

John Ferrari: Acquisition Talk

[00:00:00] **Eric Lofgren:** I'm pleased to be speaking with John Ferrari. He recently retired from the army with the rank of major general and is now a fellow at the American Enterprise Institute and chief financial officer at QOMPLX data analytics in cybersecurity firm. John, thanks for joining me on acquisition talk.

[00:00:52] **John Ferrari:** Thanks for having me.

[00:00:53] **Eric Lofgren:** Let's get right into it. You argued in an article that, and I'll quote you here real quick. Defense officials should not wait for the future. They should innovate now. What'd you mean by that? And in particular, you're talking about the Navy. So can you stick with that context?

[00:01:08] **John Ferrari:** So successive administrations have talked about how much money they put into RDT and E and investing for the future and modernizing for 20 20, 20 30, always 10 years out. And so we never actually deliver capability to the war fighters because we're always chasing the next big thing. And so my point was. If you look at the American economy, which is driving global innovation, right? It's lots of small innovations. Now that gets in the hands of consumer.

[00:01:36] So in particular with the Navy, which has had acquisition disaster after acquisition disaster, trying to build new ships and cost over runs and ships that don't work all the new technology. My point was rather than going out and trying to build an entire new class of ships with artificial intelligence and new propulsion and all that other stuff.

[00:01:56] Why don't you take ships you have today and try to put into them technology that exists today, such as software and, and just like they're doing within in the car industry and see how you can enhance the systems you have today and learn, that's the key is to learn what the technologies and to mature them before you build new platforms.

[00:02:14] **Eric Lofgren:** seems like that was the kind of issue that I called leapfrogging. The military always wants to get to that next generation that like is surpassing everything , but you're saying you want to outfit existing ships with things like 5g sensors and figure, your way around that.

[00:02:29] But the Congress has actually, I think a couple NDAs ago they had the, you're not going to build a new ship platform straight away. You're actually going to start with land-based testing and do this, this disaggregated approach. And then once you get to super high TRL, then you can integrate it on onto a platform.

[00:02:47] Does that solve some of your issue or is that's just completely different, right? You're just saying let's just experiment with what we have now instead of going after a new program.

[00:02:56] **John Ferrari:** Both. So the problem with new programs and new ships and even experimentation on land is. You're restricted to the big primes who can play this long game of procurement cycles.

[00:03:06] So what my recommendation, our recommendation was to take ships. You have today, outfit them from front to back with 5g. So you've got this wireless spectrum and put fiber optics in them, and then use the Army's IVAS system as an operating system, which is commercial based off of Microsoft Azure cloud and an X-Box.

[00:03:29] And then just invite all sorts of non traditional software and other companies onto these shifts to see how they can write code and automate and help people today. And you put the engineers who are slinging code with the sailors on the ship enabled by connectivity and a commercial operating system.

[00:03:49] And you'll see a lot of innovation that will.

[00:03:52] **Eric Lofgren:** Yeah, it seems like that's where the Navy is trying to go, or at least the Admiral Selby with the integrated battle problem and some of those experimentations, do you think they're doing a little bit better job of that , it looks like , you're kind of them though, walk into gum at the same time.

[00:04:04] A little bit, right? Yeah.

[00:04:06] **John Ferrari:** So the challenge of course is when you have little pockets, right? Those pockets exist only so long as somebody who's the advocate for it is there. And then it dies off and the big programs take control and the big programs control the money. And so you, you get, what's called the valley of death.

[00:04:21] You do these little innovation cycles, and then nobody knows what to do with the systems. Once they're done, the proposal is make this how the Navy does business, which is, take these ships out and then let people compete. And then, use them to upgrade the Navy's got 300 ships, that have to be upgraded.

[00:04:36] It can't be that. Okay, we'll upgrade these 300 ships in the next 50 years as we replace them one by one, that's a strategy for failing. Given the pace of new ship construction and the pace of technological change, there's really no way you can sit around today and say, Hey, I know what 2030 is going to look like.

[00:04:53] Technology-wise because we have no idea. If you look back to 2010 and look forward to 2020, you would, would've missed the whole mobile revolution. And you've got to take advantage of the technology today and innovate as fast as you can.

[00:05:06] **Eric Lofgren:** Yeah. I like to point out sometimes that the DOD, when it was going after Jedi, AWS came out in 2006. So like the DOD was really trying to get its hands around, like an enterprise strategy. Cloud like 15 plus years after. When I read that article from you, I actually was thinking of a Rick over speech that I had just recently read where he says, and I'll just quote him here.

[00:05:28] Few new ships were built immediately after world war one. So that line officers had a chance to learn how to use battleships, destroyers, submarines, and to experiment with aircraft carriers. The EDS, of course, the engineering duty officers in turn had to become educated in their profession. I, so do you think there's some kind of similarity there after world war one or is the money problem actually part of this?

[00:05:51] If you were money constrained, you would actually be probably using legacy shifts to do these types of things in the way that you suggest, but maybe the way the system works or. The way you have to get a bunch of money for a new ship program, everyone's looking for that next new thing, rather than just doing the incremental upgrades.

[00:06:07] It's all revolution leapfrogging rather than incremental

[00:06:10] **John Ferrari:** upgrades. Yeah. We didn't get where we are today. By one bad decisions who was, bad processes and ancient processes piled on top of each other. So the quotes, right? So part of the problem is today is people sit around in the Pentagon and all these training places and requirements and say, how do we want to fight in the future?

[00:06:28] Let's go and invent the technology to go do that. And then they spend the next 10 years and they rotate in and out. And nobody's ever there at the end of that to actually be held accountable for the PowerPoint slides that have all the lightning bolts and all the new innovation, and then a miracle happens.

[00:06:42] If you think about it, right? The way things work in the real world is right. People get technology in their hands. So when Steve jobs. Put the iPhone out. He didn't plan to disrupt the taxi industry. But Uber was born. But by using that, the same thing, he didn't intend to blow up.

[00:06:57] Nobody sat around and said, what I want to do is blow up the hotel industry with the, by renting out people's rooms. So let's invent a smartphone to do that, right? That's not the way it works. So you have to put the technology in the hands of the war fighters and they will innovate how they fight around it.

[00:07:14] There's a great story with the Army's I've asked system, this individual virtual augmentation system, when fielded to a soldier in the 82nd airborne, he was trying to shoot his rifle. And he said, Hey, how the army taught me to shoot the rifle? I couldn't do it because of all these things. So I spent about 40 minutes at the range and I figured out a new way to shoot the rifle and I never miss it.

[00:07:34] Now, if the army had done this in the requirements sense in the normal way of doing things, it would have said, IVAS, has to be designed so that soldiers can fire their weapon in accordance with field manual XXXX X. And we would have tried to map the technology around how we wanted to fire a weapon in Vietnam, as opposed to putting the technology out there and letting them innovate how they do their tactics, techniques, and procedures.

[00:08:00] **Eric Lofgren:** Yeah. That was interesting. I saw a little bit on that. So they're like the soldiers now with the augmented reality headset the IVs, , it's more efficient to shoot from the hip or something like that. And so they actually have to relearn and that would have been something impossible to have predicted in the requirements stage.

[00:08:17] Is that what was going on?

[00:08:18] **John Ferrari:** Not only impossible to predict, but heresy. How could we T right. So that's not how I learned how to shoot, but this is the Xbox generation, right? Microsoft brought to IVAS it's engineers, it's X-Box technology and cloud computing and brought them all together.

[00:08:33] Soldiers said, Hey, we spent about 30 minutes with the system or a couple of hours and the menus were all familiar. Think about the last time when normal programs feel to soldiers, sailors, airmen, Marines, you have to go to class for months on end to learn how to use it. Cause none of it's intuitive.

[00:08:51] What was great about this was right. The system. They used commercial standards and the kids out there know how they know the menus to pull down the field, the colors, what all that stuff means. And they just taught themselves how to use it. And so that's the challenge. And that's why I say, Hey, get this stuff out there.

[00:09:08] News, commercial based standards and technologies and we will have innovation.

[00:09:13] **Eric Lofgren:** Yeah. So you've also been talking a little bit about IVAS and other articles as well. So can you just talk a little bit about. Where did that program come from in terms of soldier systems and then what was innovative about it?

[00:09:24] Yeah.

[00:09:25] **John Ferrari:** So IVAS is a Phoenix rising out of the ashes of disaster. So a couple of years ago the army decided after 20 years of trying to build its own network, WIN-T that, that it would abandon that effort, go figure the army was trying to out-compete Verizon at and T and all the giant global telecoms.

[00:09:45] So with that was this gap and some funding and, nothing to do until it figured out what it was going to do next for the communication system. And so it was some money aside and the 82nd airborne had been a hotbed of innovation for using mobile devices in combat.

[00:10:03] And there were a lot of special operators that were going back and forth between the 82nd and brag and had been using mobile devices and were very comfortable using those types of handhelds and devices in actual combat operations. So there was this idea to put the Microsoft programmers, right?

[00:10:21] Microsoft had an idea of, to use virtual it's goggles and its X-Box technologies, to really leap ahead and knit together the smartphone with a wearable device and w with

goggles. And so within a year, they had working prototypes and within two years they were off to building a program of record.

