

Essential Science Conversations

ARPA and You: Research Process and Funding Opportunities at Intelligence Advanced Research Projects Activity (IARPA)

Wednesday, November 16, 2022

Mitch Prinstein: Good afternoon or morning, depending on your time zone. I am Mitch Prinstein, the Chief Science Officer for the American Psychological Association, and I am delighted to welcome you to today's essential science conversation called ARPA and You, Research Process and Funding Opportunities at the Intelligence Advanced Research Projects Activity. Before we get started, a quick note that this program is being recorded. I am honored to join my co-hosts for this event. Robert Gropp, the Chief Executive Officer of the Association for Psychological Science APS, and Julianne Baron, the Executive Director of the Federation of Association in Behavioral and Brain Sciences or FABBS. Rob and Julianne.

I felt it was important for psychological scientists to have access to more information about the ARPA research funding programs. These models are different from the NIH and NSF type of research that we know more about, both draper, the original and oldest advanced research projects program, and IARPA, which we will learn about today, have funded psychological research that advances the missions of their parent agency and are looking for applicants from our discipline.

Now a new agency is being organized as well called ARPA-H that will focus on health-related projects. APA, FABBS, and APS decided that we should focus informational webinars on each of these advanced project programs because each has a different mission and there are differences among the models. This is the first of those three webinars. Tell your colleagues and students and come learn with us.

Our associations focus on enhancing research funding for psychological science, and we want you to know these are agencies that have some really great research money to spend. The DARPA budget was \$3.8 billion in fiscal year 2022. The IARPA budget, like most of the rest of the intelligence budget, is classified but maybe our speaker today can provide some points of comparison. The new ARPA-H agency was just appropriated \$1 billion in fiscal year '22 to get started. In first announcing the proposal, President Biden called for a budget of \$6.5 billion. We want you to have all the information and tools that you need to be successful applicants to bring your research forward to help these agencies achieve their missions.

Today we're going to hear from two speakers about IARPA. The first is Dr. Steven Rieber, a program manager that is a scientist who helps decide how to allot these research dollars. Next, we'll hear from psychologist Barbara Mellers, a scientist who has received IARPA support. Please post questions in the chat and we'll get to as many posts as we can after the presentations.

First, we'll be Steven Rieber, who joined IARPA in 2014. As a program manager, he focuses on areas of scientific research that include forecasting and rational judgment, and decision-making. Prior to joining IARPA, Dr. Rieber worked at the office of the Director of National Intelligence, Office of Analytic Integrity and Standards where he served as an analytic methodologist introducing new methods

and training to the intelligence community's analytic workforce. Dr. Rieber earned a PhD in philosophy from Princeton University.

Then Dr. Barbara Mellers will speak. She is the I George Haman University professor at the University of Pennsylvania. As the 11th Penn Integrates Knowledge or PIK professor, her academic appointment is shared between the Department of Psychology and the School of Arts and Sciences, and the Department of Marketing at Wharton. Her research examines factors that influence judgments and decisions, including emotions, self-interest, past mistakes, sensitivities to risk, and perceptions of fairness.

She served as the president of the Society for Judgment and Decision Making, is a fellow of APS, and has received majors research support from NSF and IARPA. Dr. Mellers, thank you also for being with us today. I'm excited to turn it over first to Dr. Rieber and then Dr. Mellers following their talks. Rob Gropp of APS and Julianne Baron of FABBS will kick off our Q and A segment. Dr. Rieber.

Steven Rieber: Thank you, Mitch, for that introduction. I'm Steve Rieber. Can everybody hear me? Good. I'm a program manager at IARPA and as Mitch said, that stands for the Intelligence Advanced Research Projects Activity. The purpose of my remarks is to help you understand IARPA funded research opportunities in the brain and behavioral sciences. Some of our processes at IARPA differ from those of other funding organizations. I'll try to explain some of those differences and I'm happy to answer any of your questions on this occasion or if you'd like to contact me, you can see my contact information on the IARPA website.

