

Center for Strategic and International Studies

Online Event

“Technology’s Role Strengthening Biodefense and Accelerating Economic Recovery After COVID-19: A Conversation with Rep. Don Bacon (R-NE) and Rep. Seth Moulton (D-MA)”

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FEATURING:

The Honorable Seth Moulton,

Co-chair,

House Armed Services Committee Future of Defense Task Force

The Honorable Don Bacon,

Member,

House Armed Services Committee

CSIS EXPERT:

Morgan Dwyer,

CSIS, Fellow, International Security Program and Deputy Director for Policy Analysis,

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Program

Transcript By

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Andrew Philip
Hunter:

Welcome, everyone, and thank you joining us for today's event, "Technology's Role Strengthening Biodefense and Accelerating Economic Recovery After COVID-19." Today's event is a capstone in a series of events that CSIS has been hosting on synthetic biology. Our previous events in the series can be found on our website on a page entitled: Synthetic Biology: The Ongoing Revolution.

We're very excited today to explore how senior policymakers are thinking about and working to address the role of biology, and particularly synthetic biology, on our world. And we're so thrilled to have two exceptionally distinguished members of Congress, who have been very active in conversations about the future of defense, the future of the economy, and the future of biodefense to join us.

First, I want to introduce to you Representative Don Bacon, who hails from Nebraska's Second District. He serves on the House Armed Services Committee, including service on the emerging threats subcommittee, which has done a lot of work on issues related to biodefense. He's also a member of the House Agriculture Committee, where issues of biological specimens are obviously extremely important as well, particularly in the economic realm. He's previously served in uniform, retired from the Air Force in 2014 as a brigadier general. And he's also the author of multiple bills designed to strengthen our preparedness for biodefense. Congressman so glad you could join us today.

I also want to welcome and introduce to you Representative Seth Moulton from Massachusetts' Sixth District. He is currently the co-chair of the Future of Defense Task Force, the task force on the House Armed Services Committee that was given a mandate to explore a range of critical issues relating to the future of defense on behalf of the larger House Armed Services Committee, and to provide recommendations to them. He is a member of the House Armed Services Committee. He also serves as vice chairman of the House Budget Committee, another committee where issues relating to particularly the economic aspects of biotechnology could have significant implications. He's previously served in the Marine Corps, including being deployed to Iraq.

We'd also like to thank the sponsor of this event series, Ginkgo Bioworks, whose support has made this entire series possible.

And with that brief introductory note, I'm going to turn it over to my colleague, Dr. Morgan Dwyer, who is Deputy Director of the Defense Industrial Initiatives Group at CSIS, to moderate our conversation with the congressmen and with our audience.

Morgan.

Morgan
Dwyer:

Thank you, Andrew. And thank you, Congressman Bacon and Congressman Moulton, for joining us today, and for leading on national security issues in Congress.

So, as Andrew mentioned, today we're going to be talking about the role that technology can play strengthening biodefense and accelerating economic

recovery after COVID-19. I think COVID-19 has really vividly illustrated how significantly biology and biotechnology can affect both our national and our economic security, and it's those two impacts to economic and national security where I'd like to focus our discussion today.

So we're going to jump right in with moderated questions and answers, and then we'll transition to questions from our audience. So if you're tuned in and you're interested in asking a question, you should see an "Ask a question" button on the bottom of the webpage where you're streaming this event and you can submit your question there.

So I'd like to start off with a question for Congressman Moulton about the Future of Defense Task Force. So that Future of Defense Task Force is chartered to assess the national security innovation base with respect to emerging threats. So what are some of the key findings from that task force and how has COVID-19 changed its focus?

Representative
Seth Moulton
(D-MA):

Thanks, Morgan. And it's great to be here, especially with my colleague and fellow veteran Don Bacon. So, Don, good to see you, and for all of you at CSIS thanks so much for having this.

First, let me just start by saying that, you know, the Future of Defense Task Force is really the first time in a very long time that either the House or the Senate Armed Services Committee have taken a 30-year look at our national security, so really tried to say, OK, where do we need to be 20, 30 years from now to meet these emerging threats. And, yes, it involves our industrial base. It involves much more than that, though. We're looking at a wide range of things that impact our national security, and we look forward to releasing our report this fall.

But one of the most important lessons that I have learned is the role of biotech in all of this, that we should really anticipate the biotech revolution to be a, perhaps, even greater impact than the tech revolution that we've been experiencing and America has been fortunate to lead over the past several decades.

This will have massive implications for national security. But it's a mistake to think about it just in terms of the current pandemic or the race to find cures to COVID-19 or cancer or whatever else. That's the traditional view of biotech. What I'm talking about is a total revolution where a lot of manufacturing is done by a biotech, where we talk about things like soldiers having tattoos on their bodies that can do things like detect chemical weapons and other things in the air. We're talking about manufacturing weapons themselves via biotechnology. And so that is where we're headed with all of this, and the most important lesson that we've learned is that there are tremendous benefits that accrue just to the winner of the race for getting there first.

