

Innovations Radio Show

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Guests: **Bob Conner**, Bob Conner, executive director, Oklahoma Aerospace Institute; **Joel Martin**, associate vice president of Commerce Information and Venture Opportunities (CIVO), University of Oklahoma Office of Technology Development; **Saul “Sonny” Barr**, senior aerospace economist, Barr Group Aerospace; **Mike Jackson**, Oklahoma House of Representatives

[Music]

>> From the OCAST Radio Network, this is Oklahoma Innovations, a weekly science and technology radio magazine brought to you as a service of OCAST, the Oklahoma Center for the Advancement of Science and Technology. OCAST is the state’s only agency whose sole focus is technology, its development, transfer, and commercialization. OCAST mission is to identify and fund promising research in technologies that allow Oklahoma to compete in a global market economy from our own backyard. This program features some of the state’s most gifted and talented scientists, inventors, entrepreneurs, manufacturers, and business leaders who all have one common goal, developing technology-based economic growth for all Oklahomans. Now here are your hosts, Gary Owen and Steve Paris.

>> Gary and Steve on the road once again and this time we’re coming to you from Tulsa, Oklahoma. Steve, you know, I love aerospace, you love airplanes and here’s a diverse industry, aerospace in Oklahoma. More than 300 aerospace companies that make their home or base major operations in our state. What blows my mind, I didn’t know this, 143,000.

>> Yeah, employees in the state of Oklahoma.

>> Yeah and when you look at that, it’s about 4.7 billion dollar payroll?

>> Yes, that’s exactly right, Gary, if anybody thinks aviation and aerospace isn’t an important part of the Oklahoma economy, they just don’t understand. And it comes to us from many different areas, many different facets. A large part of that comes from military service.

>> Yes it does.

>> From the Air Logistics Center at Tinker Air Force Base. Of course you got Altus Air Force Base and Vance Air Force Base. In addition to the private sector and the general aviation and commercial aviation aspects of it, there’s just a lot of people in Oklahoma who make their living off aviation and aerospace and a good spokesman for that group is our next guest is Bob Conner who’s been on the show before. Bob is the executive director of the Oklahoma Aerospace Institute.

>> And let’s mention why we’re here. We’re at the Oklahoma Aerospace Summit and Expo. It’s being held at the Crown Plaza Hotel in downtown Tulsa. And it’s put on by the Oklahoma Aerospace Alliance.

>> That’s exactly right and of course, Bob being with the Oklahoma Aerospace Institute is very much involved with the planning and overseeing this whole program. And we’re gonna talk about the purpose of it in just a minute. Let me continue with this explanation. Many people in Oklahoma know this, but just in case you don’t, he is the former executive director of the Oklahoma Air logistic Center at Tinker Air Force Base. And as such was the number one public

sector employee attached to the air force there and did a tremendous job while he was there. And I've forgotten how many years Bob, you were there, but I know it was illustrious career.

>> I was there 15 or 16 years.

>> There you go.

>> So, yeah.

>> And of course that's one of the biggest employers in the state of Oklahoma and lot of cars head toward Tinker Air Force Base every morning--from Monday through Friday. And I know that a lot of activity also happens on weekends out there. So you've got a real strong background in aerospace and aviation. Let's talk about this expo. This is where everybody comes together and this is the eighth one that's been held. Give us kind of an overarching view from right up there in space and what this is all about.

>> Well it actually started in the Rose State College gymnasium eight years ago.

>> There you go.

>> And it was really all about Tinker Air Force Base when we first started this. That was the genesis of the summit and expo. But over the years, it's grown tremendously. This is the first year that we've had the summit and expo in Tulsa. In past years, we've done it in Oklahoma City and we're really trying to reach out to the whole industry in the state. I mean we've got this commercial cluster in Tulsa with American Airlines and NORDAM, Spirit AeroSystems, Flight Safety, on and on, you can name the companies. There are some great companies here that work in aerospace and then to cluster down in Oklahoma City really more about the Air Logistics Center Tinker Air Force Base, Boeing, et cetera, Lockheed Martin, Pratt & Whitney, you can name all the companies.

>> Exactly.

>> So we got these two clusters that are very, very important in the state and we're trying to bring that together if you're at the Aerospace Summit.

>> Because this is gonna be a part of our economy far into the future. And this is an area where again you get everybody talking to one another and only good things can happen, right.

