Just Building Partnerships to Advance Forensic Technology.wav

Introduction [00:00:01] RTI International's Justice Practice area presents Just Science.

Introduction [00:00:09] Welcome to Just Science, a podcast for justice professionals and anyone interested in learning more about forensic science, innovative technology, current research, and actionable strategies to improve the criminal justice system. An episode two of our Roadmap to Improving Technology Transition season, Just Science sat down with Cleveland Miles, Director of the Georgia Bureau of Investigations Division of Forensic Science, and Henry Maynard, Lead Research Scientist for the United States Army Criminal Investigation Laboratory, to discuss the importance of building partnerships in the forensic community to effectively communicate and advance forensic technology. Successfully transitioning forensic technology into practice requires a coordinated effort between many forensic stakeholders, including researchers, practitioners, and industry workers. While building these partnerships is crucial for technological advancement, there are often challenges to overcome when collaborating with individuals from different forensic domains. Listen along as Cleveland and Henry describe the gap in awareness about forming forensic partnerships, actionable strategies for enhancing relationships in the field, and how to navigate the different languages of the various forensic entities. This episode is funded by the National Institute of Justice's Forensic Technology Center of Excellence. Some content in this podcast may be considered sensitive and may evoke emotional responses, or may not be appropriate for younger audiences. Here's your host, Rebecca Shute.

Rebecca Shute [00:01:27] Hello and welcome to Just Science. I'm your host, Rebecca Shute, with the Forensic Technology Center of Excellence, a program of the National Institute of Justice. On today's episode, we will discuss how to strengthen partnerships between the forensic laboratory and the community to drive technology transition. This discussion builds on a recent Forensic Laboratory Needs Technology Working Group effort to develop a roadmap to improve research and technology transition in forensic science. Here to guide us in this discussion is Cleveland Miles, Division Director of the Georgia Bureau of Investigations Division of Forensic Sciences, and Henry Maynard, Lead Research Scientist for the United States Army Criminal Investigation Laboratory. Welcome, Cleveland and Henry.

Speaker 2 [00:02:06] Thanks, Rebecca. Glad to be here.

Cleveland Miles [00:02:08] Me as well. Thanks for the invitation.

Rebecca Shute [00:02:09] Thanks for for being on our podcast today. In our roadmap, we recognized that buy in from laboratory leadership plays a key role in enabling successful transition of novel technologies into laboratory operations. Cleveland, from your perspective as a forensic laboratory leader, how do you approach evaluating and potentially implementing new technology?

Cleveland Miles [00:02:28] Rebecca, thank you for that question. It's a loaded one I think. When I look at implementing and really evaluating new technology, two main things come to mind. The first thing being the benefit and then the second thing being the investment. And what I mean by the benefit, you know, what is it going to do for our laboratory? What is it going to do for our operations? Um, is there improved efficiency? Are we, uh, increasing our forensic analysis capabilities? Are we improving quality? You know, those things are really important in looking at the benefit. But on the flip side of it, on the reverse

side of it, we think about the investment. As great as it might sound, as great as it may be to get this technology or what have you, uh, implemented into our laboratory, what is it going to cost me? And I'm not just speaking from terms of money. I'm thinking in terms of time. How much time is it going to require of me or my staff required to develop it? But even on the end of it, the implementation of it, what are we looking at as far as that practice concern? You do have to consider cost as well. You know the initial upfront what is the investment upfront. And then long term, you know, so I do look at those things when I'm thinking about technology to implement. We have a clear focus as to what our role is. And I want to make sure whatever technology is being implemented is going to further that role. So those are some of the things that I really look at, um, thinking about what we can adopt.

Rebecca Shute [00:03:57] Thanks for that. It's interesting to, you know, kind of build that business case for implementing that new technology. So what are some factors that drive successful adoption of technology thinking, both, uh, external to the lab and internal?

Cleveland Miles [00:04:10] Absolutely. So some of the things that really drive it are going to be those things that further our, our mission or our goal. We usually have limitations but and sometimes those limitations are those things that can drive it. We think about resources, resources and staff. Oftentimes we're working with limited staff or just enough staff to get the job done, but that's one of the things that would drive it. If we're able to have staff that are capable, um, and also have the time to commit to furthering that, that implementation. But, uh, one of the other bigger things that we can consider or have to consider is funding. You know, oftentimes, you know, you don't have that money, that funding that set aside specifically for research. That's a shame. In most instances, you know, you're having just enough funding that you're going to utilize for the mission. You know what the forensic laboratory, you know, our main goal is the case work. And so often that's where our funds are dedicated to. Where you don't have a whole lot of funding that's left over for research. So when we look at the driving things, it's going to be those two factors. Having the people having the time and also having the funding that you can utilize for research and development.

