



E-BOOK:

**2021: Year in Review /
2022: Looking Ahead**

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Editor's Letter



Looking back, Looking forward: Welcome to 2022.

It's almost bizarre to type that. It's not the most original thought, but just reading "2022" brings up visions of near-term sci-fi stories. It feels like we should have hovercars by now. Sadly, that's not the case — although some would argue it's closer than it seems — and thanks to the ongoing COVID-19 pandemic, in many ways 2022 simply feels like an extension of 2020.

And yet, the world continues to move forward. And 2021 was, potentially, a pivotal year in defense, with the start of the new Biden administration opening up new areas of focus for the Pentagon and its partners. But the word "potentially" is important, as many of the ideas and goals stated by the Biden national security team ran up against real-world challenges: the continued pandemic, the disaster in Afghanistan, Russian threats of invasion of Ukraine, and the still-as-of-writing unresolved inability to pass a budget.

As 2021 rounded down, the Breaking Defense team sat down and tried to really think through our coverage from the last year. Ultimately we felt it was key to do both a look-back at 2021 and a look-forward to the coming year. Specifically in our look-backs, we tried to highlight stories or trends that may have fallen through the cracks as major world events took place. What struck is just how much news there was last year. There is so much that happens on a day-to-day basis that stories can simply get lost or forgotten about days after they publish, no matter how impactful they may have been in the moment. Our 2022 predictions, meanwhile, focused on core issues for our readership, providing a roadmap of sorts for what to look for in the coming months.

This past year was one of astounding change for the Breaking Defense team, with our number of reporters doubling in size and an enhanced push towards international reporting. But one thing that this collection should highlight is that this team has always done exemplary work — a standard we expect to continue into 2022.

On behalf of the team, thanks so much for reading the site in the last year. We hope you'll stick with us in 2022.

Aaron Mehta

Editor in Chief, Breaking Defense

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BREAKING
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Section 1:

2021: Year in Review

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Air Force got a new leader, a new fighter plan and can ditch old planes: 2021 In Review

In 2021, Air Force laid a path for big changes coming down the line in 2022 and beyond.



Air Force Secretary Frank Kendall was sworn in at the end of the summer. (US Air Force/Staff Sgt. Brittany A. Chase)

By VALERIE INSINNA on December 27, 2021 at 10:55 AM

WASHINGTON: If you're in the military, you've probably heard the saying "Hurry up and wait." It applies to doing things inside the Defense Department, and sadly, it also applies to covering the Pentagon and military services.

In 2021, the Air Force put a lot of balls in motion — we saw new leaders come into office and heard hints about some exciting new aircraft programs. But a lot of the major decisions won't be finalized until next year. I'll be waiting to see if the Air Force can juggle all its plans with the flat budget undoubtedly coming down the line in fiscal 2023, but here's a refresher on the biggest news stories in 2021:

Frank Kendall Brought New Direction To Top Job

In April, the Biden administration announced its nomination of Frank Kendall to become the new secretary of the Air Force. Kendall, a former Pentagon acquisition head with the knowledge to dive deep into the bureaucratic weeds of the department, made it clear his goal was to field tech to counter the rising threat of China.

Immediately after taking office in August, Kendall started shaking things up, first by ordering a review of the service's FY23 budget plans to ensure it was structured with the goal of deterring China. He also refocused the service's Advanced Battle Management System program, scoping it to prioritize fielding capability instead of emphasizing open-ended exercises.

Then, in September, he seemed to imply that China was potentially working on a Fractional Orbital Bombardment System capable of presenting a global strike from space. Weeks later, reports confirmed that China had tested a hypersonic FOBS this past summer.

Now the question facing Kendall is, can he make good on his talk and transform the Air Force, or will pressures from Congress, the Defense Department and the service itself force the service to pursue less dramatic change?

Study On Tactical Aircraft Challenged Prevailing Ideas

The F-35 was developed to replace a long list of aircraft — chief among them the Air Force's multirole F-16 fighters, which number more than a thousand planes. But in February, Air Force Chief of Staff Gen. CQ Brown acknowledged that the service is exploring other options.

A tactical aircraft study carried out this year would help formulate FY23 budget plans and solidify the Air Force's make up of its future fighter fleet, Brown said then. Most notably, Brown mentioned the service was considering a low-cost, clean-sheet "fourth-gen plus" fighter to replace a portion of the F-16 fleet. It was an admission that the service's long professed program of record of 1,763 F-35As may be cut in the coming years.

The service has said little about the study since Kendall has come into office, leaving its ultimate impact or outcome unknown. Perhaps the FY23 will give a glimpse of whether a major overhaul of the Air Force's fighter programs is to come.

Congress Got Tough On The F-35

As the Air Force internally debated how many F-35s it needs, lawmakers made clear that they are exasperated with the cost of operating and maintaining the F-35. House Armed Services Committee chairman Rep. Adam Smith called the program a "rathole."

