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BETTING ON THE REST: EXPANDING AMERICAN ENTREPRENEURSHIP OUTSIDE TRADITIONAL HUBS

HEARING

BEFORE THE

SUBCOMMITTEE ON COMMUNICATIONS, TECHNOLOGY, INNOVATION AND THE INTERNET

OF THE

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ONE HUNDRED SIXTEENTH CONGRESS

SECOND SESSION

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SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED SIXTEENTH CONGRESS

SECOND SESSION

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BETTING ON THE REST: EXPANDING AMERICAN ENTREPRENEURSHIP OUTSIDE TRADITIONAL HUBS

TUESDAY, DECEMBER 15, 2020

U.S. SENATE,
SUBCOMMITTEE ON COMMUNICATIONS, TECHNOLOGY,
INNOVATION AND THE INTERNET,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The Subcommittee met, pursuant to notice, at 2:30 p.m., in room SR–253, Russell Senate Office Building, Hon. John Thune, Chairman of the Subcommittee, presiding.

Present: Senators Thune [presiding], Wicker, Moran, Scott, Schatz, Cantwell, Klobuchar, Peters, Tester, and Rosen.

OPENING STATEMENT OF HON. JOHN THUNE, U.S. SENATOR FROM SOUTH DAKOTA

Senator THUNE. Well, good afternoon and welcome to today's subcommittee hearing to review the state of entrepreneurship in America. I want to welcome everyone joining us today, both in person and virtually. For much of our Nation's history, entrepreneurship has enabled both American progress and American prosperity. It is the bedrock of the American dream and has led to the economic mobility of millions of citizens.

Over the course of the last 50 years, venture capitalists played an increasingly important role in the continuation of America's entrepreneurial spirit. The venture capital model has led to tremendous economic growth in recent decades and venture capital investment as a result in some of America's most profitable and consequential companies. Many of these venture capital backed businesses have enabled the technology we have come to rely on during the COVID–19 pandemic, from food and grocery delivery services to virtual health care applications.

Today, it often feels as if entrepreneurs and venture capitalists go hand in hand, the former depending on the latter, to scale and to realize their full impact. However, we are here to not only talk about the relationship between venture capital and entrepreneurship, but also where this relationship is occurring and more importantly, where it is not. In 2019, California-based companies received roughly 50 percent of all venture backed investment in the United States. That same year, just three states, California, New York and Massachusetts accounted for almost 75 percent. Although there are many valid reasons why this is the case, which I look forward to exploring with our witnesses today, however, this geographic imbalance also means that a majority of regions within the United States are often shut out from the kind of investment that creates jobs, revitalizes communities, and enables the pursuit of the American dream.

Fortunately, this is a problem the private sector is trying to solve, and we have already benefited from the work of many individuals, including those on the panel with us today. In addition, initiatives like the expansion of reliable broadband services to businesses across America, including many in my home state of South Dakota, have already begun to provide greater connectivity between these communities and the larger economy, which helped spur more venture capital investment in entrepreneurial support. While we have made progress, the impact of COVID–19 make solving the investment gap all the more important and all the more urgent.

At a time when there has been economic uncertainty, entrepreneurs are the ones building businesses that will in turn create jobs. It is likely that many of these new businesses will continue to focus on innovation and technology, an industry that historically has been supported by venture capital. Without greater access to capital in underserved regions, the flow of talent, wealth, and opportunity will continue to move to only a handful of coastal cities and the full range and diversity of American ingenuity will go unrealized. I have seen firsthand what rural America has to offer.

In my home state of South Dakota, we have entrepreneurs working on therapeutics and other services to combat the COVID–19 pandemic. We have technology companies delivering the next generation of precision agriculture. And against increasing competition from countries like China, I believe more investment in American entrepreneurship in all regions of the United States will better position us in the long run.

At the end of the day, it is not going to be politicians and regulators driving the next wave of American innovation. It will be the private sector that will ultimately expand economic opportunities across the United States. And it is my view that the best the government can do is to fully recognize this and then actively try to not stand in the way. Today, I hope this panel will shed light on this important topic and bring to Congress's attention the diverse voices of the American entrepreneurs, the entrepreneurs who live in San Francisco and New York City, as well as the ones who call places like Boise, Atlanta, or Rapid City, home. To explore this topic, we are excited to have a panel today that represents the full geographic range of American entrepreneurship.

We are joined by Mr. David Hall, who serves as the Managing Director of Revolution's Rise of the Seed—Rise of the Rest Seed, I should say, Fund, which is based here in D.C.; Ms. Jan Garfinkel, CEO of Arboretum Ventures in Michigan; Mr. Ray Hespen, who is the CEO and Co-Founder of Property Meld, a technology startup in South Dakota; and Ms. Dawn Lippert, CEO of Elemental Excelerator, a startup excelerator based out of Hawaii. I want to thank you all for joining us here today.

I look forward to hearing your testimony and I now want to recognize by screen Ranking Member Schatz for any opening remarks that he would like to make. Senator Schatz, are you with us?

STATEMENT OF HON. BRIAN SCHATZ, U.S. SENATOR FROM HAWAII

Senator SCHATZ. Thank you, Mr. Chairman, I want to thank the Chair of the Subcommittee, Senator Thune, and the Chair of the whole Committee, Senator Wicker, for this important hearing. Innovation drives the American economy and many entrepreneurs turn to venture investment to get new concepts off the ground. But in recent decades, we haven't just seen a geographic concentration of these efforts, we have also seen that billions of dollars and significant brainpower have been invested in companies with products designed merely to make our lives more convenient, all the while solutions to problems that most threaten our world remain underfunded.

We must use our resources and ingenuity to solve our most serious problems like hunger, homelessness, health care availability, the pandemic, and climate change. We also have to make sure that investments in resources and talent to solve these problems are made across the country and not just at the hubs that Senator Thune mentioned. To fully harness the power of innovation in America, we must break away from private investment targeted toward the usual tech hotspots and instead work to spur innovation across the country so that we can deliver new economic opportunities for all Americans. This is especially true today as we work toward an economic recovery after COVID-19.

Among the problems I listed, I will focus for the moment on the climate crisis because we are so fortunate to have Dawn Lippert of the Elemental Excelerator here today from Honolulu, Hawaii. The Elemental Excelerator has proven our early stage investments can help to develop clean technologies with very impressive results. To date, it has seen over 5,000 new technologies awarded more than $40 million to 115 companies and has deployed over 70 projects in energy, mobility, agriculture, water, and the circular economy. It has partnered with the Hawaii Department of Transportation to reduce carbon emissions from concrete construction and work with the state and local businesses to identify opportunities for innovation in Hawaii's wastewater management.

The climate crisis threatens to create a real drag on the U.S. economy, and our future depends on bold innovation and clean technologies to address it. It is time for private investment to meet the scale of the problem with solutions that reduce our reliance on fossil fuels and help us to become resilient to climate impacts. Although some investors, such as Ms. Lippert and the Elemental Excelerator, are putting their money behind novel solutions to the climate crisis and showing that this is profitable, we will need many more. If the global marketplace is looking for climate solutions, meeting this demand will drive the next technological revolution and growth opportunities for American businesses.

Unfortunately, this growth opportunity has been largely ignored by venture investors today and we need to fix that. Venture investment must be mobilized toward fixing existential problems like climate change, not just giving us new apps that get us a burrito more quickly. And a key part of this is realizing the enormous economic opportunity in addressing climate change, in addressing farming, in having more venture capitalists refocused from a short sightedness to focusing brainpower and the power of capital on the problems that face our entire society.

And so I look forward to hearing the witnesses' testimony and having a productive conversation on these topics. Thank you.

Senator THUNE. Thank you, Senator Schatz. The Chairman of the Full Committee, Senator Wicker, is with us as well, virtually, and I will ask if Senator Wicker—Mr. Chairman, are you there?

STATEMENT OF HON. ROGER WICKER, U.S. SENATOR FROM MISSISSIPPI

Senator WICKER. I am here. Can you hear me?

Senator THUNE. Yes, indeed. Please proceed.

Senator WICKER. Alright, good. Well, thank you so much. And thank you also, Senator Schatz, for this important Subcommittee hearing and for the discussion that is critical to the future of rural communities, a subject matter that both of my distinguished colleagues are very interested in. There is a broadband gap between rural and urban America, and there is also a venture capital gap. According to a map produced by the National Venture Capital Association, the Southeast and the Midwest regions received a little over 6 percent of capital as a first this quarter, while the West Coast and mid-Atlantic regions received over 60 percent.

That is 6 percent versus 60 percent. Such a disparity between regions makes it vital that this committee continue its work to provide rural communities with the tools they need to compete for venture capital. These tools include access to 5G, high-speed wireless networks, as well as educational opportunities in science, technology, engineering, and mathematics. The 5G economy is projected to create more than 3 million jobs, generate as much as $275 billion in new investments for the wireless industry, and add up to $500 billion to our Nation's economy over the next decade.

5G will unleash innovation and entrepreneurship, providing a high level of performance to support a wide range of new applications and use cases. Next generation broadband deployment has been a major focus of mine as Chairman of this Committee. As the United States begins to deploy 5G networks, it will be important to ensure a level playing field for rural communities. We also need to make sure we have the talent pipeline needed to capitalize on these new technologies. Let me briefly mention one, a piece of legislation and one collaboration with the university. I have worked across the aisle with my friend and colleague, Senator Rosen, to introduce the Rural STEM Education Act to provide rural schools with the resources they need to take advantage of the opportunities afforded by 5G. Rural STEM education, combined with increased venture capital investment in rural areas, can help alleviate the so-called "brain drain," something Mississippi has struggled with, bright young people leaving the state to seek opportunity elsewhere.

In addition, Mississippi has been active in working to increase capital flow into rural communities. A prominent example is a Mississippi State University, which has partnered with Georgetown University through the Rural Opportunity Initiative to educate investors and lenders and promote investment in rural America through programming, internships, research, partnerships, and advocacy.

I am proud of Mississippi State's leadership and I look forward to the Committee continuing to exercise leadership and equipping rural communities with 5G technology and educational opportunities in the STEM fields. Thank you very much, Mr. Chairman.

Senator THUNE. Thank you, Chairman Wicker. We now have my neighbor to the east, Senator Klobuchar, from the great state of Minnesota. She is going to make some quick opening remarks. Appearing with us virtually, Senator Klobuchar.

STATEMENT OF HON. AMY KLOBUCHAR, U.S. SENATOR FROM MINNESOTA

Senator KLOBUCHAR. Well, thank you so much, Chairman Thune. Thank you, Ranking Member Schatz. Thank you as well to Chairman Wicker and also Senator Cantwell, who I know knows a little bit about entrepreneurship. So I got involved in this because I live in our state and right next door to South Dakota, and started the Senate Entrepreneurship Caucus with Senator Tim Scott.

And the reason we did that is because after the OA downturn, we realized there was a startup slump going on, and we know that is how a lot of the jobs are created in our country. And one of the things we immediately knew, and I think we all knew it just from our own experiences, is that over 70 percent of all the venture capital being concentrated—is concentrated in just three areas. That is Silicon Valley, Boston, and New York. And so what happens is too often promising startups aren't able to access the support they need simply because of where they are located.

And I think if there is any silver lining to this pandemic, it is perhaps that no matter where you are, you are going to be able to access employees and the like as more people are working remotely. But it is still a problem, and we have seen it even more magnified as small businesses are closing at a faster rate than big ones. And so in March, I introduced legislation called the New Business Preservation Act with Senators Coons, Kaine, and King to help new startups get the capital they need. And I actually think this is the perfect time as we go into the new year. We are doing emergency legislation right now that is so necessary. But to look at a bill like this. Because what it would do is, is it puts capital into the areas that we need it.

It makes sure that we find a way to do this legally through the states, and it makes sure that the money is going to areas that don't have all the startups and that we don't miss the next great entrepreneur just because they live in Bemidji, Minnesota, instead of Silicon Valley. And what we know is that the more startups we can have, the more problems we are going to fix, and the more jobs we are going to create in this country.

So as we see the light at the end of the tunnel with the vaccine, I think it is a really good time for this committee in the coming months to look not just at my bill, but into all legislation that deals with how we can encourage entrepreneurship and startups. So thank you very much. Thank you, Mr. Chairman. Look forward to hearing from the witnesses.

Senator THUNE. Thank you, Senator Klobuchar. I think we will get on with our panelists here. And again, I want to thank you all for being here. This is a great—a great group. As I mentioned earlier, we have Mr. David Hall, who is Managing Partner at Revolution's Rise of the Rest Seed Fund. And I mentioned entrepreneurs in my home state of South Dakota. Certainly, Ray Hespen qualifies as that, having started a business in South Dakota back in 2015. It is a fast growing maintenance automation software company, and it is creating a lot of jobs in Western South Dakota.

Glad to have you here, Ray. Ms. Jan Garfinkle, who, as I said, is Founder and Managing Partner of Arboretum Ventures. And then, Ms. Dawn Lippert, who is Chief Executive Officer of Elemental Excelerator. So what we are going to do is start with Mr. Hall, and go to Mr. Hespen, and then to each of our—the other two are going to be appearing virtually. Give you an opportunity to make some comments. If you could, confine your oral arguments—your oral statements to about 5 minutes. We will make sure that your entire statements are included as part of the written record of the hearing. But then we will have an opportunity to ask you all some questions. So we will start with Mr. Hall. Please proceed.

STATEMENT OF DAVID HALL, MANAGING PARTNER, REVOLUTION'S RISE OF THE REST SEED FUND

Mr. HALL. Chairman Thune, Ranking Member Schatz, members of the Committee, thank you for the opportunity to speak to you today. My name is David Hall and I am the Managing Partner of Revolution's Rise of the Rest Seed Fund, a Washington, D.C. based venture capital fund started in 2005 by Steve Case, the Co-Founder of AOL.

Our core investment thesis is that great entrepreneurs can start great businesses and scale them anywhere. And in 2014, Revolution launched the Rise of the Rest initiative, which is our annual five city, 5 day bus tour, to shine a spotlight on growing energy and momentum in startup ecosystems across the country. This led to our first Rise of the Rest Seed Fund in 2017, followed by our successor fund in 2019, in which we believe the next great company can start and scale outside of Silicon Valley, New York City, and Boston. And since our launch, we have invested in more than 150 companies and over 70 different cities across the United States.

We have learned an incredible amount about what helps and hinders startups in communities across the country. And today, I would like to discuss how venture capital and startup ecosystems are good for the country, good for cities, and good for Americans. But let's level set with facts. In 2019, according to data compiled by the National Venture Capital Association in Pittsburgh, there was approximately $133 billion in U.S. venture capital invested in American startups. Of that amount, approximately 73 percent was invested in just three states: California, New York, and Massachusetts, leaving the other 47 states and the District of Columbia to receive only 27 percent of this total amount.

In addition, and even more stark, less than 10 percent of venture capital is invested in women led startups and less than 1 percent is invested in black or African-American founders. So while we all may believe that talent is evenly distributed across our country, the opportunity often depends on where you live and what you look like. The future of America's economic competitiveness depends on all of us addressing these inequities. And you may ask, why is it important for Americans to support startups and entrepreneurs across the country?

Well, in any given year, startups are responsible for the majority of net new job growth in the U.S., according to the Kauffman Foundation. This is true because of several factors, including globalization and automation and other factors which collectively drive down job growth. Good companies, jobs rise and fall through mergers and divestitures, while small businesses, which are still responsible for most jobs, tend to remain relatively stable. Therefore, bolstering these young startups is the best way for us to revive economies which have been hardest hit by the shifts in the global economy. The major companies of tomorrow have the potential to employ millions and improve education, health care, financial services, and are being built today as early stage startups, often outside of the major tech hubs.

These entrepreneurs need our support to unlock the necessary capital and accelerate and commercialize technologies that can improve outcomes and continue to drive the U.S. economy into the future. To date, our Rise of the Rest tours have taken us to more than 40 cities, and while every city in every region sees value in supporting startups, the most successful cities that we visited have recognized their legacy and strengths to attract and nurture innovation, entrepreneurs, and the high growth and high impact jobs they create. For example, in 2018 we toured Chattanooga, Tennessee, also referred to as "Freight Alley" because of the concentration of freight and logistics businesses, which with more than 7,000 white collar jobs, in addition to the thousands of drivers and operators, are innovating a legacy industry for a 2-day shipping reality.

Over the last decade, there have been many headlines detailing the coming tech and talent exodus from Silicon Valley and New York City. The COVID–19 pandemic has accelerated the storyline of big name founders leaving hard hit coastal tech hubs. And while some of this most recent displacement is likely to be temporary, I do believe that a significant amount of coastal tech talent will permanently relocate to take advantage of a better standard of living. This has the potential to be transformative in many emerging startup systems in places like Pittsburgh, Detroit, Miami, Bozeman.

Beyond the proximity to family, the pandemic is driving the boomerang of this talent back to rising cities because these young people see comparable career opportunities in their hometowns for the first time in a generation. Finally, I believe the social injustice and racial animus of the past summer has led to a tipping point in conversations around diversity, equity, and inclusion in the startup and venture capital industry. This has led to immediate calls for greater access to capital for entrepreneurs of color, women entrepreneurs, and other represented entrepreneurs who have historically been excluded from the VC club.

At Rise of the Rest, we were so motivated we transformed our COVID postponed bus tour to a virtual tour focused exclusively on black founders. I believe that now is the time for all stakeholders, including policymakers, corporations, universities, investors and most importantly, entrepreneurs, to accelerate the growth of regional tech ecosystems. It is up to all of us and critical for America's future economic competitiveness that all founders everywhere and from all walks of life have access to the capital that can give them the shot to build America's next iconic company. Thank you.

[The prepared statement of Mr. Hall follows:]

PREPARED STATEMENT OF DAVID HALL, MANAGING PARTNER, REVOLUTION'S RISE OF THE REST SEED FUND

Chairman Thune, Ranking Member Schatz and Members of the Committee, thank you for the opportunity to speak to you today. My name is David Hall and I'm the managing partner of Revolution's Rise of the Rest Seed Fund. Revolution is a Washington, DC based investment firm launched in 2005 by Steve Case, the co-founder of AOL. Our firm has principally invested in venture-backable companies under the thesis that "great entrepreneurs can start and scale great businesses anywhere." In 2014, Revolution launched the Rise of the Rest initiative to shine a spotlight on the growing energy and momentum in startup ecosystems across the country. The lynchpin of that program each year is a five day bus tour to emerging startup ecosystems where we spend time understanding how cities are capitalizing on their unique strengths to create a more robust innovation community. Interest in our bus tours and our investment focus on rising cities in America grew and directly led to the launch of the first $150M Rise of the Rest Seed Fund in late 2017, and the second Fund, which we raised in 2019. Both Funds are backed by an extraordinary list of investors, executives, and entrepreneurs who publicly support our belief that the next great company can start and scale outside of Silicon Valley, New York City and Boston. Since launching the first fund, we have invested in more than 150 companies in over 70 cities across the United States. We have learned an incredible amount about what helps and hinders startups in communities across the country. Today, I would like to discuss how venture capital and its ability to support the technology and startup ecosystem is good for the country, good for individual cities and states who actively participate in supporting startup ecosystems, and good for U.S. citizens, particularly those in rising communities.

