investment to foster more, better and faster innovation in exchange for a temporary marketplace advantage. We make this investment as a society in order to reap the benefits that patents bring to us. These benefits include providing rewards and profits to innovators, and relatedly bringing greater disclosure of technology, from which the next generation of innovators may learn and build.

Innovation happens in a marketplace. Inventors, investors and commercializers act in a marketplace. Products like this one are conceived, developed and sold in a marketplace. And this marketplace includes both tangible items, like components and the capital that goes into funding, and intangible component like ideas. But markets are often defined by the quality of information available to investors and competitors alike. Risk and uncertainty can lead to inefficiencies and produce sub optimal outcomes. We at the USPTO realize that how we conduct our operations—things that we do—can work to reduce uncertainty in the markets for innovation. We have an important role to play along with the courts and Congress, and our sister agencies to help the markets for innovation to work effectively so that innovators are rewarded fairly, but not so to unnecessarily undermine economic activity.

The effect of operation of markets for innovation is at the heart of questions about how the PAE phenomenon has developed. On the one hand, we recognize that patents offer excludability, and this right to exclude provides a valuable incentive in the system. On the other hand, uncertainty over what the rights are, what they encompass

and who owns them may provide additional market power to those holding patents. In the simplest terms, society bargained to award an exclusive right to the inventor covering an invention. But society may not have bargained for the ability of the patentee to use information asymmetries to increase market power and to sow fear, uncertainty and doubt in the innovation ecosystem for a profit. It is axiomatic to economists that markets work best when the assets being invested in or traded are identifiable and certain. Many of the USPTO's administrative reforms during the last four years and many of the provisions of the America Invents Act are aimed at reducing uncertainty.

Anyone who has been watching us at the PTO will know that increasing the quality of our examination and our outputs, while also reducing the application backlog and reducing pendency, have been job one at the agency. As of last week I can report, the application backlog at the USPTO has been reduced from 750,000, when the administration entered office, to just over 600,000, even though application filings have grown year on year. This reduction is allowing us to drive down pendency to our goal of reaching an overall average pendency of 20 months by 2015. Completing examination and finalizing patent claims sooner in time reduces uncertainty for investors and competitors alike. But faster processing is only one part of the solution. Increased examination quality also reduces uncertainty and has been a primary focus of our efforts. In 2010, for example, we strengthened our Section 112 guidelines, used by patent examiners to determine which inventions are eligible for patent protection, tightening how written description and enablement are handled by the office. In 2011, we published comprehensive guidelines that have proved to measurably improve the clarity and sharpen the scope of patents.

The USPTO internal quality assurance review found a high level of compliance with the new guidelines based on nearly 29,000 examination reviews over a five-year

period. Both allowances and final rejections were found to be compliant in more than 96% of the cases. We have conducted extensive training with our examiners on the new guidelines, and a follow-up study showed us that these steps have led to a measurable improvement in examination practices and patent quality. We also reformed our examination processes further through the reclassification process to ensure higher quality reviews by expert examiners. We've also given all of our examiners more time to review applications, particularly in many of our most complicated cases.

The America Invents Act, signed by President Obama in 2011, gives the agency new tools to focus on quality and timeliness, so that we can reduce uncertainty in the marketplace. On September 16 of this year, the USPTO implemented most of the final rules of the AIA. Our AIA rules help companies and inventors to avoid costly delays and unnecessary litigation, and let them focus instead on innovation and job creation. We can now more effectively work to improve the quality of issued patents, while weeding out overly broad ones.

For example, a provision in the AIA for the first time in the history of our patent system allows third parties to submit examples of prior art. Any member of the public or any competitor can participate in the patent system and contribute to greater patent quality. They can do this during the examination process using a simple streamlined internet-based system. And we're already seeing those submissions coming in, two months after implementing this option. As of last week, the USPTO has received over 200 submissions covering all types of technologies.

So the third-party submission provision of the AIA should improve the patent quality landscape going forward. But what about patents being issued now? Or that have been already issued over the past two decades, that are still in effect? The AIA provides three new procedures to challenge patents after issuance. They are sent to our Patent Trial and Appeal Board, made up of administrative law judges who are legal and

scientific experts. These new proceedings, known as “post-grant opposition,” “inter partes review” and “covered business method patent review” can be far more effective and affordable than challenging a patent in federal court, thus providing increased opportunities for certainty in the system.

To start, each proceeding is statutorily mandated to be completed in less than one year, which will save millions of dollars in litigation costs and insure resolution far faster than the district courts can offer. One of those proceedings, “the post-grant opposition,” will allow third parties to challenge an issued patent on any ground, including basic eligibility and clarity, two areas of particular concern with many of the issues facing us today. It is noteworthy though that this procedure will only apply to patents issued after we complete the switch to the “first-inventor-to-file” system next spring. And so, it cannot address patents granted in the past. Yet a third proceeding focuses on “covered business method patents,” as defined in the statute. It is noteworthy that this procedure is available for any patent issued at any point in time. So, the USPTO has been working diligently to improve the quality of information concerning the boundaries and scope of the patent asset.

But that is not the only information that can be relevant in the markets for innovation. As we have heard from commenters earlier today, the hidden nature of the parties identities can also create havoc in the efficient operations of these markets. We have recognized the problems with PAEs can arise, because innovators have trouble identifying who actually owns patents in the first place. At the heart of a well-functioning innovation environment should be good information about what the relevant technologies are and who owns them, so that you can seek a license if you need one and understand the investment environment and technology.

We would like to contribute to solving the ownership transparency issue. Last year we issued a call for comments on the possibility of the USPTO requiring greater

transparency of assignment records, both for published applications and owners of issued patents. Most of the comments we received encouraged us to move forward. Currently at the USPTO we provide a public depository for the recording of patent assignments, but there is no requirement, per se, that assignments be recorded at the agency. Furthermore, until recently, we charged a \$40 fee for such a recording.

But we are taking steps to provide better information on the ownership characteristics of published applications and issued patents. First, our new fee schedule, announced in a notice of proposed rulemaking in September, reduces the fee for an electronic assignment with the office to zero. Better assignment information is better for the patent system, and we do not want even the smallest fee to stand in the way of increased transparency. In addition, the USPTO is holding a roundtable at our Alexandria, Virginia headquarters on January 11, 2013, directed to the issue of identifying the real-party-in-interest on patents and applications throughout their life, during prosecution and throughout patent maintenance.

We are considering means for collecting and disseminating that information. To avoid business and legal risk, the clearing of intellectual property rights is often undertaken by manufacturers or distributors prior to production and marketing. In such cases, the clearance of intellectual property rights is often made more difficult and time consuming, legally risky and expensive, because current ownership information on patent applications and issued patents is not available. An incomplete ownership record thus presents a significant barrier to competition and market efficiency. Markets operate most efficiently when buyers and sellers can find one another. Yet in our current system, fragmented ownership in the patent rights covering complex products leads to potential buyers facing difficulty finding sellers, and to potential innovators not understanding the nature of the marketplace they're considering entering. To address the need for accurate ownership information for pending patent applications and issued

patents, the USPTO is interested in providing more complete patent ownership information to the public, in accordance with the Office's duty under 35 US Code Section 2 of "disseminating to the public information with respect to patents."

Beyond providing these public benefits, accurate and up-to-date ownership information is needed to facilitate examination of patents by the USPTO, particularly in light of certain new provisions of the AIA. The USPTO has a strong interest in seeking ownership information, in part to ensure that a power of attorney is current in each case. Moreover, for patent proceedings before the Office, it is important for the USPTO to know the real-party-in-interest in order to avoid potential conflicts of interest for judges and examiners, the latter of whom are quasi-judicial officers.

Additionally, changes made by the AIA to the categories of what constitutes prior art increases the need to have accurate and up-to-date ownership information about patent applications and issued patents in order to make determinations of novelty. Furthermore, the availability of new types of third-party proceedings that may be filed with the USPTO, has created a need for the Office to collect and publish accurate ownership information.

We are now taking requests for participation in our roundtable. I encourage you to contact us at the address provided in our federal register announcement that was published on Monday, November 26, 2012, if you wish to speak at the roundtable. Otherwise, the January 11 event is open to the public for all comers. We welcome your feedback and suggestions on this important proposed initiative at the USPTO.

To sum up my comments today, the health of the patent system is an important part of a healthy innovation ecosystem. Transparency and the quality of information matters in how the markets for innovation operate and the USPTO continues to work to do our part to improve its functioning. We recognize that this system does better when we do better. We appreciate you being interested in helping us to do that. Thank you.

[APPLAUSE]

SUZANNE MUNCK: So now, if you'll bear with me for just a minute, I'm going to dial in our colleagues who were unable to make it due to the fog. We just need a couple seconds here.

[DIALING]

SUZANNE MUNCK: Tim Simcoe and Iain Cockburn will be joining us via conference.

ERICA MINTZER: OK. Great. We are just transitioning to your panel. And so our next panel is going to be a discussion on the potential efficiencies and harms from PAE activity—the effects on competition and innovation. So if our panelists could come up and get situated, and then we can kick this off. We've got Howard Shelanski of the Federal Trade Commission moderating. And making a grand entrance any minute will be Fiona Scott Morton, who also got impacted by some of the travel issues that others were.

ACADEMIC INTRODUCTION: POTENTIAL EFFICIENCIES FROM PAE ACTIVITY

- **Howard Shelanski, Director, Bureau of Economics, Federal Trade Commission**
- **Timothy Simcoe, Assistant Professor of Strategy and Innovation, School of Management, Boston University**

[Video 3 of 4, 0:20:20]

HOWARD SHELANSKI: Good afternoon and welcome to our twin panels on the efficiencies and harms of patent assertion entities. We have two wonderfully distinguished scholars who have agreed to join us today, but the fog defeated their travel plans from Boston. We need to diversify next time and make sure that we don't have both of our key speakers coming from the same city.

We have Tim Simcoe, who's going to start us off with a PowerPoint presentation that I'm assuming is in front of him. Tim, I will just let you know, or you could just tell me when you want a slide change and I will move them forward for you. And after that

we're going to hear from our distinguished panelists. And hopefully they will react to some of what Tim tells us. And I will try to direct the conversation a little bit as needed with some questions, as will my co-moderator stuck in fog coming from Hartford, but to be here soon, Fiona Scott Morton.

After we've finished with the efficiencies side of the panel, Iain Cockburn, also in Boston, will dial-in, and we'll go through his slides on potential harms for patents assertion entities and bring up our panelists to discuss those slides. So without further ado, on the phone Tim Simcoe. Tim, would you like to get started?

TIM SIMCOE: Sure. As long as everyone can hear me?

HOWARD SHELANSKI: Can people hear Tim? I'm getting lots of thumbs up, Tim. OK, so why don't you go ahead and just—we're at your title slide.

TIM SIMCOE: Great. So first let me just say thank you to everyone at the Department of Justice and Trade Commission who helped organize today and for inviting me to participate, in particularly those who set up this dial-in at the very last moment. As I sat on the runway at Logan this morning hearing many announcements about fog, I was thinking that I was sorry to miss this morning's session, which maybe dispelled some of the fog around this issue of patent assertion entities.

So I guess we can go to the second slide, which is titled "Potential Benefits of PAEs." What I've been asked to do this morning is provide a few introductory remarks on the potential benefits of patent assertion entities. And since there's a number of other panelists who'd like to speak on this topic, I'll try to keep my remarks brief. My objective is just to lay out the economic arguments, which I've divided into two broad groups.

The first set of arguments for efficiency benefits of patent assertion entities is related to the market for patents. So this you can think about as the market, where

intellectual property rights are bought, sold and licensed—the main realm of patent attorneys, and I imagine there are many there.

And then the second set of arguments is related to the market for ideas, or what some might call the market for technology. So this is the market where innovators sell or license, or otherwise transfer technology to firms that hope to commercialize it. And it's important to keep in mind that patents are only one piece of the market for technology, transactions in this market also implicate ongoing research and development, collaborations, know-how, human capital, trade secrets, specialized inputs, et cetera. Nevertheless, my comments will focus on the idea that a more efficient market for patents helps to support a more efficient market for ideas.

And after discussing the potential efficiencies of PAEs in those two related markets, I'll briefly discuss this topic that I think of as red herrings. These are common arguments that make PAEs sound potentially bad, but do not necessarily demonstrate a real inefficiency in either the market for patents or the market for technology. And, finally, before I get into the substance, let me offer one important caveat, which is that I won't present any empirical evidence on the size of the potential benefits that I discuss here, nor will I delve into the question of potential harms which has been left to Professor Cockburn in the second panel.

So if we could go to the next slide, which is entitled “Potential Market Efficiencies”—or “Patent Market Efficiencies.” In terms of the market for patents, the first economic argument for patent assertion entities is a very simple one. They may be more efficient than inventors at evaluating patents, negotiating deals or managing litigation. These kinds of efficiencies could arise through scale or through learning, through superior access to capital, if innovators are capital constrained. But none of that is really strictly speaking necessary, right? Patent assertion entities don't even need to have an absolute cost advantage in these activities. Simple economics tells us that the

only thing required to produce gains from trade is that patent assertion entities have a comparative advantage in consummating transactions in the market for patents.

To be clear, arguments based on comparative advantage don't imply that there has to be a patent sale. In principle, PAEs could contract out these kinds of evaluation, negotiation or litigation services. And that's what distinguishes the first bullet point on this slide from the second. If the gains from trade arise due to efficiencies in allocating risk across the two parties, where the risk may come from the probabilistic nature of patents, whether they're valid and or infringed, then in that case we do need a patent sale, because the patent assertion entity needs to be the residual claimant or the actual owner of the patent to bear the risk. At an intuitive level those first two points are really about allowing innovators to focus on innovation by having somebody else, the PAE, assume ancillary activities related to the patents.

And my final point on this slide about the market for patents highlights a somewhat different type of efficiency that can arise. And this kind of efficiency arises when there's externalities across transactions in the market for patents. In particular, PAEs can reduce transaction costs by assembling bundles of complimentary intellectual property rights. So, compared to a world of fragmented licensors, setting up a one-stop shop in a particular technology can reduce search and bargaining costs, and may give PAEs the incentives to price below the rate that would be charged by a collection of independent monopolists, similar to what we observe with patent pooling.

OK, next slide, please: "Idea Market Efficiencies." How might potential patent market efficiencies carry through to the market for ideas? The most obvious answer is that a thicker patent market can increase liquidity in the idea market as well. So what economists like to call "Arrow's paradox" is the idea that it's hard to sell an idea, because once I tell it to you, your incentive to pay me for it more or less disappears. Well, there are many transactions in the market for technology that don't feature this

extreme kind of hold up problem—easy to see how patents do support trade when it arises. On the other hand, for patents to work, they need to be enforceable. And patent assertion entities can help in this regard by making litigation threats credible, when an innovator is small or credit constrained.

Another benefit of a more liquid market for patents is that credit constrained innovators can convert their patents to cash more easily. This doesn't only have to take the form of sales, for example by facilitating monetization of patents, PAEs may make it easier for innovators to pledge those patents as collateral in seeking a loan, for example. And ultimately, the economic benefits of a more efficient market for patents on the efficiency of the market for ideas flows through the two channels that I refer to on this slide as corollaries. All else equal, it seems sensible to think that a more liquid market for patents increases the incentives to acquire patents, presumably through innovation. And secondly, a thicker market for patents allows greater specialization in innovation. A stylized fact or observation is that many innovative processes seem to benefit from decentralized kinds of search in invention, carried out in a wide variety of different organizational forms. PAEs can contribute to that sort of efficient division of labor.

OK, last slide. Onto “Red Herrings,” so now for the red herrings. I've observed over the last few years that there's been an evolution in terminology in this area from trolls to NPEs to PAEs. And I'm probably missing other terms and acronyms here. I think that this increasing precision is useful. But it also highlights the problem of trying to come up with a bright line type of definition here. It's probably unsatisfactory to fall back on Justice Potter's definition of pornography. “I know it, when I see it.” On the other hand, that may help us in an area, where trying to define a bright line rule is inevitably going to be problematic.

The second kind of a red herring is getting too focused on transfers. Economic models are fairly clear on the point that transfers from one party to another need not

be inefficient. Many firms may be upset if patent assertion entities change the calculus of a familiar type of bargaining game. But that's insufficient for there to be harm to competition, as opposed to a particular competitor. The burden of evidence—we need to have some kind of evidence that increasing costs are being passed through to consumers or that PAEs are actually harming competition in some way before we seriously contemplate enforcement.

Third, on the question of patent quality, we just heard from Dr. Graham that parts of the America Invents Act are designed to address perceived problems with patent quality. Patent assertion entities are presumably justified in arguing that regulating their activities is not a solution to problems with patent quality.

And finally, the last remark I'd like to make. I'd like to raise this issue of what is the appropriate benchmark for making welfare comparisons of a world with and without PAEs? My impression is that many analysts adopt a model, sometimes explicitly and sometimes tacitly, of broad cross-licensing at low or zero rates among more or less symmetric firms that are typically vertically integrated. That is they participate both in innovation and commercialization. I think this is a reasonable description of some parts of the information and communication technology sector in the recent past, but it is not the only possible equilibrium to an economic model of licensing. Nor is it clear that this is the only equilibrium we should expect going forward. Or that PAEs are a cause, as opposed to a consequence, of any shift away from such an equilibrium. And so coming up with the right definition, the right benchmark, I think, is a complicated problem that deserves further research.

So in conclusion, let me reiterate, I guess that my remarks were not meant to establish the welfare benefits of patent assertion entities. And particularly, I only looked at one half of the welfare ledger, the potential benefits. But I hope that you found these arguments thought-provoking and perhaps persuasive. And that they'll facilitate a

discussion that focuses on harms to innovation and competition, as opposed to the effect on any particular competitor. Thanks.

PANEL: POTENTIAL EFFICIENCIES FROM PAE ACTIVITY

Moderators:

- **Fiona Scott Morton, Deputy Assistant Attorney General for Economic Analysis, Antitrust Division, U.S. Department of Justice**
- **Howard Shelanski, Director, Bureau of Economics, Federal Trade Commission**

Panelists:

- **C. Graham Gerst, Partner, Global IP Law Group**
- **Ron Epstein, CEO, Epicenter IP Group LLC**
- **Anne Layne-Farrar, Vice President, Antitrust & Competition Economics Practice, Charles River Associates**
- **Adam Mossoff, Professor of Law, George Mason University**
- **Timothy Simcoe, Assistant Professor of Strategy and Innovation, School of Management, Boston University**

[Video 3 of 4, 0:32:40]

HOWARD SHELANSKI: Thanks very much, Tim. Really appreciate that. Can you hear, when I speak into this microphone?

TIM SIMCOE: Yes, I can.

HOWARD SHELANSKI: OK, good, because that way you'll be able to hear the panelists react to you. And, well, there's a certain temptation to have them react without your hearing. I think we would probably be better to have a more interactive dialogue.

Well, we do have a wonderful panel here to comment—to make a number of points on their own, and to offer some reactions to what Tim has presented. And I would like to start with Ron Epstein, the CEO of Epicenter IP Group.

RON EPSTEIN: I thought I got sat at this end so I'd be last.

HOWARD SHELANSKI: Well, I've defeated your plans by listing you first.