[00:10:40] But what was great about the program? No requirements documents, right? So , the end state was what was developed on the ground and coordination. They would go out in the field. Soldiers would say, Hey, I don't like this. They'd Recode it at night and they'd be back out in the field the next day. No change documents, no orders, documents, no program or record no funding line.

[00:11:01] And now it's going through the normal testing and a lot of that stuff and they'll work out the, the bugs, but it's a great example. And, It's expanding rapidly across the forest. You can sit inside of Bradley and see outside the Bradley now pretty clearly. And you can communicate with everybody using commercial standards.

[00:11:18] **Eric Lofgren:** Yeah. That kind of sensor fusion sounds really cool. It's interesting on the IVs, I read an article actually from Microsoft, where they were talking about like how they went through that requirements process. It wasn't list a hundred specifications of things. People think they need and then go deliver like Microsoft actually had all this self-funded stuff that they're bringing to the table.

[00:11:39] And then they went through quick rounds. It looked like of user test and feedback and development. And they were saying like no one could have predicted or we couldn't have predicted like how the soldier would use this thing in combat or there's the puck.

[00:11:51] I think part of it. And when the folks army crawl, it gets in the way. So they had to do all these types of things. But it wasn't just a series of requirements. It was, put it out there and then let the user give the requirement back. Is that something that needs to just be spread to more types of programs?

[00:12:07] Is that like a middle tier thing only? Or how do you think about that process? Filtering out to the rest of the system

[00:12:13] **John Ferrari:** I think it needs to be filtered across everything. And when you think about it, one of the reasons in the commercial sector and in your life, you can communicate, is you have these kinds of monopolies of operating systems, right?

[00:12:24] You either have an iPhone or an Android phone, right? So your email works together. It's not that hard. It's all interoperable. You have that now with IVs, right? You've got this kind of operating system out there based on commercial technologies, commercial standards, so that all these small software companies, any right. Most people out there know how to write and sling code around that. And that was why we said for the Navy, Hey, take this Ivax and you put it on your ship. So you've got the goggles, you've got this operating system, you've got the cloud platform. It's the same that the army has. It's already been built.

[00:12:57] And now you can have interoperability between ships and soldiers and across the ship. And you have people now slinging code against all of that. And then it's it's kinda build the operating system first and the battery pack and then build the car around it, as opposed to

saying, Hey, I want a car now let's go build an operating system and batteries, to fit inside the.

[00:13:18] **Eric Lofgren:** Yeah. I think a lot of people would say like the department of defense loves this legacy approach. It tries to fit everything into a platform and it might get the order of operations wrong sometimes on that. But you recommended that the Navy actually , should adopt the Army IVAS HoloLens.

[00:13:33] But I actually saw recently that the Army's dragon layer, shark tank , they're actually might fund an ocean augmented reality system from Google glass instead. Like, how do you see should the IVAS now, like as an army system broach into the Navy, because the hollow lens really isn't like service specific itself.

[00:13:53] Or do you think the natural ways of these things working at the Navy will go after its own system?

[00:13:58] **John Ferrari:** Yeah. So the natural ways is right. We've got to have separate competitions, right? Because. the system is set up to fear this monopoly provider of things yet. That's what we wind up with.

[00:14:08] We contract monopoly anyway. So we used to have several air, several companies that made fighter jets, and then we contracted to the F 35 and that didn't work out too well. There's a natural though kind of operating system level of monopoly that if you don't have, you just can't have interoperability.

[00:14:27] Your DVR can't talk to your blender. Now we're bringing in nest and Google, where they're starting to wire together, a lot of the things in the house, but it's a common operating system. It's windows, it's Mac, it's Android.

[00:14:39] So you've got to have this foundation because otherwise you just spend all your time and money chasing different versions of software that people don't know, how to use. And so I've asked and the Azure. Cloud for the combat system. It might be it now it might be that Google glass becomes interoperable or is not right.

[00:14:59] So that's fine, but you can't have different operating systems running around, out there. Otherwise you'll never be able to pass the data, which is really what's needed in this new type of information, operations, artificial intelligence driven warfare that everybody's talking about.

[00:15:15] **Eric Lofgren:** Yeah. So it seems, you're talking about IVAS almost as an operating system for elements of the department, Palentier has been talking about that.

[00:15:23] They want to be the department's operating system. Is this kind of like the new play to if you plant that kernel, then you can grow massively in that space.

[00:15:32] **John Ferrari:** Yeah. So panel tiers or data analytics systems. So it's different than being an operating system. You know that

[00:15:37] **Eric Lofgren:** they want to be the operating system.

[00:15:39] So you, it seems like it would be like at a different point, I've asked is out on the edge and Palentier is back after everything's been collected, like connected to through the cloud or something. How would you think

[00:15:48] **John Ferrari:** about that? I think they, they see themselves as the place where all the data comes in and gets assembled and gets analyzed and then spit back out.

[00:15:58] But it's not going to be the, it's not, integrating email and sensors and all of that. That's just not what it does as a system. you know, There's different points, different operating systems that you can have. So it's I think they view themselves as an operating system for data analytics.

[00:16:14] **Eric Lofgren:** And let's talk a little bit, like back on the. Let's just imagine that this world of a fully network system of IVAS is pulling in data from all of these types of sensors. Do you think this leads to I can imagine someone, sitting back at command headquarters, like looking down and seeing everybody and where they are and what they're seeing, do you think IVAS leads to more of this type of centralization that we've actually seen over maybe the past 20 years?

[00:16:40] Or do you think it actually flips the script and kind of get you towards a more mission command culture?

[00:16:45] **John Ferrari:** It's no different than ways or Google maps. And in essence, nobody's sitting around and micromanaging cars as they're going, but you aggregate the data and you can see where the traffic points are.

[00:16:55] This gets to, Jad C2, which is trying to build this global operating environment. So in. Fashion, all of the senior people in the military today really came of age in desert storm. And desert storm was the classic computer systems and communication networks of its time, which was top-down architecture, right?

[00:17:15] Information is generated up top. It's sent down and then pull back up, but it's really top down driven. And when you think about mainframe computers and communication networks, right? The personal computer really didn't come of age until the nineties, and then really was unleashed in the bottoms up revolution started in really 2008 with the smartphones.

[00:17:35] And that's the revolution we're going now, JADC2, just hearkens back to the top-down and it's much harder, right? Social media and Facebook and Instagram and all of these email and ways, you couldn't build it top down. You've got to collect the data bottom up, and then it turns out that it's much easier to aggregate data and filter data on the way.

[00:17:57] The communications network than it is to do it top-down. So what I see is right, if you, I, the reason I like I've asked is if you're fielding hundreds of thousands of these two infantry soldiers and line soldiers and logistics soldiers, and they're all inter-operable with

each other, we'll now to go up and to build a global communication system, you've just got to aggregate up.

[00:18:21] So I think they'll just be too much information for people to go, Hey, a little bit to the left, but however, we've seen that, look at the special operators, right? You can sit in the white house and monitoring special operations mission live in the situation room, but you can only do that for one or two.

[00:18:39] And so when everybody has it, it becomes a lot harder to micromanage, but what it allows then is for situational awareness and artificial intelligence, Everybody know where perhaps the priorities are or what's going on the battlefield.

[00:18:53] **Eric Lofgren:** Yeah. It seems in the JADC2 approach that their top down is like, we will pre tell you what the standards are, right.

[00:19:00] That will allow you to inter-operate with this operating system, let's say and then you guys go out and build and I w I would say that seems to be the J six cross-functional team approach that's prevalent today. But there's also been a lot of calls for creating something like a program office or joint program office of sorts to really be the one place that does, all the jet C2 stuff, whatever that means.

[00:19:21] Can you just talk about what's your view on the department's take, you talked a little bit about this bottom up top down. Where do you think, like the actual kind of organization and what they need to focus on needs to be?

[00:19:30] **John Ferrari:** Yeah. Yeah. So this is the classic absurdity of the entire system, right?

[00:19:34] So think about this. You or I could right now take out our smartphone type out an email, put an emoji in it and send it to the president of Iran. The president of Iran can actually it'll translate itself. And he can read it in Farsi. He can listen to it in farsi, you can type it. He can listen to it.

[00:19:51] And the emoji comes through exactly how you sent it. Yet. We at the Pentagon need a program office and requirements documents to figure out how to pass graphics from the United States, English speaking to the British English speaking and how to pass a graphic from from a plane to a soldier.

[00:20:10] And we're going to spend years and years trying to figure that out. Hey, graphics are just emojis. Hey, all this text and voice, right? All of that already exists. And is capably embedded in commercial software already? There is nothing to actually design to put this stuff. We've just got to accelerate the trend to using commercial standards.

[00:20:31] And that's one of the reasons if you're building new systems and it takes you 30 or 40 years to get there, rather than taking commercial technology today and embedding it in the current systems, you'll never get there. Because the system, that every five or 10 years, the systems are changing, think of the Army's joint light tactical vehicle.

[00:20:48] So it's got it's dumb, right? It's just steel. It's a small MRAP. But think about the car that people can drive today. Look at a Tesla. It's got all this technology and it's got a backup camera. It's got, sensors, the army has none of that right. In the year 20, 21, not a backup camera on a wheeled vehicle to be found no auto locking brakes.