I have about 15 slides and just to let you know what I plan to do. I'll begin by telling you a little bit about IARPA, our purpose, what we do and how we do it. Then I'll show you some examples, not a comprehensive list, but a few quick examples of research programs that IARPA has managed in the brain and behavioral sciences. I'll close with some suggestions for next steps that you might want to take if you're interested in pursuing IARPA opportunities for research.

Next slide, please. Just to situate IARPA, we're part of the office of the Director of National Intelligence, or for short, ODNI. ODNI is the organization that leads and integrates the US Intelligence community and the IC, as we call it, the intelligence community, consists of 18 organizations including ODNI. Again, IARPA sits within ODNI. Next slide, IARPA leads high-risk, high-payoff research and development that is intended to produce technology for use by the entire intelligence community. IARPA funds and manages this research, but it is performed externally to IARPA at universities and at companies.

You probably noticed that our name rhymes with DARPA. DARPA has been around longer. I think you can see, actually, I can't quite see it in my slides, but we have our logo this year honors the 15th anniversary of the founding of IARPA, so we've been around that long. DARPA has been around a half-century longer, almost 65 years. There are some differences between how IARPA works and how DARPA works. Of course, I can only speak for IARPA and I believe you'll get another webinar on DARPA and on ARPA-H.

Next slide. The primary form of research that IARPA funds and manages is called the research program. I'll say a bit about this. Let me comment on a couple of the bullet points on this slide. First, the third from the last bullet or sub-bullet, employ independent and rigorous tests and evaluation. IARPA as I said, differs from other funding organizations in a couple of ways. One is that we typically, we issue contracts, not grants.

Secondly, for the contract to be continued, the research team, or just to introduce some IARPA jargon here, I guess it's ARPA jargon, generally. The performer team, as we call it needs to do well adequately against certain objective metrics in order to have the contract renewed. We have what we call independent test and evaluation, whereas we like to abbreviate it T&E. The independent test and evaluation team measures the quality of the work by each research team. The research team, as I said, will continue to get funding to have its contract renewed, only if it makes adequate progress against these T&E metrics.

I'll make a remark as well about the second to the last bullet point there. You may be wondering what the IC partners are. That phrase refers to the intelligence community organizations whose names I showed you on the first slide, the 18 organizations constituting the US intelligence community. How do we involve them from start to finish? Well, a new program at IARPA starts with an idea from a program manager such as myself, and we pitch it to the director. It's a pretty involved process to successfully pitch an IARPA program because these are major research efforts.

In the course of pitching the program, we have to demonstrate that some of our IC partners, the intelligence agencies or organizations, are interested in the technology that we're trying to develop. That is to say that if it works, if the R&D is successful, our IC partners would actually use the results in their performing their mission. In the course of a program, as it's going on, these are multi-year research programs, we invite our IC partners, people from the intelligence agencies to learn how the research is going, and sometimes suggestions from our IC partners. Just to give you another bit of jargon, we call them sometimes the transition partners. Sometimes they'll make suggestions that will help guide the research so that what we are working on is more valuable to the end user, namely the IC organizations. Next slide, please.

IARPA research and development big part of it, as I said, is these metrics and milestones, and those are somewhat abstract terms. It might help to give you a concrete example. Let me take one from one of our better-known research programs. It was called ACE, and it's more widely known as the research program that introduced the concept of super forecasting to the world. Barbara Mellers was a PI for one of the performer teams on the ACE program. Again, the point here is to illustrate what I mean by metrics and milestones.

The purpose of the ACE program, this is just an example, was to make a substantial progress in producing accurate forecasts on world events. These are forecasts, probabilistic forecasts that say how likely it is that a certain event will happen in the world. One of the metrics that the ACE program used was that we required the performer teams, each of the performer teams by year three, to have a 50% in improvement in accuracy over the control group. I put that out there as an example of what I mean by metrics and milestones. Next slide.

A bit more about IARPA research programs, which again, are the main source of research that we sponsor and manage. As it says, there are large-scale R&D efforts. They last typically three to five years. It can vary. Each research program, like the ACE program, consists of several what we call performer teams and each of these teams is multidisciplinary consisting of more than one person, often more than one institution. To find out about IARPA research opportunities, it's good to look for upcoming broad agency announcements. Let me say a word or two about those and how they differ from a typical RFP or Request for Proposals.

