MS: Good morning, everyone. It is very good to see everyone here and welcome to the Return on Investment Initiative Public Forum. We are very excited to hear from you, the public, on our ambitious efforts to improve the return on federal R&D investment. So, first off, offering an introductory speech will be our supporting partner in this meeting, the Director of the Rocky Mountain Regional U.S. Patent and Trademark Office, Molly Kocialski.

FS: Okay, everybody, I’ve had my coffee this morning. And so for those of you who already know me, you know what that means - so let’s get started. Okay, good morning everyone, and thank you to the National Institute of Standards and Technology in the Office of Science and Technology Policy, for doing the organizing and hosting of today’s symposium.

I will tell you we’ve put on a number of these events for the U.S. Patent and Trademark Office, and it’s so nice to have somebody who does all the organizing for us. We are thrilled to be partnering with NIST to encourage this dialogue and we want it to be a very robust dialogue today. We want to discuss how to increase the economic impact of federally-funded research and development by accelerating and improving the transfer of new technologies from the lab to the commercial marketplace.

I got my start in tech transfer, and I know that that journey is not an easy one. So, it is a great pleasure to be amongst this esteemed group of innovation intellectual property and tech transfer leaders, and I have been looking forward to our discussion today, I think since you all emailed me about it, what was it - like two months ago? So, very, very, very excited about this.

So, all of you know that I like to talk about our American patent system. The American patent system is as old as our nation. Our very first Congress passed the first Patent Act in 1790. Our founding fathers thought that it was a really important thing for people to be able to capitalize upon the things that they invented. It was one of the first bills introduced in Congress when the nation was first formed and the very inclusion of the patent system in our Constitution was the subject of correspondence between Madison and Jefferson.

I used this as the saying - be careful what you agree to in the Federal Government because you might end up doing it. Madison was adamantly for including the patent system in the Constitution; Jefferson was adamantly opposed. He hated monopolies of any kind. So Madison ultimately prevailed, as we know, because our patent system is enshrined in Article I, Section 8, Clause 8 of the Constitution and Jefferson ended up being our first Patent Examiner. So, again, be careful what you agree to in the Federal Government - you just might end up doing it.

But after issuing patents for almost 228 years, we will be granting Patent Number ten million in June. So look for that. I don’t know if all of you have seen the new design. We’ve only changed the cover patent design three times in a century. This one is coming out, it’s gorgeous. It’s going to be absolutely beautiful. And I had someone tell me, they’re like - I’m really hoping my patent doesn’t issue until the new cover comes out.

But throughout our nation’s history and backed by our patent system, American ingenuity has been at the forefront of every single major scientific and technological revolution. And all of the patents protecting those scientific and technological advancements have come through the USPTO’s doors.

Director Iancu, our confirmed Director of the U.S. Patent and Trademark Office has announced two overarching priorities for our agency. One is to increase the reliability of the Intellectual Property Grant, and number two is to change the dialogue to a pro-innovation, pro-IEP dialogue. Too often our conversations have focused on what’s wrong with the intellectual property system, and we’ve forgotten what we get right.

But we have to fix what’s wrong; but we also need to be telling the stories of success where IP was the foundation of the company and has fundamentally contributed to the company’s success. And that’s why this discussion is so important today. So at the first of these joint NIST-USPTO meetings, Director Iancu told the story of Dr. Martin Carruthers, who is kind of famous around here, from Colorado, since he began inventing as an Assistant Professor of Biochemistry, in a laboratory right here at the University of Colorado in Boulder. He eventually went on and founded a little company called Amgen and his technology became the subject of Amgen’s success.

Dr. Carruthers’ success story is a true lab to market success story, but he’s not alone. There are amazing discoveries going on right here in our Colorado laboratories right in our backyard. I recently had the honor of touring NIST’s labs in Boulder, Colorado. Besides making my brain hurt like badly - I had a headache for the rest of the day, but I witnessed how close we are to quantum computing and had a wonderful discussion with a scientist who informed me that he was focusing on proving Einstein’s theory of quantum entanglement wrong. That’s pretty heady stuff, not my usual fare. And just this morning on 9 News they featured a methane detecting laser developed by NIST and CU with the potential to detect methane down to 1 part per billion.

All of us who are here in Colorado, there’s what, 40,000 methane wells in our state? Any one of them could flare up if there’s methane that’s escaping in leaks. And so this invention absolutely has the potential to save lives and property probably to the tune of millions of dollars a year.

So I also love the fascinating work that’s going on at NREL from harnessing the wind and sun in more efficient ways than I think I could have ever dreamed about as a baby chemical engineer. To converting biomass to fuels, NREL is creating amazing advancements in renewable energy. And, quite frankly, I would have loved the pipeline virtual reality that they did in connection with Duke Energy when I was a chemical engineer, being able to envision using peregrine [phonetic], the effects on the pipeline on adding controllers or subtracting controllers and valves. That would have saved me hours of calculations in my career, as well as the recalculations whenever you had the decimal point in the wrong place.

So, I also hope that you will check out CO-LABS’ website. Dan Powers and his team have the mission of educating stakeholders about the value of the federally funded laboratories, creating connections between stakeholders and supporting retention and expansion of Colorado’s scientific resources. According to a 2016 study that Dan and his group and team commissioned, the federal labs in Colorado have contributed $2.6 billion to the state economy in 2014 and 2015 and accounted for more than 17,000 direct and indirect jobs. That is a real effect on the state of our economy here in Colorado.

Or, the work that’s going on in Dixie State University in St. George, Utah to create their own Innovation Plaza. The Innovation Plaza puts together groups of students, researchers, incubators, mentors and makers all together to deliberately create the kind of collisions that disrupt industries and create technological advancements.

There’s a young man that I got to meet at St. George and he was so adorable because he dressed up and wore a suit to come to one of my talks on intellectual property basics. But he informed me that he’s an undergrad, he’s a sophomore and he’s getting an engineering degree. He’s also helping his mom run their farm, some unbelievable number of acreage and number of head of cattle.

And this young man not only has the goal of getting an engineering degree, but he has the goal of having a patent application on file for every year that he’s in school. Now when I was getting my degree, all I wanted was the degree, so this young man’s ambition is truly inspiring, especially to me.

And then just to talk a little bit more about economic impact. We recently inducted a 155 new fellows into the National Academy of Inventors. All of them are accomplished innovators working in the academic context. Collectively, those 912 fellows with the 155 we just inducted, hold more than 32,000 thousand issued patents. Those patents have generated more than 9,400 licensed technologies in companies and created more than 1.3 million jobs. And that’s an average of about 1400 jobs per NIA fellow.

So the work that we do in the intellectual property context in terms of patenting and transferring technology gets amplified more than we ever really realize. And additionally, those 912 fellows have generated more than $137 billion in revenue based on their discoveries. So it’s quite interesting. But for Carruthers, our Utah and Colorado innovators and for those NIA fellows and the countless other innovators and entrepreneurs who walk through our doors, the U.S. Patent and Trademark Office is the center of their efforts.

We have almost 13,000 incredibly dedicated public servants. We house the world’s greatest collection of intellectual property knowledge and experience. And at the heart of our agency are over 8,000 patent examiners, the people who are on the frontlines serving our inventors and fostering innovation. About 2,000 of our examiners have master’s degrees, almost all of them have scientific or technical backgrounds. To be a patent examiner, you have to. 2,000 of them have master’s degrees and about 1,000 examiners have post-doctorate or doctorate degrees, including one of the women who is in my office who has, I think, some sort of dual PhD in elemental physics and something else. And she worked at CERN, at the super-collider before she came to work for the U.S. Patent and Trademark Office as an examiner.

As the Director of the Rocky Mountain Office, I focus on implementing Director Iancu’s initiatives in the region. I help provide our regional examiners with the tools and training, including guidance, necessary to ensure that we issue reliable and quality patent rates. Here’s just a plug - I know you’ll hear this as well.

One of the ways that government agencies get information from the public is to either host forums like this or we put out what we call Notice of Public Comment or Notice for Request of Public Comment. So we recently put one out on post-grant proceedings in the claim construction standard that’s associated with them. We do want your comments. And just two years ago I was sitting in your seats on the other side of this and I was like, really? This is going to be a lot of my time to craft a public comment on behalf of the company I was working for - no one is ever going to read it.

The good news is, now being on this side, I can tell you that not only does someone read it, multiple someone’s read it and it gets discussed. And sometimes it gets discussed down to well, we think that they meant to dot that i, but we’re not quite sure. So we’re going to take this and we might go back and ask them about it. It really does, it makes a difference, it helps us shape our policy. And we need to know what you’re thinking and I’m sure NIST feels the same way.

We also recently issued a guidance memorandum on patentable subject matter. It’s called the Berkheimer Memo. If you haven't read it, I think it’s a really good step to taking the pendulum back a little bit towards patentable subject matter and expanding patentable subject matter rather than retracting it.

But for our IP system to function as intended, patent owners and the public need to have confidence in the patent grant. And when they have confidence in the patent grant, inventors are encouraged to invent, technology gets transferred, investments are made, companies grow, jobs are created and science and technology advances. A reliable, predictable and high quality patent system, in the words of our first patent examiner, Thomas Jefferson, gives a spring to invention beyond his conception.