Rebecca Shute [00:05:24] Through understanding perspectives across the forensic community during this road mapping exercise we've learned that no one forensic stakeholder can develop and implement technology in a vacuum, and partnerships really are essential. Henry, what does a good partnership look like in the forensic community?

Henry Maynard [00:05:39] Yeah, I think a good partnership has several components. I think at first there's really strong alignment. That means that each party is aware of the other party's strengths, their goals, what they're hoping to accomplish, also their limitations or any concerns they may have. Additionally, I think it's important that there's clear expectations outlining what a partnership is going to accomplish, who's going to do what, how information will be shared, when you're going to meet, uh, what will happen when there's an issue, data sharing rights, presentation, publication, and review process, and even authorship rights. All of those components are important to identify upfront so that you're adhering to the expectations of both parties. You know, usually a formal partnership agreement really is key there. It outlines all of those things, and it's a written down document so everyone understands what's expected out of them so that the relationship can go forward successfully. Additionally, I think it's really helpful to have dedicated POCs on each side. Um, oftentimes, you know, if you're doing a partnership and somebody is taking on as an additional duty, it's treated as an additional duty, and it's not the focal point. And what happens is the partnership that's forged, it's usually around a project. But

then if the project doesn't take off, then oftentimes you lose steam in that partnership. And then over time it's well, you know what? Partnerships aren't that successful. It doesn't really matter. Let's not do it. But if you can dedicate a POC to it, to the success of the project and also the partnership, you're going to have greater success in the long run. Some additional things I think are really important is consistent communication that would be outlined in the formal partnership agreement as well. But if you are having a routine conversations with the two parties as the project is progressing, you're going to find out that maybe a key variable isn't as important as you thought it was, or another one has more weight on the outcome that you that you didn't think about. It also gives the ability to have some flexibility in the pivot. If you need to pivot the research project into a different area. The final thing I think is really important is formal project management. This helps ensure that the partnership stays on track with the project overall. When projects are successful, it leads to greater success in the long run, which means that there's going to be more of a buy in about research projects, partnerships and that leading to, of course, enhancing laboratory capabilities. One of the key stats that I've always liked is from Project Management Institute. They found that projects that had proper project planning and project management have had a 92% success rate, compared to only a 29% success rate for projects without formal project management. So that yields strength to the argument that formal project management will help the project move forward, which will then help the partnership be beneficial and to produce the results that it was designed to create.

Rebecca Shute [00:08:12] Cleveland. Anything to add?

Cleveland Miles [00:08:13] Yes. Actually, uh, you bring up some really good points about what a good partnership looks like. And, uh, one of the things I think about is, uh, sometimes these partnerships fizzle and die. And so, you know, you think about it, if you're able to keep that communication between the two partners flowing, you know that even though this one project may die, it doesn't become a roadblock, and it may be a bridge to further projects that could come alive and be successful down the road. You know, we think about that in terms of force partnerships. Maybe, uh, a laboratory is not willing or you have leadership that's not willing to embrace research and development. But if you do have a laboratory leadership, you know, really see the value in establishing partners and relationships that can really further, you know, the efforts of getting research and development done.

Rebecca Shute [00:09:05] There's certainly a great thread of intention and intentionality behind partnerships that both of you had mentioned, sort of making time, space and effort dedicated to towards partnerships. So when you have a partnership that involves different parties, for example, laboratories and researchers or industry, what are some of the challenges that may happen in this process?