A broad agency announcement differs in a couple of ways from a standard RFP. For one, we don't compare the proposals to one another. We're looking for a diversity of approaches that will solve the research problem that we put out there for the world to solve. We'll fund often, as I said, several performer teams who work concurrently, taking different approaches, different methods that they've proposed to solve the problem. When you think about applying or proposing to one of these IARPA programs, you should think of yourself as part of a team, because we don't fund for the programs, individual researchers. What we do fund is a research team, the performer team, as we call it, that does the research consisting of people from several disciplines, typically. Next slide.

As I said, IARPA is part of the intelligence community, there are many things I like about working at IARPA, and one of them is that compared to some IC elements, we tend to be much more open to the outside world here at IARPA. We have to be because so much good research is being conducted by people such as yourselves, academics, people working in the industry, and we need to work closely with such scientists. IARPA funds a large amount of unclassified research, and we encourage publication of the results and widespread dissemination of the published findings. Next slide.

All right, so this is a sample of six research programs. These are all past programs at IARPA that we've had in the brain and behavioral sciences. It's not a complete list. If you want to see other examples of research that we funded and have managed, as I said, you can go to our website and see all of them. Let's start with the first one ACE. Next slide, please. This is the ACE program that I mentioned before. It ran from 2011 to 2015. ACE was started, just to give you a brief history of it, by Jason Matheny, who was a program manager like myself. Jason Matheny went on to become IARPA director and currently, he recently took a position as CEO of the RAND Corporation.

This program was intended to go beyond what's called standard wisdom of crowds approaches to forecasting. It succeeded in doing that. As I mentioned Barb Mellers was one of the PIs for one of the performer teams on ACE. I thought it would be helpful at this point rather than just hearing me talk about what it's like being an IARPA person to hear from someone who has been a researcher, a PI on actually several IARPA programs. Let me ask Barb just a general question of what it's like, first to propose research from a technical point of view to an IARPA program and how it might differ, if at all, from a standard proposal that one would make for research funding. Barb, any thoughts about that?

Barbara Mellers: Yes. I think the main difference is the size of the proposal compared to an NSF grant say, in decision making, this involves many people. We have two dozen or more people involved in our research team or research group

known as the Good Judgment Project, and they included computer scientists and statisticians, psychologists, economists marketing scientists and management scientists, and probably more. It's a big job to get a proposal written and you need to leave yourself more time than you do for a normal NSF grant. Roughly speaking the size of our research money was \$3 million a year for four years, so considerably more than your basic NSF grant. I would say magnitude is the biggest difference.

Steven Rieber: Great. Barb made another point that I want to echo here, which I don't know firsthand because I haven't written a proposal for an IARPA research program, but I've read many of them and I know that just as IARPA research programs are large in scope so is the proposal as Barb said. It's a good idea. I would recommend having somebody help you with a proposal who has some familiarity with proposals for government contracts and contracts of this sort in particular.

Let me show you a few more examples of some IARPA programs in the brain and behavioral sciences. I'll go through some of these quickly and then we can talk more generally about what it's like to be a researcher proposing to and working on an IARPA program. Next slide, please. CREATE was a program that I pitched to IARPA. Its purpose was to develop technology techniques to help intelligence analysts make better-reasoned reports. What intelligence analysts do, one main thing they do is they write reports or analytic products as they're sometimes called for policymakers to read and find out what's going on in the world. The goal of the CREATE program was to help analysts via structured techniques and crowdsourcing produce better reasoned analytic reports. Next slide.

The previous slide was about CREATE and better reasoning in the reports. The goal of the SHARP program was similar but different and it was to improve the reasoning in the head of the analyst or the analysts. SHARP was intended to increase fluid intelligence in intelligence analysts, and you can see some of the sample methods on the right that it used. Next slide. ICARUS. The goal of ICARUS was to build computational models to help us understand and improve human sensemaking. In particular, the computational models were applied to geospatial sensemaking. The thought was that these models might help us intelligence analysts overcome cognitive biases in interpreting data. Next.