>> That's right, yeah. We've got a common interest. I mean this industry is really based on maintenance repair and overhaul of aircraft, spare parts manufacturing, supply chain management, engineering, and those kinds of skills in those areas are really common across the defense and commercial industry clusters that we have in the state. So I think it's very important for us to try to build on that, grow in the future, and all work together as one team.

>> Yeah, you know, I don't think it would be wise to say that this industry is recession proof. However, we do have so many facets of it in Oklahoma that while one area may be down at different times of the economic cycle, the other area seem to be growing and having great needs out there for more technology for employees. And of course, you know, we'd remised if we didn't talk about what's happening to our neighbors in the north of Kansas. Just this week it was announced that a huge layoff with Cessna Aircraft and we, you know, we don't want bad things to happen to our neighbors either but you know, it's kind of an indication of what happens when you work to diversify your economy. And that's pretty much happened just not by accident but just the way the aerospace industry is designed in Oklahoma, is it not?

>> Yeah I think you're absolutely right. Of course the business jet part of the aerospace industry is really depressed right now, hard hit by the economic downturn last year or so, and I think that's what really has driven that layoff which you mentioned up in Kansas. But in Oklahoma we do have diversity in our industry. We have defense, we have commercial aviation, general aviation, all of those are components of the industry here in the state. And although I agree with you, we're not recession proof, Oklahoma has actually become really a magnet for new work in a lot of ways. We've heard about some of the great things that are happening in American Airlines and of course we got the Tinker Aerospace complex project going on at Oklahoma City. The former General Motors plant there. And so we have lots of plans to bring attract new workload to our state. And there's a whole growing area now of unmanned aircraft systems that's very important and so an emerging new part of the aerospace industry and I think Oklahoma is well positioned to become a major player in that as well.

>> That's exactly right. Let's talk about for just a minute your organization, the Oklahoma Aerospace Institute, you have kind of a four pronged approach and a lot of leadership in Oklahoma is involved in what you're doing. I'm gonna let you explain that, the four different areas and who's involved and what you're doing if you would please.

>> Well, we are first of all a program of the state. We're under the Oklahoma Aeronautics Commission. The Aeronautics Commission has partnered with University of Oklahoma, Oklahoma State University, and the Oklahoma Department of Commerce to create this Oklahoma Aerospace Institute. And we are working in a number of areas.

>> Right.

>> We have a big focus now on workforce education and training. The former leader of the Boeing office here in Oklahoma City, Ben Robinson, and before that a retired Brigadier General of United States Air Force has come to work with the Aerospace Institute. He's kind of leading that area of workforce. And so we've got some things going on there that I think are gonna bear fruit for the industry. We're involved with research and technology, James Grimsley, out of Norman, has been on your program I know before.

>> Oh yeah, and James is a tremendous talent.

>> Tremendous talent, and so he is helping us try to focus a little bit on what the research and technology needs are for the aerospace industry. And then we got Tom O'Neil, former COO of Department of Commerce, who is working with us as well, and he's leading an aerospace strategy study for the state--economic development strategy study. So those are kind of the things that we're involved in today. We're just a startup organization. We were reauthorized if you will by the legislature last year, having started last November, and have started operations. So we're still growing.

>> You know, since you're an engineer, we wanna talk about engineering right now and how Oklahoma is trying to attract more engineers. That's really a challenge for us especially in the aerospace industry. And some things happened last year, some legislation was passed, tell us a little bit about that, how's it going down?

>> Well first of all, let me set the record straight. You have flattered me, I am not engineer. Actually my undergraduate degree is in mathematics.

>> Mathematics, forgive me.

>> But you know I'm flattered to be called an engineer. Most, some of my best friends are engineers, but last year the state government--the state legislature and really the Aeronautics Commission, Victor Bird the Director of the Aeronautics Commission had a big role in this--passed some legislation which provides--I'm sorry.

>> He's gotta clear his voice here. I know how that goes sometimes, Steve.

>> Yeah, I do that all the time. I have allergies. What you're talking about of course is the Engineer Workforce Bill, the Aerospace Industry Engineer Workforce Bill which gives tax credit of 5,000 dollars per year for up to five years for engineers who come into this industry.

>> Right, and it's new engineers tax credit of 5,000 per year up to 5 years. So that's pretty important for a person coming out of school and going into engineering. It also provides tax credits for the company that's hiring these people.

>> Right, 10 percent.

>> Ten percent if it's a person that's graduated from an Oklahoma University, if it's out of state, five percent. And then also provides reimbursement for tuition for companies, up to 50 percent of the tuition for companies who are willing to send their employees to school and pay their tuition.

