Marshall here. Welcome back to The Re-alignment.
Quick note before we get into today's episode, Sagar and I are back with exclusive Supercast, subscriber content. Yesterday we posted the first Q&A, Ask Me Anything episode of the entire year. Big goal this year is going to be increasing the amount of exclusive content. So if you'd like to get access to the full question and answer session and of course submit your own questions, you can go to realignment.supercast.com. Once again, that's realignment.supercast.com.
On to today's episode, it's all about technology and great power competition. In many ways, this is a follow-up to last December's episode with Andrew Rose co-founder, Trey Stevens, about how technology can reimagine how the Pentagon does business.
Today's guest, Steve Blank is a former startup founder whose career extends all across the history of Silicon Valley and he actually created the lean startup methodology that's a real dominant model for how companies are built. He's a co-founder of the Gordian Knot Center for National Security Innovation and teaches a course at Stanford Technology Innovation and Great Power Competition. Plus, he's a former member of the Pentagon's Defense Business Board, so has a bit of perspective on the issues we're discussing today. In his telling, the DOD has world-class people and a world-class organization for a world that no longer exists. We're in a crisis, a very different world. We need to move with speed, urgency, and alacrity. In the South China Sea, we don't have years or even months to act. Steve also has an excellent blog on those topics and more, so be sure to check out the show notes and this week's substacks for the most value ad contributions, especially the ones that are focused on cell light conductors, batteries, other technologies we're going to spend a lot of time discussing on the show moving forward.
For all I've said, huge thank you to Lincoln Network and if you all are going to be in town in Washington DC on the 25th, start whenever I'd love to see you at the Realignment Conference, check the show notes for that link as well too. Hope you enjoy the episode.
Steve Blank, welcome to the Realignment. Yeah, thanks for having me.
Yeah, glad to chat with you. Let's start by anchoring your work in the space we're describing today. Two questions to start there. One, what is a Gordian knot in the broader historical metaphorical context? And then two, that obviously leads into explaining what the Gordian center for national security innovation is. Well, that's a great question. On the highest level, a Gordian knot is an intractable problem solved by a unique insight or unique set of actions. Historically, it's an apocryphal story about Alexander the Great going through a village that had a cart tied to a tree with a knot. And there was a legend in the village that whoever figured out how to open the knot would become the ruler of the world. And lots of people that supposedly pondered the knot and been unable to solve it. And Alexander came through and looked at it for a while and took out his sword and sliced it in half and solved the problem in a unique way. And the idea of the center, the Gordian knot center for national security innovation at Stanford, was our insight is that for the first time, probably in its history, the Department of Defense no longer owns all the critical technology necessary to deter or win a war. And that is not built to acquire or integrate those technologies at scale. And it's having a hard time doing so. And so our insight was who better than the university centered at the center of Silicon Valley in the middle of AI, machine learning, autonomy, you know, biotech, go through the entire list, commercial access to space, not the DoD needs. And in addition, you know, much like other great universities, we have great international policy, but also great

engineering students and faculty in both those areas. But our unique contribution was my work and work with some others about the ability to build things rapidly and deliver minimum viable products and kind of build a structure around innovation with speed and urgency of delivering things that people need and want. That's called the lean methodology and that intersection sets up a very interesting Venn diagram, commercial technology needed by the DoD, world class students and faculty, and then the ability to deliver things rapidly rather than just white papers. And so in our center, our students don't just admire problems, they solve them. That's the difference between publishing white papers and actually getting your hands dirty, building experiential understanding of problems and solutions, which almost always end up different than what you first thought. So that's the long answer of what the heck is the accordion not.
Yeah. So a couple of questions come out of that answer. It's kind of why I like long ones, so I can get a couple of things going here. So one, when you're making reference to this problem of the DoD no longer owning these commercial technologies, most listeners are going to know that much of the origins of Silicon Valley actually lie in the defense industry, the Pentagon, 40s, 50s, 60s. What were examples of commercial technologies that back during the 20th century, the Pentagon actually did have ownership over? How do they contrast with the technologies today?
Well, you know, let's just take, for example, access to space, right? This notion that a private company would be putting up more payload than all countries combined in a single year would just be
insane five years ago. And of course, I'm talking about SpaceX. You know, whatever you think about Elon Musk, you can't take anything away from the massive achievements that that company has done.
They basically reinvented the architecture of rockets. You know, for 50 years, we just kind of assumed you threw away, you know, the rockets and maybe you built a space shuttle so it looked like an airplane. But the insane idea of actually, you know, flying the first stage back to the ground and recovering it was just an architecture that hadn't been done before. There were some previous experiments with the Delta Clipper, but that was a different architecture of potentially a single stage to orbit. That's just simply said, we'll take an existing rocket and turn this the first stage around and fly it back. I mean, that was just an insane idea, because gee, it didn't look like an airplane. It looks pretty ugly, you know, whatever. But it turned out, by the way, the one of the critical items in being able to calculate how to control the thrust coming back as a piece of software called convex optimization that was actually designed by a Stanford professor. That's the core of SpaceX, but at least its ability to land efficiently. But back to your question, you know, commercial access to spaces is just one example of, well, the DOD not only doesn't own that, but China is investing in like 10 space access or drones. You know, we see its utility on the battlefield in the Ukraine and, you know, both Israel and the CIA and then the Air Force pioneered the use of drones. But we missed the entire commercial drone opportunity, first with DJI and then the Turkish drone companies. And that's now, which used to be exclusively the province of, you know, expensive, exclusive weapon systems are now off the shelf things that literally you buy from Amazon, and you're delivering a, you know, payload over a Russian tank about a day later. Pretty amazing. So, you know, space because space and drones. And then autonomy that is an AI, things that allow us to do some pretty amazing activities for both command and control and integration of weapon systems and predictions and as far

