From the Crows' Nest in Print: Highlights from Episodes Recorded at AOC 2022

During AOC 2022 in Washington, DC (Oct. 25-27), the From the Crows' Nest podcast was onsite to record daily episodes covering a range of topics related to concept of the "Electromagnetic Spectrum Operations (EMSO) Playbook." I had the pleasure of sitting down with John Knowles, Editor-in-Chief of the Journal of Electromagnetic Dominance (JED), Mr. David Tremper, Director of EW in the Office of the Undersecretary of Defense for Acquisition & Sustainment and new AOC International Region I Director Eric Bamford. The following are highlights from my conversations with my guests. If you have not had a chance to listen to these episodes, you can visit here to download the full episodes.

In my episode with **John Knowles**, I talk with him about the concept of an EMSO playbook and what it means for stakeholders across military and industry, both in the US and abroad. We also discuss how to best apply lessons from the playbook to the dynamic global threat environment, including both Russia's invasion of Ukraine and growing tensions in the Pacific.

On the EMSO Playbook from a NATO perspective.
[Knowles] When I first heard the theme of the EMSO playbook, really, my first thought was, "Okay, Army, Navy, Air Force, Marines, US." Immediately though I thought there's multiple… I don't know if you'd say multiple playbooks or multiple pages to the playbook, but we're not just looking at a US playbook. We have NATO partners, we have security partners in the US and again, around the world. Again, it's an international community, international profession.
When I think about the playbook concept, I think first, being an editor of a magazine, about language? Are we using the same

terms? What do they mean to our partners in the middle of a conflict? Some of our basic U.S. terminology isn't quite aligned with NATO. When we speak in the heat of conflict, in the middle of an operation, when you need to make split-second decisions, are we literally going to be talking the same language in a conflict?

On the relevance of the EMSO Playbook to the conflict in Ukraine.

[Knowles] The thing about EW is that it has evolved. It's amazing how much common terminology we have and common understanding in the West, but at the same time, it's not perfect and that's what happens in operations. I think it comes down to coalition training. If you're having communications problems in a training exercise, you need to start work on that there. I think Ukraine to me is a very significant conflict in many ways. It's showing Europe that we're going to be fighting as a coalition and we definitely need to be [reading the same page of the playbook].

On what the US and Pacific Partners can learn from NATO working together in Ukraine.

[Knowles] I think the Asia Pacific region is much less complex in terms of [alliance] bureaucracy, but that's not a bad thing in many ways because the US is the glue that hold a lot of that together. It's really more of a hub and spoke model where the US is going to have a lot more of a burden. They [the Asia Pacific partners working with the US] are starting to get better about it, but it's here and there. It's not a formal alliance. They don't have a single cultural identity the way Europe has. It's a little harder to probably build a NATO, but the US will be in more of central role over there. That will create some advantages … and tensions.

On how industry is helping defense agencies, including the US Department of Defense, to figure out how to innovate and optimize based on what we have versus brand new capabilities.

[Knowles] I think that one of the things that's happened over

the past, I guess I'd almost say a decade, is there's a lot more experimentation in the field where it's a call to industry, bring what you have. We have test equipment, or we have a test, and some sort of evaluation that we can set up at one of the ranges in the US or something like that. Bring what you have. The magic in that, to me at least, is having the industry experts, the technical experts working directly with operational people because those two, when they get together, they're going to solve problems. The operator is really good at taking something that was built to do one job and modifying it in some way or using it in a different way that the developer didn't think of. That cross pollination there, that's huge in terms of getting those ideas out there and getting that what you call innovation. I kind of call it operational innovation to a certain extent. You don't have five, 10 years to develop what you need. You got to go with what you have. I call it your Apollo 13 moment, here's your box full of stuff that's on that you have to work with.

I also had the opportunity to sit down with **David Tremper, Director of EW in the Office of the Secretary of Defense.** We covered a wide range of topics including Electromagnetic Protection, Open Architecture and Government Reference Framework, and Counter C5ISR&T capabilities focusing on offensive EW.

On the establishment of a new office to focus on joint capabilities.

