

AcqNext: Opening Programs to Modularity/Iteration

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[00:00:36] **Jerry McGinn:** I'm a Jerry McGinn the executive director of the center for government contracting. And I'd like to recognize welcome you to today's webinar. We're here today to talk about opening programs to modularity and iteration.

[00:00:49] And this we've got a diamond panel here with Mr. Mike Brown, the director of defense innovation unit, Dr. Zach Mears, the head of strategy for endured. And Mr. Jim, Schirmer the deputy program executive officer for ground combat systems in the U S army acquisition Corps. And so we're going to have a discussion today about the term, what we call acquisition next.

[00:01:11] And here in the center, we just published a report and I actually had an op-ed in today's defense news around this term and what we finished a year long study focusing around acquisition, leading practices that we've published in this, what we call playbook. And during this effort, we looked at the industrialized processes that we live within a defense acquisition everyday.

[00:01:31] And all the kind of innovative efforts such as Mike Brown's group has done on how do we get a new entrance and new ideas in the acquisition system? And uh, what we found in that is that really we don't there've been tremendous, a number of congressional authorities that have been granted or expanded, and there's been lots of reform efforts done in the department that are all to the good.

[00:01:54] And so we, we don't think we need a, right now a new set of reforms would rather change the mindset and how we think about acquisition and that's what we will call acquisition next. And so we lay this out in our playbook and a series of what we call place or, and we're going to talk about a few of them today, but we really want to get the perspective of how at the program level at the innovation level, at the company level, how do we get the system to be more iterative and modular so that we can.

[00:02:20] Bringing new technologies and refresh systems throughout the course of the life cycle. And so to do that, we have assembled this panel to help us guide this discussion. So Mike Brown is the director for the defense innovation unit. He's been there for what, two years now, or three years, how long have you been there? Almost four time flies. So he's been leading this, which is the Pentagon's effort to reach out to Silicon valley and new non-traditionals to bring in new ideas to the Pentagon.

[00:02:50] And now he's got offices in Austin and Boston in addition to Silicon valley and he had a whole, he was central to. Doing a paper that led to tremendous reform in how we do foreign investment reviews, this paper on China that he did in 20 16, 20 17. And then prior to that, he whole career in the software world.

[00:03:09] He ran the company Symantec. So he's a great he's a great executive to have in the department. And so I like to turn over to Mike for some initial thoughts.

[00:03:16] **Michael Brown:** Thanks, Jerry. Thanks for the the time in the introduction here. Thanks to you. Not only for having this panel, but for the great work that George Mason does and in particular, the center for government contracting.

[00:03:26] We're excited about the ideas you're putting forth in acquisition next but your organization just does some great work. Let me talk for a moment about what DIU does and then lead into where we're going with acquisition. So defense innovation unit I often think is missing. It really could be defense, commercial technology.

[00:03:46] We're really trying to look at what all of the innovative companies are doing around the country, which is why we have the different offices that Jerry mentioned. We're just opening the Chicago office in 2022 because most of what we need to do to modernize the defense department is led by industry.

[00:04:03] Now it's commercial technologies. My boss, Heidi Shu, the under secretary for research and engineering, just put out 14 technology priorities technologies are critical for national security. 11 of the 14 are commercial things like AI, cyber autonomy, biotech, as opposed to defense technologies, which are hypersonics or directed energy.

[00:04:25] So we have to be harnessing what the private industry is doing. If we are going to be giving our war fighters, the capability, then.

[00:04:33] What do I use done to be able to accelerate that adoption of commercial technology basically use the authorities we already have. We were given other transaction authority.

[00:04:42] We use that in the non consortium approach and we developed our own process. We call it commercial solutions open, and I think it embodies a lot of what you're describing in the acquisition next approach, for example, agile work statements. So we don't start with requirements which often dictates how the department might start to bring in a new capability, a process it's well honed, if you're going to build them new aircraft or tank.

[00:05:07] But if you're going to look at commercial technology, you don't need to start with requirements. The commercial market has already built that. When we look at counter drone technologies, Andrew is already building that. . It. So that's key. Modular uh, contracts another one of the acquisition next year.

[00:05:24] To be able to be flexible being in, bringing in different vendors and have them work together be able to go from a successful prototyping effort directly in a production, something other transaction authority allows you to do. And very importantly, work at commercial speeds, but we're trying to get companies on contracting 60 to 90 days and commercial terms.

[00:05:43] That means no onerous IP requirements for the companies that we work with. So I think those are the three ideas in your second group of plays and acquisition next, agile work statements, modular contracts, and commercial looks at how we want to deal with IP. In fact, I think this weaves into a larger framework, we would call fast follower strategy.

[00:06:04] If the military is developing as a first mover technologies like hypersonics or a directed energy, the traditional way of acquisition, while we could argue how that could be improved, does. But if you're looking at commercial technologies, a new piece of cyber software or a small drones we need to do something different than have the requirements process, which Gary and his team have pointed out, use the best tools we have in acquisition.

[00:06:32] And we need some help on budgeting too. I'm glad to see the PPBE reform commission get underway because we need more flexibility to move money around as many uh, here on this video called Nope, we need to start two to two and a half years in advance before a dollar is spent. That's not the agile process.

[00:06:50] We need to compete with China and technology. We need to be able to move not the whole \$750 billion defense budget, but we need some flexibility, the edges to respond to emerging threats and plug in new commercial technology solutions that address those threats. So this is all a way to say that we need to a complimentary process.

[00:07:10] A lot of which is describing an acquisition. To be able to more quickly adopt the commercial technologies, we need to be able to compete. I think a lot of the ideas are here. I'll just close with some of what we're doing. We have about 75 different projects underway to bring in new capabilities. We've already transitioned 35 capabilities of work history transition means there's a production contract in place it's been tested and qualified by the DoD mission partner and the budget in place to start scaling that.

[00:07:40] So this is what we need to do. Our only measure of success is how many things get into work? Fighter's hands. I'm happy to say that right now, about 40% of what we start ends up as a transition or production contract. Maybe one of the biggest successes is Anduril . All a company that we introduced to VOD often a third of the companies we work with are first time vendors.

[00:08:01] Now Andrew has successfully completed our contract and now get a billion dollar contract. See, we want to follow. With counter UAS technology. So we're delighted to see vendors like Anduril joined the traditional list of vendors that we work with in the best department to bring us new capabilities and bring those faster.

[00:08:19] We work with the proposals from 1100 different companies. Last year at you. There's a lot of opportunity in terms of technology that we can bring into the department that's being developed and the innovation of, we just need to implement some of the ideas Jerry's pointing to an acquisition next, so that we can take advantage of those capabilities and get them onboard faster to help our work.