Despite the positive momentum we have witnessed with respect to startup growth in a number of cities, it is critical to level set with some facts around place and people, and understand startups crucial role in job creation. In 2019, according to data compiled by the National Venture Capital Association (NVCA) and Pitchbook,[1] there was approximately $133 billion in U.S. venture capital invested in American startups. Of that amount, approximately 73 percent was invested in just 3 states: California, New York, and Massachusetts. California alone received nearly half of this amount at over $65 billion, while the other 47 states and the District of Columbia saw only 27 percent of this total amount.

In addition, and even more stark, less than 10 percent of venture capital is invested in women led startups and less than 1 percent is invested in Black or African American startup founders.[2] So while we may all believe that talent is evenly distributed across our country, opportunity is not. The likelihood that one will receive venture funding to scale really does depend on where you live, and to which gender and racial identities you ascribe. It is critically important that we address these inequities. And to do so will require the commitment of the venture industry, academia, the larger business community, and policymakers at all levels. The future of America's economic competitiveness depends on it.

You may ask, why is it important for stakeholders—private sector, academia, and public sector—to support American startups and entrepreneurs all across this country? In any given year, startups are responsible for the majority of net new job growth in the United States according to research from the Kaufmann Foundation.[3]

[1] *https://nvca.org/wp-content/uploads/2020/04/NVCA–2020-Yearbook.pdf*

[2] *https://news.crunchbase.com/news/untapped-opportunity-minority-founders-still-being-overlooked/*

[3] *https://www.kauffman.org/wp-content/uploads/2019/12/firm_formation_importance_of_startups.pdf*

This is true because of several factors, including globalization, automation, and other factors which collectively drive down job growth.

Organic job growth at large corporations tends to wax and wane through mergers and divestitures, leading to a flat to net reduction in job growth. While small businesses, which are still responsible for most jobs, tend to remain relatively stable. Therefore, it is mostly through startups, that we see exponential net job growth. This is important because bolstering these young businesses and job creators are the best way for us to revive economies which have hardest hit by the shifts in the global economy. The major companies of tomorrow that have the potential to employ millions and improve education, healthcare, financial services, and other industries, are being built today as early stage startups, often by people who do not live in one of the major tech hubs. These entrepreneurs need our support to unlock the necessary capital from both public and private sources. Doing so will accelerate and commercialize technologies that can improve outcomes, drive down consumer costs, and continue to drive the U.S. economy into the future.

To date, our Rise of the Rest bus tours have taken us to more than 40 cities. Each year, we visit five cities in five days to witness and highlight how cities and communities are rising to the challenge of supporting their burgeoning startup ecosystems. While every region sees the value in supporting startups, the most successful cities that we have visited have recognized its uniqueness, its legacy, and its strengths to attract and nurture innovation, which, subsequently attracts entrepreneurs and the high-growth and high-impact jobs they create. For example, in Chattanooga, Tennessee, where we took our tour in 2018, we learned that the city was referred to as "Freight Alley" because of the concentration of freight and logistics businesses. Indeed, the industry employs locally more than 7,000 white collar professionals, who in addition to the thousands of drivers, operators and brokers, are working to build technology for a legacy industry to better meet today's increased expectations and demands of rapid delivery of goods and products.[4] We were also fortunate to leave Chattanooga with an investment in Freightwaves, a fast-growing data and media platform serving the freight industry which employs 130 people.

We also saw a similar impact in Indianapolis, Indiana, following Salesforce's 2013 acquisition of Indianapolis-based company called ExactTarget, which grew from a small startup to a major tech company. Following the acquisition, Salesforce doubled-down on the Indianapolis ecosystem, built a large Midwestern headquarters, and helped to accelerate the transformation of Indianapolis into a major technology and business-to-business software leader.[5] In addition, we have seen American innovation translate to entrepreneurship far beyond any given geography.

Take Brevard County, Florida for example, which we visited in 2019 on our bus tour. Startups all across the country are innovating in the space industry, and need to tap into the leadership and ingenuity of NASA with its epicenter along Florida's famed "Space Coast." This critical industry, from a defense and commercial perspective, will continue to be fueled by and benefit from startups innovating outside of the major tech hubs, and in places like Central Florida, Southwest Texas, and Alabama.

Talent is another factor to watch closely that can drive the success of a startup ecosystem, particularly for individual citizens. Over the last decade, there have been many headlines detailing the coming tech and entrepreneur exodus from Silicon Valley and from New York City. The COVID–19 pandemic has accelerated this storyline with the media eagerly covering stories of big name founders leaving hard hit coastal tech hubs. While some of the most recent displacement is likely to be temporary, I do believe that a significant amount of coastal tech talent will permanently relocate to take advantage of a lower cost of living and less congested lifestyle. This has the potential to be transformative in many emerging startup ecosystems and will fill a critical gap in the human infrastructure so many ecosystem leaders and entrepreneurs have been building for years in places like Pittsburgh, Detroit, Miami and Bozeman. This is not exclusive to just tech talent; we have also seen businesses recruiting fashion designers, for example, to St. Louis to design swimsuits for our portfolio company, Summersalt, a women's swimwear brand. It is also important to remember that very few "techies" were born in the Bay Area or other coastal tech hubs. Most grew up and received education in other communities.

They moved to these hubs because of the promise of outsized opportunity. Another one of our portfolio companies, Understory, a Madison, Wisconsin company that is building a parametric insurance company, actually relocated from Boston back home to Madison and saw incredible productivity gains and huge cost savings. The pan-

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[4] *https://www.timesfreepress.com/news/edge/story/2019/oct/01/moving-fast-freight-services-sector-riding-hi/504428/*

[5] *https://oneamericaworks.org/blog/how-did-indy-score-a-salesforce-hq/*

demic is definitely accelerating the boomerang of this talent back to hometowns, not just for proximity to family, but also because they see potentially comparable career opportunities in many rising cities for the first time in a generation.

Finally, I believe that we are at a tipping point in conversations around diversity, equity, and inclusion in the tech start-up and venture capital industry. Amid much of the social justice and racial animus of the past summer, in the venture capital industry, we witnessed the immediate calls for greater access to capital for entrepreneurs of color, women entrepreneurs, and other underrepresented communities who have been historically excluded from the VC club. At Rise of the Rest, we were so motivated that we transformed our COVID-postponed tour to a virtual tour focused exclusively on Black founders. We were able to source nearly 500 Black-led startups for a pitch competition, and will invest in 3 companies: Rheaply, a physical asset exchange manager; Kanarys, a platform that tracks diversity and inclusion for corporations, and Zirtue, a person-to-person lending platform. We also helped facilitate over 300 meetings between Black founders and top investors across the country.

I believe that now is the time for all stakeholders, including policymakers, corporations, universities, investors, and most importantly, entrepreneurs, to accelerate the growth of regional tech ecosystems. It is up to all of us—and critical for America's future economic competitiveness—that all founders everywhere and from all walks of life access to the capital that can give them a shot to build the next iconic American company. Thank you.

Senator THUNE. Thank you, Mr. Hall. Mr. Hespen.

STATEMENT OF RAYMOND HESPEN, CHIEF EXECUTIVE OFFICER AND CO-FOUNDER, PROPERTY MELD

Mr. HESPEN. Thank you, Senator Thune, Senator Schatz, subcommittee members. Appreciate the opportunity to come here and speak. My name is Ray Hespen. I am the CEO and Co-Founder of a software company called Property Meld. Where we specialize is actually in the rental business and maintenance specifically. So what we do is we make maintenance a phenomenal experience for both those who are renting, as well as those who manage rentals.

We have hundreds of thousands of homes on our platform, both here in the U.S. and even some in Canada. And just a little bit of an idea of the genesis. We started the company around 2015 with the idea and the problem. By 2018, we achieved hypergrowth, so we went from two employees to four. And now in 2020, we are rounding out what will be around 44 for employees going through COVID. So a little bit about myself. I grew up in a small town in Wyoming. I eventually realized that I was good at math and about nothing else so I went and became an engineer at the School of Mines in South Dakota, and ultimately ended up living there. So just a little bit around why this is so exciting for me that we are talking about this.

I graduated South Dakota School of Mines and I really had two choices. I could either stay in the place that I had fallen in love with and forfeit opportunity, or I could choose to take that opportunity and move elsewhere. And like many of my peers, a lot of us chose opportunity. So I did what my wife and I like to call went and dated the US. We went and lived in six places in 9 years, went and tested out every time zone, figured out which one we liked, but ultimately ended up back in South Dakota. And unfortunately, I had to create my own job to do that. So, you know, if we are thinking about as an engineer, usually engineers are good problem solvers. I don't know necessarily about me, but the thing that I didn't know what how to do was really actually start a business. So the first thing that you do when you start a company is you say, well, how am I going to fund it?

Well, I went and talked to a few people that were familiar with raising money and I asked them, you know, what is needed to be done, and the fact that I didn't have an Ivy League education or didn't have—haven't done this before, the likelihood of raising money was actually just very low, low likelihood. So like most entrepreneurs, I am not good at being told no. So I figured out how to get the money elsewhere. Friends and family is ultimately where I went to, which was a little bit of a difficult network to tap.

At that time, I didn't know very many people that had money to loan out or invest. And to later find out, some of them actually borrowed the money to invest, which is actually crazy in my opinion. And so, you know, so we are managing our company, and 2018 was a pretty critical moment for us as a company, ended up partnering with a mentor who really helped create a fork in where our company was going, turning us from a real ragtag group of people, just kind of figuring it out, and helping turn us into a scalable operation that people could see an investment making some real dividends, making it a real math equation to put in a nickel here, get a dollar out there. And this was critical for actually going and raising funds, which we did go and do. So the mentorship was critical in helping navigate this, but it was kind of interesting.

We had kind of one or two options. Either we could partner with a lot of the angel funds in the region, which would have taken a lot of different deals to get done—small check sizes or work with coastal VCs. Looking—hindsight, even some of the things that we navigated there, some of the terms seem pretty opportunistic and was really fortunate that we had some good advisors to help us navigate that. We ultimately end up partnering with an amazing regional fund that has been a great asset ever since. So just kind of tell where we are at today as a company, started in a couple of basements, like most great stories, you know, do. Ended up joining a little bit of an incubator. And then we are actually to the point where we are building a new 14,000 square foot facility in Downtown Rapid to help capture the growth and house all the employment that we are doing.

Again, we are around 44 employees. But the big thing that I really want to talk about is this is really a testament of the power of a great idea and execution. And if I was to sit here and, you know, make sure that there was something kind of left with this is if I would have asked the question, could we have done this with just capital and not the mentorship we received? I would say it would have been doubtful to have the success that we have had. And if it was the flip side where we had the mentorship and not the capital, do I think it could have been done?

And it would also have been a little doubtful in my mind. And so the big thing is really understanding that as we think about these things in helping entrepreneurs, how I perceive helping entrepreneurs, is really make sure that we have got a great infrastructure, both access to capital as well as the support network to help grow their business. Thank you.

[The prepared statement of Mr. Hespen follows:]

PREPARED STATEMENT OF RAYMOND HESPEN, CHIEF EXECUTIVE OFFICER AND CO-FOUNDER, PROPERTY MELD

My name is Ray Hespen, and I'm the CEO and co-founder of Property Meld, a software company that focuses on maintenance for the property management industry. We started our company in 2015 to make property maintenance a fantastic experience for everyone—renters, maintenance personnel, and property management companies. Our company has grown significantly and now helps improve this experience for hundreds of thousands of renters and the people who manage the homes. A little about my background, I was born in Wyoming and studied to become an engineer in South Dakota, and I am fortunate to live there today.

For context, my family moved across the U.S. before arriving back to South Dakota, where we ultimately wanted to live. I never wanted to leave the Midwest after college, but like many of my colleagues, we had to choose between staying in the area or moving for a better opportunity. I chose opportunity. It hasn't been an easy journey, moving around six times in nine years. The goal was to gain the skills needed to move back into the area. But frankly, I had to create my own job in order to move back.

My company was born to solve a real problem for renters and maintenance. I was good at solving problems but turning an idea into a business was completely new to me. I specifically remember talking to a few fundraising people about raising money initially and was told that it wouldn't happen. I was from a no-name school and didn't have the credentials or connections of an Ivy-league school.

As any entrepreneur, I'm not good at being told 'no,' so I started tapping my local network. Incredibly and fortunately, I raised some money from people who liked me and trusted me. They weren't professional investors, and looking back, I'm a bit shocked they did invest considering what information we gave at the time.

Fast-forward, we started to have some success with early-adopters in our industry. I specifically remembered a critical pivot in our company when we met a key mentor in our growth. He had a fantastic resume in software and scaling and brought our haphazard group, and helped turn us into a scalable machine. This ultimately helped us achieve growth rates that made this an interesting business.

It was at this point we became a legitimate investment opportunity for venture capitalists (VCs). Our new framework helped established the structure that would create a path to profitability for us and our investors after investment.

Building the story for those VCs was hugely guided by this mentor. Creating the formula for 'insert a nickel here, get a dollar out there' but helped coach us to elevate our credibility during the entire process.

The options for fundraising were minimal. It felt like it was either regional angel players or venture capitalists from the coasts. The angel groups often could only commit to small investments which would have required a large contingent if we were to raise enough to give us the runway we needed. Alternatively, we could participate with the coastal VCs.

Even during this initial period of fundraising, we received some term sheets that, especially in hindsight, felt opportunistic. Since we were in South Dakota, we wouldn't notice some egregious terms. Due to these mentors' advice, we were able to avoid some pretty serious mistakes early in our company. Ultimately, we partnered with a fantastic smaller regional capital partner who treated us fairly and has been a great asset since the initial investment.

We started our company in 2015 and had a slow start. By the beginning of 2018, we had grown to 4 employees. Since then, we have accelerated our job creation and now employ 44 with no signs of slowing down. Starting from a basement, moving to a local incubator, and now building a 14,000 sq ft beautiful facility in downtown Rapid City, our growth is an excellent example of what can be accomplished with the right idea and the proper execution. We're having a real impact on our local and national economy.

I ask that we not think of this as only capital. Hopefully, my journey is an example of how both mentorship and capital are essential. If I ask myself, "could we have succeeded only with capital?", I am doubtful. Alternatively, if we would have succeeded with only a mentor, also doubtful. It is my strong belief that both of these areas are critical to the success of entrepreneurs like myself. I hope a spotlight on our success will help set some framework and provide insight on how we help other entrepreneurs do the same.

Thank you.

Senator THUNE. Thanks, Mr. Hespen. And I was recruited and thought long and hard about going to South Dakota School of

Mines, and perhaps if I had the background to do what you are doing and be an entrepreneur and creating jobs, but I don't think I probably have the skill set that you have. So great to have you in South Dakota. Next up is Ms. Jan Garfinkle, and she is appearing with us virtually. As I mentioned, she is the Founder and Managing Partner of Arboretum Ventures. Jan.

STATEMENT OF JAN GARFINKLE, FOUNDER AND MANAGING PARTNER, ARBORETUM VENTURES

Ms. GARFINKLE. Great. Thank you, Chairman Thune, and Ranking Member Schatz, members of the Committee. It is really an honor to testify today. As Senator Thune said, I am Jan Garfinkle. I am the Founder and Managing Partner of Arboretum Ventures, which is located in beautiful Ann Arbor, Michigan. This hearing has caused me to reflect on how my entrepreneurial journey that took place outside of traditional venture capital hubs can help your important work. Over the first half of my career, I worked at startup medical device companies and consulted with health care startups before deciding that I wanted to join a venture capital fund. When I couldn't find a venture job here in Michigan, I decided to launch my own firm and so I went to irs.gov, filed for a tax ID number, and started Arboretum Ventures back in 2002.

Arboretum was founded on the belief that through innovation, we can drive cost out of our health care system while still providing great clinical care. We have grown from our first fund, which was $17 million, to managing now over $700 million over five funds, and along the way we have invested in more than 50 companies, helped over 8 million patients, and currently employ 4,000 high skilled workers, most of which are located in the Midwest. In fact, we have a portfolio company in half of the states represented by the Senators on this Subcommittee. Policymakers are right to ask how venture capital and startup activity can be spread to more of our country. After all, entrepreneurship is not proprietary to the Bay Area, Boston, or New York. There are incredible entrepreneurs throughout this country and it is important that policy be established to help these entrepreneurs flourish. Venture capital is a local, high touch investment into entrepreneurial activities, and hence venture firms tend to invest in portfolio companies that are in their geographies. Unfortunately, the benefits of venture and startup activity are not evenly distributed across our country.

Venture capital is too often seen as a monolith when in fact it is really a collection of dozens of regional ecosystems. Many look at Silicon Valley and wonder, why is it so special? What is so special about it that makes so much venture capital investment flow there? Well, Silicon Valley is just an excellent example of a highly developed entrepreneurial region. It is important to consider how we can curate local conditions so entrepreneurs like me and like Ray can create successful homegrown startups or venture capital funds in under-ventured regions. To flourish, entrepreneurial ecosystems outside of coastal hubs need support from the broader venture capital industry and policymakers. As the Committee delves deeper into this topic, I recommend you work to enact policy that supports young, high growth companies that have different needs than large companies or traditional small businesses. I was deeply involved in such initiatives the last several years, serving on the board of the National Venture Capital Association, and most recently as its Board Chair. On the policy front, I encourage you to prioritize the following areas that will support emerging ecosystems.

First, Senators Young and Schumer have an excellent piece of legislation called the Endless Frontiers Act, which is a bold commitment to Federal basic research and technical commercialization in critical technologies. Many companies are spun out of universities and this legislation would help spur new activity in emerging ecosystems.

Second, earlier this year regulators finalized reforms to the Volcker Rule. One reform that is very promising to regional ecosystems is the ability for banks to once again be investors in VC funds. This will open a new source of capital for smaller venture funds that are off the coast.

I encourage you to protect this reform at the Federal level. Third, venture-backed startups tackle big problems, and it often takes substantial research dollars to solve these problems. Hence, they invest millions into the research as they develop the product and then until they generate revenue. As a result, startups need tax policy that allows them to take advantage of tax assets such as net operating losses and R&D tax credits that are generated as the company grows. My written testimony provides examples of legislation that would achieve that goal. It is also imperative that taxes not be increased on carried interest, which is the share of capital gains that VC fund partners receive if their funds are successful. I can tell you from personal experience that carried interest in the principal is the principal economic motivator for starting a fund in an emerging ecosystem.