RON EPSTEIN: Great. Hi, everyone. My name is Ron Epstein. I run a company called Epicenter IP Group. I mostly participate as a market maker in the IP monetization marketplace. What does that mean? So we've done over \$400 million worth of patent

sales transactions and have participated in over \$1 billion worth of licensing transactions, not as an owner, but as an agent. And my background is having spent most of the first half of my career on the buy side, as I now call it, otherwise known as the "dirty rotten infringer side." First being a lawyer at Wilson Sonsini, protecting small companies from the depredations of the portfolios of large companies. Then at Intel, defending Intel's microprocessor and promoting the depredations of large companies' portfolios on small companies, and then doing the general counsel thing before starting this business up. And launching into my comments—just to give you a perspective of where I'm coming from.

I thought the professor's comments were actually very on-point and very thought provoking. He mentioned a couple of key points, and I guess I would expand and emphasize on them. The first is the canard on patent quality. I think we can all agree that a large percentage of the patent estate in the US is not of great value. To borrow a statement from a good friend of mine, Marc Kaufman at Reed Smith, over 75% of the US patent estate is abandoned by the end of the second maintenance period. So we can look at the patent holders themselves and hear this news.

The second part is that obviously within the patent prosecution process you're filing patents years before the technologies are adopted. And as a consequence you're going to guess wrong a lot. And, oh by the way—that is you're going to file patents on technology that's not ultimately adopted. And oh by the way, the debate between the inventor and the patent office is usually a debate over whether or not this patent should be issued, not a debate about whether or not this patent is enforceable. That's a different debate, happens at a different time.

The second comment I would make—to summarize, let's all agree that there are in fact great inventors out there. And every once in a while, they're lucky enough to get a good patent that's actually enforceable. So I think we can all agree on that at some

point. The second comment is on, what I like to call, the sources of innovation. And the importance and often lost aspect of the importance of innovation by observation as a primary driver in our technology industries. What do I mean by innovation by observation? Pretty simple, you guys, we're all familiar with the cell phone wars. Are each of those companies coming up with all those features by themselves, or are they looking at their neighbors' products? The day before the iPhone came out, there were cellphones, they did have Wi-Fi, they did have touch screens, there were app stores. All of that technology pre-existed the Apple iPhone. What they got to do was build a wonderful incredibly useful user interface on top of that.

But those technologies came from somewhere else, right? So where do these technologies come from? Real quickly, number one, internal R&D, by far the smallest source of innovation at large companies. We pay for that with R&D dollars, and R side of that is constantly shrinking. The second sources is your—what did you call them, the large vertical integrated companies, otherwise known as contributors—your customers, suppliers, and competitors who were spending money in the same place you are. And the third sources is from failed entrants, like universities, who, of course, are failed entrants, because they don't try to enter. But also in Silicon Valley with about 2,000 new companies started a year. And in the 25 years I've been doing this, that works out to what, 40,000 companies that have been started? If you look at the tech 1,000, the 1,000th biggest tech company makes about \$5 to \$8 million a year. So that means almost every innovator in tech—in Silicon Valley—has disappeared, either through acquisition or failure of timing on the market, or whatever.

So with that being done, it begs this question, what service does the patent system do to promoting innovation given that there is much innovation coming from this third segment, the failed entrants segment? And the importance of patents to that. But before I use up everybody's time—maybe we'll come back to that at the end.

HOWARD SHELANSKI: Great, well, thanks so much, Tim. Did you have any reaction that you wanted to offer to any of the points that Ron just raised?

TIM SIMCOE: Maybe it makes sense for me to collect comments and observations from a few of them before responding? So nothing immediately.

HOWARD SHELANSKI: OK, that would be just fine. In that case, why don't we pick up with Anne Layne-Farrar from Charles River Associates, where she is vice president for antitrust and competition economics.

ANNE LAYNE-FARRAR: OK thanks. I wanted to follow up on one of the things that Tim was saying under the red herrings column, which is that PAEs may change the rules of the bargaining game. But this in and of itself isn't evidence of antitrust harm. And I think, going back to what Ron was talking about, about the mobile wars, we see a good illustration of a lot of these issues. So if you think back to 2011, when there were a whole lot of patent auctions, patent acquisitions, and think about who was putting those patents up for sale and up for auction, I think we see examples of all of the PAE types of acquisitions that we've heard about thus far today.

So first you had some firms that were filing for bankruptcy, like Nortel. You had some firms that were exiting a particular market niche that was no longer profitable, like Motorola Mobility. And yet other firms like Nokia, where they were trying to monetize and sort of keep their portfolios fresh. So those illustrate some of the potential benefits then from the PAE model, first being exit value, to the extent that you have more assets to sell after you've had a failed entry attempt. That's going to reduce the risk of entering in the first place. That makes entry more likely. And it also makes it easier to get funding for entry, if the funders think you've got some assets, that I'm going to get something out of, if you fall flat on your face. And giving the high odds of falling flat on your face, that's a good thing.

In terms of the getting rid of or shedding divisions or business practices that are no longer profitable for you, this can also be highly competitive enhancing competition, because it helps firms remain flexible. So I may not be able to earn a reasonable profit on these particular assets anymore, but that doesn't mean somebody else can't. And if I just let them lie fallow, as opposed to turning them back into the marketplace, not only do the remaining players not benefit then, but I also lose the source of revenue that could be funding my entry into other divisions or helping me survive elsewhere in keeping me overall healthy and profitable and, therefore, competitive. So I think it's important to step back and remember that, yes, the mobile patent wars and all of these patent acquisitions have a downside, in that there's a lot of litigation, there's some good things underlying this too that sort of emphasizes the positive role that PAEs can play. I think you can see this as well on the other side.

So we just talked a minute about who was putting these patents up for sale and where the patents were sourcing. But look at who purchased a lot of them. I know that at the initial auctions there was a huge fear that it was going to be PAEs who were buying Nortel and the Novell patents. But it ended up, instead, being new entrants into the mobile space. So it was Apple and Google with Android, and Microsoft. These are big well-funded firms, but firms that were not participating in the original standard development efforts for the mobile phones. There were big incumbent players, already in place.

We heard from them on one of the panels earlier, Research in Motion with BlackBerries. They were huge. And these firms were able to enter this market and do so—certainly in Apple's case and in Android's case—in a highly successful way, in part, because of the market for patents. They could enter the downstream market without having to do a whole ton of their own, instead acquiring a lot of the patent assets that they needed to flesh out their entry strategy.

So again, I think we need to keep in mind that it's not all about the litigation aspect, that they're sort of good and bad involved in some of these things. Which I think then says that our panel is going to be hard-pressed to focus only on the potential benefits and the later one only on potential harms. These really are two sides of the same coin. They're all mixed up together. And you're going to have to accept some good with some bad. And then the question is, what's the ultimate trade off? What's the weight? And I think that goes then to the comments that Carl gave this morning about how much is lost in the bucket and what's the end calculus.

HOWARD SHELANSKI: OK, thanks. Thanks very much, Anne. I think I will have some follow-up questions on some of the points you've made. But I want to hear from the rest of the panelists first. So with that, we'll turn to Professor Adam Mossoff, who's come over to join us from George Mason. Adam.

ADAM MOSSOFF: Thank you. I'm happy to be here, even though I'm not an economist, nor do I play one on TV. I'm actually someone who is a tech geek in my background and which is what got me into patent law. I since have been doing a lot of historical research actually on the American patent system, and actually focusing a lot on past patent wars and the aspects of licensing that have made the American patent system historically so unique and successful.

And I think it's important to recognize that the patent system has been recognized as promoting dynamic efficiency. It promotes dynamic efficiency in two very important ways. In the first, of course, is by promoting new inventions. That's the one most people think of. But the other one, and it's just as equally important, is promoting commercialization of those new inventions, turning inventions into usable technology, usable innovation that people benefit from in society.

Now, in evaluating these two aspects of the patent system, I think it's really important that our evaluation and our assessments be data driven, not rhetoric driven.

Now, the reason why I'm emphasizing this is because, like my other co-panelists and others have noted, I do not like the acronym "patent assertion entity," as it has evolved over the years from patent troll and what not. This is rhetoric. We should really identify these entities for what they do, which is a licensing model. That's what they engage in. No firm wants to be in litigation. They sue when firms do not enter into licensing agreements with them, or they have difficulty getting their attention to try and enter into licensing agreement with them. Of course, there's always some bad actors, obviously in every system. But the majority of these people exploit the benefits of patent licensing to bring innovation to the consumers.

Now, in this respect I think there's three important points that I would like to make. The first is that we should recognize that, as a historical matter, there has always been a secondary market in patents in the United States. Patents have always been traded. In fact, this was the unique American approach. We broke with England. We created a new patent system. We recognized what it meant to secure your patents as property rights. Property rights are commercializable, they are tradable. You can convey them to other people, you don't just have to manufacture. And this is exactly what early American patent owners did.

Just a couple quick examples from the subject that I know well, which is I'm known for researching the patent war of the sewing machine, which was called in the 1850s "the sewing machine war." There's a lot of similar parallels to our current so-called "smartphone war."

One of the early patent owners in sewing—one of the element of the sewing machine—John Bradshaw, transferred his patent actually to A.P. Kline and Edward Lee. Edward Lee then a year later threatened another patent owner, Allen Wilson, for violating their patent. And, as a result of this threat from Kline and Lee, Wilson settled the lawsuit by transferring his patent to Kline and Lee. So the patent, which was a

commodity, which was a valuable asset, he transferred to them as a way of settling this lawsuit. Wilson then went on to come up with a bunch of other patented innovations in technology markets. Also John Bachelder came up with a particular patent on some components for the sewing machine in 1849 and transferred those to Isaac Singer, very many people know from the Singer sewing machine. So those are just a few examples of what was a very active prominent secondary market in patents, even in the early years of this country in the 1840's and 1830's.

In fact, one of my favorite classified ads from the back of a Scientific American. I think it was 1845. Someone was offering to sell a patent on a new type of engine, called a Dynamo at that time, because they wanted to build a gate, a new gate for their fence. He said, I'll trade you my patent on this engine, if you give me a gate.

So now, why is this important? Well, I think it's important to recognize, because—this is my second point—aggregation is good. Aggregation represents the division of labor and specialization in our society, broadly even beyond the patent context. This is corporate law, corporations are aggregations of property and contracts. But even within patents, we've seen aggregation over the years. The formation of the very first patent pool in US history was the sewing machine combination of 1856, which was the solution to the sewing machine war of the 1850s. And even more broadly what we know today now is aggregation is good, because we all benefit from it, because there's an aggregation of research and development.

So there's been creation of firms like 3M. And, of course, Thomas Edison's Menlo Park, which were invention factories, aggregation of inventors. And, of course, most modern corporations have research and development departments, which are aggregation of inventors. And so, obviously, aggregation of inventors has produced massive amounts of efficiencies in the creation of new inventions. And we should expect and have seen aggregation of commercialization on the back end as well.

And so it's little surprise that taking advantage of modern developments in corporate form—they didn't have corporations the way we now have them in the early 19th century. Taking developments of modern technology—email and all the wonderful ways that we can communicate. And taking developments in market innovations, a new financing mechanism, what not. We have seen the development on the commercialization side of patents, aggregation of patents for purposes of deployment aggregation. Taking advantage of the exact same division of labor and specializations that have made the creation of inventions possible, we now have seen it being deployed on the commercialization and development of new technology. And, ultimately, innovation. Thank you.

HOWARD SHELANSKI: Thanks very much Adam. Very interesting. I'd like to turn next to C. Graham Gerst, who is a partner in the Global IP—or a member of the Global IP Law Group and get your reaction.

C. GRAHAM GERST: Yes. So just a quick background on our firm. We were formed about four years ago. Early on we got engaged by Nortel Networks to help them with their patent—really to figure out what to do with this treasure trove of patents they had. And we ran that monetization process to conclusion last summer.

My background, my personal background is primarily in the area of patent litigation. I spent some time at the Justice Department as well as handling IP and technology-related national security type issues. I was one of the original partners of Global IP. And the focus of the firm is on patent monetization through sales, licensing and litigation. But our real focus has been in the sales area. And that's what I want to talk about a little bit here today in terms of establishing efficiencies from PAE activity. And the biggest point I want to emphasize is something that a number of speakers have spoken about today. And I know there's been some questions about it. But it's the

question about whether or not the money through PAE activity actually does go to innovators.

And I deal with innovators and innovative companies every day. And I can assure you that the money does go to them, and it goes to funding further innovation. Let me just bring up a couple of examples of—one from a transaction that I recently concluded and another that's currently in process, both involving PAEs. The first was on behalf of a public company that was really one of the seminal developers of DSL technology, which is a pretty important technology that a lot of us use in our homes every day. This company had actually developed the largest single collection of DSL standards essential patents that existed in any one place through actually being the innovators that developed this technology. When the service providers were trying to develop DSL to allow communication using old phone lines for dial-up communication, they didn't want to spend the money on R&D. So they convened these meetings with a lot of smaller companies and asked them to develop the technology. And this company was one of those that really played a role in developing that technology.

Ultimately, the business has shifted, and they're moving into a different area, a different business area. And they had this giant trove of patents. And they wanted to try and get some return on that investment. So they ended up selling that patent portfolio this past summer. And that money has gone in some part to the investors in the company, investors who see potential in innovation and then recirculate that money into other innovative companies. And also to that company itself, which was able to dedicate some of those additional resources to its ongoing businesses.

The other transaction that I'll refer to is—at least I hope it ends up being a transaction—is on behalf of a portfolio company for a very large, well-respected private equity fund. It funded a small company that had some really innovative ideas, made a go of it, but was unable to compete against the larger handset companies. But they came

up with some interesting intellectual property. The company is now, essentially, in kind of a sell-off mode. And we are trying to sell that company's patent portfolio. And I expect, given the nature of the portfolio, it will end up in the hands of non-practicing entity. But that money is going to go to ultimately this private equity fund, which will then subsequently go and invest in future technology companies. So there is a real efficiency there in encouraging future innovation.

Now, one of the questions that was raised earlier today about whether or not enough of the money goes to the innovators and inventors. And what I can tell you is, if there weren't these PAEs out there, these innovators and inventors would not get anything. If your problem is they're not getting enough money, your problem is with the transaction costs of the US legal system. And that is something that's inherent in the US legal system. We have the largest most expensive legal system in this country. That's the problem, but that's not an issue that we're really talking about here today.

And the other thing that I would say is, part of the reason why the transaction costs are so high is by activity by the large practicing entities, which absolutely refuse to negotiate with small tech companies, small individual inventors, over licenses. One of the panelists earlier today said that that panelist's company absolutely respects intellectual property rights. But I can tell you that that company absolutely refuses—even when we make selling-type approaches, no assertion or anything—would you like to buy this portfolio? They refuse to take a look at it. And that's not uncommon. So these companies out there refuse to talk to anyone, unless they're sued. Somebody prominent from Microsoft several years ago at a panel said, look, don't talk to us. If you want any real money, you've got to sue us. That is part of why the transaction costs are so high.

HOWARD SHELANSKI: Thanks very much, Graham. Tim, do you have some reactions at this point that you would like to offer to what you've heard across our panel?

TIM SIMCOE: Sure. Just let me try to make two comments that tie together a few ideas that I've heard from the panel, and then throw out a question that people can maybe respond to or maybe not. So, in terms of comments, I liked Adam's point about the importance of data and empirical evidence in this entire debate. And I was thinking about that. And putting that up against the list that Ron gave us about where innovations come from and sort of the relative proportion that come from internal R&D and tech innovators and failed entrants. It wasn't obvious to me that we know what those percentages are. And so my first comment is sort of an empirical *mea culpa* from somebody who works in innovation economics. And just a note that in the whole debate we need to be careful about equating patents to innovations. The two are pretty different. But in the area that I research, we often do that, because patents are easy to count and innovations are really hard to count.

The second comment is a reaction to Anne, who noted correctly, I think, that it's hard to separate these two sides. So this exercise, I think, is intellectually useful, the exercise of separating out the potential benefits from the potential harms, but they're closely interrelated. So at the risk of undermining Iain—since standards essential patents came up a few times, I have to say that one of my worries about PAEs is that some of the gains from trade may come from undoing things like FRAND commitments.

And then, lastly, let me put my question out there. Maybe the panelists will agree with this assertion or maybe they won't, but I think it's often useful to view litigation as basically an indicator of uncertainty. And I have seen empirical evidence that assertion entities hold many unusually highly litigated patents. And so my question to people who are out there doing this sort of licensing and litigation is, what do they

see as the fundamental source or nature of the underlying uncertainty, if the assertion that litigation is really about uncertainty is right.

RON EPSTEIN: Well, can I take a shot at that?

HOWARD SHELANSKI: Yeah, sure, go ahead, Ron.

RON EPSTEIN: I'm going to first say that I completely disagree that litigation is a sign of uncertainty in this marketplace. It's not. It's the marketing program of the licensing business. Or let me put it a different way. I've been doing licensing for 23 years, and let me give you my "hyper oversimplified and yet still covers 97% of the transactions I've seen in my career" model.

There are three segments in the licensing model. The first segment I call the early adopters segment. This is the—I can't remember the Latin word *ex pre* or—part of the market. This is when a technology is first been developed. The potential licensee knows who the inventor is, is making a decision about whether or not they're going to adopt that technology by deciding whether or not they're going to take a license from that inventor. It's in those situations where you tend to see whole integer royalties negotiated. Their alternative is not to do the technology and do someone else's. And why are they looking to use that technology? Two simple reasons. Number one, price elasticity. And number two, market share, right? So they see, I'm going to pay you money in return for this technology, because I'm going to get better pricing or market share. At best, in a licensing market, one to three players take licenses in their category. At best.

The second category, which often disappears in licensing marketplaces, is what we like to call the ethical adopters. These are the folks who were saying, well my competitors have adopted this technology, and I can't make any more money by having it. And I can't gain any market share by having it, but I can sure as heck stop losing market share and maintain my prices if I have that product line. But I'm reasonably

ethical. I know who the inventor is. This is very true in standards licensing, by the way. I know who the inventor is, and I'm willing to negotiate a license. But that license is going to be at a much cheaper price than whole integer royalties. It's going to be a fraction of an integer royalty, and it will usually ultimately end up being summed up into a single lump sum payment of some kind. That's maybe 10% to 20% of the licensing market.

The final portion, which is somewhere between 75% and 100%, depending on how fundamental the technology is. That is the more fundamental, the more likely this is to be 100%, is what I call everybody else. We can come up with epithets like troll later to apply to this marketplace, but here's the fundamental economic transaction. I never heard of the inventor and I don't know where this innovation comes from, and I don't care where this innovation comes from. My competitors have this feature, I'm putting it in my product. And the financial transaction in that situation is the licensee saying to the licensor, you want me to pay a royalty, you and what army?

So where does litigation fit into this? It is not a sign of uncertainty. It is the marketing plan. It is because the licensee's in this third market, otherwise known as the everyone else market, aren't taking a license, unless you bring an army to the table the force them to do it. So why do the PAEs exist? Because the cost of entry at that market as much as I've heard—and I've spent most of my career on the defense side—as much as I've heard of how expensive it is to do the defense side, let me tell you, costs just as much, if not more, on the other side. And they have to find financing to go after that.

PAEs are simply arbitragers. They are simply an arbitrage. In every market I'm aware of, there is an arbitrage. It's not shocking that these patents that are worth more than nothing, for which the patent owners were getting nothing, an arbitrage showed up. It's not shocking. And that's really the service at play.