[00:08:40] **Jerry McGinn:** Thanks very much, Mike. That's great. That's great segue to Zach. Can you talk about from your perspective, I'm sure the journey for Anduril to to where you are today, I'm sure was very smooth and there were no hiccups along the way.

[00:08:52] And so I'd love to hear your perspective on what have you learned along the journey. And this is both as a company, this is not, saying that, that

that the acquisition professionals are not, are doing poorly. It's how do we, how have you journeyed?

[00:09:07] And then I want to get a Jim's perspective on where, how's it seen inside of a PEO?

[00:09:11] **Zachary Mears:** Absolutely. Well, A and I'll echo Mike's thanks one for hosting us, Jerry, but also for the intellectual fodder. That you and your team at the center have provided not just for this conversation, but I think for those in industry and in government offices represented in the participant lists, that's continuing to dial into this call.

[00:09:34] I think it speaks to the recognition that there are a lot of folks ranging across traditional program offices and acquisition executives to industry from primes down to non-traditionals. Those wholly dedicated to a defense market like Anduril and those that might have commercially derived software or hardware product that still use, but meaningfully want to find avenues into us service programs as an end buyer customer.

[00:10:06] And now I'll just reflect back a bit farther than my current tenure at Andrew Hall at the good fortune of being in the department at the creation of the defense innovation unit. And I agree with Mike in terms of it being a bit of a misnomer in terms of the role and function that the unit has actually played over the last five plus years.

[00:10:30] And, the impetus for. Standing up DIU. If you roll back the tape and read some of the early speeches by Ash Carter and Bob work was a fundamental recognition along the lines of under secretary Shyu's list of the 14 critical technologies material to advancing technology to the war fighter, to help us contend with the challenges that are being presented by China and Russia, principally, but also by Western included cases.

[00:10:56] Many of those technologies that have been for some time driven by the commercial sector and other public sector markets that aren't principally servicing aerospace and defense. And, we've long felt the department had to do a better job of opening itself up to that both R and D base, but also technology developed that, that was going to be material to.

[00:11:18] And providing next generation capabilities that our war fighters we're increasingly finding need for. And this was a function of the range of things, not just that. I think the prognostication from Marc Andreessen now

almost two decades ago, that software has been eating the world. It seems like for DOD and many of the services that that eating is still a meal.

[00:11:40] That's too un-gamely. It's like we, we simply can't find ways to consume software in a manner that recognizes that it has its own value to provide, not just to core legacy programs and the defense program today. But it also can serve as a foundation upon which we can build and iterate at higher volume at lower cost both software applications and other hardware development programs that can service war fighter needs not necessarily requirements in a different way.

[00:12:10] And that's very much at the heart of how Anduril will approach not only its founding now four and a half years ago, it was a software defined defense technology company, recognizing that software differentiation, the technical talent is required to actually apply modern software techniques to defense problems is not necessarily resident within the traditional defense industrial base.

[00:12:32] And we must seek out that talent elsewhere, but turn it to the material need and problems confronting the services as they think about the capabilities that they provide forward to the joint force. And we think about. Not only how can we leverage a technology stack that software defined that helps connect, not just organic Anduril developed technology to use the example that Mike provided to me we are currently the system integration partner for a US special operations command for their counter unmanned systems program.

[00:13:08] And that's not just Android product and service being provided on that contract. Our role is to be a modern systems integrator that has a core software stack that is open and extensible to. Third-party sensors and effectors. And our job is to, with SOCOM work, to evaluate the evolving threat that unmanned systems are presenting to us, allied and partner forces abroad and aligning and adapting an architecture that.

[00:13:38] Senses detects IDs tracks and is able to generate effects against those threats. And it is that modern software architecture that allows us to bring in new sensor payloads be able to generate and maintain custody over those tracks. And as the threats manifest up from group one to group three, to even more high, fast fliers, you now have a core architecture that, that can start to scale up against the problems that are threatening our forces operating forward.

[00:14:12] And I think that way of architecting, how we think about. Is this group well knows as well as those on the call. The majority of the capability that's resident in the defense program today is going to be with us for some decades. We have to find better ways to make more efficient use of many of those trapped resources that are not connected, that can't communicate that can't pass tracks that can't manage back haul processing that can't operate in the cloud or at the edge.

[00:14:39] It does not mean that they are still not relevant to the current flight. They very much are. And Andrew's proposition is that we very much want to be able to operate in the middle of the. In a mission-oriented way against problems that are relevant for our war fighters. And I guess the last thing I'll say before, getting off the stage, knowing that I think the most interesting part of this is not what I've said over the last few minutes, but the questions that will come in a chat is that I also think this fundamentally requires us to think about risk in a different way in the department.

[00:15:08] A lot of how we've characterized risk and particularly risk of technology adoption. Is that anything that's not currently in the program today is per se riskier than what's in the program. And I think it fails to appreciate how much risk we built. In terms of the technology that's resident, but then a number of core service programs.

[00:15:28] We we fail to recognize that the risk in terms of capability maturity risk, in terms of being able to generate progress toward capability delivery against a mission might be better served by introducing new technologies into that mission architecture. But it's often viewed that the status quo while not being perfect offers an assured solution, a known solution versus one that is less mature, less well-known.

[00:15:57] So how you think about. Being modular so that you can introduce that technology in a way that is risk managed, that you can de-risk that technology through early deployment, experimentation and testing, not overly engineered against a requirement, but frankly to learn and then ultimately paving the way for that de-risk technology to find its way into a core service offering is very much how AndroGel approaches a mission oriented solution toward a range of problems, counter UAS, being the one that we're most commonly affiliated with.

[00:16:29] And I think for. For the department to buy down risk to and its industrial base and gain more partners like Anduril to be good partners to the

traditional defense primes and middle tiers, there has to be a past scale toward programs like the one that we've most recently won with SOCOM.

[00:16:47] But that's incredibly difficult when the opportunities that are then presented to de-risk those technologies to deploy them with operational users to get connected to program offices is one met with skepticism viewed as risky from a contracting officer's perspective in terms of not just the tenure and experience of the company, but the maturity and TRL level of the technology.

[00:17:10] It often becomes insurmountable because the cultural approach to how you think about managing risk and acquisition is very much still tilted toward how the department has traditionally acquired major systems and programs. I think there's a lot of opportunity to change. There's been, tailwinds picking up over the last five years.

