

Oklahoma Innovations Radio Show

Air Date: January 30-31, 2016

Guests: **Cornell Cross**, **Debbie Cox**, and **Michael Carolina**, OCAST

>> 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 science and technology. The OCAST mission is to identify and fund promising research and technologies that allow Oklahoma to compete in a global market economy from our own backyard. This program features some of Oklahoma's most gifted scientists, inventors, entrepreneurs, manufacturers, educators 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 Chad Mullen.

[Music]

>> **Gary Owen:** Welcome to this week's edition of *Oklahoma Innovations*. We are delighted that you joined us this weekend. And we have some news that we've been holding back for quite a while. And Chad Mullen, my co-host, whose been a great guy to partner with this year, this past year, and along with his predecessor who is Tessa North, who has also been a great asset to the show, my longtime co-host Steve Paris, who retired a year ago, a lot of great people on the program, a lot of great guests. And Chad, we have an announcement for our listeners, and I'm going to let you make that announcement.

>> **Chad Mullen:** Sure, Gary. It's an unfortunately announcement and it's something that came after a lot of debate and deliberation, but if you're listening today, you're listening to the final episode of *Oklahoma Innovations*. It is something that we announce with a heavy heart. I think the show's been on for over 20 years now, which makes it; I believe probably the longest, if not one of the longest running radio shows in Oklahoma. But, I think as our viewers are aware, or listeners are aware, there has certainly been some deteriorating budget conditions over the last couple of years, including a mid-year reduction that we had to take. You know, we anticipated in fiscal year 17 that starts this July, of having some reductions. And in anticipation of that as an agency we've made many, many cuts. We've reduced staff. We've -- this radio show is our only outreach budget item that we had left. We've whittled those down over the past couple of years, but unfortunately, you know, our statutory mission is to fund research and development, and those programs directly related to that, and so we had to make the tough decision when we got our mid-year cut, which was about \$500,000 for our agency.

>> **Gary Owen:** Wow.

>> **Chad Mullen:** Its -- you've been a great host. You know, we're certainly going to miss hearing you. I think everyone here in our office listens to the show and enjoyed it. And we got a lot of good feedback about the show. We're going to carry on kind of that *Oklahoma Innovations* name in a few different ways. We're in the process of revamping our website right now as a way to bring some of the stories that we might have shared on the radio in the past. We're up in our video presence a little bit. You can certainly visit us on Twitter or Facebook. I encourage you to visit our pages there or Vimeo or YouTube or Instagram. I mean we kind of have it all these days

to try to carry these stories in a different format. And we also have a great partnership with the Oklahoma Now, where they carry an Oklahoma Innovation type story every other week. And so that's written by an author named Jim Stafford, old newspaper guy.

>> **Gary Owen:** People know who that guy is.

>> **Chad Mullen:** Good guy and writes some good stories. So there'll be some ways that we'll continue to communicate. We have a newsletter, and so we're going to try to share the stories that we shared in the past, but just in a way that's at no real additional cost.

>> **Gary Owen:** Well social media no question is the way that a lot of people are getting information. And OCAST, of course, when we look at this -- looking back at this program, how it evolved, and I can't believe it's been over 20 years. It just blows my mind how long we've been doing this program. What I've enjoyed about this show is -- and I know our listeners have enjoyed listening to this program, is I think that by bringing this to the radio, you have OCAST -- has brought a lot of great information about what's going in science and technology in Oklahoma. When we look at not only OCAST clients, but we look at the partnerships, the strategic partners you had that basically umbrella science and technology. When you look at the educational sector, you look at the private sector, you look at manufacturing, we look at the research going on among all of the universities. All of the people that I -- we're going to have Debbie Cox on. She's like very hesitant. We've never been able to get her on the mic, but she is the one that I credit with helping keep this machine running. And then, of course, she got a lot of input from Tessa, because Tessa was here in the program's division, and, of course, you've been in at the helm as well, and so there's a lot of partnerships that have brought this program together. And later in the program we're going to have Michael Carolina, the executive director of OCAST to get his perspective on this since he's been here at OCAST. But this program, I think, has been a voice for OCAST to the listeners and Oklahoma tax payers, who wonder how is OCAST money being used. And not just your money, but also when we say your money, we're talking about you, the listeners, your tax payers, some of your money that helps fund OCAST projects, or their clients projects, the proud thing we can say is -- Chad, is the return that we've gotten as investors. Talk about that. It's fascinating.