Henry Maynard [00:09:26] For each of the parties, they may have slightly different lexicon, so that can happen from time to time. And if you're trying to communicate a project, a research project and you're saying, oh, I have this project, if you don't specify what stage of development or project maturity the project's at, it can be confusing. So if I'm a forensic science laboratory and I hear that somebody has a project, I'm probably thinking it's really close to implementation. It's finished, it's ready to be turned online, and I'm having high hopes around that. But later on, if I walk into that project and figure out that it's actually really early on in the project and the maturity is very low, it's problematic. Now, if I'm a laboratory, the amount of resources that I may have to put into it increases, or even the time until I'm able to implement it increased as well. So when there is unclear stages of development or project maturity, you know, often through a lexicon problem set of not

clarifying that can lead to some hiccups. Within the DOD there is what's called the Technology Readiness Levels, which is a set standardized numbers list, which explains the maturity of a project that really helps you identify where it's at. You know, if I'm reaching out to Cleveland, I have a research project that's high on the technology ready list levels. It's a TRL seven. If he's aware of that, he knows exactly what that means, and he can interpret that and say, okay, I understand where you're at. And yeah, I'll make that investment further. A different lexicon issue that kind of comes up often is the term validation. Uh, oftentimes you'll see different groups use the term. And the term means different things at for different populations. So in the academic community, sometimes you'll see an article that says that somebody has validated a new technique. But of course in a forensic laboratory lexicon validation means more about ISO. It means more about demonstrating the reliability fit for purpose for the operation. That term, I think, brings up some questions. Oftentimes we say internally research answers questions, and validation is the documentation of the answer that you have. Some other hiccups that can take place is if you don't talk about data sharing agreements. Oftentimes in forensic science, we have great ideas and we want people to be able to work these great, amazing research projects. But we don't always have the data sets available. So that could be a problem. We need people to create data sets, or if we have data or using case related data, you have to make sure there's proper protections placed on that data and that each party understands what you can and can't do with that information. I think one of the other barriers overall to partnerships is sometimes if you're not working a partnership for a long time, you kind of fall into the trap of everything is an acquisition. Everything is a procurement, so you're limiting your partnership capabilities. If you only think that you're only paying into technological solutions, so you don't have to buy all of your new technology, you can develop it. You can be part of the development of it. And that's where partnerships exist and can take place. So we just at times have to remember that it's not just from a technology provider, but we can actually, you know, perform that RDTNE to make those partnerships, to build those relationships to to further that technology's advancement, which comes back into the laboratory at some point and benefits our end users.

Rebecca Shute [00:12:23] Great overview of some of the lexicon challenges, data sharing issues, all of that. How might this community get around some of these challenges?

Henry Maynard [00:12:31] From my perspective, I think it kind of goes back to infrastructure again. Oftentimes if you have dedicated personnel who are trained in these areas, if, you know, research scientists are often trained in how to conduct research, how to plan research projects, formal project management, and even many of them are aware of partnership mechanisms. When you're aware of those things, you know about the pitfalls and you know how to accomplish them successfully. So, you know, I think the biggest way around is through sharing information about what works and then codifying roles and responsibilities early on.

Rebecca Shute [00:13:03] So technology transition is driven by effective partnerships, but some lab leaders might not be aware of the full span of partnership mechanisms that can help them accomplish this. Henry and Cleveland could you walk us through some helpful examples or strategies to enhance partnerships?

Cleveland Miles [00:13:19] Probably one of the most obvious things, at least in my mind, as a strategy would be concerned, is taking a look around you. And when I say around you, are there other laboratories that are near you that are performing, you know, forensic work? Are there universities that are near you who have, you know, programs or even just majors that support forensic work? And really reaching out to them to establish

communication, kind of go back to building relationships to kind of get things started. You know, I think that's to me is an obvious step that you can take. We also look at the conferences that we go to. A lot of times we're all in the same place, but we are there for different purposes so we don't always get together to speak together, uh, in a way that can kind of facilitate some of the beginnings of partnerships. At least the topics of talking about things that, you know, you as a university may be able to assist me with. So, you know, we are able to get into those conferences and talk the language that can help start the beginnings of partnerships.