[00:17:26] It's being led by the work that Mike and his team at DIU are doing, but I think there's more to be done and other companies like Anduril and the non-traditional defense space very much want to be part of that solution. So look forward to the conversation today, again, thanks for having us sharing.

[00:17:43] **Jerry McGinn:** Great. Super. Yeah, no, I think a big part of the big thing that we discovered in doing this study, it was that it's harder getting harder and harder to separate the innovative companies non-traditionals from regular programs, because the fact is, as Jim can tell you that the platforms that the systems are built up in the Detroit.

[00:18:02] They've got a lot of software, a lot of commercial technology involved. And how do you get that into a larger system and it Jim's got great experience. He's bay. It was a career acquisition officer for many years in the army where he was assistant program manager for the Stryker.

[00:18:20] And then he the PM for armored fighting vehicles with the Bradley, the self-propelled Howitzer and the future of fighting vehicle. And he in his current role has lived the dream of the optionally manned fighting vehicle through both both sets of competitions the first and now the second.

[00:18:37] So we'd love to get some of your perspective, Jim on, where are you, where do you your opening thoughts and where you see the system today and where do you think.

[00:18:45] **James Schirmer:** Sure. Thanks, Jerry. Thanks for the introduction and the opportunity that I'm excited to be here and see over a hundred like-

minded acquisition nerds listening in while we talk about how to make things better.

[00:18:56] Cause there's plenty of room for improvement. As we've already heard in the initial discussion I thought the topics for today were pretty good and timely. I have a lot of opinions about requirements as well as market research and owning the technical base. But let me talk just a second about what we do here at O ground combat systems.

[00:19:13] So we manage the armies armored vehicles mostly tracked, but not all. We have the striker vehicles wheeled. We have the Abrams tank, which a lot of people are familiar with the self-propelled Howitzer about 13 major programs. Everything we do is an cat one. They're all large programs with fairly high cost.

[00:19:29] And so we have some challenges, right? Everybody's got their own challenges, but they tend to be largely different. In our case, these are complex large systems. It's not unusual to have 10,000 unique parts on a major combat vehicle. They're high cost at least by army standards not by air force standards but on the low end we'll pay, a million dollars, a copy for a stryker. on the high end, we'll be paying in the low teens of millions for say, optionally man fighting vehicle.

[00:19:54] Although we're still fighting over what the cost caps can be, but that we think it's going to land in that neighborhood. And we own them for a long time. The Abrams tank that I was on as Lieutenant 30 years ago is still in the inventory. It's been modified and upgraded and and changed many times over, but it's still there and will probably be in the Army's inventory for 20 to 30 more years.

[00:20:14] A whole host of upgrades and configuration changes, yet to come. And so that, that creates some challenges that you can imagine. There's one different use cases and the different operational use cases for these vehicles creates a different sets of trades. Just a simple one. If you're operating in a counter-insurgency environment like we saw in Iraq or Afghanistan you're a lot more worried about rocket propelled grenades and improvised, explosive devices.

[00:20:39] And underbelly threat is a much greater threat than. Air defense insurgents aren't flying aircraft. Occasionally you'll see a drone that's phoned by an insurgent group, but for the most part, we had complete command of the air.

So we were a lot more worried about, say that underbelly threat in a combat vehicle.

[00:20:54] If you want to be well-protected from an underbelly blast, you want the vehicle to be taller further away from the blast. You put a lot more armor on the underside. You have seats that stroke. When it gets hit by a to absorb some of the shock for the soldiers. You want the soldiers to have more headroom inside the vehicle.

[00:21:11] So on the slam down, they don't hit their heads and break their spines. But if you're a direct firefight, imagine us fighting the Russians and Eastern Europe, it's easier to imagine today than it was a couple of weeks ago. But if we were in a situation like that, I don't want to tell a vehicle. I want a low profile.

[00:21:25] I want to be harder to see. And I'm a lot more worried about armor protection on my frontal arc than I am about my belly, because probably be a war maneuver, not traveling down highly expected avenues. Those two trades are at opposite ends of the spectrum. So what does the user want? What's more important?

[00:21:44] And unfortunately it depends on the use cases and what the concept of operations is going to be this in turn makes it hard to reach consensus about requirements. So I've said I like to say the second hardest thing to do in the army is to get consensus. The hardest thing to do is keep that consensus because as soon as the decision is made, the insurgency starts to try to reverse that decision.

[00:22:05] So there's some challenges there. Also the OEMs, the big primes that make these combat vehicles. There's only two of them right now. There's a couple others that are trying to break into the business. And we have high hopes cause I'd like to see a broader competitive field, but we're not going to get small innovative companies to build one of these large complex systems.

[00:22:26] I think the end of there's a lot of room for innovation on combat vehicles, but it's really at the subsystem level with better sensors, better processing algorithms better GUIs that make the interaction between the soldier and the equipment. Better radars. There's a lot of technology that's advancing very rapidly.

[00:22:42] They could provide much better capability for the vehicle, but typically we contract with that prime And all that innovation is on the other side

of that contractual wall we have with that prime. So how do we get out of that? How do, how are we able to go out and find those innovative ideas and those better technologies and more easily integrate them onto either a system we're about to build or more often retrofit them onto an existing system?

[00:23:07] in the third play talked about master the baseline that then really spoke to me because one of our thoughts is if we can control the architecture and define the key interfaces. So the government owns the IP surrounding those key interfaces, and we can publish that architecture and those interfaces and those standards to industry have, tried to achieve what modular open systems architecture I think wants to achieve.

[00:23:33] We'd have the ability to go out and compete for a better radar or, a better gooey or something like that. And the companies that competed, they could keep their intellectual property inside the black box that's inside those interface boundaries that we've defined. And we wouldn't have to be beholden to the prime for every single upgrade because the system's not as tightly coupled and not as full of proprietary interfaces and standards.

[00:23:58] So that's something we're trying to do. And what would the the reboot of the optionally man fighting vehicle. We just released a chunk of the draft RFP. It's not a complete draft art Eva that went out yesterday included in there is this GCIA architecture that we've done iteratively with industry over the last two years, which is our attempt to get there.

[00:24:19] For us, this is this is new territory, so way too soon to know if it's going to be successful. I think we're being pioneers. And pioneers, one of two things happens you're Lewis and Clark and you get statues and parks named Appiah and then the other option is the Donner party and you get hungry and start eating each other and freeze to death in a cave.

[00:24:37] I know which one outcome I want, but I don't know which one we're going to land on. I guess I would just close with that, that I think there's a lot of room here and there's some exciting ideas that are being kicked around how they get applied to programs is very dependent on whether you're talking about buying, a sensor or a stack of software or a helicopter or a tank.

