INCENTIVIZING INNOVATION

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Dr. Amy Whitney: I'm excited to moderate this panel, and I know we're going to have an awesome conversation this afternoon. I know we have the pleasure of trying to have this conversation post-lunch while you are all digesting your food, and hopefully, none of you will take a nap while we are having this conversation this afternoon. So, if we could start [by] having you introduce yourselves to everyone here and [tell] a little bit about your background, your current role, and how it intersects with innovation in what you do here in North Dakota.

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Erin Roesler: My name is Erin Roesler. I am the deputy executive director. I have to change the title since the introduction was submitted. I work for the Northern Plains UAS test site. The test site is one of seven federal test sites that's tasked with a small mission to integrate drones, or UAS, into the national airspace system. Surprisingly, we've been in existence as a congressional mandate now for over ten years. I joke, and I say, well, I'm surprised we still exist because we should be done already. But if anyone is in this space, if anyone does, I think everyone knows the law and legal side of things, developing the policies, the rules, and the regulations. Ten years is a blink of an eye. It's going to take many, many more years for us to tackle this challenge. So, a little bit about me then. My background is that I did go to UND. I graduated as a pilot first and foremost. I went into aviation. I didn't quite get bit by the shiny jet syndrome bug that everyone else did, so I never made it to the airlines. Part of that was the economy, and part of it was just my choices in life. I got thrilled and excited with the UAS technology and what it could do for a lot of civilian applications. When I graduated, it was still very much a DOD asset and the capabilities that existed around that, but it was becoming an increasingly bigger part of the national airspace and the civilian aspects of what the technology can do. So, I got involved with UAS at the university through a couple of the undergraduate curriculum programs.

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* A third panelist's remarks have been omitted.

Before I knew it, I was in as an adjunct lecturer. I was working as the assistant chief pilot for the undergraduate program. I saw the undergraduate program through their accreditation process. I loved being in the classroom; I loved teaching. Then I got hooked by the test site and said, "Hey, would you like to come over here?" So, I have been over at the test site for six years now, tackling things from the other side, where I first got to put on the lawyer hat. I'm not a lawyer, but my first job there was as the Standards and Policy Manager. I got involved with RTCA, ASEM, and a lot of rulemaking procedures at the federal level, and that's what I really liked. Then, from there, I moved into Director of Operations as well as now as the Deputy Executive Director. Beyond that, what I like about what I do on a day-in and day-out basis is that it is always changing. Every day is different. Every day is a new challenge. I talk about it a little bit later in this panel session, but if I explain what the test site is and what we do, if you grab the rulebook, everything we do is outside the rulebook. Waivers, exemptions, and finding those new legal ways to fly drones is what we do, and it's a fun challenge every single day.

Senator Jonathan Sickler: Good afternoon. My name is Jonathan Sickler. I serve in the state senate, representing District Seventeen, which is Southern Grand Forks. I am a native of Dickinson. I'm a proud UND graduate as well. After my time at UND for undergrad, I left for law school and went to Harvard. Then I went to practice in Washington, D.C., for about ten years. There, I primarily practiced for a couple of larger firms doing merchant acquisitions, particularly related to antitrust, so somewhat relevant for our topic today. I worked for a number of clients, including some pharmaceuticals, medical device companies, and some bigger names in that space, and got to see the intersection of their innovation, their research, their R&D, their pipeline products, and how it interacted with the state of antitrust law and antitrust regulation, at least as it existed back about fifteen years ago. About twelve years ago, my family, my wife, and I decided we were ready for a change, so we moved to Grand Forks in about 2012 or 2013. I took a position as the Chief Legal Officer for a company called AE2S. It's primarily a water engineering firm. I've been doing that since that time. Then in 2022, I was appointed to fill an open seat in the state senate and was elected to a full term later that year. In the session, I served as the vice chairman of the Judiciary Committee and also served as one of the inaugural members of the Workforce Development Committee, obviously, as you can tell by the name, charged with trying to figure out some of the workforce issues that North Dakota and much broader across the country are facing as well. In the interim, serving as vice chair of the Higher Ed. Committee, also serving in the judiciary interim, but most relevant for this group, serving on the Information Technology

Committee. In that committee, probably the most relevant thing, or at least interesting at this point, is dealing with AI topics and AI statutes and regulations that may be coming down the pike for the next session and looking at some of those issues.

Dr. Amy Whitney: Thank you, Senator. Erin, I think I'll punt the first question to you, just because I think the test site can be an interesting case study. . . . Jonathan, you can add some color to as well. But when you think about state and federal regulations, you talk about how you literally have to paint outside the box to do what you're doing. How has the work that you're doing at the test site impacted both operations, growth, but, you know, really transforming and being innovative in an industry sector that North Dakota is attempting to try and build as a fourth leg of an industry sector of value for the state of North Dakota?