MICrONS. MICrONS was another program at IARPA in, of course, brain and behavioral sciences. It's sought to develop methods for automatically recognizing objects based on sparse data. The idea here was what the program manager called reverse engineering the algorithms of the brain. Based on the physiology, the structure of the brain, the idea was to develop computational models that would help more accurately recognize physical objects using very sparse training data. Next.

Finally, the last example I wanted to show you was called KRNS. That's how you pronounce it. KRNS sought to greatly expand our understanding of how the brain represents not just concepts but combination of concepts. The intention here was to build new analytic tools to help analysts organize their knowledge based on what was learned from the representation of sets of concepts. Those as I said are a few examples of IARPA research programs in the area of brain and behavioral sciences.

Next slide, please. I guess this is my final slide. What I suggest, if you're interested in learning more about IARPA research opportunities in your area is a couple of things.

One, to contact a program manager such as myself. As I said, our contact information is available on our website. Second, keep an eye out for our new BAAs and be ready when a BAA is posted to respond to it. I don't think it's shown on this slide but one thing that you can do typically when IARPA issues a new BAA or around the time that it announces a new program, we'll have what we call a proposers' day. That's an opportunity. These are usually hybrid events in-person as well as online.

At the proposers' day, researchers who are interested, they don't have to be proposers yet, they're potential proposers. In proposing to the new IARPA program can do two things. They can learn about the program from us, the program manager, and they have an opportunity to meet other researchers in allied disciplines to form possible teams to propose to that program. As Barb said, these are large multidisciplinary teams, that's why it can be helpful to meet other people who you might want to be your teammate and you can do so at the proposers' day. In summary, then, I recommend that if you're interested in upcoming opportunities, keep an eye out for new BAAs. Look for new proposers' days where a new program is announced and just talk with a program manager about some of your research interests and how they might mesh with IARPA.

I did want to mention, if you don't mind, a related topic of IC research opportunities not managed by IARPA but managed by our parent organization, the office of the Director of National Intelligence. I don't have a slide on this, so I'll just mention that. There's something that you may not have heard of called the IC Post-Docs, that's Intelligence Community Post-Doctoral Opportunities. These are funded for a couple of years. Every year we issue a set of topics that recent PhDs can propose to. This year I believe you can look at the website on ODNI. The topics will be announced on January 3rd, and they'll be approximately two months to submit the application.

This is something as well that I urge you to make recent PhDs aware of. There have been including some that I've suggested some research opportunities for postdocs in the brain and behavioral sciences and I expect there will be more in the coming years. That concludes my prepared remarks. Now I would like to talk a bit more with Barb and maybe help answer some of your questions and then we'll get I believe to audience questions as well.

Back to you, Barb. Again, you have more familiarity with what it's like to be a PI or a researcher on several IARPA programs. Can you tell us what it's like to work on an IARPA program and how it might differ from-- You talked about applying or making a proposal. Are there any ways in which working on an IARPA program differs from traditionally funded research that you might do?

Barbara Mellers: Yes. I think the biggest difference besides the magnisize of the project is the fact that it's very, very interdisciplinary. In the case of ACE, our team was called the Good Judgment Project. The high-level challenge as Steve said was to come up with the best meeting most accurate geopolitical forecast from a large, dispersed crowd of volunteers. We had a lot of different talents helping us with this project. We had psychologists trying to come up with variables that might predict forecasting accuracy, individual difference variables. We had economists designing prediction markets.

You see, in the case of ACE, I think all the other teams that were funded except for ours had a big theme, a silver bullet. We read the literature and decided we didn't have one of those. We did what came naturally, and that was to set up experiments to see whether prediction markets do better than prediction pools with how people should be managed socially. Should they work alone? Should they work in teams? Could we develop a probabilistic training module that would help them do better? We had a number of different questions, so we recruited a large number of volunteers and randomly assigned them to conditions. That way we were able to test which methods worked out best.

We had lots of bets going on during the period of time. I thought working alone, for example, would be better than working in teams. My argument was based on the statistical one that uncorrelated forecasts should have errors that cancel out. It turned out that teams work much better than individuals working alone. They could share knowledge and motivate each other and check each other's errors and many things. Teams were routinely each year for four years teams outperformed individuals.