[00:24:58] But I think there's a lot of common themes that are very useful. Like how do we get, iterative requirements? And actually I do have one more story. I forgot that I want to tell. So when I was reading the requirements section of the playbook I was reminded by my boss channel Dean did a tour and depending on before the, his current job, and while he was everybody sitting around with

some general officers who were all operators, so they, fresh from the muddy boots army, and then new to this weird world of acquisition requirements and budgets.

[00:25:24] And they were saying, what we really need is a way to iterate on our requirements that start with something really broad and do some technology exploration, and then refine the requirements, get a little more detailed, build some prototypes and try them out, or find them some more and then go out and test them and finalize before you go to production.

[00:25:42] It's congratulations, gentlemen, you just invented JCIDS. I think our requirements policy actually has plenty of room for that sort of iteration. The challenge has been the old DOD 5,000, not the current one, the old DOD 5,000. The level of what we had to do to lock in our baselines at milestones, B and C in particular, with 2366 B certification, it made us program managers are very risk averse.

[00:26:06] If I've got to get the secretary of my service to certify to Congress that this is the cost plus or minus of fixed percent, these are the capabilities I will deliver. I am all my technology's mature. I'm fighting to keep risk out of my program. And so you may have a wonderful gadget. That might be a lot better than the one I got.

[00:26:26] I don't want to touch it because I just can't afford the risk. We'll do that later. I'll bring that in, in the future, but I want to touch it right now and see. I believe that the middle tier and also the software pathway is now allowing us some flexibility to do more things, more iteratively and leave our requirements a little bit more open so that we can make more of those trades up until kind of the last minute again, middle tier policies, new enough, we have four middle tier programs running right now in the organization, all MFPs, one of them.

[00:26:56] And it's too soon to tell if it's going to yield the fruit and we have some learning to do but I'm excited. I think there's been some real change in the last few years. And this is a business where it often takes five to 10 years to tell if policy changes have really had an impact on outcomes.

[00:27:10] Again, thanks.

[00:27:11] **Jerry McGinn:** . Yeah, I wondering I'm building up the requirements. Mike, you talked about how with the CSOs you try, how do you and that replaced requirements, but how do you do them more iteratively?

What's the approach that you take? And I think Jim, you're talking about it with your MTA is there as well.

[00:27:26] I think that's the approach you're taking as well, but Mike, how do you do it? How do you with,

[00:27:32] **Michael Brown:** yeah, so we worked very closely with the mission partner, which could be someone like Jim and really define the problem without the part of the requirements that says, we're going to specify what the market's going to deliver.

[00:27:44] If you do that broadly enough from the outset, you can often be surprised positively by some things that you hadn't considered, that if you spent time writing down the specifications you would have excluded some key capabilities. So by making that problem statement, a generic declassified problem, we make that unclassified in terms of how we describe it and be broad enough.

[00:28:07] We're often able to bring together vendors. We wouldn't have thought of it in. That might have some capabilities we could pull together. So we're excited about what that brings because it maximizes competition. We're bringing in more people than we might have if we've made the specifications very narrow.

[00:28:22] And one of the ways we're able to attract vendors is by minimizing their own opportunity costs to respond to a solicitation. So we'll do a last year. We did 37 solicitations. And when we do that accompany response, just by sending in a short slide deck, that could be something they send to a commercial customer or an investor.

[00:28:43] So we're not looking for them to spend time, creating something custom to respond to us, tell us what you've got often that's in their standard promotional materials. And so when we get responses on average, it's 43 for every solicitation we do, then we can narrow it down and say, who do we want to talk to?

[00:28:59] And spend more time with them. The idea again, how do we maximize the competition by making the aperture broad and then minimize the amount of time in the individual vendors going gonna spend responding, I think is a key way for us to move forward. We need to make sure that most companies in a competition like this are gonna hear a no, and we've got to make sure that they do hear that no, in a way they're going to come back.

[00:29:21] So we're very conscious of the fact that we don't want to waste their time. If they're getting an to get to know, we want that to be quickly. And for them not field spent, time customizing something for us. We found that workspace.

[00:29:32] **Jerry McGinn:** . Jim, I'm wondering if you could talk a bit about you had the two efforts at OMF V the first had some challenges second.

[00:29:37] I think that they were different in their approach to how you define the requirements of fund. As I recall, it was more open-ended on the second tier. I, so can you talk about how you rethought that? And in the second round,

[00:29:49] **James Schirmer:** so on the first go round, it was it was caused by traditional.

[00:29:53] So the the user wrote a CDD. And from that CDD we derived a system spec. It was lengthy we, I think we referenced like 114 mil specs in there, which for us was half what we usually do. So we felt like we'd made this big accomplishment. We got raked over the coals by Dr. Jetty. But I won't go in too far in the weeds there, but there's things in there like NATO slave receptacle, and Jerry knows what that is, but we jumpstart our vehicles and the batteries are dead using this NATO standard jump cable.

[00:30:21] It's really heavy. And it's got this big plug on the end of it. And so if your vehicle breaks down in combat, you want to be able to get a jumpstart from a Jeep or a Bradley, or maybe a German Puma that happens to be in the area. And they all got it's wonderful, but you got to direct that, which that kind of goes against innovation.

[00:30:38] So that was, that's an example of the 114 specs. But anyway, it's a very detailed I personally believe the two biggest problems we had on the first go around were we didn't have enough time in the schedule. So I think the requirements were achievable on a longer schedule, but they were not all achievable on the schedule.

[00:30:55] The second thing was part of our act strategy, because general Millie was pushing us pretty hard for speed we asked the vendors to show up with a working prototype. It didn't have to be a hundred percent compliant, but the more you, the more of the capability you delivered in that prototype that came with your proposal on the front deck, essentially on the data proposals due, that's when the first prototype gets delivered, that forced industry to invest a lot early.

[00:31:21] And so that scared off a lot of companies that I think had some ideas and were interested in competing. But if I got to put \$30 million, \$40 million in upfront, a lot of companies walked away. And we only ended up getting two submissions. One of those two couldn't deliver their prototype on time, which made them noncompliant by the standards we'd written ahead of time.

[00:31:41] So we only had one one proposal. So we walked away from that. We canceled the solicitation at the time, IVAS if you're familiar with the IVs program's been in the news a lot lately was doing wonderful things. And the secretary of the army was very enamored with that program. And one of the great things about it was the iteration because they were able to take these headsets and give them to soldiers.