and whatever. Again, those were capabilities that required high performance computing and machines that were just completely out of the reach of a civilian populace. Well, now everybody has access to the cloud with more computing horsepower that it's just insert coins here, get output here. If you have enough coins or enough money, you could get as much output as anybody in the DoD bar, maybe one or two government agencies. So now, all of a sudden, you know, a whole set of technology in that area is no longer owned by the DoD. You know, we go down through the list. Now, this doesn't mean that DoD no longer owns specific advanced weapon systems will hopefully always own nukes and will always, you know, in hypersonics is pretty expensive and advanced airborne platforms. And more importantly, the exquisite things we put on the front end of stuff, whether they're sensors or kinetic, the kinetic objects or the ability to integrate very complex systems, those are going to be owned forever by our primes or FFRDCs, meaning our federally funded research labs. But some of the basic stuff which we kind of still have infrastructure for an acquisition for and primes for are much better done by commercial industry. But as I said earlier and alluded to, we're just not designed in the Department of Defense to acquire that. And in fact, the whole system is designed to exclude outsiders and new entrants, for all the obvious reasons in a capitalist society. I mean, our Congress is coin operated, you know, K Street exists, that is the lobbyists in Washington spend over 100 million bucks a year and influencing DoD acquisition. So we're not surprised with the outcome and works well when we were the only superpower or when it was a bipolar system of the Soviet Union. It's not working so well when we have an adversary that basically, you know, is acting like Silicon Valley and the DoD is still acting like General Motors. That's a really pretty bad impedance mismatch. And the results are seen on the ground and in the water. China is delivering more things at greater speed with more agility than we are. I mean, there's no argument with the facts on the argument with the facts on the ground. And the reason isn't that they're smarter. The reason is they adapted the systems we use for innovation and the DoD hasn't. Not very hard to see that, at least from where we sit. No, you answered, you actually, that was a great answer to the question. Another question that came to mind when you were explaining the work at the center is this idea of turning things around quickly and creating minimum viable products. And whenever you look at anything related to the DoD, the time scales are obviously incredibly long in comparison to, let's say, Silicon Valley where this MVP language is typically uttered. So help us understand the time scale relative to how pressing you feel the needs are. This isn't probably Q1 versus Q2, ship this new product. How should we think about how this compares and contrasts?
Yeah, and it turns out, thank you for raising that question. I was just having a discussion with the, some of the, Pete Newell, who used to run the Armies Rapid Equipping Force and now runs a company called BMMT to provide these services to the DoD and Steve Spear at MIT. We were talking
about DoD and speed. And it turns out, speed is actually a side effect of something much more interesting. And this, when we say lean, it goes back to this methodology. We're not talking about lean manufacturing. We're talking about the kind of the methods now that startups and almost all Silicon Valley companies use, which the DoD does not. And we'll talk about the hundreds of disconnected incubators in a second and DIU. But the methodology, which results in speed, is really kind of interesting. If you think about the Department of Defense, even during the Cold War with the Soviet Union, we were kind of evenly matched. Everybody was looking for an

offset strategy against each other, et cetera. But we basically got away with predicting the future. And what I mean by that is that we could both sides could kind of see where the technology was going for the next 10 or 20 years. And, and so you can not only see where the technology was going, you implicitly can understand where the threat was going, right? Yeah, ICBMs. And then there were maneuverable reentry vehicles. And then there were other things. And then she, you know,
and as I said, and we try to leave frog each other, but you could predict both the threats and the technology. And therefore, big idea, therefore, you ended up with a acquisition system that basically specified weapons through requirements, which said, listen, here's what we're going to need for the next 10 or 20 years. I'm going to write down the specifications for what I want you to build, whether they're simple, like a new automatic rifle for the Army or an aircraft carrier for the Navy, same process called the PBBE, right? It was a McNamara idea to get, you know, spending under control and the whole notion of 30 year life cycles called dot MLPF where we could kind of control acquisition cost over the entire life cycle. And we had a whole semi rational process, at least we thought we do to acquire stuff. The reason I tell you all this stuff is back to that core ideas, we could write requirements, because we thought we could predict what we would need for decades out. And that worked when your adversary is using essentially the same process. And that you really could do that. But Silicon Valley realized, and again, this is a little bit of a sidebar,
that that's not how the world worked when technology is moving incredibly rapidly, when advances were happening almost every night. And in fact, you weren't fulfilling a need for 30 years, you were actually trying to invent the future that didn't exist. And so therefore, instead of writing requirements, you understood on day one, that the problem and the solution were unknown. That's a much different mindset. That is, in the DoD, the mindset was we could predict the future for technology and threats for decades. And Silicon Valley, we started growing up in a world where we said, we don't even understand the problem that is who the customers were and what they needed and whatever, let alone understand the technology and what we should deliver. So let's build a different method instead of writing requirements. Let's build something called minimum viable products, which we basically said, we have a set of hypotheses, which just meant we were effing guessing. And we admitted to ourselves, we were just guessing, think of them as assumptions. So let's test those assumptions rapidly with these things called minimum viable products, which meant not just prototypes about hardware or software, but who the customer was and how they would use it and what it looked like and what the user interface was, all those we admitted to ourselves. And by the way, we got this wrong in the entire 20th century, but in Silicon Valley and my work and others basically said, no, no, no, let's, let's just do what the winners were doing anyway, which was just kind of experimenting. But instead of firing people when you were wrong, here was the other big idea.
And we discovered that now this is the wrong feature set where we thought we had this requirement or this customer, but they actually are asking for features 342 and 79 and we could throw out the other ones. Let's not fire anybody. Let's just change the product or let's just change the customer or the use case. And that big idea was called the pivot. The pivot said, when you get new data as you're trying to build something, don't keep building them to a requirement, build to what you just learned. And so rapid learning and discovery became an integral part