It is important to realize that the fee from small funds is not enough to cover expenses, and hence venture founders often go without salary for several years, as was my case. And finally, the Startup Act is a smart bipartisan legislation from Senators Moran, Warner, Klobuchar, and Blunt. One important piece of the bill is the creation of a startup visa to pave the way for immigrant entrepreneurs to start new companies in the U.S. In our own portfolio, approximately one third of our startup founders, are immigrant entrepreneurs.

So to conclude, I greatly appreciate your interest in this topic and I look forward to your questions.

[The prepared statement of Ms. Garfinkle follows:]

PREPARED STATEMENT OF JAN GARFINKLE, FOUNDER AND MANAGING PARTNER, ARBORETUM VENTURES, BOARD CHAIR (2019–2020), NATIONAL VENTURE CAPITAL ASSOCIATION

Introduction

Chairman Thune, Ranking Member Schatz, thank you for the opportunity to testify before the Senate Commerce Committee's Subcommittee on Communications, Technology, Innovation and the Internet. The topic of spreading entrepreneurial activity is one I am deeply passionate about as I have been investing in early-stage healthcare companies for nearly 20 years. I founded Arboretum Ventures in Ann Arbor, Michigan, in 2002 with the goal of enabling meaningful healthcare system savings while maintaining excellent clinical outcomes. From 2016 until earlier this year, I served on the board of directors of the National Venture Capital Association (NVCA), and during my last year on the board I served as its board chair. In that capacity, I led industry initiatives to encourage the growth of emerging startup ecosystems and venture capital in more areas of the country.

As I prepared for this hearing, I reflected on my own entrepreneurial journey that took place outside traditional venture hubs. I would like to briefly share my personal story, along with my experience in the Midwest venture capital (VC) ecosystem and my thoughts on how startup success in under-ventured regions leads to a virtuous growth cycle.

I grew up in California and graduated from the University of California, Berkeley with a degree in bioengineering. After working for Proctor & Gamble in manufacturing and earning my MBA at Wharton, I spent 12 exciting years working for two medical device start-ups in the Bay Area—both of which were acquired by Eli Lilly and ultimately became the foundation of Guidant Corporation. However, while my career was advancing, my husband was not happy with his job in San Francisco and I became a reluctant trailing spouse as we moved to Ann Arbor, Michigan. I had 3 daughters in 18 months, (a single and a double), and then started a consulting business focused on local early-stage health care companies. After 8 years of consulting, I decided I wanted to work in venture capital but was unable to find a venture capital position in Ann Arbor. So I went to IRS.gov, filed for a tax ID number, and founded Arboretum Ventures in 2002.

Today, Arboretum is the largest venture capital firm in Michigan, with over $700 million under management across five funds. 90 percent of our capital is from institutional investors such as pension funds, foundations, and endowments. We have invested in more than 50 companies, helped over 8 million patients, and created over 4,000 jobs, most of which are located in the Midwest. In fact, we have at least one portfolio company in half the states represented by the Senators on this subcommittee. We have had 13 large exits, with 40 percent of those being located just a few miles from our office in Ann Arbor.

I can say from experience that starting a venture capital firm from scratch is never easy and is especially challenging in regions outside traditional VC hubs such as San Francisco or Boston. There are a number of structural barriers that exist in under-ventured regions. The lack of investment capital constrains the number of startups that receive funding. Subsequent trickle down effects include: a reduction in the number of successful exits and secondary reduction of experienced employees who know how to scale a company, which then leads to limited investment capital due to lack of viable investment targets. This downward spiral can be near-insurmountable and requires private and public sector support to overcome.

My firm, Arboretum Ventures, owes a great deal of its success to the early support we received from the State of Michigan, both directly and indirectly. In 2002, when I founded Arboretum, the Michigan Economic Development Corporation (MEDC) decided it wanted to stimulate the formation of new venture funds. MEDC ran an RFP process with 17 competitors, awarding 2 winners with $250,000 each. The $250,000 was to cover the costs of raising the fund, but not salaries, and was only awarded once the fund had a first close of at least $5 million. We were one of the two winners and had a first close on Arboretum's first fund of $6 million. We continued to fund raise for the next two years and our first fund totaled $17 million. In 2006, Michigan launched the $95 million Venture Michigan Venture Fund (VMF) to invest in VC firms willing to open offices in the state. VMF served as a cornerstone investor (limited partner) for Arboretum and persuaded several regional funds to open Michigan offices and invest capital in local startups. Michigan also created "SmartZones" across the state—incubators with office space, entrepreneurship training, and other company incubation services—and worked alongside private sector organizations to grant millions to startups, leading to the creation of hundreds of jobs.

The actions taken by the state and private partners helped us overcome the barriers inherent to under-ventured regions and facilitated a culture of entrepreneurship in Michigan. Within Arboretum, we have seen how our early successful investments, including Ann Arbor-based companies HealthMedia (sold to Johnson & Johnson) and HandyLab (acquired by Becton Dickinson) led to additional venture and angel investor interest in our region and built an important base of local talent. In fact, we recently had our largest exit (*i.e.,* completion of a successful investment) ever in NeuMoDx, a company that was founded by the two leaders behind HandyLab. Importantly, NeuMoDx is a leader in the COVID–19 testing market. More broadly, Michigan recently had one of its largest venture exits in cybersecurity, Duo Security, which was founded by employees from a previous Ann Arbor startup (Arbor Networks). This recycling effect is what propels local ecosystems forward.

The burgeoning venture ecosystem in Michigan has also highlighted that regions outside traditional hubs have unique advantages. With the lower cost of living, companies can be more capital efficient. In fact, the average Midwest startup only requires two-thirds of the funding an equivalent Bay Area company would need to reach a successful exit. We are also proud of the diversity in our region; Ann Arbor has one of the highest rates of women-founded VC startups in the U.S.

In my recent role as NVCA board chair, I was able to leverage my experiences and learnings from Michigan and became deeply involved in industry-wide efforts to build out emerging ecosystems off the coasts. Two examples of this, which I discuss in more detail below, are Venture Capital University and the recent change to the Volcker Rule, both of which greatly impact funds off the coasts. In addition, NVCA recently created Venture Forward, a 501(c)(3) that focuses on education, diversity, and inclusion, and ensuring best practices are shared nationwide, in essence breaking down the information barriers that provide incumbent regions built-in advantages over emerging ecosystems.

Michigan, the Midwest, and other under-ventured areas still have a long way to go before they can match the entrepreneurial maturity of the coastal hubs. In 2020, only 26 active VC firms were headquartered in Michigan[1]. Further, while the amount of venture capital assets managed by investors based in Michigan has grown steadily from $840 million in 2005 to over $4.3 billion in 2020, the amount managed by Michigan investors today represents just one-half of one percent of the Nation's total venture capital assets under management.[2] These statistics notwithstanding, accelerating the startup ecosystems in Michigan and other under-ventured regions is more important than ever considering how globalization and new industrial rivals have shuttered hometown employers' doors and left many communities struggling. The global economy is changing fast and communities across the country must modernize and adapt or the challenges this country faces in terms of access to opportunity, competitiveness, and economic growth will only worsen. Purposeful and strategic policy efforts on the part of public and private-sector leaders can help these communities thrive in the new tech and knowledge-driven economy as the old economy fades from view.

Impact of Entrepreneurship and Venture Capital

Entrepreneurship has set the United States apart as the most dynamic economy in the world. The Kauffman Foundation found that new companies were responsible for nearly *all* net new job creation, and companies less than one year old have created an average of 1.5 million jobs per year over the past three decades.[3] Venture capital has played an instrumental role in startup activity, having backed iconic American companies like Genentech and Google, to more recent creations Zoom and Moderna.[4] A research paper produced by Stanford University found that of the 1,339 companies that went public between 1974 and 2015, 42 percent trace their roots to venture capital.[5] Those venture-backed companies account for an astounding 85 percent of all research and development spending by companies that have gone public since 1974.

Venture-backed startup activity has historically been dominant in a handful of science and technology hubs, including northern California, Massachusetts, and New York. In recent years, new regions have come on the scene and show great promise for new company creation. A recent NVCA report found that

> Venture funding reached startups in all 50 states and the District of Columbia, 242 Metropolitan Statistical Areas (MSAs), and 397 Congressional Districts. Buffalo, NY, Boise City, ID, and Richmond, VA saw the biggest growth rate for annual number of VC investments over the past five years (for those MSAs with at least 15 in 2019). Bend, OR, Rochester, NY, and Grand Rapids, MI saw the largest annual growth for VC investment over the past five years (for those MSAs with at least $10 million VC investment in 2014 and 2019).

These are welcome developments for those of us who have worked to establish emerging startup ecosystems. As an investor in Michigan, I have been actively in-

[1] 2020 MVCA Research Report, Michigan Venture Capital Association, available at *https://michiganvca.org/wp-content/uploads/2020/04/2020-MVCA-Research-Report-Final-version-from-EntryPoint-low-resolution.pdf*

[2] NVCA 2020 Yearbook, data provided by PitchBook.

[3] *The Importance of Young Firms for Economic Growth,* Kauffman Foundation, available at *https://www.kauffman.org/resources/entrepreneurship-policy-digest/the-importance-of-young-firms-for-economic-growth/*

[4] Jeff Farrah (NVCA Blog), *Creating the Next Moderna: What VC Offers the World and 3 Public Policy Lessons,* available at *https://nvca.org/creating-the-next-moderna-what-vc-offers-the-world-and-3-public-policy-lessons/*.

[5] *How Much Does Venture Capital Drive the U.S. Economy?,* Stanford Graduate School of Business (October 2015), available at *https://www.gsb.stanford.edu/insights/how-much-does-venture-capital-drive-us-economy.* 2 Id.

volved in encouraging these emerging ecosystems to deliver the benefits of startup activity to more areas of the country. I believe that policymakers, such as members of this committee, can partner with local investors and entrepreneurs to speed progress.

Understanding the Workings of Local Startup Ecosystems

Before getting into Federal policy proposals that can spur greater entrepreneurial activity across the country, I would like to explain some of the workings of local startup ecosystems. Brad Feld, a VC in Colorado who was an early leader in the growth of one of the most successful noncoastal startup ecosystems in the country, succinctly listed the various components of local ecosystems in his book *Startup Communities.*[6] The most important component, of course, are the entrepreneurs, as without those individuals willing to take monumental risks nothing else matters. The other components are local and state governments, universities, investors, mentors, large companies, and service providers (meaning law firms, accounting firms, banks and others experienced in new company formation and growth). Each of these components must be present and prioritize supporting the entrepreneurs in the community in order to achieve success and further growth in their communities.

While entrepreneurs are the most important, VCs are the glue that brings this all together. We raise the funds, develop relationships with other components of ecosystems, and help our portfolio companies in their engagement with these entities. We are stewards of our ecosystems, and our success or failure is a leading indicator to investors in our funds of whether to deploy more capital to our communities. Individual entrepreneurs come and go and hopefully their companies are either acquired or go public and become incumbents themselves. But while our portfolio companies either move up or out, VCs only remain if we are successful. We can then raise another fund and get to work finding a new set of startups.

Startup ecosystems are inherently local constructs. In emerging ecosystems, many of the participants and much of the earliest stage capital come from within the community where the startup is founded. As I noted above, nearly half of Arboretum's biggest exits happened within a short distance of our office. This is important to keep in mind because it underpins my thesis for how to expand economic opportunity in this country: prioritize policies that can empower local ecosystems and facilitate success for more startups and local VC funds.

Often, venture capital is confused with hedge fund investing, which through its focus on public companies has a more national and global perspective. It is easier to invest in mature companies across the country as investors can rely on revenues and other metrics to determine whether to invest. But startups have few, if any, predictable metrics. Our work as VCs is just beginning when we find promising companies. Once the first investment is made, we must then work closely with the management team on long-term strategy, plans to access further capital, efforts to bring professional structure to the company, and pretty much anything else that we can do to help achieve success. In fact, sometimes venture capital investments are made on the promise of the team as opposed to the technology, with the hope that we as VCs can help them find their full potential even if the initial idea is weak. It will often take 5–10 years of working with the entrepreneur, usually at the board level, to create a successful company.

Focusing on areas off the coasts can have substantial impacts on the local economy, and as successes occur, can create management teams that continue to start new companies in the same geography. As an example, in 2004 we invested in HandyLab, a diagnostic company founded by two University of Michigan PhD students. Five years later it sold to Becton Dickinson. Those two founders, along with the CEO, then went on to start three more healthcare companies that, over the next ten years, also became successful and sold to other large companies. The most recent diagnostic company, NeuMoDx developed by this team, has shipped over a million COVID–19 tests worldwide. The original two founders have created a critical mass of health care entrepreneurs in Michigan, with a substantial number of employees creating new technologies that greatly improve the treatment for patients worldwide.

Another important factor of the success of the companies off the coasts, is being able to attract new capital to that company from large coastal investors. It is important to note that for every $1 invested in a Michigan startup by a Michigan VC firm, an additional $45 of investment is attracted from VCs outside of Michigan. An example of this is from one of our earliest investments, Advanced ICU Care (AICU). AICU provides remote monitoring of patients in the ICU, *i.e.,* it is a high-acuity tele-

[6] Brad Feld, *Startup Communities,* available at *https://www.amazon.com/Startup-Communities-Building-Entrepreneurial-Ecosystem/dp/1531886035.*

health provider headquartered in St. Louis, Missouri. We led the first round of investment into AICU to get it off the ground, and at the time the company only remotely monitored 22 ICU beds. As the company thrived, two large coastal investors led the next rounds of financings. Today, AICU serves nearly 100 hospitals and health systems, monitors over 1,100 beds, and cares for over 95,000 patients annually. Notably, AICU has taken a central role in the COVID crisis by helping hospitals manage their overwhelmed ICU units.

Building a successful new company is a herculean task where hard work, skill, great ideas, and even a bit of luck are all required. Many entrepreneurs do everything right and still do not make it in the end. That is how difficult it can be to find success in entrepreneurship. In order to facilitate growth in emerging ecosystems, all of the components of startup communities must work together to prioritize the success of startups. Many will nonetheless fail, but even one success can create momentum to remake the long-term prospects of an entire region.

A single successful startup exit can have multiple repercussions for a regional economy. The exit puts the region on the map for investors as a viable opportunity, the founders of the company often become angel investors or VCs themselves, coaching and investing in the next crop of entrepreneurs, and the VCs who were involved with the company get a greater chance to raise another fund and invest in a new set of local companies. Further, the company can become an important part of the ecosystem, becoming an acquirer of locally produced technology, as well as a source of potential entrepreneurs who work at an incumbent before striking out on their own.

Facilitating startup success in local communities is the single most powerful way to expand startup activity in a region. At Arboretum Ventures, we went from that initial investment of $250,000 to being the largest VC firm in the state, and we have created thousands of jobs across the Midwest and brought dozens of new technologies to advance American healthcare. But if our first fund had been unsuccessful, that economic activity may never have happened.

Policy Recommendations to Support Emerging Startup Ecosystems

Early-stage companies and their investors are very sensitive to policy changes, and perhaps emerging ecosystem participants are even more so. Members of this committee can support entrepreneurs in their state through the following policy proposals.

Technology Commercialization and Endless Frontier Act

As discussed above, commercialization of university research is a tried-and-true way to create new companies and deliver benefits to a university and taxpayers. Universities like Stanford and the Massachusetts Institute of Technology (MIT) have nearly perfected technology transfer, which has been a driver of entrepreneurship in northern California and Massachusetts. For example, as a result of its robust tech transfer practices, Stanford held equity in 203 companies as a result of licensing agreements as of August 2019.[7] In Fiscal Year 2019, "Stanford received $49.3 million in gross royalty revenue from 875 technologies."[8] These companies are major drivers of economic activity in Stanford's region. Sadly, many other highly regarded universities fail to commercialize technology as effectively. The mentality of too many universities is that technology developed on their campus is a nugget of gold that demands the highest upfront price possible, and little thought is given to the long-term benefits of establishing a pipeline of technologies that entrepreneurs, VCs, and angel investors can develop. In this scenario, everyone ends up with less gold. Policymakers can advocate with their local universities to engage with the entrepreneurial community to smooth the path to greater commercialization.

In addition, Congress should pass pro-innovation policies such as the *Endless Frontier Act,* which reprioritizes a commitment to Federal basic research investment and technology commercialization efforts in emerging and critical technologies, such as artificial intelligence, quantum computing, clean energy, and biotechnology. The legislation recognizes the importance of innovation advancement occurring in communities across the U.S. and leverages partnerships between universities, business leaders, and other private sector entities to encourage greater economic activity through development and commercialization of technology.

To ensure success of the *Endless Frontier Act* and future proposals, I strongly encourage lawmakers to focus on new company formation, ensure the participation of

[7] Stanford University Office of Technology Licensing, *2019 Annual Report, https://web.stanford.edu/group/OTL/lagan/FY2019%20Annual%20Report/Stanford%20OTL-AR-2019.pdf.*

[8] *Id.*

both angel and venture capital investors, and improve and simplify university technology commercialization processes.

Protect Volcker Rule Reform

Earlier this year, Federal regulators finalized reforms to the Volcker Rule, among them being a critical change that allows banks to once again invest in local venture capital funds. This change will encourage greater capital formation in emerging ecosystems. VC funds were an unintentional victim of an overly broad definition of "covered fund," which intended to prevent banks from moving risky proprietary trading from their balance sheets to sponsored funds for which they would still be liable for losses. Prior to passage of Dodd-Frank, banks played an important role investing in local VC funds that were generally too small to attract attention from larger institutional investors. Oftentimes, banks served as anchor investors in these funds, and were critical to the VCs ability to attract additional investment and deploy capital in promising local startups.[9] The regulators' action to open a new source of capital for venture capital funds is a meaningful change, particularly for new and emerging funds, local entrepreneurs, and startup communities. In fact, early interest in utilizing this new capital following the recent October implementation signals a long-term positive outcome for regional entrepreneurial ecosystems.

As lawmakers consider initiatives to encourage entrepreneurial activity and growth throughout the country, I strongly encourage continued support for this meaningful reform and opposition to any efforts, through regulatory action or legislatively, to reverse the change.