Our very best intervention was what Steve mentioned earlier, what we called super forecasters. We took the top 2% of forecasters from each of our different conditions and assigned them to work in elite teams where they could enjoy each other's company essentially. Believe it or not, there are still groups of people who get together today in Washington, DC and New York and San Francisco and LA to meet once a month or whatever. These guys are super forecasters who still enjoy each other and like to talk about current events and everything else when they do get together. I'm rambling here. What other questions did you want to discuss, Steve?

Steven Rieber: Yes. I'll get to another question, but first I want to just highlight an important point that you made, Barb, which is that when the Good Judgment team proposed a research program to solve the ACE problem of making more accurate forecasts, you didn't have a clear idea of what would work you were able to do, and you proposed doing a series of carefully designed scientific experiments. I think that's a key point that you don't have to have a solution in mind when you propose, you should have some idea of what might work, but when you get funded, you can do real science with careful experiments and improve whatever processes seem to be working well, and that's what the Good Judgment team did. We're proud to sponsor serious scientific research here at IARPA, and so we're not expecting to find just the solution magically appear.

Barbara Mellers: I think there's one other point too to mention and reiterate, and that is that the research funded by IARPA is not classified. Everything that we did that was worth publishing, we published, and that's important to those of you who live in the academic world and are under a variety of different publication pressures. It's not classified, nothing's hidden, it's all out in the open, and data are shared and so forth.

Steven Rieber: Yes. Let me just elaborate on that a bit from the intelligence committee point of view. Barbara's right, that much of the research that we fund and manage at IARPA is done by unclassified scientists in an unclassified environment. What we intend to do with the results of that research is take the techniques and use them in a classified environment, by working intelligent professionals. To state it

simply, much of the research is done in the unclassified world, and the successful results are brought into the classified world where we work here in the IC.

Barb, do you have any thoughts about-- the Good Judgment team as you know as well as I do met the milestones and metrics very well, but in talking with other funded researchers at IARPA, do you have a sense of what it's like to be facing these metrics as decision points in the continued funding of a program and how that differs, say, from just receiving a grant?

Barbara Mellers: Well, with the IARPA program there are a lot of check-ins to deal with. There are monthly reports, there are PI meetings, there's milestones to meet, there's site visits and even more, so we had to have a chief nagging officer, who was designated person to remind us of all the things that were expected of us. I think as PIs, Phil Tetlock and I were basically general managers, we were deciding on budgets, we were setting goals, we were recruiting people looking for talent, we were trying to find resources to keep everything afloat. We were also, in a way, we served as coaches in the sense of facilitating interactions and meeting deadlines, building morale, moving out tensions, and so forth.

There were a number of different ways we did this. We had weekly conference calls, we had working groups who were tackling different problems, and they'd check in weekly to give us updates. We had people who were doing work related to what we were interested in and inviting them to come and discuss their research. It was a big operation, and you need a big budget to pull this thing off because there's so many different working parts. I'm not saying this to intimidate anyone whatsoever. I'm simply saying, you need to give yourself quite a bit of time to think about this and try to imagine all the ways that it could work out well and work out poorly and proceed accordingly.

Steven Rieber: Great. I don't have other questions at this point, Barb, is there anything else that you wanted to touch on before we open it up to questions from or comments from the

audience?

Barbara Mellers: No, I don't think so.

Mitch Prinstein: Thank you so much. I'm very excited to turn it over to Robert Gropp and Julianne Baron, to begin with some of our questions.

Robert Gropp: Thanks, Mitch. Julianne, I'll jump in if you don't mind. I guess curious you all did a wonderful job of explaining what's unique and how the program differs from a traditional grant agency and environment. I'm curious, I'm stepping back a second though, maybe in terms of how the research priorities or areas are identified. If you could share a little bit more in terms of how those are set. Are there strategic visions or does the research community have a role to play in identifying or setting those? How often do they change? If I'm a researcher looking for a team and I don't see something now, is it going to change, or do I still have an opportunity to engage in some way? Just sort of that priority-setting process and where does one look to engage?