Henry Maynard [00:14:22] Yeah. Kind of to echo what Cleveland's mentioning awareness. Who's doing what. I think that's a key element of it. As you're seeing partnerships, it's important to highlight those, to share those with the community, but also like the specific knowledge about partnerships that can really help. Each organization's going to have its own rules, regulations and even authorities that it has to follow, or a partnership mechanism that's that's enabled to take place based on the authorities. So having knowledge about partnerships, you know, whether it's an MOU, a memorandum of understanding, you know, a no cost partnership, a memorandum of agreement which could have a cost transfer, uh, reimbursable, a CRDEA, which is a cooperative research and development agreement, or an educational partnership agreement, an EPA, or even data sharing agreements. All of these are different. This is the starter of the list, right? There's so many more on top of that. But having the knowledge of each different partnership mechanism, what you can and can't do with it. Who is eligible for those that helps the partnerships move forward faster, so it's clear expectations for everybody, but at the same time, it allows you to communicate a language. So, you know, even in my personal experience, I've reached out to a company and I've explained, hey, we're looking to partner on on this. You know, you almost have to break down a business case for it. Here's what the benefits of the partnership would mean for you. Here's what the benefits of the partnership's going to mean for us, or even for a university. We've had educational partnerships agreements with universities before where EPAs allow you to do a lot. You could have an internship program which contributes to your future employees in the lab. It becomes almost the opportunity, a pipeline to employment, in a sense. Someone once told me that an internship is great because it's like a six month interview. You know, you really get to understand how someone's working before you extend an offer for employment. The other thing is it just builds the bridge between academia and forensic science lab. So those partnerships are going to ensure the information exchange taking place.

Cleveland Miles [00:16:06] That's fantastic points. I think about the internship program is just one of the examples that you gave, really having a good mindset around what the benefit could be for laboratory if you really beef up your internship program, right. It's a partnership with that university could be a longstanding one. You know, imagine if you're able to really work with that university to develop their academic program, to really facilitate the needs in a forensic lab, really having that conversation. Hey, this seems like a great idea. One of the courses that we should have our students take. But what do you think? You're coming from that laboratory. You say, hey, you know, this would really be a benefit if you could have coursework in this or training or this laboratory exercises, really beefing up that partnership program so that it's a long term longstanding benefit really for both.

Henry Maynard [00:16:59] Yeah, that's a great point. We've seen, you know, with an EPA, you can actually have your forensic scientist provide input on curricula. You can design programs and classes that you know are important for your labs operations early on, so you can bring in those key elements of the instruction while the students still at school. I

think another really neat thing about the opportunity is this provides our forensic scientists the opportunity to, you know, teach. And they could they could teach a course or even a seminar series. And that helps build their CV. It helps work on their professional communication skills. And of course, teaching is one of the greatest ways to to really test the edge of how much, you know, you figure out where you find that spot where you're like, oh geez, I wonder, I want to look at that at one more time before I present that. So there's tremendous benefits, both from the laboratory perspective, but also for individuals within the laboratory for having these partnerships.

Cleveland Miles [00:17:47] Right. Those could be great examples of how successful partnership could be.

Henry Maynard [00:17:51] And like you mentioned, you know, with the labs that have a long standing partnership with the university, oftentimes it leads to greater success on both sides. So we've seen some labs are actually co-located, and they have academic facilities right inside the laboratory where they're they're teaching right there. And they've put kind of safe safeguards in place, you know, viewing windows over lab work, right. So you can see inside of it from a student perspective. So long term success can lead to greater facilitation of shared resources, leveraging the resources and instrumentation of others, and co-location of students and faculty at the at the site.

Rebecca Shute [00:18:28] Certainly great to talk about the mutual benefits of some of these partnerships. Are there any resources that are currently available for forensic laboratories to better understand these types of partnerships? What some of those parameters look like, or is that still sort of a gap here?

Henry Maynard [00:18:44] I personally think it's a gap because oftentimes I'm engaged in conversations where you're explaining what you can do and how you can do it. Of course, every every lab is different. Every system is different. So they have their own unique requirements, rules and regs. Sometimes I'm not certain if there's an overall partnership strategy we can all use that's fit for all purposes based on state and local regulations as well. I'm not certain. But Cleveland, you have thoughts.

Cleveland Miles [00:19:07] I agree with you, at least from my perception. I think it's a gap. I can speak from my experience, where reaching out to certain universities. Us trying to figure out how this can happen and, uh, you know, we're kind of fumbling over each other a little bit to really get something established. And it would be great if there's a template or a blueprint out there as to how this could happen. Uh, what are some of the things we both need to have and consideration as we move forward with it? I think it doesn't stop you from trying to move in that direction of establishing that partnership, whether that's with a university or other. You know, what, you do have to tread lightly, you know, and I think that's where you start to bring in other people who can help facilitate it. You know, one of the things you mentioned, making a business case in certain instances, well, that's not my strong suit. So I'm not going to be that person. But I do need to pull in someone, whether that's our legal division, whomever that can help me do those things. You know, as you work to create it hopefully it does become more of a blueprint or a template so that everyone can kind of see how we go about it.