Startup Tax Policy

The innovative startup model generally uses investment capital to focus on research and growth activities to create long-term value. Investments in these activities often exceeds revenues for years while trying to build an idea into a successful company. This basic model of entrepreneurship necessarily generates net operating losses (NOLs) and research and development tax credits that should be available to offset income if the company becomes profitable. But because of the way certain rules in the tax code under Sections 382 and 383 are written, startups can lose the value of these tax assets for nothing more than raising a new financing round or undergoing an IPO, which was never the intent of the rules. For startups on a hypergrowth trajectory, this may not matter much, but for startups in sectors where large research dollars are required before any substantial revenue is generated and thus have lower growth trajectories, these NOLs and tax credits can be important for their future success.

The loss of the value of tax assets creates a significant drag on startup values and venture returns in these areas and makes noncoastal startup and technology investment in general less attractive. Fortunately, there are several proposals introduced in Congress that would help to solve this problem and protect startup tax assets, improving the key metric for expanding startup activity, which is improving financial returns:

- *American Innovation Act* (Rep. Vern Buchanan) would create a conditional safe harbor for startups from Section 382 and 383;
- *IGNITE American Innovation Act* (Reps. Dean Phillips (D–MN) and Jackie Walorski (R–IN) would allow growth companies to monetize up to $25 million in NOLs and R&D credits in order to provide liquidity to innovative startups to sustain their activity through the economic crisis;
- *American Innovation and Jobs Act* (Sens. Maggie Hassan (D–NH) and Todd Young (R–IN) would expand the ability of startups to offset payroll tax obligations with accumulated R&D credits.

Carried Interest

A tax increase on carried interest capital gains would have its most damaging impact on small VC funds. As background, carried interest is the share of capital gains that VC fund partners receive if their funds are successful. For those that manage small VC funds, carried interest may be the only economic reason to participate in venture capital, as fees are often too small to even cover salaries. That was the case in my story, where I went without salary for several years because we did not have enough fee to all of our expenses, including 5 employees, rent, travel, accounting, and legal bills. In addition, the long lifespan of VC funds make realizations of carried interest less frequent than shorter-term investment classes. If taxes are in-

[9] Charlotte Savercool (NVCA Blog), "Let Banks Invest in Venture Capital Funds Once Again" November 15, 2018, available at *https://nvca.org/let-banks-invest-venture-capital-funds/*.

creased on carried interest, the impact will fall most heavily on small regional funds, and in particular new fund formation. A lack of new VC funds will counteract any positive policies passed by the government as these are the glue needed when building up local ecosystems.

Startup Act

Introduced by Senators Moran, Warner, Blunt, and Klobuchar, the *Startup Act* has been an effective vessel in recent years for carrying pro-startup policies. For example, the *Startup Act* included tax policies (now in law) that made the R&D tax credit useful to early-stage companies. In addition to a number of other good ideas, the *Startup Act* includes a crucial "startup visa" that is a dedicated visa category for immigrant entrepreneurs. Foreign-born entrepreneurs have made incredible contributions to the U.S., having founded iconic American companies like HandyLab, Moderna, Tesla, and Intel. These accomplishments are *in spite of* immigration policy; not *because of* it. Presently, U.S. immigration law pushes away entrepreneurs who want to launch high-growth companies in our country, as we do not have a dedicated visa for foreign-born entrepreneurs like more than a dozen other countries do.[10] This means that immigrants who wish to create new American companies must struggle to fit into other visa categories that are not designed with the entrepreneurial model in mind. Emerging ecosystems would benefit significantly from fresh entrepreneurial talent brought in by a startup visa.

Modernization of the SEC Definition of VC Fund/DEAL Act

Modernizing the SEC's definition of a venture capital fund to allow VCs to acquire more shares from angel investors, seed stage investors, and company founders without additional regulatory requirements would increase liquidity and returns in the early-stage startup ecosystem. Further, modernization of the definition could encourage venture capital funds to become anchor investors in emerging VC funds, a substantial opportunity for new and underrepresented fund managers similar to the role that banks can now play after changes to the Volcker Rule. These changes are especially important today as industry data demonstrates a significant decline in first-time and seed financings during the ongoing global pandemic.[11]

Leadership from Senator Mike Rounds (R–SD) and Representatives Trey Hollingsworth (R–IN) and Ben McAdams (D–UT) provides a bipartisan legislative solution to this challenge through the *Developing and Empowering our Aspiring Leaders* (DEAL) *Act.* Action on this bill would positively impact the venture capital industry, especially among early-stage investors who help form the foundations of an emerging entrepreneurial region.

Industry Initiatives and Ways Policymakers Can Support Emerging Ecosystems

Beyond policy advocacy, the venture industry—led by NVCA—is engaged in important initiatives to spread new company formation into more pockets of the country. For example, I was pleased to serve on NVCA's board when Venture Capital University (VCU) was created[12] to democratize access to venture education and increase diversity in the venture industry.[13] VCU has two components—VC University LIVE and VC University ONLINE.

VC University LIVE is a three-day educational program on venture finance, held in partnership with universities across the country. The program shines a spotlight on emerging ecosystems and expands the focus on VC beyond traditional venture hubs. VC University LIVE served more than 120 participants across its first two programs at the University of Michigan and Tulane University in 2019. In November 2020, VC University LIVE was held virtually with Southern Methodist University (Dallas), with more than 60 participants.[14] Full scholarships are core to VC University LIVE. The most recent program provided 24 full scholarships to individuals from historically underrepresented groups, with the cohort composed of: 54 percent women, 29 percent Black or indigenous people of color (BIPOC), 38 percent Hispanic, and 75 percent based outside the three traditional VC geographic hubs. The

[10] Jeff Farrah (NVCA Blog) "Immigration Policy Isn't Working for the Economy. Let's Fix That." Available at *https://nvca.org/immigration-policy-isnt-working-economy-lets-fix/*.

[11] NVCA Venture Monitor Q2 2020, available at *https://pitchbook.com/news/reports/q2-2020-pitchbook-nvca-venture-monitor*.

[12] VCU is jointly produced by NVCA, Venture Forward (the 501(c)(3) supporting organization to NVCA), and Startup@Berkeley at the University of California, Berkeley, School of Law

[13] More information about VCU is available at *https://venturecapitaluniversity.com*

[14] Press Release: SMU and UNC-Chapel Hill Announced as 2020–21 VC University LIVE Hosts, available at *https://nvca.org/pressreleases/smu-and-unc-chapel-hill-announced-as-2020–21-vc-university-live-hosts*

next VC University LIVE program will be held in partnership with the University of North Carolina at Chapel Hill in June 2021.

Similarly, VC University ONLINE provides lectures, interactive assessments and quizzes, office hours, interviews with leading VCs, and monthly webinars, all of which teach participants the nuts and bolts of venture finance through a virtual setting and the opportunity to earn a certificate of completion. To date, the course has had five cohorts, offering education to more than 740 individuals across the country, including close to 100 full scholarships and 47 partial scholarships provided to individuals from historically underrepresented groups. The demographics of the most recent scholarship cohort is composed of 63 percent women, 73 percent BIPOC, and 75 percent based outside California, Massachusetts, or New York.

Policymakers can help spur entrepreneurial activity by meeting with entrepreneurs and investors in your local communities to understand their specific needs. Often, a given city has special attributes that may be leveraged to create new companies—perhaps a region benefits from a strong academic department at a local university, such as the exceptional robotics department at Carnegie Mellon that has led to the university's partnership with Uber and positions the Pittsburgh area well for economic growth. Each region must benefit from that which sets it apart from others. Policymakers can serve as a bridge between the various communities that are essential for a vibrant entrepreneurial ecosystem.

As referenced previously, venture capitalists must raise a fund from LPs. Large venture funds on the coasts tend to raise capital from endowments and pensions that are motivated to write larger checks to the funds in which they invest. Regional funds tend to be smaller and therefore struggle to raise capital from LPs that want to invest larger sums to meet their scale. Therefore, regional funds look to wealthy individuals, family offices, and regional and local banks to invest in their funds. Too frequently, local business leaders do not consider regional venture funds as an investment opportunity and are more inclined to invest their capital in public securities, real estate, or funds outside the local area. A shift in mentality is needed among these leaders to support emerging ecosystems. Policymakers can serve as champions for their local ecosystems to surface the exciting opportunities that exist to earn a return *and* create local economic opportunity.

Conclusion

I am grateful for this committee's attention to this important issue. Ultimately, there is much to be excited about regarding emerging startup ecosystems in diverse geographies. A combination of policy reforms and industry-led initiatives by national and local leaders will bring these regions to their true promise and the true beneficiary of this progress will be American patients, workers, and taxpayers.

Senator THUNE. Thank you, Ms. Garfinkle. Next up, and I think she is probably going to make us all jealous because she is coming to us from Hawaii, is Ms. Dawn Lippert, who is the Chief Executive Officer of Elemental Excelerator.

STATEMENT OF DAWN LIPPERT, CHIEF EXECUTIVE OFFICER, ELEMENTAL EXCELERATOR

Ms. LIPPERT. Hello, Chairman Thune. Thank you so much. Hello, Ranking Member Schatz, Senator Klobuchar, and members of the Committee. Thank you so much for the opportunity to testify before you today. As you noted, my name is Dawn Lippert, Founder and CEO of Elemental Excelerator based here in Honolulu. We are a nonprofit made up of 35 people in Honolulu, Hawaii, and East Palo Alto, California. We work at the intersection of climate innovation and social equity. And our mission is to invest in solutions to climate change and deploy these solutions in the communities that need them the most. We are both urgent and optimistic in rising to this challenge because entrepreneurs and communities are proving it is possible every day. So let me show you the context for how Elemental came about.

In 2008, the Hawaii Clean Energy Initiative was launched by the state of Hawaii and the U.S. Department of Energy. Hawaii was seen as an ideal place to create jobs and economic opportunities as we transition to clean energy. And Federal funding at that time was set aside for innovation, which seeded the creation of Elemental Excelerator. We were initially modeled after the RPE program at a Department of Energy. Now, what is special about this is the idea that innovation centers can be located anywhere in the country and that all innovation didn't have to emanate from Washington, D.C. or these other tech centers.

They can come from Cedar Falls, from Minneapolis, Kansas City, Austin, Nashville, Anderson, Indiana, where we have entrepreneurs, and my hometown of Seattle, Washington. Now at Elemental we have raised over $95 million to invest in startups and be able to create an innovation hub in Hawaii over the last 10 years, supporting hundreds of jobs and high wage opportunities for youth, veterans, and really anyone who wants to work in innovation. And this can be done anywhere. And particularly in energy and climate technology, the market is the best it has ever been and venture capitalists are taking notice. Let me share a few examples of how we know about that and where we see some bright spots in the space.

First, there are more and more investors entering the climate technology space. Over $13 billion was invested in 2019 and we may exceed that in 2020 even with COVID. This has more than doubled since 2016. And in 2020 alone, more than $4 billion of new funds have been formed for climate venture capital. This includes funds from Amazon, the Climate Pledge Fund, as well as Microsoft and others. And we expect this fund formation in venture capital to accelerate in 2021. And this makes sense because energy is one of the biggest markets in the world and decarbonization will require over $2 trillion of annual investment.

Twelve years ago, testifying before the Senate, John Doerr, the venture capitalist from Kleiner Perkins called green technology “the mother of all markets,” and this is even more true now than it was 12 years ago. There are now 1,000 corporations who have pledged to reduce their emissions in line with Intergovernmental Panel on Climate Change Reductions, and the pace of new corporations making commitments has accelerated in each of the last 3 years. These corporations are key customers for venture capital backed companies, so investors see the opportunity here. Second, as these companies grow, they create good jobs that are beyond typical innovation jobs. These are jobs installing solar and energy efficiency, or working on transportation electrification.

Also, law firms, accountants and other parts of the economy. In Hawaii alone, jobs and solar installation, energy efficiency and renewable fuels totaled over 15,000 in 2016. And these jobs are good paying jobs. They pay an average of $3 to $7 higher than the state's median wage. And the jobs have largely been able to endure through the pandemic. And third, the reason we know this market is taking off is that winning in climate technology is about American competitiveness. In the last 5 years, $56 billion have been invested in clean technology venture capital.

Now, 45 percent of that was in North America, but 45 percent of that was in Asia. Asia is gaining ground really quickly on our venture capital ecosystem in clean technology. And it is not just venture capital that is investing in this part of our economy. Last year, six times this amount, so over $300 billion was invested in project finance for clean energy technology. So we know the market is taking off, but how can we ensure that the economic and entrepreneurial opportunity that is ahead extends beyond our Nation's traditional technology hubs? In our first two years of funding startups, as Senator Schatz mentioned, we funded over 115 startups from many of the states in the Nation as well as from around the world.

And we have learned an important lesson, and this is that companies need more than funding to succeed, they require a strong ecosystem around them. And that is what has historically drawn companies to Silicon Valley and other technology hubs. But we have proven it is possible to build technology hubs elsewhere, especially if they are sector based and focused on the region's core competitive advantages. So based on our experience meeting 5,000 early stage companies, and working with over 115 very closely through investments, we see a few key roles for the Federal Government in expanding entrepreneurship beyond the traditional hubs.

The first is seeding regional innovation ecosystems. At Elemental, every public dollar we have invested into startups has brought in more than $40 in private capital. There are currently policy proposals pending to create national innovation pilot funds in the U.S. Department of Energy for clean technology solutions in disadvantaged communities. There is also policy proposals to enhance and accelerate a national initiative to support regional clean energy innovation ecosystem partners with $25 million across regional ecosystems. This kind of seed funding for regional ecosystems can have huge returns in terms of bringing in private capital and private investment. Second, we could ensure that Federal policy supports innovation.

Policy sets the stage and the rules for many of the—[Technical Issue]—that we work in, such as energy, water, agriculture, and mobility. One example in mobility is that building our Nation's zero emissions transportation infrastructure can create 1.4 million new jobs. And these are jobs all over the United States, not concentrated in technology hubs. There is a lot of opportunity in transportation. Right now, there are 1.2 billion passenger vehicles on the road, but only 1 percent of those miles are driven in electric vehicles. And we know progress is possible. That is why today Tesla has a market capitalization more than 10 times that of General Motors. There is a lot of room to grow in electric vehicle transportation.

Also in mobility, measures such as the accessibility performance measure for the U.S. Department of Transportation, which its legislation has pending in Congress, would change the allocation of DOT funding to focus transportation funding on what counts, getting people where they need to go instead of funding increased highway speed. This kind of legislation will unlock a huge wave of innovation across our country as companies focus on how to increase access to mobility. And a couple more examples of how government has such an important role to play in setting the policy framework for innovation. In aviation, just a couple of weeks ago, our portfolio company Ampaire completed the longest flight ever taken by an electrified aircraft.

The demonstration we are funding with them makes Ampaire the first to also fly a hybrid electric aircraft on an operational route between Kahului and Hana Maui. Electric aircraft can cut fuel costs by more than half, and speeding up this kind of innovation can help small airlines stay in business in a challenging economic environment. The huge amount of innovation we have seen in airplanes over the last three to four years were unleashed by updated FAA regulations. And every time we have supported a policy like this, it unleashes an enormous wave of private capital. In the last 5 years, just 10 of the leading electric aviation startups have raised more than $1.2 billion.

There are many other examples of how government can support innovation, but I just want to share that now is the time to invest in American entrepreneurship and competitiveness. The stage is set for regional innovation to thrive and with strategic government support, we can do even more together. Thank you.

[The prepared statement of Ms. Lippert follows:]

PREPARED STATEMENT OF DAWN LIPPERT, CHIEF EXECUTIVE OFFICER, ELEMENTAL EXCELERATOR

Hello, Chairman Thune, Ranking Member Schatz, Senator Klobuchar and members of the Committee. Thank you so much for the opportunity to testify before you today. My name is Dawn Lippert and I am the CEO of Elemental Excelerator.

About Elemental Excelerator

Elemental Excelerator is a non-profit growth-stage accelerator program headquartered in Honolulu, Hawaii and East Palo Alto, California. We accelerate solutions to climate change and deploy them in communities that need them the most. Each year, we find 15–20 companies that best fit our mission and fund each company up to $1 million to improve systems that impact people's lives through project deployment. We have focused on funding projects in three locations that will be central to addressing climate change: Hawai'i, California's frontline communities, and the Asia Pacific region. We are now expanding this approach across the U.S. and globally. To date, we have reviewed over 5,000 new technologies, awarded over $40 million to over 115 companies, and have deployed 70 projects in energy, mobility, agriculture, water, and the circular economy.

In 2008, the Hawaii Clean Energy Initiative (HCEI) was enacted by the State of Hawaii and U.S. Department of Energy and funding was set aside for innovation. Stakeholders realized that in order to reach those energy goals and transform an economy dependent on oil, we needed innovative solutions. We initially modeled our program after ARPA–E, where I staffed the very first call for technologies. In our first couple of years, we saw that startups needed much more than funding to succeed, and became interested in applying the new "accelerator" thinking to climate startups. Back in the early 2010s, there were tech accelerators helping the Airbnbs and Instacarts of the world create new markets. But none of these accelerators were supporting hardware or climate technology.

We saw that as an opportunity to build one. We zeroed in on growth-stage companies who were ready to deploy their technology for two reasons: (1) there was a gap in available project funding to bring the innovations being developed in a lab into the real world, and (2) we saw the opportunity for the most learning and progress in bringing together technology (startups), policy (government), and markets (customers) to advance innovation. That led to what is now Elemental Excelerator.

Elemental not only invests in startups with the potential to address climate change, but we also co-fund projects alongside the startups we invest in. We'd like to share two examples of projects we've supported:

- CarbonCure Technologies collaborated with HDOT and Hawaii concrete producers to install its retrofit technology that chemically mineralizes waste CO_2 during the concrete manufacturing process to make greener and stronger concrete. The carbon-infused concrete from those producers was used in a local infrastructure project saving 1,500 lbs. of carbon dioxide, offsetting the carbon dioxide emissions from 1,600 miles of highway driving. Following this project, in April 2019, Honolulu, Hawaii became the first municipality to pass a resolution that "requests the city administration to consider using carbon dioxide mineralization concrete for all future city infrastructure projects utilizing concrete."

- SOURCE (formerly Zero Mass Water) worked with an indigenous majority-owned and -managed business called Waddi Springs to prove a new community scale water purchase agreement in drought-ridden Queensland, Australia. With our funding, SOURCE was able to deploy 600 hydropanels in the span of 4 months where a conventional water treatment plant would've taken at least a decade. This project has the capacity to produce 119,000 gallons of drinking water and displace approximately 748,000 plastic water bottles per year and also created new workforce opportunities for native Aboriginals in the area. SOURCE is now pursuing a similar project in the Philippines armed with the learnings from their project and partnered with an Elemental innovation partner.