>> Some nice incentives there.

>> Some great incentives, I think it's already bearing fruit. We are already seeing the results of that new legislation. And it's a first in the nation. We've got a lot of other states who are trying to look at us now and saying "maybe this is something we wanna do as well."

>> Yeah, Gary was telling me before the show that Oklahoma City is listed like it's the number one most recession proof.

>> Number two.

>> Number two most recession proof city in the nation, Tulsa is number nine. And a lot of that has to do with because we're number one in some of the things like you're talking about.

>> Right.

>> And coming up with these ideas and these leadership plans and so, I think it's a credit to the leadership of the state of Oklahoma. Bob, we're down to two minutes and there is just so much going on here at this expo, and you've kind of given an overarching, you know, concept of what we're trying to accomplish here. Let's look down the road a little bit. Let's go maybe even a few years out even. What do you see this becoming? Describe the Oklahoma aerospace industry of the future.

>> Well, I would say a couple of things. First of all, I believe there is a real opportunity, a continuing opportunity for growth in the aerospace industry in our state. We have solid foundation, we have good support from our leadership, we have some advantages in Oklahoma. If we can get people to come here, they love the state, it's a great place to live. I can tell you that from personal experience. And we have that kind of enthusiasm and great ideas that come out of the people here. So I think there is an opportunity for growth in the industry. I think the biggest challenge that we're gonna have is to find a workforce to do the job. And so that's where we really need to stay focused on in growing that next generation of aerospace leaders for Oklahoma.

>> We're coming to you from the eighth annual Oklahoma Aerospace Summit and Expo at the Crown Plaza Hotel in downtown Tulsa. We have a lot more guests to bring to you on this program and I think you're gonna find it very interesting--what's going on in our great state of Oklahoma. More to come on Oklahoma Innovations.

[Music]

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[Music]

>> We are coming to you from the Oklahoma Aerospace Summit and Expo. This is the eighth annual, it's being held in Tulsa this year and we're talking to a variety of guests who are attending, Steve.

>> That's exactly right, Gary. There is nothing better than having a native Oklahoman come back to us out of a career with the United States Air Force and we're talking about US Colonel Joel D. Martin, USAF retired United States Air Force, and he is back at the University of Oklahoma where he is doing some tremendous work we're gonna hear about in just a minute. One of the good things that we want to tell you about Joel though is the fact that his area of expertise right now is unmanned aerial vehicles. You're going to hear more and more and more about unmanned aerial vehicles and Oklahoma is trying to carve its own niche in this area but before we get into that Joel, we need to hear more about you, where you've been and what you've been doing. You're a meteorologist, you've got all kinds of background here.

>> Well thanks, thanks Gary and Steve for having me on the program. I hear you a lot and now it's great to be able to participate.

>> Thank you.

>> The route that I got back here was pretty circuitous. I had 26 years in the air force but I grew up in Cordell, Oklahoma and had gone through the eighth grade and--

>> Washita County.

>> Yeah, in Washita County and then Shawnee was my high school.

>> Yeah, Pott County.

>> A couple of years at Cameron College with basketball team down there. In fact the last time I was really on radio seriously, I was into the pre-games for the Cameron Aggies and getting that going and--

>> And of course this show is being aired at Cameron University too.

>> Yeah.

>> So they're gonna hear about you, you know, one of their former heroes here.

>> I was there with Red Miller's basketball teams in those days.

>> Wow.

>> And then back home after going to OU for my academic part and got in the Air Force ROTC program and meteorology program at OU, and that led the way, chasing tornadoes there in the '70s and I graduated to hurricanes in the Air Force so I was a hurricane hunter for a few years and that's what led to the interest in unmanned aerial systems. Toward the end of my career, we were replacing manned aircraft with unmanned in the pacific to fly typhoons.

>> Typhoons.

>> Typhoons.

>> And how different are they than hurricanes?

>> Well, there's a lot more of them. We averaged anywhere from nine to ten in the Atlantic that threaten our coast. But out there's an average of about 35 named storms a year.

>> Wow!

>> A lot more water to grow over so they tend to be more intense. And they can do a lot of damage and wreck shipping and wreck planning out there and very sensitive for the military for many years out there. So that's, how my specialty became hurricanes and typhoons. I got a graduate degree at Colorado State and retired from the Air Force in 2003. I was in Hawaii, somebody had to go out there and do that job [simultaneous talking].