Now more and more innovation is the engine behind economic growth. So borne of our Constitution and steeped in our history, our patent system is the crown jewel that provides both the incentives and the protections necessary to enable innovation and resulting growth. The USPTO is the proud guardian of that system and we work tirelessly to ensure that it meets its full Constitutional mandate to promote this progress of science in the useful arts. Thank you again to NIST for hosting this discussion and I look forward to our continuing dialogue. [Applause]

MS: Thank you, Molly. In my haste to get this meeting started and introduce myself, my name is Chuck Noll [phonetic]. I work in the Technology Partnerships Office at NIST. I am an interagency policy specialist. So onto our next agenda item. To present an introduction to the return on investment initiative is the Associate Director at NIST for Innovation and Industry Services, Phil Singerman.

MS: Thank you, Chuck. So good morning. Welcome, everybody, thank you for coming. Thank you, Molly, for being our partner. So Molly mentioned the Constitution, so I have some notes about the Constitution here in case you had forgotten. So as you know, the patent section, Article I, Section VII Paragraph IX did you say?

FS: Clause VIII.

MS: Clause VIII, thank you, “to promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.” But NIST is also in the Constitution. So Article I, Section VIII, Clause V gives to Congress the power to fix the standards of weights and measures. So the federal government has been doing scientific measurement and standards since its inception. NIST is not quite as old as the Patent Office, only since 1903, I believe. So we’re only a century and some numbers old. But we’re both delighted to be in the Constitution, it gives us a little kind of job security, if you will.

I want to also introduce the members of our team from NIST. So outside at the registration desk is Tammy Clark, Special Assistant to the NIST Director. Dr. Walter Copan who I believe is known to many of you. Dr. Copan spent, before joining NIST in the fall, he is a presidential appointment with Senate confirmation, he spent about a decade, I believe, in Colorado. He was the Tech Transfer Director at NREL and ran various private and non-profit organizations and is a very strong believer in technology transfer. In fact, this whole initiative is his brainchild.

Also with us today is David Cranmer. David is in the back. Davis is the Deputy Director of the Hollings Manufacturing Extension Partnership which has a facility in every state in Colorado, it’s called Manufacturer’s Edge. And Chuck has already introduced himself and my colleague, Sean Linder, who is the Senior Science Advisor to NIST, is the Project Coordinator of this entire effort. So that’s the team that we have with us today.

And we have organized this public forum, as Molly has mentioned, to solicit your views on an important national topic which is how to leverage the return on investment of the enormous federal investment in research and development. So this is a very knowledgeable audience. You know that we spend at least $150 billion dollars at the federal level in research and development.

About two-thirds at universities, about a third within federal laboratories such as NIST, such as NREL, such as the NASA facilities, the Department of Defense and so forth. And the goal of much of that is to produce economic gain and maintain a strong national security innovation base. The ability to do that through that funding is based on a series of technology transfer legislation, primarily that were adopted in the early 1980s.

So this audience is certainly familiar with the Bayh-Dole legislation, the Stevenson-Wydler legislation. And there have been a number of bills subsequent to that that have refined and expanded the ability of the federal government to support technology transfer from our federal laboratories and universities. This policy, these processes, are really the model for the world.

But as you know, other nations are also investing in these and developing their own programs. And now in the 21st century it’s imperative for us to ask whether and how these laws, regulations, policies and practices can more effectively promote the transfer of federally developed technologies. And so that is the purpose of what we’re calling the return on investment vision and goal. To unleash the innovation power of America into our economy, to maximize the transfer of federal investments in science and technology to meet both current and future economic and national security needs by attracting greater private sector investment.

And what I want to do is take a few moments and then we’re going to hear from you. Take a few moments to place this initiative within the structure of government policymaking. And this echoes Molly’s comments about what we’re going to do with the information that we receive, so it’s going to flow through an organized process and structure to result in an analytic report and series of proposals to improve our laws, our regulations, our policies and our practices. The context is the President’s management agenda.

So every administration annually produces a series of - management agenda - what are known as CAPs, Cross-Agency Priority goals. And the prior administration and this administration have carried forward a lab to market goal. And under that process and under that structure and under the leadership of the White House Office of Science and Technology, we’re advancing this goal through the return on investment initiative.

A word about the lab to market cross-agency priority goal. It’s to improve transfer of federally funded technologies from lab to market. So this initiative is not just a NIST initiative or a Department of Commerce initiative, but it is a White House initiative using the vehicles of the coordinating powers of the Office of Science and Technology Policy and the National Science and Technology Council.

There’s a structure of organizations that are going to lead this. NIST is doing this with the White House’s OSTP and through a National Science and Technology Council lab to market subcommittee, which NIST co-chairs. A word about NIST. I know you’re familiar with the Boulder campus. We have a major campus in Gaithersburg, almost 600 acres, 60 buildings, 3,000 square feet of facilities, 3,000 or so federal employees and an equal number of guest associates and researchers from universities and private companies.

We’re very proud of the work that our scientists do, particularly, of course, here in Boulder. Boulder scientists and NIST scientists have won four Nobel Prizes in the last 20 years, which is quite an achievement for a modestly sized agency. NIST also, and this is not well known, has unique responsibilities for federal leadership in promulgating and reporting on technology transfer policies, practices and regulations.

And it’s under that special authority that the Department of Commerce has delegated to us that we coordinate a series of inter-agency policy groups. We report annually on the federal government’s performance in technology transfer, as well as the Department of Commerce’s. And we are the host agency for the Federal Lab Consortia, which is, if you will, the professional association of technology transfer specialists within the federal laboratories.

It’s equivalent to the Association of University Technology Managers, AUTM, which is the association for university technology transfer officials. I mentioned the return on investment initiative objective, and this then flows from all of the above. In order to gather information to inform our analysis and decision making, we have put out a formal request for information under the federal register. And we’re asking a series of detailed questions to elicit comments from the stakeholder community which will provide important input into the deliberations that we’re undertaking.

This request for information is open for 90 days. It was issued May 1st and it’s open until July 30th. We are already receiving comments and analyzing them. And in addition to the comments that you’ll be providing us today, which will be recorded for our internal analysis, we’re urging everybody to submit more formal written responses to the website which I’ll have up in a moment.

We’re looking at a number of areas. These are illustrative areas that we’re looking at, but they’re not exclusive. We’re interested in your opinions, experience, expertise and suggestions of how we can improve our processes. Looking at core technology transfer policies and practices. So we’re not just looking at legislative reform.

We think there are a lot of opportunities in sharing best practices, in harmonizing policies across federal agencies. In clarifying confusing regulations and aligning them with current law. And, of course, looking at statutory changes which might be necessary in order to improve our processes. We’re interested in reducing the regulatory burden and, if you will, the administrative burden on companies that are trying to work with federal institutions. New economic development, innovation partnering models and technology transfer mechanisms.

Many of you may have experience in this field that would be of value for us to consider. New approaches to eliminate such barriers. Metrics and methods, this is our second forum. We had a forum last week in San Jose and there were very interesting comments about how we really should evaluate the performance of our federal tech transfer activities. And, of course, new approaches to motivate, significantly increase technology transfer outcomes. I mentioned the request for information. This is the website - will these slides be available, Chuck?

MS: Yes.

MS: Sean?

MS: Yes, and they actually are posted on the website. If you just type in NIST return on investment and public forums, you will find it.

MS: Thank you. This is the second of four public forums. We have one next week in Chicago and then a final forum in mid-June in Gaithersburg, Maryland. And that’s the website that Sean just mentioned. I am going to leave this slide up which has the questions that are included in the request for information. So Chuck, do I give it back to you now? We’re here until noon. We’re eager to hear from you.

We have a structured process that Chuck will describe. And if our experience in San Jose was an example, we’re looking forward to a very robust and interactive discussion. You can ask us questions. We won’t be able to answer them - we’re here to listen - but you can ask each other questions and you can respond to each other’s questions and also comment on each other’s presentations. So thank you very much for coming; we are looking forward to a very productive morning. [Applause]

MS: So okay, so the way that we’re going to proceed. I am the moderator. You each have three minutes to make any sort of public comment, recommendations, questions, best practices that you’d like to share. We’re anxious to hear from you because all of these things we’re going to - we are being recorded. It will be transcribed internally for NIST use. We reserve the right to publish comments without editing. And because it is in the public record, it will inform us as we move forward with the ROI initiative. We will be breaking at 10:30 just for a 10, 15 minute break.

Once everyone has had a chance to offer their three minutes, we can start back up again for an additional three minutes for everyone. But when you step up to the microphone, please use your microphone voice, give us your name, your organization and then feel free to just launch in. I’m not going to have a timer. I may signal to you. So please, share with us your thoughts and let’s begin the public comment. I’m okay with awkward silence, too.

MS: Thank you, Chuck. I’m Jim Roberts, I’m actually the Director of Licensing at the University of Colorado Anschutz Medical Center here in Denver - actually, Aurora. We have talked about it at our office based on the points that you’ve got listed here. And I think we come up with sort of three different points that are important to us from our perspective, and I understand that we only represent one small sector of federal research, which is mostly the biomedical and medical area.

