



The Future of Invention— What's at Risk?

“THE FUTURE OF INVENTION— WHAT’S AT RISK”

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RUSS MERBETH: Good afternoon. Thank you for joining us today. Thank you for joining us today. I'm Russ Merbeth. Not working?

MR. : PA's not on.

MR. MERBETH: I'm Russ Merbeth. I'm chief policy counsel for Intellectual Ventures here – (inaudible). We're grateful for all of you showing up today to talk about this timely topic. Hardly a day goes by in Washington without a – (inaudible) – being trotted out – (inaudible) general counsel – (inaudible) – patent reform: first, do no harm.

Before we get started, I wanted to thank Chairman Smith for making this room available to us. We're very grateful for – (inaudible) – and for his staff's help in getting this event set up.

I'd like to introduce our speakers today: Adam Mossoff and Dr. Nathan Myhrvold. Adam is professor of law at George Mason University. He's a senior scholar in the Center for the Protection of Intellectual Property. He teaches and writes in the area of patent law, trade secrets, property law and Internet law. He publishes extensively on the theory and the history of how patents and other intellectual property rights are fundamental property rights. His article on the very first patent war, the sowing machine war of the 1850s, has become an important part of the public policy debate concerning today's smartphone wars. Professor Mossoff is a member of the Public Policy Committee of the Licensing and Executive Society and the Academic Advisory Board of the Copyright Alliance and is Vice Chairman of the Intellectual Property Committee of the IEEE-USA.

Dr. Myhrvold founded Intellectual Ventures after retiring from his position as chief strategist and chief technology officer at Microsoft. At Intellectual Ventures, he is focused on a variety of business ventures related to funding, the creation and the commercialization of inventions. During his 14-year tenure at Microsoft, he had various positions at the company and was responsible for founding Microsoft Research. He has extensive experience in research, linking inventions to product development and (merchanization ?). His first company, Dynamical Systems, was acquired by Microsoft. Prior to that, Nathan was a post-doctoral fellow at Cambridge with Stephen Hawking, working on cosmology and quantum field theory. He has a doctorate in theoretical and mathematical physics and a master's in mathematical economics. He holds more than 1,100 patents and has (hundreds ?) of patents pending. Last year, he was awarded a James Beard Award for his six-volume cookbook "Modernist Cuisine." (Laughter.)

So with that, I'd like to turn the floor over to Adam and Nathan for this afternoon's – (inaudible) – session with some Q-and-A from the audience. Thanks again.

ADAM MOSSOFF: Thank you, Russ. And thank you again for coming, and thank you, Nathan, for taking time to have this discussion with us today about intellectual ventures and patented innovation.

I think a good way to start our conversation today is to ask you, what – tell us a little bit about what Intellectual Ventures is, what it does and to what extent today does it match the vision that you had for the company when you founded it.

NATHAN MYHRVOLD: So the simple idea that we had with Intellectual Ventures is something we call invention capital. Kind of like venture capital, but different, in that we wanted to invest in invention.

Now, in living memory, you know, the last generation, venture capital went from nothing to an enormous driving force in the economy, and it was based on a simple idea: invest in companies that don't exist yet. It sounds like an oxymoron. It was very slow in starting, but it became a very, very powerful trend.

Well, we invest in invention. So we have – our company manages a number of invention funds – very similar to venture capital funds. We manage altogether about \$6 billion. And we use that to invest either in brand-new inventions or to exist – to invest in existing inventions. Altogether, we've got about 800 employees. Those are in 11 offices in nine different countries. So it's not a small operation from a human resource perspective. It takes a lot of folks to do this.

It's also something – it isn't very quick. Most of our funds have a 20- or 25-year time horizon. I like to say that patenting an invention is a get rich slow scheme. (Laughter.) In the long run, it's incredibly important. But it's slow because it takes a long time to both come up with ideas, then invest in those ideas, then have those ideas actually reach the marketplace and become important in the marketplace to get a return.

Two other statistics: We're one of the top filers of new patents in the world and in the country. We're in the top 10. We're also one of the top holders of technology patents. We're number five in the world for tech patents. I say tech patents because when we invest we mostly focus on what we'd call the technology industry. We don't focus, for example, in chemicals or pharmaceuticals.

MR. MOSSOFF: Well, could then tell us – give us some more examples of the types of patented innovation that your company creates or – either internally or has invested in externally?

MR. MYHRVOLD: Sure. I'll pick a couple of examples. We've invented a new kind of nuclear power reactor. Energy is an incredible problem for mankind. We've invented a new kind of reactor. We have spun that out into a separate company called TerraPower. Bill Gates is our largest investor, but we have a number of prominent investors in the company. He's chairman of the company. I'm vice chairman. My investment's not quite so big as his. (Laughter.) And we're really trying to pursue the creation of a brand-new type of nuclear power reactor that has the advantage that it takes nuclear waste and burns that as fuel.

We've recently spun out two companies in an area called metamaterials, a very exciting part of cutting-edge solid state physics. It's – you – the slogan nanotech is often bandied about. I think metamaterials are a great example of something that is arguable is nanotech and is very, very, very exciting. So that's – at one scale we have invested in literally thousands of patents. We've licensed those patents to pretty much a who's-who of the technology industry. Apple, Microsoft, Samsung and many other firms have license agreements with us.

MR. MOSSOFF: Now, it sounds like then you do a mixture of internal invention and investments in inventors outside of the – of the firm. So is the nuclear reactor invention something that was created internally or was that something that you invested in externally or was it a mixture?

MR. MYHRVOLD: So the nuclear reactor was an internal invention. It has precursors that go back in the scientific literature literally to the 1950s. People speculated maybe you could do this. We actually came up with some concrete inventions around what we call the traveling wave reactor. So that's one we invented ourselves.

But you can never have all the smart people work for you. (Laughs.) And so a lot of our effort is focused on investing in inventions that already exist. And as – we typically will take a controlling investment in those inventions. You could say we buy them, but in fact a lot of the time the original owner keeps a profit participation or interest.

And we've bought patents from almost anybody who has patents – that includes individual inventors, that includes some of the biggest companies in the world – because everyone who invents is working outside the box, kind of by definition. And a lot of the inventions that people create, the original creators don't have either the business acumen or the business interest or the budget to go pursue. And so that's why we invest in them.

