Entrepreneurial Education and Resource Development with Innovator Engagement

Session Transcript:   
2021 Proof of Concept Network Annual Meeting: Entrepreneurial Education and Resource Development with Innovator Engagement

>> Jessica Sharon: Welcome back everybody. Please welcome you to our next panel. I am Jessica Sharon, the Director of Innovation programs at the University of Louisville, a program manager on the Kentucky network for innovation and commercialization, the REACH Hub known as KYNETIC. Our panel today will highlight different successful programmatic approaches to entrepreneurial education and innovator engagement. We'll have a special focus on the experience of innovators to various successful innovators who joined us today who benefited from these programs throughout their product development journey and utilized and leveraged several programs available to them. To be successful and grow into entrepreneurial, into entrepreneur purrs themselves, joining me on our panel today is Paula Bates, the co-director of the KYNETIC program as well as Director of The University of Louisville, expedites commercialization, innovation translation and entrepreneurship known as the ExCITE program our first REACH Hub and a professor of medicine at the University of Louisville. Brett Janis joins from the site program he's the cofounder and CEO of DesiCorp we'll talk to you about his journey as a student all the way through a entrepreneur. Also joining us are Ofer Reizes the Director of Skills development at the Cleveland clinic of innovation and the endowed chair for the Cleveland Clinic Lerner Research Institute representing the NCAI Cleveland Clinic Center. Samantha Oblander is the Chief Operating Officer of NeoIndicate will talk about her entrepreneurial journey as well taking advantage of some of these programs. With that brief introduction, I think our panelists will do a little bit more of a introduction as to their background and what led them into this process, I'm going to turn it over to Paula to kick us off to talk about the entrepreneurial programs here.

>> Thank you, Jessica, hopefully everybody can see my slides and hear my voice hello everyone, thank you for this wonderful opportunity to share some of the strategies we've used to teach researchers about translation and commercialization. These were first developed at the UML ExCITE Hub and being refined at the Kentucky REACH Hub. The first thing that we thought about when we started thinking about what we wanted our program to look like was who should we be trying to reach with these programs? Realizing that researchers within our institutions have a wide range of knowledge, exposure and interest in technology transfer and commercialization. We wanted to reach everybody. We wanted to serve everybody within our institutions. But we realize that many people fall on the left-hand side of the spectrum, and had very little knowledge, perhaps even interest in commercializing their discoveries or ideas. We wanted to as I say, serve everybody, but we realize that reaching everybody would be more challenging for some than others. And the people we thought on the right-hand side of the spectrum would be easy for us to find. Either we would find us or we would know about them through our tech transfer officers or through our other interactions. On the other hand those on the left-hand side maybe a little bit harder to find and those are the people that we wanted to reach. Those who were new and relatively inexperienced in our innovation ecosystem. And to do this, we took a number of steps firstly we wanted to make it really easy to engage with us. We had a simple two-page pre application and we put the word out there that we were very friendly and encouraging to people and we wanted them to come and tell us about their ideas, even if they have never done this before. We wanted to convey a message that resonates. We know that just the word commercialization can be off-putting to some. And so we made it known that this was not about making money necessarily, but about translating the research that you do into real-world impact. We wanted to be welcoming and inclusive. We made our program open to students, postdocs, staff as well as faculty. We actively sought to achieve diversity within our applicants our program staff, invited speakers and our review boards. And last but definitely not least, I think this is really the secret sauce to the REACH program. It's the availability of project grants which incentivize the program. We use to secretly hide the education within the grants application process, perhaps not so secretly. This shows our entire solicitation application selection process that happens every six months.

There's a lot of stuff going on here. There's a lot of stuff going on in real life. But I wanted to highlight a few ways in which we embed education within the grant application process. We have a three-part application process that involves a pre proposal, a full proposal that requires more details, and then finally a pitch to our external review board. Each of those requires the applicant to acquire and apply some knowledge about innovation and commercialization. But they don't do that alone. They get coaching at every step of the process from our wonderful project managers, all the way from just, evaluating that initial product idea and developing a plan for it, all the way through help with those tricky stuff like IP and regulatory aspects and reimbursement through pitch practice and management of the project. The other thing that we do is within that, we have a training course that is specifically designed to help people fill out that full application form. So that's a very good incentive for our applicants to take part in that course. And they receive feedback from experts. Everyone gets feedback from the internal Advisory Committee after the pre proposal, those who are selected for the full proposal get additional feedback from our external review Board of Industry experts as well as the NIH technology guidance committee. And the reason that we want to focus on new innovators is that we see a real potential for making a big impact there. When these innovators form new companies that's something that we can many, in the near-term. But most importantly, these impacted innovators are likely to become our champions, we see this as a opportunity to create long lasting and contagious changes in mindset and institutional culture. This is my rather silly cartoon, but really get to the heart of the matter of what we're trying to achieve to have researchers think not only about the next publication, the next grant application and this slow and steady progress towards the big experiment, but also be thinking about how can they very quickly get their idea or discovery tested and to the patients that need it.