ADAM MOSSOFF: Litigation can be the result of a well-functioning market. Litigation can be the result of a legal uncertainty. But when you see high litigation rates,

you don't know which is the cause. You can't just say there's a high amount of litigations, so therefore this is legal uncertainty or these are bad patents. You have to get into the data.

But it's interesting to note, just as a general point, that we hear a lot about, oh, litigation today is so horrible, so horrible, so horrible. Average patent litigation rates—not a lot of people know this—are around 1.5%. Do you know what the average patent litigation rates were between 1790 and 1860? 1.65%.

FIONA SCOTT MORTON: There's a different base.

ADAM MOSSOFF: Well, these are normalized against the number of issuing patent, right? But that's your baseline, right? They're not just adding up. But that's an important difference. That's an important difference. So yeah, you're right. If you normalize for patent litigation rates. So—

HOWARD SHELANSKI: But not for patent quality.

ADAM MOSSOFF: Well, but see, no one can even agree on what's the standards for patent quality. Now—

HOWARD SHELANSKI: I think it might have changed in 200 years.

ADAM MOSSOFF: Well, people think. But, again, what's the data on that? People think, people have intuitions, but there's no real data. Now, interestingly enough, patent litigation rates didn't stay at 1.65% every decade, they fluctuated substantially in the first 60 years of the US patent system. And in the decade that they skyrocketed, from 1840 to 1849, it went to 3.6%. Now, the only significant change or the thing that people were litigating over—actually, I've read every patent decision in the 19th century, I have to confess. There's about 1,400 of them in the extended court reporters—is the 1836 Patent Act. Now, that's an example of legal uncertainty causing litigation, because there were a lot of new provisions in the 1836 Patent Act. People were litigating over them to resolve it and things of that sort.

Litigation rates then collapsed in the 1850s again, even during the sewing machine war, when there was massive amounts of litigation at that time. And the sewing machine war really did have all of the attributes that we now associate with the smartphone war. Lawsuits in multiple jurisdictions, defendants and plaintiffs both being both defendants and plaintiffs in multiple different lawsuits. Complaints of excessive cost. I mean, this is a time period before typewriters, before computers, telephones. Elias Howe had to risk his life and limb to go to Isaac Singer to ask for a license, you talk about manufactures rejecting license offers, he had to go and visit him personally. Isaac Singer tried to kill him. And he went twice.

C. GRAHAM GERST: It's not that bad anymore.

ADAM MOSSOFF: Yes, today you get a hotly worded email or FedEx letter in response. And Elias Howe then was so destitute that he had to sell security interest in his patent in order to bring his lawsuit. He's one of the very first users of third-party financing, as well as selling a security interest in his patent. Now, was it efficient for him to be the one bringing a lawsuit? Or should he have turned it over to someone who actually had the capabilities and benefits to do it better?

FIONA SCOTT MORTON: I'd like to just ask a question to the panel. My name is Fiona Scott Morton. I'm the Deputy for Economics at the Justice Department. And I spent a delightful six hours in Bradley Airport this morning. I look forward to hearing about this morning and I'm sure it was better than the airport entertainment. But what I'm hearing a little bit here is a call for empirical work. And a couple of points that came up on the panel, I think, were asserted without really us having the data to do that.

So, for example, do patent assertion entities aggregate or do they disaggregate? We can think of it either way. They're aggregating, if they're buying up each individual inventor's patents. But they're disaggregating, if they're buying Nokia's patent portfolio

and splitting it up. I think that in terms of value weighted, we might want to know the answer to that.

I also think in terms of stimulating innovation. Well, it's true that the bondholders of Nortel did fantastically well out of this. Was that really what caused Nortel to be founded in the first place? Did the founders of Nortel think for themselves, some day in 25 years, when we go bankrupt, our bondholders are going to get a lot of money. And that's why everyone should invest in us. So there's some scenarios, where you can see, like the small Silicon Valley guy, who maybe can sell out or get venture capital funding because he's got a couple of patents. And there are others, where we think probably that that was not really a motivation. And we should be able to look at these markets and try to measure that.

C. GRAHAM GERST: But the motivation is the value in innovation. We have the most innovative economy in the world. And we also have the most robust patent enforcement system in the world. And perhaps there's some link between those two things. This notion about regulating and getting involved in the regulation of this market, when the data that we have—several panels have noted that we have a real dearth of data here—and the data we do have is pretty suspect from what I've seen today. So to jump in and try to regulate a very complex ecosystem that is not fully understood and is also one that's evolving very rapidly. The marketplace today, both for enforcement and for transactional work, is very different today than it was 16 months ago. And so to try and gather empirical data, it's always going to be lagging. So we run the risk, if we start regulating without the right analysis behind it, to doing some real national harm. At a time when the rest of the world is trying to bolster their patent systems, we are engaged in a process where we're weakening ours, which may not make a lot of sense.

ANNE LAYNE-FARRAR: If I could just add a little bit to that. So I think the other side of the Nortel thing is who got the patents? And you may say, well, they only got them for litigation, and litigation is bad. But that brings us to the question of how much litigation is needed in order to have a real meaningful patent? It's a right to exclude. If the other side knows you can't enforce it all, of course, it's worthless. So there's some amount of litigation that has to go on in order to make this a meaningful right. But what is that amount? And I don't think we really know the proper benchmark or counterfactual for that. And so in the meantime, while we are trying to collect this data and figure that question out, it can be quite useful to entrance to a market to say, OK, I don't have to do all these patents myself, let me buy some. And then I'm on equal footing, at least in the litigation that I have to face.

RON EPSTEIN: Can I add two questions to the questions you're going to look at empirically? One is what is the correlation between highly innovative markets and lots of patent litigation? I would argue that the highest areas of patent litigation right now are mobile telephones—or mobile computers I guess we're now calling them—television sets, retail models, retail-like internet commerce. Wow, that sounds like the same three markets we think are moving incredibly surprisingly fast. I don't know about you guys, but I seem to get the need to buy a new TV every three or four years, because they change so much and they're innovating so fast. And we all know that's true for handsets. So one question I think is, is this whole debate a canard? Is it in fact—is this patent assertion litigation in fact negatively affecting speed of innovation in the markets where there's an awful lot of litigation? I'm not sure I've seen a lot of work on that.

And secondly, one might look and see how seriously this problem is really being addressed from a business perspective before government regulation starts. For example, when I had a survey of chief IP counsels and I asked them, how much money are they spending on patent prosecution for each head that they have internally

managing patent prosecution? The answer is around two million plus or minus. That means for every two million they're spending on that, they have a head managing that. How about for patent litigation? Turned out to be closer to 20 to 30 million. So here's my question, they're spending 20 to 30 million on patent litigation for every person they have managing patent litigation. Obviously, lower in some places and higher in others.

Well, that begs an awfully interesting empirical question, is this even—has this yet been embodied within the economic model? That is, knowing that innovation is coming from outside, people like failed entrants and people like your competitors. Are you devoting the adequate resources to determine the value of that thing prior to litigation being filed? My experience is no. You have to file litigation just to get high enough on the list to get intelligence applied to the patent debate. That is, in-house counsel are awfully hard working people, and they're usually way understaffed. And is there even organizational structural elements that are hidden behind this debate on litigation?

HOWARD SHELANSKI: I'd like to follow up with a question that I think picks up on a couple of the themes that have been raised. One thing I would just note on the empirical questions you just raised, Ron, is that there is a big counterfactual that would not be picked up in any data. And I think this hearkens back to some of the things Stuart Graham raised in his talk, but to the extent that there are people who think that there is too much uncertainty, too much of a mine field out there. Small innovators going forward, not being able to discover what is protected by a patent. And if so, who owns that patent and who to talk to. It would be very hard to pick that up in sort of any empirical analysis of the type that you suggest. So it's just something we need to keep in mind as we do that analysis. I don't think you'd disagree.

RON EPSTEIN: I don't disagree at all.

HOWARD SHELANSKI: But it does make it quite unclear what the results would be. We're hearing a couple of different themes. And one thing that I think, Graham you've probably pushed most forcefully on this panel, is the notion that an entity that at the end of the day is there to monetize patents that a failed entrant, a firm, somebody has lying around, is providing a very valuable function. And I think actually the emphasis on pass-through to future innovation may be—we shouldn't go too far in doing that as the only value. You may actually incent innovation today, just by letting people know that, even if I can't reduce this to practice, even if I can't sell this in the first stage of the market that Ron alluded to, there is going to be some entity out there that may help me monetize this.

So I could see how there's some real benefits to innovation there, but, of course, lots of questions in then, what the assertion entity subsequently does with the patents. And I think there is a big difference in whether they're aggregating or disaggregating. Carl Shapiro made that point, I think, this morning, where you can start to have real problems when you have to subsequently license each small tranche of what you need to go forward with innovation. It can really add to the cost. While I think there are clearly some benefits, a lot will depend on what the actual business model is, and the actual practices are.

Going to a point that Anne made. You painted a very rosy picture of some—

ANNE LAYNE-FARRAR: Which you asked me to do. I'm on the potential benefits panel.

HOWARD SHELANSKI: That's true. Thank you for presenting the very rosy picture of acquisitions of large sets of standard essential patents. And you've painted Apple and Google as humble entrants who—

ANNE LAYNE-FARRAR: Not humble, but entrants.

HOWARD SHELANSKI: But entrants who've gone forward, acquired these patents, and used them to enter very successfully. And there's a huge payoff to that. There is also a cost to that, and the cost is that when you take the standard essential patents from entities that maybe weren't going to practice them, or were not going to enter, or say, to produce a smartphone, and then transfer them to somebody who has this downstream competitive interest, you make a shift in incentives for licensing those standard essential patents.

So before the transfer, fine, we'll license them on FRAND terms. We don't have a horse in the downstream race. Now you transfer them to that entity, which finds them most monetizeable. This big powerful entrant, like an Apple or a Google. And it's great they use them to enter, they can really get a lot of value out of them. But their incentives for follow-on licensing, for licensing to potential rivals, are much less. So there's a tradeoff there.

Now, we're not talking about these firms that are acquiring large patent portfolios. We're talking about patent assertion entities. And I guess the question I have is, should we think very differently about pure patent asserts from the entities? And those that are somewhat hybrid in form, and are connected to firms that are also participants in certain downstream markets, for which their patents will need to be licensed to a real new entrant?

ANNE LAYNE-FARRAR: Well, yes and no. And I would say both because one, I think to go back to some of the points that were made this morning—which was very good, by the way, Fiona—it's really not a business model that we're upset about. I mean, aggressive litigation, seeking to foreclose, excessive royalties, non-FRAND licensing on SEPs, that can be done by anybody who's got a patent, whatever their business model is.

So I understand the need to make these distinctions between a pure PAE and a hybrid, and a vertically integrated firm and such. But it worries me to think in policy terms in those buckets, because, what I think we should be focused on, is not the business model, but rather the conduct. And what conduct do we have problems with? And how can we stop that anti-competitive conduct without squelching different business models that are going to have upsides, as well as downsides and might lead to other kinds of innovations? So that's that. I think we need to be careful of that.

FIONA SCOTT MORTON: But just remember that a business model means there's an incentive. And an incentive means you get conduct. So these things are not—a business model and conduct are not unrelated.

ANNE LAYNE-FARRAR: No, but I think there's incentives to foreclose rivals or to gain excessive royalties, whether I'm practicing or not practicing. And in fact, some kinds of bad conduct, like the foreclosure, is higher with vertically integrated firms than it is with the non-practicing entities, because they want the royalties.

FIONA SCOTT MORTON: Yeah, one of the things that no one on the panel has said, but I think makes a nice summary of some of this discussion is that PAEs are neutral. That meaning in the sense of, if there's a market out there with four widgets competing with each other, the PAE wants dollars, and doesn't really want a particular widget to win.

C. GRAHAM GERST: Sure enough.

ANNE LAYNE-FARRAR: And in that sense they can expand the market, because they're trying to license everybody.

ADAM MOSSOFF: But that was exactly Elias Howe's role in the sewing machine combination. He was the only non-practicing entity—I always come back to sewing machines. I am the sewing machine guy—and he actually got the sewing machine combination to agree to a minimum of 25 licenses a year, because he made all of his

money from licensing. He didn't manufacture. And he was in—my concern here is that how people have defined a patent assertion entity. He would fall under that. Because he came back from England after trying unsuccessfully to commercialize his patent in England and found a lot of people infringing his patent. And went to them and said, you're infringing my patent on the lock stitch. And they said, sue me. And so he had to sue them in order to enter into his licenses.

And he started the sewing machine war. But he also was key to the sewing machine combination being very successful and a lot of extensive dynamic commercial innovation that came out of it.

HOWARD SHELANSKI: Well, thanks so much. I want to give Graham and Ron, if you want, to take a very brief last word. And then we'll transition to our harms panel, because I think we're starting to move over to a bit of that focus here.

C. GRAHAM GERST: The only other thing that I would say, one efficiency that we haven't talked about—market efficiency—is the fact that a patent—even inside the FRAND patents. Patents that are non-FRAND, a practicing entity today can get an injunction and preclude others from the marketplace, whereas a non-practicing entity, unless one goes to ITC, which is a fairly rare occurrence, cannot.

And so to the extent that you do you want a more vibrant marketplace, there's some reason, perhaps, to allow assertions by non-practicing entities, because if those patents are used by practicing entities, they can make the whole marketplace a lot less competitive. And I mean, if you read Judge Posner's opinion in the Motorola-Apple case, the concern there is about injunctions. He was sort of hoping that the parties would just come to some sort of monetary resolution, which is what non-practicing entities are seeking to do. Whereas the parties are kind of at each other's throats, because they want to exclude each other from the market.

RON EPSTEIN: I guess my final comment is I think PAEs exist as a necessary arbitrage in this market, given the costs involved. I don't know that it's inherently evil for someone who did not draft the patent or invent the invention to enforce the patents, otherwise how would large corporate assignees have any more right than the other individual companies? But I think it begs ultimately the question of what is the value of the patent system, vis-a-vis innovation? That is, is it an incentive of innovation?

Every patent inventor that has come to me and asked me to sell their patents—and I'm sure this experience has come to you as well—had spent the work, filed the patent for a reason, typically, which was they had dreams of riches. So everybody files these, especially the individual inventors, which are roughly 50% of the patent estate. Especially the individual inventors choose not to buy a new car, choose not to remodel the kitchen and spend that \$25,000 to \$100,000 on a patent portfolio, because they have dreams of riches. And the PAEs provide liquidity in an otherwise illiquid market. And, ultimately, is this valuable?

I like to use the analogy of the X Prize. How many of you are all familiar with the X Prize? I keep mentioning it, and people ask me what it is. Well, the X Prize is this organization that gives out these rewards. Like \$10 million to the first company that successfully launches a private space vehicle twice in a week. They gave away 10 million. It ended up generating \$100 million in investment in space vehicles across 10 teams, right? NFL, so 200,000 guys go out to play some form of college football, and every year 250 of them make it to the NFL. Every year 80,000 women participate in competitive gymnastics. Every four years five of them make it to the Olympics, right? It's not a question of optimizing each individual transaction, but rather a systemic question, which is, does this liquid market ultimately provide an incentive to innovation? And I think it does, as the thing that holds out all these people trying to continue to invent.

HOWARD SHELANSKI: OK, well now for the counterpoint. I'd like to thank our current panelists and invite up the harms panel.

[APPLAUSE]

ACADEMIC INTRODUCTION: POTENTIAL HARMS FROM PAE ACTIVITY

- **Iain Cockburn, Richard C. Shipley Professor in the Strategy and Innovation Department, School of Management, Boston University**

[Video 3 of 4, 1:22:30]

HOWARD SHELANSKI: OK, if we could bring everybody back in, so that we could continue with the panel and try to stay reasonably on schedule. OK, so the last panel focused on efficiencies of patent assertion entities. This half of the panel will, in our somewhat artificial way, now focus on some of the costs of potential harms of PAEs. And to kick us off with this discussion, we are fortunate to have Iain Cockburn, who is a professor of economics and finance at Boston University. And, Iain, your cover slide is up. The floor is yours. And just tell me when you need to be advanced.

IAIN COCKBURN: Great. Thank you. Apologies for not being there in person. We did see the educational spectacle of our junior senator from Massachusetts trying to use his senatorial privilege to get the airlines working this morning. But, apparently, Senator Brown was unable to do that. We exhausted our stock of puns about lame ducks and then flying and so forth in the course of the lengthy wait. Though I'm pleased to see that Fiona managed to get through this. And we can draw our own inferences about the executive branch versus the legislature from that.

I will try and go through fairly quickly here a list, of what I believe, of potential costs imposed by patent assertion entities, or at least categories of costs, where I think there's a good economic argument to suggest that these may exist and may be significant. I'll echo other participants' remarks that I think this is both something, where, I think, evidence is in the process of being accumulated. And also it can be very difficult, I think, in practice to tease out what we actually care about, which is the net

impact of PAE activity on innovation and competition. So I'll cover four categories. If you could go to the next slide. And try to do so relatively expeditiously and not to steal too much thunder from the other participants.

So we go to the next slide, overcompensation. Now, this has been much discussed since Mark Lemley and Carl Shapiro and others started writing down models which would demonstrate the nature of a PAE, maybe such from this activity, maybe such that the kinds of awards given through litigation, or the threat of litigation, maybe, in some sense, too high, relative to some benchmark we may care about. Why should we worry about systematic overcompensation if indeed it is large and pervasive? Well, one thing is that the royalty rates generated through litigation or negotiation about the prices in the market for technology. And if that's some institutional set-up, which results in these prices being wrong, then, from an economic perspective, we're likely to see misallocation of R&D, which responds to these price signals.

Another way in which royalties or settlements or so forth being too high may matter, is the extent to which they pass through into end-user prices and welfare losses to consumers—generate a familiar kind of distortions we're familiar with in terms of the double or treble marginalizations, as we look at the value chain of an industry. And thirdly, I think that's at least a possibility that the pricing going wrong in this market is going to somehow skew perceived risk reward to innovators and, therefore, affect the pace of innovation.

Go to the next slide. That last point, I think, bleeds through into the question of what I'm calling here “resource diversion.” As we often tend to think about innovation competition as taking place between horizontal competitors, and worry a bit about the transfer of economic rents between these innovators, as was pointed out by Tim earlier, I think here we're probably not *prima facie* worried about the impact of this. Whereas I think we may be concerned about the transfer of money between innovators and PAEs,

is if this results in large amounts of resources exiting circulation from within the innovation economy. So these are payouts going to investments in PAEs, which are not finding their way back into investment in R&D. We probably believe there's likely to be some impact, potentially large over the long-term, on resources going into innovating of new products and services. And that's probably something we care quite a lot about.

Another thing which PAE entity may do is just raise the level of litigation activity, which generates unavoidable costs. And to the extent that these are not associated with productive activity, this is the kind of thing which economists have historically worried a great deal about. I don't know how much the equilibrium level of litigation is raised by the PAE business model. I know people have started trying to tabulate these costs. But I think it's, again, another potentially important category.

Third point here is one which, again, bears some thought, which is where the opportunity costs of the talent and money, and resources that are soaked up by PAEs in the course of their business. If these technologists or patent lawyers, or other people involved in the process, could be working directly on innovation, rather than on assessing the value of these assets. That might be something that is a concern. Dr. Graham probably knows better than me, but I think there's at least the potential that people discover these arbitrage opportunities in creating patent rights without any real intent to commercialize them. We saw these bursts of this during hiccups like the business method patent explosion following State Street.