MR. MOSSOFF: OK, so you have invention sessions, in a sense, internally. And recognizing that you can't bring every investor in the world to Intellectual Ventures headquarters to participate in these sessions, you also look out and find inventors that are also engaged in important work and try to invest in them?

MR. MYHRVOLD: Well, you know, every valuable asset in the world has a capital market associated with it. A capital market means people that will buy and sell. You know, if you have stocks, of course, that – stocks and bonds are sold in specific financial markets. The real estate world has such markets. Even, ironically, art and fine wine – there are firms that invest in fine wine. There's auction houses; there's dealers. There's a whole network.

When we started with – we started Intellectual Ventures, if you owned a patent, it was very difficult to find anyone to invest in it or to sell it if you – if you wanted to get out of it. And as a result, the chief financial officer of a company viewed patents as a kind of a roach motel. You know, the dollars would check in but – (laughter) – but no dollars seemed to come back out. It's much easier to make an investment if you know that that investment can one day become liquid.

MR. MOSSOFF: OK, so then you described some of Intellectual Ventures' inventions that have come up through – internally through your invention sessions, and then ones that you have invested in externally. You mentioned one of your spin-out companies. Why the spin-out companies? I mean, why not therefore create the manufacturing capabilities internally at Intellectual Ventures as well?

MR. MYHRVOLD: Well, first of all, our idea is that invention is a specialized task, specialized enough that it makes sense to do that under our roof and that we can do it better. Now, of course, law firms do that. Ad agencies do that. Most companies don't make their own ads because it's better to have a set of creative people that only make ads, and it'd be simpler to have those people, and more productive, to have them in an ad agency rather than to have them distributed amongst every company that ever wants to make an ad. Well, invention is really that way.

You know, to be an inventor, you've got to think differently. You've got to think outside the box. You often are a bit wacky. The people who make great inventions are not necessarily the same people who are great at productizing those inventions or manufacturing them. So we – our goal of our company, our specific business model, says, look, we need to do a deal with

somebody else to make the product and make the money. And so we're only successful if somebody else is successful.

Now, sometimes that's an existing company. And if you have an invention that's a small piece part, that's what you should do. So here's a real example. We have an invention that we think will improve the fuel economy of jet airliners by, like, 10 percent. Now, 10 percent times all the jet fuel in the world – that's a giant number. But am I going to go try to compete with Boeing and Airbus on that? No, that'd be absurd. Although it's – the 10 percent is a very large, powerful economic effect, that isn't enough value added for me to go start a whole commercial airplane company. Instead, for that invention to be successful, we're going to have to one day – we're still – we're still doing experiments; it's not all the way home free yet – but we would have to go and do a deal with an Airbus or a Boeing or a – some other company that makes airplanes. And most inventions are of that nature. The invention itself isn't suitable to start a whole new company around.

But there are other inventions where, unfortunately, there isn't a good example of someone that you can go license to. In the case of our nuclear company, the United States stopped building nuclear reactors 30 years ago. As a result, most nuclear innovation has been very incremental, very small steps to only incrementally hone and improve safety. What's called fourth-generation reactors are better than third-generation. But there was no obvious place to go license the creation of what's called in the reactor business – you call it first of a kind. A first-of-a-kind reactor is a beast that hasn't been seen in 30, 40 years. So in that case, we had to go create a brand-new company.

We've created two metamaterial companies. The most recent one is kind of interesting. Everybody hates those lines at the airport, right, the security lines. We know security is necessary because of the dangerous world we live in, but you can't love those long lines and all the delays and the hassle. Well, we've come up with a way to take this technology in solid-state physics called metamaterials and create what we think will be the ideal airport scanner, an airport scanner where you don't have to break stride, you don't have to walk slowly, you don't have to walk carefully through the thing. And so the – it's off to an exciting start. Now, that's a thing where if we can champion that technology and that really works, that's going to have a lot of economic value; it's going to have a lot of productivity value in all of the stuff in airports.

But that's one where we thought the best approach was to start a company because it was a potent enough technology – it wasn't a piece part; it was a whole system. And when you have that whole system thing, it's very tempting to start a company. But the piece part thing, you're much better off licensing that to someone who already is good at all those other aspects of the problem.

MR. MOSSOFF: Now, with your – so from nuclear reactors to jet airplane materials to airport scanners, are you also investing in technology for the Third World and in other countries?

MR. MYHRVOLD: Yeah, so, you know, I've been part of the tech industry for many years. I was at Microsoft. The tech industry, by and large, makes tools or toys for rich people. And by rich people, I don't just mean rich people in this country, I mean anyone in this country who's rich by world standards. There's at least 2 billion people that make 1 (dollar) to \$2 a day income or less. Now, it's wonderful the way technology has transformed all of our lives. But frankly, our – as fun as it is, our lives didn't need transforming. The people whose lives truly need to be transformed are the people at this few-dollar-a-day level, where they're right on the very edge of

survival. And as cool as it is to have the latest iPhone, they're – the issues that confront them are matters of life and death.

So we created a unit – we call it Global Good – Bill Gates has been good enough to provide funding for that – where we engage our best inventors in trying to invent problems that will help the third world. They'll help the poorest people on Earth. So we have invented a whole variety of things. We have a vaccine container. So everyone in this room has been vaccinated; a lot of people in this room statistically are alive because we were vaccinated. We didn't die of the childhood diseases that still kill tons of people in the developing world.

And we don't think about it much, but one of the reasons we were all vaccinated is they're in good refrigerators, because you need to keep those vaccines cold before you give them. Well, in Africa, the power grid is not very good. It goes out all the time. So they have kerosene and propane-powered refrigerators, but guess what? The road washes out and then the truck with the propane can't come in.

So as a result, about 30 percent of the vaccine doses in Africa go bad before they're given. And that wastes a ton of money, which those health care systems can't afford, but it kills people also. And frankly, it kills kids, because the most important people to vaccinate are children, because it's giving them that head start with the vaccination that – (inaudible).

So we put our heads together and we came with a very exciting device. It keeps vaccines cold for several months with no power whatsoever. And it does so by being a really, really good Thermos bottle, effectively. I got to say, this week, I kind of wanted one here. (Laughter.) You know, in that other Washington, we don't have weather like this. But that's a good example.