So China and the United States are in a race, and we're really head to head right now, for dominating this new sector, and if we want to win that race we've got to invest a lot more. China is catching up to us. We're not speeding away. We

had a huge lead when we did the Human Genome Project. We accumulated an awful lot of data that no one else, including China and the world, had.

But if we lose this coming race, we could be in trouble for, literally, decades. Because of various issues about how this works, including economies of scale and what not, it will be very hard for there to be two big players in this realm. There will be one dominant player. We've got to make sure it's the United States. It's critical for our national security and it will be a revolution like the tech revolution.

Just imagine if we had to buy all of our technology for the last 50 years from China. Now, we do have a lot of manufacturing in China but that's very different than us actually having to buy the technology and the ideas from China. That's where we're headed if we lose this race. It will have massive implications for our national security.

Morgan
Dwyer:

Wonderful. Thank you for that.

So I want to turn to Congressman Bacon to both respond to that and specifically talk about some of the work that you've done to also posture the Department of Defense to improve its biopreparedness. So in 2018, you proposed the Military Biodefense Readiness and Protection Act to really drive change within the Department of Defense. If we start thinking about the future of defense, what does the military need to do to confront biological threats in the future?

Representative
Don Bacon (R-
NE):

Well, thank you, Morgan. And I want to thank Seth for being on here with me. I enjoy working with him on the Armed Services Committee. We've worked together on many issues; in fact, we had a record – the worst flood in our history a year ago, and Seth lent a hand to get money to come in to help repair Offutt Air Force Base and a Guard base that we have here, so I appreciate that.

And congratulations to the CSIS – seven years straight of being the top think tank for national security. That's very impressive.

So this whole issue is something that I've been concerned about as a military guy. I mean, I had to get anthrax shots, I've had smallpox shots. I'm sure Seth did, too, when he served in the Marines. We used to practice in an environment where we were preparing against chemical, biological, nuclear, radioactive threats out there, so I've always known, like, countries like North Korea have had a very active biological program where they would likely attack us in a war, and we have to be prepared for it.

I also know that it's not just threats from other countries. The pandemics out there have occurred throughout our history and, you know, the most known – and we probably didn't know as much about it prior to COVID, but I think most of us have heard about it now – in World War I, more people were killed by the Spanish flu than they were by the Germans. And you can look throughout our history. We had about every 10 or 20 years a very sizeable pandemic come through our country, and so this is not new.

And so COVID is not the last. We're going to have other COVIDs in the future we need to be prepared for. And it's not just – we know it's international in scope. COVID was worldwide. We've had Zika, we've had MERS, we've had Ebola. I could go on and on.

And so the bottom line, which I want to communicate today, is that the threat – whether it's manmade from other countries or just natural, like COVID or Ebola – this isn't going to go away. And it can't just be a DOD approach; it's needs to be an all-of-government approach. And the military has gotten pretty good at joint warfare – we work together very well. Our country struggles when it comes to multi-agency approach or all of government, and it can't just be all of government; we've got to also involve academia, our private industry. And so we have to form these partnerships that are broader than the military, broader than the federal government. It has to involve our state and local governments with academia and private industry as well. And that's the only way that we're going to be prepared in the future to deal with the next COVID or, God forbid, if we're attacked by another country with a very high-end biological threat.

So with that in mind, in 2018 I did have a bill that we drafted – I was the sponsor of it – that directed the DOD to develop a – to really – to analyze its status and how it could respond to a pandemic or a biological threat, but also directed the DOD to coordinate with other agencies to start this, you know, multi-agency process of working as a team.

Stovepipes will fall apart here. You cannot be a standalone thing in dealing with this, as we've seen in the last six months. So we submitted this in 2018 – its H.R. 5482 – as you already mentioned, it's the Military Biodefense Readiness Protection Act. And so then it sat there for about a year. They were able to get it into the 2020 – well, we put it in the 2019 National Defense Authorization Act, so then it became law in the 2019 NDAA. And then in 2020, last year's NDAA, we authorized the SECDEF to start coordinating with other federal agencies with this goal: to build a surge capacity in case of a pandemic – so this is last year, way before COVID – to build a surge capacity and to pick five sites to do a pilot program. It was my hope that UNMC would be one of them because I think they are very prepared. We know that they would have the capacity and the ability to do something like this.

But basically, we wanted to start a miniature program with five sites, test the surge capacity and how we would deal with a pandemic, and then build from that. So we put that in last year's NDAA, and then in this year's NDAA, we directed – we didn't ask for it to happen, we didn't just authorize it; we directed it and asked the DOD to expedite making this happen.

So I've been working on this for about two or three years – I've only been in Congress 3-½ years so this has been one of our goals from day one, knowing that this threat will not go away. Now, this is pre-COVID, but even after we move beyond COVID, we can't just take our foot off the gas here. We know that we need to have a plan in place – can't just be DOD; it's got to be multi-agency, working with our outside partners, public-private partnership – and that's the only way that we can be prepared when this next COVID occurs in 10 or 20

years. Who knows? And it's the only way to be prepared if a foreign country actually strikes us.

So thank you.

Morgan
Dwyer:

Wonderful. Thank you for that.