But the first thing, of course, is the Bayh-Dole Act. And I think what we want to do is we want to say that I think that generally works out pretty well for us. We’re pretty happy with it. I’m sure there are some improvements that can be made. We think the administrative part of it, the reporting part of it, I-Edison [phonetic] and so forth is a burden. But other than that, generally it works out pretty well. The second point I’d like to make is that we believe that the motivations and incentives have to be aligned in order to - between the research and the purposes of the research that the government pursues. And of course, we understand that the government does a lot of research for its own purposes.

But there are a broad set of problems and opportunities in society that we try to address at universities. So to the extent that the motivations are aligned with what the recipients of that research and the commercial entities that would make products that would benefit society would be, the more successful we’ll be. Just a small data point or a small concern on that is that at our university in particular we don't really reward the issuance of patents as much as maybe other institutions do in terms of advancement, academic advancement.

And so to the extent that that could be sort of promulgated as a larger message, that would be beneficial as well. But probably the third and most important point for us is funding. So of course, everyone is familiar with the gap funding issue. We struggle to actually find resources to bridge that transformational gap between basic research and useful products. So to the extent that we had some resource for gap funding, and we understand that there’s SBIRs and SETRs and other mechanisms to do that, but that the broader and more flexible approach that we might have to that or source for funds, then the more beneficial I think it would be to be able to enable that transfer of technology to private industry. And those are my comments - thank you.

MS: Thank you.

FS: Hi, I’m Lu Cordova and I am the President of the Techstars Foundation. I was at the unleashing innovation summit in Washington and noticed that there wasn’t a single person in the room who I had met that actually woke up in the morning thinking about profit. And if you’re going to bring lab to market, you need the market side. So I want to tell you a little bit about what Techstars does and maybe what we can do to help you.

So Techstars has accelerators that it’s known for and it also has startup, like startup weekends, startup week, you’re not in - you know, Techstars. We are in 150 countries. We have thousands of events that we do. We have 300,000 alumni who have touched Techstars. Our companies, over 1200 companies that we have put through our cohorts have over $11 billion in market cap, just to frame it. What we do in the accelerators is we take really worthy companies.

Now by worthy, I mean it’s easier to get into Harvard than it is to get into one of our accelerators. However, we know what, and recognize what’s great IP, we protect IP. That’s part of what we do. We bring mentors, that’s why we call it accelerators and that’s why our companies do so well with demo days. Our alumni include investors, include topnotch people in the industries. It really is a community that we do out there.

And we’ve worked with inventors a lot and I think one of the things you have to be really careful with is that people have heard of founder’s syndrome? Well, inventor’s identity syndrome is even stronger. It’s where the academic environment has set up a means of rewarding inventors by accolades rather than money. And that creates an inventor’s identity syndrome that’s very hard to get that invention out into the marketplace. And this is something that we work with all the time.

So if there’s a way that Techstars can certainly come in - we do a lot of verticals with different organizations. Like we have one with Cargill Farm to Fork. We have Cedars-Sinai around medical, we have Barclay’s around fin tech. The list goes on - we’ve got maybe 40 verticals in everything from car with Ford to we’re looking at logistics in transportation. So we’re pretty deep in this area. And I think it’s a way to keep technology that’s invented here to stay here. I think we have to create opportunities for those people to grow their businesses here. Thank you.

MS: Thank you.

FS: [Inaudible]. We have a Department of Defense vertical. [Inaudible]

MS: Next?

FS: Hi, my name is Danielle France and I’m CEO of Microbial Pulse Diagnostics, this infectious disease diagnostic company that is commercializing an invention made at NIST in Boulder. And I just want to say something about the gap between what Lu and Jim just talked about. And I think that gap really lies with the people which in oftentimes are the scientists who have worked at a federal laboratory are the most suited to take that technology out into commercialization.

But it’s a difficult, there’s no support for that transition, I guess is what I’m saying, for the people. There can be support for the company, which is great and SBIR picks up pretty early stage and accelerators pick up pretty early stage. But you’re still really easily talking about six months to a year between the time that someone would take the step out of the federal or academic lab and have money coming in from investors or from SBIR. So I think there’s an opportunity to support the people who could be a little less brave in taking that step if they had some money to support doing that. So I just wanted to throw that out there as an idea. Thanks.

MS: Thank you.

MS: I think an interesting note is that the last time we did the lab to market cross-agency priority goal from the White House we didn’t have this public forum option. So we weren’t able to get this input from outside. And already with our first three comments, we’ve seen academia, industry, small business and these are the points that we’re trying to address. So please - thank you.

MS: So Todd Hedley, Colorado State University Ventures. Yes, the lab to market, I think, is where we’re starting to spend a lot more time. We have an internal program, we call it Research to Market and other universities have similar programs. But really, playing off of the I-Corps program with NSF, NIH, the Department of Energy. Those we find to be extremely good programs that allow us to educate people on the academic side, mix them with mentors, mix them with industry folks. Whether it’s a startup or just a nascent technology, we found that to be very good.

We are attempting to internally grow that program even more. But I could see those sorts of dollars being extremely useful to us to move those inventions. And I would also just second what I’ve heard from a number of colleagues about the Valley of Death, as it were. To me, that’s part of it as well to maybe investment dollars, but also just this educational piece.

And then I think also at universities, I can’t speak to federal labs, but universities, certainly commercialization of intellectual property is one of many things that the faculty are asked to do. And I think it depends on what type of research that is, as well as just at each university what is the particular incentive for any particular faculty researcher’s graduate students to engage in that technology I think is really important. Because to me, that’s a big pull versus trying to push folks to do those sort of things. Thank you.

MS: Thank you.

MS: Good morning, I’m Ken Porter, I’m here from Innovate Calgary and also representing the AUTM board of directors. I would like to start with, there were a couple of studies done in 2017, one by the UK House of Commons on IP and Tech Transfer and one by the Canadian House of Commons IP and Tech Transfer. And for the Canadian study, they took a year, AUTM filed a brief. We testified in June.

In November, they issued a report with twelve recommendations. And the first two were to surveys in metrics. And basically what they said was tell your story better. That we get it, but everybody doesn’t have a year to do a study to get it, so tell your story better. And so working with AUTM to revise the metrics.

So AUTM publishes a report every year on licensing and I think there are about six or eight categories of metrics reported. But on the actual survey, they’re thirty, so it’s must more - the survey is much more granular than the report. And I think moving towards something like that is something that we will probably do in Canada. And also, the metrics, the numbers need to come to life. And the way that you do that is with stories, storytelling, empathetic storytelling.

For example - and we’re going to start that project and actually, that’s through the AUTM Foundation, some of the board members of the foundation and the foundation is going to do a Canadian impact survey. But put stories behind the numbers. For example, canola - canola oil was invented by a collaboration between the federal labs and Canada and the universities. So it came out of the University of Saskatchewan and Manitoba. There’s a $26 billion dollar impact on the Canadian economy. So stories like that we’re going to put together behind a new metric centered boards.

The other thing I wanted to mention has to do with partnerships and IP database was mentioned. And I think that you guys have talked about that, too. The UK has one, it’s called Konfer, K-O-N-F-E-R. It’s fantastic and work well in the federal system. It talks about IP or it has a catalogue of IP and also the expertise and specialized equipment facilities. The UK report suggests a keeping or continued support of the database, but also putting a business development team around it. Because when companies go to that database, they don't know how to query it and they don't understand the results that they get from it.

We’ve done that in Western Canada. We put together a consortium of 40 universities, colleges and polytechnics that approach the energy industry for pre-competitive research. I think that is their philosophy, too, to attack problems that the whole industry faces, like energy it’s the environment. So every energy industry, energy company wants to do better with respect to the environment.

And so we were given, we got a grant for $2 million dollars. Half of it we hired a business development team to understand the problems of the industry and the capabilities of the universities. Put those together with the other million dollars we funded projects and that was matched four to one by industry money and another four to one by in kind. And we’re going to expand that, we’re working on a proposal to expand that nationwide, Clean Tech. Also, the last two points were in the recommendations, was one for gap funding, so I think everybody sees the value of that. And the other thing is that we’re working to bring I-Corps to Canada.

MS: Thank you.

MS: Brent Reece, CU Boulder, Technology Transfer. So I think if you look at innovative companies who are trying to move research innovations into the marketplace, you know, there’s a stark contrast to the allocation of resources. So when I worked in bio pharma, I was proud of the amount of R&D research that our company invested. But then when I learned how much was invested into the business development and the marketing that goes into taking those innovations into the market, I was staggered. It was many, many more times.

And we’re, I think as a research ecosystem, the reverse of that, right? So we’ve got this very robust research department, so to speak and almost non-existent sales and marketing. And so I think we can see some examples where the theme is present. So I-Corps, SBIR, that sort of thing, but the scale I think is not there.

I’d also advocate that any further growth in that area of recognizing that this is not actually a transfer, but it’s a growth and a development. It’s like you don't transfer a toddler into university - there’s a whole journey there and then the same way a research innovation isn’t transferred into industry. So in that process that is built, I think it should be decentralized. I think that different institutions, they can be supported in doing it, but I think they should grow their own, so to speak. And I think it’s actually already happening.

You see I-Corps has been customized, maybe for a medical school, maybe for a school that focuses on innovation technology, that sort of thing. So I think there needs to be some specificity in how that works. So I think I’m doubling down on several things. And one new thing I want to add is, so funding is really important at seeding companies, but also prior to that. But another thing is entrepreneurial and management talent is a real gap.

