ALASKA STATE LEGISLATURE
SENATE LABOR AND COMMERCE STANDING COMMITTEE
February 16, 2017
1:31 p.m.

MEMBERS PRESENT

Senator Mia Costello, Chair
Senator Shelley Hughes, Vice Chair
Senator Kevin Meyer
Senator Gary Stevens
Senator Berta Gardner

MEMBERS ABSENT

All members present

COMMITTEE CALENDAR

INNOVATING ALASKA PRESENTATIONS:
INNOVATION IS EVERYBODY'S BUSINESS
INVENTIONS AND ECONOMIC OPPORTUNITIES
GLOBAL INNOVATION AWARD WINNERS – FIRST LEGO LEAGUE

- HEARD

PREVIOUS COMMITTEE ACTION

No previous action to record

WITNESS REGISTER

ROBERT TUCKER, President and Founder
The Innovation Resource
Santa Barbara, California
POSITION STATEMENT: Delivered a presentation titled "Innovation is Alaska's Business."

DANIEL M. WHITE, PhD
Vice President for Academic Affairs and Research
University of Alaska Fairbanks
Fairbanks, Alaska
POSITION STATEMENT: Delivered a presentation titled "Supporting Economic Development through Innovation."

NORA DENNISON and GWYNETH GEIGER, Students
Sand Lake Elementary School
Anchorage, Alaska
POSITION STATEMENT: Presented information on the First Lego League.

ACTION NARRATIVE

1:31:34 PM
CHAIR MIA COSTELLO called the Senate Labor and Commerce Standing Committee meeting to order at 1:31 p.m. Present at the call to order were Senators Stevens, Hughes, Meyer, Gardner, and Chair Costello. Senator Begich was also in the audience.

Innovating Alaska Presentations

1:32:05 PM
CHAIR COSTELLO announced the business today would be presentations on innovation in. The presenters are from the Innovation Summit going on in Juneau today. She welcomed Mr. Tucker.

Robert Tucker - Innovation is Everybody's Business

1:34:41 PM
ROBERT TUCKER, President and Founder, The Innovation Resource, delivered a presentation titled "Innovation is Alaska's Business." He shared his experience on a research vessel based out of Kodiak. He noted the connection between innovation and economic development. He listed three challenges going on with business today: 1) a lack of growth because business has slowed down; 2) differentiation - where workers are laid off because the company's product isn't differentiated from its competitors; and 3) disruption, such as an economic, technological, or demographic change which is often hidden from the public. He used the milk industry as an example. It is down 36 percent over the last 15 years due to people drinking non-dairy products.

He explained that his job as a researcher is to research the world's most innovative companies. He discovers what the companies are doing that is working, or not working, and then assists them to come up with a better process. He said a cookie cutter approach cannot be applied and it must be driven from the top. Successful companies are close to their customers and aware of their changing needs.

MR. TUCKER related that 15-20 years ago he was asked to speak on the power of innovation from various ministers of industry, such as Taiwan and Russia. He said that as he approached the project working with the Juneau Economic Development Council (JEDC); he did a lot of research on Alaska, and Juneau in particular. He said Alaska is at an economic and social crossroads that calls upon everyone, leadership especially, to make decisions in the best interest of the state. He said he finds Alaskans refreshing and genuine. They are pondering "the fork in the road" in an attempt to unleash a spirit of innovation.

1:43:33 PM
He continued to say that it all comes back to people's mindsets. If you're in the defeatist mode, you can't move forward. The sustainer mode can be a "been there done that" attitude. The dreamer mode is having ideas, but without an intention to act. But when we're in the opportunity mode we're coming up with ideas and are willing and ready to act.

1:45:18 PM
MR. TUCKER related that disruption can be seen in every area. He spoke to the forces disrupting bike businesses.

He said he interviewed the Alaska Glacier Seafood owners. They identified innovation as trying to do more with what they have. For example, they sell pet food byproduct that used to go back in the water.

He noted for most businesses the rate of change outside the company is much faster than the rate of innovation inside the company.

1:47:16 PM
MR. TUCKER defined innovation as a product, process, or strategy that creates new value for the customer, which, in turn, drives growth.

He showed results of CEOs' actions and what the CEO did to achieve very high returns. He provided an example where, previously, the company had no growth, so the CEO gave rewards for ideas and pioneered open innovation - he made innovation everyone's business. Everyone was deputized to work on innovation.