We do a tremendous amount of work on other aspects of the vaccine problem. So we've just created an offshoot of Global Good called Institute for Disease Modeling, where we have the best computer models of polio, HIV, malaria and influenza. And we use those models to help inform the efforts from WHO, the Gates Foundation and other places to try to eradicate those diseases. You know, it would be almost impossible for a modern business to have a budget, but I have it in a spreadsheet. (Let me say ?) – what is – what could we afford, if we do this, what happens? People who are trying to plan the eradication of the disease – yeah, they've got spreadsheets, but they can't really model – what if we did this? Would it really make a difference? Does making the extra push here – is that what closes the gap or not? Do we have to push even harder? And so that's where that computer modeling comes in.

MR. MOSSOFF: So it sounds like is that you – what you're exploiting are division of labors based upon specialization, in that some people invent, yourself – I think Russ mentioned you have over how many patents?

MR. MYHRVOLD: Between patents and applications, about 1,200.

MR. MOSSOFF: Twelve hundred, wow.

MR. MYHRVOLD: Yes, Edison had about 1,000, but it's not fair. Tom's recent patenting has been much less active than mine. (Laughter.)

In fact, if you look at the most prolific 10 inventors in the world, in terms of number of patents, eight of them have a relationship with our company. Some of them work for us full-time, some of them we have got a deal with, or we have some other –

MR. MOSSOFF: So you're an inventor, so you're participating in some of these invention sessions and development at Intellectual Ventures?

MR. MYHRVOLD: Oh, yeah.

MR. MOSSOFF: So you're not just the founder; you actually are – (inaudible) –

MR. MYHRVOLD: No, I actually roll up my sleeves and go to work. I bet if you'd talk to people in my company, I probably like doing that better than any other aspect of my job

MR. MOSSOFF: So the theoretical physicist gets his hands dirty?

MR. MYHRVOLD: Well, the thing that's great about invention is that it gets the spark that goes from nothing to something, you know? All great technology was an invention at one point. I wrote the foreword to a book for Harvard University Press about invention, and – so let me try to get this right – I said that invention is to technology as conception is to reproduction.

Well, I got this letter back from the editor. They said, you know, that's much too racy for Harvard University. (Laughter.) And so I sent back, and I said, do you know how long it took me to come up with conception? (Laughter.) I was looking at the – (inaudible). But it's the spark that gets things going. It's not everything, OK? Of course, there's tremendous amounts of value in manufacturing a product, in marketing a product – (within ?) all of those other aspects of the product chain, but invention is important. And that was recognized in the constitution with the – with the patent statutes, and then since then with the rest of the patent law. It's important to be able to give people an incentive to invent.

MR. MOSSOFF: And then, it sounds like what intellectual adventures is doing is that you're not giving the incentive to invent, you are providing the mechanisms, then, by which they can turn those new inventions into innovation – you know, take the conceptions that they have expressed in their patents and convert those into real-world products and services.

MR. MYHRVOLD: That's absolutely our goal. And inventors deal – whether they're corporate inventors or corporations that have inventions or they're individuals, they deal with us because we can supply funding. So we have given more than \$500 million to individual inventors. I don't think you'll find anybody else that can say that. There's no government program; there's no other company that has given \$500 million to individual inventors.

We also give them expertise. It's not a question just of making the financial investment. We have great patent attorneys – like our chief patent counsel standing over there – (laughter) – because navigating that legal process is counterintuitive, frankly, for anybody, but many great inventors understand their technology super well, but to have that technology reach the market, we need to apply legal things that's as good as that – marketing and development. Understanding – you know, when is it time to push the invention, and when isn't it? If you push an invention too soon, before it's time, you're pushing on a rope, and that's not going to be very helpful. If you wait too long, you're not the early bird that gets the worm.

So, you know, those are the kinds of things that we make our business, and very few other folks work in that sweet spot, so that gives us an opportunity to say, hey, if you need help with that, we're the ones.

MR. MOSSOFF: So that was the market niche that you say that needed to be filled, and \$500 billion (sic) of investments later, it's being filled.

Now, you've touched on it a little bit as we've talked about the division of labors between inventors and lawyers and business experts and the expertise that comes with that and the efficiencies that are achieved by spinning out companies and remaining an invention-focused or an investment and invention-focused company.

So – and what this raises, of course, is the issue of the secondary market for patent rights, which is something that is implicit, and a lot of what you're talking about – your capability of doing spinout companies, your capability of purchasing inventions or investing inventions rests upon the secondary market.

Can you – can you comment a little bit about this? There's been a lot of discussion about secondary markets recently, and does this – is this – is this – is this a good development? Does it help or hurt innovators or inventors?

MR. MYHRVOLD: Well, you know, I think the history of economics and of business tells you that capital markets are good for the commodities that there's a capital market in, OK? If there wasn't a market for farm goods, it'd be very hard to be a farmer. If you had to barter your wheat and grain or beef, good luck. It's markets that make things happen, and markets includes people that take financial risk, it includes people that buy and sell.

In technology, you sometimes get people who say, well, God, it's weird that you buy patents. That's, like, not right. And I said, well, what about – if an inventor creates the patent, can't the inventor get financing for it? Because, boy, people who start companies get financing for their stock. You know, the reason that venture capital works is because the founders exchanged stock in this new venture with their venture capitalists to get the money. Then, later, those venture capitalists sell that stock when the company goes public or when the company is acquired.

You know, we would not have the technology miracle in this country if we didn't have both venture capitalists and NASDAQ and the New York Stock Exchange and other exchanges for things to go public and the M&A market and private equity – it's that whole series of markets that provide capital for a business asset that allow it to happen. Same thing is true for almost any other part of business. You know, I'm staying in a hotel here in Washington, D.C. That hotel – I don't know who built it, but it was financed by a bank or something during construction. It was probably financed by some mortgage after that. The company that owns it was undoubtedly financed by both public stock market and perhaps REITs and other sorts of financial markets.

You need to have capital. That is – of course, the word “capitalism” has that up front. But it's the access to capital and liquidity that lets things happen. So the \$500 million that I've given intellectual – given to inventors, that was a capital injection that they can use to create lots of new inventions, that they can pay down their debt, and they can do all of the things that involve economic activity.