[00:21:11] So now they're like, okay, we still want to produce the JLTV ha what are we going to do? So it's, we've got to figure out how to get that stuff into the system. Much quicker than we're doing it now.

[00:21:22] **Eric Lofgren:** One thing that comes to mind as we're talking about IVAS and some of these other things it feels like, there's the JADC2 cross-functional team and all these people focusing on that, but, it seems like some of the JADC2, it's just coming together under our noses because the comer in the commercial world that kind of already exists. And so you're seeing that with IVAS and other things like that. Do you think that's ultimately what will happen? It's just like these like small networking things.

[00:21:46] I was just learning about DIFI, which is a new kind of consortium in space for coming up with interoperability standards, like the five G community has been doing. Do you think like the coordinated, single effort is actually not the place where JADC2 will come together and it'll just kind of come together under our noses in a more federated.

[00:22:04] **John Ferrari:** Yeah. So in our commercial sector, the great thing about the United States economy is creative destruction, right? Where, the IBM's the Wang computers, the Oracles. Think about the big names and technology all got run over by all these startups who from the bottom up, they surprised everybody and boom, they woke up and they were Google.

[00:22:23] They were Facebook, they were Microsoft. And all these giants tumble the challenge of course in defense is right. It's a top-down Soviet style dictatorship. So it's a, it's the ultimate command economy. So it's easy to squash the innovation and say, no, we know better, and it's going to be top down.

[00:22:45] So that's the tension. How do you overturn 50 years or 70 years of post-World war two bureaucracy that's been put in the system and the challenge is right. You have this turnover at the bottom, right? If you look at the founders who led this tech revolution, they were at their companies and pushed through 10, 15 years.

[00:23:05] And they had big, powerful venture capital backers, right? Who provided the money to withstand all the losses while they did that. Think of how much money Amazon lost right before it became profitable. So without a sponsor, providing money and cover it becomes hard to survive in a command economy.

[00:23:24] And that's where the United States Congress comes in. Because ultimately they are the venture capital arm of the department that they provide the funding. And so as they provide the funding and allow things to grow, or if they keep funding the reinforcing the money to the big programs, that's when you have a.

[00:23:42] **Eric Lofgren:** When you said Congress is the venture capital arm of the department that got me scared a little bit, but you know, one thing that I sometimes say is the way the department has these programs of record, right? The Navy has a 30 year ship building plan and everything. Like we're always looking past multiple decades.

[00:23:58] The way the department works is like, in order to even get the money to go do something, you have to line up this program of record in the way.

[00:24:04] I almost think of it. It's like going to a startup and telling them if you want any venture capital or any kind of investment funding, you have to pack, series a, B, C all of your. Into like the seed stage and have a fully defined thing. And like your venture capitalist will hold you to that plan before you even start.

[00:24:21] So they like in the commercial side, there's definitely this kind of incremental, show me, and then we'll talk about more funding when you need to get there. And you control your burn . And development process, whereas in an apartment it's like we pack it all up front. Do you see that as being an issue?

[00:24:36] **John Ferrari:** It's a great point. And and it reminds me of, if you look at ISIS in Iraq They came out of Syria and we're driving through and took Fallujah and we're working their way through and look how they leveraged technology that existed in social media. And it, it was a couple of ragtag soldiers that crushed the Iraqi army through Facebook posts and what apps and, strategic disinformation campaigns and, they fought a war and, won the battles on social media, a new way of warfare, where in the department of defense, it's like, Hey, you can't use those on our network. So we're not out there doing that. And so you've got to, as you said, you've got to get this bottoms up thing, tolerate small failures and understand, Hey, you'll put these things out there.

[00:25:20] Some are gonna work. Some of it won't work, but you'll learn. So when you look at IVAS all those quick turns that you talked about, they weren't failures, they were learning opportunities. The problem when you build a big program is when it fails, look at Comanche or look at the aircraft carrier or look at the joint strike fighter.

[00:25:37] You've got nothing. You've got nothing to fall back on because you've destroyed any remanence of alternative solutions. And then you're, you've just got to keep sinking good money after bad because you don't have an alternative what you want are lots of alternatives. And one of those systems will win.

[00:25:52] **Eric Lofgren:** That just seems like it makes so much sense in the government. So it's so hard to do that in government. And it seems like there's just been like this big paradigm shift in how systems have been built. So like the way I tend to look at the overarching history of this thing back in the fifties and before you had like these technical services and bureaus, they would focus on kind of component growth.

[00:26:14] And then they'd contractors. Platforms around it. And they could move money and do things pretty quickly. And actually a lot of programs would move along or projects would keep going in the face of opposition from leadership. Whereas today it's kinda been flipped, right?

[00:26:28] You have this quote unquote weapon systems approach where all the components are actually like purpose-built to this platform. So we start with the platform in mind, and then we build the components in as opposed to saying Hey, let's start with operating system. Like we're saying like, no, you're going to start with the shell of the hardware and then work everything into that.

[00:26:45] And so things just naturally become non interoperable. Do you have you also seen this kind of like paradigm shift, do you believe in that? And what's your view on? I do believe in

[00:26:55] **John Ferrari:** it, but the problem is right that the entire system and bureaucracy and funding and requirements is set up for the build the platform.

[00:27:02] And so if you look at the Army's future vertical lift helicopter program is the perfect example, right? Instead of saying, what we're going to build is a reconnaissance system and airborne reconnaissance system, right? We're building a helicopter, that's manned unmanned, and then you build around that.

[00:27:20] And so you've already locked yourself into a design because you've decided there's going to be a pilot in the helicopter that now you have to build in all the safety, all the weight, . And then you start inserting in around that, all the kind of technology, as opposed to starting with the technology and then building the aircraft around it, and then finding out you actually don't need a pilot.

[00:27:44] And once you take the pilot out, all of a sudden that helicopter, you can really change the design, the aerodynamics, you can change what you put in. You can change how the software operates. You can change your risk tolerance, right? Because you're like okay, if it crashes right. Who right.

[00:27:59] We got it. Or you can change the mission profile, cause there's not a human in there. And and then you can just build these things and you build them a lot less expensive and then they become semi disposable and you can iterate new technology and new designs as you go forward. And then you're, you're perhaps casting industry to bring you new designs around new software drops.

[00:28:20] And it's Hey, now the software can do this. So maybe we can change this mission set. And it's really about integrating sensors. With data right in remote areas. And they're there, you can hopefully get away from, there's gotta be a person in there. And unfortunately the army has not gone down that path.

[00:28:39] The army has said, there's going to be a person in the cockpit of that armed reconnaissance helicopter. And so now you're walking into a design in a way of doing business and a bureaucracy that says, if you have a person in there, here are the hundred things you have to do. If you take the person out, all those hundred things go by the wayside and now you can really innovate.

[00:28:59] And there are only so many companies that can go out there and do that. And if you look at what Anduril is doing. So Anduril has started off, palmer lucky and the Oculus rift in Facebook. So they're similar to, IVAS , they're taking that Facebook technology of virtual augmentation.

[00:29:14] They started with integrating sensors together, and now they're integrating along with airborne pod. And you can see them planting the seeds of an unmanned reconnaissance vehicle that could perhaps, do battle bureaucratic battle with the w with helicopters in a way that Elon Musk did was SpaeX.

[00:29:32] We forget that he had to Sue the air force, to allow them to use his systems. Palentier had to Sue the army to use commercial analytics. So right. In some respects you've got to have some of these tech companies have to have deep seated financial backings to take on the bureaucracy, your typical startups, not able to do that.

[00:29:53] And that's the great thing about our system is we have some people willing to put some money on the table and challenge to be right.

[00:30:00] **Eric Lofgren:** Yeah. That's I think the thing that Palmer Luckey says quite often, right? It's like the only companies to reach a billion dollar status in department of defense that started up had these billionaire backers.

[00:30:10] And it's you start a billionaire to become a millionaire in this business. But it seemed like, when I saw what they were doing like they came out with the ghost drone and it started it almost looked like a toy to some degree. But they were really starting out with that operating system and sensor fusion and Palmer lucky in a recent interview at the Reagan forum, he was talking about, we want to be like that central hub that connects all the sensors out there.

[00:30:33] And so we get the full 360 degree view. So it looks like, there's definitely some competition on that front and maybe the competitions a good thing, but. It just seemed like that was like the smarter way to go back. Cause the hardware, you can just, you can build that out and scale that out incrementally.

[00:30:48] But if you don't have the core operating system and, mission systems in there then all of that, the rest is for not. So you're saying like, and dural might have that sleeper, system that might replace or be, be better than what the army can put out with FVL because they're starting in the wrong direction.

[00:31:05] Is that

[00:31:06] **John Ferrari:** just that, but I think maybe it goes back to your earlier point, maybe that's the actual other operating system next to IVs. She got Microsoft, right? So this is a Android versus iPhone. And you have a duopoly and not a monopoly or maybe. You can have three operating systems.

[00:31:22] Like you have Google cloud, you have Azure and you have Amazon cloud right there. There's probably not room for, many. But what's key to it is right. Whether you have an iPhone or an Android phone, they're frenemies. And they compete, but they're also smart enough to know.