[00:32:02] And they went out in the woods and used them and shot with them and came back with positive and negative feedback. And Microsoft, at that point, it was a sole source. So it was pretty easy to just go in and do spins on that on that software. And they ended up with a much better product that did things they never, the army would have never asked for.

[00:32:20] And so he said, that's what I want. Futures command went out and wrote a two page requirements document that just highlighted some key characteristics. And we put that on the street and said, come tell us what you can do. Industry didn't like it, to be honest with you, we got a lot of complaints back channel.

[00:32:33] I think CEOs were saying nice things to the senior leadership of the army, but at the industry level what do you want? You want me to, how much armor do you want? How fast do you want it to go? You got to tell me some of these things, so they were telling us, we didn't given us room to innovate on the first submission, but they were unhappy with the lack of direction on the second iteration.

[00:32:51] However, what we're doing, we awarded five contracts to companies to generate digital designs. So no mat, no metal bending required. We're just going to do digital designs and you would provide these digital designs to us in drops along the course of the contract. And we would plug them into modeling and simulation and use that to the user community determine what do we like, what do we not like? Where should we land the firm requirements as we approach the next phase? And so we're still in that phase and we're still learning. But we're getting closer to finishing the requirements, which is why the first draft chunks of the RFP have gone out for comment.

[00:33:25] And by the summer we hope to have the contract or the RFP out on the street that will re that we're going to award three contracts to actually build prototypes and go to test. And the requirements there will be refined based on what we learned in this concept stage. So that's how we landed on the new store.

[00:33:40] **Jerry McGinn:** That's great. Zach, I want to get to you. It's interesting at that point that Jim brought out, I think is bears repeating, is that and I think you've got a good perspective. This is a non traditional, a lot of times, you mere your customer. So traditional companies, if they don't get the 40 page requirement, doc, they're lost, it's okay, what do you mean?

[00:33:59] How do I do this? So it has to be, everyone needs to be trained. It's not just the government and it's the traditional contractors and and non-traditional as well. But yeah, w it gets you a chance to chime in, and there's a comment in here, a question about your colleagues comment on that Matt Stegman made out west a couple of weeks ago, which I know you're very familiar with.

[00:34:18] So I'll turn it over to you.

[00:34:19] **Zachary Mears:** And I appreciate that I'll I'll I'll demure at first on commenting on Matt's comments. I think they'd probably speak for themselves. Although I will say that, while one might quibble with the ratio that Matt offered like directionally is largely correct in terms of characterizing the department's risk calculus with re with respect to making bets, not just on new programs and technologies, but new companies.

[00:34:46] And it has to get more comfortable with making more bets in order to diversify, just to the comment that, that the gym made at the outset with respect to the primary vehicle manufacturers for OMFC we're down to two and one reasonably can surmise that there isn't going to be.

[00:35:10] A new entrant into that. But I think that requires you to step back and look at the incentive structure that's driving both of those traditionals toward this market. And then how might the department and the program office establish a set of incentives that opened up a different type of vehicle design with a different type of software architecture an open architecture supporting it that could derive from a different type of company.

[00:35:40] And so if you look at public company versus private company incentives, just as a crude example most of those companies that were, have been in the competitions from, at the over phases one and two, as well as those

five teams that were down selected to do the digital design. And the reason award, like your it's understandable that they're trying to minimize technical and cost risks relative to the program against the iRead spend.

[00:36:07] They put into both the digital development, as well as initial planning for prototype development to date, relative to what for most of them, their shareholders will tolerate over a given time period, leading up to award relative to their expectation for PYN and then likely return based on initial low rate production in full production for the vehicle.

[00:36:30] The way in which Anduril is a privately funded company will evaluate opportunity and the risks to our capital outlay and pursuing something is meaningfully different than a publicly traded prime or Middleton. We we believe that, risk to delivery as well as the risk to return on capital investment on capability should rest with industry.

[00:36:54] We need more of that positive pressure to deliver and deliver in a manner that forces us to be creative about the manner in which back to Mike's point. We solve a problem. Not that we necessarily are meeting a defined requirement and that gives us tremendous more latitude to have faith that we can deploy that capital in partnership with a program office often in partnership with an operational unit at end-user that helps us experiment with, and technically de-rate.

[00:37:27] Often not a platform but a solution to a mission and getting industry more aligned with being in the solutions business and not a product business is at least the mindset that Andrew has tried to bring to the market. Generally we try to think about things, not just in isolation to the software and hardware products and services that we offer.

[00:37:53] But how we fit in the context of the execution of a mission relative to the other capabilities that the operational unit will have available. And how can we best optimize those things, including new development activity. So with respect to to OMFV. I can't say that I'm surprised that industry reacted negatively to the wild swing to a two page document with characteristics.

[00:38:20] If I had to place a bet today, I'd say that, most of the teams that are still eligible in the competition and it's current phase would largely produce a vehicle consistent with Jim's observation, that absent more time there were requirements likely would have been met. If one believes that to be true and industry now having had a bit more time and now being on a digital path, I wouldn't presume that you'd get a vehicle, a concept of operation, a modular

open architecture that is adaptive to a range of threatened environments in which that vehicle might serve.

[00:38:55] Multi-mission roles from enabling long range fires, to serving as a core battle management and C3 node. And you can experiment with other iterations industry. The industry teams today do not have the incentive structure nor do they have the internal cashflow and iRead processes that allow them to take that risk in their view.

[00:39:18] Whereas that's, we've architected and rural and again with a different source of capital applied, it, it gets a different incentive structure, how we develop and the risk that we're willing to bear relative to that development. It's bit different. And I think the department recognizing that not every industry player is the same as how you've been.

[00:39:37] Development of different types of companies with different types of business models is actually a lever for them to call. But instead non-trationals get treated quite often like traditionals. So it's not often that there's one path. There should be multiple paths to developing capability and not everyone for it to be competitive, necessarily need travel, travel the same path.

[00:40:01] And I think it would be worth evaluating how that plays out, not just with respect to on that fee, but the other major program developments.

[00:40:08] **Jerry McGinn:** I wonder I want to forget turn to Mike. You wanted to say something on on Matt, but I wanted to ask you w one of the things I'm seeing is that, you know, it's focused on iteration and focus on a modularity.

[00:40:20] You got to want to try out a bunch of different horses before you said, all right. It's Jim's got five, digital design from V you had that blue S U a S you had a whole bunch of companies, I want to get your thoughts on how do we do that in a way, which is not prohibitively expensive, right?