Of particular concern was an ongoing shortage of the jet's Pratt & Whitney F135 engine, which some lawmakers said was the reason to potentially seek out a new engine supplier. All of this coalesced in a FY22 defense policy bill that imposes cost constraints on the program, potentially limiting the number of F-35s the Air Force, Navy and Marine Corps can buy and operate in the late 2020s.

Proposed E-7A Wedgetail Buy Gained Momentum

Air Force officials have long whispered about the possibility of buying the E-7A Wedgetail airborne early warning plane to replace its aging E-3 AWACS fleet, but the idea seems to be gaining traction.

Mike Manazir, Boeing's vice president for defense business development, said he's "very confident" the Air Force would buy the plane, telling reporters at the Dubai Airshow in November to expect an announcement from the service in 2022.

In other words, when the FY23 budget comes out next year, check to see whether the Wedgetail has gotten its first procurement dollars.

Congress Actually Allowed The Air Force To Retire Aircraft

For the past several years, the Air Force has tried to free up funding by retiring some of its oldest and most difficult to maintain aircraft, and its FY2022 budget request was no exception. In it, the service proposed retiring more than 200 aircraft, including: 42 A-10 Warthogs, 47 F-16C/Ds, 48 F-15C/Ds, 14 KC-10s, 18 KC-135s, 13 C-130Hs, four E-8 JSTARS aircraft and 20 RQ-4 Global Hawk Block 30 surveillance drones.

Typically, Congress only allows a fraction of the Air Force's proposed divestitures to actually be retired. However, the FY22 National Defense Authorization Act breaks with tradition by allowing the service to mothball all the aircraft it requested, with one exception: the A-10 Warthog. This could mean that the Air Force is making inroads with lawmakers, having adequately conveyed the importance of taking some near-term risk to help fund game changing technologies to be fielded down the road.

The Army fought to balance new capabilities with tight budgets: 2021 In Review

New capabilities that will transform an Army balancing tight budgets in 2021.



Soldiers from the 82nd Airborne Division take part in an IVAS-enabled air assault exercise on Nov. 3, 2021, on Yuma Proving Ground, Arizona, as part of Project Convergence 21.
(Sgt. Jacob Lang/U.S. Army)

By ANDREW EVERSDEN on December 27, 2021 at 2:11 PM

WASHINGTON: This past year was a nervous one for the Army, as Defense Department priorities shifted towards platforms needed in the Pacific, leaving the Army as the potential bill payer. So it's no surprise Army leaders spent much of 2021 talking up their role in countering China while continuously warning of the damage further budget cuts could do to the service's multi-billion dollar modernization programs.

Despite budget fears, the service managed to keep modernization efforts moving ahead. Its annual Project Convergence experiment in Arizona taught the service — and broader joint force — that bandwidth constraints could be a limiting factor on the networked battlefield. Its new secretary outlined the land force's role in the Pacific theater, while leaders also defined how new robots and artillery will change Army formations.

I am new to the Army beat, so what follows are a potpourri of stories from fellow Breaking Defense reporters who covered the service this year, including Sydney Freedberg, now a senior columnist here, and the now-Australian Colin Clark.

So Many Stories About The Army's Budget

Bloodletting. Hard Choices. Almost impossible choices. No more fruit in the budget tree. Fragile modernization programs. There isn't just one Army budget story we wrote this year that stands out. It's the story of the year.

With decreasing defense budgets expected in the future, Army officials warned all year of the strain that deep budget cuts would put on the service. The Army is currently modernizing its arsenal of weapon systems, but is walking a delicate line trying to protect those programs while maintaining its end strength and readiness levels. The Biden administration's fiscal year 2022 budget request dropped the service from \$176.6 billion to \$173 billion over the FY21 enacted levels, a \$3.6 billion cut. Future cuts are expected, with leadership warning that modernization priorities are at risk — and the service is currently analyzing the “fundamental questions” of the Army

Networks as the new ‘center of gravity’

The Pentagon made a major push in 2021 to connect sensors and shooters across the services, an effort called Joint All-Domain Command and Control, to prepare for the networked battlefield it envisions in 2030 and beyond. The Army's contribution is called Project Convergence, an annual event at Yuma Proving Ground, Ariz. While the Army this year boasted of major improvements in connecting previously disconnected systems, it learned that on the networked battlefield, it would have to make tradeoffs between capability and bandwidth. For example, why push a live video feed that eats up bandwidth through to soldiers if a still photo provides equal value? How do you prevent aerial assets from eating up bandwidth and providing useless information? These are questions that came out of Project Convergence 21. How the Army tries to answer them will set the stage for what comes next.