These are some results from our ExCITE Hub, these are six teams that form start up companies after receiving a grant between 2016-2019. I noticed a few common themes that these teams shared. One was that almost all of them were new innovators, they had very little entrepreneurial experience before they applied to ExCITE. Most of them came to us with early stage high-risk projects, where they really were a little more than an idea or a concept in some cases. Almost all of them were multidisciplinary collaborations, and, without exemption, each team leveraged other resources between entrepreneurial education. Some of them tapped into our entrepreneurs and residents or our I-Corps program or went outside the university and got training from the national I-Corps. XLerateHealth which is a local accelerator. We achieved what we wanted to achieve. We were able to see in real-time the lightbulb go on for researches, realizing that the innovation and commercialization were really cool. And, again, we get them paying it forward. They not only had that enlightenment themselves, but they shared their insights with their colleagues, with their students, are now helping other innovators in their department or university walk seed.

I wanted to just highlight one example of a lesson that we learned that there's not really one size fits all approach and that you need to keep constantly evolving when we went from a single institution ExCITE Hub to the statewide network that in KYNETIC which involves two R01 universities, six regional universities, and a state-wide community and technical college system. What we were seeing after a few cycles were that we were getting low participation from that regional institution. Obviously we wanted to correct that and try to encourage more applications, when we dug deeper we realized that one of the reasons was the perception that these regional institutions can't necessarily compete with the R01 universities. That we were much bigger and have more resources. Our solution was to change the way we do the entire review and selection process rather than putting everyone together in a single part, reviewing them side by side, selecting the top 7, we separated them into three divisions, and chose the top three from the University of Kentucky, the top three from the University of Louisville, and the top two from regionals. Make sure that the word got University of Texas out that at least two projects from regional universities would be funded each cycle. We were success will we saw this increase in applications in the next cycle. We hope to see many more going forward.

Last but not least, I want to okay knowledge this it's a team sport. We've had wonderful colleagues in ExCITE and KYNETIC, the people who have been directly associated with us, we have many more in our tech transfers sponsored programs research integrity officers, of course we can do this without our wonderful internal Advisory Committees, our external review boards, last but definitely not least our NIH team who have been fantastic in helping us to move this forward. With that I will stop sharing and pass it over to Brett.

>> Brett Janis: Great, I guess I'll start sharing my screen then. All right. Well, I guess, I want to say I actually started with entrepreneurship and such based on the ExCITE program. So when we first started we had just put this experiment together, it was so early on we thought we wouldn't have funding sort of investigated for several years. And we sort of got informed about this ExCITE program run by Dr. Bates which would sort of give us a little bit of funding. And was really, we knew that there was a commercial element to it. But at the time, we felt we were on the left-hand side of the scale, we hoped the grant would get us going and it would set us up for other grant institutions like the National Science Foundation, the National Institutes of health, an R01 or something. It ended up early on we wanted to clear our milestones and make it from our first set of $50,000 to the next one. And we enrolled in the National Science Foundation local I-Corps program we got introduced to entrepreneurship, I learned the term value proposition, and it really sort of got us thinking more in terms of the commercialization element: And we started seeing commercialization as an additional mechanism for getting this technology developed. It became less of a project and more of a thing Dr. Bates showed could help people.

We basically moved through a series of accelerators, we did a XLerateHealth which is where I learned how to really pitch, I used to be so scared to talk to people, I didn't do the pitch in the ExCITE program. That eventually gave us enough data, enough understanding of our markets that we could eventually get a PFI, partnership for innovation where we develop the technology, the innovation grant of U of L that got us to a function where we had functional red blood cells they could rehydrate there were large enough quantities that had cool opportunities like NASA funded flight campaign, eventually through DesiCorp which was founded during the first local I-Corps program, we ended up getting an SBIR. Now we're a company that operates. And I wanted to make a point because it's something that a lot of people were worried about. My adviser was worried about distract would this distract from my academic career. It helped. The ExCITE program became the foundation of my graduate program, I started my first year Ph.D just now defended last month.

So the national I-Corps program we flew over 70,000 miles conducted a lot of customer discovery. The language and techniques that I learned during that program are actually still used in my grant proposals and in my presentations. The middle one there is the first presentation that I didn't walk off stage with hundreds of people in the audience, it was really exciting. And again, the research didn't really get affected negatively at all. I was still presenting at international conferences. We presented our research at the Smithsonian as part of the ACC festival. And I got to do cool stuff like micro gravity, rehydration of red blood cells. So just to kind of bring it together, it was very much a launching point, the ExCITE program was. It took us from being a university project which has -- it was very much legitimate the cartoon she showed. We were kind of thinking okay, we'll do this for ten years, we're going to publish it. Now with we have a growing research team at DesiCorp. And it hopefully going to be even bigger picture in just a few months. It's a complete success as part as I'm concerned as you can see. Thank you, Brett. I think that picture on the left is when you all won the pitch competition at the end of their I Corp., the local I-Corps site training program. So very successful and happy to see them have gone on and expand their opportunities. Before we jump into questions, I'm going to pass over talk about the experience at the NCAI Cleveland clinic around I'll bring a Samantha into the conversation as well about her success.