He used the ski industry as another example of an industry with challenges. When he looked at what the most innovative companies did to survive, he found that Whistler started to look for

summer activities. Another resort created a water park year-round. A Vermont resort started a conference business.

He said he spoke in Medellin, Colombia recently. Poverty and fear was rampant in the 1970s, but through the efforts of private/public partnerships and economic development, they began to question what was going on. He reviewed some of the innovations they came up with, including gondola transportation. Twenty-four years later, poverty and crime are down, and education and civic pride are up. In 2013, Medellin was named the world's most innovative city by the Urban Land Institute.

1:52:36 PM
He discussed other companies that took action during the recession of 2008-2009. Hyundai showed a sales increase during this period by asking different questions. That is often the key to engender innovative thinking. They asked why people aren't buying cars. It was because they thought they would lose their job next year. So, Hyundai gave a one-year, no-cost guarantee, that if the buyer lost his/her job in the next 12 months, he/she could return the car.

He made the point that by using and inspiring innovative thinking, businesses must do things differently in uncharted territory. He showed several Alaska examples of new businesses and re-thought businesses. Alaska needs to understand why young people aren't starting businesses and to figure out how to help more people start businesses.

1:56:43 PM
MR. TUCKER turned to Alaska's inflection point moment. He suggested to declare 2018 the year of innovation and to recognize and promote the state's innovation sector. He recommended helping small communities transition from resource-dependent to value-added enterprises and diversify Alaska's economy. He suggested partnering and collaborating with federal and state government entities and promoting education and lifelong learning - the essence of what we all do. Finally, he suggested partnering with and promoting millennial startups.

1:59:05 PM
CHAIR COSTELLO thanked Mr. Tucker.

SENATOR HUGHES said she shares Chair Costello's passion for the presentation. She asked Mr. Tucker for advice on several books related to millennial entrepreneurs. One book said we need to identify the kids that are the future innovators and to come up

with a way to assess those students and support them in middle and high school years. She asked Mr. Tucker if he has found any place that has done that.

MR. TUCKER replied it is important to help all students unleash their potential, although there are some that have a bent toward entrepreneurship. He said there are a lot of programs for budding engineers. He agreed with a need to encourage the business-minded, but noted that the arts have been shortchanged in the past few years. He stressed the importance of helping all children to understand that we all have different capacities and potentials. In the emerging world we need to merge tech and engineering with the people who are empathetic.

He pointed out that the tourist cluster is an area that Alaska can really expand - double or triple - because people are passionate about wildlife and natural surroundings.

2:04:58 PM
SENATOR MEYER commented on why people are afraid to fail. He stated that success is rewarded, and failures are stigmatized, which holds people back. He noted that elected officials are reminded frequently of the state's failures.

MR. TUCKER said that is a topic that comes up a lot in innovation. In Silicon Valley it is a badge of honor to fail. The millennials are very risk averse. They are suffering a post-adolescent identity crisis. He cited the Intuit Company that celebrates failure, as an example of changing that idea. People don't want to let colleagues down by failure and that needs to be made right. To be an innovative culture you need to have people who are willing to take a risk. Leaders need to understand and stand behind that. Maybe we need to think about the stigma of failure all the way back to school.

CHAIR COSTELLO asked the definition of "grit."

2:10:25 PM
MR. TUCKER said he looks at it as bravery and being willing to take a risk and meet a challenge. It's a great word to focus on.

He predicted that future Alaska generations will look back at the decisions made at this fork in the road. He expressed hope that the people and leaders in Alaska will take a different approach than is being taken nationally.

CHAIR COSTELLO thanked Mr. Tucker for the presentation. She said it has been informative and thought provoking.

2:12:25 PM
At ease

University of Alaska - Inventions and Economic Opportunities

2:17:52 PM
CHAIR COSTELLO reconvened the meeting and welcomed Mr. White.

2:18:29 PM
DANIEL M. WHITE, PhD, Vice President for Academic Affairs and Research, University of Alaska Fairbanks, delivered a presentation titled "Supporting Economic Development through Innovation." He said the University of Alaska is a resource for economic development. Six years ago, the university started 12 new companies. This was a major transformation that made innovation everybody's interest. These products are now bearing fruit. In 2015 UAF licensed 51 intellectual properties to companies in Alaska. He cited an example of a start-up in the U.S. due to a research university; Silicon Valley and Stanford University. He stated that Alaska also has that opportunity.

2:21:45 PM
SENATOR GARDNER asked what happened to start this transformation six or eight years ago.