Rebecca Shute [00:20:10] You've talked about partnering in a general sense, but I think it's helpful to note partnering with industry. It's been mentioned as a noted blind spot among a couple of lab directors, and also has some sensitivities there. Cleveland what questions should a lab director be asking when considering a partnership with industry?

You know, what are some benefits and also some watch outs of this partnership opportunity?

Cleveland Miles [00:20:32] Yeah. Thank you for that question. I think there's probably a natural hesitancy to partner with, you know, industry. Really you're from two different worlds. You know, the laboratory is really providing a service. And then that industry partner, you know, they're a business. And so the main goal for them is it's got to make money, right. But I think there's a chance for us to meet in the middle on some common ground. If we see a need that we need some help in developing a solution for. I mean, that's going to be right on their nose with its hey solution. If I can provide a solution, I, you know, this is a business thing for me. I can, you know, operate a business from that. And I think that's where we can come together. And so, you know, as a laboratory, you know, that's probably the first thing you're going to want to do is really, you know, be clear about, hey, this partnership, this is what our need is, are you able to help us meet a solution for that? And then, you know, if that's something that can be done, then you start to come into some of those things about the expectations, clear expectations. Right. The obligations. You know, as a laboratory, I don't want to be heavy on the lab side of things where a lot of my staff is going to take a lot of time for the solution, but it's not reciprocated on the other side of the partnership. So having those clear expectations from beginning middle to end at the end of this thing, what does it look like for you? What does it look like for me? But I think one thing that I probably would consider, and I don't know that many would think about it, but an exit agreement. So yeah, we developed the partnership. And yes, we're in this project together, this endeavor together. But if at some point it doesn't seem to be fruitful for me as a laboratory, uh, maybe the solutions not necessarily meeting the need for me, how can I get out of this partnership? And what does that the exit look like? Same thing on a business standpoint. I think, you know, when you talk about industry, yes, they're a business. And for them, if this is not going to end up being lucrative I think to that point they may want to exit. But what does that look like? You know, I think those are going to be some questions you want to ask. Ultimately clear communication, realistic and clear. I would put realistically this well because you know some things are pie in the sky dream idea up front and once you get into uh, let's say, you know, developing it, you might be saying, hey, this may not be exactly what we thought it would be, but I think clear, clear expectations and communication.

Henry Maynard [00:22:59] I think it's a great point. In formal project management, there's a term called progressive elaboration. And that means that as you progress through a project, you're basically getting more and more awareness, knowledge of the specifics of it. So in day one, when you have a partnership, you may have, you know, the big goal is to have the partnership. And really for leveraging the expertise and the resources of each partner towards a common goal. As you go down the project planning route, you figure out more and more about who's going to do what and in what way. So I think that's a really important component. The progressive collaboration is as it pivots, you know, good communication, like we said before, is really critical. Uh, and most agreements have kind of a termination or a sunset clause in it where it speaks to, you know, if this isn't working, you know, how do we get out? But with good communication, I find that most work very successfully. Industry is an important part in the innovation ecosystem. You know, with labs, academia and industry working together, we have the best products going forward, which turns into the best capabilities for our constituent groups. You know, industry has the ability to develop and field different technologies. They create the hardware that enables case work to take place. Um, you know, with advanced instrumentation oftentimes. Plus they have a really good access to larger networks, meaning other labs, other uh, companies, um, and also universities. So their ability to form partnerships is, is

really great for the innovation within forensic science. So I kind of like to see that more. I see far less of the concerns around the business side, and I see more of them as a partner. And we just have to use the right, the right mechanisms of partnership, which could be a CRDEA a cooperative research development agreement, which enables the government, laboratory and private sector industry to work together on collaborative research. So as more of the knowledge about the partnership mechanisms proliferates the field, we're going to see more and more that we can do the things that we potentially thought we couldn't before, and it should open the door for innovation to occur at a faster, faster rate and then also with more parties at the table.

Rebecca Shute [00:24:57] So, Henry, how might forensic laboratories partner with other forensic laboratories to improve RDTNE and amplify the adoption of technologies? Or maybe rephrase in another way? How might forensic laboratories work with each other to establish sort of a common goal there?