>> Awesome. You can see my slides? Let me -- I assume you can hear me?

>> Yes.

>> So, let me -- well, first of all, Brett, congratulations, that was a fantastic description of what you've gone through and what we hope to have done to our entrepreneurs and innovators here through Cleveland Clinic, but, generally throughout the state and a little bit beyond. And so, I'll tell you a little bit act our experiences is my involvement with skills development, at the Cleveland clinic NCAI program, and I should emphasize that this was an opportunity that came to me when the NCAI-CC was funded back in 2013, the PI at the time came to me and said would you help us develop skills develop, develop this program as part of this initiative that NIH and NIHLBI brought forward and that they have this funding opportunity to develop entrepreneurs as they're submitting their product development programs to this grant? And so I said, okay. I don't really do any teaching. But sure, since my focus has been and continues to be as a researcher. I work in the lab. The background to it, I'll just give you why they came to me, is that as a Ph.D student, I worked, I got my degree in molecular pharmacology, went onto work in industry after a postdoc at proctor and gamble in Cincinnati, been in Ohio for a long time. And then moved here to the Cleveland clinic. So they said well, you know this stuff. This would be an opportunity.

So, when this came around, we had to really think through what's the best way to engage innovators and entrepreneurs in skills? And one of the things that came to us early on through NHLBI and NSF was this opportunity to implement an I-Corps program to our investigators, which was an interesting opportunity because, again, didn't know much about it. So had the learn a lot. We submitted a grant to the NSF, a small grant to the NSF to be able to provide this program. And so, we adopted this early on. And I should point out, this was funded by the NSF through a collaboration with NHLBI and, I think most people in the audience and listening in today are familiar with what the I-Corps education or entrepreneurial set up is. You are really focusing on the customer and the customer need and the importance of the value proposition, really, helping innovators understand what their value proposition is. And we did that. We spent a lot of effort really honing in. But we realized, and so, there's the PI. There's the entrepreneurial lead. There are mentors that are critical to the team. And it's a team-based effort. So, we realize that this was an excellent program. I went, I observed it at the I-Corps note at the time out in California. We did the train-the-trainer process, and, then we brought it back here and realize we really need to think about our specific unique innovators that exist throughout our consortium. And so, we looked at the reality that these innovators have different problems than necessarily a widget, or an app developer. And so, we started to iterate on the program and I'll tell you some of the concepts that we introduced.

One of them was to understand the clinical workflow. And the best example and I don't want to waste too much time today, I'm happy to tell you about this. But the best example that we use is the Exubera inhaler and the failure that Pfizer experienced because they didn't understand the clinical workflow of how you get insulin to the patient. And so, we started with the realization, you have to give the innovators this background. You also have to bring in the regulatory considerations, the target product profile. We luckily had Chris Sasiela who came out and spent at least I believe it was two sessions that she came out, two of our early cohorts to teach us about regulatory considerations and track the target product profile which the teams realize, oh, this was really that ah-ha moment in terms of understanding that. We developed, we had to give them resources and activities to understand that the process is a long haul and to remember the IP and a person associated with NCI and NHLBI came out and give us the drug. That was the early piece we innovated from them. We started, just in terms of some of the lessons learned that we had early on was that, they all gained commercialization skills but they all started at different stages.

It was wonderful to see how quickly some teams adopted. Some already understood it. I didn't really take that much to really get that. There were specialization sessions as I mentioned that NHLBI staff participated in at the time. And then one of the early pieces was, we needed to teach them how to interview early, which is taking people out of the lab was a big part of this process. So what happened since then. I'll give you just a little bit of the outcomes in sustainability. The original program we had about 13 teams that were NCAI funded. That went out, and they decided, in order to implement, in order to grow the program, we had to partner with other sites at around the same time, the state of Ohio funded Ohio state that funded what's called I-Corps at Ohio, that's where Samantha joined us and got their experience, I could use other terms, I'm sure Samantha will describe it much better than I. The program was then facilitated through there and we joined that program to provide the biomedical instruction piece. So we've been working with Ohio state for the last seven or so years. There's also the Cleveland, the clinical and translational science collaborative which now incorporates I-Corps at NCATS curriculum which is a shortened piece. It's a collaboration that has grown over the years. And Jonathan Fay who spoke the other day is one of the original individuals that are faculty that develop this version of the curriculum. So it's a shortened piece.

We noticed a lot of researchers are energized to leverage regional, state, federal opportunities to translate their research onward. And its also changed the mindset here at the Cleveland clinic which has not been the SBIRs have not been a major program that's been pushed forward due oh the requirements of setting up individual companies. And so we now have that. And one of the things that has grown as a result of it is that my part-time job or my hobby or moonlighting piece is to work with innovators throughout the Cleveland clinic, particularly on the clinical side which has an effort in terms of trying to pull those innovators and bring them into the fold. And really provide more opportunities to grow innovations from within. And I won't spend too much time on this. But obviously, as you can imagine, this requires going out and interviewing these innovators especially on the clinical side, which is as I said, is a tough crowd to get involved in in innovation. Although there are a lot of innovations that were probably missing. So we're spending a lot of time with this group to try to bring them in and involve them. One of the things we learned early on is that you really need to do short informational pieces, TikTok is what we're going for at this point. Trying to engage and educate with those short sessions. So I'm going to just end there acknowledge all the people who participated from the Cleveland clinic. Obviously some of you know Mark Low involved with the NCIC for years, these are just collaborators at I-Corps in Ohio. Obviously we've grown and are working with collaborators at Case Western in terms of the I-Corps and NCATS at NIH, and obviously the support of the NSF and NIH where this wouldn't have been possible without it. So I thank you for the attention. And I am going to pass it onto Samantha who has really took on the opportunity to work with the I-Corps at Ohio team and really was one of our stars.