MR. MOSSOFF: So –

MR. MYHRVOLD: So I think it's a really good thing that it's possible to invest in patents.

You know, if you had asked the question 30 or 40 years ago, do you need venture capitalist – we probably all seen “It's a Wonderful Life,” that Christmas movie. And, you know, young George

needs money for his business, so he goes to the only thing he can go to, old man Potter, right? The mean old guy that tries to cheat. Once upon a time, entrepreneurs had to go to old man Potter or to Aunt Mildred or some other way.

The creation of a professional venture capital industry, where those people could get money, was a huge positive. Guess what? Same thing is true for inventors. Who is funding inventors? And I'm trying to do my parts to do so.

Now, I – you can't fund it on a grant basis because I can only have access to enough money to do that. I've made promises to my investors. I said, look, guys, you give me some money and (giving me ?) the long term, and I'll give you more later. That's a proposition that commercially they understand.

And I – so I think that this – the development of this market is going to stimulate invention in the same way that the venture capital market stimulated new companies. And you could have said, in the 1960s you could have said, well, jeez, we have a lot of companies around here; why do we need this venture capital thing? And you would have been wrong.

It would have been a good argument in the short run because you would have said, well, yeah, we do have plenty of big companies. What we didn't have was little technology companies championing new ideas. Without venture capital, we wouldn't have a Google or an Apple or a Microsoft or a Sysco or an Intel or any of the companies that have changed our lives, we wouldn't have those things if venture capitalists hadn't been there help boot-strap them. I'm trying to be an invention capitalist boot-strapping inventors so they can have lots of great ideas.

MR. MOSSOFF: That's interesting you mention Google because what a lot of people don't realize is that – is that Sergei Brin and Larry – blanking on his last name –

AUDIENCE MEMBERS: Page.

MR. MOSSOFF: – Page – when they were graduate students and came up – at Stanford and came up with their now-famous algorithm, they patented it. And it was the patent that got the venture capital funding for their own startup company, known as Google as that time.

MR. MYHRVOLD: Well, in fact, that was one of the assets that they told venture capitalists they had, that's right. Then Google paid large royalty to Stanford, and Stanford, following its policy, actually send a third of that to the inventors, which was Larry and Sergei.

MR. MOSSOFF: (Chuckles.)

MR. MYHRVOLD: So it was – patents actually were a very important part of Google's origin, and I think they must be an important part of their company now, since they bought Motorola and paid \$12 billion, you know, by their own statements, largely for the patents.

MR. MOSSOFF: So secondary markets have not just – aren't just a phenomenon of intellectual ventures; they actually exist more broadly.

MR. MYHRVOLD: So, you know, if you looked at the biotech industry, biotech is all about creating new innovations and medicines. And essentially, zero biotech companies plan on taking their companies – their product to market because to take it to market means spending \$800 million to through FDA approval and then distributing to doctors all over the places, and that's

what the big pharma companies do. Now, the big pharma companies, meanwhile, their pace of R&D has been falling behind small biotechs.

So the way that whole industry works, you know, very much along the same lines as this, although for a different technology, is that the innovators innovate. They get intellectual property protection, which gives them the legal ability to go have a deal with a big company and ultimately get paid for it. I think it's a very sound model.

MR. MOSSOFF: In fact, we mentioned Thomas Edison a little earlier. This model was in part something that he exploited as well, wasn't it?

MR. MYHRVOLD: In fact, Thomas Edison invented my business model; I didn't.

MR. MOSSOFF: (Chuckles.)

MR. MYHRVOLD: They didn't have business method patents then. But even if they had, more than 20 years have gone by –

MR. MOSSOFF: (Chuckles.)

MR. MYHRVOLD: – so it would've expired.

Edison's Menlo Park laboratory was funded explicitly as a patent creation venture. He promised his investors a certain number of – or his investors a certain amount of patents per year. When they had patents, they either licensed them out to other companies, sometimes in exchange for founders' stock. The General Electric Company was in fact founded in part by – through a patent grant from Thomas Edison. They also would create spin-up companies, and the Edison phonograph company was one of those to privatize the phonograph. So he in fact did all of these same things in the 19th century that we're doing today.

I think the main issue – the main difference between Edison and what we do is that Edison was the smartest guy in his shop and he didn't let anyone forget that – (laughter) – by all contemporary accounts. We try to reach out to a lot more people. So although I've got roughly 1,200 patents and patent applications, I'm not the highest-patented guy in our group, nor I am necessarily the best in any way, shape or form. Our goal is to reach out very broadly, and that's why we've been able to do a lot more scale.

MR. MOSSOFF: OK.

MR. MYHRVOLD: One thing I ought to mention: A lot of inventions fail. And my analogy is a game of baseball. So in baseball, if you're a great, great hitter – you might have a 400 batting average. That means you miss 60 percent of the time. You're not a hitter; you're a misser. (Laughter.) But it turns out, the way the rules of baseball work you could miss 60 percent of the time and be the best in the sport. That's fabulous.

Now, we have – invention is a thing where the way it works your failures – although they cost you money, your failures can be dwarfed by a real success. You can lose millions on your failures and make billions on even one great success. So invention is a game where the batting average might be 10 or 20 – tiny – but if you have the persistence and you have the financial wherewithal to keep trying and keep at it, those successes change everything. And so a lot of the nature of our business is built around it.

The reason we work at the scale we work is each individual invention is quite risky. I can't tell you which patent is going to be successful ultimately. There's many, many factors that come in. Many of those factors will depend on technology trends five or 10 years from now. I can't know all those things. What we have to do is invest in enough of them that statistically we're going to get a good return.

MR. MOSSOFF: So, I mean – and you've mentioned a lot of very large-scale and important and fundamental inventions, from vaccination containers to airline materials, but you also mentioned that invention can be incremental and that that's an important development as well. I recall that Intellectual Ventures is involved in some way with the Nest – the new thermostat –

(Cross talk.)

MR. MYHRVOLD: Yeah, we just announced a deal with Nest, which I think shows a whole lot of the way the patent system works. Nest is a very innovative company. They've created a very exciting new thermostat. It sounds like an oxymoron. (Laughter.) But that's the way they've come at this.