[00:31:36] You've gotta be able to send an email and make a phone call from one device to another. So they cooperate on the standards of information interchange, and then they compete on user usability. Can D how do we get the user to make it easier for the user to do that? And so you've got IVAS and Microsoft on one side, you've got Anderle on another side, you talked about the Google glasses and maybe the Google operating system on another side.

[00:32:04] And so long as we so that in the commercial sector, they all come together at these standard bodies and they hash out and they say, okay, If it's these digits, once in zeros, it's a birthday cake emoji. And no matter what it is when you send the birthday cake emoji, it's going to show up as a birthday cake emoji and the department of defense, and the government, we punish these companies and prohibit them from coming together, outside the contracting process to cooperate. That's part of the, the culture that's got to change, which is, Hey, you guys get together. You figure out the standard, because right now the approach is, Hey, JADC2 will stand up a program office and we'll come up with the standards and tell you all. Holy cow, nobody's going to adopt whatever we come up with in department of defense. Cause it's, it'll be so unique, right? So you've got to allow these companies to come together and cooperate in order to compete. And that's then when you can have competition you have cooperation to enable competition.

[00:32:59] Unfortunately, the system is set up and it views as cooperation as antitrust and illegal collaboration. So it's a mindset change or the bureaucracy that's got to occur so that you can share the graphics and everybody agrees what they are.

[00:33:15] **Eric Lofgren:** Yeah. It seems like that's the narrowing in of the program, stove, pipes, right?

[00:33:19] It's like you create the program and then have everyone focuses like inwardly on that program, getting those KPP gaining that cost schedule. And then these other, global type of issues with the portfolio kind of fall by the wayside because who gets put in charge of that? Let's create a program to do it, that's the natural way to do it. And I'm definitely hearing you it'd be interesting to see some kind of cooperative competitive modes there. I think the Jedi again, I'll bring that one back up. The department thought like very in terms of well cloud, we need one. So everything's interoperable.

[00:33:53] And so one will rule them all become a monolith. And that turned out to be problematic for a number of reasons. And now they've moved to a joint war fighting cloud capability. I believe it's called where they're onboarded onboarding like four different providers. And actually I think the J six cross functional team has has a working group on cloud interoperability.

[00:34:13] So it'd be interesting to see that approach more federated approach get dug into the rest of these jetty two discussions. Cause it seems like they're, everyone's just aggregating it

back up. We need a program office, this isn't working, but it feels like when I read all these articles going on, there's just a ton of groundswell of different activities.

[00:34:31] Maybe it's just not clear as they come up. Yeah.

[00:34:33] **John Ferrari:** You brought it up before, in that, the department's 20 years behind everybody else. So it woke up one afternoon in the late 2000 tens and said, my God, I need cloud computing. But whoever wakes up and says, I need cloud computing? cloud computing is a commodity provider of compute power right. And services. And so it went out to do low cost, technically feasible. That, which it does. Okay. Who can provide me cloud computing. But cloud computing doesn't actually get you anything. It's how you use it and what you do to enable it.

[00:35:05] And instead of setting up and saying, Hey, okay, here's what we want. Our cloud computing has to be secure. Here are some non-commercial standards that, because we're the department of defense you have to meet. And you have to really focus on the security of the cloud and the data and the encryption.

[00:35:21] That's unique to the department of defense and then saying, okay, now programs. Build things. You have to build it in the cloud. Instead we tried to contract again, contract monopoly, pick one cloud provider and that's it at well. Okay, that, that might be it. And you might pick the best one in 2018, but that best cloud providers, probably not the best one in 2020 or 2022 or 2024.

[00:35:46] So what you want to do is enable lots of different cloud computing capability and capacity if for no other reason than to prevent single points of failure. Now, if you look at the joint strike fighter, a bad part takes down the entire fighter jet program in the department of defense, right?

[00:36:03] It grounds the whole system, bad software, right? You need resilience. And so resilience would mean, okay. Cloud computing is just a commodity provider. And allow the cloud service providers to then compete on services and usability that they provide to the program offices and interoperability would be an advantage, right?

[00:36:24] Hey, I'm interoperable. So use me or, Hey, I've got better user interfaces. Hey, look at all these free tools I provide. And and so that's probably the better way about it, right? This buy one approach and select one winner and go to a monopoly was probably not the right idea.

[00:36:39] **Eric Lofgren:** Whenever you see those statistics on like percent competition, I think it's like half now, but even those competitions are just this one time static thing, because it's so big and so important. It takes years to get these solicitations out and then get the bids in and then you go through protests and like source selections and all of that. And it's just it's like this photo competition. That happens once

[00:37:00] and then you just get the, you get the lock-in right after that, as opposed to being able to move through. And I guess the commercial aspects of some of this allow for I think

the big thing was we don't want to have to develop and spend 10 development, the same dollars to spread across 10.

[00:37:16] And then we just pick one anyway. But if there's a commercial capability, it's already self-funded right. It's already going, you just have to do some of the marginal stuff to get it there. So it seems like commercial is a big advantage, right? If you can make use of it. Because otherwise you're pushed back into that static mentality as to dynamic and evolving.

[00:37:36] Yeah.

[00:37:36] **John Ferrari:** Yeah. But we also can't lock ourselves into old, part of the problem is a lot of the standards we have. When you buy something, you're going to have it for 50 years and therefore you do certain things to it, as opposed to, Hey, I'm going to have it for a couple of years. So I can accept the fact that if I break it, it breaks and I'm not going to repair the smartphone.

[00:37:53] I think initially when the smartphones came out, it was like how are we going to repair them? It's you don't, you throw it away and you get a new one. As opposed to, we're going to have it for 50 years and that mentality of, oh, I'm going to have it for 50 years, then lead you down the path of it better be right.

[00:38:07] So I want to take my time because I'm to have it for so long. Right now you go out and you're right. People buy these smartphones and these smartwatches and you're like, oh, it's a couple of years and right then on to something else. And . So the department defense needs to really start moving in that direction.

[00:38:24] But it's hard to do when you have these kind of budget appropriation cycles that require you to know down to the detail, what quantity of what you're going to buy three to five years from now. And you've got to go through all this bureaucracy. There's gotta be a way to put trust back into the system, because if there's no trust in the system, which there is not now, then everything gets micromanaged down to the quantity of systems you're buying and you can't move money from failure to success when you have those multiple failures and that's when you get locked into problems.

[00:38:56] And that's that valley of death that, that that really the people want to innovate. The small companies can't survive. And it goes back to your comment, right? If you're not backed by a billionaire, or you're not already part of the defense establishment, one of the big primes that have these generational programs that you can siphon some pennies off of to doing innovation, it's just really hard to do business with department of defense, cause you'll go bankrupt doing it.

[00:39:23] **Eric Lofgren:** So what do you think about the feature of these tech companies in defense? Some of them will be able to start moving up the value chains being like these big primes, eventually getting some of that dynamic change that we see.

[00:39:34] If you look at the S and P 500 top companies, you see that change. But you don't really see it change so much in the department of defense. You think we'll see that? Or is it

just this kind of cohort that's breaking through now? Will there be more firms that will come up or, is it likely to just revert back in on itself and we'll get, continued consolidation?

[00:39:53] So I

[00:39:54] **John Ferrari:** think there's a couple of things that you just talked about. So the first is, when you look at Palantir, you brought them up before they've got a market cap, that's, almost three quarters, the size of what say Northrop Grumman, which when you think about it, for only a fraction of the revenue.

[00:40:10] In some respects, the market is rewarding companies, such as Palantir or c3.ai backed by another billionaire Tom Siebel. For this. And you look at the Anduril's, private equity funding already rewarding it with these really high commercial sector multiples. But they're all backed by deep pockets.

[00:40:30] I think the challenge for the tech industry right now is going to be picking sides, right? So the world, technology, the internet is balkanizing into really three different places. So this kind of notion of one global Interpol, internet, the tech companies are these, we're not nationalistic. We're not a us company.

[00:40:50] We're a global company. We are global citizens. That's breaking down. And I think the internet and the commercial sector is going to break into three pieces. One will be led by the Chinese. And we'll will have Chinese tech companies and have very different standards of government intrusion and censorship and the ability to block things, right?

[00:41:11] So that'll be very controlled by the Chinese government and they're gonna, they're big enough that they can do that. The other will be what I call kind of the Western democracy, right? That, that kind of the internet, maybe as we know it today, but really divorced of kind of Chinese components.

[00:41:29] And you can see the problem playing out, even with chips and technologies that are made in Asia. We're going to need to diversify our supply chain and look at bringing that home. And then I think there's going to be a third internet and technology base of misaligned actors, everybody else from the Russians to the Iranians to right.

[00:41:47] All the kind of bad actors out there who want to control. But don't want to necessarily cozy up, to the Chinese way of doing things, but aren't going to be reliant on the American internet and the American spy agencies to do that. So it's going to force and you see it playing out now and you see these discussions going on in the commercial sector, playing out, Hey, who's doing business with China.

[00:42:10] Why are you doing that? Where are your chips made? Hey, are you taking anyone? The Chinese government says, bowel before us, do you do that? And if you do that for data and you do that for a production technology, are you going to hand over secrets to them that then can come back and, be used to cripple the American economy and American supply chain.