Erin Roesler: Yeah, so policy regulation, or the lack thereof, with regard to drones and UAS, that is the reason for our existence as a test site. So, rewind the clock to ten years ago; there were no federal rules that allowed UAS operations routinely. And so, all of the UAS operations that existed at that time were subject to exemptions. They were typically referred to as a Section 333 exemption, which really literally comes from Section 333 of the FAA Reauthorization Act, I think, of 2012. And so, we had a lot of operators petitioning for those exemptions, and that's how they got the authority to fly. But in that same reauthorization, Congress set out to the FAA that, well, we need to set up this test site program in order to integrate drones in the national airspace. So, throughout the years as a test site, we've been very entwined with the FAA on the rulemaking and development process for policies and rules. Most recently, we served on the Beyond Visual Line of Sight Aviation Rulemaking Committee. We stood up the Air and Ground Risk components of that and published the final report in March 2022. And we're hoping, very much hoping, that we'll see the notice of proposed rulemaking come out this August. That'll be the next big revolution for UAS in the federal rules landscape, but it's not the only issue that we've had to tackle over the years. Much like when Part 107 came out for aviation rules, this is getting dubbed Part 108. Those two rule sets definitely do start really enabling operations by rule versus operations by waiver. But we've also had influence involving a lot of other policies throughout the years. One of the big ones that comes to mind is privacy concerns. There have been some proposed privacy laws, both in the state here in North Dakota, but also in neighboring states, where we've been called upon, as one of the test sites, to offer up opinions, advice, or just education on what the privacy concerns are with UAS. What can they do? What can't

they do? And a lot of times, the response is that privacy laws are privacy laws. They should be agnostic of the technology, and we can build the laws and the rules around that way. And that's the success we've had here in North Dakota.

Other states have taken a different approach, but that was one of the concerns over the years: privacy. The other one that you're not seeing as prevalent today is the right to airspace. Who owns the airspace right? Were there a lot of those concerns? You can go all the way back to *U.S. v. Cosby*, 1947. Who has rights to the airspace and who controls access to it? Prior to Part 107 coming out, a lot of states felt they had the right to control the airspace above their state boundaries. And you saw states coming out with different sets of rules to start enabling UAS because they wanted to be pro-UAS because they wanted to be drone friendly. They wanted to allow these operations, but they felt they could do that at a faster pace than what the federal government was enabling. The challenge that created, though, was it started creating an environment where every state had a different set of rules. And that really doesn't work, especially when you're talking about something that is in the transportation sector. You need that federal rule set to build that blanket landscape. And that really marks the key parts over the last ten years that we have really had most of our influence in. We keep trying to drive for operations by rule versus operations by waiver. And at some point, maybe we will actually be able to stay inside the rule book and not have to do waivers and exemptions. But I think there is going to be a long way for us.

Dr. Amy Whitney: So, Senator Sickler, as someone who plays a role in setting some of those rules at a statewide level, how do you foster a balance between helping organizations like Erin be at the cutting edge and also fostering regulatory and rule-based work that works for an entire state and has to balance both state-level kind of needs? And how do you learn to do that? How do you kind of get the information? What does that look like when balancing both local needs versus some of these federal requirements? Can you talk about that from your perspective as a legislator?

Senator Jonathan Sickler: What I found interesting about some of Erin's comments was the notion of the tension between states as areas to experiment with some of these regulatory approaches, just by nature becoming a patchwork. And how do you balance that with particularly an area like UAS where you need to have, at some point, a federal system that kind of sits on top? And as a state legislator, I'll be partial to the states, that the states can typically be more nimble, can react more quickly, can be more flexible as

situations change. So, a state legislature may have an ability to respond to these things more quickly than Congress, or certainly the way that Congress probably has functioned in the recent past. So, balancing that out, what can the states do on their own that at least gives some of these newer technologies the opportunity to develop to a certain extent? And I know there are a number of states developing these things called regulatory sandbox, the concept of it. And FinTech has been kind of one example that a number of states have done where the idea is you have, very similar to the UAS situation on the state level, you have a number of rules or regulations or licensing requirements that do not apply. And you are transparent to the consumers, perhaps, who will be using this less regulated product. So, you are transparent, everybody knows, and the regulators hopefully are keeping a closer eye on it as it develops, but you're really giving the innovators the opportunity to test drive, so to speak, what their product is and bring it into more of a real-life situation. So, that is something that, again, a number of states have been doing. In North Dakota, I think we, as a state, have some advantages over the federal process, but just because North Dakota is a smaller state, I think that's one of the positive things. We can, even at the state level compared to other states, respond more quickly. We have, I think, greater interconnections between government, private industry, and education than you see in a lot of other states. So, there are really a lot of opportunities for that cross-pollination to happen in a statewide North Dakota.