>> Unmanned aircraft is becoming big business in the military. We, Steve and I, just recently did a show at Fort Sill and of course you hear a lot about it now on the news, how more applications are being used. Let's talk about what's happening in Oklahoma with unmanned aircraft.

>> Well, Oklahoma really has a lot of the pieces, Gary, to go forward with unmanned aircraft. And I usually use the term unmanned aerial systems rather than the vehicle. The vehicle, the UAV or unmanned aerial vehicle is just the platform in the sky. But when you're talking unmanned aerial systems, you're talking about everything on the ground that has to support it. All of the communications, equipment, all of the decision making and there's still pilots for unmanned aerial systems.

>> It's amazing what we have.

>> We have to train the operators.

>> But they just stay on the ground and still operate the aircraft.

>> In an air conditioned cool room with a lot of computers for it.

>> And it turns out that Oklahoma has some of the best flying schools or aviation school. University of Oklahoma, for example, is extremely good and there's a lot of capacity we have that could help support this unmanned aerial systems operator need that the military and the government has. We have other components here in Oklahoma. We do a lot of the flight standards work out of the FAA and also Air Force Flight Standards Agency in Oklahoma City. So we have a lot of components and I could see it growing into maintenance, repair and overhaul of unmanned systems the same way we do with manned systems in Oklahoma City and Tulsa.

>> Yup, because they don't fly forever, do they?

>> They don't fly forever.

>> They do have to be repaired.

>> And we are certainly seeing that there may be a secondary use for the Oklahoma spaceport out of Burns Flat and that facility could also do a lot with unmanned systems. And I think outside of Oklahoma space industry, the development authority is definitely looking at that track if there are some things [simultaneous talking].

>> And of course you're talking about I think a 15 or 18,000 foot runway out there.

>> It's among the top ten. I think maybe the top five in the world on length. It's over three miles long.

>> Over three miles and it's an alternate landing spot for the space shuttle in case of emergency. And growing up in Cordell I used to listen to the B52's running their engines at night.

>> Oh yeah, yeah.

>> It goes full circle now.

>> I guess another thing for unmanned aircraft too is the terrain that Oklahoma provides.

>> Yes.

>> Because it's so diversified and it simulates some of the things for example in the Middle East and other parts of the world.

>> Yes, and then there are some other hidden things too with that terrain. We also have some tremendous expertise in weather radar, of course, at the University of Oklahoma, and it turns out that maybe the key piece for flying these in the aerospace. In fact we have seen estimates that this is 25 to 50 billion dollar a year industry for the nation if we can unlock out of flying unmanned aerial systems in our aerospace. Well, it turns out that radar may be the key piece and you don't have a pilot on board so you have to sense the environment they're flying in so they're very weather sensitive and you have to make decisions about the unmanned systems that way.

>> So there's a bright future for unmanned aerial systems in the state of Oklahoma. Now you're filing up a part of a campus down at OU in Norman and a lot of it is we're down to just a short time but a lot of it has to do of course with aerospace if not all of it. And I don't know how many people you have working there. You got have an idea, rough idea of how many we have down there now?

>> Right Steve, we're well over 200--about 250 industry people there. Of course we have a lot of government folks and I think we're on our 15th or 16th business. Really wanna invite you two, Gary and Steve [simultaneous talking].

>> We're gonna do that.

>> We'll come down to the show, you bet.

>> We will do that.

>> --visit with some of our folks down there.

>> Love to do that, that's a tremendous group of talent. It's an opportunity for the state of Oklahoma to have that in that location too because it right in the central part of the state.

>> A central location really plays well in these kinds of projects.

>> Yeah, exactly. Joel Martin has been our guest. He is associate vice president of commerce, information and venture opportunities at the University of Oklahoma and just one of many people we've had a chance to visit with here at the Oklahoma Aerospace Summit and Expo in Tulsa put on by the Oklahoma Aerospace Alliance. We got a lot more to talk about from this wonderful conference and if you like aerospace and are interested in the industry, you're gonna find out more about it right here on this program. So stick around, a lot more to come from Tulsa on Oklahoma Innovations.

>> This is Oklahoma Innovations on the OCAST Radio Network.

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[Music]

>> Aerospace is Oklahoma's largest industrial sector when you include military, commercial, air transport, general aviation, space and some interesting statistics that we've learned since Steve and I have been here at the eighth annual Oklahoma Aerospace Summit and Expo in Tulsa. That aerospace accounts for more than 12 billion dollars of Oklahoma's industrial output. And aerospace also accounts for nearly 80 million dollars in income tax revenue to the state. That's substantial figures there, Steve.