Steven Rieber: Sure. Is the question then Robert about how IARPA decides which programs to launch? Is that what you're talking about?

Robert Gropp: Yes.

Steven Rieber: It's two things really. One is what our leadership perceives as needs of the intelligence community, in discussion with the various intelligence organizations, what they're looking for that would really help them, high risk, high payoff research that could transform how they work. That's one aspect. Then the other is quite different actually, and that's an idea in the mind of a program manager such as myself or a would-be program manager for a major research effort that IARPA should sponsor.

As I said, it's a lengthy process to get one of these programs approved by IARPA and it needs to accord with the intelligence community's needs as perceived by the IARPA leadership. I think actually now that I stated it that way, you can think of it as supply and demand. On the one side, there's the demand from the intelligence organizations, and on the other side, there's the supply of a new program idea from a program manager or would-be program manager at IARPA.

As to scientists themselves and how they might have input. You're always welcome to talk with our program managers about ideas that you think we should build a program around. Sometimes, we have at IARPA what's called open BAAs for seedling ideas. Seedlings are often suggested by people outside the intelligence community to IARPA, and there as I think the final slide showed they're of short duration, usually under a year less than \$1 million. A seedling is, you can think of as a potential for testing an IARPA program idea. I don't believe we currently have an open BAA for seedlings, but the other opportunity is still there which is to talk with program managers about your ideas for research that we should be sponsoring.

Juliane Baron: I'll jump in with a question if that's okay. Thank you for the really excellent presentation really important and interesting work. I wonder if you could talk a little bit more about the process. You mention that you don't compare the proposals against each other but you almost piece them together and I am just curious if there's a time where there's a piece that's missing and if you go looking to fill it. Maybe even beyond the program that you talked about which have an inherent behavior component that maybe other parts within IARPA as well in sort of what that looks like.

Steven Rieber: Yes. Good question. There are different ways of managing a program at IARPA. Some of the programs from the outset are looking for proposals, each proposal to tackle one part of the problem. The ACE program differed and it's another common model that we follow, where each proposal was meant to solve the entire problem of helping intelligence analysts produce more accurate forecasts on world events.

There, what we look for on the ACE model, which is widely used at IARPA, what we look for is a diversity of research ideas by the proposers, by a potential performer team. What we funded in the case of ACE was, I believe four separate performer teams from the outset taking very different approaches to how to solving the problem of making accurate forecasts. As to your question about whether there might be a

gap. Let's see. On the ACE model, a gap is unlikely because each performer team is tackling the entire set of problems. On the first model where performer teams are working on separate components, we take pains to make sure that-- We try to make sure that there aren't any gaps that every bit of the technology will be addressed by the set of performer teams.

Juliane Baron: Thank you.

Steven Rieber: Sure.

Mitch Prinstein: We have so many questions coming into the Q&A. I don't know if we'll have a chance for all of them, but if you're up for a lightning round, let's give it a little bit of a try here. There are a few folks who are just wondering if there are opportunities for international scholars to participate.

Steven Rieber: Yes. The short answer is yes. I can give you a concrete example with the CREATE program that I managed. We had four performer teams, they all happened to be-- I'm not saying this is representative, it's just an anecdote. On the CREATE program, there were all four universities. Two were US universities, and that led the teams and two were Australian universities. Yes, international partners are welcome in IARPA research.

Mitch Prinstein: Terrific. We also have a question about how BAA develops. What are the mission requirements against which the director evaluates switch BAA to form?

Steven Rieber: Okay. Good question. I think the answer to that is that the BAA is not the primary thing that the director weighs in on rather, it's the program itself. When I pitched the CREATE program I had to get through a series of meetings, the IARPA leadership to approve it. Once the program was approved then it went to our contracts team, who worked with us, with me, really to write the BAA based on the program that the director had approved. Writing the BAA is a second step in the process. The primary one, at least from the program manager point of view, it's pitching the program and getting it approved by the director.

Mitch Prinstein: Terrific. Rob, Juliane, do you have other questions?