I want to build off one of the points you made there, talking about organizational stovepipes and how it's really important to be integrated in the context of responding to threats, particularly biological threats, and turn to you, Congressman Moulton, and talk about a different type of stovepipe, which you may have encountered in your work on the Future Defense Task Force, technical stovepipes.

So I know that the task force was really charged to look at a broad range of technologies, from artificial intelligence to hypersonic systems to biotechnology. How do you think about how all of those new emerging technologies sort of work together within the Department of Defense? And why was it important to include biotechnology in the context of that larger discussion, which includes things like AI?

Representative
Seth Moulton
(D-MA):

Well, we knew going into this panel that one of the biggest challenges we would face is just how to figure out what to focus on. And indeed, that's exactly the same challenge that the Pentagon faces, because we have all sorts of technology legacy systems that they're trying to maintain and continue to fund, as well as a wide range of emerging technologies.

And what the Department of Defense has to do is figure out where they need to place bets, where they need to make investments, because these will be the technologies of the future. So there are things like quantum technology, for example, which we understand has, you know, implications for security, because you can use quantum computers to hack existing encryption systems, and you can understand very directly how that would have an impact on national security. It's not quite the same as, you know, building a high-powered laser-weapon system or something like that. But you can understand that it's a pretty direct connection to our national security. So, of course, we have to invest in that.

Biotech was interesting, because most people don't appreciate the connection to national security, at least beyond the traditional sense in which we're – you know, we're talking about pandemics or bioweapons or what not. This future world, where a lot of manufacturing happens via biotech, where we have totally new ways to eat and consume food and find submarines, even, using biotechnology, is a world that's very hard to contemplate. And our concern is that the DOD is not prepared for this at all and we're not making the investments that we need to be making right now to be winning this race.

And that's why, you know, Don's work is so important to say to DOD we've got to invest in this technology now. Right now it might be in the form of the traditional sort of bioweapons that we fear. But if we don't invest in the

technology at this stage, we won't be – you know, we won't be leading this race when it comes to the next stage, which I think has much deeper implications for our national security.

And if you think about it, this is what the DOD did to make sure that we won the tech race, the semiconductor race. The DOD led major investments over investments made by the Soviet Union at the time to make sure that we were ahead of the game. And one of the things that happened with semiconductors is something we expect to happen with biotech as well, which is the impact of automation.

Right now we think of biotech as happening in all sorts of labs all over the country and all over the world. You know, every high school has a biotech lab. Colleges, research universities, are the ones doing leading work. But it's very dispersed. What's starting to happen is this work is becoming automated. And once it becomes automated, you'll see a massive consolidation.

And that's one of the risks of letting China get ahead of us, because we can't let them have the leg up when it comes to automation, when it comes to consolidating this work, and all of a sudden everybody has to go to China to have their next biotech innovation developed or manufactured because they just simply have the economies of scale to do it well. And by the way, when everybody – when all that business goes there, then those economies of scale continue to accrue in China's favor and they leap out ahead of us.

You know, that's why you didn't see other economies really catch up with the United States in the semiconductor race. That's why you saw massive companies like Fairchild and Intel, even back in the 1950s, begin to control this back at home. It wasn't like there was a semiconductor manufacturer in every main street in downtown small-town America, right. There were major companies where this work consolidated. And that's exactly what we expect to see here.

So the bottom line is that Don's right, this can't be – this isn't all about DOD. This has got to be a whole-of-government approach to winning this race. That's another big conclusion that we're reaching on this – with this report. But DOD has at least got to have a strategy. DOD's got to have a clear plan. And it's got to be incumbent upon DOD to recognize that if we do not win this race, we are losing a major national security front in the – in the coming decades. So that's my concern right now, is that not only are we not investing on the scale that China is, but we don't really have a plan to make sure that we win this race. And you know what? We should have a plan for that because of medical concerns, because of the lessons that we're learning from this pandemic, because we want to have to make sure we lead this revolution economically. But we also have to have a plan because we recognize the national security impacts.

Does that answer your question, Morgan?

Morgan
Dwyer:

Absolutely, yes. And I want to, again, build off of those great points, and the importance of sort of making bets and making investments when it might not

necessarily be clear what the payoffs are, because I think Congressman Bacon has some – has some experience doing that in his district. Nebraska's made a lot of investments in bio-preparedness that I think have enabled the state to respond to COVID-19. So what lessons, in that context, could the rest of our nation sort of learn from the experience that your state has had?

Representative
Don Bacon (R-
NE):

Thank you, Morgan. And I just want to first echo what Seth was saying, that, you know, DOD's got to make this a priority. And even though I say it's got to be a whole-of-government approach, DOD's going to be probably the main pillar. This isn't going to happen without a heavy DOD footprint making this happen. So I would definitely agree. But it can't do it alone either. I think what – to your question, DOD is much better when we are partnering with outside agencies, a public-private partnership, not just with, you know, private industry but also academia.