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Dr. Amy Whitney: So, what do you think? How do we ensure that our regulatory framework and our laws, so innovation, as I think we heard earlier, kind of have to be at the cutting edge and fascinate us to be agile, right? So how do we ensure that our policies, our laws, and our regulatory frameworks remain agile enough for us to accommodate those rapid advancements in that movement with technology so that we can still work and be legal, but be agile at the same time? And sometimes, that can be a dichotomy. And I'm going to put that to all of you and then let you kind of fight over who's going to talk first.

Erin Roesler: Yeah, I think one of the key parts, and I mentioned this briefly before on the specific example of privacy laws, but it does apply to a larger rule set as well; when we have the ability to protect someone's rights, like privacy, and we can do that and ensure that it stays intact without calling out specific means or modalities, I think that's important because that adds a great framework that allows for those protections to happen, but still be

controlled innovation. The privacy law that I referenced, I believe it was a House bill that we proposed, that added in, specifically calling out UAS, and it had cameras, and it had some other things in there, but it brought up a whole host of other questions in that conversation of, well, what about traffic cameras? What about just a microphone? What about these other acoustic sensors? There were a bunch of other things that weren't called out as specific pieces of technology in there that then brought up the larger concern, and then in particular with UAS, is it the UAS or the drone itself that is, you know, violating privacy? You know, spying? Or is it the camera that is attached or the sensor that's attached? And it started to get really messy really quick. So, I think the lesson learned from all that was, okay, what can we do to enable and protect privacy as well. Like I said, there are a whole host of other rights without calling out the technology, and I think that is a great challenge as we are looking at new rules and new regulations. We do not call out the technology, so we can be pro-innovation. There was recently a report card that came out about the 50 states and who is the top as far as drone friendliness. North Dakota ranked number two. I had some debates on why it is number two. Oklahoma beat us because apparently you can lease airspace. Do not get me started. So, from that aspect of things, how you scored high in the report card, though, was the lack of those rules that really inadvertently prohibited UAS, and that's how you created a more drone-friendly, you know, atmosphere. And I think we have the opportunity, with a wide range of innovation, to take that same approach.

Senator Jonathan Sickler: Second, those comments regarding having a broadly applicable statutory regulatory framework. We are in a room full of lawyers. We have got this fantastic tradition called common law, and the whole concept of common law is that you are dealing with these very broad principles that can be applied to society and technology as it changes, and we have seen that you can go through any number of search and seizure cases and all other types of criminal actions to see how our Constitution, for example, has evolved and the interpretation of it has evolved to deal with technology. So, I think that same concept can apply to a more granular regulatory basis. I think part of the key is not to be top-down on some of these things, particularly when you are talking with policymakers or, in some cases, regulators who are going to be very new to some of these technologies and technologies that are developing very rapidly; they are not going to be familiar. So, waiting until some of the, I do not want to say until the problems develop, but it is going to be impossible to try to predict, in a lot of cases, how things are going to play out. And as a legislator, the unintended consequences are something that we hear about multiple times a day, that when you try to

anticipate things, you're not very often going to get that right. So, the notion of waiting for these things to kind of come to the surface rather than trying to push them from the top down, I think, is very appealing, and having this ability to take broad principles and apply them in a neutral way across different technologies is very attractive.

Dr. Amy Whitney: So are there some examples, based on your own individual experiences, of some example policies that may help incentivize or enable you to do what you do better or improve the way you are operating, whether it is connectivity or collaboration across agencies or working with industry or seeing examples of different industry sectors that are coming in and saying, "these rules are challenging me. If we changed it to X, I could now do Y." Are there some examples that you can talk through about what that might look like and how a change in policy or a framework would enable that innovation?

Erin Roesler: Yeah, sure. Maybe one example comes to mind. Well, not directly on some of the policies and regulations, but it will have an outflow of that effect. So, the Department of Agriculture here in North Dakota recognized that UAS and drones could be very useful tools for them to utilize, but they do not know where to start. So, do you spend the resources in trying to develop it out and figure it out yourselves and mine all the information that's out there on the Internet and the sources that are there? Very similar to rules and regulations, because they are pushing it from the same aspect of it. They do not know the rules and regulations around UAS. So, what did they do instead? They put out a grant program. They had people respond. Through this grant program, we responded and were awarded that we will be doing a small test-bed grant where we're actually working on detecting and mitigating for invasive weed that is called "palmer amaranth." If you can say that five times fast, congratulations. But it looks very similar to pigweed. Why it can't have an easier name like pigweed, I do not know. Beside the point that it is utilizing the technology, it is also going to inform how can and should [sic] be utilized, and how then can the Department of Agriculture also contribute to rules and regulations in the state around how UAS can be utilized for invasive weed species. In particular, in this case, "palmer amaranth" is one of those weeds that the best way to eradicate it is by a flamethrower. I don't know the technical term, but you burn it. So now you are talking about equipping a drone with a flamethrower.