>> Samantha Oblander: Thank you for such a lovely introduction. Let me get my slides up. Can everyone see that? They're not in presentation mode. They were briefly in presentation mode, now they're not anymore. We can see your screen. Okay. All right, well thank you everyone. Again my name is Samantha Oblander, and, you know, do you know, oops, sorry. There's a way to minimize the presentation. But still haven't viewed for all of you. I'm the Chief Operating Officer at NeoIndicate. When I started my journey to becoming an entrepreneur, I joined, I received my Ph.D at Case Western reserve university, and I started in the lab of Dr. Susann Brady-Kalnay, and she had been studied cell adhesion molecules in cancer signaling for over 30 years. After I received my Ph.D, I ended up going onto start another company completely unrelated to science and research, and did that for quite sometime. Fortunately I kept in touch with my lab and was able to come back around and rejoin the lab when Susann was at a point where she was looking to commercialize a technology to aid clinicians in the detection, visualization and treatment of tumors. What she had found in her span of research was that clinicians really couldn't see tumors, and, they were having a really difficult time trying to figure out what is tumor and what is not tumor? What's inflammation? Or what is necrotic tissue? And they really couldn't differentiate from these images and tools that they currently had available. So she was looking to identify tools that would help clinicians. She wanted to help clinicians win the fight against cancer. She was developing tools that could help clinicians to see where tumors ended, where they began, to resect tumors based on knowing precisely where they were located. Also assess their response to therapy. So when I joined the lab, when I rejoined the lab, she had already developed agents that could identify tumors. However we were ready to explore the commercialization process and understand are these tools beneficial for clinicians? And so this took us to the I-Corps at Ohio program.

We got our team together, as Ofer mentioned this was our first interaction with the I-Corps program. We had a phenomenal experience. We found that it was really beneficial to be able to have the funding to be able to get out and attend all of these different conferences and really reach out and talk with so many different customer segments and get so much information about the customer discovery process. From that brief 8-week program we were able to talk to over 100 different people that were in our customer discovery process. We talked to different surgeons that we thought would be our potential customers and, got invaluable information. At one time when I was traveling I was able to just jump out and go walk into a mid-sized hospital and start trying to walk the path of a patient and really try to understand what they went through and who they interacted with, and I didn't speak with my customer that day, a neurosurgeon. But I was able to talk so so many different people in administrative or nurses, technologists that really gave me so much insight information that I wouldn't have gotten reading a paper or looking up paper online. So that was huge and really instrumental as coming into commercialize a were you able to and not having a huge budget, being able to set time aside to do all of that customer discovery.

So at the end of that whole process, we were able to validate our hypothesis that a segment of neurosurgeons did really need the tools that we thought that they may need, we were able to fine tune what their values were, what they really needed, who our competitors might be. As a result of going through that program, we were able to then end upcoming, start our company, NeoIndicate, which now develops tools for tumor detection, imaging and treatment. And we continue to develop different products for diagnosis, imaging, and also therapeutics. We're utilizing all of the skills that we learned through the I-Corps program to continue to tease out these products if they're going to work how we can move them forward and most recently I participated in the I-Corps and NCATS program at Case Western to test out a hypothesis that we had about a certain product line. Again it was just really beneficial to carve out that that time and utilize those resource to focus on the product development. A thank you. Thank you Samantha I think you ha had the entrepreneurial bug before you started this one having done it before.

I may actually turn our first question to Brett and Samantha. Did you start down this path from the perspective of? It was a interesting funding opportunity. At what point did you realize hey, we could really have something here that's worth pursuing commercialization around this. Was there a spark moment for you that led to the decision to say, I am going to take the jump, make the leap into a start up company?

>> Brett, do you want to take that one?

>> Sure, thank you, I think it was during the local I-Corps program, as I said we literally applied to that as a box check to say we have a commercialization advancement on our progress report. It was almost like tricking the people at the ExCITE program and they were falling for it. During that we ended up with some industry mentors who saw our technology basically said what are you doing? Found a company, Brett dropout of school, you can buy a university if this works (Laughter) it was a joke he would tell I didn't dropout of the program. But I was starting to talk to a whole bunch of medical providers, (Laughter) no, I know you weren't fooled we were. Because we were trying to trick you guys ended up getting the entrepreneurship. Basically from that point, it was sort of impressed upon us, we talked to the military, they said oh yeah, 90% of preventable deaths are something your product could prevent. We would talk to medical providers that said you know, 99% of postpartum hemorrhage deaths occur outside of the blood supply network, in you can expand that network you can expand this many different deaths. That was what got even Dr. Menze, Dr. Kopechek lifelong academics, saying at least this deserves some of our attention, that was sort of a snowballing moment wherever other opportunity kept adding onto that initiative of ours to commercialize.