>> **Chad Mullen:** Well I appreciate the opportunity to talk about that, and as you alluded to we've got some great guests. The two people really behind the show all these years, our executive director Michael Carolina, who's been a big supporter of the program, and then Debbie Cox, who has really put it together, so we'll hear from them. We also have Cornell Cross here with us today to talk a little bit about what's going on the program side. But the return on investment from OCAST has been pretty tremendous, and our -- since 1987 when we were created we've had a cumulative return on investment of 22 to 1 now, so every dollar invested we've been able to leverage private funds, some federal funds, back to the agency, back to the state, back to Oklahoma businesses. Additionally, last year, we were able to leverage our \$15 million budget into a \$535 million return on investment, and that's capital that's flowing into our business, and research and development community in this state, that's creating jobs. We can attribute our programs to the creation and retention of about 2,100 jobs. We directly or indirectly supported 280 student interns that are able to get out and get an experience with a company, and not only gain a lot of knowledge for themselves, and hopefully form a bond so they'll stay in Oklahoma, or maybe they'll work in a rural area that has sometimes a challenge recruiting talent. But even as just -- just as important I guess I should say, the company now has a direct connection and an informal connection to a university, and so they really get the ability to open

up and dialog with our university folks, our researchers. And so this is, in our opinion, a great way where -- when you talk about a public private partnership that personifies OCAST.

>> **Gary Owen:** Absolutely. Another thing that I think has been really cool for OCAST on their website has been very innovative is the ability to allow listeners who have missed programs in the past to go on the website, at the OCAST website. And I know you've had a lot of hits there. People who have either forwarded the stories or have missed a program and they want to catch up for it. I mean, I know people we've talked to, Debbie and I and Steve and Cornell, when we've been out doing shows on the road. We have people say "Hey, I listen to your show every week and what was it last -- or I missed it or I can't wait to get to the car on the way to church or whatever," and it's nice to hear that.

>> **Chad Mullen:** You know, it is, and those will remain on the website. I think we've got probably 30 or 40 episodes back, about a years' worth on the website. Currently if you go to the website and navigate to the radio show, if you see that link you can look on it. We're going through a little bit of a change so they'll be a webpage probably called about, and you'll be able to see it there as well. Also, just -- if you're interested visit impact.ok.gov. That's a great site that has a lot of -- it has our -- not only our impact numbers that I mentioned just a minute ago, but the stories behind those as well. So we call them our success stories that really kind of exemplify that success in Oklahoma. But, you know, it's funny, Gary, you mentioned, you know, people talking about it, still to this day if I'm out in the OCAST mobile, people say "Oh, you know, are you guys the one behind that radio show?" I'll say "Yeah," and they say "Steve Paris still doing it?" I'll say "No." They're "I kind of miss that guy." I guess that's a plug for Steve Paris. I don't know what that says about you and I, Gary. But that's the guy they always seem to ask about.

>> **Gary Owen:** Well, you know, I have to tell you, and Debbie can kind of give her perspective on this, but because she and Steve worked directly together here at the agency.

>> **Chad Mullen:** We probably don't want to ask Debbie her perspective on Steve.

>> **Gary Owen:** Well, yeah. She might give us the dirt part of that. We don't want to choke her up over there. But, I'll tell you, you know, when you think about -- I'll be honest with you, when I was approached about this -- hosting this program with Steve, my initial reaction was "A science show? Oh, maybe two or three years." And at that time, it started just in Oklahoma City.

>> **Chad Mullen:** It would be kind of like a radio show about golf, right?

>> **Gary Owen:** Well, you know, you just don't. As time evolved, you build this audience, and then you decide "Well, maybe we're on to something here," so we talked to KRMG about partnering with them, and then, of course, I know that OCAST talked with Cameron University. Cameron, I want to say something about Cameron, we've done shows from their university a number of times, and they have been a great signal voice for us to allow this program to air from Lawton to Woodward over the years. And they have kept western Oklahoma listeners tuned-in into this program. We know in western Oklahoma a lot of early risers out there. The show aired Saturday mornings at six o'clock, and -- but we know that a lot of people in energy and agriculture and ranching they all were people that listened to this program. And we did a lot of shows targeted to those people.

>> **Chad Mullen:** Yeah. Absolutely. I think, you know, one of the interesting things about research and development technology is that once the research parts done, and the development parts under way, then it impacts some sort of industry, and certainly energy and agriculture are

two main drivers of our economy. They power our world, you know, literally and figuratively. And so, yeah, we had some great, great stories. I mean, we've covered -- that I can recall the gamut of the, you know, food safety to food production to, you know, seed mutation and drought resistant crops, and everything you can think of. And certainly our partners KTOK, KRMG and Cameron, KCCU, have been really successful in helping us keep this going as long as we're able to. They basically provided the show at cost. And that really allowed us to get a lot of bang for our buck. So a big thank you to them. And then, before I send it back to you, Gary, you know, big thank you to all our listeners out there and supporters, and all those that we've heard from for over the years. So we appreciate and -- you listening to us, and certainly, you know, we're not going away, we're just doing a little bit different format going forward.