[00:40:36] Because you want to, the best way seems like you want to have a bunch of different prototypes and demonstrators in, and try to keep more than one going. So how have you seen that in, at at DIU and some of your efforts you've been doing with the some services?

[00:40:49] **Michael Brown:** Yeah. Thanks. to modernize in the best way. It's important for us to think about how we can adapt the iterative approach. Agile is often used when people are talking about developing software, but it's an

iterative approach to getting a fit with a solution that's going to meet the needs and industry private industry.

[00:41:10] As many of us know, would never undertake an exercise where you'd spend 20 years on a design like we did with F 35, and think you're going to predict what technology is going to be available, or even what problems you're trying to solve. You'd be laughed out of every boardroom in the country. If you propose such an idea, only in defense, would we consider that we have the hubris to be able to project that.

[00:41:31] So the more we can move away from that, thinking that by spending longer time thinking about the design and critiquing that we're going to get to the right answer and that we moved to an iterative approach. The better we're going to be that the technology is moving too fast. No one could identify what we need in a next generation fighter aircraft, 20 years from now, which is why I think there's some thinking that's going back to the way the department was developing aircraft in the 1950s.

[00:41:58] We had much more iterative approach. We didn't bet all on one vendor or one design and think that's going to last for 40 years. We got that probably in a B 52, but we should have this iterative approach where we're, we can evaluate things. I think another dimension that we should be clear about is we're talking about at the defense innovation unit and some of what Zach is building an Android, something very different from the next aircraft carrier or fighter aircraft.

[00:42:22] So when we don't provide a lot of direction in terms of detailed requests it's because we're looking for things that the commercial market already has. The capability to build in some cases is already building Zach's company. Andrew is working to supply things that we need in defense, but in government broadly many of the companies that we work with, that's the only one market segment.

[00:42:45] So that's why we're saying we don't need to provide that detail direction to companies. If we were talking about building the next tank or aircraft carrier, that's a different story. And we can talk about how to make that better. Some of the comments are aimed at that in terms of how modular you can be and how you could accomplish that.

[00:43:01] But back to your question on what we do, we very much take that bigger of approach at DIU because we're working with companies that have already developed some capability and then working with mission partners who

help us evaluate the vendors. And then the test plan were often motivated to pick several, not pick one that we're going to go through that process.

[00:43:21] Because it's basically a one year software, two year for hardware products, testing plan to see how they do you think about it as a bake-off. To the extent the mission partner has enough money to put three or five in, which is what we did with the blue UAS program, which basically is how do we have us are allied suppliers of small unmanned aerial systems or drones.

[00:43:42] The more we can put into that bake-off to see how they do the better and then have a iterative plan so that we can give feedback straight from the war fighters or end-users to the designers to say, Hey, here's what didn't work. Can you make a change? So it's a very collaborative approach with the industry partners with their designers and it's an iterative approach, so we can get to the best.

[00:44:06] The more we can move our work with partners industry partners in the defense department in that direction, where would be modeling what the commercial industry is already doing. And I didn't go to get better results.

[00:44:18] Let me come back to Matt segments.

[00:44:19] And so I was the moderator on the panel where Matt Stegman spoke at west 2022. And I feel like his comments were taken literally by the reporter a bit out of context. So he makes the comment that's there in the headline. There's no fair competition for non traditional defense companies. And I think what he's reflecting is what we've talked about before.

[00:44:39] To the extent we go down a path of narrowly specifying what we need and the defense department, the detailed requirements process. We often limit the number of potential industry partners. We will be able to consider. In other words, you can write. The specification. So there's only one answer. And I think what he's reflecting, which wasn't really brought out in the article is to the extent we moved to more of the concepts that you outlined in acquisition next that D I use using the commercial solutions opening process.

[00:45:09] It's all about opening that aperture not pre baking these competitions and being wide open to what people might suggest. Then you have of course, an objective criteria to, to narrow it down. The more in his words, the competition is fair. I'd say it's not about fair. It's about maximizing competition.

[00:45:28] It's about getting the best for the taxpayer dollar. I think that's really the sentiment he was trying to convey rather than just saying competition is not fair. How do we open up that aperture, bring more vendors in and basically consider more possibilities when we're buying for the defensive.

[00:45:43] **Jerry McGinn:** I'd like to get your all's perspective on one effort that Jim mentioned that has been done to try to bring some of the iterative prototyping , efforts that you do at DIU or some of the other innovation houses in a big program. And that was IVs, which was I think a series of challenges than OTs and then prototypes and then competition down select for production.

[00:46:06] They've had some challenges going forward, but do you all see that? And was that the kind of way to bring these kinds of iterative agile approaches to an equity to a major program, if you all have a perspective on that,

[00:46:20] **James Schirmer:** so I'm not real deep on, on how the program was originally structured and how they got at the point that I became aware of them.

[00:46:27] The program office was already in a sole source relationship with Microsoft who was trying to take their hollow lens technology that they developed for gaming to provide a uh, augmented reality capability. So the soldier sees the world around him, but has information overlaid on it in his headset.

[00:46:44] And then some other deep things like through a connection to the weapons site, you could point your rifle around the corner without exposing your body and see what your weapons sites saw. Pull the trigger and hit a target with it without ever exposing yourself. Some pretty fantastic capabilities.

[00:46:59] And I think soldier equipment in particular, it's a very sensitive to that, that human factors piece. So, It's always important to get equipment to soldiers and let them test it. Cause they'll find ways to break things that our engineers wouldn't think of. But I think it's especially important in this case.

[00:47:16] They did a lot of that work with multiple different units and they gained some really good feedback. And so I remember the general Hodney was the future's command flag officer in charge of the requirements side standing up at a forum, talking about how, if we had written the requirements two years ago, we never would have thought to have asked for this list of things that we got.

[00:47:39] And these things that we would have asked for, we realized soldiers didn't like them didn't use them, didn't want them. And so that learning really

allowed them to end up with a. A better product. And so I think it's a great example. Now, I personally spent some time thinking about how it's unfair to compare OMFV to IVAS because we got a pressure to change our acquisition strategy and be more like IVs.

[00:48:03] One, they were in a sole source relationships. So soldiers could go hang out with Microsoft engineers and soldier opinion could be provided. Whereas when we were trying to do build our our section M for our RFP, there was a desire to have soldier feedback on prototypes, be part of source selection criteria.

[00:48:22] And the lawyers were very uncomfortable with what a Sergeant X likes the seat being low. And Sergeant Y thinks the seat should be higher up and how much adjustment is allowable and what's opinion. And what's fact. you know, or, or what if we have a mediocre crew on this particular vendor's vehicle and a really good crew on this particular vendor's vehicle that somehow skews the results.