>> Yeah, as I've mentioned in my presentation, I had a slightly different path, I received my Ph.D at the lab, gone out and explored the business world. So I was definitely coming back to the lab with all of that excitement and energy, wanting to move this technology forward and move something into the marketplace. But, my entrepreneurial experience wasn't something else, and understanding the drug development process or the medical device process is a very specific process. So again it was great to just get out there and really talk to people, and, understand my customer discovery and really confirm whether we had a viable product or not and confirm what the real needs were, and what we needed to know to move forward in that process. So it just continued to fuel our excitement and interest in what we were doing.

>> I guess I'll tun our next question to Paula and Ofer research. Because we just heard from Samantha and Brett both at very different starting points, when we started to utilize these programs and jump in and understand the opportunities that were there. So how have you all tailored programs to benefit the entrepreneur who is excited about the entrepreneurial side and want to vet a technology and find one and go for it, all the way to I think Paula has used the language of the very reluctant and spectacle innovator entrepreneur. Who wants to continue with the research side of things, so how have you tailored programs so you don't scare them off too early and really get them into these programs to see the value of participating?

>> Well, for me, it's all a matter of realizing there's not a one-size-fits all approach. As you say tailoring your approaches to fit the target audience, just as an example when we want to bring in new innovators they're going to be interested in the science. So we'll have a guest speaker. And you know, a cool title that will be intriguing and exciting. I just pulled some titles off TED Talks, things like how going to Mars improves life on earth, or the tiny balls of fat that could revolutionize medicine. Have something that is interesting that will get people to think oh, I want to hear about that. For the new innovators who wouldn't come to a lecture if you entitled it, "IP fundamentals" regulatory and reimbursement issues or something like that. On the other hand, there are things that want that. I really want to do think have no idea about IP or regulatory issues. What we find there is having those, but with those innovators they only want that when they need it. One of the things the pandemic has thought us is we can report those seminars in real life, and some people will come to them, there will be a lot more people who ask for them later when they're ready for them. So again, it's about, and also, having people who look like them who can inspire them to be successful so that they see someone and say hey, I can do that, I didn't know anything about innovation when I started out. I was completely clueless, I was like Brett, I went into it. I said I want to see this go forward, I have no interest in business per se, I want to bring this forward. Just sharing those perspective.

>> It's so interesting that you bring that up. I love some of the description of what have developed Paula in terms of the flow. Because, we have taken a little different. Right now, as I said, at the end of the slides, I was sharing with you guys, there's an interest in really bringing other innovators into the fold. They're going to be a tough crowd to hit. So, it's a variety. On the one side, in terms of the I-Corps program, there's the I-Corps at NCATS program that makes it a shorter program, it's not as intensive. So there are other opportunities to pull some of these, but when I started over the last -- this is only recent. This is only within the last two months, I started looking at our other potential innovators, the clinicians, that really changes the mindset and how do we pull that group in? It's still a learning process. I'm still trying to figure it out. And, I might reach out to you Paula to get some additional insights on how you guys have done it. It's a interesting question because, not exactly a crowd or an audience that's necessarily has the time. I loved your point about well, you have to have the information there recorded that people come to it. But what I'm hearing right now is, it's got to be short because, they won't really care if it's an hour-long lecture, they won't go for it. So yeah, it's a moving target almost.

>> I have seen where we have attempted to sometimes fool some of the attendees in attending some of our sessions by including both kind of the educational component as a kind of short informational part, but then also bringing in experienced entrepreneurs to tell their stories of how that topic affected their strategy. Regulatory, it is a very critical thing when they need the material about how to get FDA approval, they're going to go find it. Hearing the story after how a company strategy and commercialization strategy factored in the regulatory, then you suddenly go oh this, is really interesting, especially as you bring in former students, as you bring in clinicians, et cetera to tell those stories. While Brett has tried to tool us, sometimes we have tried to fool them as well. While Brett has tried to fool us sometimes we have tried to fool them as well. I'll get into some of the questions, this is a little bit for Brett and Samantha. For a former bench researcher who wants to start a therapeutic firm, what skills or languages are complimentary orientation have been key to attracting investors and communicating with audiences who are not familiar with the science. So you know, Brett and Samantha, how have you all navigate that process to get folks really excited about the science component of what you're doing.

>> I think it was echoed in what Ofer and Paula just said with people going to presentations. If you're speaking to a general audience, they want a short, exciting -- that 30-second even elevator pitch of what you're doing and what's going on and really making sure you're ready to talk to a general audience. There's so much that you're trained on, you know, in getting your Ph.D to be very specific and very precise in what you're talking about and have those details. And they are very important. And they will come out in pitches depending on who your audience is. But really being able to just speak in general terms clearly and be excited about what your project is, I found to be huge.