The guy who runs the company was the chief designer of the iPod and iPhone originally at Apple – very smart, creative guy. His insight was, we can't save energy very well if our thermostats are too crude and then too hard for us to deal with, which mostly they are. So he has come up with a simple, easy-to-use, very smart thermostat. And because thermostats are a very longstanding area with lots of companies, he immediately ran into IP trouble, and he's gotten sued a bunch, not by patent trolls or whatever you want to call them. He's gotten sued by big companies that were in those areas that don't appreciate new competition.

Well, Nest has now done a deal with us because we have access to a whole lot of patents. We're providing them with both some patents that they're going to be able to use to deal with some of the IP issues in their industry. And we also have discussed them coming to invention sessions and really trying to put even more of our creativity into their products.

MR. MOSSOFF: I don't know if this – and since you've mentioned the term “patent troll,” I was interested what you may think of this. And why do you think that some people would apply this term to intellectual ventures?

MR. MYHRVOLD: Well, if you look at the term “patent troll” and see how it's used, it's just a derogatory term that people try to apply to essentially everyone. Last week TechCrunch and All Things Digital – two prominent technology blog sites – called Google a patent troll. (Laughter.) And they called Google a patent troll because – actually a federal court in Seattle sanctioned Google for patent abuse, and litigation abuse specifically, because their Motorola patents were coming after Microsoft in a way that that court felt was unfair.

So I think fundamentally the term “patent troll” gets thrown at anybody who you don't like who's a plaintiff in a patent case. Other people will try to say, well, here's one definition; here's another definition. Look, I am very much in favor of invention. If you're in favor of invention, I think you have to be in favor of invention rights. You know, for the same reason that people who create music or software, they like copyright because that's the legal protection that they have, well, inventors like the idea that their invention won't be ripped off and they'll get paid something for it. So it's natural for other people not to want to pay. And frankly, it's cheaper

for companies that know they have giant patent liability to come lobby in Washington D.C. than it is for them to pay that patent liability.

Now, any system – no matter what the system is, any system are going to have people on the margin who are chiseling or abusing or doing things you wouldn't like. You know, no one would argue – I don't think anyone would seriously argue we couldn't – can't have a public stock market. But as soon as you have a public stock market, you create the opportunity for Bernie Madoff, you create an opportunity for a company that misstates its earnings, and we see those scandals. And there's a certain – you can't have a market without having some abuse. In the same way, I'm not going to stand up and say every patent holder is doing the right thing, but I feel very strongly that my company is doing the right thing. And I feel very strongly that we've got to be careful not to throw the baby out with the bathwater.

In the 19th century America was an agricultural country. We were not an industrial country. We weren't a great power. But if you looked around the world and you tried to find a country like the U.S. in the 19th century, Brazil might be that country, but we were actually much worse than Brazil. You know, at the start of the 19th century we still had slavery. We fought an incredibly brutal Civil War. But amazingly, in the 19th century America became the world's inventor: the cotton gin, the telegraph, the telephone, all the things Edison did. Even at a stage when we were an agricultural country that still had huge structural problems, we became the world's inventor. And that's a position we've held all the way up to this day.

I think that my business and what we're trying to do is just the latest chapter in trying to be innovative about invention. We're not going to compete in the 21st century by working harder than the Chinese or working for lower wages than the Chinese or better – you know, lower working conditions. That's not how we're going to choose to compete. The thing that we're great at and have been great at for, you know, 150 years is invention. It's cleverness. It's being able to come up with the difference that makes a difference in a technological product.

You know, you've asked me a couple of things about how come I don't manufacture my products. I manufacture as many cellphones as Apple does – (laughter) – 100 percent, OK? It turns out most companies in the – and I don't mean that to be negative against Apple. It's a reality that when we talk about a manufacturer, what we mean is someone that does product design and then outsources that manufacture to other folks. They're a regulator of contracts – which is a fine thing, you know? My cookbook is a good example. So I can say I'm a printer, I'm a – you know, and I'm a paper manufacturer and everything else because I write those contracts too. In this 21st century world, I think standing up for invention is a positive thing, and I'm proud of what my company does. I think it's a very positive force.

MR. MOSSOFF: Right. I mean, for those of you who are Apple fans, you will note that the box you get when you buy an Apple, it says “Designed in Cupertino.” It doesn't say manufactured in Cupertino. And I think this is – so the point –

MR. MYHRVOLD: And, look, it's a great innovative product.

MR. MOSSOFF: Yes.

MR. MYHRVOLD: I don't mean in any way to slight Apple for it.

MR. MOSSOFF: Yes.

MR. MYHRVOLD: You know, they have continually innovated through the history of their company. They have a \$500 billion market cap. But it's an interesting thing because part of the reason we're talking about patents still is because that marketplace in cellphones has become so incredibly attractive.

So Apple is locked in a "clash of the Titans" battle with Google – not directly with Google but indirectly. The Android operating system is an issue in these immense lawsuits, that are frankly far higher stakes than anything my company does because Apple is seeking to stop Samsung from importing things into the U.S. Samsung is seeking to stop Apple from doing that. They're not asking for a royalty of a few percent; they're asking for a hundred percent – stop it – which is their right under the law.

But it's when you have those kinds of megastakes that you get an incredible, intense focus. And people say, oh, the patent system is broken. Well, mostly because it suits them to say that the patent system is broken because they're on the wrong side of a potential liability that these "clash of the Titans" would be.

MR. MOSSOFF: Well, this has been a great discussion, ranging across a lot of topics, and so I think we should have some time for question-and-answer –

MR. MYHRVOLD: Yes.

MR. MOSSOFF: – with the audience, and have a chance for them to exploit this opportunity. So does anyone have any questions?

Q: You talked a lot about the comparison between venture capital and the invention capital that you're doing. Can you talk a little bit more – I mean, people use a lot of terms and throw things around like "privateering," so – (inaudible) – for any companies selling patents, and then having someone else use those patents to sue other people. Is there any difference in the market in terms of competition, in your view, or is that just the market finding a way to monetize?

MR. MYHRVOLD: Well, look, I only speak definitively for ourselves. You know, our funds are structured much as a venture fund is, as a general partnership. My firm – not me personally but my firm is a general partner. No investor has the right to tell us what to do. No seller has the right to tell us what to do. Sellers can't direct us to go sue somebody or something else. If they did we'd say no. We have to be in control of the asset.