>> Those are Gary and you know we have a gentleman here with us today who has presented at this expo. It's Dr. Saul "Sonny" Barr. He is the senior economist from the National Center for Aerospace Leadership and he's also written the aerospace manufacturer report and being an economist he's gonna bring some facts and figures of information to us today that I think may be very surprising because it's going to and in some ways attack some of the what we consider general wisdom that maybe not be wisdom at all as far as the facts and figures go on aerospace. Dr. Barr, welcome to Oklahoma Innovations and welcome to Oklahoma.

>> Well it's good to be here.

>> Now let's give a little bit of your history. You used to do some work here in Oklahoma at one time for a Goodyear plant that was located in Lawton, Oklahoma.

>> Yeah I was here actually when they did the original planning for moving here to Oklahoma and created, which was at the time, the most modern and efficient plant in the world.

>> There you go. And, now you've taught at the University of Connecticut, there were colleges and several other universities including the University of Tennessee. So you have a pretty good background in economy.

>> Right, well and I enjoy it; it is fun to me.

>> Okay. Well let's get back to the expo. You addressed some of the folks here today and you told them some of the facts and figures about Oklahoma--some of the things I've not heard before about where Oklahoma stands relative to the rest of the nation and maybe the rest of the world in our position in manufacturing related to aerospace and aviation.

>> Well, yeah, the aerospace industry in Oklahoma has been a larger and larger part of your overall success as a state you know and you know that but--

>> Yes, we do.

>> What's interesting is the fact that aerospace is the only industry that has a trade surplus, the only manufacturing sector that has a trade surplus. So we are more efficient overall and the question on my report was, you know where is it gonna be in ten years from now, is manufacturing in aerospace gonna go the same way as autos and refrigerators and all the rest of it made in China or India or somewhere else, so this report was done to research the future of the aerospace manufacturing world. Well, I guess that begs the next question, are we gonna go the way of the automobile industry and others are? Is there a brighter future in Oklahoma for aerospace manufacturing?

>> Well Oklahoma, just re--not directly answering that but you know as we all know, the entire economy fell off a cliff in September '08 and actually manufacturing in this region fell by nearly 40 percent.

>> Right. Major drop. Major drop.

>> Yeah, the previous month. And over the past few months there's been tremendous recovery. A matter of fact, manufacturing in June should be almost back to where it was in, you know, in terms of no drop the previous months. So we've gone through that cycle of climbing out of it. Now aerospace in Oklahoma is about 20 percent total production higher than it was probably eight years ago, so it's growing the rate of and it didn't really get the same hit that manufacturing did. Of course a lot of that has to do with defense contracting.

>> Sure.

>> Defense makes up half of the national aerospace market and so that built in some stability into the trends.

>> Yeah, it lends itself to the fact that we all know that when you have a facility such as the Air Logistics Center at Tinker Air force Base, of course we also have Vance Air Force Base in Enid and Altus Air Force Base in Altus in southwestern Oklahoma, those all play a major role in adding to our economy.

>> Right. And stabilizing the shift.

>> Yeah.

>> But the commercial end is actually as large a part as it is with the government's side and of course you know American Airlines has the biggest MRO facility in the world here in Tulsa.

>> Here in Tulsa, you're absolutely correct. Well as you talk to the folks who are attending this expo and I know they've asked you probably the same types of questions that I'm asking. Talk about our future, are we gonna be okay?

>> I think it's gonna be a lot brighter than what people are forecasting, even Boeing and Embry Air, Bombardier, all the major OEMs and primes that are forecasting a long-term period of recovery and a slowing of revenue and cargo and transport. I don't agree and I think probably it's because we're not really looking at what it is that drives the industry correctly. For example, what drives the industry more than anything else is the cost of fuel.

>> Exactly.

>> And fuel makes up 36 percent of the cost of flying a commercial airplane, the crew is only 12.

>> 12 percent.

>> That's three times. MRO is only ten. So the crew and repair is 22, the fuel is 36. So you can see the most important component is fuel.

>> Yeah.

>> And so that means the technology and the improvement in the airframes, manufacturing new and better products are extremely important and I want to mention one more thing. In our study we found that national consumption of aircraft--jet fuel in the last seven years has not increased. But yet we've increased tremendously our travel.

>> So we are getting more efficient.

>> We are extremely--right, we're improving the configuration of the aircraft, the space, you know the number of seats that are actually occupied during the trip.