Senator Jonathan Sickler: What could go wrong?

Dr. Amy Whitney: What could go wrong [in] a windy state like North Dakota?

Erin Roesler: So, they went out to the professionals first and asked, "hey, how can this one, be done from a technological standpoint, but two, what type of rules and procedures do we need to have around this?" And I think the grant program is a great way to get the right people in the room to help them solve that problem. And I think more programs and more agencies have the opportunity to take advantage of that. Maybe not with flamethrowers, though.

Dr. Amy Whitney: Probably not with flamethrowers. That could be a bad day for us in our windy state. Senator Sickler, any examples of proposed legislation, things that came through in the last session, or things that you might be hearing about as we are gearing up for another session here coming up around the corner?

Senator Jonathan Sicker: Well, before the last session, which was my first session, I read a piece of advice that I thought was pretty useful. And it went something like the things that a legislature doesn't pass are often more important than when it does pass. Kind of the notion of first do no harm. So, I think first we kind of take a look or a scan of the environment in North Dakota for innovation and technology and appreciate that we are in a good position, that we have a lot of things going very well for us, a lot of the things that we already talked about, the business-friendly environment, low regulation, low tax, take your pick, a number of things that are working in our advantage. So, from a policymaking standpoint, finding ways to enhance that without doing damage.

You mentioned K-12 being something strong to help from a workforce standpoint. Our career and technical education centers that are being developed; many of them have already been developed across the state, and new ones are coming online to help train students in that age group to get involved and be able to be workforce-savvy in all these types of areas where we are going to need a workforce. And our higher ed, I think our higher ed institutions, there is a lot that they are doing. I think there is more that can be done from a research standpoint, legislatively from an appropriations view, and continue to look at opportunities to expand the research that's done at those institutions. So, we have a lot of that ecosystem, so to speak, that is kind of in place. A lot of it comes down to funding, capital, or other types of financial support to help technology and innovation entities at various stages. So, that is where

I think in this last session the legislature came in, and you can look at it probably from different stages of the innovation process. So, for example, EERC, in Grand Forks, UND, does some fantastic work that has really developed our oil and gas industry in the state, an industry that funds fifty percent of North Dakota state government. And most of their funding comes from federal grants or contracts that they have with industry. They do get a small amount that is funded from the state, and that is one of the things we did this last session, is we increased that state funding by fifty percent to get them more dollars to work on early-stage research. So early stage meaning that it is not developed to a point where it has interest or support from industry, and it is not something that the federal government is focusing on. So, we are taking some of the oil and gas revenue that the EERC has helped to generate and funding that small portion of it back to the EERC to kind of be able to do that early-stage research.

If you go to the next stage of the innovation path to a commercialization stage, we have things like the LIFT program and low-interest loans to companies that have a certain level of capitalization. They've got a product that is marketable but not quite able to take it to market. So, the LIFT, the no-interest program, is meant to help those companies based in North Dakota figure out ways to get to market, take some feedback from what they are doing in the market, and then expand that way. And then I guess kind of the other end or the far end of the innovation spectrum, the adoption portion, we have things like autonomous grants. So, we have had that, I think, in North Dakota for at least a few years where grants to manufacturing companies in North Dakota, that if they adopt or purchase equipment that helps automate part of their process, they can get up to fifteen percent of the cost of that equipment through tax credits. And that was expanded this last session both from a dollar standpoint and also to include animal agriculture. So, you can think of the example of dairy farms. It is not the farmer sitting on the stool anymore milking the cow. These are automated, highly technical processes that have a lot of expensive equipment. So, this program, this income tax credit, allows those dairy operations to get some dollars to automate and hopefully increase their production and hopefully expand their production. So, those are the kinds of things that we have done the last session, really a lot of it on the appropriation standpoint. Going forward in the next session, like we alluded to, I think AI will be an interesting topic because it is one of those topics where I think a lot of people have opinions and knowledge of it. I think a few people fully understand it, but a lot of people know enough to potentially be scared. So, from privacy concerns to government control concerns to how we fully take advantage of it from a more positive standpoint,

all those sorts of things. So, I think we are probably going to see a range of bills in the next session and have some things to wade through on that.