DR. WHITE responded that it was a number of things: leadership changes at UAF and UAA, and having real-world problems to solve and commercialize. The big gap at the university was to get the ideas into something somebody could buy, or into a company that could make the product. He cited Gatorade as an example.

2:25:01 PM
DR. WHITE related that UA does about $110 million in research, a great investment for the state. The state allocation for research is about $25 million which is leveraged with research grants to add up to $110 million. Referring to Senator Hughes' previous comment, he said there is a startup company in Fairbanks that develops and uses unmanned aircraft. Several companies are benefiting from this research.

He discussed how UA research leads to new inventions. For example, UAF is addressing energy issues for all of Alaska. In research efforts to develop new energy sources, the university invented a new way to measure fuel more accurately.

2:28:33 PM
He said that UA research leads to new inventions. UAF research has produced new software to detect mineral seams and analyze aerial surveying data. They are studying hibernation for human applications. The new digital elevation map is leading to products for mining engineers.

2:31:16 PM
DR. WHITE discussed the benefits of commercialization. The inventors at the universities receive royalties from their inventions. There also are benefits to the economy and to the consumers.

2:32:17 PM
He described the Innovation Cycle. The need is identified first, followed by UA research, the invention disclosure, technology assessment, IP protection, marketing, licensing, and industry growth.

2:34:08 PM
He addressed the Office of Intellectual Property and Commercialization. It identifies and protects intellectual property of university innovators. It supports economic opportunity through licensing UAF technologies and faculty-led startup companies.

He showed a diagram of the UAF inventor-process. First the inventor talks to an attorney at the Office of Intellectual Property (OIPC) looking for a supporting organization or business, preferably a non-profit. He provided an example of Nanook Tech Ventures, which is a for-profit company and a startup company results.

2:36:08 PM
DR. WHITE provided examples of new technologies for Alaska and the world due to research.

2:36:42 PM
He listed UAF-led startup companies.

He displayed pictures of talented innovators, Dr. Rajive Ganguli and Mr. Jeff Rothman.

2:38:44 PM
He described methods of investing in Alaska's future: bringing business and engineering students together on specific projects,

and supporting student innovators and technologies that are being developed in new university laboratories and centers.

2:39:04 PM
He showed the first startup company from UAF - V-ADAPT, INC. Several companies based on UAF intellectual property are launching startups to build new technology under SBIR and STTR grants in Alaska. Faculty have moved to Fairbanks due to the unique startup opportunities. UAA has a similar structure. The two universities are working with their business ecosystems to try to get as much intellectual property into the hands of businesses as possible.

2:40:49 PM
DR. WHITE explained the function of UAA ORGS. Faculty, staff and students submit invention disclosures to ORGS. If they are selected, the invention moves to the patent process. A decision is made to license the patent, or form a startup company, then the new technology is commercialized. ORGS provide incentives for innovation through awards and the Patent Wall of Fame.

He described UAA patent portfolio and startups. There has been an increase in patent application filings and over 75 percent of provisional filings have evolved into non-provisional patent filings. There have been 8 patents issues since FY11 and UAA had the first four startups.

2:42:35 PM
He described the Seawolf Holdings, LLC, the company that holds the intellectual properties. Rhizoform, LLC, was named one of the top 36 best university startups by the National Council of Entrepreneurial Tech Tranfer. It makes biomaterial for insulation and packaging. CFT Solutions, LLC, is an innovative Alaska company that removes snow and ice by using carbon filter tapes. Cogniceutic Solutions, LLC, uses nutritional therapy to improve memory loss. Zensor is a wireless sensor product for remote monitoring, system management, climate change, surveillance, and security.

2:44:25 PM
DR. WHITE concluded that Alaska needs business mentors, investment capital, and confidence to innovate.

2:45:40 PM
CHAIR COSTELLO thanked Dr. White.

SENATOR HUGHES asked where the money comes from for non-provisional patents and whether the university is having regular conversations with industry about what it needs.

DR. WHITE said the cost to patent varies, but they always look for the licensee to pay some of those fees. Most companies want involvement before the product is patented because they want the claims that fit their company.

He said they have regular conversations with industry to find out what their needs are. He cited oil, and seafood processing as examples.

2:51:01 PM
SENATOR STEVENS commented that the university community knows what you're doing, but the rest of the state doesn't. He liked the idea of celebrating research successes. He asked how many people do pure research.

DR. WHITE explained that faculty have different appointments and categories. There are innovators across the spectrum and the university has tried to identify the "early adopters." He added that 90 percent of the research is done at Fairbanks. At Anchorage there is a lot of promising research in the area of bio-medical technologies.