of what this thing called the lean startup methodology was. That is why Silicon Valley can move at speed is because we don't write rigid requirements that we keep executing in the face of changing external environment. Does that make sense at all? That's the ethicists of how the DoD works. And it's not that one is better than the other. It's that you use one when you have circumstances of knowns as you could write requirements for known things. And there's still plenty of things in the DoD that need requirements, but there are plenty of other things that like, oh, no, no, no, let's move rapidly and experiment and whatever. And when we find what we call product market fit or in the DoD mission solution fit, then let's throw everything at that. And then we move with speed and just go in that direction. That's the distinction between the two methodologies. And they can coexist. It's just the and the key idea is that there are a type of people who are go to work being comfortable knowing what tomorrow looks like. And that's about 98% of the world. I actually want to show up in a predictable environment. I know what my job spec is. I know what I'm supposed to do. I move the paperwork from this office in the Pentagon to the next office in the Pentagon. We have lots of meetings, etc. And maybe in two and a half years, you know, like getting through the palm and the next budget cycle and something will be in 2024. But there's another group of people who in fact drive that drives them crazy. They in fact are much happier in operating in chaos and uncertainty and are able to actually see through what we call the fog of war and able to take calculated risks in the in these hypotheses and living in the world of experimentation. That's what Silicon Valley is built around. And when I say Silicon Valley, I don't mean the physical place. I just mean this notion of innovation at scale with working with a series of unknowns. Those two worlds are typically led by very different people. And again, the public face of innovation are crazy people. Steve Jobs, Elon Musk, Jeff Bezos, you know, the public face of execution are, you know, General Austin, stable, you know, capable of running an organization of three million people, Catholics, world-class executors. As I said, in peacetime, you want world-class executors, you don't want crazy people. The people winning in the Ukraine are crazy people. They were able to, and by crazy, I mean, not emotionally crazy, but they were able to operate in chaos and uncertainty and literally reconfigure complex systems on the fly versus facing a command and control architecture of Russia that have set battle plans. And when things don't go to plan, they really are institutionally incapable of reconfiguring themselves to what the battlefield requires. Unfortunately, the U.S. looks a lot more like Russia than it does like the Ukraine. China looks a lot more like the Ukraine than the United States does right now. And it's not because people are dumb or we have bad people or the wrong people, but the big idea is that DOD has world-class people, world-class organizations for a world that no longer exists. And that's a big idea. It doesn't mean we need to fire people or whatever. It just means we need to say to ourselves, are we in a crisis or not? Because when you're in a crisis, you look around at the people you have and the organizations you have and the suppliers you have, and you say, well, wait a minute, am I appointing an organized the same way I would have done outside the crisis? Well, it can't be possible. That's not the same group of people or same organizations or same systems that you need. And we've not decided that we're essentially in a crisis. We've not decided that we have a South China Sea problem that is going to be solid by

someone else unless we deter it in a way that's credible and so far we haven't. And we have other problems at scale around the world trying to be solved by the same people who we would have appointed when we were the only superpower. So again, another soliloquy, sorry.
No, no, please keep giving those. So a couple of questions that come from that though are, one, what are examples of these minimum viable products in the Pentagon's context? Because it's hard to see a minimum viable product if it's like a F-35 or if it's even, let's say, a conventional drone because obviously the key difference here during non wartime conditions between a startup and the DoD is that there's an actual market, you're actually in a wartime condition in the startup context in the sense that you're shipping a product and you send it to these 10 users and these nine users have this problem. And that's how you go from the MVP to a finalized product over time. But if there isn't actually, let's say, a war going on actively, if you're not actually putting those, let's say, MVPs to the test in that sense, how would you actually ensure that process occurs?
Yeah, let me give, it's a great question. And unlike the civilian world about thinking of MVPs as a single product, et cetera, let me give you a pre-World War II example, which comes from Admiral Selby of the Office of Naval Research, who's been trying to preach this to the Navy for a while. And so I'll channel him for a second. It turns out the war in the Pacific in World War II, if most of your viewers understand this history, were won by aircraft carriers, submarines, and the Marines, and with contribution obviously from the Army. But what happened is pre-World War II, the Navy believed that there would be a war in the Pacific with Japan and we ran war games. And obviously the way the war would be fought with battleship fleets. And eventually, we ran multiple exercises for decades, that the war would eventually be won with our fleet versus Japan somewhere in
the Western Pacific after rolling them back, when we assumed they would take a whole set of violence, et cetera. And starting in the 1920s, we also built these scouting ships called aircraft carriers. And starting with the Langley in the 20s, and then multiple carriers after that.
But they were designed not to be the 20 end of the spear, but actually the scout ships. But we practiced with them for decades. It's a big idea. We understood that aircraft carriers and submarines would be an integral part of the war plan, but that wasn't kind of integral to our operational concept. We thought we could have won without them. But the big idea is that we had practiced with carriers for 20 years, essentially 20 years. But on December 7th, 1941, all our operational concepts ended up on the bottom of Pearl Harbor. Because the Japanese decided that, well, battleships
are great, but we're going to project power in a way that the Americans had never even conceived, as they showed up with a carrier strike group. That is, multiple carriers and launching hundreds of aircraft and projecting power not with a battleship, driving into Pearl Harbor, but hundreds of airplanes approaching Pearl Harbor from the north of the island and attacking and trying to sink the fleet. Lucky our carriers were not.
The big idea is, of course, we got schooled on what the new operational concept was in about an hour and a half. But number two is, and this goes back to using civilian capabilities, is we started the war with seven aircraft carriers in the United States. We ended the war with 112 in three years. Essentially, three and a half years, the US built over 100 aircraft carriers, half of them escort carriers, but a ton of fleet carriers. At the same time,
we built 2,400 Liberty ships for cargo and another, I don't know, 600 Victory ships to do that,