And I think the more that we can engage with the entrepreneurial community and letting them know that we want those individuals to come in and help to lead these companies, it’s critical. We know that the inventors themselves, despite whatever their aspirations are, they’re not trained to do this and they usually don't have the time and they often don't have the incentives to do that. So how many people in the business world and in the startup world know that there is this opportunity? And I would say there’s not too many.

MS: My name is Dan Powers, I’m with CO-LABS. Ollie had mentioned we’re an organization, a non-profit here in Colorado that advocates and connects all the various federal research labs, federally funded research labs and institutes, brings comments there that cause me actually to want to jump up and add onto that. Two thematic points I want to reference.

Part of our activity involves hosting tours at various labs and particularly bringing in not only scientists from other labs, but economic development folks and entrepreneurs. And those who, from our perspective, need to know about the resources and people within these labs. So with that as a bit of context of where I’m coming from, there’s process and there’s communication points that I would suggest you consider.

A first hurdle that we have found in getting people to come to the labs and be part of what could be R&D manifestation is just a presumption of loss of their IP. That getting into conversations with government research labs is going to somehow dilute or otherwise restrict what they have as a vision for manifesting their science. So how that can be translated into communications, I think is something to look at.

Additionally, in terms of communication, stepping back further, what the priorities are of the federal government. What science is meant to address with the implicit and explicit connection to where funding and political support and other resources will then come to bear is something to emphasize. And I know that there’s, of course, an A to Z list of all the things that are of equal importance to the country that we need to address.

But I hear entrepreneurs with their own finite and focused vision on what it is that they feel they would like to solve as a problem. They want to be sure that they’re correlating their reference with what truly is perhaps ultimately a political decision and not just a mechanical list of goals we’re trying to achieve. The lab corps program at NREL is one that, actually some of Lu’s comments made me think of this. The ability to have mentors and learn to fail fast to do a competitive analysis and competitive landscape assessment within six to eight weeks so that brilliant ideas are faced with the reality of there’s no market for what you have, or at least this is going to take a lot longer.

I think replicating that across the various agencies with that as one of the missions or your questions here would be something that all federal agencies should put into place something that would benefit from perhaps a Techstar’s type vetting for what otherwise are brilliant ideas over beers or in the labs, but the realities out in the real world, this isn’t going to create much traction or see much traction.

And then lastly, organizations like CO-LABS, we have had some nascent prompts from one given lab to ask if we could host some type of lunch or gathering with other colleagues within the same role. And in this case, it would be in the tech transfer role to simply share best practices in a very informal kind of way. And to the extent that federal agencies aren’t either directed or even allowed to host such gatherings, working with non-profits like CO-LABS in Colorado and in other states, we might be vectors for bringing in people from multiple lab agencies to answer and address such questions and do it in a way that is more flexible and perhaps has a different type of public perception of value than as solely a request from federal agencies to ask these same questions.

MS: Who is next? These have been some great comments and my note page is filling up.

MS: I’m Dr. William Provost. I’m the Director of Innovation Guidance and Solution Center, Dixie State University in St. George, Utah. We just founded this new division 18 months ago and has gone absolutely crackers. Had over 52 provisional filings already and six granted. Suffice it to say, I’ve been doing this since 1968 - age lines, here. You grow old fast. The biggest problem I have faced, worked with two, three universities now, have donated time trying to help the through the R&D, especially the federal aspect. Most of them had medical patents.

The biggest we have found is number four is that sometimes it goes in and it never comes out. We don't know where it is along the pathway. Communications has not been ideal. And many times that individuals who have invented it tend to walk away from the idea because it’s held up. They don't know where they are and they feel abandoned. That’s pretty much all I got to say - thank you.

MS: Clarification, Wayne. Is that when inventors at universities are talking to federal agencies?

MS: Yes.

MS: As far as like reporting back inventions or with joint inventions? When do they not hear back?

MS: Typically when they’re in the lab aspect. When it gets in the lab aspect, at research part, they feel like the communications hasn’t been, they’re not updated. They don't know where it’s going.

MS: So at the collaboration.

MS: Yes.

MS: Thank you.

MS: The question, support for scientists that are transitioning to start a company. So these are scientists that have decided to leave a federal laboratory and they’re to start a company and they’re looking for support to do that. Is that the example that you were talking about?

FS: That’s the example that I’m talking about. And I know there are difficulties in the ethics rules around what you’re allowed to do as a federal employee that would be of economic benefit to you later. So I know it’s not a really straightforward thing to answer, but it is a problem. You know, it’s a tough step to take. Even if there were support for people who decided to leave federal service or leave their academic post. I mean, for instance, STTR can go to academic researchers who are involved with a company. I don't think that there’s an equivalent mechanism for federal scientists.

So I know that it’s not straightforward because of the rules around federal service and then economic benefit. But yeah, just pointing out that it’s a difficult step to take with no support for that development time before the company is receiving funding, but the person is putting in the development work.

MS: We have a little pilot program that - NIST started a pilot program to provide that kind of support for post-docs. So it avoids the fear that if you set up incentives, the scientists will leave the federal labs. But post-docs generally are leaving and some want to start companies. And we have a program run through an intermediary in Maryland that provides on a competitive basis funding for post-docs.

It’s about $100,000 for a year of activity to support the startup of their - and it’s not based, it’s not necessarily based on intellectual property, a patent. It’s based upon the know-how that the post-doc has developed while working, in this case, at NIST. And this is also available, it’s available nationally, available here in Colorado to post-docs at NIST.

MS: If I can just add a little bit more. As far as our by process, we want to understand the problems. And you talk conflict of interest. We want you to be able to say that is a problem for you. But those are the types of problems you want to figure out how to address. And we have the visibility right now in the administration to be able to look at these types of questions. Please don't hesitate, don't preclude, assume that certain things can’t be changed. We can look at all of these types of changes.

FS: Right. So without monopolizing things to my situation, but I believe you’re talking about the N-STEP program. And so it’s not exclusively for post-docs, right? So I was a post-doc, but then spent three more years at NIST after that. And my business partner was at NIST for 35 years and now retired. So we have applied for N-STEP.

But you know, I’m seven months out from leaving NIST. Took some time to get a proposal in because it’s quite a steep learning curve for a scientist, as some people have talked about, you know, to have a full commercialization plan for something that’s five years out from FDA approval and then looking at five years of commercialization past that. Anyway, it’s been with N-STEP for three months. So you know, and part of the reason is that - well, part of why it’s possible for myself and my business partner is because we’re not post-docs. We’re farther along in our lives and careers that we can support ourselves without working for this time period.

I wouldn’t have been able to do that right after a post-doc immediately following graduate school. So I think it’s even more imperative to move it quickly and support the people because that is a major source of people who are going to leave the lab is the post-docs who come in for that short training period and then maybe want to commercialization.

I don't have the federal lab perspective, but I know that in putting this meeting together you did, some document mentioned that to a certain extent you would like to emulate the success of the university system in terms of the successes they have had. And to this point, because this came up, we thought that we, in the university environment, the principle investigators do have a way of, they have incentives and they have a way of extracting value from their innovations that stem from federal funded research. They are able to take, to a certain extent, depending on the conflicts, policies at institutions, they are able to take equity in companies.

Probably the major successes that have come out of the university ecosystem have been PIs that have gone on to start their own companies and perhaps they started on a part-time basis. There are mechanisms to be able to do that where they can maintain their appointment at the university and be a founder of a company or, they can be a scientific advisor. And to the extent that such an arrangement can be made for federal employees, for them to do the same thing.

And even if they don't have that or if they don't participate, they at the very least have a portion of the revenue that the university collects for their invention goes back to the individual PI. So I don't know how that works in the federal labs, but that’s another incentive that we have that you may not have in the federal labs.

MS: Okay, Phil, any additional questions? All right, let’s get speakers who have not spoken yet.

MS: I was just curious how the NIST supported study through the University of Michigan, they have reached out to a number of universities, including ours. I was just curious how that sort of streamlines into this process, if at all?

MS: That’s the IEP study.

MS: Yes.

MS: The IEP studies, I believe that one has already been published, the one that was through Michigan.

MS: Well, they are actually in the process now of collecting people to do surveys and setting up panels and that sort of thing. So that’s all part of the lab to market cackle [phonetic]. So all of that is part of our engagement with the exceptional universities in economic development. So those suggestions and ideas are going to be collected and then used as a report as part of this kind of process as well. So ROI feeds into the lab to market capital, so that will be rolled into where we head in the future. And we’re doing follow-on work with the IEPs as well, so there’s more engagement to come.

FS: My question is for all of the people who have not spoken, I would love to hear who you are and why you’re here today.

MS: That’s great.

MS: So my name is Eric Paine. I’m a licensing executive at the National Renewable Energy Laboratory. And I suppose we’re here to understand what’s in scope and what’s out of scope for this particular RFI knowing that there will be later rounds of written input and comment.

FS: Don't you guys have like a checkout of scientists, for lack of a better term? I remember hearing about the program where entrepreneurs who want to license the technology from NREL can come and get the scientist who is working at NREL to consult almost as a scientific advisor or something along those lines. Where they don't actually give up their position at NREL, but they get to work with the commercializing entity.

MS: So we have two programs that I think might be relevant to that. The first is lab partnering service. So it’s true that we can identify scientists that have some level of expertise in a particular technical area and they can consult on a limited basis. And so that’s typically a limited number of hours and it has to be in scope with their technical background. And also a defined project where, for example, there’s no intellectual property being generated.