And it may be that the PTO is being unnecessarily burdened with people rushing out, cracking open a microeconomics textbook and then filing dozens and dozens and dozens of patent applications on well understood principles, except for a web browser. Now we've moved on from that, but I suspect that the vigilance and incentives of the PAEs may lead them to be looking for these wrinkles in a way, which is not helpful to the PTO or helpful to the system.

The final category of diverted resources, which I think is worth thinking about, are the kinds of responses that a high level of PAE activity, might induce in terms of the people who are innovators, or producers of innovative products. That is to say the prospect of hold-up in the future, or having to deal with sophisticated and effective assertion entities, I think it's quite conceivable this will lead people to abandon projects some way down the line. Then they'll realize, well, this is more trouble than it's worth to try to pursue this in the face of anticipated and vigorous assertion of rights, which weren't clear to this entity when it began spending money on R&D. So that they abandon projects or diversion of innovative effort into solutions, which are second best but are believed to be not vulnerable to exposed hold-up.

That may be the case that companies or institutions who believe themselves to be particularly vulnerable to PAEs, may spend money, which has scarce resources, on acquiring large amounts of IP, which are not central to what they're doing. They don't believe they are particularly helping them, but are there to stop them from falling into the hands of PAEs.

Let's go to the next slide. I've titled this "Unpooling." I think it's an ungainly term. What I'm referring to here is the challenges that are created when we think about large portfolios of patents or other kinds of IP, which are strongly complementary in the sense that it is very difficult to tease out the value of any individual component or subset, or sub-portfolio. Within the world of innovators and producers, I think that industry practice has been to take these portfolios and think about them in terms of a specific technology in a specific product and to license or price the portfolio on that basis.

An entity which is purely focused on maximizing now the value of this IP and trying to capture it, it may go through this unbundling exercise. So rather than licensing 1,000 patents for x%, you may try to turn that into five portfolios of 200 patents, each of which is attracting a similar royalty. You can see these paradoxes can arise very easily,

where the value of a portfolio as a whole doesn't easily separate into the value of its components. I think that is one of the phenomenon potentially underlying systematic overcompensation.

We'll go to the last slide in my deck. Here I listed out where I think there are potentially deleterious impacts on the competitive process and the pace of innovation. So one thing we see in many industries is a truce between major innovators and R&D spenders. The threat of entering into mutually assured destruction types of suits and cross-suits over intellectual properties, one of the things which, I think, leads to the pervasive phenomenon, at least historically, of large scale cross-licenses. Now, to the extent that these are socially efficient, or are better than alternatives we can think of, the appearance of new entities who don't play by the rules, have different cost-benefit calculus, may start to break apart this delicate balance and result in not just the litigation or enforcement activity of the PAE, but result in this collapse of detente, if you like, between existing parties.

I suppose, at least in principle, you could imagine a very well-funded and very vigorous entity managing to accumulate enough intellectual property to have a dominant position and significant market power within the market for IP. I don't know that I've seen that jump out at me, at least in the industries or cases that I've looked at. But I suppose it's at least possible. And we may care about monopolization of upstream intellectual property. I suspect this may be a topic for discussion in the next panel, where, no doubt, they'll be some reflection on the guidelines for antitrust and licensing.

Another antitrust type issue—and I don't want to steal thunder from the next panel—is at least the possibility that the presence of a PAE can create a situation, where one product market competitor can come up with a contractual arrangement with a PAE, which in the end results in this product market competitor being able to

successfully raise its rivals' costs and distort competition in the ways that the agencies are often interested.

Lastly, and this is to pick up on something that Tim said earlier, and it, I think, has probably come up a few times is—I'm calling it time consistency. This notion that an *ex post* mover can break apart contracts that were entered into, for example, over a pool of patents containing standard essential patents and FRAND licensing agreements, that may have been constructed privately and with some degree of social efficiency to solve these problems with portfolio evaluation and so forth. Another entity arriving on the scene, who doesn't have the stakes in the product market, and can acquire some of these assets *ex post* and try to renegotiate these terms. And it's obviously a big headache.

Lastly, and I'll leave off on this point, and I think we used to spend a lot of time in innovation economics worrying about the shoulders of giants problem and sequential innovation, and reflecting on that. The very interesting papers written by Suzanne Scotchmer, Jerry Green, and Ted O'Donoghue, which make the very important point that *ex ante* incentives to innovate depend a great deal on the prospective division of surplus over time between the original inventor and then a series of improvers. Now, I won't pretend to have thought this through in any depth, but I think it's certainly an important possibility here that a PAE who's not engaged in the activity of innovation, is not concerned looking forward about this division of surplus issues and providing enough incentive for future improvers to come along, and keep moving the technology forward—may break the equilibrium or the explicit or implicit contract in the sequential incremental innovation process.

So, I'm afraid that's a fairly long laundry list. I'll reemphasize I think what to me are critical question, which is the empirical data, which will help us understand the magnitude of these effects and the value of thinking about these problems holistically,

and trying to access the net benefits versus costs in a particular competitive context. So thank you.

PANEL: POTENTIAL HARMS FROM PAE ACTIVITY

Moderators:

- **Fiona Scott Morton, Deputy Assistant Attorney General for Economic Analysis, Antitrust Division, U.S. Department of Justice**
- **Howard Shelanski, Director, Bureau of Economics, Federal Trade Commission**

Panelists:

- **Iain Cockburn, Richard C. Shipley Professor in the Strategy and Innovation Department, School of Management, Boston University**
- **Thomas Ewing, Principal Consultant, Avancept LLC**
- **Robin Feldman, Professor of Law, University of California Hastings College of the Law**
- **Michael Meurer, Professor of Law and Abraham and Lillian Benton Scholar, Boston University School of Law**
- **David Schwartz, Associate Professor of Law, Illinois Institute of Technology Chicago-Kent College of Law**
- **Brad Burnham, Managing Partner, Union Square Ventures**

[Video 3 of 4, 1:39:55]

FIONA SCOTT MORTON: OK, we have a fantastic panel here to discuss harms. And I think we'll kick it off with Robin Feldman. Take it away.

ROBIN FELDMAN: Thank you very much and thank you to Iain, the voice from above. The potential harms that Iain identified have to be understood against the backdrop of uncertainty within the patent system. This is not just because the Federal Circuit overturned so many trial court decisions and patents, which it does. But it's because it is very, very difficult to actually know what a patent covers, even at the time that the patent is granted.

Whatever words we choose to describe the invention, those words will be measured against things that didn't exist at the time that we chose them. And it's very difficult to know what words we're going to need. So patent drafters deal with this problem by trying to create a library of terms within each patent that they can draw on, depending on how the different products emerge in the market, and how the

negotiations over each particular patent bargain unfold. It's difficult for the individual who has the patent or even the individuals drafting the patent to know what terms they're going to need. It's difficult for the Patent and Trademark Office examiners to know which terms they're going to wish they hadn't given you. And that's true even if we gave patent examiners all the time in the world to do the job that we are asking them to do.

And so within this structure of uncertainty, you create the type of market that is ripe for the harms that Iain identified in terms of companies being able to bargain, or patent holders being able to bargain for far more value than an individual patent is worth, or than a handful of patents might be worth. It's something Iain talked about, and a number of our speakers today have alluded to. Now you add monetization into this particular landscape. Monetization in which patents are stripped from any underlying product, they are operating essentially as a commodity on their own that can earn a reward through litigation or through licensing. They are tradable, and now they are being traded. That is the new level that you have to understand and look at as a market of its own.

I think it's useful to think about all of the harms that Iain raised on two levels. The first level is in this market for patent monetization itself. That is the buying, selling, and the trading of patents. It is its own market, and as with any market, it is subject to manipulation if there is not any regulation of that market. At the moment, there are virtually no constraints in that market if parties in that market were to wish to collude, to divide up the market, to manipulate that market in various ways. It has arisen so quickly that we are only beginning to think of it as a market on its own. That's the first level of harms I think is worth thinking about.

The second level of harm relates to the individual intellectual property markets underneath the layer of the market for patent monetization. So Iain alluded to the fact

that we might have a potential concern that a patent assertion entity might acquire enough intellectual property in one particular product market that it could influence the cost of products in that market. I would like to suggest that in this new world of monetization, the problems may run even deeper than that. So it may be that you don't need power in a particular intellectual property market in order to affect goods prices in that market.

So let me give you an example. Suppose you are an automobile manufacturer and I have a patent in the banking industry. And I knock on your door, and I say my banking patent reads on your automobile. Now, that may be an absolutely ridiculous argument, but if I have enough ridiculous arguments to make and I am willing to wave them at you, and I have a reputation for tough tactics in waving these at you, then you, the automobile manufacturer, may decide that it's worth just paying what it is that I demand. And so may everybody else in the automobile industry decide that it is worth paying what I demand. I have exercised a potential power over the price within that market. And I have done that with perhaps even just a few mediocre patents in automobiles, a lot of other patents, and a reputation for tough tactics. I think those are the types of harms that one needs to think about in thinking about how this market for monetization is developing.

And in thinking about these two level of harms, I think it would be an important step for regulatory industries, I'm sorry, for regulatory agencies if we begin to think about the market for patent monetization as a separate market, and to understand that it may operate in unusual ways.

Finally, I would like to comment on something that I've been hearing about a lot this morning, and that is the potential difference between defensive posture versus offensive postures within patent entities, licensing versus litigation. Whether there is a difference between those. I recognize that there are a lot of strong emotions about

whether defensive is positive, is it different from other types of patent assertion entities. And I would just like to suggest that it's not clear to me, from a harms perspective or at the end of the day, that there is a difference in this type of posturing. And I'd like to offer a hypothetical, and it really is a hypothetical. It does not reflect anybody's behavior, but I think it will help me explain what I consider is troubling about why in theory it may not make that much difference.

So imagine that I have a bag full of patents and I knock on your door, and I say, would you like to take a license to my patents? The operating company says no, go away. Sometime down the road I transfer some of my patents to a nasty third party that now goes back and sues the operating company. After an extended period of time, a lot of money spent in litigation, a settlement value that's above what I was offering for my bag of patents, that eventually settles. I now knock on the same operating company's door again, and I say, I have another bag of patents. Would you like to license this? They may be much more willing to license my patent at that point. When you think about the company that's offering its bag of patents, even though it has never litigated anything, has never sued anything, it is benefiting from what is happening in this entire system. So the price at which that entity sold its patents to the nasty third company, that price takes into account the litigation value. At the same time, that entity's ability to get future operating companies, even the same operating company to license its portfolio also benefits from the entire system that has happened from the transfers that are occurring. My point is simply that at the end of the day, it is not clear to me that having a defensive posture as opposed to a litigation posture matters.

And finally, in terms of a defensive posture and a defensive perspective. From an antitrust perspective, there is always a concern when competitors get together, even for defensive reasons, that there is a temptation to bash everybody who is not in the room with them. Or to use whatever the defensive mechanism is in a hub and spokes manner

so that the defensive hub becomes the hub in a hub and spokes anticompetitive enterprise. So I want to thank the FTC and the DOJ for putting together this remarkable day of discussion.

FIONA SCOTT MORTON: Thank you very much, Professor Feldman. All right. I neglected to give a title last time, which is my mistake. So next we have Michael Meurer, who is a Professor of Law, and an Abraham and Lillian Benton Scholar at Boston University. We have a high proportion of Boston University today, which must reflect favorably on that institution.

MICHAEL MEURER: We sure do, but I'm the only one that made it here today, and my flight back was canceled. So I hope someone can put me up for tonight.

HOWARD SHELANSKI: Your economist colleagues were simply much more efficient.

MICHAEL MEURER: They were, they were. The issues raised today are vitally important. Society needs an effective policy response to socially harmful patent litigation, and my best evidence on this point comes from Zach, my eight-year-old son, who was nearly brought to tears when he overheard me talking about a patent that was asserted against Notch, the creator of his favorite computer game, Minecraft. I reassured him that Notch was not a bad person, and the game will probably continue to be available. But there's no end to the interesting anecdotes that we can mine, but I think Iain's probably not going to be content to hear me talk about more anecdotes, so I want to talk about some of the research that I've done, relevant to the patent system generally, and to PAEs in particular.

For a long time I studied the successes and failures of the patent system to incentivize innovation, and to perform like a healthy property rights system. In my book, Patent Failure with Jim Bessen, we conclude that based on research, covering the period from 1984 to 1999, the patent system does indeed reward chemical innovators,

including those in the pharmaceutical industry. But for most kinds of technologies and most other industries, the patent system imposes a tax on innovation. So please observe that we reached that conclusion studying a time period during which PAE activity was insignificant. We reached our conclusion by estimating both the costs imposed by patent defense and the profits derived from owning and enforcing patents.

Recently, Bessen and I conducted two new studies using data from the decade of the aughts that focus on the costs of defense against NPE lawsuits. Likely most of those are PAE lawsuits, but we were using the notion of NPE instead. The first study relied on a survey that was done with the assistance of RPX. And the direct cost of patent assertions are substantial, according to that study, totaling about \$29 billion of accrued cost in 2011, including the costs of non-litigated assertions. Importantly, this figure excludes various indirect costs to the defendants' businesses, such as diversion of resources, delays in new products, and loss of market share.

In the other study, we're able to measure direct and indirect cost. We observe what happens to a defendant's stock price around the filing of a patent lawsuit, and we're able to assess the effect of the lawsuit on the firm's wealth after taking into account general market trends and random factors affecting the individual's stock. We find that NPE lawsuits are associated with the loss of wealth to defendants that averaged over 80 billion per year during the late aughts. These defendants are mostly technology companies. We've heard a lot about that today. They invest heavily in R&D, and to the extent that the litigation represents an unavoidable business cost to technology developers. Again, we've heard a lot about that today. Differing opinions, but I'm convinced that mostly it's inadvertent, mostly unavoidable. It reduces the profits that these firms make on their technology investments. That is, lawsuits substantially reduce their incentives to innovate. So Carl Shapiro's not sure these magnitudes are plausible, but you're willing to be convinced, right? So I'll give that a shot.

The stock market event study estimates that the mean wealth loss, per lawsuit, is 122 million in 2010 dollars. And the median loss is 20 million, or 20.4 million. So 122 million is a scary number, and I wanted to convince myself that it made sense. It seems big. Can it be right? Obviously, I think so. My intuitive reaction to the world gives me better hunches about medians, rather than means. So let's ask instead about the \$20 million figure to see if that makes sense for a typical lawsuit. So if we expect to spend a million or two dollars on legal fees, we still have a ways to go before we can get to \$20 million. The simple answer about how to get there is that most of the cost to the defendants does not arise from payments to outside counsel. Part of the expected cost comes from damages.

Unfortunately, we don't have much data on damages and therefore it's hard to calculate them with much confidence. So like Professor Shapiro, I don't expect—I don't think that expected damages alone explain a big chunk of this expected cost. They're significant, but there are other things I think that are more significant. Excuse me, more significant. I suspect that the bulk of costs arise from the threat of injunction.

A lot of my research covered a time period before *eBay*. And various indirect costs, such as diversion of managerial, engineering, and scientific talent, delays in new products, and loss of market share because the relationships with customers and vendors deteriorate when a firm is embroiled in patent litigation. So recall that Tucker finds an Acacia suit was associated with a one-third decline of sales of medical imaging software by targeted firms. She attributes the sales declined to a lack of incremental product innovation during the period of litigation, And she conjectures, I share this conjecture, that the incremental innovation was deterred by concerns that it would create additional risks in the ongoing litigation. The mean and median figure are very different because the estimated defense costs are highly skewed. The skewness might

be attributable, I believe it is attributable, to the distinct business models of PAEs. Many nuisance suits and the occasional big game hunter.

If Carl is still skeptical, he might be willing to buy the results from the other study. Although Dave sitting next to me will also be skeptical, and might express some of that skepticism about the other study. But anyway, I'm hoping at least Carl will come along with the other study that focuses only on direct costs.

The survey study estimates the mean legal costs per defense range from \$420,000 for small and medium companies to \$1.52 million for large companies. And the median total litigation costs for small or medium companies is \$318,000, and for large companies, \$646,000. So those numbers probably sound familiar. You think about a typical case, you think about medians and you hear those numbers, I think they're going to sound fairly plausible.

So to conclude, I want to emphasize that much of the harm associated with PAE suits is simply harm caused by a patent system that provides poor notice. It's likely true that PAEs amplify this harm. But if PAEs disappeared overnight, we would still have, and we'd still find that notice problems create significant patent notice costs that should still be a huge concern. I favor reforms that are addressed to troll-like behavior, but I think more of our attention should be independent of the identity of the litigator. Good patent policy needs to implement reforms to improve notice. The AIA makes some progress, but not much in that regard. My work with Jim Bessen and with Peter Menell offers lots of ideas for reform, but alas, I don't have time to discuss those right now. So thanks for your attention.

FIONA SCOTT MORTON: Great. Thank you very much. We will continue on this topic with remarks from David Schwartz, who is an Associate Professor of Law at the Illinois Institute of Technology Chicago-Kent. Thanks a lot.

DAVID SCHWARTZ: Thank you very much. I'm excited to be here. Is this on?

FIONA SCOTT MORTON: Start talking, and maybe they'll get it.

DAVID SCHWARTZ: OK, thanks. I'm excited to be here. And so my first point, that I think others have made as well, is that we need a data-driven objective approach to the issue. And I think I was asked to be on this panel in part because I'm a skeptic of the claims that are based on the existing data of high harms caused by PAEs. And so let me tell you a little bit of where I'm coming from. I'm not like one of big tobacco's lawyers from the 1960s that every time they saw a study that showed smoking caused cancer would say that's not good enough. I am completely convincible by data. However, the data as it exists today, and that I've reviewed, is not convincing. That's not to say that it can't be empirically shown, it just hasn't been empirically shown yet.

And we need better data on benefits as well. There's surely anecdotal information, and we heard some of that this morning. There's lots of theories on why PAEs may cause harm, but there's very little data. And much of the data that exists is mixed and inconclusive. And so I want to talk a little bit more about data on potential harms.

But before I do, I just want to raise a preliminary issue, which is a definitional issue about what a PAE is. Because Chairman Leibowitz and Professor Shapiro talked about PAEs being patents that are acquired or purchased from the original inventor. And some other people, I think, include original inventors or failed start-ups that are enforcing their own patents as part of PAEs. And actually, I think it matters because there's a decent chunk of litigation that is initiated by individuals or by companies that are the original owners of patents. And so, in the past I've argued that you should—even if you think one definition is better than the other, you should de-aggregate your results so we can look at it both ways. And one reason I don't really take a position on which is the right definition, other than to say that to the extent that one of the arguments is that the bucket is leaky, and not enough money is being returned to the original

inventor, then that isn't really applicable if the inventor is the one enforcing the patent, because they're reaping most of the rewards, I presume.

And so that leads me to my second point, which is we need a baseline for comparison. And for that, I mean PAE harms, or costs, have to be compared to something. And that's something can't be zero, because all litigation has costs, and patent litigation is notoriously expensive, with very high attorney and expert fees. And so in work I've done in the past with Jay Kesan, we suggest that we compare PAE litigation to either patent litigation in which the patent holder is a practicing entity, or maybe just complex civil litigation more broadly. And there are few, if any, empirical comparisons, broad comparisons of PAE litigation in general, and other patent litigation.