So to get to your question, Morgan, UNMC, University of Nebraska Medical Center here, is a tremendous resource not only for the military just for the federal government when it comes to biodefense and bio-preparedness. You know, since UNMC has made biodefense and bio-preparedness one of its mission areas for the last 35 years. And it's been – and it was one of the key nodes for the federal government when it came to Ebola in 2014. In fact, we were one of the few places where Ebola victims were brought to, and then were put in a biocontainment area. And UNMC just did brilliantly handling this Ebola thing.

In fact, I was a military guy at the time. They helped – UNMC helped write the protocols on how to transport Ebola victims. Of course, the military was the direct recipient of this academia resource that said: This is how you do it safely. And so we couldn't – bottom line is, the military can't do this alone. It has to have great partners on the outside. And we have to strengthen those partnerships. And I just think UNMC is just a great example of how that works.

This past year, we had the COVID victims on the cruise ship, and we had some in China, and they couldn't be sent home right away. They had to be put into quarantine for a while. UNMC was one of the few spots or few sites that the federal government picked to do that. And so, again, it's been one of the key nodes for the federal government to partner with. And I just think, from that that DOD can learn – it's an iterative thing, working with someone like University of Nebraska Medical Center.

And so since 2004, UNMC's built the largest biocontainment site in the country. And so that's a resource that we – you know, we don't want to look past. But we have experts working on this stuff every day right here. And so we get that synergy, where we can start blending, you know, the military investment, working with – working with the private sector and the academia, to learn from each other. You get that synergy from that. So long story short, we just see UNMC is well placed. It's a great example of a university, a medical center, that puts a lot of investment, a lot of time doing this biocontainment, biodefense preparation. And from that, we can expand that capability to other areas.

So when I talked about the bill that we put – or, we put on the NDAA last year, and then we bolstered it this NDAA. Of course, we don't have it signed yet by the president for the 2021 NDAA. But my goal is to help make one of these five test sites with a surge capacity for pandemics UNMC, because I think they're well-positioned to expand and leverage what they've already done. And frankly, it's there for us all to learn from and we can grow that capability throughout our country.

Morgan
Dwyer:

Great. Thank you.

Again, you know, focusing on – you highlighted the importance of partnerships. Congressman Moulton, I want to talk about a different type of partnership, particularly because in Massachusetts there are a lot of high-tech and biotech companies, and investments in those types of companies and sort of partnerships and synergies with the government can be beneficial to national security and can also help drive economic growth. So I was wondering if you could talk a little bit about how the government could better partner with some of those high-tech companies and how investing in sort of far-term technology might be a useful engine for driving economic growth.

Representative
Seth Moulton
(D-MA):

Absolutely. I mean, Massachusetts right now is the biotech leader of the entire world. Boston is the number-one city. Of course, what we're worried about is the competition from Beijing next, and that's a point that I think Don and I have been making throughout this.

But look, we've got great companies. Ginkgo Bioworks, which of course is one of the sponsors of this panel, is based in Boston. Moderna, which is right now leading the race to develop a COVID-19 vaccine. E25Bio was started by a former professor of mine. It's a leading company in developing a quick test. There are all sorts of companies that are really leading the world right now right here in Boston.

But I sit on the Budget Committee as well, as you mentioned, and we did a panel recently specifically on this question of the role of federal investment in partnering with the private sector to drive this industry. And of course, we were focused specifically on COVID-19 vaccine. And look, to be – to be candid, many of the – many of my Republican colleagues on the House Budget Committee like to emphasize the role that the private sector has and really minimize the role of the federal government in an – in an effort to sort of say, hey, we don't need to be investing as much money in basic scientific research and things like that. But actually, the Republican witness on the panel, who happened to be a Harvard Business School professor of mine, pointed out that the reason why companies like Moderna are where they are right now is because of the federal investment in basic scientific research in research universities like Harvard and MIT that educated all the founders of these companies. And so there is a very direct connection here.

Sometimes it can take a few years to play out, which is why right now we're still riding off the wave of investment that was made in these universities and in basic scientific research from the middle of the last century and into the latter

half of the last century. And the risk is that as that – as that funding as a percentage of our economy falls dramatically and at the same time as China invests much more in government money into this kind of basic research, we're going to see those consequences not just tomorrow but 10 or 20 years down the road, when China really catches up and at their current pace bypasses us in this realm. And so it's really important that this – the role of the federal government continue.

Now, look, Massachusetts has also invested billions of dollars of private capital into these – into these companies. So as Don says, it's not like the DOD or the federal government can go it alone. You've got to find the right partnership, the right models to make this work. But we've done this before. You know, we've – the reason that we were able to send a man to the Moon was because we put a lot of federal money into the basic research that then allowed private companies, who actually built the rockets that powered the astronauts, to actually put this technology to work. And ultimately, much of that was based in DOD dollars from the very beginning.

So we know how to do this, but we've fallen off the wagon a bit. And if you look at graphs that compare our investment in both research universities and in basic scientific research compared to China, you can see why this trend is very disturbing to those of us who are looking at our national security.

Morgan
Dwyer:

And Congressman Bacon, I'll ask you to respond to the discussion about the budget and maybe particularly focus on a nearer-term budget within the Department of Defense. And sort of given where we are in COVID-19 and looking ahead to some of our longer-term challenges, how do we need to think about DOD's investment portfolio and how should we, perhaps, rethink how DOD is prioritizing emerging technologies to include biotechnology?