>> **Gary Owen:** And I want to talk about that in the next segment, because when we talk about some of the new adventures and some of the new things you're going to do on the OCAST website, and I know you're going to be part of that. I know you guys have some video stories you're going to be doing. You've got a lot of -- you're going to be able to keep the public informed about those projects or you're going to hear about them in the news. You'll be able to go to OCAST website and you'll be able to -- they'll take you and direct you to those partnerships. Still, if you want to find out about what's going on with OCAST programs and events, and you guys are still involved very much in a lot of the quote unquote science and technology events around the state. I know you have co-sponsored and have also exhibited in some of the state conferences around the state, whether it's in manufacturing, whether it's in technology research, right? All kinds of innovations.

>> **Chad Mullen:** Yeah. We partner with several entities, namely NSU -- Broken Arrow, Northeastern State University for our tech showcase every year. And so that's been a great opportunity. And then some of the other events, first robotics, Botball, that's [inaudible], quite a few events like that. Google has a new program and Pryor's, so a lot of good things, and you'll continue to see us at those events as we can.

>> **Gary Owen:** OK. We have a lot more to talk about. And remember, you're going to get to hear our produce, Debbie Cox, here later on in the program, who she's a great gal. I wish you could meet her in person. We've got more to talk about when we return on *Oklahoma Innovations*.

[Music]

>> Pancreatic cancer is the fourth leading cause of cancer deaths, with a median survival range of only six months. As an oncologist, I see far too many families suffer from the effects of this terrible disease. We need better treatment options for patients.

>> With the support of the Oklahoma Center for the Advancement of Science and Technology, the researchers at Core Biotechnology have what they hope will eventually be a treatment, even a cure for pancreatic cancer. They have identified a protein that if blocked, may prevent tumors or keep them from growing. With help from OCAST and I2E, the team at Core was recently awarded an SBIR research grant to enable them to continue their research and move closer to a treatment for pancreatic cancer. If you're a researcher or a small business in Oklahoma, and are considering applying for federal SBIR funding, contact OCAST toll free at 866-265-2215, or visit us on Facebook or our website at ocast.ok.gov.

>> Now in its 19th year, this is *Oklahoma Innovations* on the OCAST Radio Network.

[Music]

>> **Gary Owen:** If you've just joined us, you are listening to *Oklahoma Innovations*. And those of you who are regular listeners and just tuned in, this is going to be the final *Oklahoma Innovations* radio show on the air. And it's a little sad for me because it's been a great 20 year run. And I've learned a lot on this program, and I've certainly learned a lot about the partnerships that OCAST has. I've got to see things on site as we've done remote shows. I've attended a lot of conferences, a lot of things that most radio show hosts don't get to see. In fact, a lot of people who may do science and technology radio shows around the country don't get to get out and see a lot of this in action, and it has been really a wonderful, educational experience, Chad, and I have been honored to be the anchor host for this program. We want to welcome now, Cornell Cross. Tell us a little bit about Cornell.

>> **Chad Mullen:** Yeah. Well, you know, Cornell is a pretty good guy, I guess. But no, he's actually a great guy. Cornell's our director of programs in the northeast region. We have -- OCAST has a Tulsa office and a presence in that area that even though it's in Tulsa, I think he spends more time probably in surrounding communities than in Tulsa.

>> **Gary Owen:** This guy gets around, you know? All the Tulsa shows we've done in the last couple of years is because of him, coordinating with Debbie to try to get a schedule, because he's had -- "We got to get you guys to Tulsa."

>> **Chad Mullen:** Well, we were going to get him an electric car, but [inaudible] far enough yet, so we got some time to go on that, but, you know, as you've probably seen in the papers, several state agencies that have a Tulsa presence or are closing their offices this year to deal with budget cuts, and for us it's a commitment to remain in that area. And we're fortunate that we're able to - - that Cornell's able to house in with some of our partners. And so, for us, it's probably almost cost savings to just have someone based out of that area. But Cornell, welcome to the show and tell us a little bit about what's going on both at OCAST and in your area.

>> **Cornell Cross:** Well, I'll tell you, thank you very much for having me on your final show. Even though I've been doing this position now for about a little more than four years, I still kind of feel like the new guy in a lot of ways. So, to be on the final show is -- it's an honor. One thing I wanted to add to you, Gary, too, and you were talking about visiting all these various manufacturers and technology companies, and you think to yourself wow. And the one thing that I always take away when I speak in public, especially with rotary clubs and such as that, is I tell people that we do that in Oklahoma.

>> **Gary Owen:** Yeah. Exactly.

>> **Cornell Cross:** And they don't believe it at first. Until you start going down the list of companies that we have in Oklahoma. We have a very deep lineup of various types of technology.

>> **Gary Owen:** Very diversified.

>> **Cornell Cross:** Absolutely.

>> **Gary Owen:** Very diversified.