Over the past 10 years, we have raised over $95M for Elemental to invest in startups and been able to create an innovation hub in Hawaii. The portfolio supports hundreds of jobs and high-wage opportunities for youth, veterans, and others who want to work in innovation. We have worked with some of the world's largest utilities and corporations, as well as public-sector partners like the Navy and social change organizations like Emerson Collective to commercialize these world-changing technologies. In 2017, we launched a cohort of local businesses that are committed to innovation throughout Hawaii. These are groups interested in the insights we glean from deploying transformative projects in our place, and have dedicated their time and energy to building an innovation ecosystem in Hawaii with us. And our model is not just unique to Hawaii. After a successful partnership in Hawaii with Elemental Excelerator, the Office of Naval Research (ONR) was able to replicate their successes by funding Launch Alaska headquartered in Anchorage, Alaska. We have proven that our platform can be replicated anywhere and that innovation does not have to emanate from big tech cities.

The Energy and Climate Technology Market

The energy and climate technology market is the strongest it has ever been with climate tech investment growing 3 times faster than investments in artificial intelligence and 5 times faster than the average growth of general venture capital. In 2019, over $13B was invested into climate technology and we expect to exceed that number in 2020 even with the impacts of COVID–19. This figure is more than double what it was in 2016. In 2020 alone, more than $4B of new funds have been formed for the climate venture capital market and we expect this growth to accelerate in 2021. Twelve years ago, John Doerr, the chairman of Kleiner Perkins, testified before this very body called green technology the "mother of all markets." This is even more true now than it was then. There are now over 1000 corporations who have pledged to reduce their emissions with IPCC recommendations and the pace of new corporations making commitments has accelerated in the past three years. Energy is one of the biggest markets in the world, and decarbonization will require over $2 trillion a year of investment according to the Intergovernmental Panel on Climate Change (IPCC). This is a marker of real opportunity for investors and a space for startups to enter the market.

As startups grow, they create good jobs such as installing solar and energy efficiency, working on transportation electrification, and creating work for law firms, accountants, and a host of other jobs for the local economy. In Hawaii alone, jobs in solar installation, energy efficiency, and renewable fuel production totaled over 15,000 in 2016, paying an average of $3 to $7/hour higher than the state's median wage. Prior to the pandemic, the clean energy sector was one of the fastest growing sectors in the United States expecting to add 175,000 jobs in 2020. Most of these jobs are geographically specific, and centered in rural and suburban areas rather than just the major tech hubs. Investing in energy efficiency, clean energy deployment, and other decarbonization technology creates good jobs and new economic opportunities in places that need it the most.

COVID–19 & Geographic Diversity

In September of 2020, about 14 percent of the Nation's energy workers were still unable to return to work. It is imperative that we support job growth beyond the 175,000 that was expected in 2020 to support the economic recovery from the pandemic.

Technology, and specifically climate technology, provide a powerful opportunity for job creation outside of typical tech hubs. The pandemic has created an opening for many tech companies to go fully remote and normalize business over e-mail and video calls. By virtually expanding their geographic footprints, firms can widen their talent pool and recruit from a variety of schools, regions, and backgrounds to create a diverse and inclusive workplace.

Embracing remote work helps to level the playing field, shifting the tech industry's concentration of talent that was deemed a necessary condition for success. The pandemic has accelerated the migration out of tech clusters into secondary cities as the transition to remote work has made physical proximity irrelevant. An investment in Federal funding to support new hubs could potentially precipitate a more healthy spread of tech firms across the Nation. Federal innovation money should be spread out more broadly to these cities and across institutions from local universities to private sector companies and local government in order to produce new pools of talent and opportunity. We have seen this firsthand in Hawaii, with new talent coming to live here and connecting to local business and education networks.

The pandemic has brought many changes to our lives, but also brings new opportunities to improve our current systems. Throughout the pandemic, we have seen an incredible resilience of the entrepreneurial spirit to tackle today's most urgent challenges. For example, we have a local startup named Farm Link Hawaii. Farm Link Hawaii operates an onsite logistics platform that connects local farmers to residents to deliver thousands of pounds of local produce each week. In the first few weeks of the pandemic, they rapidly pivot their services to home delivery and modified their service to support thousands of residents and local farms. Their online consumer marketplace soared past their maximum capacity, and they quickly had to find a larger warehouse for their operations. Farm Link Hawaii has risen to this challenge, and their journey has been supported by the entrepreneurial ecosystem every step of the way.

Beyond Hawaii, Elemental's portfolio company Goodr is using its food chain data tracking software to bring meals to thousands of students and seniors in Atlanta. And an Elemental portfolio company in the mobility sector, Numina, has been using its data platform to help cities across the country make decisions to help reduce the spread of COVID–19 in New York City. Especially in times of crisis, an entrepreneurial mindset and ability to rapidly prototype solutions are invaluable assets for building community resilience. Entrepreneurs are an important part of our communities and will be key to rebuilding our economy.

The Importance of Federal Funding and Programs & Their Role in Supporting Regional Innovation Hubs

The U.S. Federal government has a pivotal role to play in supporting regional innovation hubs that challenge and advancing clean technologies that will enhance U.S. competitiveness. The unique capacity of the Federal government to invest in long-term R&D is critical for the flow of new ideas and discoveries that fuel our economy. While private sector R&D investments through VC have increased, the government is often the first "investor", providing early capital for new technology startups.

As the market takes off, it is imperative that the economic and entrepreneurial opportunity extend beyond our Nation's traditional technology hubs. Startups need more than funding to succeed and require a strong support ecosystem around them. The Elemental Excelerator platform has proven that it is possible to build strong technology hubs outside of the traditional megacities—especially when they are sector-based and focus on a region's core competitive advantages. Based on our experience meeting 5,000 early stage startups and working closely with over 100 companies in our portfolio, we see three key roles for the Federal government in expanding entrepreneurship ecosystems:

1. Seeding regional innovation ecosystems—More than 80 percent of our portfolio startups have been awarded Federal grant funding that seeded their growth. Programs like ARPA–E have an outsized benefit in underserved markets like Hawaii, because they are technical competitions that can deploy funding to markets that don't have robust VC funding available. At Elemental, every public sector dollar that we have invested into startups has led to 40 more dollars in private capital.

While organizations have placed emphasis on the Federal government's support of U.S. DOE National Laboratories and ARPA–E, it is also critical to find ways to bridge the gap for scientists and entrepreneurs to scale startups—which is often done with support of trusted intermediaries such as incubators and accelerators that have a track record of success with commercialization. This is becoming increasingly important in the pilot and demonstration stage for startups when they are not ready for traditional VC and do not have a network of trusted partners. Finding new ways for the Federal government to act swiftly to support those companies not supported by traditional funding networks and local and state partners is key to growing innovation hubs. Ultimately, these investments will serve to accelerate the transition of government funded research from laboratory to marketplace.

2. Ensuring that Federal policy supports innovation—Policy sets the stage and dictates the rules for the markets that our portfolio companies work in: energy, water, agriculture, and mobility.

In aviation, our portfolio company Ampaire recently completed the longest route ever flown by an electrified aircraft. The demonstration Elemental is funding makes Ampaire the first to fly a hybrid electric aircraft on an operational route—between Kahului and Hana, Maui. These electric aircraft can cut fuel costs by more than half. Speeding up this kind of innovation will help small airlines stay in business in a challenging economic environment, cutting the cost of training pilots as well as the cost of everyday operations. The huge amount of innovation we've seen in airplanes over the last four years was unlocked by updated FAA regulations. And every time we see supportive policy enacted, it unleashes an enormous wave of private capital. Since 2015, 10 of the leading electric aviation startups have raised more than $1.2 billion.

In energy, Federal government permitting is a huge factor in startup capability for growth. One of our portfolio companies, geothermal innovator Fervo, had a project delayed more than two years by permitting processes at the Bureau of Land Management. For early stage companies that typically have one to three years of cash runway in the bank, long permitting processes threaten a company's ability to develop new technology and get projects up and running. This project is also located in a rural area that will see significant benefits from the jobs and economic value created.

As an example in mobility, a recent study from the Transportation Electrification Partnership (TEP) found that building out our Nation's zero emissions transportation infrastructure can create 1.4 million jobs. The recommendations for a $1.5 billion stimulus proposal estimates 2.3 million jobs created across the U.S. and across sectors beyond just technology. Another key opportunity is in the electrification of transportation. There are currently 1.2 billion passenger vehicles on the road and yet only 1 percent of those are electric vehicles. But we know that progress is possible, and actually inevitable. Globally, 30 percent of the buses in the world are electric, with the lion's share found in China. We're optimistic about the U.S.'s ability to catch up as we see companies like Tesla with a market capitalization more than 10x that of General Motors.

Also in mobility, we believe measures such as the Accessibility Performance Measure for the U.S. Dept. of Transportation (DOT) will change the allocation of DOT funding to focus on what is important—getting people where they need to go—rather than focusing on highway speeds. These kinds of policy signals are what entrepreneurs look for, and unlock waves of new startups and innovations when adopted.

3. Buying climate technology innovation—Through the Department of Defense (DOD) and other government agencies, the government is a key customer in many of our country's smaller cities and rural areas. By being a customer and user of clean energy innovation, the public sector is also acting as a partner, advocate, and supporter of technology companies and creating good-paying jobs across these geographies. For example, our portfolio company CarbonCure has proven that we can sequester carbon dioxide in concrete and that it doesn't cost more. Each mile of concrete pavement has the potential to reduce CO_2 emissions by 500,000 pounds, which is equivalent to driving from San Francisco to Washington D.C. about 200 times. As the U.S. invests in new infrastructure across the nation, we can specify carbon-infused concrete—which will help us meet our climate goals without needing to spend more.

On a global scale, climate technology is a battleground of American competitiveness. In the last five years, $56B has been invested in clean technology through venture capital. 45 percent of that was in North America and another 45 percent was from Asia, with China gaining leadership over the US. There has also been more than $300 billion in project finance annually for the last 5 years with China leading investment with around $100 billion per year, about a third of global financing. Now is the time to invest in American entrepreneurship and competitiveness. The stage is set for regional innovation hubs to thrive. Strategic government support can create even more opportunities.

Finally, to close, we'd like to share the following suggestions from a coalition of incubators and accelerators across the nation—LA Cleantech Incubator (LACI), New Energy Nexus, Elemental Excelerator, VertueLab (formerly Oregon BEST), Greentown Labs, IN2, NYU Urban Future Lab, Clean Energy Trust, Powerhouse, BRITE Energy, Prospect Silicon Valley, Third Derivative, Launch Alaska, Activate, Forge, Tennessee Advanced Energy Business Council (TAEBC), Austin Technology Incubator (ATI), Cleantech Open (CTO).

The below provides some key actions that we believe Federal government should consider:

1. Support regional clusters of energy innovation including an emphasis on disadvantaged communities and underrepresented entrepreneurs.
    a. Create a $50M National Innovation Pilot Fund in the U.S. Department of Energy for cleantech solutions in disadvantaged communities.
    b. Enhance and accelerate a National Initiative to support regional cleantech innovation ecosystem partners with $25M across regional ecosystems.
    c. Utilize the Small Business Administration (SBA)'s Small Business Investment Company (SBIC) $4B in annual debt authority to support regional incubator investment funds.
2. Create a Cleantech Innovation Task Force ensuring Federal government programs align with and support early stage innovation and needs of diverse entrepreneurs.
    a. For task force and launch
    b. Review and evaluate existing programs as well as new programs
    c. Within 180 days, come back with set of actions
3. Dedicate funding to the innovation ecosystem via SBA, Economic Development Administration (EDA), and DOE for cleantech incubators, startups, small businesses, job training and pilots to accelerate small business innovation in response to the economic impact of COVID
4. Dedicate $2.5 billion to the early stage clean energy innovation ecosystem (direct funding to startups as well as through intermediary organizations) to do the following:
    a. Enable funding especially for pilots and demonstrations
    b. Emergency loans and grants
    c. Targeted funding for diverse founders
    d. Operational funding
    e. Job training and workforce trades and internships
5. Dedicated focused fund on a major climate challenge transportation-energy nexus. To accelerate zero emissions mobility via the Department of Transportation, DOE provides funding for national and regional infrastructure, workforce development and technology advancement.
    a. $25 billion investment in the assembly and adoption of electric and zero emissions vehicles along with supply chain development.
    b. $85 billon for electric vehicle charging and related infrastructure investment
    c. $25 billion for zero emissions public transit, active transit and safe streets
    d. $12.5 billion for workforce development, safety standards and job training
    e. $2.5 billion in innovation ecosystem for cleantech startups and related small businesses, prioritizing those created by underrepresented founders.

Thank you so much for the opportunity to testify on this important topic.

Sincerely,

DAWN LIPPERT,
CEO,
Elemental Excelerator.

Senator THUNE. Thank you, Ms. Lippert. Let's just start, Mr. Hall in Washington, D.C. we hear a lot about two different Americas and the growing political, cultural, and economic divide that is occurring in this country. In your testimony, you indicate that there is also a divide in venture capital investment. What do you believe are the causes of the imbalance of investment between different geographic regions in the country?

Mr. HALL. Thanks for that question, Senator. I think a lot of it is based in legacy. Some of the previous speakers have talked about the efficient ecosystem that sprung up in places like Silicon Valley and in places like Boston where ideas literally can go from, you know, napkin to IPO without ever getting on a plane. And that is just not the case for most of the country and most Americans. And I think the ability to start to support from the ideation phase, when it's sprung into a young grad student's mind when they are sitting in the university, how can you go from there to feet on the ground and be a one or two person startup, as Mr. Hespen referred to, to grow truly exponentially, 2, 4, 8, 20, 50, 200 employees, all of this high growth startup in a number of years.

Having the resources that can support and the infrastructure in an ecosystem that can support that type of growth is really hard. And being able to do the pre-work, which a lot of organizations have done in years past, to set up the communities so that the meetups and the technologists who want to come together and know what do I do, how do I join your startup? Creating that infrastructure is critical to being able to launch and scale and sustain these startups. And this can happen anywhere.

We have seen it happen in community after community, but it is required that—the investment in the infrastructure is required ahead of time, but also being able to capture that student or that entrepreneur who wants to start that company, being able to meet them where they are with the right resources at the right time can easily unlock this opportunity.

And it is part of the culture in Silicon Valley. And it needs to be, you know, it needs to be advertised and marketed in a lot of the other parts of the country so that this entrepreneurial spark can be harnessed and really exploited in all sorts of different countries—all sorts of different communities across the country.

Senator THUNE. Thank you. Ms. Garfinkle, as a venture capitalist in Michigan, how do you perceive the geographic investment divide and has it impacted your ability to raise capital or to identify promising startups in which to invest?

Ms. GARFINKLE. Thank you, Senator Thune. You know, there definitely is a big divide, obviously, between Silicon Valley and Ann Arbor, Michigan. And it was very difficult to raise our first fund. It is, you know, it continued to be very difficult up until we were basically on fund three and we had exits, which means that we had companies that we had either sold or taken public, and so investors that would want to invest in Arboretum could see that we were being successful, picking companies in our geography and helping them be successful so that they then wanted to invest with us.

You know, I think of venture capital, honestly, as the glue that holds the system together, if you will, the entrepreneurial system together. And it is not—you know, the venture capital firms providing capital, that is very true. But really what they are also providing is their network of other investors, of potential board members, of consultants, of lawyers, of accountants, of team members, of recruiters. I mean, there are so many different things that it takes to go from a concept to a company that is ultimately successful.

And who is going to bring all of those pieces together. It really is the venture firms and the experience that they have from all the other companies that they have invested in, all the other relationships that they have built that really helps to basically bring that all together and be the glue of that entrepreneurial ecosystem. There are policies that can be put in place. There are states—and the state of Michigan had quite a few initiatives to really help spur this entrepreneurial endeavor here in the state.

We are a big automotive, you know, state, as everybody knows, with GM and Ford and all the big automotive companies here except for Tesla. And they really, about 20 years ago, made a big initiative to try and spark some different entrepreneurial activities and bring all of these different pieces together. One of the core ones was to start some new venture funds, and that is when sort of the birth of Arboretum happened.

Senator THUNE. Thank you. Mr. Hespen, you founded, as I mentioned earlier, a successful technology company in South Dakota, which would be considered by many a nontraditional state to build a tech startup. Could you elaborate on some of the challenges you faced, perhaps more importantly, the advantages you had in doing so? And as a follow up, have you seen any changes in the entrepreneurial landscape in South Dakota since you started your company back in 2015?

Mr. HESPEN. Thank you for the question, Senator. So I certainly have connected and networked with other entrepreneurs, some in California Bay Area. And so we definitely got our opportunities to talk about some of the challenges that we face, some of the advantages of being in the Midwest. Certainly one of the challenges can be talent. So if I was to go and seek SACS experienced folks in South Dakota, I am probably not going to find them. So then I got to find a way to either recruit them or grow them, which can be a challenge and will probably be a challenge as long as we are growing as quickly as we are. There is obviously some pretty supreme advantages, though, as well.

For the same reason that I never wanted to leave, there is plenty of other of my peers, other people that want to be in the area. And so there is an awesome opportunity to capture some of that talent as it is coming out or maybe wants to come back. There is a legitimate thing around cost in managing an office and personnel. Cash is king when you are in startup, and how do you make sure that you keep the cash going as long as you can to keep the doors open is critical. So I would often joke with some of my peers and CEOs about office costs per square foot and it would about make them throw up how much I am paying for a renovated space and, you know, very close to downtown.

And so there is definitely some advantage on cost wise, but it presents its own unique challenges as well, mostly around the personnel, which we have we have tried to do a good job working with the community's workforce development to help bridge some of those that we can continue to scale and build it internally without having to, you know, overcome that elsewhere.

Senator THUNE. And have you see any changes in your in your time, I mean in terms of the landscapes and starting your company in 2015, as far as kind of the environment conditions for entrepreneurial——

Mr. HESPEN. Yes. So we obviously for the environment, we want to be that story. And I think that is one of the big things the city and the community around us is rallying around, like how do we do more of these? But there is actually something interesting that is happening too with COVID kind of accelerating the working from home movement.

We have had an access to a lot more people that are moving into the area that are thinking about either starting their own business, you know they were with a company that they weren't able to work remotely before, as well as talent coming to the area. And so once you start having these great minds, Microsoft, Netflix, people that achieved some really good positions coming out here, we have got access to some new headspace that we probably wouldn't have had 9 months ago, so——

Senator THUNE. Great, thank you. Senator Schatz.

Senator SCHATZ. Thank you, Mr. Chairman. Thanks to all of the panelists. Ms. Lippert, I remember a conversation I had with a bunch of venture capitalists in Silicon Valley and I said, you know, what is the future for clean tech? This was several years ago. And one of them sort of leaned in to me and said, you know, the problem is it lacks an exit strategy.