Robert Gropp: Probably I'll defer if there's other--

Mitch Prinstein: Sure. There are a few more in our chat. There's some questions about whether IARPA supports any scientific training.

Steven Rieber: Let me think about that. Training. Indirectly, we do. I'm not sure this is what the person asking the question had in mind, but just to go back to Barb's effort on the ACE program, one of the components that actually was successful in the Good Judgment Project for improving accuracy was a training module on how to think about-- Let's see, one element of the training module was taking the outside view as well as the inside view. Just, for example, thinking about cognitive biases, thinking about base rates. That training module was transitioned to the intelligence community where it continues to be used by some organizations to train intelligence

analysts. I suspect that the questioner had something different in mind by working on training. Do you have an idea of what is meant there?

Mitch Prinstein: Might have been wondering about training grants to help more students or young people get into the space.

Steven Rieber: I see.

Mitch Prinstein: Do more research on relevant areas.

Steven Rieber: Yes. IARPA does a lot of things, so there may be some that I'm not aware of, but I don't think that we do that, that we sponsor training outside of the intelligence community. What we do primarily is come up with research ideas and then execute them kind of research programs for the ACE. We're not heavily involved in training.

Mitch Prinstein: Got it. Thank you. Barbara, you talked about how incredibly multidisciplinary this work can be, and we have some questions saying that there are some really great areas of science that just don't have a lot of contacts with either industry or folks in other disciplines. Curious about your advice for psychologists who need some help better-developing ties with folks in those other disciplines or within industry so they can do more of this translational research.

Barbara Mellers: Any examples to help me focus in on the particular question?

Mitch Prinstein: Sure. This particular question is on industry and how to find industry partners and work with them to translate science into industry, but no, it's not more specific on that.

Barbara Mellers: Yes. Something should be done to help researchers find industry partners. The proposer day that Steve talked about for each of these BAAs is one thing that might help, all kinds of people show up who want to be involved and don't yet have a full team. They're looking for partners. They might be industry, they might be consultants, they might be academics, it's a big interdisciplinary group. That's one place to meet partners. Maybe IARPA could put up a website where such introductions could be made or something, I don't know, but it's a problem. We had a work to make that happen. Yes.

Mitch Prinstein: Great. Thank you. Another question for Steve wondering whether you and other program managers, your colleagues might attend scientific meetings to hear about new ideas or new speakers. This person is curious. How do you remain current in the areas of science that might be relevant to your portfolio?

Steven Rieber: Yes, absolutely. My colleagues and I attend scientific conferences and we try to keep up as well as we can with the current researchers. We actually have what's known as SETAs. Everything has an acronym, S-E-T-A. These are science and engineering technical advisors who are experts in the field, who work closely with us on any given program. We program managers who are managing often more than one program rely also on our SETAs to let us know of relevant research developments, either on the programs that we're managing or on a possible new program that we might want to propose.

Mitch Prinstein: Thank you. I was going somewhere else with a SETA acronym. I'm glad that you clarified. That's helpful. Is there any consideration of emerging large-scale challenges? For example, the challenges implied by the emergence of metaversal capabilities?

Steven Rieber: The metaverse. I'm hearing it as a title form for the first time.

Mitch Prinstein: [crosstalk].

Steven Rieber: Yes, the metaverse. Yes, there is interest in that. I don't believe we have any current programs on that, but if there's a suggestion, please look at the roster of program managers and talk to somebody about what you're thinking, whoever it is that came up with that question.

Mitch Prinstein: Terrific. Just a few more that are coming in right now. Thanks to folks for sending in their questions. You said IARPA is involved to the BRAIN Initiative. What if some of the IARPA contributions have been?

Steven Rieber: Oh, in the brain sciences?

Mitch Prinstein: Yes. Did you mean BRAIN Initiative or in Brain and behavioral sciences?

Steven Rieber: Yes. The examples that I gave are from programs that we've had the examples of the research programs that I had in my slides. As I said, it's not an exhaustive list, there were a few other things that IARPA has done over the years. I don't believe we have-- Let's see. We have some work currently, some programs in natural language understanding, natural language generation. That's only tangentially related to brain and behavioral sciences. I don't believe that there are others that I'd mentioned at this time.