[00:42:30] So I think these tech companies, and you saw a lot of pushback a couple of years ago when Google was doing work on artificial intelligence and people said, oh, we can't do it for defence yet, when you look at what they were doing and trying, and you're like, wait a minute, look what you're doing over there.

[00:42:46] And so I think you're starting to see now, Microsoft, right? We talked about them doing business there. They could become a large defense contractor. You look at Amazon, right on the logistics side, they're already woven into lots of things. Defense does, and you could see them becoming kind of, you know, the question is why do we have the defense logistics agency?

[00:43:05] Why don't we just outsource that to Amazon? I understand why we had it in the past, right? It was Amazon before Amazon, but there's no reason to have it today other than we have it. And we can, we don't know how to get rid of it. But Amazon cloud computing and Google and Microsoft and Android and you see what you see partly growing up.

[00:43:24] Are these firms backed by these billionaires who say, okay, my commercial company. I've got this workforce that doesn't necessarily want to do business with the government, but I'm just going to take the technology and my money. The great thing about America, right? Capital late land, labor capital, right?

[00:43:41] I'll just take the capital. I got the intellectual property. I'll just form a new LLC over here. Throw some money in there. And off to the races, we'll form a company that supports the department of defense and everybody who's hired in there is going to know that. And we'll just build it that way from the start.

[00:43:56] And we can do that. So that's what you see happening now, but at some point, the big companies, the big tech companies, right? And you see that pressure building. Now you see the pressure building on the investment community, right? There was recent article an interview with Ray Daleo about his investments in China, ?

[00:44:13] So you see this friction, this kind of cold war, you see what's happening with Russia and the Ukraine. You see the spy software being MIS misused by these millennia. Nations. So all of that's playing out now. And I think over the next three to five years, people are gonna have to pick sides.

[00:44:29] **Eric Lofgren:** . That's a really interesting view because it seems like those billionaires that kind of got into defense, they all say we did it for ideological reasons not to make money really. Maybe there's part money, but Elon Musk wants to go to a space. He wants to get to Mars, Palmer lucky.

[00:44:44] He just flat out believed in the mission. But it seems like what you're saying here is that there's just gonna be like a geopolitical shift and these companies are gonna be able to ride that and actually grow through it. So it seems like we've seen those polls come out recently that, views on China have just been plummeting over the last couple of years across the world.

[00:45:05] I know we see D countries and a lot of these companies are now realizing, especially in Silicon valley, There was that optimism, but they're realizing they're being boxed out. They're not going to make money there anymore. It might be natural for them to fall back in, but you think that these companies are here to stay and then they will be able to grow their footprint because defense, yes.

[00:45:23] The top line goes up and down, but it's a zero sum game, right? If some of these new companies start gaining, then there's only one place for the traditional to go, which is down. And I think you're seeing that with SpaceX and ULA and some of that's just the ability to get product out there.

[00:45:38] What's your perception? Are we're at the point of no return? These companies are probably going to grow.

[00:45:42] **John Ferrari:** I think to two things, one as I, I just want to maybe not agree with your statement that these billionaires are doing it for ideological reasons. They're in it for the money and Elon Musk wants to go tomorrow, but he wants the U S government to pay for it.

[00:45:55] So it's through the government because he wanted to go to Mars. He wanted the government. Essentially, buyers, rocket RocketSpace, rocket ships and mission, so that then he could have money in order to go to Mars. So they have this vision of the future and they want to break up, appear Thiel, didn't wake up and go, I really want to help the war fighter out.

[00:46:13] He saw the amount of money to be made in data analytics and bank rolled, suing the department of defense, to use commercial software system rather than custom building it. So then to the second part of your question is right. Okay. Zero-sum sorta maybe not. So the great thing about the American economy is innovation is not zero sum, right?

[00:46:31] This is not, if I make money, you have to lose money, right? It's I make money and you make money. So there's room innovation that drives down costs that drives out massive inefficiencies in the systems where think about all the big defense prize, each writing their own software code, and then a whole nother army of software people in the Pentagon called Jad C and wasting all of that money.

[00:46:56] What if instead, they all got together and said, okay, this is how we're going to share information. And all of that cost is now driven out. And now you have affordable systems that can innovate and they're allowed to leverage their commercial technology, which already exists. And they don't have to go through the entire defense, Hey, you do this.

[00:47:14] And then I'll tell you whether you're right or you're wrong. You show up with a product and now you're just cranking things out for the marginal cost of production. Now there's enough for lots of people, right? Because you've driven out all those inefficiencies. The last part, hey, I think I read recently, IBM's breaking up, right?

[00:47:31] General electric is breaking up, right? Wayne computers doesn't exist anymore. A lot of these defense, the traditional defense companies may not make it. Some of them now

there's only a couple of them left because the department of defense has protected them. So the question is at what point will an administration, the Congress come in and stop protecting them and allow them to really feel the pressure of competition. Wall street rewards, these innovative tech companies in defense very differently than it rewards the giant defense.

[00:48:01] So giant defense companies are rewarded for producing cash, right? So when you listen to all their investor calls and you look at their stock price, it's how much cash are they producing, which means they can't innovate on their own. They need the government to give them money. They can't afford to take the risk of producing three or four things, and then going to see what the customer wants to do, because right then they're not producing that cash. So they always start off their conversations with this is what the army told me to do, which is very different than these other companies that are funded that are, that, that have these large market caps or these large venture capital backups that are losing money.

[00:48:40] And it's that potential for future growth that, that the market's rewarding them on. So Microsoft could afford to send engineers down and take a flyer on using its commercial technology. Because it's, it's being rewarded on future revenue growth, not on producing cash. And so that's going to have to shake itself out in the coming years and the problem is once you're addicted to one way of doing business, just look at all the companies that have come and gone in the commercial sector.

[00:49:07] **Eric Lofgren:** Yeah. It's definitely, it seems like there's the dividend play of the traditional primes and then the growth play of the newer companies. But it seems like some of that is like the realization, right? Lockheed and Boeing. And these companies probably have as much of that, budget as they're going to get.

[00:49:24] And they can't diversify into commercial necessarily. Whereas some of these commercial firms or, new startups, they might have some potential to add. Go commercial. So there's like that osmosis, you can go one way, but not the other way. And that might have an impact. Do you think that has any bearing here?

[00:49:43] **John Ferrari:** Surely that is the case for most companies, but not necessarily all, if you look at the pivot that Microsoft made recently into the cloud and it, it missed tech revolution after tech revolution and then successfully made the turn. And as one of these, trillion dollar market cap companies now so it is possible to be done.

[00:50:02] Look at the auto industry. Some companies are making the turn into smart vehicles and electric vehicles and some aren't. So you've got to have innovative leadership that's really looking to that. That's willing to take the risks. To make that turn and not every company will make it and that's okay.

[00:50:21] Our economy is set up to take the resources of a Sears that fails to make the transition. So if you think of Sears is a classic case model in the 1960s, you could order a house, Sears would deliver a house and you could build it. Not even Amazon can do that today. So it was doing online ordering, ?

[00:50:41] You did it by phone or by mail, and you ordered it and had a catalog . Yet today Sears is bankrupt and . It's land is worth more than its business model because it's leadership.

We're locked into a business model that said, I have this big box. I'm going to take all this product and display it.

[00:51:00] And I'm going to bring people in. And then along came, Jeff Bezos who was selling books out of Seattle, And he said, Hey I'll use this big warehouse. I'll have the books, but I'll send them out to the people. And he was rewarding, people who could program, and people could write the code to enable it.

[00:51:17] And at Sears, right? You couldn't rise to the leadership level of Sears unless you would manage the store. The problem is once you manage a store, you can't imagine a store in a different way. And so it stuck to that, go to a Amazon warehouse and go to a Sears store. They're the same thing, but they've just flipped the business model around and they reward .

[00:51:39] How you get that distribution to the customer differently. And one company is bankrupt and the other's worth, \$2 trillion. And so that's the problem with the department of defense, is right. We don't allow that competition to occur and that turning upside down. And we'd you write the demise of a Sears like programs.

[00:51:57] With regret and we have congressional testimony as opposed saying, Hey, yeah, they couldn't make it. Sorry. Onto the next one. Yeah. It

[00:52:03] **Eric Lofgren:** definitely feels like the traditional primes, maybe they don't have the best product, but they have an awesome distribution, But, I take your point though. Like I think the competition that's coming up here, it might push those traditional prime to innovate and they have a lot of smart people. They have that distribution system. They actually have a lot of great products too. That could be a very interesting aspect there.

[00:52:22] And it does feel like I was also thinking, yeah, the top line budget feels zero-sum, but maybe there's a lot more flex in there, right? If 70% of a weapon systems cost is sustainment. If we can make that more modern drive that sustainment costs down and be able to reinvest that into product development, like there's some money.

[00:52:41] Elmer stats. He used to always say in the seventies, 50% of research and development money is just wasted on documentation. If we can have a more efficient process for just getting experimentation and scaling and deciding on technologies, then we could, drive that out and add more money there as well to actually do things.

[00:52:59] So it doesn't seem like on my, I guess I gotta agree with you.