So, you know, in terms of, you know, is there this so-called privateering going on, I don't know, but you'd have to then – if you really want to look at that question you'd have to say, well, does that mean the Silicon Valley companies don't invest in other firms that are strategically important to them? I think you'd find they do, and they do other kinds of commercial relationships. They do.

MR. MOSSOFF: So what you're identifying is that there – is that the commercial, financial and legal relationships you have with spin-off companies and with licensing and with investing, all companies are engaging in that. And so it's very hard to differentiate without being Procrustean about who exactly is a privateer, who exactly is just simply engaging in patent licensing or some type of exploitation –

(Cross talk.)

MR. MYHRVOLD: Well, and the other thing is what does it mean to – I don't even understand the notion of the privateer. If you're stealing, OK, that's bad news, OK? So a lot of companies – here's an example that's less controversial than I'll move into the more controversial.

The less controversial is there are generic pharma companies. A generic pharma company tries to make pharmaceutical products when they go off-patent. But because there's lots of competitive pressures, they try to jump the gun and do it as early as they possibly can. Meanwhile, the company that holds – the proprietary pharma company, they try to stop them as much as they can.

So if you look at the list of the most-sued companies in the United States, you will find Teva Pharmaceuticals and other generics near the top of the list. It kind of goes with the territory. They have a business that pretty naturally is going to incur patent liability. Well, there's a lot of Silicon Valley companies that also do that. They want to move lots of features into their product.

Now, first of all, they want Microsoft – we did this with Windows. Windows used to be one thing and over time you add more features and functionality. And as you add more features and functionality, somebody else says, wait a minute; that's ours. So you're also potentially incurring liability.

You know, in the face of the Android versus iPhone wars, Google copied the iPhone. I don't think there's any question that they copied it just from anything else. Now, if they copied it legally, that's perfectly right and it's good for the world if they're offering all those features at a lower price. Apple's point is, hey, we aren't funded to be an R&D lab to give it away free to everybody else.

You know, if – so they both have a very valid point, and on the margin they're going to have a fight, but it's because the Android approach of copying everything that's out there is going to incur a lot of patent liability by its very nature. And that's a kind of privateering too. You know, multibillion-dollar companies shouldn't take other people's ideas without paying them a little bit for it.

MR. MOSSOFF: Any other questions? Yes, in the – in the far back.

MR. MYHRVOLD: Please state your name and your affiliation. (Laughter.)

MR. MERBETH: I'm Ross Merbeth and I'm here to help. (Laughter.)

MR. MYHRVOLD: You're from the government! That's great.

Q: I'm Jon Potter. I run the Application Developer's Alliance. I want to thank you guys for coming.

It strikes me that invention (wedge ?) comes out of when you say it is hallowed, and that an invention equals a patent, equals an achievement that is memorable and justifies reward. The GAO study that just came out and several other studies have talked about patents being issued perhaps without good cause – thousands and thousands and thousands of patents being distributed.

And we've done 15 events around the country in the last three months on patents and had very senior practitioners of law firms and things like that talking about the patent office being under-resourced, the patent office being overwhelmed, patent examiners not necessarily being as qualified as they perhaps should have been, even, let's say, this is all in the past, right, the '90s and the early 2000s, as new waves of patents were being applied for such as business method patents and software patents.

We also have pretty good research that says an extraordinary percentage – you can call it 50, you can call it 80, you can call it 30 – an extraordinary percentage of patent troll suits – and we can debate what's a patent troll and things like that, but let's say NPE suits, PAE suits, whatever the acronym of the day is –

MR. MYHRVOLD: Right.

Q: – our software patents and business method patents, typically older patents. So if you will –

MR. MOSSOFF: Is there –

Q: – a question?

MR. MOSSOFF: Yeah. Yes.

Q: OK, there is.

MR. MOSSOFF: It would be great to get to it. (Laughter.)

Q: So garbage comes into the system; garbage goes out of the system; garbage is then used by people, because their vague, over-broad software and business method patents –

MR. MYHRVOLD: Yeah.

Q: How does that fit with your business model?

MR. MYHRVOLD: Well, I think there's –

Q: And what do you think about the very – about the extraordinary number of patents that are out there that perhaps shouldn't have been issued, and how can we deal with those?

MR. MYHRVOLD: Yeah. Well, first of all, it's just not true, OK? So it's a great storyline and it's – the folks who employ you should be happy that you've made that, but it's not one that there's really any statistical information to back up.

So if you – of course there are some bad patents. There's some bad everything. There's also patents which are bad in the sense that although they're perfectly valid, they're silly. In fact, I think there's a whole website called sillypatents.com, and a lot of them are very funny. But someone thought that that was worth all of the effort to go do. So there is no evidence that there is a large number of bad patents.

In terms of – you said that there's a lot of NPE suits, or patent troll suits. In fact, the GAO study shows that it's a tiny minority of all patent suits. And the statistics are very clear. The public – you've looked at them for years. Most patent lawsuits are two medium-sized companies suing

each other. Now, it's not surprising since most companies are medium-sized. There are not that many super-huge companies.

So of the tiny minority of patents that are from NPEs, you're right that software has increased, but that's because the software industry has increased. In fact, if you control – one of the studies we did shows that in fact the best single predictor of the number of patent lawsuits is the amount of venture capital given in, you know, three years prior, because in fact that's what stimulated the creation of the patents and funded it, and then that led ultimately to a dispute.

So I don't think that there are large numbers of bad patents. I don't think – is the patent office under-resourced? Yes, I think it is, OK? I wish that the patents that I filed got through the system sooner. And, you know, like everyone else in the government, they would tell you that there's budget issues. And I think with sequestration and everything else, everyone is very aware of all the budget issues. So I wish that there were genuine improvements, but I don't think that that's a good justification for making blanket statements that all of these things are bad.

But anyway, you asked me specifically about my business. In our business we've got roughly 38,000-some patents. And we only would license – put energy by licensing or enforcing patents we thought were incredibly strong. I've got so many I may as well use the strong ones. There's really no point for us in trying to do things that aren't incredibly strong. Not everyone is in that position. I don't stand up for what everyone who owns patents does with them, that's not my position at all, any more than I think any lawyer would stand up for what all lawyers do, any politician would stand up for what all politicians do.