>> What's your engine efficiency?

>> Engine efficiency.

>> Better aerodynamics.

>> Better aerodynamics, all of that has made tremendous improvements, however, it has a long way to go.

>> Yeah, well.

>> Now you've made some comments about the regional air transport before we got you on the air that you said that was kind of going away.

>> Yes, I believe it is. Of course, you know I'm only a forecaster, you know and they said we want a one-armed economist 'cause they always say on this hand we get this, on the other hand--

[Laughter]

>> But the point is that we move towards what's more efficient. And when crew and maintenance was more extensive than fuel, then regional airplane was more advantageous to a larger airplane. Now we find that in our study of every airframe that's actually out there today flying commercially, the larger planes going to longer distances are more efficient and some frames get as much as 200 miles per gallon per passenger fully loaded with a full passenger contingent going increasing altitude increasing speed. Other--with some regional planes, they're as bad as 20 miles a gallon.

>> Ouch.

>> So you can see that, you know, regional airports and trains go 600 miles per passenger gallon, gallon of fuel on a train, commuter trains 600 miles. So for shorter distances, trains make more sense in my opinion, no offense. Those of you that are in that regional business, I'm sorry, but efficiency is efficiency and so the trends will turn. And Oklahoma needs to think about expansion of airports, air facilities that serve a national and global market because we're housing globally, you know for global transport and so on 'cause that's the future.

>> Very good. So when my friends tell me that it's cheaper to take the van on a long trip maybe two-thirds of the way across the country, it's more efficient and less expensive, that's really not the case, is it?

>> No, we better load them all up in a triple seven and [laughter] per passenger mile.

>> Per passenger mile, right. There you go.

>> Of course when you've got the time factor compared to driving too.

>> Well and that's part of the efficiency.

>> And the opportunity cause.

>> They burn a lot of fuel these airplanes but they carry a lot of people in long distance. So you may burn 300 gallons an hour but you've moved 400 people.

>> There you go.

- >> A couple of hundred miles, you know what I mean, so.
- >> It sounds like from the, from your stand point is an economist, that the future aviation is a lot brighter than maybe some other people might think.
- >> Oh, I think so. I think, like the rivers became the transportation system for the country and all towns grew up on river beds then now we're on interstate highway systems.
- >> Right.
- >> The future of America is gonna be built around air hubs and air transportation systems and railways that connect to those long term, those long distance hauling hubs like Oklahoma City airport, Tulsa airport and other places.
- >> What these means, Gary, is about ten years from now we're gonna look back and remember this, this program and say, okay, there's not as much regional traffic, regional air traffic as there was back ten years ago.
- >> Right.
- >> There's more long distance.
- >> Right.
- >> More efficient aircraft carry more people probably and at a time and those are some of the changes that we can expect to see.
- >> If you don't mind me interrupting you. I had job with Raytheon back in '92 and they were researching flats, flat panel displays which people were predicting could only be cost efficient in a fighter jet because they're horribly expensive. My report said that I thought that have kiosk. You saw the summit session today with, we have flat panel displays out on the highways, now. This changed the whole world.
- >> Yes, it has.
- >> But just like flat panel displays have changed advertising, marketing and sales, so will air travel evolve in our future.
- >> Very good, this is fascinating story to tell.
- >> Okay.
- >> And you came all the way--now your home now is where?
- >> I live in Gulf Shores, Alabama. I decided that I would live on the coast.
- >> Okay.
- >> So this is as far inland as I've been in a long time.
- >> Taking a little getting used to.
- >> But I've noticed you have a lot of lakes around here and I'm happy about that.
- >> We do. We're blessed with lakes in Oklahoma.
- >> We've got to take a break, gentlemen. Once again thank you Sonny Barr, senior aerospace economist and owner of the Barr Group Aerospace and we're delighted to have them on the show from Gulf Shores, Alabama. We'll take a break, we'll be back on Oklahoma Innovations.

[Music]

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>> When people think about science and technology, they imagine the future. Although researchers are developing the technology and treatments of tomorrow, results can be seen today. An investment in OCAST yields immediate return to our state through increased salaries, higher productivity, and a diversified economy. Oklahoma is an emerging global leader in science, technology, research and development with the workforce that continues to improve both in incomes and education levels. Oklahoma can achieve a dynamic economy with the culture of innovation and new opportunities that attract and retain bright creative people. Creating opportunities, improving the economy, and investing in our future, that's what OCAST is all about. For more information, call OCAST toll free at 866-265-2215. Or visit our website at ocast.ok.gov. An investment in OCAST is an investment in Oklahoma for today and tomorrow.