[00:53:02] **John Ferrari:** So think about the defense primes, right? When you think about their real core competence, the real core competence is dealing with the government, writing proposals, cost accounting, all the documentation. That's got to go right. Living within the federal acquisition regulations, having a separate accounting system.

[00:53:22] Okay. When you have all those inefficiencies, it's hard to compete, right? So you've got to change the paradigm, which is if you're buying a. Then you really, if, when you go to the store and you're buying a pen, you really don't care right. In a buck, you pay a buck.

That's great. If you're buying a pen that's purposely designed for you and the guy says it's five bucks or a buck, you're gonna want to know how was that?

[00:53:41] Money spent, show me every single penny and every fraction of a penny. And here are rules on who you can hire and who you can hire and what you have to do with your facilities and all that. So that's a massive inefficiency built into the system that just slows everything down and inhibits competition,

[00:53:59] if you get to this faster commodity type approach, and that's the problem with a lot of these, some of these companies don't want to do business with the government because it's really expensive to put in a government compliant accounting system. And you've got to ask yourself if we have generally accepted accounting principles, why does the government need its own accounting system?

[00:54:18] And the reason is because it does a lot of reimbursable work. And if you're paying for time and material reimbursable work, you want to make sure you're not. **So instead buy a product, right?** So if you look at Microsoft saying, Hey, I'll sell you the product, I'll bankroll the back office stuff and do that.

[00:54:31] Whatever you do, please don't make me, sit in, join the, all the different things. And so you see that with this fast tiered acquisition approach, which kind of enables companies and enables to bypass the acres and acres of trees that have to be filled to produce all the written documents that are needed to do a program.

[00:54:49] So mid tier acquisition. But it boats interesting. It's yes, but if we do real acquisition, that's not mid-year then you have to follow all this paperwork and lead to acquisition failure because **there's no documented history really of those programs ever succeeding in, since about 1980**, that system served us well from 1950 to 1980, and has failed us from 1980 onwards.

[00:55:11] **Eric Lofgren:** So let's pivot a little bit here of, I want to talk about, what we've been seeing in the economy in terms of inflation , and, it's been creeping up past 6% on a year to year basis. Do you think this inflation is temporary or do you think it will reflect the longer-term trend?

[00:55:25] **John Ferrari:** Well, so, you know, Inflation, right?

[00:55:27] Like all things in life temporary depends upon what your definition of short-term and long-term are. If we use the word temporary where people are using it today, which is, Hey, by this time, next year, inflation will be, back below 2%. I don't believe that. So the inflation numbers came out today 6.8% up from 6.2%.

[00:55:47] So it continues to spike. It's the highest it's been in 39 years. So things are just going to cost more. So even if you believe. Transitory in nature and short duration things still costs 6.9% more than they did a year ago, which means you can buy 6.9% less things. I'm not a believer that it's a short-term transitory phenomenon because you can already see inflation

expectations creeping in and wages going up and contracts being negotiated that go in, look at the , I bonds that the government is selling, right?

[00:56:22] They, their index to inflation. So government interest is going up, right? So the amount of money that the government's got to pay just to service its debt due to the inflation is going up. So you wind up in this spiral of upward prices, right? Inflation is once that inflation genie is out of the bottle, it's really painful to put back in and you can wish it back in, but there's almost no documented case in the history of the world where that's possible.

[00:56:48] So soldiers today, an airmen Marines coast guard, right? They're taking a real pay cut. So when you're talking about recruiting for the army, all these technical people, they're getting a 2.7% pay raise, but inflation is up 6.9% with all these \$15 wages with all wages going up and wages in America is the largest component of anything that we produce.

[00:57:11] It's 66% or so of the cost of goods sold, that's going up, but then oil is going up in price and other parts. And as we begin on sourcing things, the friction with China goes up and we have to produce plants and domestic capacity. There's going to be an initial surge of inflation for the capital expenditure and for the re structuring a supply chain that's associated with that.

[00:57:36] So my personal belief is that inflation is going to be with us for several years and we can have a debate of whether it will be 4% is 6.8% the peak. I don't know. People thought 6.2 might be last month. Now it's up to 6.8 this morning, right? Is it 7, 8, 9, 10, where does this thing?

[00:57:54] Peak. And so the defense budget now you saw the authorizers and the Congress indicated that there's \$25 billion extra in the defense budget, above the president's request for 2022. That's starting now. That's not an appropriation, so the money's not there, but it's a good indication that I bipartisan support is there for 25 billion extra in defense.

[00:58:17] The challenge for defense is that the Biden administration's budget for 2022 was seven 54,000,000,007 56 for 23. That's 0% inflation. Well, If you're running at 6% now you've got a 6% decrease in buying power. So the question now, as we approach February, right? When the president has to drop his budget to Congress, and the decisions are being made in the Pentagon is do they submit a budget at \$756 billion, which is a real cut year over year of, almost 7%.

[00:58:50] And where's that cut, going to come from? Is it going to come? Are they going to cut for structure? Are they going to cut procurement quantities again? And the challenge when you cut procurement quantities on these systems is the price goes up. So you start inducing your own inflation into your systems, right?

[00:59:04] So that's that insidious nature, right? You have less money. So you buy fewer systems. Fewer systems means the price of each system goes up, which means you're spending more money on fewer systems, which means you have to cut the number of systems and you wind up in this cycle. And so it'll be interesting what the administration does for 23 and then what the Congress does in response to that.

[00:59:24] **Eric Lofgren:** Yeah. I like to call that the death spiral of programs, you cut the quantity, the price goes up, overhead rates go up and then it causes you to want to reduce it more and more. And then that always leads to these same outcomes. Like we need one massive program to rule them all, because that has the lowest, O and S costs.

[00:59:41] It has the lowest production cost. And we get back into those kinds of fallacies of the monolithic programs.

[00:59:46] **John Ferrari:** It's a command economy. And I've dubbed it. The inflation is the giant Anaconda. That's going to squeeze the life out of the department of defense,

[00:59:54] it's going to, it's going to wind up slowly over a period of three to five years, destroying the defense establishment. If we can't get it under control quickly. And part of getting it under control is allowing for this competition that we talk about and to get rid of the inefficiencies.

[01:00:12] **Eric Lofgren:** Yeah, it seems like in the past, in the seventies there was all that inflation and then they started actually building it into their estimates of the weapons programs, because we always just say, okay, what's the future?

[01:00:22] We don't know 2% of the kind of, fed goal. So we'll just assume that 2% growth will go into the future. And then, and now things are different than what we expected on these lifecycle program costs. And so there's always these drives to at that time it was a big deal. Let's start baking in the escalation rates we see into the future.

[01:00:40] And then what happened in the eighties was that they had this massive slush fund, right? Like it was all that excess inflation built into the SMS was going into this reserve. And in that reserve, it was like going up towards tens of billions of dollars. And it became like this kind of scandal when Volcker was actually able to, bend inflation.

[01:00:59] It seems like the department always has these ways of getting, like continuing resolutions in the GAO had that report the department has all of these processes for, alleviating the continuing resolution problem. That doesn't mean continued resolutions.

[01:01:10] Aren't a problem. But like the department adapts in a way to get around that, do you think, like this will just impact program cost estimates and it'll just be incremental changes and they'll just plus that up to, to match inflation. Or do you think there's a real structural problem with inflation and department?

[01:01:27] **John Ferrari:** Yeah. So I think first off your comment about the CRS, right? The department just builds in and accepts massive inefficiencies, so it's yes, it's inefficient and we can adapt to make it work. And we all go, okay, it's inefficient. And we accept the fact that we will spend the amount of dollars.

[01:01:44] We get the amount of dollars appropriated to get less. And then we sit around and wonder why the defense has spending so much money and getting so little in return. It's because these baked in inefficiencies.

[01:01:55] And inflation, I think that there, the challenge is what does the administration and the Congress do? Does it try to squeeze it out of the department? So somebody asked the secretary of the air force, right? Hey, the next in 23 the statutory pay raise for soldiers is 4.7%, right up from 2.6, which is still below the 6.8% inflation rate, by the way. So two years in a row of real touch to pay, but they asked, they said do you have the money to do that?

[01:02:22] And remember I told you was 7 54 to 7 56. And the answer is no. So right now, as we sit here at this podcast right there in the Pentagon, trying to sort out, and the question is, does the office of management and budget give them more money to buy their way out of it? Or do they have to make choices to cut force structure.

[01:02:42] Cut modernization. Cut training dollars. You show the army last year said we're going to redefine training and we won't train as much, but we'll still be ready. Really? How are you going to do that? So you can talk yourself into these solutions and then justify them, right? So the system set up where it allows the services to make some of these trades to avoid the most distasteful cuts.

[01:03:04] So in the Army's case, it wants to build a helicopter and it doesn't want to cut its force structure. So it will go over to the congress and go no, really these cuts to the readiness accounts there they're really not that bad. Please don't cut my helicopter or my force structure. The Navy has things it wants to protect.

[01:03:18] And so you, you never have a real conversation over, what is it that we're doing? Why is it costing what it's costing and how can we do it differently? And what is the cost of defense?

[01:03:32] **Eric Lofgren:** Yeah. Can you get a little bit into what is legacy versus not legacy, would a more portfolio structure allow the services to make those decisions faster? Do you think, Congress with this equity is really the one that needs to be deciding like every single helicopter, every single ground vehicle, ship, like what gets retired, what doesn't get retired.