MR. MOSSOFF: So beyond the very compelling anecdotes, I mean, if there were sufficient statistical studies done to show that there was an inefficiency in the granting of patents, you would be in favor of something to fix that.

MR. MYHRVOLD: Well, we're – absolutely we've been very much in favor of stopping something called fee diversion, where fees from the patent office are used to fund other parts of the government rather than plowed back in. You'd think the patent office, since it's set up as a separate entity, that if lots of people apply, and they pay a fee, shouldn't you use some of those fees to do more examiners? In many recent years, Congress has diverted the fees off to other things. So we're absolutely in favor of that. We're absolutely in favor of anything that is going to create better patents.

But I do think that this idea that there are lots of bad patents is completely overblown. You know, for example, if in fact that was true, then you'd say when those patents are re-examined, the majority of them fail. It's not true. In fact, the re-exam statistics have been stable for many years. Roughly 20 to 30 percent of patents do not survive re-exam, roughly 20 or 30 percent at the other end sail through re-exam, and the ones in the middle are modified to one degree or the other. That's been stable for a long time. You could look at what happens in patent lawsuits, happens all the way to trial. If there's tons of bad patents, then when you finally get to trial, those patents are going to lose, right? Well, it turns out in every court in – you know, district by district, it's 49-51, 51-49, 50-50. It's very finely balanced.

In fact, a couple other things with patent litigation. The number of patent suits filed every year has been constant for a long time. The number that go to trial is constant. It's about a hundred a year, 90 to a hundred. Ninety-seven to 98 percent of all patent lawsuits settle between the lawsuit being filed and the trial. So most of the time it's actually a negotiating exercise.

My favorite statistic is, about a third of all patent lawsuits settle after filing but before any court action of any sort, which tells you the two parties couldn't agree even as to whether there was an action here. And as soon as it actually gets serious, then somehow they work it out.

MR. MOSSOFF: I saw a hand. Yes.

Q: Yeah. David Schmidt (sp) with Representative Lujan of New Mexico. What's the – in your view, the role of the federal government? Is it supporting, at sort of base level, basic science, technology? Is it helping to improve the ability for federal scientists to transfer the top technologies to the private sector?

MR. MYHRVOLD: OK. So, first of all, the first part of your thing I totally support. The reason we have Silicon Valley and we have this wonderful technology economy is because the U.S. government made huge investments in fundamental science and applied science. So NSF and DARPA and programs like that are why we have all this. And people tend to forget that. And they say, oh, isn't it great Mark Zuckerberg created Facebook and became an instant billionaire? Yes, but he did so in a country that has enjoyed more funding for basic science and mathematics at a level that only the government can provide because it's not a competitive asset for one firm or another firm. So that's an absolutely great foundation.

You mentioned – the next thing you mentioned was national labs, and national labs have played a huge role. NASA was a terrific example, at least NASA in the '60s, with Kennedy's challenge to go to the moon; stimulated the invention of lots of cool stuff that had enormous follow-on effect.

Now, some of these things have been happening less, recently, than in the past. You know, DARPA isn't making the same kinds of investments. They're making other investments. So DARPA continues, but it's not clear to me that we're planting enough of the earliest seeds. And if the federal government doesn't take leadership doing that, who's going to do it? Because an interesting thing is that most Silicon Valley companies don't invest in research and development. Now, Microsoft did. We created Microsoft Research. Microsoft Research, in our view, was trying to be like Xerox Palo Alto Research Center or Bell Labs or IBM Labs in the past. Very few if any Silicon Valley companies have made that kind of fundamental investment.

One CIO I – CEO I talked to in the – Silicon Valley said, well, why should I fund research? That's what Stanford's here for.

Well, yes, but who funds Stanford, and who's funding the other potential centers of innovation? You know, we forget a little too easily that San Jose was not like this big mecca way back when. OK? Santa Clara is where they had orchards. It wasn't a huge tech center.

The whole technology phenomenon grew up in the suburbs of a third – at the time third-tier American city. It wasn't in our big centers of commerce. It was in other places.

We've had a lot of other universities, a lot of other states that have been creating innovation, and we have the opportunity to bring the Silicon Valley-like stuff all over the place, but only if we make those fundamental R&D investments.

MR. MOSSOFF: So mentioning the federal government and the federal government now is very interested in innovation and in the patent system and in its role in innovation, can you maybe give us a few comments, as we come to the – come to the end of our session here, about

the proposed revisions to the patent system and whether you think this will help or hurt innovation?

MR. MYHRVOLD: Well, you know, we went through a 10-year process with the America Invents Act, and I don't think anyone involved in the process was a hundred percent happy, which is – I think means it was a success by – (chuckles) – but not by normal standards.

It's only just being implemented, and I think it's really way too early to be making a lot of changes to it. And the – fundamentally, the reason that it's here again is that there are companies who find it cheaper and easier to go and lobby and try to say, well, let's get some more tweaks in. Let's get the things that were rejected as part of AIA – let's try to get another bite at the apple and another bite at the apple.

And it's very rare that you find someone that comes and says, well, we have a parochial interest here. We wish to save billions of dollars of giving it to the real inventors, so we wish to do this. Instead it always comes clothed as, oh, there's this terrible problem with X, Y, Z; these miscreants are doing awful, terrible things. And so I think that there's a lot of misinformation.

And I think a fundamental issue, if you work here in Washington, D.C., is to make sure the baby doesn't get thrown out with the bathwater; that the unintended consequences of what sounds really good doesn't wind up biting you again. And there are – we all can think of – at times the baby's worth throwing out with the bathwater, and it's the – you know, the challenge that members and staff who are way too busy doing way too many things have is to make sure that doesn't happen. So I would really encourage everyone to think very hard and to look very hard and say, are we doing the things that are really necessary and they're proven are necessary to really improve what has been a terrific success for the country overall?

MR. MOSSOFF: Thank you.

MR. MERBETH: Thank you, Nate. Really appreciate it.

Adam, thanks so much for your duties as moderator.

Thank you, everyone, for joining us today. I think we're close to the end here. If you have time, one more question, maybe.

MR. MOSSOFF: Sure. One more question.