Representative
Don Bacon (R-
NE):

Well, thank you there, and I certainly don't want to leave the impression that I don't want the – I don't want the federal government to walk away from it. I think the federal government has a huge role in this. I see it as a partnership. It can't just be strictly from the government. I think the private sector and academia. But clearly, the federal sector – the federal government dollars are very important to this, so I think there's a synergy there when they work together.

And obviously, I think the DOD needs to prioritize fielding of technology in this realm for biodefense, biopreparedness, and we need to take it to the next level. We need to be proactive. It seemed like with this COVID we were reactive. I want us to get ahead of the game and figure out how we can be positioned in advance to respond better.

I'll give you an example. It's a little off, maybe, your question. But when it was coming to the development of these test kits, for example, you know, it was a very central model of testing within the federal government. But that – and the first prototype did not work, so it put U.S. behind in the COVID test kits. Once we also partnered with the universities/private sector, we were able to find

four or five different alternatives for testing and we were able to more quickly move.

So I want us to be – I think we have to move in that more decentralized with the federal government certainly involved in funding. But there's a lot of different good ways to win, and when you have more people involved you can find multiple avenues and multiple better technologies.

So that was just – I wanted to address where – something I've been discussing prior to this. I really want us to put more focus on the technology. I think the goal, going forward, are smaller devices that you can – that the individuals can carry and that they could do their own testing. It's just that we're used to having doctors or you go to the med center or med group. If you're a military guy you're going to your clinic to get a test to see if you test positive for this or that.

I think the next way forward is individuals having the ability to test themselves on the spot, near real-time results, and where it's also linked to a database so that folks will know if you're testing positive or negative. You can feed it to the military database, for example, to let you know who's ready to deploy, who's ready, who can't fly that day, that also can share that data so you could also do some contact tracing out of that.

So I see the ability to have a mobile small device or we do – individuals do their own testing and it's linked so that it's networked so that data gets shared fast. I think that's very important in a military environment. Now, granted, in the private sector there are privacy concerns and I get that. But in a military environment, your commanders, each one of them, needs to know the readiness of its troops. So I think this network capability, near real-time capability, is critical for the future.

And we see some prototypes out there already being developed that are like this. So, for example, Privatus and KSL Diagnostics already have some prototypes out there that are trying to do exactly what I've laid out there. So I think the way forward is – by the way, I want to give you another example. This isn't a bio or pandemic response.

But I'm also on the Caucus for Traumatic Brain Injury and I'm the co-chair of that, and today, when you have, like, say, an explosion like we had in Iraq when the Iranians fired the missiles, we had to send a lot of people out of the country to get testing. Some of them tested positive. Some did not, and they returned.

That takes a lot of effort to figure out who's been injured and who has not. There is a new prototype today that it's the size of a cell phone and you can have it on the spot and within hours of a large explosion you can test someone for TBI and it will tell you if it tests positive or not based on blood markers.

And just think of the savings there. You can know right away if person A needs to get out of country, get care, or if not. I see the same kind of capability for

biodefense, and we need to have it portable, near real-time, and the individuals need to be able to do it on their own. I think that's the way forward.

Thank you.

Morgan Dwyer: Great. Well, that was quite a vision of how to incorporate technology into this national security challenge.

And that was going to feed into my next question for both of you, was to ask if you could provide us a perspective on sort of the awareness and understanding in Congress about the importance of biotech issues, and biology and national security, and also a perspective on, you know, where is Congress most likely to be able to provide support both to the national security community and to this particular sector of the economy.

So I'll start with you, Congressman Moulton.

Representative Seth Moulton (D-MA): I mean, look, to be totally candid, I think the picture is pretty grim right now in Congress. I mean, we were terribly slow to respond to this virus. It took a long time for us to recognize that it was going to be a global pandemic and prepare to work remotely. It took even longer for us to simply start wearing masks on the House floor. So at sort of every step of the way, Congress has been behind. And while we all now appreciate the importance of biotech, and obviously we're – you know, we're all dealing with Covid-19 in our daily lives, I don't think that there is a great appreciation in Congress for the real nexus between biotech and national security.

And, you know, Don started his answer to the last question by just sort of clarifying that he supports federal investment. Let me just clarify, Don and I are totally aligned on this. The point that I am trying to make, by showing that, you know, we're trying to be above the politics here. But the reality is, if we're going to get this stuff passed, you know, the politics matter. And the point that I'm trying to make is that, you know, in some ways Don and I, to be aligned on this position, are both breaking with certain parts of our parties.

You know, there are a lot of people on the Republican side who don't want to invest more – whether it's through DOD or anywhere else – in basic scientific research, like is required here, in future technologies like biotech, that don't have an obvious implication for national security. There are a lot of people who just want to keep building aircraft carriers that are – that are terribly out of date and are going to be harder and harder to support in a world where we have less money, partly because of the Covid-19 downturn in the economy. And we have to prioritize future technologies.