And so if it’s a discreet enough project, if it’s small enough, I think NREL is probably not unique in the sense that those scientists can consult on a limited basis. And of course all of our scientists are available for a technical services agreement, for additional sponsored research. Molly, is that kind of what you are --

FS: Yes, that is exactly what I’m thinking because that might be adaptable to address the idea that the scientists who are [inaudible] might be able to be involved even while being commercialized.

MS: So this slide here actually defines this scope of the study and it talks about the core, the transfer principles and practices that we should protect and not change and those that should be adaptive or changed. It talks about what are the systemic challenges to effective transfer of technology and know-how and capabilities.

So we’re not just talking about IP, but also the expertise of the individuals, as well as the capabilities in the labs that exist. So it’s all of the above. And then what, do you have proposed solutions, suggestions, for how we might address it to make it more effective in terms of the tech, so we want to hear about that.

And finally, if those don't capture your problems, the fourth question will capture it. It says what other significant ways can we significantly improve transfer of technology. So in fact, it’s a very open ended question. This is a chance, really, as Dr. Walter Copan and everybody else at NIST has explained, it’s a chance to really get to some of the issues that are constraints or in ways we could unleash tech transfer in the country. So I think you want to say something?

FS: I’m Jean Schulte, I’m also with NREL and I manage our software portfolio. I’ve only been in this role of managing IP and attempting the process of technology transfer for about a year now, so I’m here mostly, as Eric said, to see what other folks have to see, see what kind of the stakeholder input is as we maybe prepare for a written comment and input, but mostly here to observe.

MS: But I’ve already spoken, but I wanted to add a little further because I felt like that was an explicit invitation for identifying maybe some thorny issues. So to get real, I mean, so we work a lot with NIST right? We have got a joint institute. And it is really hard to talk to NIST tech transfer about anything to do with entrepreneurship, starting a company, anything like that. We have been unsuccessful at doing that. We do feel like our contacts there are very well informed with the federal regulations, and full stop.

So, I would challenge and invite some sort of investigation into the culture and the incentivization of the individuals in that team to look at, beyond the regulations and abiding and being good stewards of that important legislation. Which is, I mean, I don’t want to discount that, that’s great. But, our folks’ thinking about how do we actually make a commercial impact, and I’m not sure that that’s the case.

MS: So we should follow up on this in private.

MS: And the scope of this, by the way, across the federal [inaudible]. In addition to NIST this includes every other federal lab for the national statute under which we are kind of doing this activity.

FS: Hi, I’m Kathleen Graham. I’m the Tech Transfer Coordinator at the Environmental Protection Agency. I’m based here in Denver. So I just wanted to come and listen, get a better sense of what some of the issues are that you all are dealing with. We’ll be formally responding to the Request for Information at a later date, but we’re just trying to kind of absorb some of the issues that we don’t hear about directly ourselves.

MS: Good morning. Michael Anderson, I’m Associate General Counsel with the University Corporation for Atmospheric Research in Boulder. We’re a federally-funded research and development center. We’re currently working on a tech transfer strategic plan, which I’m much too involved with and identifying a number of issues at our particular facility. We have fourteen brilliant scientists - 1400 brilliant scientists. Great at the science, but we don’t know what to do after we protect it. We have no clue.

We don’t know if there’s any use for this in the market, if there’s any money out there. Most of our scientists are not interested in leaving and starting a business. So, I’m able to identify cultural issues, process issues within the company that need to be changed. I don’t know what to do next in terms of getting our knowledge out of the company and into the market. So I thought I’d come today to see what issues other people are facing, what resources are available, and see what I can learn.

MS: You might find that your problems are not unique.

MS: So, I’m Jack Waldorf with the University of Colorado, Office of Government Relations. I’m glad to see Jim and Bren here. So, certainly just keeping our pulse on things to ensure that you guys from the university perspective from the CU system have the comments you guys need for your deadline. So that’s why I’m here. So, thank you for doing this.

MS: My name is Craig and I work with the Tech Transfer Office in Anschutz as well, and I do licensing and government compliance. And this is relevant in just about every single way to everything that I do. So I’m here to absorb and bring it back to the campus, and see if we can’t improve.

MS: I’m Glen Drysdale, I’m an attorney with the Department of Energy. I deal with a lot of tech transfer issues, either with NREL or with our financial assistance recipients. So I thought this would be a good opportunity to hear firsthand from some of our partners. I usually hear information secondhand or third-hand about certain issues that our partners have. I obviously get the perspective from DOE’s programs in mineral, but just thought this was a good opportunity to listen from the other stakeholders.

MS: I’m Andrew Pollack, I’m the Managing Director of the University Oklahoma’s Technology Transfer Office. And we’re really just here to learn. We as well have been invited to participate in the Michigan survey, and so we were curious about how these two activities interplayed with each other. As well as, we do a significant amount of work, we have several collaborative agreements with NOAA through our relationship with the National Weather Center based in Norman. And so we were just looking to learn more about that.

MS: Just to be clear, there are lots of interdependent studies that are proceeding, but the primary core of what the administration’s approach is, is what you’re hearing today from Phil, Dr. Singerman, through the slide deck, and through the President’s management agenda. All of that feeds into it. And when we end up synthesizing the inputs, all of those will feed in, if they are done by that time.

MS: I’ve spoken too, but to respond to Michael’s comments about not knowing what to do with your patents once you have them. From the AUTM board’s perspective we’ve been working on, we’ve been observing and trying to develop solutions for that for the industries all over the past year. And recognizing that the tech transfer professionals’ jobs have become more complex and part of that is that the industry partnerships of patenting licensing is not enough anymore, or even patenting licensing startups is not enough anymore. And the partnering is coming more and more into it.

And that gets back to this idea of having the business development people learn the problems of industry and flipping from a technology push to a market pull opportunities, or looking for market pull opportunities. And I think that is probably the future. The technology push is very limited in what it can do. Solutions in search of a problem. What you have to do is pick a small sector at a time so you can approach industry and see what problems they’re facing as an industry. And we think in a free competitive way, is something that aligns very well with academic research. It’s closer to basic research.

You know, think about the pharmaceutical industry and the apple in everyone’s eye is developing a new drug, a new billion dollar drug. But really what’s more closely aligned with university research are the pre-competitive things. Things where there’s not huge market incentives, like orphan drugs and like drugs for developing companies and antibiotic resistant bugs. Those are things that very well align with university research and are amenable to a market flow type approach.

MS: I’m Will Vaughn, I’m the Director of Tech Transfer at the Colorado School of Mines. I came to give input, but my colleagues stole a lot of the thunder. But since I have the mike, I’ll make a couple points. I’d like to build on what Bren said, that these technologies coming out under the universities are really early stage. The researchers always think they have the ball on the five yard line. They do: it’s the wrong five yard line. And you need companies or something to get it all the way over there. The second thing is, we seem to be focused on startups, but licensing is certainly a much more prevalent thing. Out of a hundred disclosures, you might have two or three that are really worthy startups.

So we can’t ignore that getting it out there to established companies is also a priority for us. And finally, being a one-person office, I’ll echo what somebody said, that the i-Edison system is like learning a foreign language. I spent three or four days trying to clean up everything; I just made it worse. So I had to hire somebody to come in and help me clean it up. And we’re still in that process.

MS: Do you want to elaborate on that? Because that’s one of my projects. So I’d love to hear more about the i-Edison problems.

MS: Well, I would try to submit the - first, whatever the award number is. That’s not right. Well, it’s what our system has. I don’t know how to go about doing that, and getting those proper numbers. You’d submit something and they’d say - oh, well you have to submit this and that and the other thing. And every time you submitted something, it seemed like we got something back that we needed something else. So, you know. It could be simplified quite a bit.

MS: Thank you.

MS: Thanks. I’m Keith Mormer, I’m the Head of Tech Transfer for University of Utah. Like a bunch of other folks, I also came to listen and better prepare for submitting RFI a little bit later. But just sort of reflecting and following up on some of the comments. We’ve been going through sort of a transformational process the last eighteen months and really just trying to understand what return on investment means for us.

I think in tech transfer there are some traditional metrics, at least at the university level, that we tend to be held to or measured by, in terms of numbers of patents, and now it’s startups, or disclosures. And one of the challenges I find is that depending on how your office is structured and funded, those numbers may create an exceedingly false sense of success or failure.

And I think, as part of this process, in our office and hopefully part of the process that the federal government will be going through, that deeper consideration can be given to that, especially if, as this process evolves and consideration is given to how you think about research funding evolving into a return on investment, those metrics are going to become increasingly important as to how our research is funded.

And so for example, the prior comment about number of startups, the reality is, for us, when we analyzed our data going back almost ten years, that the majority of our licenses do go to our startups. But when you look at the number of successful startups, that number drops off fairly precipitously. And so, a number of folks have commented on that. You know, what the drive to start, the number of startups is may not necessarily lead to a return on investment that I would say from our perspective and perhaps from your perspective, would be considered a meaningful return.

FS: Hi, I’m Julie Emudi [phonetic] and I’m Chief Patent Counsel of the U.S. Department of Energy’s Golden Field Office. And I work with Glen, and as he mentioned, in the context of oversight of NREL as well as financial assistance, we’re dealing with tech transfer every day. We’re here to listen and it’s been very interesting, especially the comments on i-Edison and other comments like that, too. So thank you very much.