Dr. Amy Whitney: At the Center for Innovation, we work with a lot of those programs you talk about, right, when we have startups and founders that are working on these technologies and taking things that may start at the EERC, and then those founders come over to our shop, and we talk with them about how you build a business around that. So, programs like the Lyft Fund and 50 South Capital, which is an equity arm now that can make investments, had legacy fund dollars set aside for that. Earlier, we had a broken link to the Commerce Innovate N.D. program. That is another early-stage non-dilutive capital grant program that the legislature authorizes through the Department of Commerce. There are excellent ways to incentivize and utilize that policy to do that and enable us to invest back in North Dakota, which is a great thing as well.

Senator Jonathan Sickler: Just on that point, I think with the Fifty Capital, I saw a press release just this morning. I think that will be one of the discussions next session, is the Legacy Fund, and we will see what happens on property tax and all that type of thing, but there certainly is going to be more of a push to spend those legacy dollars and to spend more and invest more in North Dakota. This morning, I think there were eighty-nine million dollars in the legacy fund, and that growth fund is now in that. So that is eighty-nine million dollars that is coming from the legacy fund that has been invested in these opportunities in North Dakota.

Dr. Amy Whitney: There are some great startups that have gotten some great investments, both in the UAS space and in the autonomous space too and other industry sectors. It is great that we have that ability. We are going to take a little bit of a hard left turn here because we did talk about talent and education in some of those comments. [W]e are at a law symposium, so let's start there. How do we educate and train up-and-coming legal professionals, but also as legal practitioners? How do you learn about innovation and stay on the cutting edge? How do you suggest that we do that based on your experience   and   what   you   do?

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Erin Roesler: Education as well. Within my sector, I know and acknowledge the traditional aviation rules and the federal aviation rules that are out there. As we develop new rules and new policies around UAS, it is a challenge

because those have to be compatible with the existing rules. And, as I said, we spend a lot of our time working outside the rulebook. It is because of those traditional aviation rules that were set in place are just that. They are traditional aviation. It starts from an educational standpoint of just knowing what the rules say, but then challenging, and I do not doubt that this is probably the strength of every lawyer in this room here, but really understanding every word that is in those rules. I employ a team of pilots, so the pilots read the rules and say, "Well, this is what it is supposed to say, or this is what it means." What does it *say*? An example, right? In Part 91, it talks about the pilot's operating handbook. You know, how you fly the aircraft: has to be in the aircraft. I totally agree with my pilots. They go, well, the intent is that the pilot can have access to the operating handbook when they are flying. So, if I have it next to me on the ground, that should be fine, right? Since as a UAS pilot, I am not in the aircraft, I am like, well, that is well-intentioned, but that is not what the rule says. The rule says "has to be in the aircraft." So, in this case, I guess I am putting the operating handbook inside the drone, and it will be very useful. But first, understand first what the rules say. So, as we develop these new rules and new regulations, it is acknowledging how we can create new rules that are compatible with the existing rule set that has been chiseled in granite at this point as we now start looking for the future and looking for new technologies.

Senator Jonathan Sickler: Specific to the young lawyers in the room and the soon-to-be new lawyers, this is where I think you really have a potential advantage or something that you can bring to your career early on. Because when you leave law school and you get that first job, if you are in motion practice or you are doing a stock purchase agreement or something, it is going to be really hard the first time, and you are not probably going to know a whole lot, so that is going to take a little bit of accumulated experience to get good at that. But when it comes to technology, this is something where I think, not to stereotype those of us that are maybe older in the audience, but where you have an advantage because you are going to have more familiarity in a lot of cases and more of a deeper understanding of how these technologies are being used by consumers and across the economy and across society and have an opportunity to advise your clients in a way that maybe others, like those of us who whip out our BlackBerry, probably are not able to do. So, really take advantage of that. So, during your legal education, to the extent you have the opportunity to, take classes in intellectual property or to do internships with companies that have a technology focus or do things at the Center for Innovation or an incubator, there is no shortage of young startup companies that are looking for cheap legal advice, even if it is relatively new.

So being able to grow with them together, there are some fantastic opportunities. So really take advantage of that.

Dr. Amy Whitney: Channeling my desire for an entrepreneurial clinic with the Center for Innovation and the law school. Yes, I am channeling that. Absolutely. So, by educating and training; how do we recruit and retain this awesome talent so that we incentivize the education? Because you all are in the space where you need talent, right? Whether it is at AE2S or the test site or working for the state and anyone here that has a firm, right? How do we recruit and retain this awesome talent? What is the secret sauce?