And there was a sort of snobbery around the profitability or perceived profitability around clean tech, because what you are doing is making things work better potentially over the long run as opposed to having that one time liquidity event. Is that still something that you run into? And if so, how do you work around it or overcome it?

Ms. LIPPERT. Yes, it is a great question. I think the market has changed significantly in the last couple of years. So I mentioned that we are seeing a lot of investment in aviation, for instance, and some of the companies that are investing there are Jet Blue, Toyota, these big companies that can buy interesting electric aviation companies.

So I think it is really corporations kind of coming to the table in the last few years in a really serious way which provide a pretty important exit strategy for some of these companies. Because ultimately, if you venture capital funding to either sell the company or go public or somehow, you know, generate returns for investors. So those are a couple of the ways that we have seen folks really leaning in on corporate venture capital and corporate investment.

Senator SCHATZ. Why do you suppose that has changed? Is that because the corporations are, like you said, they are aligning with the IPCC goals and they have got to figure out ways to align their investments with these goals?

Ms. LIPPERT. Yes, I think they are seeing—corporations are seeing—they are also seeing some success in previous companies. So as Ms. Garfinkle said, you know success breeds success. So if you look at Tesla, the success of Tesla has really been impactful for the public markets this year. So the climate technology, the special purpose acquisition companies are outperforming the overall market on the whole pretty significantly. And a lot of that is driven by electric vehicles.

And sort of the appeal of looking at what has happened with Tesla and some of these other companies and seeing that some of these other electric truck companies or alternative fuel companies could be, sort of, the next Tesla. So I think there is some sense of success coming in there. And then I also think that we have seen a huge amount of talent kind of coming in from traditional technology like the product space.

So, you know, a gentleman before mentioned Netflix and Google and others. We are now seeing founders that are coming out of such traditional technology who really know how to grow companies coming in to climate because they have experienced wildfires, they have experienced hurricanes, they have experienced the impacts of climate, and a lot of them have children and they want to be part of the difference in making a change.

And so I think it is a couple of things together. But when you have really talented entrepreneurs coming into the space and a lot of sort of corporate interest, and I think just a recognition that decarbonization is inevitable so there will be a huge amount of money spent on companies that are achieving these decarbonization. It has made for a much more attractive investing environment and people are coming into the space because that.

Senator SCHATZ. You know, I am very familiar with the success of the Excelerator. I meet with your companies whenever I can. What is it about what you are doing that is unique? And I guess to put it bluntly, I worry that it is so unique that it becomes not replicable elsewhere. So persuade me and the rest of the panel that what you are doing can be scaled?

Ms. LIPPERT. Well, that is e great question. It has actually already been scaled and in multiple places. So, for example, in Alaska, we have replicated this model through Launch Alaska, which is another rural market that has some really interesting opportunities for entrepreneurs, in aviation, and they have a lot of sort of oil and energy expertise in Alaska that can be redeployed for batteries and solar and other kinds of industry. So it is happening in Alaska.

It is actually happening in many other cities and states around the country as well. So we see really strong development in Houston, in Austin, in Los Angeles, across sort of the Midwest region anchored in Chicago, and many other of these regions that are able to sort of start aggregating capital and aggregating talent around climate technology. So I think in some ways it is unique, but in other ways it is being replicated elsewhere. I think one of the really key things for Elemental is the power of the public, private partnership.

So we have significant funding that was seeded from the Federal Government, and it has enabled us to attract a lot of private funding from foundations, from philanthropists, from corporations, that sort of see the momentum, see the interest in innovation, and want to be part of it. So I can't emphasize enough the importance sometimes of the Federal Government kind of leaning in, going first, and seeding these innovation ecosystems and seeding these ideas so that entrepreneurs like me and like our team can build something really interesting around that.

Senator SCHATZ. Thank you very much.

Senator THUNE. Thank you, Senator Schatz. Senator Klobuchar. Senator Klobuchar? Did you punch on mute? OK. Alright, we will come back to her. We will move next door to—well, not exactly next door, but we will move to Michigan. Senator Peters.

STATEMENT OF HON. GARY PETERS, U.S. SENATOR FROM MICHIGAN

Senator PETERS. Close enough, Mr. Chairman. Well, thank you. Thanks to our witnesses here today for your testimony. It as an important subject. And my first question is to Jan Garfinkle. And I know you are remote. You are in Ann Arbor right now, I believe. A wonderful place. And certainly your entrepreneurial journey is a true success story, and it is a testament to some of the talent and opportunities that exist in Michigan. So it is great to have you here today and to hear your testimony. In that testimony, in your opening, you highlighted the commercialization of university research is certainly a tried and true way to spur innovation.

I think you mentioned Carnegie Mellon as one example in that testimony. And certainly you know very well from being in Ann Arbor with the University of Michigan, that we are at the forefront of scientific research and not just at U of M, but we have other large research universities in our state, as many states do. There are federally funded labs and grants that are provided. You could talk a little bit about what we can do to better incentivize private investment in technology that comes out of these universities, perhaps? What is working now, and what more we need to do to attract more VC interest into those areas that may be blessed with one or more research universities in their community?

Ms. GARFINKLE. Thank you, Senator Peters. Nice to see you. Appreciate you joining us today. You know, it is a great question. And when I look at our portfolio, I mentioned that we have 50 companies that we have invested in over the life of Arboretum. And I think about 13 of them are actually in Michigan. So this is the idea that venture capital really is a local investing endeavor. And when I look at those 13, I think 7 or 8 of them are University of Michigan spinouts.

It is a critical component because it basically provides the raw material that creates the company. It is the research that is done at the universities. In one case, what is really interesting that there were two PhD students that came up with an idea of a lab on a chip, is what I will call it, and created a company called Handy Lab. We invested in that company in 2004. It sold to a large strategic corporation in 2009. Those two founders, along with the CEO, then went on to create three more companies. And so four companies came out of what was originally sort of core technology out of the University of Michigan. And all of those companies had successful exits and were located maybe a mile, two miles from our office. So it really is important to do that.

I think there is one piece of policy that is, or a bill, that is being considered at this point, which is the Endless Frontiers Act, which I do believe will provide a lot more research dollars to the universities to help create this sort of core patent portfolio that each of the universities can learn how to commercialize better. And, you know, we have invested in many. As I said, we represent I think half of—our portfolio companies represent about half of the states of the Senators sitting on this panel today. So many of those are coming out of the university.

So what we are experiencing in Ann Arbor is nothing different than what could be experienced in any of the other geographies where there is research universities. So I think that is a really great place to focus on, thinking about trying to create an ecosystem that is really supportive to those researchers as they spin those companies out. And the universities have come a long way with regards to how they put the terms together when these companies spin out. But it is a difficult—it is difficult. Just because you have an idea, that doesn't ultimately make it a successful company. It takes the talent, it takes the venture capital, it takes the accountants, and it takes the lawyers, and it is a whole group of people, like a basketball team, that need to all come together to help that company ultimately be successful.

And I would really think about some new policies, including supporting that Endless Frontiers Act, Senator Klobuchar's new Act may be another one that I think would be helpful, I am not as familiar with it, but those would be the ways to really stimulate around these research universities in particular as sort of the core areas to try and put some extra effort into. And then just get out of the way of the entrepreneurs and let them do their thing once they have that raw material all together in those geographies.

Senator PETERS. Well, thank you for that answer and thank you for mentioning the Endless Frontiers Act. I am proud to be one of the co-sponsors of that bill. And as you know, it is focused on areas such as AI, machine learning, computing, robotics, automation, advanced manufacturing. But as a successful venture capitalist, is there something we are missing on that list? Is there something else that we should be looking at in terms of investments in emerging technologies that VCs will be interested in investing in the future?

Ms. GARFINKLE. So there is a broad category of biotechnology listed there, which is really more drugs and genetics. It is missing medical devices and diagnostics. I would really encourage you to include medical devices and diagnostics. As you know, with COVID right now, diagnostics has been an incredibly important area. And right here in Michigan, we were an investor in one of these four companies that I just mentioned that sort of created a critical mass of diagnostic expertise here in Ann Arbor, was a company called Pneumatics that developed one of the very first COVID–19 PCR tests. We have now sold over 1 million, 2 million tests, I have lost track honestly, worldwide of COVID–19 tests.

And it is the best COVID–19 test because it can take the nose, the nasal swab sample and in 80 minutes give you a PCR result. It is not the antibody result. It is not the antigen result, which is not quite as reliable. It is a PCR result telling you if you are infectious or not. So there are some really important technologies in the diagnostics space and I would encourage you to add that and medical devices to the list.

Senator PETERS. Right. Thank you for your testimony. Appreciate it and appreciate your work you do in Michigan every day.

Ms. GARFINKLE. Thank you. I appreciate yours too.

Senator THUNE. Thank you, Senator Peters. Senator Moran.

STATEMENT OF HON. JERRY MORAN, U.S. SENATOR FROM KANSAS

Senator MORAN. Chairman Thune, thank you. And witnesses, thank you for your presence here today. This is a topic that we have been engaged in for a long time. In my early days in the Senate introduced legislation called the Startup Act, which was generated in large part by policy recommendations by the Kauffman Foundation in Kansas City. And it is my view that our responsibility is to keep the American dream alive and well. And that means giving more people the opportunity to pursue their dreams, create jobs for themselves, their families and those who work for them.

So we want to be helpful. The Startup Act has generally broad support, but has not become law in significant part, I think, because it involves issues related to immigration and a workforce that is not just here currently. Let me ask a couple of questions about provisions that are in the Startup Act. This one would be for Ms. Garfinkle. A component of previous drafts of the Startup Act, which was actually enacted into law, was the creation of an R&D tax credit, payroll tax offset. What is your view of how tax policy can support startups?

Ms. GARFINKLE. Thank you, Senator Moran. I do believe that tax policy is really important to helping startups, and I appreciate that the ones that were included in the Startup Act, there is a need for the NOLs and the R&D tax credit to be provided to startups.

As you can imagine, these startups—the startup is a raw idea and it takes a lot of research dollars to go from that concept through development to generating revenue. And it can take five years. It can take $50 million, $100 million to get all the way through that entire process. And so you can imagine there are a lot of R&D dollars that could be offset from a tax standpoint and it would benefit the startup company that it would be going to.

So I really encourage you to continue forward with both of those. I think they are very, very important and really would be a big help to the startup community.

Senator MORAN. Thank you for your testimony and that encouragement that it includes. Mr. Hall, what other tax proposals would support startups and incentivize venture capital investment in my home state of Kansas?

Mr. HALL. Thank you, Senator Moran. I am not an expert in tax policy, but I am definitely in favor of and really support the taxation policies that enable faster access to capital, to different pockets and different fund managers who can more easily get that capital deployed into startups. I think also, as has been spoken before, these entrepreneurs really invest their heart and soul into their companies and sometimes take, you know, take very little in compensation, particularly competitive compensation that a lot of these really smart engineers and product managers could do in the private sector.

And so they see that their startup is their key to being able to accelerate. And so thinking about making sure that capital gains and things like that are preserved for some of these entrepreneurs who have really invested their time and energy into their businesses is important.

And I think, you know, obviously as Ms. Garfinkel has said, small fund managers, people who are running really early funds, $5 million, $10 million funds, the fees generated on those funds aren't going to, you know, line the pockets. And so the carried interest opportunity for fund managers, particularly emerging fund managers, and particularly those fund managers who are either women or fund managers of color, they rely on the carried interest as being part of their compensation, if you look at it more holistically. So those are a couple that I would highlight. But I would be happy to get back to you on more specifics.

Senator MORAN. Happy to hear anything that you would like for me to know. Thank you. Thank you, Mr. Hall. Ms. Garfinkle, let me go back to you. The Senator from Michigan sort of down this path. I want to pursue it a little bit further about tax payer funded research. The goal ought to be to bolster regional commercialization strategies and converting research into new products and services. I chair the Appropriations Subcommittee that has jurisdiction over the NSF, the National Science Foundation, and other science-based spending.

I remain interested in supporting commercialization and continued Federal investment. But what recommendations, either legislative or non-legislative, do you have for the Committee to further improve the commercialization of Federal research? And while Mr. Peters focused, I think, generally on university research, is there something that the Federal Government in particular can do with the research that is conducted by the Federal Government, at NIH, NSF, those kind of places?

Ms. GARFINKLE. Thank you, Senator Moran. You know, I think one thing that would be really helpful is the basic research that is done—I mean, you are asking more about commercializing it, which to me is taking that idea and making it a product. One big piece that I think is often missing and really does need funding is the idea that there is a prototype that gets built and a market study that gets done. And I know I am getting very specific here, but I sat on a state initiative that was trying to do the very same thing, which was commercialize technologies out of the universities. And often the researchers don't think about is there a person or a company that will buy this product, ultimately.

What is the problem they are trying to solve and will somebody buy that product? And I think that research needs to be done at an earlier stage than after all the research dollars have gone into it, and then they try and figure out, oh, gee, is this a product that somebody will buy? So I would really encourage that the research that is done, not only is it done for sort of the basic research and then as it gets into translational research, it would incorporate market studies, patent assessments, and then prototypes being built.

Because the one other issue is there is really no other dollars that go to those activities and so somebody, you know—they call this the area of gap funding. That gap funding could very easily be provided by the government. It is not that expensive. It is an extra $100,000, $200,000, depends what it is. But it would be very smart money spent to really figure out if the product is worthwhile, if the product will be bought, and have a prototype being built so it can be more easily explained and tested.

Senator MORAN. That is very useful. Thank you very much.

Senator THUNE. Thank you, Senator Moran. Senator Klobuchar, are you available now?

Senator KLOBUCHAR. Hello. Thank you so much, Mr. Chairman. Thank you, all of you. And I wanted to actually start with you, Mr. Hespen. I so much enjoyed when Steve Case came to Minnesota on the Rise Rest Tour. It was amazing. And all the entrepreneurs gathered there. And I am really excited to talk to you just about the concept of our bill, which is to make sure that we get, and I really would like to, I was thinking as I listened to this hearing, how I am going to reach out to some of our Republican colleagues to see what we can do to finesse the bill some and get them on board, because I think that would be a really good idea.

I am coming from a state that has a lot of startups, particularly medical device, thank you, Ms. Garfinkle, in Minnesota. But we are nowhere near the startup money of some of the other areas. And I truly believe it is best for the whole country if you have those kind of incubation areas outside of the three main ones. And I see you nodding your head as well, Ms. Lippert. So could you, Mr. Hespen, just comment on that?

Mr. HESPEN. Thank you, Senator, for the question. So I think in just, if I am following your question correctly, is how do these sort of support functions work with some of this funding as they are launching? Is that what you are referring to?

Senator KLOBUCHAR. Yes. And then I will go to Mr. Hall about the Rise of the Rest. Yes.

Mr. HESPEN. Alright. Thank you, Senator. So I think that is actually one of the key things. I think one of the misconception, and I think Mr. Hall actually made a great point about meeting entrepreneurs where they are at and being able to apply the right resources to get them to that next stage. There are different phases in a company. The first one being, do you have a business, you know, a viable product.

Ms. Garfinkle pointed out to that. Is it even something that can be sold, validating that. Now how do you get early product adoption and distribution early on to determine if this is something that you can actually get to the market? There is this different mentorship or a different sort of support network there. Then there is a component where you start bringing people who can really assist in building out a machine scaling, understanding what are going to be the next problems and pitfalls that the company's going to need to do.

Because, frankly, even with capital, if you don't solve some of those problems early on, you can't even deploy the capital efficiently. So—.

Senator KLOBUCHAR. OK.

Mr. HESPEN. So I think just making sure those support networks are in place and evaluating the different functions of the where the startups are at.

Senator KLOBUCHAR. OK, thank you. Mr. Hall, do you want to get to the Rise to the Rest piece of this?

Mr. HALL. Yes, thank you very much, Senator Klobuchar. I love speaking about the work that we do. It is so important, but it is so rewarding to be able to go into a lot of these communities and talk to the men and women that are building the companies, you know, outside of the coastal tech hubs. And the number one thing that we see and it is so amazing to see is the domain expertise, the lived experience of these folks who are working in industry, who are working, you know, directly in line roles, who say there must be a better way.

I have got a great idea on how to innovate my industry. And what has typically happened is there has been this experience gap specific to venture capital where they struggle to figure out how do I raise that first round of seed capital? How do I have the conviction with capital to leave my current job and go out on a limb with this entrepreneurship? And one of the things that we are advocating with Rise of the Rest is take the leap and build the ecosystems that can help really extend that leap into, you know, the first step of, you know, seed funding, which is followed by follow on funding and hopefully allows that company to hit that escape velocity into the big leagues of capital.

Because what we noticed is that a lot of times regional capital, the first couple of investments made into the company, are the ones that really solidify the company's trajectory. Because our coastal investors are happy to jump on a plane to come out and lead a growth equity round. But it is those first couple of investments, that the regional funds and the micro-funds that are in region in these communities, the angel investors, and the investment clubs that pony up the first risk dollars, are the ones that really, really help influence it.

And being able to leverage in some of the legislation, some of the policy pieces that you have authored, Senator Klobuchar, and are leading, is really important to continue that pipeline and continue driving that innovation forward, and continue giving those entrepreneurs the shot to take their leap and continue to innovate their industries.

Senator KLOBUCHAR. Thank you. Thank you so much. And this is my last question Ms. Garfinkle, Ms. Lippert, one of the things that we have seen is that we don't have enough women and minority startups, as you know. One of the things in this bill, and we should review it, is to not just focus on regions of the country, but in areas of the country that already had the three areas, have major startups to direct more of the resources to women and minority entrepreneurs. And could you talk a little bit, either one of you or both, quickly about how the pandemic has disproportionately affected these entrepreneurs and why it would be, this is pretty much of a softball, good to have more women and minority owned businesses and startups. Take it away, whoever wants to answer.

Ms. GARFINKLE. OK. Thank you, Senator Klobuchar, I really appreciate that question. You know, women and minorities are definitely underrepresented, both at the venture level and venture funds and in portfolio companies. What is interesting is, if you look at geographies off the coast, that is not the case. In fact, in our portfolio, I think about a third of our venture founders of our portfolio companies are women or minorities.

So it is really interesting that off the coast, I think people that are not in the industry, if you will, are willing to take more risk.

And so I think there is actually a really significant opportunity to help support that, off the coast in particular. And, you know, I really encourage you to do that. My, and I am sorry I haven't read the bill in detail, but at the high level, my one suggestion for the bill would be to invest in venture funds that have that as an emphasis. If there is a woman who is part of it, maybe that is what you are doing. But it sounded more like the states would be investing alongside venture funds, not in venture funds.

I would just encourage you to do both honestly because the venture funds are really the glue that will start and help provide all of the infrastructure to help those companies be successful.