>> Yeah, I think that's a really good point. Especially relating it to being a Ph.D and getting specifically focused and I say, just started not. So, but another thing that I think was really helpful is, especially in a short amount of time to explain the specifics of the technology is very, very difficult. And, if you're trying to draw the interest of people who are not scientists, I think that the best approach I've experienced is to talk about the end user or the person who's being helped by it. So instead of saying we have this cool loading technology that lets us put preserves in red blood cells, I talk to paramedic who drew the own blood out of their arm and fused the blood, for the hours flight. They were picked because they the blood type were O type. That's one the million transmissions around the world. That draws somebody in, you can kind of walk back to the very basic technology because they want to know how can this be solved. Because they're invested. I think that's like the ice breaker to get into the technology.

>> If I can just add, that's one of the key reasons that we added the pitch component to our REACH grant application. I think that teaches so many important skills. As someone said, scientists are used to talking for an hour about the details, but ask them to talk for a couple of minutes about their value proposition and it's a totally different story. And really, I think that provides so much value beyond just commercialization, just writing. People have said I write so much better grants now. Just R01 grants. Or I talk to my neighbors and explain it to my friends so much better now that I understand this. And then the other point is, you know, this works both ways, it's not just business people who don't understand the science language. A lot of us don't understand the business language. So, one of the things we did to help our innovators to start off is to just kind of develop a glossary of business terms so that you know, they know the difference between common stock and preferred stock. Because these are things I was frankly clueless about to start.

>> So, kind of building along those lines, somebody asked the question if you think it would be helpful to incorporate more more biomedical innovation as part of a curriculum for students? And I assume that that's across the full spectrum of students in a university. What is your all's thoughts about that, and how some of these programs whether it becomes normal or using words informally infiltrating other aspects of education.

>> I'll take a very quick you know, piece to it. From the clinic's perspective, we do have an affiliation with case and some other institutions, some programs will incorporate programs and other institutions with it. Case has quite a few classes that these entrepreneurial programs speak, part of some of the other universities here are oh doing that as well at the, both the undergraduate and graduate level. All of else, from the instructor side of things are participating in those types of classes. And, as I said, to some extent, it's also being introduced as some of the shorter program educational pieces of it. From the I-Corps perspective at least.

>> You know, we are trying to -- persuade our senior administration that this is a great tool for recruitment right. We see a lot of interest in students around innovation and entrepreneurship and these are really, one the ways we get the high level support is to say you know this, is a good way to get students excited about coming to our university. I think Brett's, adviser also talk about how the words value proposition begin to infiltrate even his freshman engineering courses and utilizing some of the cases they learned through those training programs early on. So maybe it wasn't a foreign word by the time they get further along. At least they hear it from their freshman year of education. I'm going to pull a question out of the chat. What's the balance between moving, figuring out the right time to jump between new company formation and continuing product development within the university. Are there any keys? Have you all experienced for when to make that jump? You know, do you think it's through utilization of some of these programs to further that value proposition and prepare for fund raising? So what would get you to full the trigger, I guess to any of our panelists on when to say okay, it's time to take it outside of the university and pursue some of these other programs and funding opportunities?

>> I would definitely say that, for us at least in our experience, you need to get out, you need to do your customer discovery, you need to understand what you really have and what problem you're solving and what the demand and need is. And all of the work that you do through these customer discovery programs is instrumental in getting funding, funding that's going to get you through that valiant funding that will take you from your university support to a very large angel or SEED investor. So I would definitely say at some point you'll find yourself in that mid ground where you can continue to receive grants, but maybe you're looking to get a SBIR or STTR or something like that. And you're going to need, you're going to be required to have certain components of a company set up in order to move forward with that process. So it will become somewhat obvious, so at this point I better have this patented, I better have certain ducks in a row in order to move forward. I think a lot of time it comes down to finding the right person to make that jump, right. A lot of the faculty members especially the more established ones are not going to be willing to give up their day job to go start up a company. Some universities have newer newer entrepreneurial leave, that's a great option to enable a faculty to do it. But a lot of times it's the people like present and Samantha, the graduate students, the postdocs, the ones who have already left the university who might come back who are willing to take that risk and form the company. As you can see, it's turned out well for them.

>> Yeah, I would agree. Although I don't sit on the tech transfer innovation side to be able to judge them when the Cleveland Clinic, you know, lets the technology out the door from a new company, you know, I think in general, we're a licensing type of organization of what happens internally. Although that's changing. As I said, there's been a little bit of a mindset change in in the Cleveland Clinic in terms of how that happens. To Paula's point, it's also finding the right person that's going to make that jump to the NUKO versus finding that opportunity to license. That's a balance.

>> Absolutely. And certainly, as you build the value proposition, and find out those great stories like Brett found that suddenly had on the hook when they talk about EMT being selected for a flight based on their blood type, wow, I've got a real problem there, that story getting me wanting to know more, finding that person is such a critical component of it is certainly a challenge. I think that's why we're all the more excited to have Brett and Samantha here today.