[00:48:44] And how do we, because our system is geared toward ensuring fairness more than effectiveness. And we never successfully navigated how to make use of most soldier feedback. We found a couple of little areas like, Hey, ingress and egress time. So make the crew evacuate time then it's a stopwatch.

[00:49:02] Every vehicle gets the same standard, easy we can measure it, put a number on it, but I strongly like strongly dislike a Likert scale, tiny kind of thing. Don't think that would hold up in a protest. That was the conclusion of our contracting experts. So we didn't do it also. Most of iterations were software oriented, different algorithms, different ways to display the data, different ways to manipulate the pixels that are coming in from the sensors.

[00:49:28] They've got some sensor work that they're doing right now as well. So I don't want to downplay how complicated that system is, but you can iterate on software overnight. And in some cases, Microsoft engineers worked all night long and by the time the soldiers came back in the morning, they had already made adjustments to the piece of equipment.

[00:49:46] You can't do that with a tank and maybe you could with the software, but we would need to go get a safety release because the turn starts spinning uncontrolled. Somebody loses a hand there's things that get in the way when you get to a more complex, larger system that makes some of that iteration harder.

[00:50:02] And if I decided through soldier iteration that, you know what, we really need a slightly larger vehicle, that's slightly heavier, which means I need a bigger powertrain, which means I need to design a new transmission that doesn't exist yet. I've just added three years to my program so We need to do more in my world iteration in digital and simulated environments before we start bending metal, because it's just really difficult to do iterations in a timely fashion with real hardware over.

[00:50:29] **Jerry McGinn:** Zach, have you seen a, in your experience and I guess for Jen as well, have you seen one of the things that we talked about in this mastering, the baseline is like, you know, maybe segmenting programs, uh, where you've got the metal bending that needs to happen in a certain way, but the radar sets, the sensor sets need to be the, those are hive is, and they should be separately contracted.

[00:50:49] Have you seen any of the programs you've been involved with take that approach or ,

[00:50:53] **Zachary Mears:** oh, I think we're getting it right. Jim laid this out in a bit in his opening remarks. Where the army writ large thinks about how best to apply modern open system architectures and Clearly defined interfaces create many innovative walled gardens, where companies of all stripes can compete to continuously deliver better am.

[00:51:17] We're an opticals better EO/IR, for looking at, the economy of a vehicle changing such that it becomes the center of a mobile C2 AMD picture for area defense for for brigades and operating units. How do you think about the type of radar fire control system?

[00:51:37] And the ability to see two off that system with both organic and and long range fires and intercepts. You can think about how to architect that system as well as bring to bear a range of different, both sensors and effectors, as far as, as well as fire control. If you have architected that Mosa and the interfaces in a manner that's open.

[00:52:03] And I do think there are a number of programs that if they are not already there or starting to evaluate how they better create those innovative gardens for folks that have. A coordinator, which, and have capability that allows them to compete for meaningful work share on big programs. And that program is architected in a manner such that it can be integrated as well as then the IP structure that, that protects the capability, such that the interface is

defined in a way that an ICD can be clearly identified that could be integrated to that.

[00:52:38] Doesn't require the innovative company to turn over all of its IP, either to the government or to a third party vendor in order to facilitate that integration. So I do think there's progress being made in the context of larger programs. That opens innovation up across the integrated subsystems in a way that will bring more capability to any given platform, let alone in any given mission area.

[00:53:04] But I still think we're at early days to be candid, but I think there is progress being made. I welcome, Jim's reflections and particularly if he disagrees welcome pushback.

[00:53:12] **James Schirmer:** No, I would agree with that. I one of the things that was in the master of the baseline, that the different rates of technology advance I think form maybe natural layers where we want the ability to modularize the system.

[00:53:27] And so in, in combat vehicles I talk about the technology snowman when I talk to my folks, but the bottom ball that snowman to me is armor and structure and it does advance, but at a snail's pace. And I hope I don't offend any of the metallurgists there on here, but the guys with the new next generation combat vehicle armor usually come up with something that's 1.05 X performance for three X costs, and it took him eight years to get there.

[00:53:53] So I can probably pretty confidently build a vehicle today with the best armor available today and 15 years from now, I'm not too worried about it being outclassed by some great, ceramic armor that dropped out of the sky. But that also means if I design a hole, I want that hole to last a long time, but I want the ability to.

[00:54:10] Different drive trains in it. I want to be able to put different electrical electronics architectures in there and the top ball and that snowman is the software because that kind of, as we talked to already, that can change overnight. So how do I build interfaces or how do I modularize the different components so that at the different rates of change out there in the market, we can benefit from those things.

[00:54:31] And we are attempting this government owned architecture that we developed. But as you said, it's early days it remains to be seen if we were successful, because when you establish standards you cut out a chunk of the

market. It has each one of those decisions has to be a conscious business decision looking at which companies are we going to hurt?

[00:54:50] If we select the standard, what capabilities are we going to lose? Which capabilities do we gain who might morph to the new standard and who will just walk away from. Our customer base or supplier base altogether. And those were all hard decisions. And as always, the schedule clock is ticking and, senior leaders want something right away.

[00:55:09] So they're not going to give us four years to build that architecture. We did it in two and I'm not sure we had enough time, so we'll see how this turns out. What I'm very hopeful that this approach is gonna show us the way, even if we're going to have to make some significant changes.

[00:55:22] **Jerry McGinn:** I forgot to touch on a market research, how you all do it. It, one of the things that was one of the strongest things that we got from our discussion with coming in industry is that we've got to, we've got to do better. And how we do market research in RFI is a point in time requests, how do how do we think about that and how do we, get get better at that?

[00:55:40] Is it as institutional capability? Does it just regular engagement over to you Mike and on the thoughts on that?

[00:55:46] **Michael Brown:** Sure.

[00:55:47] We have organized defense innovation unit around the commercial technologies where the investment is having a larger scale and faster than what we've traditionally done in the government.

[00:55:57] So maybe that highest part of the snowman that Jim is just describing. I like that analogy. So we have groups that are focused on, for example, autonomous. Or artificial intelligence, cyber and so on. And each one of those teams has someone we call a commercial engagement executive. Their role is to understand what's happening in that market on a continuous basis.

[00:56:18] So in other words, we're investing upfront before we ever get a project to know who are the players who are successfully getting their solutions deployed. So if we're looking at AI, which is, it's a broad, horizontal technology, who's doing the best in facial recognition, it would be the best at anomaly detection, machine learning from, pictures like commercial, satellite images, et cetera.