But likewise, on my side of the aisle there are a lot of people who don't want to see DOD involved at all in biotech, and just want to see DOD budgets cut not just to make room for new technologies, but just cut – period. And so both of us, in some ways, have to break with party orthodoxy here to be aligned on this issue and recognize that we need to invest in this technology. It's critical for national security and it does have to be a partnership between the federal government

and the private sector. And so that's what we're trying to educate Congress on, educate our colleagues on. But frankly, you know, my assessment – and I'd love to hear what you think, Don – is I think we got a little ways to go here.

Representative
Don Bacon (R-
NE):

Ok. I'll just jump in. I'd say, absolutely. You know, this is going to be – as I mentioned up front, all the – all of the above approach. If the federal government tries to do it all by itself, I think what you're going to find what we saw with the test kits. It's going to be slow. It's not going to be agile. You're going to be behind. But without the federal input, there's not the dollars there either. So the federal government's got to play a big role in partnership with private sector and academia.

When you get that team together, I think it's the best team on the field. It creates that synergy. Sometimes the federal government gets the breakthrough. Sometimes it's a university gets the breakthrough, right? And so it's got to be all of the above on that. And the federal government has a key role, but it can't be the choke point either, because I think that that doesn't work as well. So there's a team – a team here that has to develop. And I don't think we're very good at that, frankly. I don't think that a lot of the federal agencies enjoy being teammates. They want to do it all on their own. I think our military is really good at the joint stuff, but it's hard – it is very hard to do multiagency and then private sector partnerships. We don't do it well, but that is what it's going to take to master the threats – the biothreats that are facing us.

Morgan
Dwyer:

Great. So I want to jump to some questions from our audience. So if you're tuned in and haven't submitted your question yet, go ahead and submit it now and we'll hopefully be able to get to it.

We do have one question related to Congressman Moulton's discussion of sort of the biotech race with China, and the – sort of the strategic implications for China taking the lead in sort of the economic competition. And you mentioned economies of scale. And so one of our viewers asked if you could explain sort of the dynamics of that race and sort of what it looks like vis-à-vis sort of the competition between – the technological competition between two nations.

Representative
Seth Moulton
(D-MA):

Sure. Well, let me explain it sort of from a technical perspective, from a kind of where-we're-headed perspective, strategically and policy-wise, and then just talk a minute about the implications, because I think this is a really critical question.

And Don, I'm sure you'll have some things to say about it as well.

But first of all, from a technical perspective, I am one of the few members of Congress with a degree of science, but it wasn't in biology. So I'll try to do my best as a physics guy to –

Representative Don Bacon (R-NE):

I was political science. (Laughs.)

Representative Seth Moulton (D-MA):

(Laughs.) But, look, the way this is going to work is that this technology is going to be increasingly automated. In fact, this is what Ginkgo, as one example here, does is they take a totally, you know, robotic approach to testing different – imagine if you were doing – testing different compounds to see what, you know, had the desired biological effect, and instead of having to have a person standing there with a pipette, you know, two by two by two, you could automate that whole process and take the work that would usually take a month and do it in a day, right.

OK, that's where this is headed. And it's going to happen not just in terms of doing these tests to identify new substances, new drugs and what not, but also in terms of the manufacturing. And what you're acquiring as you do all these tests is a vast amount of data, right. It's a huge amount of data. And so much of the biotech race is about big data. It's about being able to understand what is the effect of this on a huge population.

And one of the things that we have to understand as, you know, members of the free world here is that authoritarian regimes have a huge advantage when it comes to acquiring big data, because there are no rules about privacy. They don't expect basic freedoms for their citizens. And so, you know, the authorities in China have no problem collecting and using the medical data from every one of their citizens, or frankly from all of us if we are not careful about how our medical data is used.

You know, many of us try – many folks like to do these new, you know, 23 and Me or these other genetic tests to figure out if they're at risk for disease or perhaps just figure out how they're related to some distant relatives or friends or what not. I can tell you, from a security perspective, I've been told do not do those tests, because that data is going to China and they're going to exploit it. And who knows? They might actually try to use it against me individually as a politician.

So there's a huge advantage that sort of naturally accrues to an authoritarian regime here. And China, for the second part of my answer, is now making the investments to ensure that they do get this data. They're buying American companies. They're putting huge amounts of money into this research. And if you look at the trendlines, they're beating America right now. So they're still behind us – you know, Boston is number one in biotech, not number two, but Beijing is quickly catching up. And if those trendlines continue at their current pace, they are going to surpass us sooner than later.

And then once China has all the data – you know, if you want to go to a company to develop maybe just something as simple as a new seed for a more drought-resistant crop and you have one company that's an American company that has 20 percent of the world's data on this and you have a Chinese company that has 80 percent, obviously you're going to go to China for that work. And then, by

the way, by doing that work for you, they have even more of the data. You know, now it's 81-19 or whatever. So there are huge economies of scale here, and that's why it's critical that we win this race from the beginning.

But I want to touch briefly on something that I think is even more important that really should underlie this discussion, which is that this is not just about who has the best GDP, you know, who gets to say they're number one, whose investors do better in the long run. There are huge moral implications to this race as well.