>> Samantha and Brett I turned the question to him too. Someone who wants to produce a pitch video to a nonscientific investor, how long do you think that video should be to really get them on the hook. 1-2 minutes? Kind of what's your excitement level? Especially as we talk about virtual connections with folks. So, you know, have you found any top tips of how short it should be, how much should you do at intro, what's been your experience in developing both virtual pitches with, and kind of leave behind to get somebody excited about the technology.

>> I think, one of the things is you need to try to think about what kind of investor you're looking at, what kind of program you're looking at. Not just investors in Louisville we have the vote awards, they have to give money for company starts out, you might look for something in your area promoting entrepreneurship, let's say you're looking for an investor, my experience with angle investors they prefer it to be a little more conversational. They're less interested in the corporate history which is good, because you don't really have much if you're starting out. They more want to know what this is going towards. You spent some time explaining the program. Explaining the solution and why your solution is the best way to go about it. Or why this is a remarkably high potential return on investment. Because at your stage, this early on you're probably very, very risky. In terms of venture capital, my experience is they really want to see the problem, they want to see your solution, they want to see a good portion geared towards your plan moving forward. How do you de-risk, what are your milestones? It's much what you think of a typical business pitch. At least in my experience which is also very limited, only you're just raising funds for the last few months, so I'm still learning on that front too.

>> I'll echo a bit of what Brett said, who you're presenting to. I will say that in the I-Corps and NCATS program our team just went through this year. They shortened the pitch to I believe 3 minutes. And it was really fantastic to see all of the different teams give therapists in that amount of time. It really gave everyone a good in-depth understanding of what the work was and where they were going without being too long, and too detailed. We were all surprised that was a thorough presentation in just the 3 minutes. Just to give you a sort of time frame on that. We found that to be beneficial.

>> In one of our recent KYNETIC pitch workshops we gave teams up to 2 minutes, but no slides to give an elevator pitch, as they started it became somewhat of an uncomfortable experience until they got further down the path then they went, I did it! Our team got it. The key was we gave our innovators, this is a important component for everybody, we gave them a safe place to practice. So along peers. It was not recorded. They could practice and get immediate feedback and see from each other's mistakes and successes. And I think that became an important component as well. And we forced them to do it without slides because when you run into somebody in the coffee shop you don't have the slides ready to go ready to pull up. You've got to be able to talk about, to get that initial pitch to get somebody excited to say can you open. Your computer show me more on the background about this. So I think that that's a really critical component, appreciate both of your comments on this. Samantha you want to chime back in?

>> Real briefly new new entrepreneurs or people want to get into commercialize their technology really always keep in mind that as you're evolving, you are going to go from talking so much about science to not really talking about the technical aspects of your product at all and really talking about the business of the market and where you're headed and how long it's going to take to get there. And it's really an evolution that you should keep at the forefront through your journey.

>> Absolutely.

>> I'm glad you brought that up because we drum that out of the I-Corps participants, first session okay. Usually in orientation you can tell us about your Gizmo or your app. Or you name it. Don't want to hear it?

>> Nor the next 8 weeks, we only want to hear about the problem, and that there's a potential solution, but they'll tell us about the actual solution. Because I think one of the things that as entrepreneurs that our group our cohort learns, there are already solutions for most, you know, from a clinical perspective. Doctors are still treating patients. It may not be the optimal solution. To some extent that's what we bring to it.

>> Part of the solution is sometimes doing nothing. So being able to understand that, just because you can solve a problem doesn't mean it needs to be solved. That's where figuring out the value proposition is such a critical component. That's what customers, is it something they care about solving? Very critical. I think Ofer you may be the best to think about differences between the NIH I-Corps program and the NSF I-Corps program. I think well, sort of. What I mean by that is having gone through the NSF I-Corps out in California, and in fact, the I-Corps at Ohio with two tracks, one is more in line with the NSF I-Corps generic program, there's no specialization, I would say the NIH I-Corps I've talked to some of the directors there, including I think John Valejo is one of the instructors, and Jonathan Faye is the instructors on those. You know, my sense is that there is some specialization at the NIH piece of it. Certainly as I said, ours is a very specialized program. We want to make sure that you understand, and by bringing the specialization sessions, we're able to tell them, they come up with new questions, that they wouldn't have thought about before. I think that's where the differentiation comes into it, is the ability to realize oh, I have to think about a TPP, now I've got another ten interviews that I can line up. So I think, you know, that's where it sort of catalyzes the thinking. Maybe Samantha you might have an additional point on that. You know, on the concept that these specialized programs really bring up questions that you need to have answered as a new technology.

>> I can say from our experience having an NSF I-Corps site at the University of Louisville is open to kind of surrounding us a bit, we have taken the approach of through KYNETIC and ExCITE designing our educational programs to supplement, because we are funding healthcare and live science technologies, we bring in the components about regulatory reimbursement, et cetera. We do bring in our own pitch workshop. But then also, let the I-Corps curriculum cover you know, that customer or business model canvas. So they kind of handle the things that are similar in how you approach. So that we've designed to say okay, you can have the best of both worlds, sometimes you can draw people into our training programs and then they go over to the I-Corps site after that, they go this is really interesting, I want to do this.

>> I pointed out Julius and John pointed out, there are other piece to the NIH I-Corps it is for Phase I companies, it's not open for earlier stages, there are three tracts there.