>> **Cornell Cross:** Especially in the northeastern area. And we'll get into that. So as far as the Tulsa region is concerned, we are doing an amazing job now here in OCAST of reaching out to clients up in the area. The portfolio for the Tulsa region is definitely over 100 different

companies and clients, many of which tend to be obviously -- there you're going to find your oil and gas companies, but we actually have a heavy engineering, manufacturing. We have flight simulator companies, aviation, and now, especially in today's workforce, we're seeing a huge increase in software technology companies coming up in the Tulsa area, especially when you see it coming into healthcare. So we kind of have a nice, broad cut in the Tulsa area, and so I'm glad to be able to help foster that through the OCAST program.

>> **Gary Owen:** Well, thanks to you, you hosted us many times on our trips to Tulsa. And KRMG, our host station in Tulsa, they're awesome people. They've been a great supporter of the program, love the program. It's nice to be able to highlight people in the Tulsa area around the state, and say "Hey look, you know, it's not just Oklahoma City, it's not just in the center part of the state, there's lots of things going on in northeast Oklahoma and all over that territory." We've been all over the map [multiple speakers].

>> **Cornell Cross:** We've been to Bartlesville, Claremore, Pryor.

>> **Gary Owen:** We've been to all those towns.

>> **Cornell Cross:** Muskogee. We have been a lot of places in northeastern Oklahoma.

>> **Gary Owen:** And we've got a little handle on the innovation sector. We've got a handle on the manufacturing sector and the job creation, the economic development. The science and technology attributes to that growth being that small communities have really brought a lot of wealth to their market by being innovative and drawing those kinds of companies to their territories. So you have a couple of program notes you want to tell our audience about that's coming up while we have you on the mic.

>> **Cornell Cross:** When people ask "So what is OCAST doing right now?" Obviously we heard that we've got challenging times with the budget, but OCAST is still moving forward on our mission. Right now we have our three funding cycles open, currently for the year. We have our main line OARs Program, which is the Oklahoma Applied Research Support. This is our general research and development fund that people can apply for. The application is on our OK grant system. We have our Oklahoma Health Research Support Program, which is for our researchers that are doing basic health science to start the process. We're not talking about the cure that's going to come out tomorrow, but it's the beginning steps towards going towards something that could lead to that cure later on. And then, of course, we have what I feel is our shining gem in the program, which is our internship program. This is the one that I think has the most immediate impact on the future of our state, because we are able to take students that are currently in their undergraduate programs and place them inside an industry, where they can get real life experience, which in the end, we hope and generally does lead to employment of that student still in Oklahoma.

>> **Gary Owen:** Very cool. By the way, Chad, we should say that -- I don't know if anybody got to mention this until a long time ago, but he's a well-groomed father now.

>> **Chad Mullen:** I didn't know. I hadn't seen any pictures or anything. So you don't have the proof, right?

>> **Gary Owen:** Well, I'll tell you what, Cordell I know that OCAST is very proud of what you've done in Tulsa since you took the helm, and I know that you have brought a lot of that marketing ability and that socialization I guess, and networking that you've done in the Tulsa area, because we've had a lot of great guests on the program. And --

>> **Chad Mullen:** Quickly tell us about a couple of events coming up.

>> **Cornell Cross:** There's one that we're going to be holding here in a couple of day, which obviously by the time the radio show comes out it'll already have come and gone, but one of the things that we're trying to do with the situation that we have right now. We're in a down budget. So what can we do? Well, we can start trying to do more networking events, where we can take our clients and get them to interact with each other. We don't spend a dime on the event, yet we still leverage a huge outcome from that. So, this Thursday from where we are probably a few days past, but we will be holding our third annual manufacturing luncheon, where we will have upwards of 55 people, each representing a different organization. So, 55 organizations in a room to be able to network with each other, to talk about new ways that they can interact. That's become a very popular event. It costs nothing and yet it goes such a long way. The other thing that we're going to be doing in the summer, or at the beginning of summer or late spring, is our Regional Innovation and Collaboration Forum. And I believe this is our fifth --

>> **Gary Owen:** OK. I'll tell you what. I'm going to interrupt you because we're running up against -- if you'll hold a mic, we'll come back and we'll talk about that after the break. And then, we're also going to be talking with our longtime producer, Debbie Cox, when we return on *Oklahoma Innovations*.

[Music]

>> If you enjoy listening to this program, tell us. Better yet, like us on the OCAST Facebook page. There's more *Oklahoma Innovations* to come on the OCAST Radio Network.

>> When I invented my new product I faced a lot of challenges from securing capital to recruiting qualified employees. It's a very complex path from innovation to the marketplace. And I needed some help navigating the process.

>> The Oklahoma Center for the Advancement of Science and Technology and its strategic partners, the Oklahoma Manufacturing Alliance and I2E help entrepreneurs. They support existing and start-up companies so they can succeed and create jobs, increase per-capita income, and grow the state's economy. In its 26th year history, OCAST has funded nearly 2,500 research projects and provided support to hundreds of Oklahoma based companies. The investments made in these businesses yield high returns for our state by strengthening and diversifying our economy. Advancing innovation is investing in a positive future. That's what OCAST is all about. For more information call OCAST toll free at 866-265-2215 or visit us on Facebook or our website at ocast.ok.gov.