We've seen China actually crack down on some of their scientists who have gone rogue and do things that are hugely questionable from a bioethics perspective. And yet no one trusts the basic ethics of a country that persecutes Muslim minorities, that has massive human-rights violations, just to touch the surface, just to touch the tip of the iceberg here.

So if we lose this race and China wins it, if it has huge implications for our national security and China is ahead of us, all of that has huge implications for, frankly, the future of humanity – what kind of society that we are going to live in for the decades to come, what kind of world that we will leave to our kids and our grandkids. So I don't think Congress understands enough about the basic connection between biotech and national security, let alone talking about the huge moral implications of winning or losing this race. We've got a lot – we have to do – like Don and I think have to do a much better job of educating our colleagues and educating the American public about how important this is and the truly, truly historic implications of the decisions that we make right now.

Representative
Don Bacon (R-
NE):

I'd just like to supplement what Seth's saying. You know, China's on the path of eventually surpassing us with our GDP. I mean, they're at 75 percent of the GDP that we have today and every year they catch up a little more, and eventually if it's at the same rate they will exceed us. And to Seth's point, they do not share our values. They do not respect human dignity, human rights, and they are suppressing Muslim minorities, home churches, I mean, we can go on and on.

And if we think that we can do this alone, we cannot as a country. Though we're going to be the indispensable nation for decades and decades to come – hopefully, centuries to come – we can't do it alone. And so I think a more broader issue for me is how are we doing a better job partnering with the free world, because in the end this is going to be likeminded countries partnering together – you know, the NATO countries, Japan, Australia, likeminded countries – because you can't really outgun China over time unless we have a good alliance of likeminded people. And so in the end, I think – this isn't biotech per se – a broader issue of America has to work with free countries that share our values, and it has to be humble leadership because in the end that's what it's going to take to counter China and values that do not match ours. It would be a more ugly world if their values are dominant, and it's going to take American leadership to stop that.

Representative Seth Moulton (D-MA): Yeah, it's such an important point, Don, because that's actually one of the huge advantages that we do have. I mean, I outlined some of the frightening advantages that authoritarian societies have when they're just collecting data with abandon, whether it be, you know, security-camera data or whether they – you know, biomedical data with no private controls whatsoever.

But on the other hand, America has this long tradition of amazing alliances with other countries around the world. And you know, China has – China has more people than us. They're collecting more data on their citizens. They might win that race individually. But if we develop the kind of partnerships and deepen the kind of partnerships that Don is describing, that team effort can overcome one nation.

But it's going to take some work. You know, strengthening partnerships, humble leadership, that was not lost on me, Don. That's something that we need to exercise in the – in the world, and I think we could do some work on that.

Representative Don Bacon (R-NE): Winston Churchill says the only thing worse than having allies is having no allies. (Laughter.) That's a fact.

Representative Seth Moulton (D-MA): That's right.

Morgan Dwyer: Related to the point about partnerships, you know, you both stressed sort of external partnerships and alliances, which is obviously critically important, so thank you both for raising that.

One of the other questions we got I think was motivated by Congressman Bacon's discussion about sort of interagency structural challenges to jointness or collaboration across different agencies. And one of the questions is asking, you know, what sort of structural changes does the government need post-COVID-19? So the example the questioner brought up was, you know, DHS post-9/11. Do we need structural changes in how different agencies are working together to confront these transnational threats, or do we need to think about how we're structuring the government to better invest in emerging technologies like biotech?

So I'll start with Congressman Bacon because I think you probably motivated it, then we can go on from there.

Representative Don Bacon (R-NE): I think we do need structural changes. How those changes should look, you know, I sort of debate with myself on.

You know, we have national security staff that helps – it's supposed to integrate these things, but I don't think it's really working today. I mean, and we're – Seth, about your – we are reactive right now; we are not being proactive, and I

think Congress itself, we excel at being reactive. We respond. Very seldom are we forward thinking on a lot of these issues out there.

But to deal with biotech and biodefense, bio-preparedness – all of these interrelated things – stovepipes will fail. You cannot do this standalone DOD. I mean, we're going to be the leaders – no doubt about it – but it's going to take partnering with DHS and all these – State Department – we can just go on and on. There has to be some integration there.

And I think the premise of our national security staffs or, you know, in D.C. on the White House staff is to do that integration. I'm just not – I don't think we have it yet. Again, I think we're being reactive. And so how do you – we do a better job integrating? I don't think we're there yet, but I don't have a good idea how to make it better at this point. I think it's something that we're going to have to sit down, and put smart people together, and figure out how do we streamline, and how do we make sure we're focused in a proactive manner there. So I think right now the answer is clearly no. I just wish I had a clearer way forward on how to do that.

I think there's a lot of different ways of – even in the military sense, I feel like our – we built a great joint concept, but it's already outmoded because a lot of our threats today cross COCOM lines, for example. Our threats today just aren't just CENTCOM; typically they come from multiple theaters.

And so I think we even have to rethink how we're doing it on the joint sites – how do we better integrate. So I know that's not the best answer, but we're not there. We're in a reactive mode; we're not in a proactive mode.