close to 3,000 ships just for transporting cargo. So the key point here was, an MVP was actually those carriers in the Pacific for 20 years. We had not run simulations or paper games or war games, which we were doing as well. But we were actually practicing in the fleet with things that people were getting their hands dirty. So when we decided that we had just gotten schooled on what a new operational concept looked like, a carrier strike group, we could scale as good as in. In fact, we scaled Japan, I think, built six carriers or something like that in World War II. We just outscaled them, stole their concept, because it proved to be a much more, I don't think there was a battleship to battleship fleet encounter. Maybe there was during World War II, I can't think of one. It was a carrier war. But the point was, we had gotten our hands dirty. The equivalent today, it's pretty obvious to everybody except the Navy, is that a good chunk of a future fleet is going to be low-cost, treatable autonomous systems. Not to replace carriers, but in fact, just imagine resupply across the vast distances of the Pacific. If you put all your ammunition and supplies and logistics in the big ships that we already have, you might as well just paint bullseyes on the top of them. You're either going to have to pre-position all that stuff, some of which we will, but those will also be targets. But if you can't resupply the Marines, the whole EABO concept is for naught. You might get them to the beach, but they're not going to have anything to shoot with. Just imagine a fleet of semi-submersibles that are treatable, that only 80% of the cargo get through. Basically, you have a very much different problem because you're now launching 1,000 of those across the Pacific and it creates an enormously difficult targeting problem for adversaries. Now, take that as the most simplest case for being able to have a new operational concept. Well, where are our drones at scale that we're actually practicing with the fleet? We have Task Force 59 practicing with the fleet in the Mediterranean, but there really isn't hundreds of drones being deployed today and then no pay comp that are working with the fleet or unmanned wingmen. The Navy had the opportunity a decade ago to actually launch that project with, I don't know, what was it, the XB-45?
I think it's 47. 47? We should have had hundreds of those things in the air by now. It was not technically infeasible, but in fact, all those things challenge the status quo and they challenge the mindset and they challenge the existing vendors. You could go through the reasons why those don't exist. Number one, let's just take on man fleets. Well, if you're a captain, the whole goal in your life is to command the ship and now I'm going to commit the same with the UAV pilots who are working in Iraq and Afghanistan. I don't want to sit in a container in Utah, I want to be Tom Cruise or I want to be X or Y. The same with and more importantly, the same with the Primes. Well, I don't have a factory that is the shipyard of the 21st century. I have Groton, Connecticut, if you've ever been there. It looks like something out of the 19th century and I'm sure we turn out for a product. I mean, I'm just watching them build Virginia class subs and whatever, but that's not an automated system capable of turning out thousands of things
at a time. Same with drones, same with other things we don't have. We have not built the industrial capacity to build 21st century architectures or ships. The problem is that we're watching Turkey and Iran do that and I'm really feeling that it's feeling like pre-World War II and we're invested in battleships. We're seeing the future in Ukraine, at least on the land. Again, I fear for deterring a war in the Pacific because China is not constrained.
The problem is we're constrained by our legacy, meaning being the dominant superpower for such a

long time, we've built an entire architecture of people and systems and processes and lobbyists and remember, US Congress is coin operated. We live in a democracy, but it's a deep pockets democracy and those with the biggest funds get access and those that threaten the status quo in peacetime don't get a major defense acquisition program. I mean, think how hard it is. I think you've had Trey Stephens on talking about Andrew. How hard it was to get companies like Andrew or
Palantir or SpaceX to be major defense contractors required a billionaire. That's insane. I mean, there should be people in jail for that, but in peacetime that makes sense. Again, you have to decide whether we're in peacetime or whether we're in a crisis that we just simply haven't declared it as a crisis and status quo is no longer acceptable. I think it just really requires a lot of your listeners to understand why is it that we're incapable of change.
And I think in hindsight, the history of the Department of Defense changes occurred. That is organizational change at scale has occurred only three ways. One is it happens when the Secretary of Defense institutionally decides this ain't working and tries to reorganize themselves. And that's happened barely. Or it happens through executive action when Eisenhower decided to kind of reorganize how the Joint Chiefs work. But actually, most of the massive changes happened over the DOD's dead body. And the best example is Goldwater Nichols. It required Congress to, which actually didn't start to create combatant commands. If you read the history of Goldwater Nichols, it was actually trying to kind of reorganize the Joint Chiefs and then recognize that there were lots of other things that weren't working. And we ended up with the 1985 Goldwater Nichols. I think we're at that spot. I think the DOD personally, I think because of all the revolving doors of appointees and they go back into the primes and whatever, there's just too many vested interests for the DOD to do it itself. And the executive branch doing it would require a Congress that plays gacha. It would be untenable. I think this Congress actually is probably the best place, believe it or not, even though it looks like it's going to be incredibly polarized.
I might find this the one area to agree is that the DOD actually needs to be reorganized in a way that actually utilizes private capital and private industry at a scale not seen since World War II. Remember, private capital's investment in innovation exceeded the entire DOD budget last year. I mean, that's just an amazing fact. It's like when more money into crazy, stupid things that, and the reason why is we make it so hard and so unprofitable that no one wants to play in the DOD sandbox other than the people who know how to already play. And therefore, we set up that barrier. And by the way, the primes are happy with that because, by the way, remember, the DOD budget is a zero sum game. It's not going to win double or triple because we need new systems that money is going to have to come from existing contracts or existing ideas and over their dead body. And rightly so. I mean, if I was CFO or on the board of a major defense contractor, there's no way I want new entrants because that means someone's going to lose. And that's why you have all this consolidation is, is that we want to make more and more money, not like, but that's a different motivation than what the Department of Defense should have if it realizes that there's a whole set of things that they're not getting at the speed they're not getting. And more importantly, that our adversaries are. Oh, how do we fix that problem?
A couple last in this section before I hit a couple other topics. Number one, would you say then that we are in a crisis right now? Because I liked your kind of articulation of we have to come to an accord of whether or not we're in a crisis right now or we're in a pre thing. Would you say