[01:03:50] **John Ferrari:** . My fellow colleagues and scholars at the American enterprise Institute have done just some remarkable work talking about this. And what's interesting about the term legacy and transformational or whatever you want to call it is right. Anything can be tagged anything. And so if you're a big new shiny program your goal is to tag all your competitor programs as legacy so that they can be cut from funding because we've defined the word as legacy as bad, and in need of tutting right. As opposed to. Hey, the army vehicles, right? Yeah. Their legacy, but why can't we just inject technology into it? Legacy and transformational programs really are terms used to reinforce the status quo of big, new shiny RDT&E programs win and programs that are actually delivering value in production.

[01:04:41] And rolling off an assembly line are bad and are losers because they were because they're in production, right? The best I can tell the term legacy is anything I own today versus, you know what I want to build on a clean PowerPoint sheet of paper. And that gets back to the platform, weapon system centric, notion of how you view the world.

[01:05:04] And if you view the world that way, okay. That's true. But we don't need to view the world that way the revolution that's occurring is in network communications and in

software and in data. And really it's how do I take those new technologies and inject them cost-effectively into the systems I have today to make them incrementally better than they are, or even transform how they are.

[01:05:26] Think about the smartphone. They took the basic framework of an analog for all of a cell phone and turned it into a super computer, essentially. And using cloud computing. But a lot of the technology and the, in the ways of doing things were the same. They didn't go out and invent a new form.

[01:05:42] So that's the challenge we've got now is right. Is it's easy to ask for a spreadsheet and the Pentagon. Okay. I want to transform the department of defense. Okay. Produce a list, label from one to end all the programs in department and let's tag them where we can take money and where we can't take money.

[01:05:58] And we'll use these terms as opposed to the hard work of. These are the technological foundations, and I'm going to reward the systems that are out there that are able to inject these things into them. I'll give them money when they show me they work and I'll starve them a money when they fail.

[01:06:16] **Eric Lofgren:** let's get a little bit deeper into this money problem here. Can you talk a little bit of your time at the G8 at the army? So you're in charge of the program analysis and evaluation. Of course, a lot of the, like the program, objective memorandum, like how these programs get money.

[01:06:30] We go through that channel. So can you talk a little bit about that? And then also, like what would we not find in a textbook or a CRS report about how that system works?

[01:06:39] **John Ferrari:** Yeah, so I think what you won't find in the textbook about how the system works. How much of a grind it is, right.

[01:06:46] You think that, okay, once the army and everybody makes these decisions. They're static, but they're not. It's every single day, every cycle, every year you're revisiting decisions over and over and over again. So you keep plowing the same ground over and over again.

[01:07:04] And it is mostly a manual process, you go into these conference rooms and there's no mobile devices and you're using PowerPoint. So you're trying to convey multi-dimensional decisions. All complex decisions have to be boiled down to a PowerPoint slide that has option a, B, and C and can fit on one.

[01:07:26] And maybe if you're lucky two slides, right? And there's no visualization of information or data that now allows for nuance. Decision-making and, you know, there's never a solution. It's really a plethora of options that you can choose from a multi-dimensional. But because the screens in the conference room show Microsoft PowerPoint,

[01:07:48] everything is boiled down to one dimensional decision, sequential decision making. And when you make decisions, sequentially they lead to these non reversible forks in the road. if you think about it, it's the old method of manufacturing.

[01:08:03] You start with the Ford plant, then you put a raw ingredient on one end and the car just materializes as it goes, sequentially, as opposed to it's batch and process, as opposed to sequential production of, the lean six Sigma way of doing business.

[01:08:18] **Eric Lofgren:** so there's actually, in the FYI 22 NDA, it looks like they're about to drop a major commission on planning, programming, budgeting, execution, reform PBE reform.

[01:08:29] And we talk a lot about that on the podcast, but, with your former position and your perspective on that, what would you say is the problem, but then also what were the solution spaces for us in PBB

[01:08:41] **John Ferrari:** before? The major criticism of PPB is that it takes too long and it's true, right? It's like from when you have an idea to when you get money, it could be three or four or five years. But part of that, when you start peeling the onion apart, and you look at where it is, it all starts with the constitution, the United States, right?

[01:08:57] So the constitution says no funds can be drawn on the treasury, that which aren't appropriated by the Congress. So the Congress has to appropriate money and the Congress has got to appropriating money in a very detailed manner. Lines and sublines and budget activity groups in quantities and information, and you can't move the money.

[01:09:17] And once it's set that you're going to buy 10, 10 widgets. You can't go and buy 10 other widgets, that are different. You have to do that. And so when you look at it and you look at when the money is finally appropriated, if it's regular, you get it. One October of let's say 20 21.

[01:09:33] Now we're under CR so it'll be six months late, but now let's look at how you got a plan to get the Congress, right? The Congress says if you want it, I want October. You've got to tell me what you want. , Mr. President, on one, February, the president goes okay, OMB. If we're going to drop it on one February, you gotta be done.

[01:09:50] So we can send it in a printing plant, over Christmas and OMB tells the service. It tells the departments, they gotta have it to them by Christmas. And the departments say well, I got to do my review. So services, you have it to be. In June. So June of 2020 for June to 21 and the services then go to their commands and go I have to turn into OSD in June.

[01:10:09] So I want to start it a year before. And what you have is this long stretched out cycle for a level of fidelity and where the system really breaks down. And the reason you have this kind of batch processing of information is at every step along the way, there are non interoperable databases of information.

[01:10:29] Each command has their information, and then the services have their own information systems. And then OSD has both the Cape system and the comptroller system, which then has to be converted into the OMB system, which then gets transmitted in paper to a congressional system. And as you roll it up, you can't then take what Congress appropriates and recreate it back to where it started.

[01:10:52] So one of the potential solutions is, and if you're the Congress and you're appropriating money, and you want to see that the money that you appropriated by statute is being spent, as you said, right now, it's got to ask for reports and Right it can't monitor things in real time. If we had one information system that OMB the Congress, the services, the department of defense used it contained all the information, right?

[01:11:18] And you could pivot the data. However you wanted to by appropriation by quantities. If you look at a weapon so that while some of it's an RDT and a, some of it's in mill con that's a different congressional committee. You can't ever assemble anything back together again. So you don't actually know what you're doing.

[01:11:32] And Congress then has used into how the executive branch is spending the money in real time. Now you get out of this problem of reprogramming, Think about these reprogramming. The department type some out onto a form and sends them to the Congress in paper, as opposed to everybody watching this thing in real time and moving the money in a computer system.

[01:11:55] So where we're still managing ourselves as if we're the madman era of the 1950s. And if we can be caused the system is set up that each path along the way is set up to not trust the other path and redo the work, it takes several years as opposed to going to a continuous flow of information between the Congress and the executive branch.

[01:12:17] But now you're into constitutional issues way things have been done for years. And so that's, the real reform that's needed is a single information system that everybody uses show.

[01:12:27] **Eric Lofgren:** Yeah, that's a, that's an interesting view on it. It's, we've definitely seen over time that like from the founding fathers, you started with lump sum appropriations and slowly started to see rules be put around it.

[01:12:38] The anti-deficiency act. And then in 1921, you got the budgeting and accounting act. And then, but still even in the 1950s, right? There were these broad appropriation, they didn't actually detail individual line items that the department had to like was forced to spend. And when I looked at the budget structure at that time, a program was literally like weapons for the army.

[01:13:01] And then a project underneath that was like artillery. And so what a program. Was a much higher level thing and you could see how they could flex within, weapons pretty well. And like a CR wouldn't hurt you so much. Cause you could still do that new start without prior approval.

[01:13:16] But then like over time over the sixties and seventies and the PBE coming into place, that really detailed line iteming of programs. I think there's one aspect, which is the information systems, right? Like we just Congress just needs to be able to see in better in real time what's happening with the dollars.

[01:13:33] Where is it going? How has it obligated and what value am I getting for that? But then the other part seems to be you don't need that kind of like ad hoc flexibility. If it's built into the structure of the budget itself, like it had been in the past more of a portfolio style of systems. And then you, you know, where that money is going as opposed to having to predict it upfront.

[01:13:54] How do you think portfolios? Like I definitely agree. I think the place you have to start is with this transparency and data systems that allow for a more streamlined information system. But do you think portfolios are also a part of that? So I

[01:14:07] **John Ferrari:** think it's trust, right? When you boil everything you just said it's trust.

[01:14:12] And over the seventies and the eighties as acquisition systems failed, or as people did things they weren't supposed to Congress started legislating in finer and granular detail because it, there, there was this trust breakdown between the branches, right? When you think about our society, though, when you think about information systems, and, it's funny. Cause if somebody were to say, Hey, I want to start a company and people are going to allow their 18 year old kids in Kansas to go to New York city and stay in strange people's bedrooms. You'd be like, That's a bad idea, right? Who's going to trust that, right?