MS: Hello, I’m John Card with Dish Network. Dish does not respond to every RFI, but when we do, I’m Director of Standards and Technology and I get to be providing some words that go into RFIs. So I’m here to collect information and understand the scope of problems and so forth. So thank you all for your comments and what I’m learning here today is going to be really helpful. Thank you.

MS: Thanks. Don Willy with Dixie State University in our new Innovation Plaza we’re building out. Exciting times for us. Definitely interested in hearing many of the comments this morning. We’ve got a unique situation though in our state where we’re struggling from a public policy standpoint with defining ROI. And we’ve had programs that have come under fire recently and threatening to defund them for not being able to clearly identify that.

So definitely looking more broadly with our comments to determine how the state and federal programs working together can reduce overlap or duplication in reporting metrics and identify stronger metrics that really evidence the impact that we’re seeing here.

MS: Hi there, I’m Paul Tabor, I am the Associate Director of the Focus on Licensing at the Anschutz mobile campus with Jim. He’s obviously spoken for our campus already, but I thought I would add a couple things following up on the i-Edison comment. But I think having standardization there or even just an example of what the pristine, most beautiful disclosure that I-Edison wants would really help us.

Because we were in the process of revamping our disclosure process and our disclosure form and we want to ask for the kind of information that i-Edison needs. But we still, it’s a little bit of a moving target for us. And so I think it would be great, even if on the website somewhere there was some sort of example that said you know, this is the perfect thing, this is exactly what we want every time would go a long way towards making life simpler. I hear a little frustration as well. We think we’ve got it, we’ve gotten a lot of information, we’re sometimes overloading the system with information, I think, and it’s still not maybe exactly what is needed. So just as a quick comment to that.

The other thing I would say is, and backing up on something that Bren said earlier, I think the NIH and the VA or other groups that we work with pretty regularly at the Anschutz campus. And over the years those two groups have gotten better about protecting IP, which I think is good. But at least in my experience, which may be limited, that’s sort of where that process stops. There’s not further support in development, business development activity, commercialization activity from those groups.

And so oftentimes we might be successful in getting an IIA in place, but it’s not a great partnership where those groups are helping drive things forward. So for example, if you have an NIH group that’s on, let’s say one of the coasts and might have better access to capital or connections or whatever that maybe in Colorado we struggle with sometimes. I see opportunities for our institutions to work better together, but we don't. And I don't know if that’s because NIH isn’t driving that forward, let’s say, or there’s something wrong with us. I don't know what the problem is.

But what I’ve noticed is that, and the VA is a little bit worse in my experience than the NIH in this respect, just getting, having that partnership. Where if I’m working with the University of Utah, for example, we kind of know how, what to do to drive it forward. We need to put people in place, that sort of thing and we’re better collaborators from a tech transfer perspective. I think we could do better with some of the government agencies as well.

MS: Are you speaking about joint owned inventions where you’re the lead and not the NIH?

MS: Yes. Typically, jointly owned innovations where, frankly, whoever the lead is, it doesn’t really matter. I mean, if we’re not the lead and our partner calls up and says we need help or we need thoughts or we need your PI to weigh in, we try to take a fairly active role in that even if we’re not the lead. I don't get a lot of that pull, if you will, from those federal agencies. We have the tendency to take over most of them. I would say, especially the VA, I can’t think of one off the top of my head where they’ve taken lead on anything.

MS: Thank you.

MS: Yes. I think this is not only about the university and the industry collaborating and [inaudible] and industry collaborating, it’s also about a three-way collaboration and two way collaboration between universities and federal agencies and industry and in every combination. So there are lots of interesting issues that might be there that we would like to hear about specific issues that we can then address, that that is very much in scope. The word metrics has been mentioned a couple of times.

If you move the slide just one, you will notice that among the areas, the last big one, bullet, talks about data metrics and methods. And that is something that we are very interested in hearing about. And we do know there are annual metrics that are set, obtained, surveyed by the NATM [phonetic]. But we will, in the context of ROI, when we think about ROI at NIST, we’re thinking about the return on investment to the nation, the economic growth, the national security. That’s what we’re thinking about.

So how we go from the metrics that we measure to the national benefits, we want to hear what your ideas are. We clearly have a history of doing thing in a particular way and maybe they are good things. But if there are challenges there, we want to hear about that.

MS: Okay, on that note, you have some homework. Let’s take a ten minute break. We’ll be back here at 10:40 for another round of public comment. Thank you.

[Break]

MS: Let’s get back to our seats. Okay, thank you all for returning. Hope that was a nice ten minute break. Since everyone has had a chance to talk and also mull over some of the questions that Nasham brought up, let’s open it back up, public comments.

FS: I have a question as well. So one of the questions is the systemic things in the tech transfer world. And so far, no one has talked about anything that really has to do with the U.S. Patent and Trademark Office. So I’m curious about that because that’s not typically what I hear from people. Usually we do hear about how we can improve. But that would be at least a subject that I think could also be right for this discussion is what is it that the U.S. Patent Trademark Office is either doing well, or could do better in helping you guys get transfer of technology out of labs and into the marketplace?

MS: Well, you already did that, right, with the clarification of what’s patentable?

FS: So please, if you have comments on that, don't be shy.

MS: Yes?

MS: In order to measure anything, you have to know where you begin and where you’re going to end. So do you have numbers on your ROI values for past that’s happened for investments made and what is returned? And I got some ideas on how we - we always do - how we improve that, but where do we start? I guess I’m asking for some matrixes, stats.

MS: That’s a great question. I’m not really supposed to be answering questions. But we do have the federal tech transfer report, which is a report to the White House and Congress that’s published annually. We also have our Department of Commerce reports that is annual as well. As has been mentioned by other participants, e-metrics are kind of based off what the old expectations were - licensing, CRADAs, dollars in and out.

Part of the initiative, as Sham mentioned, was we are looking at what are the metrics that are interesting and real. What are the narratives that we need to engage in and other ways for collecting and presenting the information. So it’s a really good question and that will be reflective in the comments, that we need to answer that question.

MS: [Inaudible] does an annual report and they have been doing this for three decades, something like that. And that is a source of the federal - it is the university’s return on investment, if you wish. But there’s always a question as to is this a financial return on investment we’re talking about. And of course, your question was specific, I think, to financial returns.

That is done, but I also want to back up a little bit and say this is more than financial returns. Because collaborations between the federal agencies and the private sector that lead to innovations in the private sector through new products, new services, are also part of the innovation ecosystem we want to foster. So that’s why we are trying to ask this question as to what better metrics and methods should we be using going forward?

MS: [Inaudible].

MS: And I think Chuck answered that question. And in fact, hopefully we’ll have a study sometime soon that kind of compares the two, but at this point we’d much rather not talk about that study and his findings.

MS: With respect to the AUTM survey, most people know about the AUTM survey, but that’s a very limited set of data and tends to be dominated by the money. But that’s the report. The survey is actually 30 questions that are much more granular and cover many more issues. And all 30 questions are available in the STATT, S-T-A-T-T database. So anyone who is an AUTM member can access that database and see the full panoply of metrics that are being reported, at least in the database.

FS: And I’ll add that the U.S. Patent and Trademark Office, their Chief Economist who has been putting out a number of reports. And they’re not necessarily based on tech transfer, but they do make the relationship between intellectual property and the U.S. economy, including talking about [inaudible] businesses and other things along those lines.

If any of you have heard me speak, you know I like to cite those because when you have a study that shows intellectual property related businesses add about $6.6 trillion to the U.S. GDP. That’s real money, that’s real economics, that’s how we grow and succeed as a nation. So both of those reports are really interesting.

And the bright side of patents is also one of my favorites. It’s a little wonky, don't read - a glass of wine at night. But it has some really interesting correlations between patents and startups, and whether or not those startups are successful. So, that’s another area to look at.

MS: I’m going to ask another question. So, you may have noticed an unusual reluctance on our part to say anything of substance. And this is by design; at least the model that we’re following is kind of an extension of the request for information, which we’re asking the community to tell us to share with us their views. And we’ve added on top of that this series of forums. And our approach has been we’re not here to lecture people, we’re not here to tell people about all the wonderful programs we have or all the things that we’re planning to do. We want to hear.

But we’ve evolved a little bit since our last meeting in San Jose. And this has been a much more dynamic discussion, because we’ve been more engaged. So my question is, what suggestions – so, we have more of these scheduled. So I’m interested in any suggestions that you might have about how we could make this more useful to you, your community? Should we be saying more stuff? Should we be giving Power Points for hours about stuff that we’re doing, or tell you about what other people have suggested? What would be – what would you want this session to look like if we could do a better job at it?

MS: Regarding some of the principles and systemic challenges, if you already knew where certain programs were either going to be funded more because you perceive them as doing well, or certain programs were going to be cut within budgetary debates that are going on right now, or through longer types of budget planning that’s happening – I would expect that certain stakeholders would end up being excited to know some are growing, or really disappointed to know that some are going away. Or vice-versa you might hear people say, yeah, I’m glad to hear you’re shrinking that given program; that’s never worked for us. And it may be that these type of questions are very well-intentioned in their broad type of scope.