>> I'll graduate from college soon. I wanted real world experience that would make me stand out to potential employers. That's what I like about my internship. It's preparing me for a competitive job market.

>> With the support of the Oklahoma Center for the Advancement of Science and Technology, more than 500 Oklahoma students have interned with science and engineering companies. OCAST's intern program helps students connect with mentors, operate instruments not available in the classroom, build confidence and gain practical experience.

>> The OCAST internship gives me the opportunity to put into practice what I study in the classroom. It's a great learning experience and a chance to work with top notch professionals.

>> Internships play an important role in connecting Oklahoma's brightest students to quality technology jobs in Oklahoma. Creating opportunities. That's what OCAST is all about. For more information call OCAST toll free at 866-265-2215 or visit us on Facebook or our website at ocast.ok.gov.

>> Research and development, technology transfer and commercialization, creating high paying jobs in Oklahoma are what OCAST is all about. This is *Oklahoma Innovations* on the OCAST Radio Network.

[Music]

>> **Gary Owen:** Welcome back to *Oklahoma Innovations*. If you've just joined us depending on where you are and what you're doing this weekend, this is the final program of *Oklahoma Innovations* after 20 some years of great information, great guests. And in a moment we're going to be talking to Debbie Cox, who has been our longtime producer for the program. But right now I want to give the mic back to Cornell Cross, who is out of the OCAST Tulsa office. And you were telling us about an event coming up.

>> **Cornell Cross:** Yes. The Regional Innovation Collaboration Forum. So, we were sitting around here and adding up all the cities here, and this will be our fifth rendition of this event. And this is actually kind of taking a life of its own. And the basic concept behind this is to reach out into the regional cities, I guess you could call them the rural cities, and go in there and meet with the players in that region and discuss what are the touchpoints for your region and who can we bring in to talk about how we can move the ball forward on those things. So, we had them in Stillwater, Lawton, Durant, Bartlesville, and now I'm very pleased to announce that the next one will be held at MidAmerica Industrial Park in Pryor. And it will be a combination of Claremore and Pryor working together on that with its regional partners.

>> **Gary Owen:** Wow.

>> **Cornell Cross:** It's going to be a great event.

>> **Gary Owen:** Wow. Very cool.

>> **Chad Mullen:** Yeah, so that should be in June, we're hoping. May or June so keep an eye on the website for that and we'll make sure and try to keep you informed. I should also mention you can -- we have a newsletter that you can sign up for on our website to stay abreast of these events and activities that go on at OCAST.

>> **Gary Owen:** Yeah. If you don't get the newsletter, but you know an event is coming up that you're used to attending or would like to find out more information. You have a calendar there -- and events calendar.

>> **Chad Mullen:** And Gary real quick before Cornell he has to leave here in a second, but before he gets away, you know, one of the big things is that we talk a lot about OCAST's diversification, and that's both diversifying our economy and in the macro sense, but also really pushing for diversification of the product line within a company. And so, Cornell if you'd tell us a little about the project underway at HydroHoist in Claremore. I think that's an interesting story.

>> **Cornell Cross:** It's one of my favorite stories lately. You know, I will say this, working at OCAST you get to see some pretty incredible projects that come up that we find. And some of them are pretty much mainstreamed. You can imagine what they are. It's a new product. They got to get it out and it creates revenue and moves forward. This one's interesting, though,

because it's a three-way partnership. So you have a company in Claremore called HydroHoist. And what they basically -- they're main product is boat lifts.

>> **Gary Owen:** HydroHoists.

>> **Cornell Cross:** Yes. They create boat lifts. However, part of what they do is they have a division called Rotec, where they're actually able to do rotomolding of plastics. So they have a partnership with Chevron Phillips in Bartlesville to try out different plastics for different needs. They also have a -- sort of a partnership with a company up in Miami, its J-M Mushroom. And so, J-M Mushroom came to HydroHoist, and if I understand this story correctly asking to see if they could develop a plastic mushroom tray. It had been tried before in another company and it failed horribly. It could not stand up to the heat or the weights. But technology has moved quite ahead in the years, and so they've come back to them and said this is actually sort of a three way combination of a company and Bartlesville, Claremore and Miami working together to get a new product out to the agricultural market, that if they can do this that could literally go worldwide in a very short amount of time. But -- and the benefits is this -- they're doing them with wood. They're hard to maintain. Wood will fracture after a while, and the biggest part is that if a bacterial infection gets into the wood itself, you can't just bleach it out. It's in the wood now. You basically are done. But plastic is non-porous. So it's safer. It's more hygienic, and it will hopefully last longer than wood would.