Now, one article that provides some comparative information, is an article that was mentioned by a few people this morning, and that was done by my co-panelist Robin Feldman. And so that article picked 500 cases at random from the last five years. And so in preparation for today, I reviewed that study. And at the end of the study, she reported some tables on settlement rates, summary judgment loss rates, patent holder win rates for a bunch of categories, including practicing entities, individuals and monetizers. The paper didn't do any statistical or hypothesis testing of her results, and so as I looked at them, I thought, wow, those numbers across all the categories looked really close. And that actually isn't consistent with some of the data we've heard this morning about really high loss rates for NPEs.

Granted, her study was different because she had a random sample rather than some of the—I'm thinking of the Allison/Walker/Lemley study. And also, Michael Risch has a study that looks at kind of the most litigated patents, or the most litigious PAEs. So it might be looking at outliers. And so to get a better handle on this, I recreated her data from the disclosures that she made in her article, and then I ran statistical tests on the results. And as it turns out, there's no discernible statistical differences among the

different types of entities she reported. In other words, from the data that she provided, we can't say that there's a difference either way, with 95% confidence, among PAE plaintiffs or practicing entities in terms of settlement rates, summary judgment loss rates, or win rates. So I think we need better data on the differences, if any, between PAE litigation and other patent litigation.

And as I look at the list that Professor Cockburn put in his slides, a lot of those harms, for the most part, appear to be really potential harms that are just tied to patents, or to patent litigation in general. And few of them seem really unique so PAEs. And so I see very little evidence right now that PAE litigation is materially more costly, or that the claims that are asserted are materially weaker than practicing patent entity litigation. And so without that evidence, I'm just concerned that we're talking more about issues that are from the patent litigation system, or patents in general, rather than about PAEs.

So briefly I just want to talk about Professor Muerer's study that he mentioned \$29 billion in direct costs, the estimate that he did with Jim Bessen. And so as Jay Kesan and I have previously written about, we believe that his estimates of direct costs are inflated. We think they rely on a non-representative sample, which was likely biased too high. He also included individual inventors in his costs, and did not compare it, did not compare the kind of proportion of legal fees to settlement amounts in PAE litigation to what that is in practicing any of the litigation, which I think would be important.

And so to me, I think we should just focus more on the merits of the assertions. The question that we should be asking are, are the patents likely invalid? Is the allegation of infringement untethered to the original invention? Is the quantum of damages sought based on a sound damages theory? And so my final point is that we really also need to look at the distribution of cases in both practicing entity and operating company litigation.

Now to be fair, every patent is unique. There's stronger cases, there's weaker cases, and there must be meritless cases. There must be cases that are brought both by practicing entities and by non-practicing entities that are meritless. But the question is, are those outliers? Where does the median fit, where does the mean fit? And we need to compare practicing entity and non-practicing entity litigation, and look at the distribution.

And then if we decide that there are problems that we need to address, we can determine the best way to do it in a tailored manner. If the problem is there's a lot of cost of defense settlements and weak patents, or weak assertions, then we need cheaper ways to get to the merits. But we don't want to weaken all patents if the concern is just the outliers. So thank you for your time.

FIONA SCOTT MORTON: Excellent. Thank you very much. I think what we'll do is collect up—I'm assuming you would like to respond, but should we do that right this second? Let's keep going. We're going to keep going and collect comments at the end. Yep. OK. Thomas Ewing is our next panelist, and thank you very much. Go ahead.

THOMAS EWING: Thank you very much for inviting me. I have a couple of comments on PAEs. First of all, I could have been on the pro or con panel for what that's worth. But I think patent assertion entities, there are—when an operating company versus another operating company, there are commercial countermeasures to the assertion that just vanish when a PAE arises on the scene. So what I could do to one of my competitors, were they to assert patents against me, I can't do against a patent assertion entity, and moreover, if it's a patent mass aggregator, I'm really out a luck, because there's not a whole lot I can do against those guys. They combine the best of the patent assertion entity with the best of the large commercial licensors. They give me an offer I cannot refuse. If someone comes to me with 300 patents that I have to license, there is no forum for testing whether I actually owe them a penny. They might

sue me over six of them, and we can test whether I actually owe them money over those six, but the other 294 won't be tested. Now when we go to settlement discussion, they likely will heavily discount my license fee, but if my license fee was actually in fact zero, I will still be paying something.

The other thing about patent assertion entities, especially traded patents, it's a little bit different than operating companies. Operating companies tend to buy patents that are owned by their competitors, or people at least in the same field of business that they're in. Which means once they buy them, they might know a little something about them. Once a patent's been traded four or five times, especially into a patent assertion entity, that entity doesn't know anything about the technology that they've just purchased. Which means if you look at these buckets that we've heard talked about today—good buckets—innovation, patents, technology. There's not a single patent mass aggregator that has a prayer of being able to grant me a technology license. They don't know how this stuff works. They just know that they have certain legal rights, and they can transfer those legal rights to me. But as far as telling me what the patent's about, they're clueless. If they want to know what it's about, they couldn't tell me any more about what it's about than I could tell by looking at the US Patent and Trademark web site, which is likely what they would do, because they probably don't have an electronic version of their own patent.

So there are inefficiencies in the system, and they apply to operating companies, and they apply to patent assertion entities. It's an inefficient system. Ironically, it's probably the world's most precise litigation system for patents, which is part of its problem. It's too darned elaborate. There are too—

CONFERENCE PHONE: Hey, it's Mitch. I'm here.

CONFERENCE PHONE: Hey Mitch, it's Suzanne. I'm here, too.

FIONA SCOTT MORTON: I think we have someone else's telephone call. Could you people find a different line to dial into, please?

CONFERENCE PHONE: Certainly.

FIONA SCOTT MORTON: Thank you very much. Sorry, please go ahead.

THOMAS EWING: No, that's fine. We had an infringement on our line with Susan. OK, so we've developed this very elaborate system. If I wanted to admit I was stupid, I could say it's too complicated. But I won't. But it's an extremely complicated system, and every time a court adds a new test, it increases the cost. Which means they've actually increased who knows how many settlements, because it increased the costs. So people will settle. So in fact, if I was a patent assertion entity, I would want the system to become even more complex. Let's add a test for damages. Let's add two more tests for damages, let's add three more tests for damages. We'll get at the truth. We'll increase the cost. We'll increase settlements.

Which is to say, and I guess this is the last point I'll put in, or maybe next to last, I am aware of non-US companies that do not enter the US market for reasons of patents. They're in a particular niche where they just don't want to deal with this, which means that US consumers are deprived of products from foreign entities.

Now as a long-term solution, I'm just keeping little notes of this myself, I'm aware of approximately \$2 billion worth of capital that's being used by foreign entities now, governments to buy patents to protect their domestic entities engaged in business in the United States. So I think there's a legacy from the old—there are three things that ramped up the pro-patent era, and one of them is this notion that some companies, particularly Texas Instruments, kept themselves in the black for a certain number of years by virtue of their patent licensing program, and that somehow or another, this is good for the United States because, well, we can't manufacture anything efficiently anymore, but at least we've developed the technology and we can license it. Fine.

Except all the foreign competitors, that sometimes we seem so worried about, are spending huge amounts of money now to buy US patents. And I guess finally we shouldn't really break our arms patting ourselves on the back about the number of US patents that we have, because for at least the last 20 years, I'm sure one of you knows the statistic better than I do, half of those patents originate from abroad, anyway. And a lot of the patent mass aggregators are now acquiring patents that originated from abroad. In fact, if I'm an aggregator, who knows the price of a US patent better? A US company or a foreign company? So most of the aggregators historically bought most of their patents from abroad. Now, there are foreign companies that are engaged in business in the United States, and they don't really quite understand the value of a US patent. I think that's really all I have.

FIONA SCOTT MORTON: Fascinating. OK, and our final panelist is Brad Burnham, Managing Partner of Union Square Ventures.

BRAD BURNHAM: Thank you. So I've been thinking as I've listened to this panel that one of these panelists is not like the others. I am not a lawyer, not an academic. I'm an investor, and I'm an investor that invests primarily in internet services. With that I come to this question with a unique perspective. I'm working with companies—we were, for instance, the first institutional investor in Twitter, Tumblr, Foursquare, Etsy, Indeed. All service companies that use technology internally to deliver a service. I become very involved in this question, not specifically the PAE question, but more generally the patent question, because about one-third of our portfolio—we have 45 companies in the portfolio—about one-third has been sued by someone. About almost half has been given some kind of demand letter by someone.

And the only difference between the ones that have and the ones that have not is the scale and the visibility of the company. I mean, we're an early stage investor. We often invest in companies with five or six people. But once you get to a certain scale—

Twitter for instance has 14 active patent actions against it—once you get to a certain scale, everybody comes out of the woodwork and asserts that you have violated their intellectual property.

What's frustrating about this from my perspective as an investor is that none of these companies that we have invested in knew about these patents. And I've heard arguments made that, well, gosh, they were irresponsible. They could have searched the patent office to find these patents. But in fact, that really is not true. Most of the patents that have been asserted were asserted from an entirely different field. So earlier description of somebody in the banking industry with a banking patent going after an automobile industry really struck home with me. That's not a ridiculous assertion.

I'll use one example of one company that is not entirely out of business, but is a tiny shell of its former self as a result of being subjected to two patent suits in rapid succession by two different entities, neither of which would fit the definition of an NPE or a PAE. Both were failed entrants. Both were failed start-ups, and unfortunately the patents were being prosecuted by holding companies controlled by the original investors. So that's me. But this company—it's a company that provides—I'm going to be a little bit careful, because the company did end up settling these suits, and as part of that settlement, agreed not to talk very specifically about them. So I'm not going to mention the name—but the company was initially sued—well first, the company was in the business of providing advertising services to major brands. And a lot of the things that they did was allow you to create an avatar, a representation of yourself by creating your own eyes and nose and mouth, and putting it together and putting it up there. Sort of Mr. Potato Head, if you remember that as a kid.

And the first suit that they were hit with was from a company that was not in the business of consumer facing services at all. It was a business-to-business company that

was providing software, not services, but software to police departments around the country to create composite sketches. So remember when you saw the police shows, they used to slide the mouth and nose and eyes together. Well, this company had a patent on doing that in software. And so they asserted that patent against our company because we were doing that to create avatars online. There's no way we could have searched for that patent. We couldn't have known that—we wouldn't have gone to think, oh yeah of course, police departments, avatars, that's the same thing.

The second suit that they were hit with was—one of the really clever things, and one of the really exciting pieces of technology that this company created was the ability to put your face in a video and then share that video with your friends. And car companies would show you test driving the hot new Chevrolet sort of thing, and your face was in the video. Very sophisticated 3D rendering technology. This company of ours had six people who were experts in this field, acknowledged experts in this field working on that problem. Very difficult, technical problem.

Well, there was a company that years earlier had allowed you to send a photograph into them, and you could have your child playing with Barney in a VHS videotape. And the way they actually implemented that was by hand-cutting and pasting the image, and then re-photographing it. And so completely different than what we were doing. Well, that hurt when they sued us, and we felt kind of put out. But it didn't have a huge effect. They hadn't gotten an injunction.

But then they went on to sue our customers. So these are people like American Express and American Airlines, and General Motors, and for our customers, the company in question employed 70 people. It was doing about \$10 million in annual revenue, and when they sued our customers, this was a nice to have, not a need to have, it was a marketing program for the customers. They cut our revenue in half in three months. And so we couldn't sustain the 70 people that we had on the payroll, and

so we had to cut the company in half. And as we fought this patent suit, we tried to indemnify our customers. Our customers said thanks, but I mean, it's not going to help. It's not worth it for me. I don't want to be involved in this. You figure it out.

And so ultimately we were not able to raise additional capital into the company, and we ultimately shrunk the company back to five. The company now has five people servicing their existing clients, and no longer employing those 70, or 65 people that they had employed. So that's the horror story that we—and as I play that out, that's probably the most dramatic example. We have lots of other examples in the portfolio. Again, none of those examples are ones that we could have known about, or should have known about, at least in my opinion.

So what I want to do here is say that as we talk about doing all of this research, I really believe in empirical evidence, and I really think we should do it. But I would ask everybody to at least, as they do the research, separate software patents and business method patents from other patents, because I think you'll find that a significant majority of the PAE prosecutions are on these vaguer, more abstract software and business method patents. And I think if you do separate them out, you'll see some things that you wouldn't see if you conflated with pharmaceuticals and material science, and things like that. So sort of the summary for me is that software patents are just too abstract, and too difficult to research. So it's very, very difficult.

We are seeing, at least we are seeing bad patents asserted in completely different fields of use that we couldn't possibly have anticipated, and that doesn't feel right. One of the arguments for patents is that, and for PAEs is that some of this technology is hard to reduce to practice, and therefore they need capital in order to be able to reduce it, so there's a justification for this market in the intellectual property independent of the practice. That is not true in software. I mean, we have lots and lots of companies that are two person app development shops that are making lots of

money in the app stores by delivering those products directly to market. So it's not really that same, we don't have that same problem.

Finally, I think that in this market, we are uniquely victims of a problem that I heard Mark Lemley describe as patenting the problem, not patenting the solution. So he used the example of a jackhammer, and said the patent office would not allow you to patent a method for breaking rocks. They would allow you to patent a jackhammer. The problem with the software patents that we're being hit with is that they never define the solution. If you go back to putting the video, the face in a video, we were using very sophisticated 3-D modeling to do it. The company in question, that sued us, was cutting and pasting by hand. Part of the actual settlement agreement with that company was to provide the technology to them to enable them to do the thing that they had claimed to invent. That doesn't seem right to us.

FIONA SCOTT MORTON: Fantastic. Iain, are you still on the line after all the interruptions?

IAIN COCKBURN: Yes, I'm here.

FIONA SCOTT MORTON: OK, good. Would you like to offer some comments on the panelists?

IAIN COCKBURN: Let me just make one—maybe just a couple of observations. One is I think that—what is unique about PAEs and what types of behavior or conduct may that induce that we really care about? There's two aspects of that, one is asymmetry, and that they tend not to have made large sunk investments in anything except paper assets or IP. The other is that they—and I sort of hear a strong sense of this from this panel—that they're not participants in the innovation ecosystem, and they may have been involved in the generation of technology, or may have people who were engaged in it, but they're not in that—embedded to the degree that the other participants are. And those other participants have other important commercial

relationships with all the other participants. The ecosystem that the PAEs are kind of exempt from caring about the consequences of their actions for.

The second thing I'll say is that on this topic of how well is this market working. And harking back to that, I think the last time I was at one of these FTC hearings, which was that we have almost no easily accessible data on what these transactions are, what's being paid. The real estate industry seems to be able to thrive with complete disclosure of transactions over heterogeneous assets, but somehow IP can't. Actions taken by the PTO notwithstanding, I think we're still kind of stuck staring at what may be kind of odd and selective, and selective in a way that there's hard to understand samples, which are those which pop up in litigation, where settlements and damages are disclosed in court. And I think a major problem for us to make headway on these difficult questions is to better understand how these prices are formed in these markets. And be able to kind of conduct the kinds of tests we'd like to be able to do about, are the PAEs adding liquidity and creating benefits sufficient to compensate to any degree the costs they may impose?

Q & A

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FIONA SCOTT MORTON: Thanks, Iain. We are running late, so I think what I'm going to do is take a few comments from the floor for people on the panel, or questions, sorry, from the floor. And then we'll leave enough time for a five minute break before the final session. So if there are questions, please raise your hand, and I assume there's somebody with a microphone? Erica. It looks like she has the microphone. Yes, please.

AUDIENCE MEMBER: Hi, Barney Cassidy from Tessera. One of the things I've been struggling with the whole day, and this goes back to—is we're talking about harms and trying to measure them, one against the other and so forth, one system would do this—but against what? How big are these problems compared to the value that the

patent system, the innovation system brings to our economy today? Does anyone know that number? The disclosure of all this technology and how it's implemented, and how that impacts our economy and the world economy. Because it seems to me, a lot of these problems may be minuscule in comparison to that. Or they may be significant, and I don't have a sense of it.

FIONA SCOTT MORTON: Let me just adjust the question slightly. I think we could have in mind a world where we get rid of patents versus keeping them, and that probably isn't the focus of today's discussion, but more since we've, a number of participants have mentioned the tradeoff, there's pros and cons, is there anything that can be done to enhance the pros and decrease the cons so that the consumer ends up getting a bit of a better deal? So I think it's a little bit of a less dramatic question, but maybe—

MICHAEL MUERER: Can I respond to the less dramatic?

FIONA SCOTT MORTON: Yes, please do.

MICHAEL MUERER: Or the more dramatic question. Bessen and I contend that for publicly traded American firms, if we abolished the patent system, they would have a stronger incentive to innovate. We don't advocate that policy, but we contended that when you measure the rents, the patents deliver to innovators who get patents and put those on the other side of the scale with the costs imposed on innovators as defendants, that cost is larger.

FIONA SCOTT MORTON: A firm answer. Next question? Yep, sure.

AUDIENCE: Hi, this question is for the whole panel, but mainly for Brad. And I'm wondering Brad, how come we don't see some of the venture capital investors like Fred Wilson and Brad Feld, who rail against the patent system, talk more about entrepreneurship as a way of dealing with all the problems and harms that we've been talking about. So among top venture capital investors, Izhar Armony really stands alone

as someone who's really backed a lot of companies and entrepreneurs that are trying to do exactly that. So he did IV, he did ThinkFire, and he did RPX most recently. Are you guys just not seeing the deals? Are you just seeing deals that are brought to you by founders who are not venture backable? Or something else?

BRAD BURNHAM: So Fred's my partner, and we wouldn't do one of those deals because as we talk to the engineers in our companies, they believe that on balance, at least when it comes to software patents, they do more harm than good. And so we would be kind of taking a philosophical stance, even to the degree that the company was defining itself as defensive, we would be taking a philosophical stance that would require us to believe that software companies and particularly internet services companies would be able to get their engineers to sit down with a lawyer and write patents. And what we're finding is that our engineers, the engineers in our portfolio companies are not willing to do that because they don't believe that the patent system is helping them. So it would be hard for us to do that, make that kind of investment.

FIONA SCOTT MORTON: Fantastic. One more, this side of the room, maybe. I wasn't looking that way last time. No? Right here.

AUDIENCE: Hi. So given the costs that are imposed on society by licensing transactions for the most part being secret, is there anyone on the panel who would just say, let's make it so that licensing transactions have to be transparent? The way stock market trades are transparent?

ROBIN FELDMAN: So I don't know that I would go quite that far, I haven't thought of it in those terms. I certainly applaud the PTO's exploration of real-party-in-interest information. I have contemplated, and I think it's worth contemplating, a system for patents that looks more like the real property system. In other words, if you want to have any type of interest related to a patent, including a license for that patent, that you should record it and disclose it. Not necessarily the price. I know that a lot of

academics would like to know the price information, too. I would, too. I don't think we'll ever get that through, but I have contemplated a system like that, which would give us much more information.

BRAD BURNHAM; I would love to see a system where all you did was make it difficult, expensive, impossible to impose a contract term in a settlement agreement that required a gag on the settling parties, because I believe that if more of what was going on was—people were more aware of what was going on, it wouldn't continue.