>> Good points, thank you for pointing those out, Julius and John.

>> Let's see. Looking at Q&A here. So, there's a question in the Q&A about paying for patents before an investment is secured. So, I think as a lot of technologies come out of universities, that's certainly a very important component of working with the tech transfer office inside your university and a lot of times they'll kind of foot that first bill and file the initial patent. But do any of our panelists have suggestions for someone who is maybe just starting out, and trying to navigate the best way to get a patent when they haven't gotten investment yet either. It becomes chicken and egg about talking about innovation before you secured that patent?

>> As someone in universities we have a whole tech transfer office to help us. It sounds like the person asking the question maybe outside of the academic system. So, I think you know, we've heard today about a lot of the resources that NIH have for people especially coming into SBIR/STTR, they might be the best people to be able advise on that or say you know, in universities we have a whole office usually to help us and to pay for those initial patents at least. So, that really helps. And I think you know, timing is critical. You don't want to go too early, you'll have a lot of large patent bills before you're able to get new investments, you can't leave it too late, because obviously you don't want to disclose it and not be able to find a patent. So that's kind of a tricky one, those initial provisional patents are usually not too expensive. And then you have the opportunity I guess of the SBIR/STTR funding which is as I think Stephanie described it, free money, in that you don't have to give up any IP rights or lose any equity in your company.

>> Thank you, Paula. A question I guess for our panelists on both sides, both as entrepreneurs and as folks supporting these programs. What has been your biggest ah-ha and kind of key take away from participating in these programs? Could be a key lesson that you learned for entrepreneurs in your own customer discovery. Or you know, kind of an approach that you took. So would love to hear that biggest take away that you've had thus far or biggest success, we'll celebrate those as well? A

>> How about the biggest kind of pivot that really made an impact. And so, in ExCITE, this is right before Brett came in, it was his team that partly own induced this. We initially had a system where we would assign $200,000 of funding to each team. And they didn't get it automatically. They had to reach milestones but we set it aside. We got to within cycle we had five teams that were we were really excited about, only enough to give out three full $200,000 grants. And we can decide between them and one of our ERB members, said, well why don't we all give them $50,000 see how they do have them come back in six months, see who gets the next one. So we did that. We made it very clear to the teams, we've given you $50,000, we don't have enough to fund you all in the next tranche even if you meet your next milestones, it would be how excited the ERB are about what you've achieved and what you planned. And that was just transformative. It was just a little thing, but it allowed us to take more chances. When we're talking about setting aside $200,000 to fund someone we need to be pretty convinced that you know, there's a good chance of success. When we're talking about setting aside $50,000 we can take some risks, we can take Brett give him sods funding, he has an idea. But if it works wow it will be change the world kind of stuff. That allowed us to take more risk, sample more technologies to see which ones will work out. It was transformative for everybody's engagement, the innovators are like we are not guaranteed this. We have the get on this and really make sure it works. Our external review board members our external manager, it sped everything up no end. That was the strategy we adopted if kind of fund more, kill more type of approach to project management after that.

>> Okay, I'll go. (Laughter). You know, I think the ah-ha moments came just by implementing some of the programs. The a ha moments, watching some of the lightbulbs go on with the entrepreneurs that suddenly realized, oh, that is not my value proposition. This is my value proposition. I would say just the opportunity to listen and watch for those, and change the programs because of it. But you know, I would say that's really the biggest thing for me is I've watched those entrepreneurs go through this program. Why I get excited to continue working in this area. And get out of my lab, and do the speeches.

>> Getting out of the lab is a key take away too for any of our innovators along the way. So man that, Brett you all want to tell us, as we wrap up here, you want to tell us maybe your biggest take away that you learned through these training programs that you participated in?

>> All right, I got to go first then. I think that the biggest take away that I had actually is entrepreneurship but also in terms of how I did work as a scientist and that is, there is absolutely nothing wrong with thinking about the impact of market is a good way estimate that to an extent. I very much shifted to liking just to do research because I like to expand knowledge to say I'm spending all of this time, funded by taxpayer dollars, how do I convert this of something to value to something else, once I've started make that connection, it became sort of the driving decision maker, if the decision making philosophy for what type of research I did. I was surprised I it didn't hurt me with publications or anything else, it was actually very helpful. It was a shift from the purely academic mind set to purely entrepreneurial and scientists.

>> I would say that after the last few years of doing commercialization of a product from the lab trying to get it into a clinic, just reminding yourself of maybe the mentality you have as a basic scientist that you know, it's probably going to take longer than you think it will take. And, was an entrepreneur, you're definitely going to be in positions where you'll have to come up on the fly with things immediately. Through the journey, I've really gained an appreciation and respect for all of the different facets of the commercialization process and how detailed and involved each one really is and how important it is to understand those aspects and keep moving forward.

>> Right, well, I want to thank all of our panel itself for joining us today sharing their experience and wish encouragement and best of luck to Samantha and Brett as they are further to develop so we'll see them coming back and giving a keynote address of their successes and all of our training programs in the future. I think we're on a break now.