Representative
Seth Moulton
(D-MA):

You know, I sadly agree with Don, and if you think about it, you know, when the Soviets launched Sputnik, we could have responded by establishing a space force. In some respects that would have been the natural response, right? It would certainly be consistent with today's approach of thinking DOD is going to solve all our national security problems on its own.

But instead, what we did is we studied the problem and we said, look, if we want to win this race in the long run, then what Congress really needs to do is invest in graduate school education because that's the underpinnings of winning the space race. And because we poured money into PhD programs, into basic research, into research universities, we very quickly developed the science to beat the Soviets at this race.

We're not doing that right now, and in many ways, really, the government body that's supposed to figure this out is the Congress. We are the board of directors for the Department of Defense. But not only that, we're the board of directors for the State Department. We're the board of directors that decide how much money we're going to put into things like graduate school education. And so when we were functioning well as a governing body, back in the 1950s, we were able to step back from the situation and say, no, we don't just need to make a space force; what we need to do is invest in the basic science to make

sure that we win this race, not only in the next five years, but in the next 50 years. And Congress is failing to do that right now.

So I come to the same conclusion as Don, which is that I'm not sure exactly what government structure we need to fix because I actually think it's really our job. In many ways what we need to do is fix Congress to stop making these decisions that come right out of the worst warnings of Eisenhower and McCain, and others, about the military industrial complex and thinking that DOD is going to solve all of our problems, and instead go back to what Congress is really supposed to do, which is to provide some long view, strategic leadership for not only these individual agencies, but really the entire country.

Representative Don Bacon (R-NE): You know the military has a good concept when they have to put multiple teams together – they put together a joint task force or a combined task force – a CTF or a JTF. Maybe in the federal agency realm we need to do interagency task forces at some of these things where you have military, you have State Department, you have DHS, you have – you know, all these different groups you have working together in mission-focused areas because, in the end, you've got to have the resources of these – of the big departments, but you've got to have the smart people working together on a particular problem to really make progress. So maybe, you know, like a – instead of a CTF and a JTF like we have in the military, sort of, kind of interagency task forces that bring all these units together for, in this case, biodefense.

Representative Seth Moulton (D-MA): Yeah, one of the things on the House Armed Services Committee – one of the places where you will see a real bipartisan spirit among the veterans on the committee is when it comes to us talking about funding the State Department because the State Department is not the most popular federal agency, and a lot of times we turn to DOD over the State Department to solve our problems.

But anyone who's had to serve in a combat zone knows how critical the State Department is. You know, and that's why someone like Jim Mattis will say: If you want to cut the State Department budget, you got to buy me more ammunition. But again, exactly what Don's talking about here – which I fully agree with – is something that is really traditionally supposed to happen at the Congressional level. But if it's not working there, then the kinds of joint government taskforce or agencies that Don is describing is probably exactly what we need.

You know, until we get Congress back to functioning the way it should, we're going to have to make sure that these agencies – maybe force them to work together a little bit better. And maybe even have some joint budgetary authority. I mean, there are a lot of problems that we were asked to solve in Iraq that really should have been solved by the State Department. I saw that firsthand on the ground. But usually we in the DOD were the ones that were getting the resources to do it. That's a problem that has huge strategic implications. And we got to figure out a way around it.

Representative Don Bacon (R-NE): We just need to ensure that coordination is full at the secretary level. We have to say, we always have the top. We need to have more intermediate levels of experts from these multi agencies solving problems. I think oftentimes we're disjointed and these things get solved at the very – try to get put together at the top. And I don't think it works.

Representative Seth Moulton (D-MA): Don, I mean, this is probably not the time for a story, but when I was a second – a mere second lieutenant in Iraq I was working with USAID on a challenge. And I had this amazing partnership with a woman at USAID. But my battalion commander prohibited me from talking with her, because technically I was supposed to talk to my company commander, who would talk to him, the battalion commander. He was then supposed to talk to the regimental commander, and then to the division commander, and up to the main – the top commander in Iraq, who then would coordinate with the U.S. ambassador, and down through the chain, to reach this woman at USAID. That's the way the coordination was supposed to happen.

So instead, Second Lieutenant Moulton used to hide in the closet in her office every time the battalion commander came by, so that he wouldn't know that we were working together. And as a result, we were able to get wonderful things done. But Don is absolutely right, the coordination needs to happen much – way, way, below the secretary level.

Morgan Dwyer: Well, I think we've covered quite a bit of ground today, from – starting with the challenges of COVID-19 biodefense, investing in technology. And we've ended up all the way at solutions, or at least moving towards, you know, what does a government solution look like. I'm sure we could talk much longer on that end and would benefit from all of your brainstorming and good ideas there.

Unfortunately, we're out of time. So I want to thank everyone who tuned in today and thank everyone who submitted questions. And I especially want to thank both of our guests, Congressman Bacon and Congressman Moulton, for a really excellent discussion today on technology's role in strengthening biodefense and accelerating economic recovery post-COVID-19. So thank you both and we'll see you again soon.

(END)