But if you had some more particular programmatic or even just thematic increases or decreases that you thought were on the radar, people would be able to react as to why those things are actually no those are good things for us, these work well; or could reinforce why yes it seems like those never worked and be fine with us if we stepped away. So I think it’s just about pointed prompting from your side on what tends to be a large-spectrum audience could then react to.

MS: Any other suggestions? So this was a perfect, exquisitely designed session. I’ll take silence as acknowledgement.

MS: Okay, I’ll throw out one question then. Are there any instances that you’ve experienced of attempting to collaborate with the government, or attempting to work with the government in other ways, where you feel you have been burdened or the system or process has been burdened? And how would you have improved said interaction - he naively asks, not expecting an answer.

MS: I’m not going to exactly answer the question you asked. I think actually there’s other federal programs and agencies that are working well. There are some advisory councils Dish Network has been involved in historically. For example, the FCC currently has a Disability Advisory Council that advises the FCC on issues related to accessibility of broadcast TV, telephone service, all the things that fall under the FCC’s jurisdiction.

I happen to represent Dish on that advisory council. And in that group there are folks from industry, there are folks from academia, there are private citizens, there are members from different advocacy groups. I don’t know that there’s a corresponding group other than folks maybe in this room, who would be responding to this, except that I talked to Phil during the break, more involvement from folks at the state level. We talked about commercialization of ideas.

A lot of that I think is going to flow through state-level resources and things have to of course operate within a particular state. So, there may be some level of utility in setting up some kind of an advisory council to meet informally. And there are all kinds of federal rules for holding those meetings, etc.

So I’m not suggesting you burden your process any more, but some outreach and some planned outreach. Make this more of an ongoing process than a once in an administration sort of – what do we throw out, which babies do we keep, what bath water goes down the drain and have this be an annual or biannual process may turn out to be useful. So those are things that have been on the plus side of interacting with the federal government.

We operate satellites overhead, so we have all kinds of interesting stories about federal regulations. Most of which are a good idea. And we care about interference with other countries as well, in terms of RF spectrum. So, again, we’re aware of the need for wise federal programs; and as I said, we’re also familiar with the July 30th deadline for comments on this. That’s it, thanks.

MS: So, in terms of a practice that –

MS: Could you introduce yourself?

MS: Oh, yeah, sure. My name is Eric Paine. I’m from the National Renewable Energy Lab. And in terms of a practice that may, I believe, be specific to the U.S. Department of Energy, there’s a program called the Technology Commercialization Fund. And I would definitely categorize this as something to be protected. So those of you who don’t know about TCF, I think it’s .9 percent of applied energy programs are dedicated to maturing lab technologies that are owned by the contractor of a national lab making it more attractive for you to partner with industry. This has been a phenomenal program for us.

A lot of what we do is very early stage. And it puts the onus on us to identify an industrial partner and then work with them collaboratively in de-risking a technology. And these are DOE funds to help with that. So I think others have referenced the challenge of tech maturation.

I would just point to the DOE TCF program as a shining example of what can work. It adds a lot of value to not only what we’re doing in terms of R&D, but in terms of transferring those out and forming partnerships, it’s a great program that we would like protected.

MS: Can you say a little bit more about how it works and what’s the role of the industrial partner in the project?

MS: Yeah. So, there are two topic areas. Pardon me if I’ve got the numbers wrong. But hopefully others will chime in here. So, the topic area number one is for earlier stage technologies. It doesn’t necessarily have to be a CRADA, a Cooperative Research and Development Agreement, but in topic two, definitely is maybe a little bit more later stage maturation collaboratively with an industrial partner. Topic one is limited to – gosh help me out. Is it 150K, is that right?

FS: 300 total.

MS: 300 total. So, the requirements are dollar to dollar match with DOE funds versus non-federal matching funds. So if you want to engage in a project you have to get an industrial partner effectively to dedicate either cash or matching funds to the program. And it ensures that the corporate partner has some skin in the game.

MS: The CRADA --

MS: For topic two it has to be a CRADA; for topic two it doesn’t necessarily have to be a CRADA if I’m not mistaken.

FS: It has to be some – some partnership that’s on [inaudible].

MS: Yes, exactly. So, yeah. And DOE put some fantastic information. There’s an annually reoccurring call. But it seems relevant to this group. I know that coming from a university tech transfer office, maturation resources were very hard to find. And the U.S. Department of Energy actually dedicates a portion of its budgets to applied programs to really make it easier for our technologies to be partnered and transferred to industrial partners. So it’s a great program. I think it’s a bit of a shining example across the federal agency landscape.

MS: It’s a DOE-specific authority, right?

MS: It is.

MS: Oh, but, NREL - aren’t you guys a GoGo?

MS: No, we’re a GoCo.

MS: You’re a GoCo?

MS: Yeah. We’re a government-owned contractor-operated.

MS: Oh, okay.

MS: And I believe that this was part of E-PACT. So, yeah, it is specific to the U.S. Department of Energy. I’m not aware of other programs, but that’s perhaps just because I’m not aware of them. This is pretty compact and there is an annual solicitation. And so this is reoccurring and we have taken advantage of the program - it’s been very impactful.

FS: The companies – I’ve talked to some of the companies that have been [inaudible]

MS: We have the room for another 49 minutes. I don’t care what Phil says, I’m keeping you guys here - 49 minutes.

FS: Jeff, are you a litigator by any chance?

MS: Yes. No? Are we all tired?

MS: You’re the only one who has a stake.

MS: Yeah, you guys can go. I have a mike. I’m just going to start beat-boxing.

MS: What came out of your last meeting? Can you tell us?

MS: Phil, can we share?

MS: Many of the same – many of the same issues. Maturation, funds, that’s why I was asking our ability of [inaudible] And there were conflict of interest issues that constrain a federal employee from doing the same kinds of things that a university employee can do. I was looking for my notes this morning.

MS: Metrics?

MS: Metrics. Right, metrics. The same question, the very first question was the same question that you asked, about is this all about financial return, or is it broader in terms of return to society? And the answer is yes, it’s broader, but it’s harder to measure it, to track and measure those relationships from science here to something twenty years later.

MS: Collaborative efforts have [inaudible]?

MS: Yes, that’s right.

MS: So I, again, when we say we’re interested in getting those ideas from you, we really are because we don’t have a lot. We all know there are output metrics, outcome metrics, and impact metrics, and so on. And the time to run changes, so you had to kind of think about what’s appropriate for each stage. And we’ve seen publications from the U.K. with their metrics a few years ago.

And the question is, how narrow do you keep it, that’s measurable, trackable, and there’s going to be a history? And then there’s the whole question of how broad do you make it, and then how fuzzy does it get, in terms of tracking? So, I think those are the trade-offs. And I think everybody in this room probably understands that exquisitely, but we want to get your inputs.

MS: We didn’t hear about the i-Edison issue at the last session, but we’re well-aware of that issue and we’re trying to fix it.

MS: Yes, we’ve got projects.

MS: You have control of it, right? NIH controls it? Is that the –

MS: Well, we control it.

MS: Well, then you can blame us.

MS: They’d say they control it.

MS: Well, that’s an irrelevant topic for this [inaudible].

MS: Yes.

MS: Any other comments? I’m going to act as an auctioneer. Going once.

FS: James, did you have a comment?

MS: I didn’t want your request for comments about the patent system to go unheeded. And not that I have any really – well it is actually substantial, but I don’t know what you can do about it. Which is basically, since we operate in the life sciences area, and you’re well-aware of the lead times in getting something to market. And I realize that we’re constrained by international agreements in terms of what we can do.

But to the extent that it’s not going to drive up drug prices, a longer life for pharmaceutical patents, an actual commercial life for them would be extremely beneficial. I know that in the last hundred years or eighty years or something I thought I read the other day that the life of copyright has been extended four times. So, I’m wondering if that can be done –

FS: And about to be again.

MS: Yeah, and about to be again. So, if it were possible to do something like that for certain classes of patents so that it would make it easier for us to commercialize them. The problem we run into is that many startups that we have sometimes fail for a number of different reasons. And by the time they fail, we’re unable to attract another party because there’s not enough life left in the patent to be able to successfully attract investment. So, anyway. It’s a huge issue that is probably beyond the scope of this, but it would be helpful.

FS: So, I will also invite you, the Deputy Director [inaudible] and Commissioner of the Patents [inaudible] maybe next week – May 30th. I’m a little hazy as May gets really interesting for us. We have a meeting at the Rocky Mountain IP Institute at the end of the May, which is always interesting. But anyway, they’re both going to be here. And we’re doing a round table on biotech in our offices from Denver on May 30th. So, we’d love to have you come and make those exact comments.

MS: Sure.

FS: And others.

MS: Great.

FS: You know, we are well-aware of the patent system, of the pendulum swings. I think – you know, Andre’s idea that we need to raise the reliability of the patent grant has a lot of different facets. Not the least of which is, patentable subject matter is perhaps too strong to [inaudible] the way.

Obviously though, we’re guided by the Supreme Court and the federal circuit the same way that every other company is. And we just have to interpret those guidelines as best we can, as in how. But I do think that there are going to be some significant movement on that. Not the least of which was, I was actually for [inaudible] issues [inaudible]. I think the case [inaudible] end of March, and we had the memo out like middle of April.

MS: Impressive.