>> **Chad Mullen:** And I really think, you know, that what's interesting about that is, you know, they're starting with mushrooms, but when you see all the advances in agriculture these days, the way things are grown now vertically, hydroponically, you know, you can really see kind of the endless possibilities for these types of trays. So it's interesting to see. I mean that's one of the big things we preach is that diverse line, the product line, and so now we have -- they're in the recreation industry, they're in a variety of other industries, and now trying to get a foothold in the Ag industry as well.

>> **Gary Owen:** There's one right here in our own backyard [multiple speakers]. That's awesome. Well Cornell, it's been a pleasure to work with you and have you as a co-host on many shows that we've worked on. And you've always been kind of a guest sometimes. So it's always been fun to interview you, and what I always enjoyed about Cornell is boy, he's an enthusiastic guy, you know, you just get a lot of energy being around you. And Tulsa should be proud to have you up there. That's great. All right. Well now we're going to turn the microphone over to a lady that I have just adored because she's not only been a big part of what we do, but she's also a great friend, and we've had a lot of travels together over the years. And if you wanted any dirt on any of the hosts, let me tell you, she's got. Debbie Cox, what a joy it is to get you on the mic, and I know this is not your comfort zone and that's OK. But we're going to try to make it as comfortable for you as we can. I want you to talk to our audience about what you've enjoyed about doing this program, because you get to talk to the guests before they even get either to the studio. When we started we started at KTOK's studios in Oklahoma City, and then, of course, we branched off and we took the show on the road. We had a portable studio like we have right now, and then we branched off in doing a lot of the interviews at OCAST. But a lot of listeners may or may not realize sometimes it can be a challenge to get the type of guests we like to get on this program. But you have certainly met the challenge. Talk about that -- you job.

>> **Debbie Cox:** Yeah. It wasn't always easy, but there are a lot of great stories out there to tell. And it's been a lot of fun finding them through different resources. Our staff does go out and

participate in a lot of different events around the state. So they come back with stories to tell. And then I just pick up the phone and start calling. Sometimes people aren't that excited about it, but sometimes they are, because it's not often you have an hour long radio show to tell your story to everybody -- the state. But I think what I have liked best probably is what Chad alluded to and that's the diversification, all of the different kinds of things that we do. People -- I think nationwide maybe even internationally, Oklahoma has started to gain a little recognition as being very innovative, and we truly are. And I think that's something that we've found out doing this radio show.

>> **Gary Owen:** Yeah. And that has been a very passionate part of why I've enjoyed doing this program, Chad, is because I have gotten to meet a lot of wonderful, talented people in the industries of science and innovation, manufacturing, all of these things that we've talked about on this program. And I'll be quite frank with you, I've been intimidated by some of these guys because I mean their education is way over the top. Some of their language and lingo is way over the top. And we always screen our guests beforehand and say "Look, you know, we have a very educated audience, but, you know, they talk in their own -- particularly in science research, they talk in their own language unless it's kind of like medical people, now what did you say, doc? Could you bring that back to me in English?" So --

>> **Chad Mullen:** Oh yeah. Absolutely. Its, you know, one of the things I enjoy about my job and I think most of us do here is really helping to translate and tell that story into a way that we can understand. Especially with our health researchers, I mean these folks are going to cure cancer, cure antibiotic resistant infections, all sorts of things. And you have to say "OK. I understand -- well maybe I don't understand, but I hear what you're saying. Why does it matter? Why is it important?" And I think this radio show allowed us to do that. I want to say a big thanks to Debbie here. Debbie has the distinct pleasure, displeasure of having to deal with all my ideas on a daily basis, and emails at three o'clock in the morning, and everything else. And she does a great job. I believe she is the youngest, but the longest serving employee here at OCAST, or second longest [multiple speakers]. She's been here. She's seen a lot of things. We were going through some old posters. We did a clean out a month ago, and looking back at some of these projects from the late 80's or 90's that -- well, you were too young to see them, but, you know, some interesting things. Debbie, what are a couple of things that stick out in your mind?

>> **Debbie Cox:** Oh man. Shortly before I started at OCAST, OCAST was involved in developing the Oklahoma Manufacturing Alliance. And so, that was still new, and getting going when I came on board. And it's been real interesting to see how that has played out. They've got a statewide presence and have helped who knows how many manufacturers around the state. And then some of the other partnerships that have developed over the years with i2E and NPDC. I think if you have a technology idea in the state of Oklahoma now you have someplace to go for help. So I think that we're really fulfilling our mission that way.

>> **Gary Owen:** You know, another partnership, Debbie, we've had a lot of relationship with. It originally started as the Oklahoma Commercialization -- help me out, now it's been a while, the Oklahoma Commercialization Center. So it was a center. OK. And now its i2E. And so, that is an entity, or I guess I should say an extension of OCAST that has brought a lot of innovative guests to the program.