Erin Roesler: I would say that talent acquisition and retention are huge challenges. For those who are not aware, in the state of North Dakota, there are 3.7 jobs open for every single unemployed person. So even if everyone who was looking for a job tomorrow got one. There are still 2.7 jobs still left out there for every one person. So, it is kind of a crazy stack because we really need to focus on the talent acquisition aspect of it. How do we really get people here? From a test site perspective, we are really focusing on two main campaigns. One, a campaign to get them here. We know that if we can get not only talent, but companies, businesses, and our federal partners to the state of North Dakota. [Then] show them what we put on paper. We say we have this ecosystem; we are a small and nimble state, we have the support of the legislature. That all the way to the top, and then the congressional support, that sounds good on paper, but fifty other states are saying the same thing. So how do you prove that we are actually doing what we say we are doing? And that only comes, at least from my experience, by getting them here and showing them live in action.

We actually had a delegation from Oklahoma here yesterday; it was just yet another example of exactly that. So, it was their Secretary of State who came up to visit and talked about when we say that our executive branch has UAS first and foremost in their mind, and they are embracing AI, and they are embracing autonomy, and they are putting forth all these initiatives, and it is rolling out into action. We mean that. And so, his comments at the end of the day yesterday reflected that, well, Oklahoma is not as nimble as North Dakota, and everyone that was from the Oklahoma delegation laughed because they thought that was a very PC way to put, no, they definitely have a lot of red tape and barriers that are prohibiting their innovation. So, it is an example of getting people here, going back to the talent acquisition, getting them here, showing that what we actually do is real. And the second part of that, for talent acquisition, is we are really very deliberately shifting the culture of the

test site. And with that, I mean, we are taking a series of steps to change our organizational structure. We are adding new positions at lower and almost pre-entry level positions that are really student focused. And why are we doing that? Well, I go back to the 3.7 to 1 ratio. I have to tap into the pool of student resources that exist across the state and acknowledge that I cannot recruit people here as well as I can tap into the pools of people, the brilliant minds that are already at our academic institutions and enable them to get into the industry sooner and leverage their skill set that I know they can already bring.

That is a cultural shift because what we recognize is there is still the chance that that student may come into a full-time employment job at the test site. But I am now also equipping them with some pretty powerful skills that by the time they reach graduation, they are ready for the next step in their career. So, we become that pipeline and we have to be okay with that. So, that means as an organization, I have to have really robust knowledge management that my information transfer is there, that I am comfortable with a higher percentage of turnover rate, that I embrace that these students are going to come in, they are going to contribute to the organization, and then I am going to use that to jumpstart their career into the next position. It is a hard culture to take on, but that is what we recognize we need to do. And I think a lot of innovation opportunities that you have in the state will need to take on that same approach. Again, we are not going to get everyone to move to the state, but we can sure as hell tap into the talent that we have here and then bring them into the next steps of their career. So, the students in the audience, I hope that is true for the opportunities that you are seeing, that you are going to be able to jump into those organizations that are going to embrace and take you on, and then that propels you to the next step of your career.

Senator Jonathan Sickler: I think in addition to the strategy of filling the positions that we have that are open, what we talked about a little bit is maybe automating some of those positions. You can go out to the western part of the state and drive down Highway 85, maybe ten years ago, and it was filled with trucks that are carrying fresh water and produce water, oil, natural gas, and all these types of things that were very labor-intensive and required lots of infrastructure dollars. And now a lot of that has disappeared because we have pipelines, and we have new technology that is allowing those things to be transported without being quite so labor-intensive. So, I think that is one strategy that is a ways away, I think, from really addressing a significant part of the workforce challenges that North Dakota and many other parts of the country deal with. But I think it is something that we can't overlook. I do not think

the workforce challenges are going away. We know that as a country, we have an aging workforce, so what we are seeing now is kind of the new normal. So, whatever we do come up with, the things that we have been talking about are going to have to be long-term solutions. There is an advantage to North Dakota, another one of the potential advantages is the fact that we have an economy that is much, much more mobile than it was five [or] ten years ago. So, we have, particularly those who have a skill set that is maybe more technologically advanced, that they have the abilities to kind of work from wherever they are. So, they can work from North Dakota, or they can work from the other side of the world. What do we have to do as a state to kind of have the quality-of-life type of things that benefit not just those people that we are trying to attract, but the people who are already here to make North Dakota the kind of place that they want to live and work? That is an opportunity that North Dakota did not have twenty years ago when jobs were much more place based. If you wanted to do certain types of work, you had to be on the coast. Some of those things just are not true anymore.