SENATOR STEVENS asked what he is doing to let Alaska know what is happening at the university with respect to research.

DR. WHITE said the Innovation Summit celebration last night will help. He said he is also a Co-Chair of the State Committee on Research, which has identified informing Alaska about research innovators and other Alaska innovators as a priority.

2:57:01 PM
SENATOR GARDNER mentioned the $25 million that is leveraged into $110 million. She asked if it is a problem that some researchers take their grants outside of Alaska.

DR. WHITE responded that it is a big concern because faculty that leave generally takes their grants with them. Alaska's financial challenges have an impact on that issue. Also, outside research universities have Arctic Research programs and are looking to Alaska for faculty. Chancellor Johnsen recently addressed that issue and said the university must do more to support faculty and keep them in Alaska.

CHAIR COSTELLO thanked Dr. White for the enlightening presentation.

2:59:55 PM
At ease

Global Innovation Award Winners – First Lego League

3:07:22 PM
CHAIR COSTELLO reconvened the meeting and welcomed Nora and Gwyneth from the Sand Lake Elementary School. She described the First Lego League competition.

3:09:26 PM
NORA DENNISON and GWYNETH GEIGER, Students, Sand Lake Elementary School, presented information on the First Lego League. Ms. Dennison said they would explain how the "HotDog" Collar would work.

The girls continued with their presentation:

> They first invited guest speakers and then came up with 70 different project ideas. Then, they voted on which project to take on and solve.
>
> The problem was that each year thousands of dogs suffer injuries and die from the heat and cold. Most dangerous is when they die in cars.
>
> Many people run errands with their dogs. Most stores don't allow pets.
>
> Pet owners underestimate how dangerous leaving a dog in a car can be. Even cracked car windows can be dangerous. A dog's normal temperature is 102.5 degrees Fahrenheit and at 104 degrees they are in danger.
>
> On a 75-degree day in just 10 minutes the temperature in a car can rise to 94 degrees. In 30 minutes it can be 109 degrees.
>
> People underestimate the amount of time errands take.
>
> In a hot car dogs can show signs of heat exhaustion. Heat exhaustion can lead to heat stroke and eventually death.

Symptoms of heat exhaustion in dogs are: heavy panting, excessive drooling, a rise in the body temperature, and an increased heart rate.

The collar will measure the dog's temperature using prongs that touch the dog's skin so when the temperature hits a dangerous level it will send an alert to your cell phone. There are several collars that we found recently that measure ambient air temperature, but ours would measure the dog's body temperature.

The other collars have a limited range of 1,000 feet and don't work in cars.

The collar would also work in cold temperatures alerting you on the dog getting too cold.

3:12:58 PM
MISS GEIGER presented the "HotDog Collar" features. It monitors the dog's body temperature using probes that contact the skin under their fur. It sends text alerts to the owner's phone if the dog's body temperature gets too hot or too cold. If there is no internet connection, the collar itself will make a sound. It is waterproof. There are different sized collars for small dogs and large dogs. It has internet/data connections, wireless battery charging, and comes in different color options.

3:13:30 PM
MISS DENNISON showed a HotDog prototype. She said the cost would be around $50 to $60 and there could be a GPS tracker in case the dog ran away.

3:14:07 PM
CHAIR COSTELLO thanked the presenters. She asked if they plan to take their idea to the commercial market and how.

MISS DENNISON said they might get a grant to take it to the commercial market, but her dad might make it on his 3-D printer.

SENATOR GARDNER asked if they had thought about adding their invention to an existing collar that pages the dog.

MISS DENNISON said no, but thought they could add it.

CHAIR COSTELLO thanked the presenters and their Lego Robotic coaches. She asked how many teams the school has.

MISS DENNISION said two.

3:16:32 PM
SENATOR HUGHES asked if they could turn on the HotDog Collar.

MISS GEIGER said yes, but the robot is designed to run on a specific table.

CHAIR COSTELLO asked how they get to choose their missions and earn points.

MISS GEIGER explained how they construct the robot and the importance of having it be fast.

CHAIR COSTELLO asked how many of the missions the robot has completed.

MISS GEIGER explained that there are many missions in one robot and they completed about half of them.

CHAIR COSTELLO thanked the presenters and wished their team luck.

3:18:28 PM
There being no further business to come before the committee, Chair Costello adjourned the Senate Labor and Commerce Standing Committee meeting at 3:18 p.m.