>> **Debbie Cox:** For sure. In fact, I was looking through today, some of the guests that we've had over the years, and a lot of them have come from i2E. And we're a little earlier stage at

OCAST. We're doing more of the research. They're the companies that are trying to get their products to market. And so, it's real interesting to see what they've got going through their doors over there. A lot of software type things.

>> **Gary Owen:** Oh yeah. All kinds of stuff.

>> **Debbie Cox:** And yeah.

>> **Gary Owen:** I'll tell you what. Let's take a break because she knew we were kind of on the clock, so let's take a little break. And when we come back we're going to talk to Debbie just a little bit more and we want to bring the executive director of OCAST, Michael Carolina to the microphone. When we come back on *Oklahoma Innovations*.

>> This is one of the longest running weekend radio talk shows in America. *Oklahoma Innovations* on the OCAST Radio Network.

>> As a police officer, one of the most dangerous parts of my job is arriving on a scene where an armed suspect has barricaded himself or where we suspect some type of booby trap. We're most vulnerable when we don't know what kind of explosives or weapons are on the other side. It can be deadly.

>> Tactical Electronics, and Oklahoma based company, invents, manufacturers, and sells tools, such as under door cameras and video fiberscopes that are used by law enforcement officers, military, and counter-terrorism personnel around the globe. The tools allow areas and packages to be inspected from a safe distance, which reduces the risk of injuries and death. With the support of OCAST, the company is developing image recognition software that scans packages and within milliseconds identifies what's inside. OCAST is advancing science and technology that not only improves, but also saves lives. For more information call OCAST toll free at 866-265-2215 or visit us on Facebook or our website at ocast.ok.gov.

[Music]

>> **Gary Owen:** Back with Chad Mullen and Debbie Cox, and we're going to bring now Michael Carolina onto the microphone to say hello. Debbie, before we took the break, you were talking about i2E and some of the programs that you felt were credited to them because it's really cool to see the innovation being developed from OCAST relationships with your clients and then taking that innovation onto market, and i2E finding -- helping them find funding or angel investors, and then giving them -- helping them with business plans, and all the things that i2E has done to help these guys. Because a lot of innovators, whether they're scientists or technology innovators, they're great at invention, but they're not great at business. And I think we find that a lot in a lot of areas, but in science technology, i2E is really good at that, right?

>> **Debbie Cox:** Yes. And like say everything from developing a business plan to finding your target market and things like the Seed Capital Program, which OCAST -- they operate on behalf of OCAST. So yeah, we really cover the gamut from early stage research through commercialization. So --

>> **Gary Owen:** What was -- what do you feel has been the highlight for you as our producer, because I mean between Steve and Tessa and Chad and myself, you've dealt with a lot of personalities, and not counting what the people that of course, we've had wonderful, wonderful guests. But for you, what is the highlight as our producer for this show?

>> **Debbie Cox:** Well, like you talked about earlier, getting to go out and tour some of the businesses across the state. It's something that I would never have gotten to do otherwise. So if there was something I wanted to see I got to call them up and say "Hey, how about doing a radio show because I want to come take a tour?"

>> **Gary Owen:** Absolutely. We've toured some very cool places. All right. Well, let's bring Michael Carolina to the microphone. Michael, you've been a guest on this program off and on, and I know you've been a big advocate for the program because we're getting the word out to Oklahomans about what OCAST and your strategic partners are doing in the state of Oklahoma to help put the spotlight on innovation in Oklahoma. And I know you've got a great platform to talk about that.

>> **Michael Carolina:** Sure, Gary. And thank you, Chad and Debbie. This has been just a wonderful forum for talking about science, technology, innovation, entrepreneurship, and Oklahoma does have, as Debbie pointed out, a lot of capability and capacity in that arena. And Gary, you mentioned research as a science and the second part, the follow on to that is research as a business. How do you move it from the laboratory to the marketplace? So, I think this show, without question, has been a forum to talk about science and technology capabilities in our state, to highlight some of our academic institutions and foundations. Things and engines of growth, our industrial base of aerospace, medical science, meteorology, agriculture, precision agriculture, precision medicine, some of those precision manufacturing, how we're moving to advanced manufacturing using 3D printing, prototyping, rapid prototyping, robotics, all of those things. So, I think we talked sometimes about the art of storytelling, and nowhere is that more evident than on *Oklahoma Innovations*, where we talk about storytelling from our clients, talk about the mission of OCAST in diversifying Oklahoma's economy. And surely and certainly Oklahoma's economy is more diverse today than it was when OCAST was created in the 1980's. So we're seeing [inaudible] roads. We want to continue to grow and diversity Oklahoma's economy, to create those high paying jobs, to make Oklahoma's science and technology more relevant and more meaningful, and deliver benefits to society. And that's our purpose to move innovation to the marketplace and when you do that, you're creating benefits for the citizens of Oklahoma as well as the citizens, the nation.