[Music]

>> This is our final segment coming to you from the eighth annual Oklahoma Aerospace Summit and Expo at the Crown Plaza Hotel in downtown Tulsa. By the time you hear this program, obviously, the expo will have already been over with. It was actually June 15th to the 18th and the purpose of this summit outside of having a lot of speakers is to, all of these speakers and people who have been here are addressing today's challenges and opportunities and providing how-to sessions targeting skills, tools and resources that Oklahoma aerospace companies need to advance their businesses and we've been talking to a few of those individuals and now Steve, we have a state representative with us.

>> We have a very special guest with us today, Oklahoma State Representative Mike Jackson from Enid, Oklahoma. Representative Jackson is very much involved in aviation.

>> Sure I am.

>> Virtually, yes he is and we're gonna talk about that in just a minute and he is addressing the group today but before we go into that. Let me just point out, he has been a member of the House of Representatives since 2004 and he serves on the following committees: energy, general government transportation rules and the big one, appropriations. Everybody wants to be on the appropriation.

>> They sure do.

>> And you've been on there and have done a tremendous job. So let's talk a little bit today about, I mean why is a state representative from Enid Oklahoma, of course you've got Vance Air Force Base.

>> Sure.

>> Why are you so interested in aviation and aerospace?

>> Well actually I served two years as the chairman of the Aerospace Committee in the House of Representatives. And while I was doing that I was able to actually create a very good relationship with OCAST and with the Michael Carolina, the executive director.

>> Yeah, sure.

>> We are able to discuss a lot of things that OCAST does and of course you mentioned Vance Air Force Base. That's one of the first reasons why I got involved. I also worked for three years for US Senator Jim Inhofe who of course is a very strong aviator.

>> He's a pilot.

>> He's a pilot.

>> You bet.

>> He flies around the state all the time, so he got me interested as well. And then I got acquainted with Vic Bird while I was the chairman of the Aerospace Committee and we got to talking about general aviation and kind of how that benefits us in terms of business, economic development, and those kinds of things. Our 49 regional business airports are extremely important, so I started pursuing different things and a lot of the things that we pursue--that we've started pursuing in 2006 and '07 came to fruition as of today. We were able to pass the 3239 which is the Engineer Workforce Bill. That started actually in 2006. It's my bill which was 1482 but we were unable to get that funded in 2006 and we were able to bring that to fruition in 2007 and Skye McNeil was able to pass that as well as House Bill 2067 and then we were able to pass a few tax credit type things.

>> There you go.

>> Especially for MRO, maintenance repair and overhaul, we were able to eliminate the sales tax exemption for those that do those types of jobs in the city of Oklahoma.

>> So we're setting up a state that fosters aviation and aerospace and the businesses that are associated with them.

>> Absolutely, and you know if you look at the history of aviation in Oklahoma, it's very, very strong.

>> Yes it is.

>> Yes.

>> Today one in ten jobs is actually attributed to the aerospace industry. The average salary in Oklahoma is about 29,000. If you look at the average salary of an aerospace worker it's 56,000.

>> There you go.

>> So if you're a new parent or about ready to become a parent like myself then you're going to look at those types of jobs that are going to attract young people to stay in our state, to continue to attract engineers which are extremely importantly not only to aerospace but to a lot of different industries and you're going to look at those types of things and try to figure out ways to bring those jobs into our state. And that's why I'm so passionate about aerospace and the aviation industry in Oklahoma.

>> And I'm gonna guess simply by virtue of what you've just said that STEM--science, technology, engineering and math--for Oklahoma's middle and high school students, very important part of our future.

>> Extremely important. Math and science, of course my wife is a science teacher that those are extremely important to try to create the skills that you know the Americans of the world or

somebody who works at Tinker or works for Boeing, that they're going to want and they're going to need in order to continue to grow their business in Oklahoma.

>> Outstanding. Now you're getting ready to address the group here.

>> Yes.

>> A portion of the group and I know you have a very special message for them and some of that you've talked about I'm sure.

>> Sure.

>> But let's go into specifically what are you gonna tell the folks here at the expo.