THOMAS EWING: I'd answer your question in the reverse. What would the real property market be like if tax records weren't available publicly? I don't know that people would disclose them, because it's not to your advantage to do it. No disclosure is ever to your advantage, right? People only do it when they're forced. Well, OK. A lawyers speaking to economists, so I'll shut up. Frequently it's not to your advantage to do it, and you only do it because you have to, right?

DAVID SCHWARTZ: So one thing, one thing that I would just add to it, as an academic, I would love it if that data was available. But from a system standpoint, it would also make damages calculations easier, right? It might add some efficiencies in the litigation system.

FIONA SCOTT MORTON: Fantastic.

AUDIENCE: We may be seeing more—excuse me. We may be seeing more data made public because the Federal Circuit is now saying that settlement rates and litigation can be required to be disclosed in the next suit. And even the negotiations, in reaching a settlement negotiation, are going to be made available. So if you keep your eyes open, there may be more trickling out.

FIONA SCOTT MORTON: Yeah. A big feature of these markets is asymmetric information. So certainly any change in that would make a big difference one way or the other. OK, thank you very much to the panelists for your time and expertise.

HOWARD SHELANSKI: Tim and Iain, thanks a lot guys.

ACADEMIC INTRODUCTION: HOW DOES ANTITRUST APPLY TO THE POTENTIAL EFFICIENCIES AND HARMS GENERATED BY PAE ACTIVITY?

- **Frances Marshall, Special Counsel for Intellectual Property, Antitrust Division, Legal Policy Section, U.S. Department of Justice**
- **Phillip Malone, Clinical Professor of Law, Harvard Law School; Clinical Co-Director and Senior Fellow, Berkman Center for Internet & Society, Harvard Law School**

[Video 4 of 4, 0:01:00]

FRANCES MARSHALL: All right, we're going to go ahead and get started with our final panel of the day. Good afternoon, everybody. My name is Frances Marshall, and I'm Special Counsel for IP at the Antitrust Division. And this is going to be our wrap up panel where we are going to be looking at how does antitrust apply to all of these potential efficiencies and harms that have been identified and talked about over the course of the day.

Our format for this panel is going to be a little bit different. Phil Malone, who is yet another one captured in Boston, will join us by telephone and is going to give us an academic introduction to our topic. And Phil is the Clinical Professor of Law at Harvard Law School and Clinical Co-director and Senior Fellow at the Berkman Center for Internet and Society. And then we're going to turn to our panel. Phil will try and join our discussion. We'll see how that goes, and we will have some panel discussion focused on a number of hypothetical scenarios.

So, Phil, can you hear us?

PHILLIP MALONE: Yep, I can hear you. Can you hear me?

FRANCES MARSHALL: I can hear you. I'm going to turn the microphone more towards you, and let you start.

PHILLIP MALONE: Great. Well, thanks. Thanks very much. I'm glad to be joining you, and thrilled that the Commission and DOJ are having these hearings and trying to shed a little bit of light and dig into what are really some very important issues. I'm sorry

I'm appearing by phone and not in person. Like Tim, I spent many lovely hours at the airport in Boston this morning starting at 5 AM before it became clear that actually getting there was not going to happen. But I'm glad to at least be able to be on the phone.

But given that I'm not there in person, and given that you have a really fantastic panel that is, and given the hour, I'm going to try to be very brief and really just give you a very quick and broad introduction and a bit of a framework, perhaps, for thinking about this question of whether and when antitrust might apply to the conduct of PAEs and to the sorts of harms and efficiencies that the last two panelists were just talking about—that I know people earlier today talked about. Put another way, if the acquisition and/or the assertion of patents by PAEs is a problem, can antitrust be part of the solution? And if so, what and how?

There are a bunch of different ways one could approach this. One is, and the one that I'm going to use, to try just quickly to identify a category of conduct, a range of kinds of behavior, kinds of conduct, by PAEs. And then try to see whether there's a legal antitrust theory, whether it's Section 7 of the Clayton Act, Section 1 or 2 of the Sherman Act, or perhaps Section 5 of the FTC Act, that actually fits that conduct and allows us to analyze and potentially reach that sort of conduct. I want to run initially through a very quick continuum of some of the possible PAE conduct that we might want to analyze. I suspect that much of this has been described in great detail earlier, and a lot of the panelists have laid out. And I'm sorry I missed that. I had hoped to pull that together. But I'll give you, at least, my take of some of the key categories, and then try to make some sense of whether there are antitrust theories that fit and make sense of them.

So starting at the simplest end, and probably the least troubling end, and moving to more complex, we can imagine a situation where a PAE holds and asserts one or more patents. That's it. Simple ownership and assertion. Moving up a little, a situation where the PAE actually acquires one or more patents, either initially or on top of

patents it already owns. Ratchet up a little more, the PAE could acquire a large portfolio, all at once or in a single transaction, and that portfolio itself could constitute a thicket in some situations. A slight variation on that is where a PAE acquires a large portfolio, but does it over time through a series of smaller transactions, each of which builds up in an increasing way the potential power that the PAE has, rather than acquiring it all at once.

And then again, going a bit further, a situation where a PAE acquires and then threatens to or licenses a substantial number of patents, but in addition to the necessary patents requiring the licensing of a large package of patents, so the kind of mass aggregator situation that Thomas Ewing described in the last panel. So notice, all of those are situations where the PAE is essentially acting on its own, acting unilaterally, to acquire and then assert patents.

A second, distinct category that's important to carve out comes if you vary the details of the acquisition just a little bit, and instead of the PAE acting simply to acquire and assert some number of patents, instead we introduce some element of coordination or ongoing relationship between the PAE and the practicing entity or the operating company that was the patent holder and is the seller of the patents. Without having heard him, I think this is what Carl Shapiro referred to earlier this morning as hybrid PAEs, where there's some ongoing connection, ongoing relationship, between the PAE and the prior patent owner, practicing entity.

So I'll come back to that in a minute, but situations there where, for example, an operating company creates a shell company, a PAE, or perhaps a joint venture with a PAE, then sells patents to it, but retains the license for itself. Again, vary that scenario where that happens, but there's also an understanding or an agreement that the practicing entity and the PAE maybe share profits from the licensing or have some joint control or decision making over the licensing.

And then go a step further to situations where two or more competing practicing entities either jointly create a company, jointly create a joint venture, and then license patents to that PAE and take licenses back, and potentially cross-license as well. So a number of hybrid situations.

And then finally, a separate scenario that we might want to have on the table, where a PAE holds or acquires patents that are encumbered in some way with FRAND licensing obligations by virtue of a previous standard setting process or standard setting situation.

So that's a super quick, super simple set of some potentially harmful scenarios. So what are the legal theories that might accompany those that we might use to see whether there's antitrust treatment or liability? So, seems to me Section 7 of the Clayton Act, which typically governs acquisitions and mergers, is the most logical, and in my view, may be a good fit for at least some of the scenarios we're talking about. Particularly ones where either serial acquisitions build up over time to create some sort of market power and create a thicket, or these hybrid PAE situations where it isn't just unilateral conduct by the PAE, but there's actually some ongoing relationship or connection or control between the PAE and the initial practicing entity.

But under Section 7, some tough questions arise, and I'm hoping and sure that the panel will get into some of these, really sink their teeth into these once they start. A few of those are, if we're thinking about Section 7, do we need to define markets the way we often do as a starting point of Section 7 analysis? And if so, what kind of markets are we talking about? PAEs aren't producing anything. They're not actually practicing in a market. So, it's going to be difficult to think of a traditional product market. We're probably going to be thinking of a technology market instead. Does it matter that the PAE isn't competing in that market and wasn't previously competing in the market before the acquisition?

If we think of the analysis in terms of the 2010 Horizontal Merger Guidelines that the agencies use for analyzing acquisitions, certainly arguments that these kinds of acquisitions may allow the acquiring PAE to exercise market power and may result in price output or innovation effects of the sort that the guidelines speak of. But the question is, how? How do they do that, and does that mechanism fit within the guidelines as we think of them? Is it simply a matter of what we might call exploitative harm, simply taking advantage of the acquired patent and charging higher royalties, or charging certain royalties, which is less troubling. Or is it somehow the result of the diminished competitive constraints from the merger that the guidelines call for and that we typically look for? Where the acquisition itself is reducing or diminishing the competitive constraints that existed pre-merger?

So there are a bunch of possibilities. I want to throw out just one set of possibilities here to frame this, but there are obviously a lot more. As I'm sure panelists have discussed already today, in some cases, the PAE may face very different constraints and have very different incentives than the practicing entity, the operating company seller. Easiest example with a sale to a PAE is probably the shift from the risk symmetry, as Michael Carrier called it in his comments for the workshop, where competing operating companies, competing practicing entities with large portfolios, run a big risk of countersuit if they assert and sue their rivals. And that often leads to smoother licensing and detente and so on. That's typically not the case with PAEs. They don't face that same risk of retaliation or countersuit because they're not doing anything. They're not practicing in a way that they can be threatened.

And PAEs also, at least in some cases, may be likely not to have the reputational constraints that a practicing entity may not have. They may not fear the kind of reputational harm that could come from suing other practicing entities within the industry. I think that's the sort of situation that Commissioner Rosch was addressing

back in his concurrence to the Commission's challenge to the Ovation acquisition of NeoProfen, where he basically said he would have challenged an earlier acquisition by Ovation, the acquisition of a separate drug, because it essentially eliminated the reputational constraints and the risks to other profitable products that the current owner, at that point Merck, had. Those constraints had kept Merck from charging the monopoly price. Ovation as the acquirer of that patent wasn't faced with those constraints, and instead ended up charging 1,300% more post-acquisition than Merck had previously as a result of not facing those constraints.

And in fact, the PAE may have converse incentives to threaten and sue, and perhaps even sue over weaker patents, in order to try to establish a reputation for tough litigation and for being willing to go to the mat and sue to make its future threats even more credible than they otherwise would be.

So if we think about using Section 7 to analyze these situations, what's the theory of competitive harm? We want to ask when we're thinking about harm, does it come from collusion? Does it come from exclusion of rivals? And if it's exclusion, what's the mechanism? Most likely it's raising rivals' costs, and I think you'll probably hear a fair amount about that from the panelists. If we think of the acquisition of patents via PAE in horizontal merger terms, then it's necessarily unilateral effects, I think, that we're talking about. More interesting is likely to be thinking of it from the standpoint of vertical mergers and vertical merger theory, which is a subject I know that at least Carl wants to get into and I'm sure will say a lot more once we get into the panel. So I'll leave it at that.

Just to quickly shift back to a couple of the hybrid scenarios that I threw out for a minute, and these are scenarios that Fiona Scott Morton has raised recently in a speech or two that she's given as well. One is the patent practicing entity, an owner of a patent, that creates a new company, a new PAE—it's either a shell company or a joint venture—

sells patents to it, and then retains a license. And then the PAE is then able to threaten and sue others, including the previous patent owner practicing entity's rivals, potentially raising their costs. And, at least in theory, without the same fears of both reputational harm and retaliation that the practicing entity would have faced itself had it taken that action and tried to raise rivals' costs.

Maybe more troubling is the situation where you have two or more practicing entities that do this, that create the PAE, sell patents to it, take licenses back, and potentially cross-license between them. You then have a scenario where two practicing entities, who are competing in a market, are effectively coordinating or even colluding, potentially, to raise their rivals' costs or entrance costs. And depending on how they set it up, maybe even sharing the profits from doing so.

This category of conduct is what some have called privateering, and it's exacerbated by, I think, what Carl referred to—or I think at least was going to refer to, I didn't hear him this morning—of a lack of transparency. So the more difficult it is to understand the relationship between initial patent owners, sellers, shell companies, particularly where there may be large numbers of intermediary companies involved, the more difficult it is to see through those relationships, the better this sort of activity may work. Because the greater the disconnect between the prior risks of retaliation and risks of reputational effect may be. These kind of joint practicing entity/PAE relationships and conduct may raise Section 1 issues as well as Section 7 to the extent that they involve agreements between the PAE and the practicing entity beyond the mere sale of patents in the first place.

Finally, let me just note quickly the last category I mentioned, that is the role that FRAND commitments may play in antitrust analysis. So we can imagine a scenario where we're dealing with one or more standards essential patents that have become part of a standard through a process that included FRAND licensing commitments. And

we tend to think that patents may obtain greater market power and greater hold-up possibility as a result of their inclusion into a standard and then their adoption in the market. But if those patents, which at least previously had a clear FRAND commitment, are sold to a PAE, and the PAE then either outright reneges on that commitment, or takes a different view, or different interpretation of what kind of FRAND commitments go with the patent—something that Fiona has described before as incomplete contracts, unclear contracts—then the PAE may be in a position to at least try to charge higher royalty rates for the patent and hold-up users of the standard, than would have been possible for the original participating practicing entity.

Is there an antitrust answer to this conduct? That's a difficult question. Is there an answer in Section 5 of the FTC Act, as was the case with the Commission's previous case of *N-Data* against a subsequent purchaser? Maybe. That may be a case where that applies more directly.

Let me just finish with two very quick other notes that I think are worth having on the table. One is the role that *Noerr-Pennington* and *Professional Real Estate Investor's* immunity may play in defending against antitrust suits, antitrust attacks, on PAE activity. These give presumptive immunity for a patent holder asserting that patent unless the patent was either obtained by fraud on the patent office or where the infringing lawsuit itself is a mere sham, an objectively baseless sham. Or the anticompetitive effect comes from extending beyond the scope of the original patent grant.

If we're looking at situations of pure assertion, things more on the assertion end, they are certainly people who I think would take the position that *Noerr-Pennington* and PRE would make it difficult to bring antitrust claims. That may be less so as you move away from pure assertion into some of the other conduct that we're talking about. And I

think it's just worth having that on the table. I don't think the panelists are going to get into that. But that's an overarching point this is useful to have.

And then I would end by saying we also need to think, when we're thinking about the antitrust application, about remedies. Particularly in the Section 7 context, if we think there might be antitrust liability in an antitrust theory, we also need to have a clear sense of what the remedy might be and think carefully about whether the available and appropriate remedies would in fact make the situation and the harm we're concerned about better and not worse. So if, just to take one example, we're concerned that fragmented ownership of patents might exacerbate a thicket problem, if we require divestiture as a remedy for a Section 7 problem that we see, in theory we might end up making the problem worse. So, thinking carefully about what the appropriate remedy would be is obviously very important as well.

So I'm going to stop there. Frances and Andy, I know, prepared three hypothetical scenarios which are points along the continuum throughout to help focus some of the panel discussion. And so, I will let the panel dive into that and turn it back over to all of you. Thanks.

FRANCES MARSHALL: Thank you very much, Phil. So now, I'd like to turn to my co-moderator, Andy Gavil, and he's going to continue to frame things a little bit. And then we will introduce our panelists and move on.

PANEL: HOW DOES ANTITRUST APPLY TO THE POTENTIAL EFFICIENCIES AND HARMS GENERATED BY PAE ACTIVITY?

Moderators:

- **Andrew Gavil, Director, Office of Policy Planning, Federal Trade Commission**
- **Frances Marshall, Special Counsel for Intellectual Property, Antitrust Division, Legal Policy Section, U.S. Department of Justice**

Panelists:

- **Logan Breed, Partner, Hogan Lovells**
- **Hanno Kaiser, Partner, Latham & Watkins LLP**
- **Mark S. Popsfsky, Partner, Ropes & Gray, LLP**

- **Carl Shapiro, Transamerica Professor of Business Strategy, University of California at Berkeley, Walter A. Hass School of Business**
- **Hill Wellford III, Partner, Bingham McCutchen LLP**

[Video 4 of 4, 0:22:00]

ANDY GAVIL: I think Phil has done a terrific job of framing up the issues for us. Our big question here is if there is a problem, is antitrust, in part, a solution? And if so, under what circumstances might it be? And one of the issues that certainly came up in the prior panel is there may be harms, but we're focused on competitive harm, so what kind of competitive harms might there be? And hopefully with the help of our panel, we'll get more deeply into what would the theory be and what devices do we have available to us in terms of different statutory theories, as Phil mentioned, would we approach the acquisition issue as a Section 7 problem? Would we look at Section 1 or even 2 of the Sherman Act? Under what circumstances, given the current state of the law, would Section 5 of the FTC Act provide an alternative ground?

So we're going to explore those issues with the panel, and we decided that we might do that productively through a series of hypotheticals. They're a little bit more specific, but as Phil said, they lie along the continuum that he laid out. And we've got some slides to put up, so we'll go to the hypotheticals. Man behind the curtain, switch the slide. OK, while we're waiting for this slide to switch, we'll go back to Frances who can introduce all of our panelists.

FRANCES MARSHALL: Joining us today to discuss these what I consider to be very interesting and very complex, difficult issues are Logan Breed, who is a partner at Hogan Lovells. And Hanno Kaiser, also a partner, this time at Latham & Watkins. And then Mark Popofsky, who is a partner at Ropes & Gray. Joining us from academia, once again, Carl Shapiro, Transamerica Professor of Business Strategy at UC Berkeley. And over here, Hill Wellford, who is a partner at Bingham McCutchen and a former colleague at DOJ. And I

guess Mark Popofsky as well. So, welcome to you all, and we've got our first hypothetical up. We can get started.

ANDY GAVIL: Alright, so just for the benefit of the audience, if you take a look at Scenario A, a PAE acquires patents from a seller operating company. As part of the sale, buyer and seller agree on a pricing arrangement that aligns the PAE's incentives to assert the patents after the sale with those of the seller. The seller primarily seeks to facilitate its own exercise of market power by impairing, excluding its rivals from a market or raising their costs. The buyer wants to maximize its revenues from licensing. We'll open it up to the panel. Is there any legal theory under which the antitrust laws might view this scenario as problematic? And we can look at both, again, harms and efficiencies in how we might approach the analysis. Logan, you want to get us started?

LOGAN BREED: Sure. This acquisition, depending on the facts underlying the case, could conceivably support a Section 7 investigation or challenge, and Fiona in a recent speech did a very good job of outlining the reasons why that could be the case. And it depends on the business model of the acquiring entity. And in this fact pattern, we have the potential anticompetitive effect of a PAE acquisition combined with the potential anticompetitive effects associated with the acquisition of a patent by a practicing entity. Because here, the practicing entity retains some element of control over how the patents are exercised, and they have an incentive to raise the rival's costs. A PAE doesn't have that incentive, but there are some unique elements, as we've heard earlier today, in a PAE acquisition that can have an anticompetitive effect.

For example, there could be a royalty stacking problem. If the practicing entity retains some of its patents and divests some to the NPE, entities that had a license to the entire portfolio now no longer have a license that covers the entire portfolio, possibly, and then would have to pay, in effect, double what they used to pay to cover themselves against the scope of that entire portfolio. PAEs similarly can take unique

advantage of, I think what Fiona referred to as the incomplete nature of contracts in this space. So for example, there may be a FRAND commitment on certain patents in the portfolio, but that commitment may not travel with the patent. And in those cases, the transfer of that patent to a PAE who has an incentive and ability to charge higher prices than the practicing entity that originally held the patent could end up raising costs and reducing consumer welfare.

HANNO KAISER: I usually think it's helpful for these hypotheticals to kind of write them down a little bit. So what do we have? We have an operating company, and we have a PAE. Is there anything going on between the two? Yes, there are two things. There is a sale of something, and there is some form of an agreement that aligns interests. Now, is this a horizontal agreement or a vertical agreement? Well, let's say it's not so really horizontal because the PAE, let's say, is a pure play PAE, so this is going to be some form of a vertical agreement. So that puts us kind of in the wheelhouse of Section 1 vertical theories with an exclusionary effect or a vertical merger that also we would have to come up with some theory of exclusionary effects for.