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Dr. Amy Whitney: Thank you. So, I know we are getting close to Q&A time, but I have another question. I hear a theme here too around collaboration, working together and really being able to not just work in a silo. So, what opportunities do you see from your perspectives where collaboration can happen between legal professionals, industry, academia, state agencies, legislatures, and local communities? There are all those organizations that we have talked about. So, what opportunities do you see for collaboration between all of those different types of organizations?

Erin Roesler: I have a very specific example, and it is a great show of how, well, . . . I actually worked . . . on a Vantis program initiative. If anyone is not familiar with Vantis, it is the State of North Dakota's beyond-visual-line-of-sight UAS system. It is building infrastructure for UAS that does not exist today. Aviation has it, right? You land at an airport; you don't land at the Delta Airport; you do not land at the United Airport; you land at the Mark Andrews Grand Forks International Airport. It is a shared infrastructure model. Ground transportation is the same way, right? It's not Uber's version of I-29. DOT, or I should say UPS, isn't their I-29. No, it is Interstate I-29, right? But that does not exist for UAS yet, and that is really what Vantis is seeking to do. It is building out shared infrastructure for UAS. But what does UAS need? It needs the next generation of infrastructure, so it is very technology-based. It actually leverages the State of North Dakota's StageNet

system. It has to meet aviation grade, so that is the federal aviation rule that comes into play. And it is bringing all those pieces together. But it has never been done within UAS, yet, which is what makes it exciting, but it has a whole host of challenges. So, you talk about opportunities for collaboration. From a technical side, from NDIT to us as a test site and the pilot and aviation sides. It is a great opportunity for us to collaborate, and we have been collaborating for years now to build this out. But we are now getting to the next phase with the legal aspects of things. So Vantis is going to be what BFA calls a third-party service provider. They are providing services to drone operators.

We do not ever intend to be the sole operator or pilot of the system. We are building the system out for a whole variety of operators. So, that means now I have to develop a service-level agreement down to those operators and commit not just what we, you know, very quickly scroll through all the apps and say, "Here are all the Ts and Cs, and I agree and I acknowledge, even though you have not read a word of it." Maybe you guys read a word of it, but I know I do not. We need to have that, but we also need to have it at a much more robust level. Because when you talk about aviation, you're now providing an app-like service with aviation-grade liability attached. So that service-level agreement needs to be robust, and it's now going to be between infrastructure, which largely, to the pilot aspect of this, looks like an app, with a service-level agreement that brings that into play. So, you can see the opportunities for collaboration. It is not an opportunity. It is a real-life collaboration between the test site and aviation. We have tapped into academia in support of the IP and the patent law, NDIT from their perspective on the technology aspects, but then, yes, the legal concerns about actually developing that service-level agreement. And here is where it gets even more complex. The FAA does not know what this should look like either. So, they have developed a new program that is called NTAP. It is the Near-Term Approval Process. We were the first entity to be added to that program, and then we were the first entity to complete the four stages of that program. The FAA is looking at the elements of that program, of which this SLA is one of those elements, to set the blueprint as the federal standard for what other third-party service providers in the UAS space will need to establish. So, a great example of not only the opportunity, the collaboration that is ongoing, but the impact that that will have at the federal stage.

Senator Jonathan Sickler: I am just going to build off of Erin's specific example. Even going back a little bit further, for those who may not be as familiar with Grand Sky, just the establishment, it was because of this pretty

unique or somewhat rare leasing situation that is between Grand Forks County. At the county level, very involved in that kind of opportunity, and then the state provides some resources to this kind of structure for Grand Sky that provides a platform for other entities like Vantis or other opportunities to kind of build off of. And that is, I think, one thing that is probably important from a policy standpoint: the state should not be picking winners and losers in all of this. It is providing kind of the investment in the infrastructure so those who have innovative ideas and those who have marketable ideas come forward and use that space with resources that they maybe would not otherwise have, and then they can take off and they can be with each other and they do their thing, but not necessarily the state coming and saying it is going to be this winner or it is going to be this one.

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Dr. Amy Whitney: This is the part where you get to ask questions of the panelists. And hopefully, you have some good questions. Did we really render the room silent? I have got a couple more. We came prepared up here. All right, so I have got a question while there is some thinking going on out there. Erin you talked earlier. . . . You heard the word "privacy." There are a lot of ethical issues that come up when you talk about innovation and doing things that are new, different, and kind of cutting-edge. What kind of ethical considerations do you see that we are going to have to deal with, especially when we are thinking about very sensitive issues like airspace, healthcare, AI? What do you see as some of the things that we are going to have to think about from a legal policy framework perspective in some of those industry sectors of today?