this is a crisis moment right now? Well, yes. So the short answer is yes. And the second answer is that, you know, sometimes, sometimes what's obvious to some groups of people, it took me decades, standards are not obvious than most of the world. I mean, you know, it's kind of the lobster in the pot story, right, which is apocryphal. But yeah, sure, the water's warm, come on in, you know, like after a while, or the frog in the pot. But there are now such clear and present examples of why we're in a crisis of, you know, the equipment in Ukraine. I mean, I don't think we could do what the Ukrainians are doing at scale. I mean, it's with our own equipment. You know, I think just look at the, the number of things China is putting in the water and in space and in other places at the, at a scale unimaginable by us. It's not that we don't understand it. It's not that we couldn't do that. It's just that we're not equipped to do that. And we're not organized to do that. Yet at the same time, we've said that implicitly or explicitly that, you know, Taiwan is a matter of national interest. And the Chinese crossing the Taiwanese strait, not only for the defense of democracy, but the defense of semiconductors, if we don't, don't believe in preserving democracy, we ought to at least think about what happens if given our export controls on China, that they decide the way to solve the the way to solve the their chip crisis is to simply seize the the fabs in Taiwan from TSMC. Well, okay, because we've now that's almost a self-inflicted problem that we've said, let's cut them off from that advanced technology. Somebody in Beijing is going to say, well, the US really can't stop us from, from taking Taiwan. And I'm sure they're doing those calculus and war games all the time. By the way, their war games are driven by somebody in one of their centers who is a master at AI and machine learning. And their war games are being run by by some pretty sophisticated stuff. If you just read the commercial papers, is one of my students projects was actually translating the sources on that stuff. And you went, whoa, they're running like 100x more war games than we are. But but back to the point, you know, when you take a look at the at the worldview, it's a different world than existed 10 or 15 years ago. Think about it, we were chasing al-Qaeda and ISIS and non-nation states, and we could put the full power of advanced technology against them. And by the way, that still didn't end up well. But but there was no question in that we were the dominant power, at least technology and military wise in that in that domain. And while we were doing that, China basically said, Well, that's nice, but we're going to take everything you have by just exfiltrating all our technology and then building on top of it. And have built a system that that integrates, you know, they have this idea of civil military fusion at scale, on top of everything they took from the US and then built an infrastructure that operates with speed and urgency to deliver things that are needed and wanted by their military. So the answer is, I'd say, Yeah, we're in a crisis. You know, now throw in North Koreans with ICBMs, by the way, the the other thing I keep using China as an example, and we could look at gross natural product and how much is devoted to military on on a real basis versus what they report. But no one is no one has actually pointed out that in the last five, seven years, North Korea has developed four generations of ICBMs. God knows how many generations of intermediate range ballistic missiles, submarine launch ballistic missiles, etc, with a gross national product of less than Facebook. I mean, it's a big idea. You know, we're having a hard time keeping up with China. We can't even keep up with North Korea, right? Our Minuteman replacement is maybe the decade out for $100 billion. North Korea is basically

deployed, you know, five generations of those systems capable, a couple of them capable of reaching the US. You know, what's wrong with our system that doesn't allow us to operate with that same speed and same experimentation. I want to remind our listeners in the 1950s, we did this at scale. The post World War Two, we basically reinvented our entire military and tend to take advantage of jet engines and new technologies and ICBMs and nuclear reactors and the whole generation
of nuclear-powered submarines, both boomers and attack subs, and the three generations of man bombers from the B-36 for 47 and B-52, two generations of carriers, all within a decade.
We looked like China does to us today. So we knew how to do this. But it was in fact that this continuity of new technologies that enabled the US to create, I don't know, a century series was what, five generations of fighter planes within a decade. By the way, the reason why we talk about McNamara's error of PBBE was that he came in and said, well, we built all these advanced systems. No one has thought about lifecycle costs. The country is going to go broke because we can't figure out how to maintain and scale all these things. And the US military want 20 more systems time out. We've already surpassed the Soviet Union. Let's slow this stuff down. That's how we got this acquisition system that we live with today is because of the massive creativity that the aerospace and shipbuilding industry actually delivered in the 1950s. We're now watching China do that. And maybe our only hope is they get their own McNamara who comes in and says, well, how are we going to maintain all this stuff? But I think we got to take this seriously.
The world is actually a lot more complicated than it was in the Cold War with the Soviet Union. Because as I said, we not only face, as our national defense strategy articulated, we not only face China as now a peer, not a near peer, but a peer, but also Russia as a regional threat, which we're seeing and regional threat with nuclear weapons. And then two states like Iran and North Korea that can create massive trouble and one or both of them attack the US homeland. None of those have been the cases before, but we're not organized. Deal with that. We've not reconfigured our defense department to actually step back and go, whoa, wait a minute. What kind of architecture? What kind of organizational design do we need? And can I give you an example? And let me just preface this. This is wrong, but this should just give you an exercise.
And I pick on the Navy a lot because the Gordney Knot Center is funded by the Navy, among others, Office of Naval Research, just for your listeners, was actually when it was stood up in 1946. The first checks it wrote was actually to two universities, both MIT and Stanford, and started funding university research. And so they've been in the leader in funding creativity. Admiral Selby, I think, started to try to get them back on that track besides the other creative things they do. But organizations do what they're designed to do. And what I mean by that is you show up with a job, you get the equivalent of a job spec, and here's what you're supposed to do in your organization, and the leadership knows what it's supposed to do.
And good organizations do that. But I can say, well, is it designed to do the right thing?
Not is it doing stuff? But is it doing the right thing? And let's just take at the highest level to the organizations that work for the Office of Secretary of Defense, or R&E, Research and Engineering and ANS, Acquisition and Sustainment, used to be one organization, then we thought maybe
it was smarter to split it in half. But just imagine as a thought experiment that you split each of those two organizations in half again. And this is wrong, but it'll get you the point.

That imagine R&E had, and Heidi Schu said, you said, Heidi, do what exactly what you're doing today. But we're going to point ahead of DIU to be the other half of R&E. And so for R&E, we want you to focus on all the existing vendors and all existing deals, and you're working with DARPA and other fun stuff. Keep doing that. But gee, we're sticking Mike Brown back or is equivalent
in again. And you're focused externally, and now you're bringing in new commercial technologies for research and engineering. Huh, that's a different organization. Let's do the same with, I think, as Bill Lapland, who runs ANS, is that right? For acquisition. Great. The existing half of acquisition, you keep working with those commercial vendors. But there's a new head of acquisition. The other half of acquisition was commercial acquisition. And not only are you working with new entrants, that's your job. But more importantly, you're not using the PPE. We've just given you authority to use commercial contracting on this other half.
Now, all of a sudden, we have a DOD that has a different organizational design. And now imagine on top of that, instead of reporting to CAPEX, we actually built a matrix organization that says, well, our problems are not R and E and A and S. Our problems are China and regional threats, like Russia, North Korea, whatever. So in fact, these people report to the China Mission Center, or the Russian and whatever regional center. And now our organizations are focused on solving specific problems. Down in the services, we would do the same thing. Navy has some great weapons centers, Newark, the Naval Underwater Weapon Center, China, which deals with underwater
weapons and torpedoes and whatever, China Lake, Air Day or missiles, other places, surface warfare centers. And those made sense as silos when those were siloed problems. But nowadays, for example, our problems are not silos, our problems are defeating China's A2AD, or our problems are long range fires, or our problems are autonomy and attritable systems. Those cross across all those warfare centers. And by the way, they're not dummies, they understand, but there's no organization on top of them that actually has the title A2AD or whatever. Not only the title doesn't have the budget and authority to solve these problems.
And so when I talk about organizational redesign, what I mean is actually stepping back, looking at the problems the country and the DOD in particular is trying to solve, integrating commercial technology and private capital, focusing on the threats we have, delivering things at speed and urgency that commercial industry knows how to do, yet leveraging the world class resources that the DOD still owns and its prime still owns. Listen, it's not that we're ever not going to need our primes. They have sophisticated capabilities that that will take new entrance decades to learn if ever. But in fact, to be able to appropriately use the resources of the entire nation, rather than this closed system that we've built today, that requires an organizational redesign at the scale of Goldwater Nichols. And as I said, that's, that's not a function of the DOD. Right now, the function of the DOD for innovation has gotten us that dog's breakfast of 100 plus incubators and accelerators, all operating, you know, disconnected, et cetera, the NDAA throwing stuff against the wall with a billion dollars for quote innovation, which basically is innovation theater. I mean, it made somebody in some staff or feel good for sticking in a line item, which is great. By the way, all those 100 incubators and accelerators in the DOD, they shape culture, but they don't really deliver product. The good news is they shape culture. We now have lots of airmen and soldiers and sailors who now kind of