[00:56:39] So if we already know who are the best, we can often help seed the competition. Now our competitions, of course, by law are open, so anyone can respond, but we often are suggesting that we want to make sure from a communication standpoint, no, we're going to do a project. We want to know that the best players are competing.

[00:56:57] So if we're doing something that's a counter UAS, we want Zach and his team to know this is coming up because we want their input into that. So I think by taking a more continuous approach, trying to get ahead of it left of when you've actually got to make a decision, what that industry landscape looks and you can in fact, encourage some folks to respond.

[00:57:18] I think you can get the maximum competition, which is what we're looking at and ensure the government's getting a look at the best capability that's out there.

[00:57:25] **Jerry McGinn:** That guy. Have you seen that in your kind of interactions with both kind of maybe the DIU folks, as opposed to traditional program offices, have you seen different models?

[00:57:35] Any thoughts on how they do market research?

[00:57:37] **Zachary Mears:** Yeah, I think, traditional RFI process continues to be a kind of serviceable bottom for getting this information. But I do believe that even the RFI process suffers from set of assumptions, a problem definition, and even in some cases, a defined set of requirements that will have a natural self-selection mechanism of folks that choose not to put their company name going on the record to discriminate where they think they would have an offering that fits, but is otherwise non-compliant with the intended scope of the RFI.

[00:58:18] So as Mike and the team at DIU have done and even rolling back the clock to. The open marketplace that at T and L now I N S maintained at the establishment of what was then DIUX to. Be more open to, to submissions against more broadly stated needs, or even just capability areas as Mike articulated, we're doing the department and the service program offices can have a better sense of the landscape of what companies are out there that are generating relevant technologies at what level of maturity.

[00:58:53] And just that general baseline of understanding of what's in the market, particularly given most of that, those market dynamic. Are occurring and being incentivized outside of the departments, R and D programs. It needs

more mechanisms to sense that landscape because it is not an organically going to derive those from its own either investments or RFI processes.

[00:59:20] And so I think modeling what Mike and the team has done at DIU, within the, not just service acquisition executive offices but down to the POS is a useful construct as they evaluate. Again, you just to take a tangible example and you do, you look at all MFE and you look at well, who, who are the who are the best positioned companies to provide a real-time sensor fusion against full motion video.

[00:59:52] If it's just impute a requirement on the vehicle. A lot of those companies are not resident in a current major defense program. And so how do I even know what the art of the possible is? And once I've identified. Yeah, how do I incense those companies that are not already participating in a DOD program to participate as there's gotta be a screening mechanism that, that scales out and, as you all know, the the department is incredibly labyrinthine and, the deputy secretary is already trying to now throw a, an integrated net over a number of the innovation units that have spawned since the creation of DIU.

[01:00:34] But rationalizing that so that you can generate some efficiency and scale I think is the next phase of of this endeavor in terms of understanding better understanding the developments in the commercial market, and then how best to. Align incentives to gain access to those capabilities at some meaningful scale, because if you can't hit the scale point to, to, to Mike's point in most cases and most of those cases not being companies like Anduril you still have to meet a market threshold that makes it materially interesting to those companies to deal with the long sale cycles of a federal government program, a CR, which rarely if ever plagues there, the commercial side of their business.

[01:01:13] Know it's a lot to tolerate for something that might be five to 10% of their annual revenue and likely just given margin management and even lower percentage of their overall profitability. So how do you, how you think about not just serving, but then appropriately incentivizing companies like that to to try to participate in programs, but then how the department better awards and recognizes the value.

[01:01:39] That's not necessarily reductionist to an FTE labor hour because the value of that one empty labor hour of the commercial software developer that you now have access to is greater than the average labor hours. That you might get from a software developer and the traditional DIB. It's not apples to apples, but they're evaluated that way.

[01:02:03] So I just think there's still some fundamental things that we have to recognize as an enterprise. But again, heartened by the fact that directionally we're rowing in the right direction.

[01:02:11] **Michael Brown:** I just want to add that to Zach's point that relying on RFIs or industry days is a way to ensure that we keep the ecosystem closed and we don't invite new people in because I can tell you the companies we're trying to attract leading vendors in AI or cyber tech, they're not watching to see what the EOB is putting out for those.

[01:02:30] So we, by perpetuating those methods, we guarantee a small set of competitors. We have to be more creative than that.

[01:02:38] **Jerry McGinn:** Great. I we're at time. I want to, there's so many more questions that in the queue and the questions that I have, but this has been a tremendous discussion and I really appreciate your time.

[01:02:49] Mike and Zach and Jim and for all the ions kind of participation the great news is this conversation is not ending. We'll look forward to your feedback on the playbook, as we hope to iterate with this and maybe do some case studies, look at specific programs to see how we can really broaden this across the department.

[01:03:07] And then we're having a second webinar on the 22nd of March with Eric Lofgren, who was the principal investigator for the effort is going to lead lead that discussion. But any final thoughts from we'll start with Jim before we close.

[01:03:20] **James Schirmer:** Yeah, it was a great forum and I really enjoyed the discussion today. So thanks for having me

[01:03:26] **Zachary Mears:** great tech now, likewise, again, kudos to you, Jerry, for what you Charlie Eric and the team have done. I think the report is real fodder. Now it's just a matter of how we get to the real mechanisms of adoption and tackle those barriers to adoption.

[01:03:44] I think we, for awhile for a long time, dang last three, four years in particular are not lacking for mechanism for change. We really have to drive adoption and decisions. And a lot of those decisions even rested senior political levels within the department where we often get paralyzed by making choices that seem risky.

[01:04:01] But if there's ever a moment to lean into that risk I think now is that moment appreciate what you all are doing to help facilitate that dialogue and good positive pressure from the outside.

[01:04:11] **James Schirmer:** Yeah,

[01:04:12] **Michael Brown:** I very much agree. I think the acquisition next really provides some great ideas we can take advantage of so much today but just changing our behaviors.

[01:04:21] You point the way there a lot of authorities have already been granted. We just need to figure out how to apply those for the best benefit of the department and not be afraid to take a little bit of risk and do.

[01:04:31] **Jerry McGinn:** Awesome. Thank you very much for your time gentlemen, and thanks for all the participants as a great discussion.

[01:04:37] Look forward to seeing you on the 22nd. And let's uh, keep rolling. So to speak

[01:04:42] This concludes another episode of acquisition. Talk, if you have comments, interview recommendations, or just want to chat, please contact us@acquisitiontalk.com. Thanks again. And until next time.