Senator KLOBUCHAR. OK, thank you. You want to add anything, Ms. Lippert? Thank you.

Ms. LIPPERT. Thank you so much for the opportunity, Senator Klobuchar. One thing I would add is I think the government has a big role to play on the funding side, as Ms. Garfinkle has said, and really supporting sort of those funds and funding. In our company this last group that we funded, 50 percent of the founders were women, about 50 percent of people of color. So they are there. I think the more than 80 percent of our companies have received some sort of government seed funding for research or for some sort of idea.

So that funding is really important on the front end. But then there is another really important role for government as it relates to bringing opportunity to more kinds of entrepreneurs. And that is as a procurement and actually buying things from people as well. So it is really on creating that market. So we see this as particularly important off the coast because in places like Hawaii or other smaller markets or rural markets, Department of Defense is a really important customer as is the Department of Transportation for many of these technologies.

So really thinking about that full suite of how government can support both from procurement perspective and on the front end as well.

Senator KLOBUCHAR. OK, well, very good. Well, thank you guys so much, and I look forward to working with you on our bill and look forward to working with the members of the Committee as well. I truly believe this is the moment because post-pandemic, wanting to get these startups going again, just gives us an ideal opportunity to as you say, do something good and then get out of the way so you guys can do your work. So, thank you. Thank you.

Senator THUNE. Thank you, Senator Klobuchar. I think Senator Young is trying to connect. And until he does, I will ask another question or two here. But I will direct this to Mr. Hespen and Ms. Garfinkle. One of the issues that I think effectual areas, and has been a focus of this committee for several years and will continue to be a priority of mine in the next Congress, is expanding reliable broadband services across the United States.

And I am wondering what role you think reliable Internet services plays in growing a startup ecosystem. You talked about the ecosystem and how important that is, Mr. Hespen. So, could you talk a little bit about how important Internet services are, in particular, in the more rural parts of the United States?

Mr. HESPEN. Thank you, Senator, for the question. So one of the things that's really important that you kind of realize once you don't have it is when the Internet goes down. So we are a company that actually—I mean, we have, you know, in this new building that we are in before we transition to the new one, we don't have even telephone lines. So our entire salesforce for customer success groups, they rely heavily on VoIP, which is Voice over IP. All of our tools are primarily cloud based.

So when we lose Internet connection, it is a really big deal and about everything shuts down. And so for that reason, we were fortunate enough to be able to get fiber optic into our company. But that is a huge lift for a company and it was very expensive even for us when we went to the new building. But especially as technology moves more toward what I think we are doing, it is absolutely critical. And the reliability of that and the speed is just—it is absolutely critical for us to operate.

Senator THUNE. Ms. Garfinkle?

Ms. GARFINKLE. I totally agree and, you know, it is just such a shame that there is so many pockets of areas where there is not broadband Internet. You know, we invest in health care companies and we are dealing with patients and we have health care IT companies, we have cancer—I am sorry, companies focused on cancer that are waiting for their genomic information. And when the Internet goes down or if they are in an area where the Internet is very spotty, it is really life or death in some situations.

And so it is absolutely critical that we get broadband everywhere. Everybody needs access to it. And especially for these small startup companies, it is one of the critical sort of infrastructures that needs to be there like a telephone in order to be able to do what they are saying they are going to do for their customer, for their patients. So it is absolutely 100 percent critical.

Senator KLOBUCHAR. Chairman Thune?

Senator THUNE. Senator, yes? Senator Klobuchar.

Senator KLOBUCHAR. If you are going to go to someone else, do that first. I just want clarification for Garfinkel and follow up our discussion.

Senator THUNE. OK, Is it a question or do you just need to clarify?

Senator KLOBUCHAR. Well, I wanted to clarify that the funding does actually—we are not going to have the government pick the companies. The funding goes through venture funds, as you suggested. But we have set it up in a way that makes it clearly legal and it goes that way. And I think instead of the government picking which startups, it goes through the venture funds.

Ms. GARFINKLE. That is excellent. That is the perfect way to do it, because then you are getting the double benefit of the venture funds being ultimately successful and the portfolio company. So that is fantastic.

Senator KLOBUCHAR. Alright. Thank you. Thank you, Mr. Chairman.

Senator THUNE. Thank you for your important clarification. We—yes, we don't want the government picking them.

Senator KLOBUCHAR. But that is because I want to get you on the bill, so——.

[Laughter.]

Senator THUNE. Thank you, Senator Klobuchar. Alright. Senator Rosen, I am told, has connected. Are you there?

STATEMENT OF HON. JACKY ROSEN, U.S. SENATOR FROM NEVADA

Senator ROSEN. I am here. Can you hear me OK?

Senator THUNE. Yes.

Senator ROSEN. I had some audio problems earlier this morning, but thank you, Chairman Thune and, of course, Ranking Member Schatz. Appreciate you and all the witnesses for being here. But I want to build upon Senator Klobuchar's comments and questions on venture capital and minority-owned businesses, because the coronavirus pandemic has been devastating to small businesses in my home state of Nevada and across the country, putting millions of people out of work and closing many of our small businesses, closing them for good. Many minority-owned businesses have been particularly hard hit through the lack of access to capital in Nevada.

We have one of the fastest growing AAPI communities in the country and over a quarter of our population is Latino. So more than 70,000 of our small businesses are owned by a person of color. When it comes to funding though, entrepreneurs of color are at a disadvantage. Only 1 percent of black founders and 2 percent of Latino founders who seek venture capital receive it compared to 77 percent of other founders, and so the real economic ramifications for not addressing the inequality in venture capital funding. Studies show that if black entrepreneurs were provided equitable funding over the past 20 years, we would have seen the creation of 6 million more jobs and an additional $13 trillion in our Nation's GDP.

And so I just want to really address these benefits and we can add billions of dollars to our gross national product. So, Ms. Lippert, Mr. Hall, I have questions to you. Angel investment—angel and venture capital investment are important phases for emerging businesses. So what do you think are some of the ways we can show that minority owned startups and small businesses, especially in my state of Nevada, have access to these type of investment opportunities?

And in your view, what can we do to ensure that all businesses have equal access to venture capital funding? So I guess we can start with Ms. Lippert.

Ms. LIPPERT. Thank you so much for that question. So I think it is a really important point. And over the last 10 years, female founded companies have been slowly gaining ground in getting venture capital investment. And last year they raised more than $20 billion across thousands of deals, which was compared to just 10 times more than about a decade ago. So we have been gaining ground. But as you mentioned, COVID has been pretty devastating and hit women led businesses much harder than male-led businesses.

So the deal value for female founded companies was down over 30 percent in 2020, which is about twice what it was for male-led businesses. So this is a really critical issue. And what we have seen in our portfolio, we have about 100 companies active in the portfolio, is that women-led businesses and businesses of people of color were hit particularly hard this year. And one of the key things that have kept them alive has been the PPP. So that has been particularly important, I think, for companies outside of the traditional sort of technology hubs that already have more challenging access to capital and follow on funding.

You know, it is harder to, sort of, meet entrepreneurs—meet investors and make sure they can invest in a company. So the PPP has been a really critical element in keeping people's businesses going. The other thing I just want to mention briefly as we think about equity in having businesses, have equal opportunity, is that in a pandemic we have seen that some of these businesses that are started locally, have a unique ability to address their local challenges, and that has been doubly important during the pandemic.

So one of our technology companies is Guter. They are based in Atlanta, Georgia. And through their technology platform, they have been able to take food that would otherwise go to waste and provide it to seniors and youth all over the country through their technology platform. So really serving the needs of their local community and then being able to grow that beyond. It is a woman-led company. And I think being sort of empathetic and responsive to the needs of the community is in her DNA and has been a really important element of making an impact for her.

Senator ROSEN. Thank you. Mr. Hall, what do you think that we can do to be sure that—I really want to focus in because some of us who don't have these really large urban centers, how can we get support for our minority businesses, women-owned businesses? Mr. Hall, you want to speak to that in just a few seconds I have remaining?

Mr. HALL. Yes. Thank you so much, Senator. I really appreciate the question. It is obviously a personal question for me. I think that, you know, the pathways for particularly black and Latinx-owned businesses, small businesses and startups in particular, which is what I know better, is harder because for a lot of them to have that first investment, they don't have the friends and family. They are often the friends and family in those ecosystems that are sending back the capital. So I think a couple of things.

Number one, creating the pathways that can help expedite capital, help break down some of the historic biases around capital being funded into black and Latinx businesses is huge. I think investing in the networks so that those folks are able to get access to some of the conversations around capital flows. At Rise of the Rest, we were able to recently run a pitch competition in which we sourced nearly 500 black-led founders to participate in our virtual tour focused on black entrepreneurship. And we were able to, I am happy to announce, invest in three businesses, all black led.

And more importantly, we were able to connect some of those founders with over 100 different venture capitalists across the country, breaking down some of those network barriers so that those conversations, those founders can make it to the decision room and actually pitch their business to the decisionmakers, as opposed to having to start, you know, building the network and doing the sort of grassroots networking.

So I am really proud to be able to apply effort in breaking the networks. But I think a lot more is needed for capital. A lot more is needed to encourage other businesses to be customers of these black and brown led startups. So I think that there is a lot that needs to be done. And I am really excited about conversations, Senator, that that encouraged that type of entrepreneurship and that type of investment capital into these small businesses.

Senator ROSEN. Well, thank you both. I look forward to working with you on this public, private partnerships. And as we like to say in Nevada, spur innovation. So there you go. I yield back. I went over my time. Sorry, Mr. Chairman.

Senator THUNE. Thank you, Senator Rosen. Senator Moran has a follow-up question he would like to ask.

Senator MORAN. Chairman Thune, thank you. Again for Ms. Garfinkle. You indicated in your testimony you point out that foreign born entrepreneurs provided a pretty significant contribution to the U.S. economy. Provisions in the Startup Act would establish a conditional immigrant visa for up to 75,000 qualified alien entrepreneurs to stand up a business and create jobs in the U.S.

I wanted to give you the opportunity to get in the record for perhaps my benefit as we work to accomplish the goal of passage of this legislation. What would you—what do you think the impact of a program like that would be to the U.S. economy long term? Would economic competitiveness in the global economy and increased jobs result from this type of policy?

Ms. GARFINKLE. Yes, thank you, Senator Moran, I appreciate you bringing that up. In my intro, I did mention the Startup Act and I do believe the Startup Visa in particular is critically important. And when we look at our portfolio, about a third of our entrepreneur founders are immigrants. They tend to be PhD students in universities that come up with a great idea. They are fantastic to back and we have had great success with that. So I am very, very supportive of it.

I think it is really critical. The two founders that I mentioned earlier ended up in creating four companies here in Michigan and probably a thousand jobs. So it is absolutely, you know—there is a direct correlation between these immigrant entrepreneurs and the number of jobs that they are able to create. And I would be very, very supportive of it.

Senator THUNE. Thank you, Senator Moran. My understanding is my neighbor now to the west, Senator Tester, is joining. Is Senator Tester out there?

STATEMENT OF HON. JON TESTER, U.S. SENATOR FROM MONTANA

Senator TESTER. Chairman Thune, thank you very much. And I appreciate your patience. I got hung up on a telephone call, so I had to, you know, anyway, you know, the same thing that happens to everybody. First of all, I want to thank everybody who has testified here today, not only for the work you do every day and the jobs you create every day, but hopefully the quality of life that you are improving every day. I very much appreciate your work. I want to go to an area that you may or may not know about, and that is Indian country.

The Chairman knows in our large land based tribes, particularly those that don't have gaming, are—I mean, it is poverty, a Third World nation stuff, honestly. Unemployment through the roof. Now, we have done some stuff to try to make it more easier for businesses to do business there and give them some tax breaks and those kind of things. Have any of you had occasion to invest in Indian country in general? Yes, or no? If it is yes, talk and otherwise I will assume it is a no.

Ms. LIPPERT. I can give potentially one or two examples, Senator. Thank you so much for that. I actually think it is really important. So a couple of our portfolio companies have been quite active at doing things in Native American regions on particularly installing solar, which is really—can be really important and can help save money for different tribes there.

And then also one of our companies called Source Global has provided a lot of basically water panels. They are sort of like solar panels, but they make fresh water from the sun and the air in Indian country, too. So I think that is—those are a couple of examples of companies that are using innovation and really prioritizing and working with tribes in Native American regions.

Senator TESTER. So is there—I mean, I know Mr. Hespen talked about mentorship being as important as money. And by the way, I think that is a really, really good point. The question is, what is lacking in Indian country? Is it too high a risk because they are sovereign nations? Is it the fact that maybe we are not doing a good job encouraging entrepreneurship so the folks aren't out there? Can you give me any idea? Because we deal with that stuff all the time in Congress because of the trust responsibility we have to Indian tribes.

Ms. LIPPERT. Yes, I will give you sort of just two thoughts and then we can follow up with more. One is that, I actually think what the Senator was mentioning before about the rural STEM education gap is one really important element of this. And this is sort of outside of traditional tech hubs where we see a lot of success. There is also really strong STEM programs and youth really see an opportunity to intern in tech companies or somehow provide that connection. And that has been really critical.

For the second thing that I would say which is, when it comes to bringing innovation into some of these areas, we have seen that community-based organizations and partnerships with community organizations have been just a critical element in success. So they already have the trust of the community about a long term relationship. Unfortunately, I think the way that some of the government funding goes to funding research or funding demonstrations doesn't acknowledge this and doesn't set aside funding for community-based organizations that could partner with technology companies in these kinds of deployments.fund

Senator TESTER. Anybody else want to comment? If not, I will move on to the next one. The next one is something we deal with in this Commerce committee all the time, and it is broadband infrastructure, 5G service, public transportation. For those areas that don't have those amenities, is that a deal killer for venture capital? Jan, go ahead. You are nodding your head. Go ahead.

Ms. GARFINKLE. Yes, I mean, these startup companies need to be able to have all of the infrastructure readily available to be successful. If they are—it is difficult enough to do a startup. And if they don't have basic, you know, strong Internet, if they don't have a bus system or some way to get their workers to work, these things will kill the company, quite honestly. There is just no way to overcome such a major sort of things that should be available in order for their company to be successful.

It absolutely has to be there. As I mentioned, we invest in health care and the high speed Internet to be able to deliver patient information instantaneously to the physicians that are working with our technologies, if that is not available, then it would be very, very difficult for our companies to succeed.

Senator TESTER. Cool, cool. I would—Ray Hespen, the description you gave of your company, I would imagine, good Internet service is pretty foundational. Would that be correct?

Mr. HESPEN. Senator, absolutely. And I think one of the things that is really important, we are fortunate to be part of an incubator that helps subsidize some of the broadband connectivity we had initially, because I can tell you when we kind of—when we went off on our own, there is a pretty massive, at least for us, a pretty large sticker shock. It is not the Internet service that you share at home and somebody gives you a gig Internet, and it is 60 bucks a month. It is very expensive.

And so thinking about other entrepreneurs who are starting, maybe don't have an incubator, don't have access to that, but it is required, that could be a huge cost burden that could be pretty detrimental to the early startup.

Senator TESTER. Yes, it is interesting. And Mr. Chairman, that is something we should probably visit about some more. I mean we put billions and billions of dollars into the broadband service, but yet the rates that are charged are through the roof and I don't get it myself. But the same thing can be said about prescription drugs and a lot of other things. Anyway, thank you, Mr. Chairman. I appreciate the recognition. And I want to thank all of you for testifying today and appreciate the work you do.

Senator THUNE. Yes, sir. Thank you, Senator Tester. And yes, I agree. We have invested heavily in some of those areas, those technology areas that you would think would drive down some of the cost in parts of the country where some of these services aren't even available, and if they are, enormously at a high cost. But that is, as you said, a subject for another day. Let me just say again, I think we are waiting for Senator Young to connect, but let me just ask this of all of our panelists and maybe we can start, Mr. Hall, with you and Mr. Hespen.

But earlier this year, Mark Zuckerberg stated that he would not pick the Bay Area to build another startup, indicating that perhaps the next wave of innovation will occur outside of traditional hubs. The question is, do you agree? And if so, will the innovation be coming out of places like Michigan or Georgia or Hawaii or my home state of South Dakota. Will it look different than the innovative technologies of the past few decades?

Mr. HALL. Thank you, Senator, for that incredible question, because we hear a lot about it and it has been foretold for years about this great Texodus of people leaving the Bay Area and sort of starting—you know, it is too early for us to have definitive conclusions around that. But I think that the innovation that we are seeing and I think that the opportunity that a lot of entrepreneurs are building companies in places like Kansas City—for example, one of our portfolio companies recently exited. They were building a company called Backlog Cars. They were building an auto—an online, used auto trading platform. And you can imagine, you know, in-person auto trading platforms are great until the pandemic hit and then nobody is going to trade a car at auction in person at all.

And so this company was phenomenally successful. They have been successful for a while. They grew from the inside out. They took the lived experience known growing up in the industry and said this is what is going to work in all of America, as opposed to sometimes you see our colleagues, you know, backing companies in the coast saying, well, this is going to work really, really well in San Francisco. Well, turns out there are a lot of other communities that have very little in common with San Francisco.

And so this inside out sort of phenomenon is one of the things that I think we will see more and more develop as the democratization of access to a lot of venture capital continues to grow. And, you know, Backlog Cars recently exited for a really good amount of money, and part of their return was that this is going to be good for Kansas City. And it is such a refreshing thing to hear founders say that, you know, I really am excited about sort of doubling down on my community, doubling down on the people that helped make me and helped make this company.

So I think that there is going to be this—I hope the sort of the next generation of company founders and entrepreneurs lean into this notion that it is an ecosystem, they are part of a community, and that we are able to support these startups in some of these regions so that you can have more of those people that say a win for me, is a win for my hometown, and keep that flywheel turning.

Senator THUNE. Thank you. Mr. Hespen.

Mr. HESPEN. Thank you, Senator Thune, for the question. I think it comes down to solving, at least for us, a root issue, which is the personnel and the staffing that it is going to take to grow these companies. I mean, so if we are the company that keeps growing and having 100, 200 employees, there is going to be a real logistics question. Can we continue to do that in that area or do we have to open up a second office somewhere else?

And so I think as we think about how this Texodus what is that, I like that, is impacting, I think we have really got to make sure that there is this community of these startups that are happening that keeps cross cultivating talent, attracting more talent. Because if that is a question that I think a company like us has, it is going to be a question for other people and it is going to prevent people from looking at, say, South Dakota saying that is a hub where we can start, grow all the way through a business until exit or public, whatever the exits might be for those investors and founders.

Senator THUNE. And what do you think is the solution to get that talent and personnel? I mean, the workforce is an issue we hear about all the time in South Dakota——.