Henry Maynard [00:25:12] That's a great question. It's a big question, right? In my mind, I like to break it down to the past, the present, the future. So in the past, the past represents all the research and validations that have been completed so far. And each individual lab has done some work in that area. Right. They have capabilities that are online, and other labs may be at different levels. They may have different disciplines and they may have different offerings or capabilities. Right. So if we can share more information about what labs have done in terms of research evaluations or validations, that provides kind of a stepping stone for other labs. So if you see another lab has done a validation already, then and you want to bring that technology online, you can reach out to them and say, hey, I'm the POC at so-and-so, I'm trying to do this. What can you do to help me? One of the things that you know, ASCLD has is the validation evaluation repository, and it exists just for that purpose. So as labs are finishing validations, they have the option to submit the validation, either a summary of the validation, the actual raw data, the full report, whatever they want to share they can. Because at any degree the information sharing is going to help some other lab. Even just at the POC level, the full data level, or the exact test plan that was used. In my experience, looking backwards, I remember being an examiner and being volun-told to do a validation at one point, and spending that time thinking of a test plan, ordering all the reagents, conducting all the testing, writing up all the reports and then it goes online. Then you go to a conference and you find out that 4 other people did it too. And we all did it in the vacuum. Um, and so when we talk about labs having limited resource at times, why are we not sharing those resources, that information sooner, you know, so we can maximize our internal resources by sharing information across the community. That's the past. So if we've done it, let's share information about it. In the present, kind of the same taking place. We need to be more open and sharing information about ongoing research projects and validations. So knowing who's working on what helps the entire field understand which problem sets are being tackled and which ones remain untouched. So if you're looking for a future research project, you can you can zero in on the problem set that nobody's working on at that point. If we have knowledge of who's doing what. Nowadays, many labs have their own website, and through social media everyone has their own outreach channels. So those are no cost options to be able to share information about the research and validations taking place at your lab with other laboratories, but also sharing that information with a greater public. And so now we're promoting awareness of what's taking place at the lab and the benefits that that the lab is working on that's going to, um, help the greater public overall. Finally, for the future, I kind of think that the more, you know, forensic science labs are very dynamic. And, um, you know, things can happen unexpectedly where you don't have the resources that you thought you did. Planning is sometimes difficult, long term planning to plan out capabilities.

But to the extent possible, if individual labs can create research roadmaps or lab capability roadmaps that document what they want to see and what they want to bring in online in the next 2 to 5 years, if each lab had their own capability roadmap, they could then share that. And if we shared those at meetings and we share the information over time, we could then say, okay, there's five different labs that want to bring this piece of technology online in the next two years. Now we can form an inter laboratory working group, and now we can share the resources, the information. We can break up the test plan to different components to, again lower the resources, the resource strain any one lab by sharing information and communicating that and working together. Having a planned and structured approach to research and technology adoption would be beneficial to individual labs, but also to the forensic science community overall.

Cleveland Miles [00:28:40] I mean, I couldn't agree with you more when we think about the resources that a laboratory has, that's a fantastic way of really, you know, increasing your reach, right, based on your resources. Um, I think that's a fantastic idea. If we are able to communicate with each other and kind of establish those relationships and stay abreast of what, what Henry's doing over at his laboratory, you know, versus when I'm doing at mine, um, you know, we've we've doubled our, our resources just by collaborating or at least talking about it, saying, hey, this is where we want to go. Um, I think that's a great way to address partnerships that also, you know, that challenge of partnerships being resources.

Rebecca Shute [00:29:22] The question I'm really thinking about in context here. Um, it's certainly been great discussion. And this is, uh, kind of a great example of some of the awesome discussions and questions and, uh, really hard topics that we were diving into in this process, which was almost a two year process to to get to this roadmap, uh, with a lot of fantastic perspectives there. Would kind of love to hear your thoughts on how this roadmap could help forensic laboratories, other forensic community members who are looking to improve the way that they partner.