have been exposed in their leadership, at least up to the 03 or 04 level speak the language, but we're still not delivering things at scale. We're delivering things that, that are kind of interesting on the ground, but we're still not delivering things at scale. And they're okay, but they're not connected together in a system that delivers, you know, major changes for the, for the Department of Defense. But we're prepped to do so. This is ripe for a change. And I think there are people on both sides of the aisle in Congress, whether it's Congressman Moulton or Congressman Gallagher or a whole set of others who've been talking about this, we just simply need a roadmap and innovation doctrine. That is, you know, the DOD is built on doctrine. But if you think about the doctrine we have, it's basically, how do we, everything, again, take the Army ADPs, because you could get those online and whatever. If you really read them from top to bottom, the ADPs all the way down to the TTPs and field manuals, which actually tell you how to turn the screw in the bolt versus ADP 1.0, which tells you the, why the Army exists and why the Department of Defense exists. They're all about executing, executing with the people we have, the equipment we have, the concepts we have, et cetera. And it's not that we don't change over time, right? The counterinsurgency ADPs got rewritten in the middle of Iraq. And when we discovered what we had, it really wasn't working. And so they do change, but they change very slowly. Well, and quick, quick interruption there. That change happens during wartime conditions, right? Like that change is happening in the middle of the Iraqi civil war, where you have to make us, because we recognize we're in a crisis, man, right? Fine fixed finish. Happened with the integration of people who don't even talk to each other in Washington. So it's not, well, we set up the rapid equipping force, which immediately got dissolved and integrated into TRADOC and then disappeared and got reinvented in the Army's future command, then didn't deliver a damn thing, but was delivering stuff, delivered 150 solutions on the battlefield and stopped delivering when it got politicized inside the building because someone wanted to run it. It should have scaled, but instead, you know, everything on the battlefield when the war's over, we said, oh, no crisis. And then politics ends up being in play. I forgot where I was. Oh, the ADPs. So we have essentially what I'll call execution doctrine. Every service has doctrine. We have joint doctrine, et cetera. But think about that as execution with the systems we have, the processes we have, the people we have. What we're really looking for is an innovation doctrine and a high order thing, almost like starting with ADP-1 all the way down to how do you set up this other half of the DOD? That is, it's not that these things are mutually exclusive. Healthy organizations are what we call ambidextrous. That's a big mouthful word that means they could chew gum and walk at the same time. They could do innovation and execution simultaneously.

And as you just pointed out, in wartime on the battlefield, the innovators in a healthy organization kind of dominate. And in peacetime, the executors dominate, but you recognize you need both. Right now, the DOD is in a wartime external environment, still with the executors in charge of budget process, people and operational concepts. And that's, I think, an unhealthy position. And it's incapable of doing anything other than innovation theater. And I don't mean they're bad people with malice involved and whatever.

We do have the problem, the revolving door with people already looking over their shoulders. That is part of the problem. But I think it really is a lack of imagination about, what would the DOD look like reimagined in the world we actually live in? And we should stop admiring problems and try to start solving them at scale. And I mean, big scale.
I'm really glad you said that about the people here. Because the number one takeaway, especially from folks who don't study or live in this space, is that, and maybe you could disagree with this, if you do, but it seems to me that if this was purely a matter of bad people in bad positions, it would almost be simpler versus the almost like combinatorial explosion of like structural problems that are stacked on top of each other. Yeah. You know, it's, and I said this before, I just want to emphasize it. And I discovered this, you know, I served during Vietnam in Southeast Asia. And you kind of discover in a war zone, and I will luckily was 100 miles in Thailand away from the pointy end of the spear, but still got to see the types of people that operated well in crisis and uncertainty versus the type of people that actually just wanted to do a job. As I said, in peacetime, doing a job is just fine. And most of the world's head is organized around operating uncertainty. But in wartime, whether you're on a battlefield or in a crisis, you need a different mindset. And sometimes that requires promoting different people than you normally wouldn't have wanted in charge in peacetime. You know, think about the world's best example of that in the military was when the British reached out to Churchill in 1939. He was the last guy. He was the crazy guy. And there's no way he was. He was not a successful peacetime prime minister. No more candidate in either case. Well, you know, he was their head of their navy in World War One. He got blamed for Gallipoli. He was in basically in the dockhouse for 10 or 15 years. And he was the only, only rational one. In fact, he was the crazy person, even the one talking about Hitler and fascism in the 20 and the 30s. No one wanted to listen to him. But in fact, turned out to be a perfect wartime president or wartime prime minister. And of course, the British, when the war was almost over, threw him out and didn't elect him again for another 10 or 15 years. My point is, you don't have the same people that you would have appointed and same organizations as you would in a crisis. Yet in fact, I think we've staffed with world-class people, we would have been appointed 10 or 15 years ago with the same organizations. Nothing wrong with them. It's just that their mindsets are not, you know, it's the, and it's not that you don't need them because you don't want the crazy people completely in charge. But in fact, this is the time where budgets and organizations need to be redesigned to live with the world we have, not the world we wish we had. You know, the DOD can't fight on nostalgia. But basically, that is the system we have. We still assume that we're the only superpower and the only people with these advanced weapons systems. And you know, when you go into skiffs, then you kind of say, well, you know, if you only knew what we had behind this, inside this vault, well, guess what? So does our adversary. And yeah, we have some pretty neat stuff and whatever. But I don't think it's enough. And as I said, I don't think we've engaged the entire economy or country in a way that actually would actually deter adversaries. Remember, at least for me as a civilian now, the goal is not to design a system to win a war. That's a failure. I think the goal we should all remember is the goal is to deter a war. And God forbid, if we have to fight one to win it quickly, and at least cost to everybody. I just didn't think that most honest brokers would look at what we have in place and say that's no longer the case,