>> Okay, well we're gonna talk about basically the accomplishments that the legislature's made in the last four years. And I've mentioned those on the broadcast already 2067, 3239, and all those things that we've accomplished. We also want to look at the overall industry and how we can help grow that through economic development and those kinds of things. But the main message that I want to convey and to pursue with this audience which I believe that this audience is the future, the people who are thinking about how to expand aviation aerospace in Oklahoma. I want to make sure that they understand that the legislature believes in aerospace, we get the message, we understand that it's a high quality, high paying jobs that are coming to Oklahoma each and every time we are able to attract another aerospace job. We need direction and these are the leaders of the respective industry and we need some help from them in order to pursue what we need to do to continue to grow that whether it be UAVs and the possibility of expanding our industry into the UAV. UML now has one of very unique situation down at Lawton Fort Sill where they're able to actually do research on UAVs and UAV models.

>> Right.

>> Do we expand that to Clinton, possibly. Do we look at that as a possible additional research site? Do we continue to invest in our universities: OU, OSU? And can we use OCAST as a possible model to help in the fruition of bringing these additional jobs to our state.

>> It's very obvious that you've been thinking about these.

[Laughter]

>> Sure.

>> That's wonderful and you're part of the leadership right now.

>> I am.

>> House of Representatives. So you're in the position where you can deliver on what you're talking about.

>> I hope I can deliver.

[Laughter]

>> You know at the end of the day it's going to be up to the constituencies, the industry, and to the people who are passionate about aerospace to be able to ultimately deliver. But, hopefully, I can provide a starting point in the legislature and continue to push these issues to the legislature as I've done on many other issues.

>> Outstanding. So the message here is Oklahoma is gonna be very business-friendly when it comes to aviation and aerospace.

>> Absolutely. We will be business-friendly and I think that our past accomplishments prove that quality jobs and then of course the Engineer Workforce Bill trying to attract additional engineers. I think that that speaks volumes. We're the only state in the union that has a program like that and I think that we will continue to pursue ideas that are very unique like that.

>> Well I will even go so far and I'm not an expert in this area, but I would go as far as to say that some of the things that have happened already probably have played a major role in Oklahoma not falling so deeply into this recession that the rest of the country is enjoying. Do you see it that way?

>> I do and actually Oklahoma is one of the six major centers for MRO and I have cousins living in Wichita, Kansas and right now Wichita is hurting.

>> They're hurting.

>> They are.

>> Extremely bad and if you read the newspaper--

>> Cessna just laid off 1,300 people.

>> Exactly, and you know they have already laid off people before that and it's not just Cessna, it's Learjet, it's all those different things. Now they're basically focusing on the new builds, the new airplanes. That's where the jobs are rally being lost. I think that the tax structure that we've set up in the state of Oklahoma continues to add to Boeing and continues to add to those that are doing maintenance and repair as well as new aviation as well. We do have some of that as well. But Oklahoma City, Tulsa, Enid, Lawton has some UAV possibilities, Ponca City and then if you include the general aviation and what we've been able to accomplish with our entire general aviation infrastructure, it's very, very important to stabilizing our economy and I think that we are seeing the benefits of investing in aerospace.

>> I think you're absolutely right. You brought a youthful exuberance to the legislature I've observed that over time and you come with some tremendous ideas that are already in place here. So congratulations to you on your success so far.

>> Thank you very much, I appreciate it.

>> Yeah, Gary.

>> We have about a minute and a half left. Where do you see, we always ask this question among many of our innovators on the show.

>> Okay.

>> But now you being a young guy and you have a great vision for the future of Oklahoma, where do you see the state going both in aerospace and other industrial opportunities like this?

>> Okay, and part of my speech today is talking about UAVs and I think that that is something that is extremely important. It's a 25 billion dollar industry and right now we are seeing UAVs and small UAV companies being bought up by the big boys.

>> Really.

>> And so at this point, one of the things that we have to address is making sure that all of our UAV success at this point is not bought and moved out of the state.

>> There you go.

>> Yeah.

>> So what we have to look at is investing in research opportunities and continuing to grow our universities. Like for example and I have taken tour of both OU and OSU's UAV or aerospace engineer programs and they're both very good. We need to expand those. They're putting out 25-20 to 25 graduates per year. That's not enough. We need to expand those but OU and OSU have both been very, very successful with their UAV programs because they have continued to grow those and win national competitions. So I think that in the future we need UAVs and continue to invest and research for those projects.

>> We got to go guys. We're all out of time. Thank you so much, Representative Jackson for coming and being on our show and Steve.

>> Gary.

>> We've had fun here at the Oklahoma Aerospace Summit and Expo in Tulsa. See you next week on Oklahoma Innovations. Have a good week.

[Music]

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