Mr. HESPEN. So—I am sorry, Senator.

Senator THUNE. No, I was going to say it can be very limiting in terms of, you know, opportunities for people.

Mr. HESPEN. Yes, so I am very proud to say that we have recruited people from out of state, we recruited people from Oregon, North Carolina, we are pretty close to having somebody from Texas, another one from Colorado just recently. The big scary factor that a lot of them have is, if I am going to bring—you know, if you are a young person, you don't have families, you can take a risk, go to someplace, and if it doesn't work out, you move. But the problem changes when you sit there and go, I have got a family, I can't just pick up and move.

So they need to have that belief that when they go to that place, that if it doesn't work out with this company, which hopefully it does, that there are more options available in that community, and that gives a little bit of sense of ease. Now, the interesting thing with everything happening, with Microsoft going more remote, Facebook going remote, it kind of creates some opportunities, at least in software where people don't feel like they are on an island in those areas because they can still get a job remotely with some of those companies.

But I think that is the big thing. How do we create and lower the barrier that these people can feel comfortable moving to these areas when the local talent doesn't exist.

Senator THUNE. Great. Thank you. Ms. Garfinkle?

Ms. GARFINKLE. Thank you for admitting me. I really agree that I think COVID has made working remote acceptable, right. I mean, here we are doing this remotely. It is not ideal. Of course, people would rather be in a facility where you can interact and you can do all the fun stuff alongside just the work stuff that gets done on Zoom. It is very interesting to me, you know, with most of our, probably three quarters of our companies are off the coast, OK, but the other one quarter are on the coast. One thing that we have really recognized is that the cost structure off the coast is very beneficial to those startup companies. And actually the local economic development corporation here called Spark, which is in Ann Arbor, did a study and compared the cost to develop a company from concept to exit compared to a company in San Jose, California.

So how much does it cost in Ann Arbor compared to San Jose? And it costs about a third less to develop it off the coast. But even though it costs a third less to do that, you still can sell it or have the same exact amount. It doesn't matter that it's off the coast when it sells. So that is super important because for the founders, for the management team, for all the employees that have stock options, they are able to get more money for those options because they are still selling it for the same amount, but they own more because it didn't take as much money going into it. So that is a super important, very critical factor.

So a lot of entrepreneurs that we see, you know, in San Francisco and Boston, New York, they are from geographies that are not San Francisco, New York, and Boston. They are from areas in Michigan or Chicago or South Dakota or Nevada. They are from a lot of different geographies. Often as they have children, they want to go back to the areas where they grew up because they want to be closer to their grandparents—to the grandparents or to their parents, so that they their children can grow up with them also.

So there is a strong desire by folks to go back to the areas they grew up in, create their own entrepreneurial company there, and I think COVID has really spurred that along, and they realize that they can be successful there and have a very nice outcome if they develop a successful company because of the cost structure that are in these different geographies.

Senator THUNE. Thank you. Ms. Lippert.

Ms. LIPPERT. Thank you so much for that question. So we have seen the same thing across our companies and we had a CEO recently move back to Hawaii who grew up here and is raising his company, growing his company from Hawaii. And we also have sort of a new initiative where folks are asked to sign a pledge to essentially be good neighbors and contribute positively to the community when they come to Hawaii to work on tech here. So it is a really interesting moment right now. Won't last that long, but I think we can really capitalize on it as communities and capitalize on that talent that work other places, as others have said.

And I will just give a couple of examples too of why I think there is a real advantage to developing companies off the coasts in addition to the cost structure, and in particular because of the work that we do around climate technology and clean energy, that exists everywhere. So whether it is clean water, energy, transportation, these are in every single community, which is one reason why I think climate technology is such an interesting place to look when you are looking at creating entrepreneurship opportunity and new jobs and new companies away from the coasts.

So a couple of examples since we were talking about Kansas City, one of our portfolio companies, is called Neer. It was started by an immigrant in Kansas City, and a really interesting company that is developing software to help manage water infrastructure. And their target market really starts in Kansas City and Midwestern regions, and it is an excellent place to start a company like that. Another example is a company in our portfolio called Fervo, which is a geothermal innovation company.

And so they go where the geothermal resource is, which is in Nevada or parts of California or other places where there is geothermal activity. So their economic development and all the value they are creating is by definition in these rural communities where there is really interesting geothermal resource. Now, I think it also just comes back to sort of the role of government in both seeding these technologies and then helping them on the regulatory side sort of get out of the way and clear barriers.

You know, Fervo, for example, was trying to get a permit and would be delayed about 2 years in one of the places that they are trying to develop their geothermal plant. So all that economic development, all that job creation is delayed because the Bureau of Land Management has very long permitting times for geothermal. So these are some of the opportunities I think if we can think about how technology can really benefit and create jobs in these other regions, but there is an intersection with government and a role that we can play in helping them grow faster.

Senator THUNE. Thank you. I don't think we have been able to get Senator Young on. OK, great. So what we will do is, I think we have got through the members who wanted to ask questions, is we will keep the hearing record open for a couple of weeks. And we will make sure that Senators on the panel who have questions get them to you. And if you could get the responses back as quickly as possible, that too will be made a permanent part of the hearing record. So there will be some what we call QFRs, questions for the record that you all may be asked to respond to.

And I just again want to say how much I appreciate you all being here. Is a great discussion. It is an important subject, a subject that bears not only on what happens in the economy here, but as we are trying to become more competitive globally, see countries like China that are investing heavily and seeing more startup businesses in that country, and if we are going to compete with them, I think we have got to figure out too, how to, as you all described it, to democratize or get more geographic balance in terms of where the investment is in this country so we have more startups who need the resources and the assets that obviously those with the capital bring.

So good answers. Appreciate very much the discussion. And we will look forward to continuing that discussion in the future. But wish you all the very best. Hope you have a good holiday season. And in the case of Mr. Hespen, hope for continued growth in your company in South Dakota. And I am sure we can find some people, hopefully, if we need personnel and talent, who want to live in the beautiful Black Hills of South Dakota. So, we will keep trying to round them up, but you just keep hiring them. So thank you all very much. With that, this hearing is adjourned.

[Whereupon, at 4:20 p.m., the hearing was adjourned.]

A P P E N D I X

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. KYRSTEN SINEMA TO DAVID HALL

University Partnership. Universities in my home state of Arizona bring together students, faculty, and the community for cutting-edge research and innovation. The universities create fertile ground for new advancements and developments that can solve problems, build the economy, and create jobs in Arizona.

Question 1. How can states and universities outside the traditional venture capital hubs harness that groundbreaking university research in order to expand entrepreneurship and create jobs here at home, rather than let those advancements move out of state?

Answer. University innovation can't stop once a technology/IP isn't owned by the university; campuses must support all types of entrepreneurs. The same wrap-around programming that supports research-based founders can support all kinds of entrepreneurs. Additionally, university systems across the country have used capital from their endowments to invest in venture capital firms that focus specifically on a campus or multiple campuses within a university system.

Arizona State University serves as a great example for colleges and universities across the country. ASU President, Michael Crow, has made entrepreneurship and innovation a pillar of learning. We saw it first hand when we visited Phoenix on our fifth Rise of the Rest tour in 2015.

Tribal Communities. Across Indian Country, tribal communities are operating nation-owned enterprises and cultivating tribal citizen-owned businesses to prepare their people to access expanding job opportunities and build sustainable economies. In Arizona, I work closely with the Dineh Chamber of Commerce that provides a voice for Navajo-owned businesses, organizations, and governments doing business on the Navajo Nation. The work of the Dineh Chamber of Commerce creates opportunities that enable a successful business climate on the Navajo Nation.

Question 2. How can we expand entrepreneurial opportunities in Indian Country, and is there a roll for Congress to play?

Answer. I am not an expert in Indian Country Affairs, but I would believe that these ecosystems have several aspects in common with other smaller ecosystems, including driving towards improved network density, a belief which enables smaller ecosystems to pool resources and relationships to better access the opportunities more commonly found in larger markets. As these communities continue to seek access to startup and venture resources, partnering with other proximal organizations or institutions can substantially amplify their individual signals to be seen by more investors and entrepreneurs.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. KYRSTEN SINEMA TO RAYMOND HESPEN

University Partnership. Universities in my home state of Arizona bring together students, faculty, and the community for cutting-edge research and innovation. The universities create fertile ground for new advancements and developments that can solve problems, build the economy, and create jobs in Arizona.

Question 1. How can states and universities outside the traditional venture capital hubs harness that groundbreaking university research in order to expand entrepreneurship and create jobs here at home, rather than let those advancements move out of state?

Answer. Thank you for the question Hon. Kyrsten Sinema. I'm not an expert on university research and what determines if a tech reaches commercialization, I can only speak to some examples I've seen. Usually it takes someone who is involved with the research to a) determine if there is a product-market fit, and b) someone to be willing to go through the steps at making that transition to monetize research.

Fortunately, I've seen some examples of this, but what I would think would be critical is the ability to vet the majority of R&D at the universities for these items.

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Question 2. How can we expand entrepreneurial opportunities in Indian Country, and is there a roll for Congress to play?

Answer. I appreciate the question but would be afraid I could lead your team down the wrong path. Someone who has managed to help Native-American businesses transition from idea to business would be best suited to discuss the roadblocks and challenges specifically. As for any business, the support network around mentoring an early-stage business is always critical to getting investment. The infrastructure for that specifically in the Native-American communities is something that would need to be investigated.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. KYRSTEN SINEMA TO JAN GARFINKLE

University Partnership. Universities in my home state of Arizona bring together students, faculty, and the community for cutting-edge research and innovation. The universities create fertile ground for new advancements and developments that can solve problems, build the economy, and create jobs in Arizona.

Question 1. How can states and universities outside the traditional venture capital hubs harness that groundbreaking university research in order to expand entrepreneurship and create jobs here at home, rather than let those advancements move out of state?

Answer. Universities across the country generate groundbreaking technologies, and many play a significant role in creating entrepreneurial opportunities that lead to the formation of successful new companies in local communities. But some play this role much more effectively than others. To unlock this potential, universities must develop robust and effective technology transfer practices that prioritize long-term economic growth over short-term revenue. Relationships with local venture capital investors, angel investors, and entrepreneurs are key towards achieving this goal.

Based on our experience working with the University of Michigan, which sits a few minutes from our office and is a close collaborator, the first step in effectively harnessing university research is helping research projects transition into viable commercial entities. The University of Michigan launched a record 31 startups in 2020 by leveraging programs such as Michigan Translational Research and Commercialization (MTRAC), a committee composed of university leaders and local venture capitalists that provides guidance and non-dilutive funding to professors/graduate students who want to spin out and commercialize their research projects. MTRAC and similar initiatives help propel research projects "over the hump" and into the commercial arena and have directly led to dozens of local university spinout startups.

Once university spinout startups have been established, states need to step up to ensure the spinouts and corresponding jobs stay local. A key action taken by the State of Michigan was providing support to the regional venture capital community. In our case, the early support Arboretum received from the State of Michigan (such as a $250,000 grant from the Michigan Economic Development Corporation to cover the costs of raising a first fund) was instrumental in helping us get off the ground and kick off our track record of investing in local startups. The state also created a $95 million "Venture Michigan" fund to invest in VC firms that open offices in the state, which persuaded several regional funds to open Michigan offices and invest capital in Michigan startups, and in turn enabled Michigan startups to flourish at home. It also funded 10–15 new venture funds with headquarters in Michigan.

Congress can support this critical economic development activity by increasing Federal basic research investment, encouraging greater angel investment, and supporting the formation of more venture capital funds in regions across the country. Pro-innovation policies such as the bipartisan, bicameral *Endless Frontier Act* would reprioritize a commitment to Federal basic research investment and technology commercialization efforts in emerging and critical technologies. The legislation supports innovation advancement in communities throughout the U.S. and leverages partnerships between universities and business leaders to develop and commercialize technology that will create and encourage greater economic activity.

As outlined above, the participation of venture capital and angel investors are critical participants in these partnerships to ensure success in creating new companies and providing opportunities outside traditional tech hubs. For instance, the *Developing and Empowering our Aspiring Leaders Act (DEAL Act)* would help small VC funds across the country by allowing larger and later-stage VC funds to provide early-stage liquidity to these funds without triggering regulatory challenges, helping improve their returns and raise new funds to invest in a new generation of companies. These changes are especially important today as industry data demonstrates a significant decline in first-time and seed financings during the ongoing global pandemic.[1]

Tax policy can be particularly powerful for these funds as well, and I encourage you to review the proposals I highlight in my written testimony that would support the creation and growth of regional VC funds.

I would also encourage Arizona universities to apply for Venture Capital University, a program run by the National Venture Capital Association on venture finance, held in partnership with universities across the country. The program shines a spotlight on emerging ecosystems and expands the focus on VC beyond traditional venture hubs. VC University LIVE served more than 120 participants across its first two programs at the University of Michigan and Tulane University in 2019. In November 2020, VC University LIVE was held virtually with Southern Methodist University (Dallas), with more than 60 participants.

Tribal Communities. Across Indian Country, tribal communities are operating nation-owned enterprises and cultivating tribal citizen-owned businesses to prepare their people to access expanding job opportunities and build sustainable economies. In Arizona, I work closely with the Dineh Chamber of Commerce that provides a voice for Navajo-owned businesses, organizations, and governments doing business on the Navajo Nation. The work of the Dineh Chamber of Commerce creates opportunities that enable a successful business climate on the Navajo Nation.

Question 2. How can we expand entrepreneurial opportunities in Indian Country, and is there a roll for Congress to play?

Answer. There is much more Congress can do to encourage entrepreneurship and venture capital investment in Native American communities. Startups need high quality, reliable infrastructure to build cutting edge technology, attract the best talent, and quickly scale up. Investment in high-speed broadband, public transportation, and other critical infrastructure needs form the foundation of vibrant entrepreneurial ecosystems. In particular, broadband access in many underventured regions tends to be prohibitively slow, expensive, or both—barring talented entrepreneurs from launching innovative startups in these areas.

Many students in Native American communities lack access to high quality science, technology, engineering and math education. Strong STEM education programs that connect students with innovators and provide hands-on engagement are a key feature of robust entrepreneurial ecosystems outside of traditional tech hubs. Policymakers should invest in STEM education with a particular focus on these communities to ensure that all students have the opportunity to pursue entrepreneurship in high-tech fields.

Many of the points I make in my written testimony about university partnerships are also broadly applicable to increasing startup activity in and around tribal communities, as they are designed to jumpstart startup activity in emerging regions, which would include these communities.

[1] NVCA Venture Monitor Q2 2020, available at *https://pitchbook.com/news/reports/q2-2020-pitchbook-nvca-venture-monitor.*

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. KYRSTEN SINEMA TO DAWN LIPPERT

University Partnership. Universities in my home state of Arizona bring together students, faculty, and the community for cutting-edge research and innovation. The universities create fertile ground for new advancements and developments that can solve problems, build the economy, and create jobs in Arizona.

Question 1. How can states and universities outside the traditional venture capital hubs harness that groundbreaking university research in order to expand entrepreneurship and create jobs here at home, rather than let those advancements move out of state?

Answer. Thank you for this question, Hon. Kyrsten Sinema. This is a powerful insight; universities play a vital role in driving innovation and entrepreneurship on a local and regional scale. We have identified three ways that universities can accelerate their effectiveness and help keep talent and resources in state.

1. *Provide extracurricular innovation and entrepreneurship programs:* Programs and activities like entrepreneurship clubs and competitions are excellent ways to expand the skill set of students in order to prepare them for the workplace. The Department of Energy Cleantech University Prize (DOE's Cleantech UP) is a great example of this. It aims to inspire and equip the next generation of clean energy entrepreneurs by providing them with competitive funding for business development, commercialization training and other educational opportunities.
2. *Create partnerships between industry and university:* Internships, job placements and networking opportunities through partnerships with local universities are great for students to practice and develop their entrepreneurial skills. They also help build relationships in the community outside of their university. For example, the Engineering department at University of Hawaii at Manoa, partnered with the State Department of Transportation to create a Hawaii Autonomous Vehicle Institute and Traffic Control lab to develop the skill set needed for local startup entrepreneurs and workforce. In addition, a collaboration between the University's Office of Innovation and Commercialization and the Navy co-created Hawaii Tech Bridge, connecting local government and the university to assist in solving problems for the Navy.
3. *Ensure that technology transfer is set up for success:* Many university systems are still set up only to provide incentives for research and publication. University technology transfer offices can be restructured to incentivize the commercialization of technology and intellectual property developed within the university. Faculty and students need the ability (and incentives) to license new technology or spin out a startup. University support systems such as proof-of-concept funds and on-campus incubators can also help provide the soft support needed to help faculty and students make the leap into entrepreneurship.

Tribal Communities. Across Indian Country, tribal communities are operating nation-owned enterprises and cultivating tribal citizen-owned businesses to prepare their people to access expanding job opportunities and build sustainable economies. In Arizona, I work closely with the Dineh Chamber of Commerce that provides a voice for Navajo-owned businesses, organizations, and governments doing business on the Navajo Nation. The work of the Dineh Chamber of Commerce creates opportunities that enable a successful business climate on the Navajo Nation.

Question 2. How can we expand entrepreneurial opportunities in Indian Country, and is there a roll for Congress to play?

Answer. Thank you so much for the question, Hon. Kyrsten Sinema.

At Elemental Excelerator, we advance solutions to climate change and work with communities who need them the most. Low median income communities are typically last to see the benefits of climate innovations and are even less likely to be asked to be part of the conversation in implementing solutions.

One of our projects working with indigenous communities was with SOURCE (formerly Zero Mass Water) where we worked with an indigenous majority-owned and -managed business called Waddi Springs to prove a new community scale water purchase agreement in drought-ridden Queensland, Australia. With our funding, SOURCE was able to deploy 600 hydropanels in the span of 4 months where a conventional water treatment plant would've taken at least a decade. This project has the capacity to produce 119,000 gallons of drinking water and displace approximately 748,000 plastic water bottles per year and also created new workforce opportunities for native Aboriginals in the area.

Regardless of where the project or community is located, we've found that the best way to engage and expand opportunities is to partner deeply with community leaders. We look to the leadership of collaborative organizations who work with local communities to establish sustainable practices for the stewardship of the land and ecosystems while growing economic opportunities. We admire organizations like Nia Tero, a global collaborative designed to directly advance indigenous peoples' and local communities' stewardship of vital ecosystems around the world, and Sealaska, a for-profit Alaska Native Regional Corporation with shareholders of primarily indigenous descent. We encourage Congress to find ways to support such organizations and give Native-owned businesses a voice, as the Dineh Chamber of Commerce has done in Arizona.