Mitch Prinstein: Thank you for that clarification. Any other comments about what kind of things you would love to see more of?

Steven Rieber: You mean what kind of research programs at IARPA?

Mitch Prinstein: Yes. Who should be contacting you immediately if they're listening to those, what expertise?

Steven Rieber: Oh, okay. I think rather than giving you specific suggestions for topics, let me talk a bit about how we perceive the need. We're interested, as I said, in sponsoring real science that does succession of experiments to try to improve promising results just as scientists do everywhere. An important thing to keep in mind, and one that I may have insufficiently emphasized, is that we have a practical purpose for the research that we sponsor and manage. That is, it needs to help the intelligence community do its job better.

There are two divisions in IARPA collection, the collection of intelligence and analysis. I'm on the analysis side, as you might expect. For analysis, what we're thinking about in the research programs that we come up with is if this succeeded if we met these metrics and milestones, could working intelligence analysts use the results to do their job better? It's very helpful if you're thinking about research ideas

that IARPA might be interested in to think about the perspective of an intelligence analyst or an intelligence agency in what it needs in producing well-argued and well-written analytic reports. That's my suggestion is to consider the needs of the ultimate consumer, namely the intelligence community analysts from a program manager such as myself who works on the analytics side, and make sure that the research idea is likely to benefit those users.

Mitch Prinstein: That's terrific. Thank you, Rob, Juliane, any other questions or thoughts before we close out?

Robert Gropp: I had one interesting question, I think, I don't know. Looking at other agencies where NSF, for example, where there's often rotators people who rotate through as program managers or program officers for brief periods, is there a similar mechanism for scientists who are interested in contributing or being a part of it through the ARPA or IARPA process to either come in as a program manager or as one of the experts or are there opportunities like that for let's say, an academic scientist who want to contribute?

Steven Rieber: Absolutely. Yes. It's a great question. I think I didn't mention, but I believe one of the slides did mention that most of our program managers are term-limited. We can stay here for up to three to five years. Many of the people at IARPA come on what we call joint duty assignments from other intelligence agencies. We also have people coming from industry and in some cases from Academia. My understanding is that currently to be a program manager at IARPA, you need to be fully clear to have your security clearance. We're working on that and I believe that a goal is to see whether it's possible to bring in program managers on a lower level of clearance. If so, that would increase the opportunities for academics and people from industry to come in as a program manager.

Finally, I'll say about being a program manager, it's a great job. You get to work with some of the best researchers in the world on a problem and a program that you develop and manage that so it's a lot of fun.

Juliane Baron: I guess I'll just ask any last words of advice for behavioral scientists who might not have necessarily thought themselves as being eligible or having something to contribute to IARPA.

Steven Rieber: Yes, maybe I'll ask Barbara if she has anything to say about that as a behavioral scientist which I'm not.

Barbara Mellers: Well, my motto is that you have to buy a lot of lottery tickets to win the lottery. I think learn as much as you can about these different new programs. They sound very exciting and give it a try. If at first, you don't succeed, try again. I think there's a learning process and you just need to have a little grit.

Steven Rieber: Yes, well, said Barb. I think the only thing I would add, Juliane, to that is that as a behavioral scientist if you're thinking about a new IARPA opportunity for a research program, you don't have to come up with a complete solution. All you need is one aspect of it that you could combine with other people on the team from other disciplines that would form a solution.

Juliane Baron: Thank you.

Mitch Prinstein: That's fantastic. Thank you so much, Dr. Mellers. Dr. Rieber, thank you so much for your help today. Rob, Juliane, always great for our groups to be working together. Thank you. Thanks to everyone who participated and listened to us. If you are listening to us now you'll likely get a link to evaluate and provide ideas for future webinars and things that we can do. Also, check out the chat. All three of our associations have newsletters that you can subscribe to, to learn more about programming to benefit science and scientists. Thank you, everybody. Thank you to Shandol Hoover and other members of the APA staff who help do everything possible to make this kind of event come together. We hope to see you at future events. Thank you all for sharing your feedback and have a great afternoon.

[00:56:41] [END OF AUDIO]