Cleveland Miles [00:29:54] You know, I think this roadmap for what it is, it really does bring to light a question, uh, and probably something that's in everyone's mind from a forensic labratory standpoint. How can I move things forward? You know, they've got a, a job that needs to be done. I have limited resources. Things aren't growing except my backlog. But how can I move things forward? And so it really pushes you to think about things outside of your normal surroundings. When it comes to getting, um, technology improvements there, from that standpoint, what's a way for me to do that? And I think all of us, when I talk about lab directors, all of us want to do those things, you know? But we do have the cloud of casework over us. Um, because that's what we have to do. That's our, our main purpose, our main function. But we want to do those other things. And so I think it drives us to really look at what else we can do. If you thought about a partnership, I think it helps push you in that direction of saying, hey, this can be done not just with, you know, a university, but it could be done with an industry partner or even the laboratory that's down the road from you. You know, reach out. Let's let's talk. Let's see what we can come together to accomplish. I think this roadmap definitely pushes you to to think about it and honestly, light that fire a little bit under you to start making movement towards that. When I've read it, that's kind of what I took from it is that, hey, this this is a little bit of a fire here. Let's, um, you know, I feel I feel a little bit of a charge to now to start to reach out and get those things established. And also. Okay, I know that there's people out here that have the same thought that can help me get to those places of establishing those partnerships to push the field forward, you know, with technology to address some of the things that we need to see addressed as far as staffing, you know, development partnership with schools

to kind of develop a team to put, uh, a pipeline. Those are some of the benefits that we can see from establishing those partnerships. You know, and it really, again, really makes you hey, I'm going to take the next step, or at least I'm going to take a step in getting this thing accomplished, or at least established from my laboratory.

Henry Maynard [00:32:18] Yeah, I kind of like what Cleveland said. The road map, I think, is definitely gonna help with the awareness of perspectives from all the different parties in that ecosystem. It's going to help recognize what people contribute. You know, the shared vision of trying to create the best capabilities online for the forensic science community. I think it even provides the framework for understanding that what we really need is systems within systems. And systems thinking is what's going to be important for the forensic science labs. It's going to start with if we want it to be forensic science research needs, then we probably have to have a process and a system for collecting research needs at the laboratory. Then if you if you collect the right research needs, then you need a process or a system for either working the problem set through internal research or working it through external research, and which can then go to universities or even private sector. So I kind of really like the roadmap in the sense that it provides systems of systems thinking, and it provides the highlight that if we don't codify these systems, if we don't codify these processes, we're hoping for great results, but we're not changing our everyday interactions. Um, and so it really becomes a call to action on do you have a pipeline? Do you have a research needs process? Do you have a partnership vehicle? Does the infrastructure exist so that you can take part in the future uh, technology advancement? If not, you probably need to develop some of this infrastructure so that you can take part in it. Um, and now if you have it right, how how do you then take it forward? How do you promote information sharing? How do you promote the adoption of a technology into other laboratories and help the entire field? How do we make it such that all boats rise together?

Rebecca Shute [00:33:47] It feels like a great ending piece. That's really all the questions that I have. But any sort of last words? Otherwise you know, I think this this was fantastic.

Cleveland Miles [00:33:55] Oh thank you. I like the ending statement that Henry just gave us.

Henry Maynard [00:33:59] I actually I got one thing just to add, when you look at the definition of practitioner, it actually is anyone in a field or industry that's trying to advance it. And oftentimes we'll limit or we'll label people in different roles. You're an examiner, you're a research scientist, you're an academician. But the reality is everybody is a practitioner in forensic science that's moving the field forward together.

Rebecca Shute [00:34:22] Cleveland and Henry, thank you so much for your time discussing your experiences. It's really been a pleasure talking with you today.

Cleveland Miles [00:34:28] Thank you so much. I definitely, uh, enjoyed coming on and speaking with you today. I think it's, uh, a good piece of work that will, uh, inspire folks on every aspect of the industry to really work towards creating something special, um, that can be modeled and carried forward.

Henry Maynard [00:34:47] Thanks for having me. This has been a great opportunity. It's always great to talk about research and forensic science research with with great experts like Cleveland and Rebecca of course, you're a technology expert, so I always appreciate sharing thoughts with you as well. Thanks for having me.

Rebecca Shute [00:35:00] Thank you. If you enjoyed today's episode, be sure to like and follow Just Science on your platform of choice for more information on today's topic and the technology roadmap visit forensiccoe.org? I'm Rebecca Shute, and this has been another episode of Just Science.

Introduction [00:35:17] Next week, Jason sits down with Henry Maynard and Catherine Grgicak to discuss enhancing research to improve technology transition. Opinions or points of views expressed in this podcast represent a consensus of the authors and do not necessarily represent the official position or policies of its funding.