at least at the same certainty as we've had for the last 75 years. And that we owe it to the American people to be able to honestly rebuild the system that could do that. Because the choice in the 21st century is between a dystopian totalitarian country and a democracy.
By that, you mean the Chinese system, correct?
Sure. Yes. And just go ask the people in Tibet or the Uyghurs or even the people in Hong Kong about what life is like. I think that's a harbinger of something that's unimaginable to most Americans and most people in the Western world and most people who want their own ability to have self determination and some basic freedoms. I think a world driven by China is not a happy outcome.
Yet, I don't think we've thought of this as, I mean, let alone North Korea or Iran.
But those are not worlds that I think we want to make possible. Yet, we act like if we just continue with the status quo that that won't happen. I believe that's a mistake. And not that we need to be militarily aggressive. We've basically made some major mistakes on the political side and how we use the Department of Defense. But I think the DOD owes it to the country to organize in a way that allows us to make sure that the world is safe for democracy for the last century. We owe it to our children and their children. So that's why I do what we do. That's why we built the center we built. That's why we think about these things.
And the more time I spend inside the DOD with different services and different agencies in the national security establishment, I realize what smart, brave, committed people that this country has to try to keep us and the rest of the world safe. And we owe it to not only the country, but the people who've dedicated their lives to do this to kind of think as smartly as we can of, are we doing the right thing with the resources we have? And then there are other resources that we could bring to bear to what essentially is this fight. And I think we can. And hopefully we could help the country do so. So that's it. Quick question. Do you have time for a tiny extension? There are two topics I'd really like to hit. Sure. Great. So I just think this would be a good chance as we're closing to hit two pieces of writing that I found very compelling. I want to link to folks in the podcast sub-stack. So one was your recent piece about the Pentagon audit. And I love the way you explained the issue and the dynamic and how it kind of intersects with the themes we've had today. I think for most folks, they kind of saw the headline of the Pentagon
failing its fifth audit on five different levels that doesn't really make any sense. So can you just, in your own words, take this away, just introduce this topic, explain the actual issue, the scale of the problem, why it's less obvious than you would think to audit into the difficulty there. I'd love to hear your thoughts on that. Yeah. I mean, this is such an arcane example, but it actually, it actually does kind of point out the issue about the difference between execution that is doing the same thing repeatedly, you know, when it works and innovation about looking at something with a different lens. And I was on a, you know, the Pentagon has a ton of advisory boards where they get civilians and outsiders and acts to come in and give advice. And there's a whole
shtick I have about, you know, if you ask for advisors that give you 10% advice, that that's what you get. But gee, given what, what exists outside, we've just set up advisory boards, I think for the DoD incorrectly, we should be asking for 10x advice, not 10% advice.
In hindsight, I was sitting on an advisory board that was organized for 10% advice.
And the idea was we were looking at, of all things, how the Department of Defense does financial

audits. That is, hey, do you have all the equipment you said you have? You know, gee, is this building still here? Is this road still here? Is this, oh, there's a pipeline. Have we counted that as the material we own? Gee, let's count the number of planes and ships we have. I mean, just some basic accounting stuff. But remember that DoD has 3 million people, thousands of aircraft, ships, buildings we didn't even know we have, pieces of land, etc. It's a huge undertaking. And it's not just let's do it across, it's doing it, doing it by agency or service or organization, etc.
Historically, it takes thousands of auditors. I mean, this is not auditing contracts. This is auditing the physical stuff we have. So it's not money per se? Because if people hear the word audit, they think we spent X trillion dollars and the money is missing. That's a, that is an audit. It's a different kind of audit. That wasn't what this one was. This is an audit of every year tell me that you know what you have. Like, oh, I misplaced this entire base or this building or whatever. Trust me, we've done that too. And again, we didn't physically lose it. We just lost in the paperwork. It's kind of nice to know all the assets that you own. Where are they? Are they accounted for? Did you sell them, spend them, dispose of them, etc. And it's a normal accounting thing that companies do all the time. In addition to audit the money part, that's a separate conversation. So I get there and I'm, you know, I've sat on public and private boards before.
I know a little about accounting, not a lot, but if you run a company, you, you had to know enough to ask the right questions to your CFO and, and you make sure your eyes don't look like they're glazing over when your auditor comes in and talks about this stuff. So I'm listening to all this stuff. And basically the DOD is the largest user of accounting services in the world.
They hire, they have internal auditors, but they also have KPMG and all the, you know, would name your favorite audit company, thousands of, I mean, literally thousands of auditors. This thing costing hundreds of millions, or maybe if I remember correctly, a billion dollars every day. From your piece, this is fascinating. It's basically half a billion to actually conduct the audit. Another half billion to implement the fixes required.
Right. And remember the fixes aren't like, we need to like rebuild the base. It's the paperwork. And, and, and by the way, we're looking about why aren't we, and you need kind of a clear right, you know, saying you did it well and you, everything is accounted for or,
or else you kind of fail the audit. And okay, DOD is getting better and never did audits before. So this is like a new five year thing. And you know, God bless them. They're actually trying to be physically responsible to the taxpayer's money. So it's not a bad thing. It's actually a good thing. But the way they're implementing it, and when the conversations were about,
how do we be more efficient with more auditors? And I'm looking at this thing going, you know, it's like, I'm thinking about guys and women with green eye shades and green arms,
like looking over the books or an Excel spreadsheet, which makes sense. But it's like,
has anybody like paid attention to what's going on in AI for financial stuff and fraud? And I mean, there's a whole set of tools that are starting to emerge that might make some of these audits more efficient. And more importantly, not only could we use those tools, but we're the DOD, we're spending
a ton of money. Did we ever think about cutting out 10% of this, maybe $40, $50 million a year, and starting our own SBIR program for, you know, funding some startups in this area, funding research
and universities for automating pieces of audits, et cetera. And this is not unheard of. It turns