Erin Roesler: So, I think a lot of it is you do not know what you do not know yet, but you can prepare yourself to not get into trouble. So, from the start of the test site, we had a privacy committee. We set up a privacy committee that then helped inform, and it was purely dedicated to discussing the issues around privacy because we knew it was going to be a concern. Data security is another great example of the ethical concerns around that. So, when you are collecting data, whether that be the imagery, or it could be just your flight plan and the other readings that your aircraft gets or where you're planning to fly operations, you are gathering landowner approvals; not only obtaining that data, but then securing that data so that it is either encrypted or you have controlled access is something that we have thought about every day. Do we think the solution that we have today is going to be the solution tomorrow? No, but we are not naive to that, and I think that is the critical component is

when you have all these ethical concerns. Don't be fooled into thinking that your solution today will hold until the end of time. Set yourself up [for] debates and discussions. So, you have a committee that is there to inform, discuss, and evolve your privacy policies, your data security, your cybersecurity, your personnel security. The list goes on and on. But if you set those foundations in place, then as things evolve and change and as new aspects to the ethical concerns come up and new technology gets introduced, you are already to set up to have the conversation and then to build a process or a policy to help mitigate any risk that is there.

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Senator Jonathan Sickler: I will step way back and just take this as an opportunity to sing the praises of a broad-based liberal arts education. We are talking about ethics. Whose ethics? What ethics? What is the baseline that we are talking about? We talk about education almost exclusively nowadays in terms of workforce development. And that is important. But education has a much, much, in my mind, greater and broader purpose. And part of that greater purpose is to give a fundamental understanding of what we value as a society. What do we value as a civilization? What things are we willing to trade for convenience and efficiency? And all the great things that innovation and technology can provide. What things are we not willing, from a privacy standpoint, to share? How do we deal with people who have different views on those issues when we have ethical concerns—people who have greater or lesser levels of comfort or familiarity with sharing private information, for example? How do we resolve those conflicts? It is a much bigger issue in our society because of our failure to do that or lesser ability to do that lately. But that is something that I think the liberal arts side of education can kind of help pull us back to a little bit.

Dr. Amy Whitney: So, a follow-up question comes from that in the last few minutes we have. I think maybe another follow-up would be. How do you manage the tension in innovation? And I know, I think, all of you can speak to this. In deciding, when should it be a law, a rule, or a framework versus something like the free market and competitive industry operations? As part of just doing business. How has it done versus creating a law, a framework, or a policy? How do you kind of foster that tension and make those decisions?

Erin Roesler: So, in general, I would say the test site is very, at the state level, I should say, takes a pretty strong stance on trying to avoid state rules as much as possible to limit that innovation. So, our stance is the less rules,

the better. Again, at the state level. Because what we recognize is that the federal law, that's where we need the laws to exist to enable US operations. That's where Part 107 was so critical. That's where the Part 108 will be so critical to really enable the federal law across state lines to enable the next evolution of technology. So that's kind of our general stance on what does the framework need to be? What we need to see is less at the state, more at the federal, and hopefully then that sets the foundation for enabling this market to expand across the entire country.

Dr. Amy Whitney: Excellent. I think we have got about two minutes left. So, who wants to close us out in the last 90 seconds to two minutes?

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Senator Jonathan Sickler: To close that out, at least that comment, specifically with the lawyers, we have in the room. We have an administrative state and administrative framework that have grown considerably the last, you know, X number of decades and that has benefits and that has costs. And, I think, there are a number of people that would say that in certain circumstances that the costs have grown to outweigh the benefits of some of those regulations. So, as policymakers, we look at issues of how much authority agencies should have. How much brain do they have to kind of form regulations that are specific to their industry? Or are there instances where they perhaps should not have authority at all while the industry tries to kind of flush things out in certain circumstances? A big picture issue, but something that even came up in the last session, the Chevron Doctrine. Something that we will be hearing from the Supreme Court. They are ruling here at some point before July, but if it goes the way that seems to indicate, the court will either overturn that or gut it probably into not having a whole lot of meaning. Legislative session, the North Dakota Supreme Court had adopted a version of the Chevron Doctrine a number of years ago. And there was a bill to reverse that decision. Meaning that the agencies the courts would not be giving any type of deference to the agencies if they are in a vague or ambiguous type of regulatory state. [We] are going to see a lot in innovative areas. So, there are those types of things where, again, when we talk about the tension between innovation and law, that is one of those big picture issues that we deal with on a day-to-day basis that all of you will get the opportunity to continue to participate in.

Dr. Amy Whitney: Thank you all for your time and your thoughts today and that will be a wrap for this panel.