[Tremper] There's been a recognition within the Department of Defense that we have challenges when it comes to acquiring joint capabilities and acquiring missions that cut across multiple systems and multiple services. So, within Acquisition and Sustainment (A&S), they're pursuing a new office that would look at how you acquire joint capabilities. What are the methods for doing that? What are the budgeting approaches that you need to take to be able to augment service programs of record so that they can address what we call purple

requirements that are not specific to services but are joint requirements that aren't specific to services? And then what's the acquisition approach to get there? How do you that? Is it new joint acquisition programs? We need joint capabilities and we have a challenging infrastructure right now for actually creating requirements for it and then acquiring against those requirements.

I think that's part of the reason I've been asked to help stand up this office. So, over the past two years since I've been in the position, I've been using my limited resources to fund what I call cross service feasibility analysis and experiments. And in those cases, what we do from our purple position on EW is we can see across the services on what the services are working on and what they consider their challenges and threats. And because we can do that, we can see that, hey, the Navy has a capability to address this problem that say the Army or the Air Force is now considering, and we use our little amount of funds to do a study on, is the Navy capability applicable to this Army problem? Can we take those army developers and those Navy developers put them together in the room and then hash out, could you use this Navy system for that army problem? And we found out repeatedly the answer is yes. Right. You can.

On the progress of advancing Electromagnetic Protection (EP) efforts.

[Tremper] We've made progress and I think not in small part to the EMSO Cross Functional Team (CFT) push on the EMS superiority strategy. [O]ne of the things I was able to use that effort for was to harp on that there is a hole in the EW plus spectrum management for EMSO plan. In that EP is not in EW, the way we acquire it. If you look it up on Wikipedia it is, but if you examine the way the DOD acquires systems, EP is not acquired as part of an EW community. It is part of radars, comms, and Precision, Navigation, and Timing (PNT). And so through that EMS superiority push, we were able to emphasize that we need to bring in those other spectrum users. We need

to highlight the importance of good EMS survivability and good EP techniques in their systems. And in the process of doing that, we had coincidental events that just amplified it. And one was the 5G radar altimeter interference report that came out and all over the news about hey, there's potentially a problem here between the 5G transmitters and the radar altimeter on commercial and military aircraft. And we were able to use that as a leverage point to highlight. Neither of those are EW, right?
That's a 5G comms and that's a radar problem that EW is not involved at all. But here you have essentially an EP problem because the concern is that the one sensor can't survive in the presence of the other sensors, so we need to figure that out. So that allowed us to highlight it there. Then you had the events in the Ukraine with StarLink and I've talked about this before, that the significance of assured comms in that Ukraine operation is going to be really interesting to do an analysis on after the fact to determine what was the impact?

Finally, I had a chance to sit down with **AOC's newest International Region I Board of Director, Eric Bamford.** The region he serves for AOC includes all of Europe, Africa, the Middle East and part of Asia. I was joined by AOC Director of Global Events Bob Andrews and we focused our conversation on the strengthening of NATO in response to a dynamic global security environment.

On current NATO effort to improve interoperability.
[Bamford] It all starts with the alliance. NATO as the alliance on the European side is key to this. And then you have the next level and that's the bilateral or multilateral interaction. And then you need to go all the way down to the personal interaction. That is where you do the influence towards the individuals and discuss things with the individuals that then go back to capitals and feed this new understanding across all the nations so that we become interoperable, and we actually build a requirements base that

makes us interoperable in a war fighting scenario. So, I would say there are different layers, and they all need to line up correctly to get the interoperability piece correct.

On advancing NATO technology standards.
[Bamford] So the NATO approach on standards is kind of twofold. It is as civilian as possible and as military as necessary. So that means that you want to use as much of the industry standards up to the point where you need to then add that top layer that is required to do military interoperability. So, I think that is the key to both reduce the bureaucracy of NATO, but also to engage industry as much as you can.

On NATO operations in Ukraine.
[Bamford] So since 24th of February, it has been an eye opener. But the thing is, it's the sense of urgency on getting the interoperability piece correct right now, that is where we need to go. And that's also where the standardization process is actually the train that we need to get on board, and we need to actually get capitals to get on board with the standardization as well. Because standardization in NATO is when you have a standard that goes out to the capitals for ratification you might get back that you have only half the nations on board, whereas you need more and more all the nations on board as well so that it becomes a real standard and not a standard among an enclosed environment.

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