Now, that gets us back, I think, to a number of fundamental problems that we have—these of course are the challenges also—that we have with these types of deals. First, we need some modicum of market power. This is not some per se illegal thing that's being described here. We cannot dispense with that step. So we need to figure out what's the relevant market here. Let me just pause it, because the PAE is not playing in the downstream product market. We're kind of—possibly bound by—what is it? The Discon court said that it's axiomatic that you cannot monopolize a market in which you don't sell, so we'll be stuck with the technology licensing market.

So do we have market power here? Possibly. I think that would be a necessary ingredient for a claim. And then we need to come up with a theory of harm, and I think, as Logan said, these could be the evasion of certain constraints that, for example, the

competitors of the operating company would otherwise face, namely retaliation. I mean, here it seems to me that if this agreement is really one where the operating company says I cannot assert, really assert, this patent against my competitor to raise their costs because they would nuke me back, but therefore I'm giving it to this PAE, and give him essentially a directive, go after my competitor, raise their costs. I think that would give us, given some amount of market power in either the upstream or downstream market, potentially a viable Section 1 or Section 7 case.

MARK POPOFSKY: Well I guess since we're going down the aisle of the church, I'll pile on. But I think we have to be a little precise about some elements of this hypothetical, Andy. What do we mean by aligned incentives? What do we mean by the incentives of the operating company? What do we mean by its market power? I think it might actually be helpful to be less hypothetical and to be more concrete. So at the risk of talking about companies here, I'm going to, and say there's certainly some elements here that reflect concerns that have been raised in public documents about the Nokia/Microsoft/Mosaid transfer. And I think this will get to concrete elements that Hanno and Logan have mentioned. Hanno said that we should look at the technology market. I think you might actually, in some cases—and we can circle back to this when we get to Phil Malone's question about pure play PAE antitrust issues—talk about the downstream product market.

So what would be one concern that has been raised in public statements about the Mosaid/Nokia/Microsoft arrangement is that you have Microsoft with its dominant position in PC operating systems. And no, Phil and Carl, I'm not relitigating the Microsoft case here, but we'll start with that. You have its alliance with Nokia, where Nokia abandoned Symbian, threw in its lot with Microsoft. It strategically aligned with Microsoft. You have, as Mosaid described earlier today, an arrangement whereby Nokia—or Nokia described it—whereby Nokia, seeking to monetize some value if its

intellectual property, divests some of its interest to Microsoft. And then the two of them together—this is what Mosaid's Canadian security filings say—transfer the patents to Mosaid—Microsoft and Nokia do—subject to an agreement that has some interesting rights. And this goes to the alignment of the incentives and how that plays into a competition theory, and I think we have to be precise.

Some of those rights include, well, what did Mosaid pay for the patents? They paid what can be described as a song, less than the value of a low-end Lexus, under \$20,000. They're going to make money—they think a lot of money, according to their filings—monetizing these IP rights and sharing those revenues back with Microsoft and Nokia. Second, they have a great incentive to do so because if they don't reach certain royalty milestones, which in the public documents are undisclosed, Microsoft and Nokia have the right to take those patents back and transfer them to someone else. That aligns incentives. Third, because of that, Mosaid really has a reason to keep Microsoft and Nokia happy. It was said earlier today that PAEs—I think Fiona said this—are agnostic. They'll go off and make money no matter what widget gets sued. I think the Microsoft/Mosaid/Nokia love triangle is an example of where that might not be true.

Mosaid, so this theory runs, has an example to keep those who transferred the patents to it happy lest they seize them and transfer them back. This right to transfer can be waived, so presumably, if Mosaid has difficulty monetizing, it will say to Nokia and Microsoft, please don't take them back. Give us another chance. All that plus, as you can suspect, a license that likely is retained gives Mosaid a strategic incentive aligned with Microsoft and Nokia to target not just any smartphone maker, but their rivals. That's how the story would run. That might support, as was said to my right, a Section 2 theory or a Section 7 theory.

So that's the alignment of incentives. The question is, what does this have to do with the competition problem? And there, I think, there are two potential theories

which are very interesting. One is—both Hanno and Logan touched on it, and everyone has talked about throughout the day—is the transfer unconstrains the PAE, because it doesn't face the threat of countersuits. I think that's something that should be very seriously considered. Let's consider what the Justice Department did when Microsoft tried to acquire the Novell portfolio. So you have Novell out there with its treasure trove of patents, kind of like Nokia has a treasure trove of patents, and a consortium called CPTN seeks to acquire them, and one of them is Microsoft. And the government gets very concerned that if Microsoft has these patents, it's going to aim them right at Android. And so, it requires the arrangement to be rearranged, to quote the Justice Department press release, to "protect competition and open source."

Now, if it raises a meritorious Section 7 issue to have a changed incentive problem when Microsoft takes a patent from Novell and would assert it differently, I think it equally could raise a Section 7 or Section 2 problem for a strategically aligned group like Nokia and Microsoft to transfer the patents to a PAE, who do not face the same constraints or countersuits. Changed incentives can support a theory.

A second element, potentially totally independent element, goes back to what Professor Malone talked about with respect to royalty stacking. It was called unpooling earlier, and evading FRAND commitments. One thing that's also in the public record is that Nokia had made a commitment not to royalty stack with respect to LTE patents. It didn't so as part of an effort to get its technology adopted. No more than 2% or so. You can imagine a concern that when Nokia takes part but not all of its portfolio and gives it to Mosaid that that could unleash the very royalty stacking that Nokia said it wouldn't engage in. Because, well, now Nokia can engage in up to 2% on the patents it retains, and even if Mosaid honors Nokia's commitment—and I'm not saying they haven't sworn in blood to do so, I'll give that to them for purposes of this argument—they can extract

up to 2% for their part of the portfolio. And I think we heard today that they say they're not coordinating, so that implies to me they're not agreeing to keep the cap at 2%.

So I think these are things that are very much worth considering. I think to make this hypothetical concrete to a real world example, that we're fortunate to have the public securities filings respecting—helps put it in context. And I think the legal theories there are, because Android is a prime threat to Microsoft, you could have a downstream monopolization theory of PC operating systems. You could even, given what I stated about Nokia's promises to get its technology adopted, you might have a Rambus-style theory under Section 2 in the upstream technology market. And God forbid we might even trot out Section 5 in *In re NBC* and expand it a little bit. So those are some thoughts, Andy and Frances.

ANDY GAVIL: Thank you, Mark. Carl?

CARL SHAPIRO: I have no idea how to follow that.

[LAUGHTER]

CARL SHAPIRO: Especially the love triangle part, I have to tell you. So, let me just—Thank you. I still have no idea how to follow that. Let me go back to the strict hypothetical, just to—look, I've got these patents. So I'm the operating company, you're my competitor. I am selling some of them with this arrangement to Frances. You get to play the role of the PAE. I know you've always wanted to do that, Frances. That's why you had the workshop. I think we're trying to make a lot of antitrust here, where I don't think—I don't see why there is very much. Because, I could assert the patents against you my competitor—the competition's between me and you. We're the competitors. This PAE is basically my agent—thank you very much, Frances—to help me do this.

Now, there are a whole bunch of tricky things here that Frances is helping me do this. Evading commitments, and avoiding blowback, and all this other stuff. So I've found—one way to think about this, I found an agent who is allowing me to attack you

more effectively—you, my competitor—to attack you more effectively. It's kind of a—not the type of competition we maybe like so much, but there I have—I have these patents. I'm having trouble seeing why creating this agent is reducing competition between us.

There's a lot of fun and games—we might say, wait a moment, this is no good. You're evading the commitment. That's a—broken a contract or something. And I'm not saying that was all a good thing. I don't like the outcome of this behavior one bit, but I'm having trouble seeing how it constitutes a reduction in competition, the only competition I saw in this whole picture, which was between me and you.

HILL WELLFORD: This is great, because you've really teed up what I was hoping to say. Carl's point is really what is the merger-specific harm we're talking about? And that's what you've got to start with in a merger. You've got to say, how have, in a merger-specific way, the conditions changed in a way that creates an anticompetitive opportunity that the antitrust laws can reach. And this is a cleverly done hypothetical. It doesn't specifically say how those conditions have changed. They may have. If they did—well, let's take the situation where they don't. It's a mere sale to a patent assertion entity that is a pure play PAE. It's not a Mosaid situation. It's a pure PAE.

The idea is, I've got these patents. I'm not very good at litigating for whatever reason, but I'm going to sell them to a company, or maybe hire some people and then create that company, and that company will have a comparative advantage to go assert that patent, get more revenue than I, particularly with my less comparative advantage, would have done. That's actually a very pro-competitive story when we were talking before of what guarantees that that money comes back quickly to the innovator. In that situation, that's a pretty direct way back to the innovator. The innovator says, you know, I'm just not very good at this. I'm going to create an entity that really focuses on it.

What Mark is talking about is the different situation where there is a merger-specific reason to think that some entities have aggregated share or power, and then they have gone out and used that anticompetitively. There is a merger-specific change in that condition that does create the possibility for an anticompetitive activity, and that is a very different situation. So, very important to start by saying, what's the merger-specific change in conditions that creates an anti-competitive opportunity?

You then have a really thorny question, which is can the government catch this in the pre-merger phase, or is it going to miss it under the HSR rules and you're going to be in the consummated merger situation? That is what Mark—putting a little more legal overlay on it, down into the weeds of HSR—that's really what Mark is talking about. In that situation, I think the amount that Mosaid paid, or the amount of the transaction, was at least booked at something like \$20,000, but Mosaid expects the revenue to be, in just a few years, about a billion dollars. You're in a situation there where it's not HSR reportable, so this goes very quickly—in a situation where it's going to have potentially a major effect on a major market. I think one of the things that you've got to do in this situation is say, what is the antitrust conduct that you're concerned about and identify it very carefully. It may not be that Mosaid is trying to maximize the profit from its patent. It may be that you really can't reach that. That's what people ought to do with patents.

What you ought to say is the problem—and I'm taking this away from Mosaid and back into the hypothetical, so I'm not attacking them—the problem in the hypothetical is don't worry about the actions once the deal is done. Think about should we challenge this as a consummated merger if it turns out that it created market power that we didn't realize? The agencies have been quite aggressive about challenging consummated mergers, and maybe that's the way out of it, rather than trying to pound a conduct peg into a square hole.

HANNO KAISER: If I may, I just want to say something to Carl's renditioning is. So Carl, I kind of fail to see why there shouldn't be a problem. Let me put it this way. Suppose we have two competitors. We're locked in a competitive battle. I'm a monopolist, let's say. I have significant market power in the product market. You're a new entrant into this space. I have a lot of patents, you have some patents. I would love to impose some, let's say, crippling costs on you as a competitor, but feel myself constrained in doing that because you would nuke me back. You also have some patents in this hypothetical. Then I give my patents to a third party that is unconstrained in that regard, that I can either expect or I have contractually committed to that that party attack you. So how is that not the willful maintenance of monopoly power?

CARL SHAPIRO: Sounds like the clever assertion of the patents that you were granted, which may indeed lead to monopoly.

HANNO KAISER: Well, but wouldn't that—going back to the baseball bat analogy in the Microsoft case, right? So the fact that you've lawfully acquired an intellectual property right does not mean that any use of that lawfully acquired patent right is also lawful.

CARL SHAPIRO: I'll assume that's a question since I'm being deposed here.

[LAUGHTER]

CARL SHAPIRO: Sure. I mean, look, I wouldn't make such a broad argument about licensing restrictions that the court was dealing with there I think. Again, I didn't say I like the outcome of this. I think you have me. It's a little bit awkward to put it in the antitrust box. You guys are more creative than I am. Congratulations.

HILL WELLFORD: Frances, is this a good time for me to get on my *Noerr-Pennington* soapbox in response to Hanno? I think this might be. There's two issues with this *Noerr-Pennington* framework that we talked about before. And I won't go on for very long, but very quickly, *Noerr-Pennington* is a First Amendment doctrine, and the

idea is that government has no business telling an entity that is petitioning the government for redress of grievances that it can't do it. And not by suing them under the antitrust laws or anything else. Well, the courts are government, and when you demand a license or you petition a court for an injunction or royalty, that's considered petitioning for redress of grievances. So there's no business for the court under the antitrust laws saying if you are purely doing that—you're only asking for royalties or an injunction, and that's a pure, unilateral decision to do so—that is within *Noerr-Pennington*, or actually within PRE, *Professional Real Estate Investors*, which is also a Supreme Court case that develops those in the intellectual property context.

I think that's a pretty clear bar, but notice that I was saying pure, unilateral assertions of patents. If you take it away from the unilateral context, and you add acquisition of market power or merger-specific, or other conduct-specific changes in conditions, that create anticompetitive opportunities, I think that's quite different. And so you have to pay attention to those two contexts being different. The policy perspective, I wanted to say, is you have to be very careful with antitrust, and you have to show a little bit of humility here. From a policy perspective, any antitrust enforcement policy would be absurd if it can be reduced to saying, well we can't trust judges to get it right in a pure patent case. We can't trust them to understand the best use of the patents in the public interest and everything else. But they'll certainly get it right if we add antitrust and patents together, and stir them around, and bring that case as an antitrust case.

So somewhere in that mix, you've got to pull out and say, what is the conduct-specific, changing conditions that's doing something else? Deception, evasion of FRAND obligations, evasion of other contracts, collusion, these are the something else that you need to focus on. So you need to have—you can't go after patent conduct exactly by

itself, pure patent conduct as Carl is saying. You have to have patent conduct plus. So I think this panel is really about the plus.

FRANCES MARSHALL: I just want to say these are the types of issues that we are thinking about every day at the antitrust division, and I'm sure at the FTC as well. And I'm finding this conversation fascinating, and I'm very grateful that you're all bringing all of these issues to the fore. I think now we're going to turn to our Scenario B. It's up.

So reading this one aloud, we have two or more operating company competitors who jointly create a PAE whose interests align with the owners. The owners and the PAE benefit if the patents are asserted to exclude rivals of the operating company owners or raise the cost of their rivals. So, let's discuss this one, and maybe this time, Hill, we'll start from your end.

HILL WELLFORD: I think this is a very similar situation, except for the lack of an explicit plan to go after the rivals in this situation. And so I don't have a whole lot more to say about it. I'm going to pass over to the other folks, since I just had a little time of my own.

CARL SHAPIRO: This is radically different than the previous scenario.

[LAUGHTER]

CARL SHAPIRO: Because it involves two operating companies who are competitors. I regret to say I believe the scenario is incomplete because it doesn't indicate where the patents come from, but I will add that the two companies are contributing their own patents and putting them into the PAE. Maybe that is what was intended? So now I think it's really going to—First off, I think it is definitely more worrisome because they could use this to protect each other's position and basically coordinate to keep out other competitors. So it seems to me this is very rife with Section 1 overtones. This may even have some elements of the old *Summit/VISX* case that the FTC went after like 10 or 15 years ago. So, it could easily be a big problem.

ANDY GAVIL: Mark, without referring to any actual scenarios, would you care to respond as well?

MARK POPOFSKY: Oh come on. But I had at least three in mind for this one. Well here, I agree with everything Carl said. I think there's yet a further concern, and I think it's interesting that Carl thinks this is a problem, if you didn't think the mere transfer changing incentives was a problem. Because the only way this can actually impair rivals is if there is a more perfect or more perfected enforcement. And so it looks like Carl's concentrating on the horizontal coordination as the vice rather than the mechanism by which the exclusion occurs, which is exactly potentially the same as in the prior example.

But pausing on that and moving on, I think the other thing that can happen here, is you can also have operating companies conspire to shield weak patents. So, one of the things that happens—and it was described earlier today, I think, very nicely by Cisco—is what we used to call the IBM model of patent enforcement. You know, here are five patents, and if you litigate on those, I have five more behind them, and five more behind them, and five more behind them. And you can't afford to invalidate any of them, so surrender. If you build a big enough portfolio, so the argument runs—and you can do little mathematical examples where even if you have a 90% chance of beating each patent, if you're the target of the infringement action, you have a vanishing point actual chance of beating all of them. And you're probably going to surrender if there's an injunction threat in the ITC or a high damage award threat. So eventually, if you build a big enough pool, you protect weak patents.

And to go back to one suggestion Phil Malone made, I wonder if the antitrust laws might have something to say about that. It's a little easier here where you have horizontal competitors coordinating to either more perfectly achieve exclusion of the rival by changing incentives, evading FRAND, but what if they're also getting together to

shield their weak patents by giving them to a PAE to assert more of them and hold more back? I wonder if that changed incentive to enforce, but it's the PAE will have a greater incentive to enforce the bigger the pool should play into this analysis as well.

LOGAN BREED: I would submit that this fact pattern is maybe a little more complicated, and we would need to unpack, I think, more facts to know what the answer really is. I agree in the abstract with everything that's been said if the facts turn out a certain way.

But for example, if the PAE is no longer controlled by the operating companies that created it, then we're back into a garden variety PAE analysis. If the operating companies have incentives that are aligned with each other with respect to raising their rival's costs, then we may be in the world that we were just discussing. If, however, we have a number of operating companies that come together to create this PAE, and their incentives are not aligned, then it's not entirely clear to me how the PAE is going to take those interests into account. So for example, you could envision a world where each of the operating companies that contribute to the PAE have a closest competitor, or particularly close competitor, who they want to disadvantage, whose costs they want to raise. And they would rather that the PAE license everybody else on reasonable terms so they can recoup as much of their initial investment as possible. But if each of the operating company members have different closest competitors, then there may not be a lot of agreement as to who they're supposed to go out and attack and who they're supposed to get reasonable licenses from.

So, I think we need a lot more facts to figure out exactly how this plays out, but in the abstract, this scenario could very well go the way that my fellow panel members have described.

ANDY GAVIL: Phil, you still with us? I know that Phil had to leave because we were running a little bit late, so I was going to give him an opportunity to have a last comment, but it sounds like he may have already had to sign off.

I want to go back to something Hill and Carl said that relates to Scenario A and might relate to Scenario B. Carl, you sort of looked at the merger issue and said that the question would have to focus on the changed competition between the two firms. And that what they might do later on, in the sense of filing lawsuits, that that would not necessarily be relevant to your merger analysis. But isn't that what we always do in vertical analysis? It's not that the merger is actually involving exclusive dealing, but it's changing incentives in a way that might create an incentive for exclusive dealing later on. So if this sort of acquisition of a patent changes the incentives of the firms, why wouldn't that be reachable?

But then it actually ties into Hill's comment. If it's reachable because the only possible, further act is filing lawsuits, and that's *Noerr* protected, now I think we have why this is a complicated situation. If that came out right. So first question, really, for you is if it changes the incentives for future behavior, isn't that still covered under a Section 7 issue?

CARL SHAPIRO: Yes, of course. I think that's what we're always looking at in mergers, because it's all in the future, so it's not consummated. Absolutely.

ANDY GAVIL: So Hill, if the only future conduct is a lawsuit, is that where *Noerr* kicks in?

HILL WELLFORD: If the only future conduct is a lawsuit and there wasn't any merger-specific change in the way that you would assert that lawsuit, I think *Noerr* does kick in.