>> **Gary Owen:** Guys, you know, we have a technology hub buzz that's going on in your area in Oklahoma City. Chad, we talked about that before [multiple speakers]. You got the innovation district. Guys, tell us about that.

>> **Michael Carolina:** Well, the innovation district is an exciting development that's going -- that's based on a study by the Brookings Institute. The innovation district will extend from the Health Sciences Center to the Automobile Alley. So it's about 1.3 million people who are -- who will touch that innovation district and we have such entities as OCAST in the district, Oklahoma Medical Research Foundation, OU Health Sciences Stephenson Center, the new GE Research Center, which is one of only eight global, GE global research centers in the nation. So we are fortunate to have one of those [multiple speakers]. That's right. Global focus. Looking at oil and gas, what's called artificial lift. How do we bring our resources out of the ground very efficiently. So some of the science is in technologies that we have sponsored and funded will become part of that. So we're looking at efficiencies and improving the bottom lines of companies, such as GE and all of the companies we talk about here. How do they get more efficient at what they do? How do they get more innovative in what they do? So, I think OCAST has been a catalyst to help that along. And so, we're very proud of that. And this is not a sign off

for *Oklahoma Innovations*. It's a sign on as we move into that technology [multiple speakers] Internet where we're all in the world of social media. So our audience will be able to join us on YouTube and through our website, webcasts, podcasts, Facebook, Twitter, Instagram, [multiple speakers]. So it's an opportunity to launch from where we were into where we are going today. And we certainly would not have been there had it not been for *Oklahoma Innovations*, 20 years of excellence in *Oklahoma Innovations*. And Gary, certainly appreciate your commitment and your professionalism, and your broadcast excellence in bringing this show.

>> **Gary Owen:** Oh, I've had a blast. This has been a highlight of my weeks. It really has.

>> **Michael Carolina:** And thanks Chad for your co-hosting for about a year. So since Steve Paris retired. Debbie, thank you for your producer role and bringing great guests and very great topics to our listening audience. So it's just been a good team effort.

>> **Gary Owen:** We had good fun. Yeah. Yeah. Absolutely. You know, and they say all good things must come to an end. But now I'm not going anywhere. I'm going to move on to other new adventures. But I tell you guys, I would say from a broadcaster's standpoint and being in talk radio for many, many years, that this show we've done what we can to bring the audience a very professional sound, and a lot of wonderful guests. And I know that you guys are going to keep that momentum going on the Internet. And we encourage our listeners to check out the OCAST website. And, by the way, if you've missed shows this last year, you're still going to have an opportunity to go back and listen to those, right?

>> **Michael Carolina:** Sure.

>> **Gary Owen:** So, as all the cohosts have asked, we're going to put this on your platter now. We've always asked our guests -- where do you see your business five -- 10 years down the road? Michael, where do you see OCAST going in the next five to 10 years? What do you hope - - what is your vision for this organization?

>> **Michael Carolina:** Well, we have a strong mission statement, and that is to grow Oklahoma's economy through diversification and looking at science and technology platforms to launch into technology trends that we see out there. Certainly we'll see more breakthroughs in the medical arena, more better imaging, high resolution imaging. We'll see the human genome being fully understood so that we can treat -- better treat, diagnose, treat, and prevent dreaded diseases. So we'll see more advances in aerospace and defense as we help to maintain the next generation war fighters at Tinker Air Force Base, at Altus Air Force Base, Vance, all of our military and industrial complex. As they innovate more we can -- they want to partner with the state of Oklahoma with our research institutions, with our research foundations, and to bring a holistic approach. And so, I think OCAST will be that catalyst. So I think we've gotten good recognition. We're held in great esteem by a good number of stakeholders, our legislature, citizens of Oklahoma, our research institution and foundations. So I think 10 years from now OCAST will still be that vital player in growing and diversifying Oklahoma's economy. And so, we look forward to that challenge. We look forward to taking on advances in technology. Technology changes everything.

>> **Gary Owen:** Oh man. I'll tell you what --

>> **Michael Carolina:** We'll be at the forefront of that. That's our mission and our pledge going forward.

>> **Gary Owen:** Hey listen, this has been a great wrap show. Chad, it's been an honor to be behind the microphone with you, and I'm sorry we didn't get to do this a longer time, but -- cause you are honing your radio skills, guy. You've been great. And Debbie, it has been a wonderful, wonderful pleasure to work with you. And I dearly adore you and it's been a great experience for all of us. And again, as I said earlier, I know I will speak for our listeners, we have all learned a lot about science, technology, and business and innovation thanks to this program. And, to our listeners, continue to monitor the OCAST website and keep educated on what they're doing and wonderful things for the state of Oklahoma. Hey, we are out of time. We want to say as I always say have a good week.

[Music]

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