[01:14:47] I mean, we put the smartphone and information system in there and all of a sudden you have this, , the smart phone is really a tool of trust. You trust that when you hit and call for a cab on the smartphone, people are willing to put their like ten-year-old kids in an Uber, but they would never flag down a cab and say, okay, 10 year old kid go in the cab and get there, because they're able to track along the way, right? There's this trust that the cab has registered in there. So you know who they are, and you can watch this thing in real time, go through, you can see feedback from other people who have used it, right? It's this radical transparency that allows this trust and that is completely and utterly missing in the system.

[01:15:34] Therefore, in the absence of trust, you have to micromanage down to the nth degree and you say you can only spend this money. You got to give me this report and then come back because there is no trust in the system because there is no common operating vision of what is going on. And if you don't have trust and you don't have that common picture, you're doomed to have the micromanagement.

[01:15:56] So I hope the PBE reform, they, that they look at the smartphone, they look at information technology and they say the way to fix this thing is not to sit around and try to make the meeting shorter. Because that's just taking the same system you have, and trying to eke out a couple of percentage points, but to transform it around the information system and really redo the way those are done.

[01:16:18] And then you'll find out that, that revolutionizes the entire process.

[01:16:23] **Eric Lofgren:** Yeah. I really liked that analogy there. And my start stealing it myself. So I want to dive a little bit into the army itself and your experience there. There's been a lot of new kind of changes in organization going on, with the army futures command. Can you describe in terms of like acquisition authority, what's the new dynamic between AFC ASA(AL&T) and army material command

[01:16:46] **John Ferrari:** it's evolving, so I think that's a kind way to talk about it. And the challenges of course are, there are statutory provisions that were put in place over time that define clear rules and authorities that may or may not be the right way of doing business in the year 20. So they've been put in bit really, you know, you can go back to 1986,

[01:17:10] the Goldwater Nichols reformed the acquisition system and created these different stovepipes and authorities and legal authorities. And so everybody is trying to reform the system and everybody, for the most part, everybody wakes up in the morning wanting to do the right thing, but they're coming at it from a statutory driven system that was put in place for a very different era and trying to operate within that.

[01:17:34] And so I think we would never build the system we have today from the ground up. If you could erase all the acquisition rules and then put a couple of people in the room and say, Hey, design this thing, it wouldn't look like this. And so that's the problem is the army is trying to transform the way it does requirements, resources, and acquisition.

[01:17:54] Which we talked about before a little bit, we talked about IVs, it was born on the wreckage of our program. So it had a little dollars available in the current year. It didn't have a requirement document and it didn't go through the DOD 5,000. It just bloomed up. But the problem is right.

[01:18:11] The system is not set up for that. And so what you have are just the army trying to move the deck chairs around, within the current environment of rules and regulations. And while the Army's changing DOD may or may not accept some of the changes in the Congress may or may not accept some of the changes.

[01:18:30] And so you've really got to look at how requirements resourcing acquisition, those authorities fit together. Cause right now they're tri-fercating.

[01:18:38] **Eric Lofgren:** Oh, I want to pivot here and get back up to a higher level and get some of your experience as well. You were there at the height of Afghanistan and you saw how the system was really able to have a sense of urgency and move fast and fielding capability in that time.

[01:18:53] And we've been hearing recently, that it seems war is not binary, right? It seems like we're almost in some level of war with China and John Thompson from the space force was just saying a couple of days ago, our satellites are under attack literally every day. So can you talk a little bit about that experience in Afghanistan and should the whole system be operating like that now that we're in strategic competition and really have that mindset throughout?

[01:19:15] **John Ferrari:** So the challenge is that in order for the system to operate at that level, remember what I just talked about, which was right. You got all these bureaucracies and these laws and these rules. It took the secretary of defense himself, Bob Gates to essentially cause all the authorities flow through him for him to sit on top of the entire system and force it through.

[01:19:34] And it took the Congress of the United States to essentially appropriate colorless, timeless money to trust the department and secretary gates to go out and fail. But within the failure, you'll succeed and you'll get the systems to the warfighters. And they were willing to accept the failures along the way.

[01:19:56] So you had this timeless colos money. You had a secretary of defense willing to override all of the statutory authorities through his wartime waivers, which he has the authority to do. Remember we talked about all these statutory authorities. He can go national emergency waived,

[01:20:12] so the system is set up that in order to do this. A single person has got to go in there time and time again, and override the system as opposed to flipping it the other way, where people are able to do that. And then you have watchdogs who are able to turn it off when it's not going right. The secretary of defense is a busy person,

[01:20:35] he's got a lot on his plate, so he doesn't have time right now to flip that switch for national emergency for everything going on in the department. And so you wind up back to the old system over and over again because you can't get there.

[01:20:48] **Eric Lofgren:** Yeah. It seems with dispersion of information problems, in my mind, a lot of the problems that the Congress and department see, like with the Jad T2, for example, they just want, okay, just put someone in charge and give them the authority you get it done.

[01:21:02] Like you said, we need better information systems, supposedly better information systems would allow the secretary of defense to actually put his finger on a whole bunch more stuff faster.

[01:21:13] And provide those waivers. But does he really have the knowledge to know which ones to pick and choose are the right ones? Or is he really just the people at the bottom telling him what to do anyway. Cause they're the ones who know the context, know the technology, know what is needed.

[01:21:24] How do you see that flow? But

[01:21:25] **John Ferrari:** thinking about the global supply chain or Amazon, right? They're they've got this visibility down into the warehouses of all this stuff going on and it's not that, Andy Jassy or Jeff Bezos was sitting on top, making decisions of move that package to the left or one package to the right, making those decisions.

[01:21:42] They were looking at the macro trends of efficiency and right. They had their metrics and then they were creating software, some using artificial intelligence and data analytics to mind that and produce the alerts needed to tell the managers, Hey, there's a problem. So if you go to an Amazon warehouse today, the managers the software is cuing the managers to where there are problems,

[01:22:03] and so you would do the same thing, which is you'd use the software to queue the secretary of defense, which is, Hey, wait a minute. This programs, there's something wrong here. You need to go into it. And you would allow the kind of software system and the staff then to go look at that by exception.

[01:22:19] **Eric Lofgren:** Yeah, that, that makes a lot of management by exception used to be a very big management term in the forties and fifties. And it seems like that was actually replaced with a much more active management style throughout the department.

[01:22:31] **John Ferrari:** Yeah. So I would argue that today, if the department is managed by the early bird. So if it's in the early bird, it catches everybody's attention. And if not, then it keeps going and they focus on it until it's not in the real until the next thing pops up. And then you turn your attention to

[01:22:44] **Eric Lofgren:** that. Yeah. Reactionary. It, how about let's end on the the AUKUS deal where the U S and the UK are supporting Australia and getting subs.

[01:22:53] What's your view on that and how can we accelerate delivering capabilities to partners?

[01:22:58] **John Ferrari:** Yeah. So first it was a a bolt, their strategic genius, right? That you right as a government where we're generally don't have those that often. So it was a great strategic move. I think it was blunted a little bit, the effect of it was wanted when we came out right after the announcement and said, but don't worry, China, it'll be two decades before a sub hits the water.

[01:23:20] So it's Hey, I've got this great deal, but you've got 20 years . To do something about it. So I think what would be effective is like operationalizing that today. Imagine world war II Britain, I know you're under attack, but we'll be there in 10 years. Just withstand more rockets.

[01:23:33] So Lendlease. So how can we get subs first? There's really two things you want to do. The there's a messaging, just getting nuclear submarines in the hands of the Australians is critical. So you've got to do that. And then the second piece is how do you get more subs into water? Cause if you just reshuffling the subs then okay. They're in different hands, but you really haven't changed the strategic equation. So on the first one, which is really important, which is Len . Start putting Australians on us sub crews today and over time, you've got a sub and the Australians, you start having a mixed crew and then you chop a submarine or the Australians, and you say, have a nice day. And it's got a mixed Australian United States or a great British crew or all three. And it's under the command and control of the Australian. So they can say, look, we've got a nuclear submarine and it's operating in China.

[01:24:22] And so now China has got to look at, wonder what they're doing. Then the question is right. How do you get more subs in the water? And so if it's we're going to build the Australians, their own class of submarines. Holy cow, right? That that takes decades to do, and we'll create interoperability challenges.

[01:24:38] And now you can't resupply and parts and diminishing returns and think how expensive that is. The United States and great Britain have, the astute class and rigid. So pick one, and. Accelerating production and figure out how to take one off the production line or accelerate production or take some of the older submarines that the United States is about to decommission.

[01:24:59] And instead of decommissioning them say, okay, Australia, these are yours, right? They're good for the next five to 10 years. We're getting rid of them because we can't afford them, but you take them. And so now you've increased the quantity of submarines in the system while you ramp up the industrial base in order to do that.

[01:25:16] And so now you've really you've given the Chinese a strategic dilemma, both more subs and different command and control over those submarines. So those are the two things that need to happen in the near term, not, Hey, it'll be 20 years.

[01:25:29] **Eric Lofgren:** Awesome. Is there anything you'd like to end on? I just want

[01:25:33] **John Ferrari:** to say thanks for what you do and ripe for enabling all these discussions and it's a great podcast and I'm proud to that you, had me on your.

[01:25:41] **Eric Lofgren:** Awesome. Thanks, John Ferrari. And hopefully we'll have you back on acquisition talk Thank

[01:25:45] **John Ferrari:** you.

[01:25:45] 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. .