HANNO KAISER: Well that's interesting—

CARL SHAPIRO: I don't want to weigh in on *Noerr*, but it seems to me we worry about mergers that the companies will raise price, even though, let's say, raising price itself is fine. So that doesn't mean the merger's fine just because the price increase later would be. In fact, the reason you have to look at the merger is because the price increase later would be fine.

I was making a different point, which is the merger—this is actually a use of an agent to assert my patents—it's not a merger at all, or the best of patents to this agent—that's you again Frances. It doesn't diminish the competition between me and my rivals out there in the audience. It is just, like I said, a clever stratagem for doing that. The fact that it's later going to be perfectly legal for me to make those assertions—or excuse me, for you, Frances, you're going to be the one doing it—is neither here nor there from my point of view.

HANNO KAISER: I just want to say a word to the *Noerr* issue, because I find this really interesting. First of all, *Noerr* is a defense to a particular antitrust conduct. It's not an immunity. So in other words, it protects a defendant from liability, but not from suits. So stating it as an immunity goes very far.

But more importantly, I think the case law is very clear that a defendant cannot create a defense to an anticompetitive scheme simply by inoculating it or bookending it, if you will, with a *Noerr*-immunizable conduct—immunizable, now I said it—kind of like *Noerr*-defensible conduct. With the *Noerr*-defensible conduct, if you look at that conduct in isolation. And, so that's why I think these hypotheticals are really well chosen, because we're not just looking at an individual company asserting a patent in court. Obviously if that's all there is to it, even if that company is monopolist, that would be *Noerr-Pennington* protected. But here, the lawsuit bookends, if you will, a certain type of conduct that began at an earlier stage, and I don't think that *Noerr* goes that far.

ANDY GAVIL: All right. We're going to move on to our final—I can't actually see if it—yeah, C. Great. Scenario C is a PAE buys patents from an operating company. The PAE can monetize the patents to a significantly greater extent than the operating company because the PAE does not have the same reputational constraints or need for cross-licenses as the seller. Any antitrust issues? Logan, we'll start with you again.

LOGAN BREED: Well, this one again is somewhat tricky and would have to depend, I think, on more facts. So in the abstract, this scenario presents the least problem from an antitrust perspective. On the other hand, there may be a relatively small number of really large PAEs—some of which we've been discussing already throughout the day—who stand in a different posture than the typical PAE, or an entity that doesn't currently own any patents and wants to become a PAE. And it could be that the aggregation of an immense number of patents into one portfolio or multiple portfolios that are then asserted together create a Section 7 problem where there wouldn't have been one if the portfolio were smaller. The mere size of the portfolio could lead to an anticompetitive effect.

And it's going to be very difficult to assess *ex ante*, as merger analysis often has to do, whether a given acquisition is going to create that effect. It's really hard to know if transaction X is going to enable a PAE to raise price above the competitive level. But what we could do is go and look at the acquisitions that the largest PAEs have already entered into, and one of the trickiest elements of a Section 7 analysis is always figuring out what the relevant market is and whether price will go up in that market, or output, or innovation, or quality will go down as a result of the transaction. That's the crux of the analysis.

But in a case of a consummated merger, which all of these transactions would be that we're talking about looking at, you may not need to go through that academic exercise. It may be the case that you could look at actual evidence of any competitive

effect, rather than defining a technology market or defining a market of any kind, and then going through the analysis of the result of concentration through that transaction.

So in this case, for example, we could look at what the super-competitive profits achieved by the PAE were. And maybe one way to do that—there may be multiple ways to do it—but one way could be to look at the prices that the PAE paid for the patents it's acquired. And in the open market, you would assume that, particularly in a PAE to PAE transaction, or an NPE to NPE transaction, the purchase price of the patents would be the net present value of the anticipated future revenue stream from that patent. That's the value of the patent.

And if you were to look at the prices that were paid on that basis by a PAE who has aggregated a large number of patents, and then you look at how much revenue the PAE is able to achieve from that portfolio of patents, you could figure out whether there's any super-competitive price effect. Now, that's going to take a lot of leg work and empirical analysis, but that would be one way to ascertain whether this scenario leads to an anticompetitive effect that could be actionable under Section 7.

ANDY GAVIL: Hanno, do you want to add anything?

HANNO KAISER: I agree that this is the most difficult scenario. This is the one that conceptually raises the most problems. First, we have some Supreme Court case law here that pretty clearly says the mere accumulation of patents, no matter how many, is not in and of itself illegal. That's the *Hazeltine* case. And then of course, we have *SCM* and other cases, like the *Microsoft* case, that essentially say patent acquisitions are not immune from the antitrust laws. So they are not very helpful. We're somewhere in the middle here. So I think what really matters here is, one, as Logan said, what is the relevant market here? And the other thing, what's the quality of the patents accumulated here? If we're looking at, let's say, the substitute patents, there are four technologies out there—well, three technologies out in the market—all alternatives for

operating companies. And then, somebody aggregates all of them together. So then, I think, we're looking at a somewhat normal, horizontal merger analysis.

But what kind of thicket it is that if you're just accumulating competing technologies? I think in most instances here, we would be looking at situations where we're accumulating very large globs of portfolios of related complementary patents, and I think that's the really hard case. We've heard today from many of the operating companies that say, yeah, but that's exactly the problem, because that essentially makes the individually weak patents very strong. Because you have this IBM strategy of here are five, and here are five, and here are five, and you can't challenge them.

So I really think that that's the point where we need to figure out and think about whether the aggregation of complementary patents in and of itself can be a problem, and who knows? Maybe the *BMI* type, *ASCAP* situation cases can be a bit of guidance there. Because clearly in those matters, we're also dealing with a lot of complementary IP rights. I mean, *Stairway To Heaven* is not a substitute for *California Dreaming*.

So these aggregations have been found to constitute separate markets, or when we look at the remand in the *Kodak* case, the parts market, even though all these parts were clearly complements, the Ninth Circuit said no, we're looking at the market for the aggregation because you really need access to the aggregations. I think that those would be kind of the lines of inquiry on legal side that I would be pushing here, but I don't think that there's a good answer at this point.

MARK POPOFSKY: Just a couple quick comments. I agree that this is the toughest situation, and on these facts alone, I think you would not say this is enough. You need to have some market power that's materially enhanced to have an antitrust problem, and the mere fact that an operating company has transferred patents to a PAE who can

more cleverly assert, as Carl said, alone is not going to be enough. You need the something else.

The something else could be that the Scenario C could form part of Scenario A. To go back to my hypothetical non-hypothetical, you can imagine one reason there's a changed incentive is that the operating company who transferred the patents is sort of exiting the standard setting environment, and it doesn't really care about the fact that everyone knows it's going to transfer patents to a PAE. And therefore, it's not going to care that when word leaks out that it's done transfers and there are securities filings about it, that no one's going to adopt its technology anymore.

You have to have a story there of why this is going to affect competition, why it's going to have a material effect on whatever market you're looking at. The technology market in Hanno's example of acquiring substitutes. Very hard to get your arms around, given the opacity of this market. Or in my original hypothetical, maybe because it affects the downstream markets so significantly in a product market to have the changed incentive.

The last thing here for the pure play example Hanno talked about is intriguing. Carl said earlier today he wasn't very creative, and he confirmed that, I think, a few minutes ago—

[LAUGHTER]

MARK POPOFSKY: —where he said if you have non-substitute patents and you aggregate them, I can't think of an antitrust theory.

And I think the ultimate defense to the theory I was spitting out earlier, which is if there is—to borrow a random quote of someone in this room—safety in numbers, that the very big portfolios create an incentive to the IBM-style enforcement that you just can't beat. The counter to that is what Carl said earlier. These are likely Cournot complements, that if we're concerned there's an anticompetitive effect of shielding

weak patents, we have to weigh against that the benefits of creating a pool. And I suggest that if we were to explore this theory, one would try to find the right industry where one thinks, based on the research that is done, the Cournot complement effects are weaker. Maybe we've seen an enforcement pattern of targeting a very tight product market with three or four players where all four of them faced the IBM situation, and therefore the whole price of the product market is taken up. A very discreet example where we might actually see this problem, but as a general matter, I think this hypothetical shows that antitrust alone cannot invalidate the whole PAE model. It's going to depend on the facts.

ANDY GAVIL: Carl?

CARL SHAPIRO: Well, my answer to this scenario as written, I believe can be deduced from things I've said earlier today. Since it's late in the day, I'm therefore leaving this to all of you as a homework exercise.

[LAUGHTER]

HILL WELLFORD: A couple of observations. People have referred, although not to its name, to what's called the birthday problem in statistics. This is—each person's birthday—the likelihood of any one person having a birthday on a particular day is 1 of 365, assuming it's not a leap year. And if that's a patent, that's very likely to be an invalid patent. 1 out of 365 you're going to win, so let's put it in the patent context. Well, it might surprise you, if you haven't been to a statistics class, to realize that if you have 23 people in the room, the likelihood is 50% that at least one of them has the same birthday as the other. And if you have 57 in the room, it goes to 90, at 57 it's 99%. So the idea is you put 57 terrible patents together, and you're guaranteed to win.

I do not think, in fact, that patents are quite that probabilistic, to use a word that Carl has helped make famous. Litigation is not quite that random, but there's something to that illustration. However, I do not see that antitrust has anything to do with that

illustration. I don't think there's a hook there of just worrying about numerosity of patents. I think you have to find some plus. Being able to evade a FRAND obligation, so that, as Logan mentioned, you could pop into existence some royalty stacking that didn't exist before. I think that's a potentially significant item. Some other evasions, some other ownership structure, that can get you out of commitments that you had before, I think, is worth looking at in this situation. But the pure situation, where they're just, as I mentioned before, taking advantage of comparative advantage that gets you a better return on your patents, that is really at the core of what the Patent Act is about, of making sure the innovator can monetize its patents.

So if it is just a pure situation, I don't think you can reach it. If it is this plus, I think you can, and that's the question.

Q & A

[Video 4 of 4, 1:07:20]

ANDY GAVIL: Any questions? We'll take just a couple of questions. Where are the microphones? A couple, I was being optimistic there. Right there. OK, start there.

AUDIENCE MEMBER: Hi, Ralph Eckardt from a company called 3LP. I'm an IP strategy consultant, and I wanted to say that I found this panel terrifying. I would have absolutely no idea whatsoever what to advise my clients about what behaviors would be appropriate or inappropriate with regard to patents and patent licensing based on this panel. I'd like to propose a test that the FTC should think about before they introduce any rules about how patent licensing and assertion entities ought to operate, and my proposed test is that you ought to reconvene this panel. And if you can get agreement across all of these experts about how any particular scenario should be handled, then it's probably appropriate for the FTC to take a step forward and propose some rules.

CARL SHAPIRO: By that standard, we'd have no antitrust enforcement at all, you understand.

[LAUGHTER]

HILL WELLFORD: This is an example of incentives. Most of us are private lawyers, and we want to make sure that you have to hire us.

[LAUGHTER]

AUDIENCE MEMBER: Hi, it's Fiona Scott Morton. I have a question for Carl, which is you have been framing your answer to the first hypothetical as a vertical situation. So I'm the operating company, I make a widget, and I have this intellectual property which is an input into making widgets. Have you thought about thinking about the operating company as being a licensor, having a business in licensing intellectual property? And the PAE has a business in licensing intellectual property, and they compete with each other in the market for licensing intellectual property? Would that affect your answer?

CARL SHAPIRO: Yes.

[LAUGHTER]

MARK POPOFSKY: We'd agree on that.

ANDY GAVIL: I see a hand down—one here.

AUDIENCE MEMBER: Thank you. Jerrold. A couple of things. In Scenarios A and B particularly, I'm reminded of why—oh, it's not working—I have this effect on everything electronic—I'm reminded of why I liked hypotheticals so much in law school, because you just get to talk about different things. But in A and B particularly, the biggest complaint people seem to have earlier was that the effect of this type of enforcement, of PAE enforcement—sorry about that. This better be really good.

[LAUGHTER]

AUDIENCE MEMBER: The effect of PAE enforcement was to take questionable patents and suggest that at the end of the day, by the time you bundle things together,

you're paying 100,000, \$200,000 settlements for cases that really aren't worth very much. A question to the panel really is, is the type of enforcements you're talking about from an antitrust perspective, and certainly anticompetitive types of behavior, does that really move the needle? Are these types of things the types of things that the FTC and the DOJ should be concerning itself with?

The second issue really is, to me, you're talking about changing incentives and reputational constraints. And so, what you do is you, instead of suing company A yourself, you give the patents to a PAE and say, you go sue them. Well, in any circumstance like that, I would say, having litigated for some 40 years, the odds are pretty darn good that the company's going to figure out what you've done and sue you back anyway without regard to the fact that it was done through a PAE. So I just wonder if the hypothetical isn't just that and doesn't really reflect in any way what the real world is likely to be.

MARK POPOFSKY: A couple of responses. One, I gave a non-hypothetical hypothetical that had nothing to do with the strength of the patents. It simply had to do with royalty commitments that were made. I think that shows how this can happen in the real world. Second, I think the gentleman was quite right. I think the logic of you've got the enforcement agent who's not going to nuke it back is the other guy's going to get an enforcement agent, if he can—maybe not always—and nuke you back. And I think it's really an asymmetric situation that the agencies really should be looking for and that you might see in litigation. Some reactions.

ANDY GAVIL: One last question. The gentleman over here.

AUDIENCE MEMBER: Thank you. This is a question directed at Hill, I think, at the end. Maybe this is just late in the day and I got off a red eye, but i was just wondering—I was a little taken aback at your last comment about the goal of the Patent Act being to monetize patents. Is that your view of the Patent Act?

HILL WELLFORD: No. Money is fungible. Rewards are fungible, and that's the way I was looking at it. It's to reward inventors. And inventors, generally speaking, want to be rewarded in money. Some of them want to be awarded in fame, but those aren't the ones necessarily who are filing the most patents. They want to be rewarded in the coin of the realm, and right now we use dollars for that.

AUDIENCE MEMBER: I'm just wondering if that's the goal of the Patent Act?

HILL WELLFORD: Oh, I see what you're saying. The goal of the Patent Act is to use rewards to benefit society. So yeah, I completely agree. If that's the point you're making, I completely agree with that. But there is an interim step to that, and consistently, that's what the Supreme Court and everything else has held, is that you do that initially by making sure that inventors are rewarded enough. And that question is, what's enough of a reward, is really where the rubber meets the road.

FRANCES MARSHALL: All right. Well, we are closing a little bit later than expected and we will—Renata Hesse is here and will be giving her closing statement in a couple of minutes. But I'd like to thank this panel, and I'd like to encourage any of you who find these issues complex and interesting to think about them further and submit any thoughts that you have to us in public comments, and that we'll be accepting public comments through March 10. Thank you very much.

[APPLAUSE]

CLOSING REMARKS

- **Renata B. Hesse, Acting Assistant Attorney General, Antitrust Division, U.S. Department of Justice**

[Video 4 of 4, 1:15:00]

RENATA HESSE: I'm going to do this very fast since I don't want to stand between you all and a beverage or some food. I wanted to thank everyone for joining us today, for a compelling and timely discussion of the implications on competition and enforcement policy of patent assertion entity activities. I want to thank the FTC for co-

hosting with us and for the many, many collaborations that we've had over the years on IP issues, on the workshops and hearings. It's been a terrific partnership that we're very grateful for. And I want to thank Stu Graham for joining us and giving us the perspectives from the PTO today, which was a useful input into all of our thinking on these issues.

My biggest thanks though, go to the panelists and to all of you who have stuck it out until almost 6 PM, which is Herculean in terms of sitting in a conference room for a long time, especially one without windows. You all have put tremendous thought and effort into preparing for the panels and for bringing your insights and perspectives to this group, and we're very grateful for all of that effort and for all of the different perspectives that everyone shared with us today.

From our perspective, competition is especially important in innovation-driven sectors that are integral to economic growth. A recent PTO report estimates that more than one-third of US economic activity is attributable to IP-intensive industries. So this is an area—and I think we've made this fairly clear—that is of great interest and a big priority for the Antitrust Division. When we see activity in the IP marketplace that raises questions about how it will affect competition, consumers, or innovation, the Antitrust Division digs in. We talk with members of the affected industries. We seek out and talk with leading academics or relevant sister agencies like the PTO and other key stakeholders. When it is appropriate to do so, we bring these parties together for a workshop, as we have done today, to hear their varied perspectives and to assess the impact of whatever conduct is at issue in a competitive, efficient, innovative economy.

Today we've been focused on PAE activity, and you might ask why? This workshop was prompted by the dramatic changes in growth in patent assertion activity over the past decade, along with concerns that some of this activity may be hampering innovation and competition rather than promoting it. Critics have argued that through

the aggregation of opaque patent portfolios and aggressive litigation and tactics, PAE activity increases costs, slows technology transfer, and taxes consumers and industry. Supporters argue that PAE activity can facilitate the transfer of IP and put more funds towards inventors and research and development. And we have heard both of these viewpoints today.

Our panelists today addressed many issues raised by PAEs. We heard panelists paint for us the historical developments of revenue-driven licensing and explain the balance of costs and benefits from this activity, including the effects on practicing entities. Professor Shapiro described for us the motivating theory behind efficient licensing of IP rights and contrasted that with some of the real life challenges we see arising from PAE licensing practices. These benefits and costs of PAE activity were the focus of our Session B panels. We received an insightful, real world view of the benefits and costs of PAE activities from industry and practitioners in the field.

We want to see an efficient market for the transfer of patent rights that appropriately rewards inventors and innovators so as to create incentives for further research and development. We want inventors and innovators to promote adoption of cost effective technologies when producers are making investment decisions *ex ante*. We do not want a system that harms vibrant, ongoing innovation through inefficient or opportunistic licensing activities.

The courts, Congress, and the administration are all seeking to promote the benefits of our IP system against the potential overreaches of PAE activity. Our courts have sought to align damages with the value of an infringed invention and grant injunctions only when equitable standards are met. Congress passed the America Invents Act in 2011, which includes joinder rules that prevent plaintiffs from filing a single complaint against multiple alleged infringers, and the PTO is engaged in an important effort to improve patent quality and increase the transparency surrounding

changes in patent ownership. And you heard about that directly from Stu just after lunch.

In our final session, panelists explored how PAE activity might harm some competitors and how aggregations of patent portfolios can enhance market power and harm consumers. This falls within the bailiwick of the antitrust agencies. The Division will continue to evaluate these theories in view of the activities taking place in the marketplace, and we will continue to work with the FTC in these efforts.

We welcome feedback on the interaction of PAA, PAE—I keep struggling over that—PAE activity and the antitrust laws, and I want to encourage attendees at this conference and public stakeholders to send comments to the Antitrust Division and the FTC. As Frances just mentioned, the deadline for submitting public comments is March 10, 2013. Comments received by this date will be posted on our website. In addition, we welcome opportunities to speak with you in person about your competition concerns.

Last but certainly not least, I want to close by expressing my appreciation for the hard work of the Antitrust Division and Commission staff. It is truly—you can't overestimate how hard Frances, and Erica, and Suzanne, and the teams at DOJ and the FTC worked to put this together.

[APPLAUSE]

RENATA HESSE: It is our staff members that make workshops like this one possible and productive, and it is our staff that worked tirelessly every day to investigate and when necessary go to court to protect the American consumer. Thank you all. Have a good evening, and travel safely if you're traveling.

[APPLAUSE]