FS: I thought so. I thought so. So, anyway, but yeah, I think the round table next week is really going to be focused on these specific issues that are facing, especially life sciences and biotech.

MS: Could I ask a follow up on that? So, adjacent to patents, I know with diagnostics a lot of things rely upon software, right? So you’re in the copyright realm. Also, one of the things that we are looking at is trade secrets. So, could you speak to the biomedical side on those kinds of IP issues? Like, is that something that concerns a university community? I know that it’s something that we in the federal government are paying attention to - if you could use the mike.

MS: Maybe Paul has something to share as well, but from a diagnostic standpoint, because of the subject matter changes over the last few years, we’ve shied away to a certain extent. We’re still doing them, we’re still spending money and investing in them, but we’re very circumspect about the diagnostic opportunities that we see at the university and whether they have commercial value that we can bank on. You know. There’s a lot of uncertainty around diagnostic opportunities.

And as far as trade secrets, we haven’t done a lot of trade secrets. We are considering now the possibility of using trade secrets as a way to block entry into certain areas that we’re investigating where we don’t think the patent coverage we’re going to get is that solid.

MS: Well, is there anything holding you back from pursuing trade secrets? Is it – a uniformity of protection, or --

MS: Well, I think generally speaking, I mean they’re a great form of protection. But I mean the whole mission of an academic researcher is to publish.

MS: Right, publish. Okay.

MS: And so it’s very difficult the conversation for me to have with a P.I. to say - well, could you keep this piece quiet? Just this little piece, and that’s enough, and they say no. And then they say, okay, now what? So I think that’s the biggest challenge, is that it’s not that we don’t recognize its power, it’s just that we can’t use it. We can’t force our P.I.s down that path.

MS: Right. And with the diagnostics question, it wasn’t more along the lines of like I understand what the algorithms and the fact that you can’t patent some of those things in the way that they were written in the past. But one way to get around it I’ve noticed is going really hard on software, right? So, especially if you have a user interface or some sort of aspect that you can computerize, it seems to be the way around for at least getting some protection.

I don’t know how much universities engage in that. I know that at the federal government we do not. And therefore it’s something that we’re interested in. But getting the university or industry perspective on that because as we get more and more into this data-driven world, a lot of power is going to come from that.

MS: Yeah, and I think what I’d say to that is, we see a lot of diagnostic-type technology that comes from clinicians and basic researchers who don’t have the capability to couple that discovery or that marker or whatever it is they’re pursuing, with some sort of software solution, encoding or otherwise.

So it kind of gets back to the, I think the general theme of the talk today, is what resources can you put around that person to do that and do you have the people, do you have the money, to produce that product, if you will. It’s based upon that diagnostic discovery. And often I think the answer is no, or finding even interested students or other folks. We do do some of that, we try to connect folks that can marry up that technical side with the sort of the clinical investigation part of it. With limited success I guess. We’ve had a few.

MS: That’s just more of a reduction of practice type of thing, right? Like so you’re further on down the line.

MS: Yeah, just a little bit more that needs to be done, and then how do you get that done with a basic researcher who’s just interested in the clinical question or the – or chasing the next grant that sort of is around his technical expertise and not developing the product. How do you get that out the door? It’s challenging.

MS: Please?

MS: Yeah, I just wanted to – we talked about the $150 billion dollars going on to the research side. I mean, do you quantify the other piece as well? I mean, as I think about it, we talk about how many dollars go under research. But I think what’s important is the dollars that lead to programs that do everything else, right?

So, it feels like everything is about, we focus on how many dollars go into research, but what is the right balance there between research and the translational activities that lead to everything that we’re talking about today? And we always seem to just talk about the research dollars.

But are we – you know, are we able to capture and speak intelligently to how many dollars are being spent on the translational side in terms of programs and so forth to move them forward? And that to me that’s sort of the interesting piece here, because that all gets to the incentive about is it ten to one, is it half and half, what does that look like? And I think if you really want to drive out of institutions very early technology I think those sort of things have to be put in place in that way.

MS: That’s a good point.

MS: I was trying to think of – I did pose a question earlier, and I heard Dr. Copan mention it a few weeks ago. It appears that the universities are more successful at tech transfer than national labs. And I worked at CU for a while, and worked closely with NIST and also with NREL and Las Alamos. And the scientists having trouble collaborating on the tech transfer side a little bit more so.

And I think the part of it, or at least ten years ago the part of it was, and you can tell me if it rings true today, the government labs are – so, universities are very risk-averse which makes our profession challenging in a lot of ways. But if universities are risk-averse, federal labs are tenfold more risk-averse. And so you have to find ways to reassure those people that they can take their – they’re allowed to take risks, they’re allowed to fail.

And where the culture - so risk-averse on one side, and you can understand that from the contractor point of view for GoCos, that tech transfer can return only a drop compared to what a contract is worth, what a certain operating contract is worth. So, that makes sense to me.

The other things is the legacy of pre Bayh-Dole – that is the federal labs are very concerned with helping all of U.S. industries, and not favoring one company over another. So this notion of exclusive licensing is somewhat foreign to that concept. And so, there it goes back to World War II, and pre-Bayh-Dole. So those are two attitudes that need to be addressed.

MS: You know that my experience at Frederick National Laboratory when we were really bringing on our CRADA program, that’s a GoCo as well. That was one of the big push-pulls, right, was the hesitancy for a risk-averse organization to give, to relinquish something. And so, a very good point.

MS: So, we’ve learned a lot about partnering with a particular agency. Have you have experiences partnering with multiple agencies on a project, and how has that worked out? Or, do you see practices, requirements that differ, that’s within scope? So, if you have comments on that, we would love to hear them.

MS: I meant to make that an issue. So one way that you can reconcile this idea of exclusive licensing, partnering with a single company, favoring one U.S. company over the rest of the industry, is to work pretty competitively. And so this project I was mentioning earlier that we have in Canada is to work with industry associations to solve the problems that the whole industry faces. It’s not just one company.

And so the projects that we funded were all multi-universities over there, the analogy to multiple institutions, and also multiple companies. And so you bring together the collective, the collective experience and capabilities, and also the common problems.

MS: I think, yes, we don’t use exactly that model that you called a – because you all are in a consortia of [inaudible], this consortia type arrangements and all of that.

MS: I’ve been unblessed by working with multiple federal agencies at the same time. I was involved with the DOD and the DOE and another federal agency many years ago. It was an emotional experience - highly improbable.

MS: So, if you do, I hope you will send in a written response to the RFI, and suggest, diagnose the problem, beyond the emotional component, in terms of structural components, and then how we might address it. But I think there is a strong interest to try and make it easier to be able to do that. Because sometimes you have unique capabilities from multiple agencies to be able to work together and you don’t want different interpretations of the tools and practices to take up a lot of your time.

And that’s again the issue that we’re, you know - we need to be able to move at the speed of the industry, so to speak. And so, how do you get to that point? That is one of the areas we are really interested in finding out.

MS: We worked quite a bit with NREL. And what we’ve done is, you know, familiarity, have done master agreements. And then when we go to other government labs or the like, we say, oh, well, NREL’s counsel signed off on this, you know. And they take that a little bit into –

FS: Sometimes.

MS: Yeah, sometimes, into consideration. So I’ve found that’s helped us. If I could address two other points that are a little off. You asked about trade secrets. And I don’t know this for a fact, but our legal department has told us, because we’re a state institution and we’re subject to sunshine laws, that we can’t hold trade secrets. And the other thing, we were talking about metrics before.

When I was hired into Mines, my boss told me - I don’t care how much money you make, I don’t care how much money you spend. Your job is to change the entrepreneurial culture on campus. So there’s lots of things that tech transfer offices do, besides licensing, protecting IP. We do education, all sorts of outreach to industry to get sponsored research agreements in. So there’s lots of things that we really can’t quantify; it’s more qualitative. And what Ken was saying about vignettes earlier – some of those stories are more instructive than just having a row of numbers.

MS: And from the trade secret standpoint, like for the government we don’t want to hold anyone’s trade secret because of FOIA. So, we have the same issues.

MS: But we want to understand that issue and figure out if it’s in the greater interest of the nation to be able to partner with the private sector to get something commercialized, we want to know that we can actually do it.

FS: Well, it seems to me that sunshine laws vary from state to state.

MS: That’s true.

FS: And they don’t also necessarily mesh with FOIA. Right? So there’s that federal, and then there’s that 50 state interpretation. And Congress did – and that might be something that’s ripe for legislation, because Congress did a really amazing thing with the Defend Trade Secrets Act. Right?

They took the red-headed stepchild, the intellectual property law, and they made it actionable at the federal level. One definition of what misappropriation is, one definition of what a trade secret is. And I’m wondering if that might not be something that would be the subject of legislation. Harmonize FOIA and sunshine laws so that people understand the rules across the nation for – and maybe even level the playing field. Because I know Colorado’s sunshine law is particularly transparent, let’s just say.

MS: Very much so.

FS: So, right? But harmonizing those might be an area ripe for legislation.

MS: Again, parsing – these are all complex issues. And so parsing it, it’s really about protecting the trade secrets of the partner and when the private sector is coming into it with the trade secret. Not the work of the government-funded entity. So that is an issue.

MS: All right. Are we all done? Yes? My boss says we are dismissed. Thank you everyone for participating in this.

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