I saw – you've been (dutifully ?) waiting, so yes.

Q: Yeah. Thank you. So I'm Matt Levy from the Computer and Communications Industry Association.

MR. MYHRVOLD: Yeah.

Q: So first I need to point out a couple of holes in a couple things you said about re-examination and – (inaudible).

MR. MYHRVOLD: Yeah.

Q: So as I'm sure most people here know, re-examination is quite limited in what you can review. You can only review on prior art grounds, which actually suggests expanding the

covered business method review program. Also, for – (inaudible) – statistics as misleading because there’s a major thumb on the scale in favor of validities and the fact that if, as you say, half of them are found invalid, that’s significant.

But my actual question is this. So Intellectual Ventures recently sued a number of banks on several patents relating to their ATMs scanning checks. My question is, you know, listening to what you’ve said, I’m having trouble reconciling that with the choice to sue the banks who purchased the ATM systems instead of suing the ATM manufacturers, who apparently, in your view, would have ripped off the patents. So can you reconcile that?

MR. MYHRVOLD: Banks make billions and billions of dollars on ATM fees. They – they’re in a position to charge enormous fees because they control the ATM networks that their depositors or others wind up using. That’s how they are using this set of inventions. And the set of inventions, in our belief, leads very fairly and very squarely into what they’re doing. So I think that it’s only fair for them to pay a certain amount of those billions back to the original inventors.

Q: But that sounds like the Willie Sutton view; you know, that’s where the money is. But I mean, the ATM manufacturer built the system that you’re seeing increase. So I’m just asking, why not sue them, since they’re the one that ripped you off?

MR. MYHRVOLD: Well, I’m glad that you’ve stipulated that they’re – ripped me off. (Laughter.) We certainly will take note of that. But look, this is – the patent statute says – (inaudible) – and if you go through – I’m – I would be shocked if banks don’t have an indemnity clause in how they buy their things. Essentially, when we were at Microsoft and we sold software to banks, there’s – indemnity is one of the things that people asked about, or they say if there’s a patent issue associated with this, then come back to us. If in fact it’s a system-level thing that doesn’t occur in any single product and incurs (sic) instead in the system, then it’s absolutely fair to go after the banks because they’re the ones that create the whole system. And you can’t have them get out of their responsibility simply by saying, oh, we chose to structure this through a bunch of purchase orders so that all these billions are just our right to collect, no matter what technology they did, go after somebody else. That isn’t the way the patent statute reads, nor is it fair.

Thank you. I mean, you’ve asked several follow-ups. Do we have enough time – (inaudible) – one more question? Because I saw a hand. Yes.

Q: What is the hit on our economy in competitiveness from foreign IP staff? Let’s just go (increasing ?) –

MR. MYHRVOLD: So it’s – you know, I mentioned earlier who are the people who are most sued and who sue the most. So it turns out that a couple of the folks that are sued the most are Wal-Mart and Target. And they’re often sued by two of the companies that are the most common plaintiffs, which are companies like Oakley sunglasses and Maglite flashlights. Why? Because they have patented inventions, but people rip off their sunglasses – (chuckles) – and they rip off their flashlights, and then the only place that they can sue in this country are the retailers that sell them. And that’s why that funny – that process happens.

You know, China has been engaged in large-scale copying of technology. You know, when I first went to Taiwan many years ago, they would have these computer science textbooks on sale

for a dollar each. And that money wasn't going back to the author. And at the time, Taiwan had no copyright law and had no common law. And it would – they thought it was a terrific thing that, hey, they could copy all this stuff legally because if there's no law, it's not illegal, right?

China has actually instituted copyright law and patent law, but I don't think it's very uniformly applied. And it is a huge issue that in a world where our best products are designed in Cupertino but not made there that those ideas then can very easily be copied around the world. And it's a huge, huge problem. If we make our money by being the smart guys that have the designs and the inventions, if we weaken the patent system, how are we going to get paid? So it's a huge dilemma.

Now, I think in the long run, what we'll find is that China will bootstrap itself with a lot of copying, and eventually they'll decide, hey, we want protection for our guys, and eventually they'll come around. And in fact, that did happen in Taiwan. So Taiwan went from having no copyright and patent law to they have the strongest patent law in the world right now. The – patent infringement is actually a criminal offense in Taiwan. And that's because they made a calculation at some point, wait a minute, our guys have more ideas, but (they draft them ?) in the rest of the world; catch up and get there, which – you can argue about whether that was fair or not; it's what happened.

I think it's really important, if you think about the economy in the 21st century, to say we need a legal framework that protects us, protects what we're good at. And we've got it. Let's just not weaken it because there's a subset of our industries have a parochial concern.

Q: What would be a few top issues for patent reform in your mind?

MR. MYHRVOLD: Well, you know, we went through the whole America Invents Act thing, so I would say the first issue is to say implement it and then see how it works and then take a fact-based approach and say, OK, now, what's working and what isn't working in AIA? That would be my advice. I don't think that the problem that is motivating this has given the AIA anywhere near enough kind of work.

Q: Is a patent – a publishing of patent applications – not final ones but applications – a problem?

MR. MYHRVOLD: Well, it is – when you file a patent, after 18 months it gets published. It gets published to everyone in the world. And it's well-known at the patent office that they see all of these Web crawlers – (laughs) – from all over the world, but particularly from a variety of places in Asia and just – you know, I think it's every Tuesday or – those patents –

MR. : Monday.

MR. MYHRVOLD: Monday.

MS. : Tuesday.

MR. : Tuesday.

MR. MYHRVOLD: Tuesday. So every Tuesday they're published. And you know, Tuesday night – (laughter) – they would be – (inaudible) – servers groan under the strain of all of these folks doing it. So it's a trade-off. It – you know, it – what it means is that people get – typically

it takes three years, and sometimes longer, to get the patent. So you've got at least a year and a half where they've got the jump on it. And a lot of people would like that to be a longer time that it's proprietary, but I also understand the transparency aspect of saying, hey, if I'm out there planning my product, I'd like to know what's coming down the pike. So I don't have any specific recommendation about that, but I know that it is – it is an issue.

Q: Thank you.

MR. MOSSOFF: Thank you, everyone. We appreciate you attending today. Please give a round of applause – (inaudible). (Applause.)

(END)