out in the late 1950s, when computers were first coming on board, there was no common programming
language. And the DOD actually helped specify one, they didn't write the spec, they got industry together and said, look, we need a common language, we're having a meeting. And it was a woman named
Grace Hopper, who became a pretty famous player in the computer business, basically invented a language called COBOL, which the common oriented business programming language. And then the DOD
did it again about 15 years later with a programming language called data, which basically didn't write the language, it just got all the participants together and said, hey, you know, we got this massive problem, why don't we get together and have some specs. And I just said, well, why don't we do the same thing again? Why don't we take some of the money we're spending on auditing every year,
and actually instead of following the industry by just hiring more people to do the same thing, why don't we help create the future of the industry, get all the accounting companies together and say, hey, we'll fund you, we'll pay for some of this stuff, let's write a spec for what the future of automated accounting and asset management, some of this other stuff could do, and let's see if we get startups and some of your existing audit firms to kind of engage in this stuff. And so I put together maybe 10 or 15 slides that said, well, here's plan B. And God bless the advisory board I was on. Now remember, this was at a real partisan time in the country and the administration. I was just trying to serve the country and to the credit of the advisory board at least at the time, you didn't know who was with which party. Democratic, we were all focused on truly solving the DoD problems. But remember what I said in the beginning is, when you appoint people whose job it is to incrementally get 10% solutions, those are the people you have. And it's not that they're dumb or bad. In fact, these were some of the world's best and smartest people on understanding DoD assets and understanding DoD audits, but they really had no imagination. And
I don't mean that as a pejorative. I really mean it as a, it was like, well, that's nice, Steve, good. Now let us go back to hiring more auditors. I mean, I got a polite hearing and a group moved not. And eventually for lots of reasons, I got off because the board did get politicized. I decided I wasn't serving the party. I was serving the country and, and I didn't join to serve a party. I joined to serve my country. I resigned from that board. But I think it exemplified the, the distinction of in peacetime, that was a great advisory board. We'll just make the status quo better. That's the DoD that in a nutshell is the DoD we have. No one was doing anything wrong. There weren't stupid people. In fact, there were incredibly brilliant people on that. But they couldn't see that there was potentially a Gordian knot solution, right? Which is a guy, go back to, why don't we stop doing 100% of the same thing and maybe just do 90% of the same thing and invest
some money in the future? That was not even like a possible outcome that most folks, other than one or two others on that advisory board can imagine. That's the DoD we have. World-class people, world-class organizations for a world that no longer exists. And so was that the example you were? Yeah, that was, that was exactly it. And so the last question which you could give a 30-second answer on, you've done a lot of really great writing on microchips. You've mentioned the Chips Act.

You had a sentence though where you referred to a ideal American like national industrial strategy basically being a 100x chip act. And I'm just curious like what that would look like. That's a great place to end. Like what would, for our more domestic centric listeners who aren't in the DoD or foreign policy community, what would a proper strategy look like to close out this episode?
Well, if you're really thinking about the Chips Act, it really broke a taboo that the US had politically since World War II, which was, it's basically a massive national industrial policy for a certain sector of the economy, which basically said chips are now no longer just a domestic commercial concern. They actually are the basis of everything that the DoD builds and uses, right? Semiconductors and are in everything from your iPhone, but from cruise missiles and drones and ICBMs and anything else and in the cloud, etc. And so we decided that that required government intervention at a massive scale. We're not just like theater, but like, no, we're going to onshore domestic supply. We're going to build semiconductor FAVs, which are probably some of the most expensive buildings you could build on earth, etc.
Now just imagine that across a whole set of industries, autonomy, biotech, space, etc. where we decide that the government does want to put the thumb, what we call the thumb on its scale
and actually affect the outcome. And this is where I go back to my previous comments about the DoD itself figuring out how to use private capital and start-ups and scale-ups in a way it's never done before. This basically said the government really has a vision of what an industrial policy should look like competing with China, who's basically integrated its commercial and military systems at a scale we just haven't done yet that we could do that we have done.
Basically what Japan did to the US at Pearl Harbor and creating a new operational concept, China did with actually using their commercial systems to support their military. And we're slowly coming to the conclusion that there can be a dual-use economy if we incent in the right way a commercial industry to engage and not to create a wartime economy, but to actually make it much easier for companies that have innovative ideas to help the Department of Defense. The 100x would in fact be a set of incentives rather than coercion like China uses, a set of incentives that would allow private capital, private industry to go, well, it's profitable and it's good for the country. And there are customers here that would actually buy things. I think if you listen to the venture capitalists, they'll tell you a million times, we don't need seed capital from the Department of Defense. We need orders. We need you to buy stuff, not talk about buying stuff or not talking about starting stuff or not talking about the Valley of Death. It's the Valley of No Orders at scale. And so this 100x would actually mean building a national industrial policy that actually takes a look at each one of the critical areas that the DOD needs to win at and figuring out how to incent, not how to coerce, but how to incent the economy that actually support the nation in a way it needs to to provide a safe future for the country.
That is excellent, but Steve, thank you so much for the time. I've really enjoyed this conversation. I will, of course, link to your website. We've written way too many pieces. I'm sort of shocked at how prolific you are on all these topics. I recommend folks go there. Once again, thank you for joining me on the realignment. All right. Great questions. Thanks for having me.
I hope you enjoyed this episode. If you learned something like the sort of mission or want to access our subscriber exclusive Q&A, bonus episodes and more, go to realignment.supercast.com and subscribe to our $5 a month, $50 a year, or $500 for a

lifetime membership. Rates. See you all next time.