Carving out a role in the Pacific

A lingering question for the Army in a year that saw the US end the war in the Afghanistan and pivot to focus on Russia and China was: what is the service's role in the Pacific? In a December speech at CSIS, Army Secretary Christine Wormuth laid her answer to that question, describing the service as the “linchpin” for the Joint Force. The Army, Wormuth argued, will build and defend bases, providing command and control for the broader military, and sustain supply lines across the Indo-Pacific. Offensively, the service would be in a position to use its modernized repertoire of new long-range strike capabilities and counterattack in the event of an enemy incursion.

Getting ambitious about robots and modernized vehicles

One of the Army's modernization priorities is developing Next-Generation Combat Vehicles. Earlier this year, my esteemed colleague Sydney Freedberg provided in-depth details of the blistering pace the Army plans for development of its fleet of future vehicles. The Army is currently planning a major field experiment — scheduled at Ft. Hood next June — featuring different variations of its robotic combat vehicles (RCVs), to inform the future of the program. Building off of RCV, the Army's Optionally Manned Fighting Vehicle program saw progress this year as the service chose five companies to move forward with that competition. Sydney reports that the Army will choose three companies to build prototypes in January 2023. Read this story for additional details on the Army's Mobile Protected Firepower and Extended Range Artillery Cannon.

Expanding long-range fires

The Army is developing a wide-range of new artillery capabilities — from long-barreled howitzers to hypersonic missiles. Its Extended Range Artillery Cannon that shoots twice as far as any other cannon means the Army is creating new battalions. It's all part of the Army's number one modernization priority — long range precision fires — as the service recalibrates to fight the Chinese or Russian military. Sydney took a deep dive into how the new artillery is impacting Army formations.

Hacks raised questions about Pentagon's role in securing cyber and networks: 2021 In Review

The military focused its efforts on networked warfare and the US government responded to cyberattacks.



Preston Dunlap, Air Force Chief Architect, briefs Department of Defense senior leaders on how the ABMS works during the first ever ABMS live demonstration at Eglin Air Force Base, Fla., Dec. 18, 2019. (File)

By ANDREW EVERSDEN on December 28, 2021 at 8:10 AM

WASHINGTON: As 2021 passed, the military continued its march toward digital and interconnected warfare. But a series of cyberattacks highlighted the perils that the Pentagon faces in networked warfare.

Below are the biggest network and cybersecurity stories that Breaking Defense covered for its readers this year, from cloud computing contracts to continued fallout from a 2020 hack to a ransomware attack on critical infrastructure.

Can I get, can I get a connection?

The Pentagon's biggest initiative — or at least its most constantly talked about — was its effort to connect sensors and shooters to achieve Joint All-Domain Command and Control, an initiative guided by the Joint Chiefs of Staff. JADC2 is how the Pentagon's envisions fighting wars in the future against a near-peer in China and Russia: a networked battlefield in which disparate systems are passing unprecedented amounts of data to help inform commanders. Each service has its own effort: the Air Force's Advanced Battle Management System, the Army's Project Convergence and the Navy's vague and un-transparent Project Overmatch.

This year the military learned just how hard it is to connect previously disconnected weapons systems — culminating at the Army's Project Convergence exercise in Yuma, Ariz. These efforts will only continue to ramp up next year as the services continue to spend big money to connect weapons systems. They talked about it a lot this year. Just look at all those links.

Pentagon invokes Order 66 and kills JEDI, hopefully ending all future Star Wars references

No year in review is complete without an in memoriam section. And in 2021, the defense contracting world lost its long-running melodrama, the Joint Enterprise Defense Infrastructure cloud effort, after the Pentagon killed the contract in the face of an endless court saga with no clear outcome in sight. After a delayed acquisition process from 2017-2019, the Pentagon awarded the single vendor, enterprise cloud contract worth up to \$10 billion to Microsoft over Amazon Web Services in what was widely considered an upset. AWS almost immediately protested the award in federal court, ultimately leading the department to cancel the contract.

Out of the ashes of JEDI rose the Joint Warfighting Cloud Capability, a multi-vendor, multi-cloud enterprise contract that will, at least in theory, fulfill the department's enterprise cloud needs. The department recently announced that it sent solicitations to Microsoft, AWS, Oracle and Google.

Colonial Pipeline hack

The ransomware attack on the Colonial Pipeline caused major disruptions and chaos up and down the East Coast, previewing of the consequences of a major cyberattack on US critical infrastructure. Experts said that the Colonial Pipeline cyberattack represented the greatest cyberattack on US critical infrastructure. The attack, carried out by a Eastern European-based cybercriminal group called DarkSide, renewed calls by experts to increase cybersecurity funding for the nation's critical infrastructure. It also raised questions about the government and military's role in protecting critical infrastructure.

Redefining Ransomware, Influence Ops As 'National Security' Threats

The aftermath of the Colonial Pipeline ransomware highlighted America's fragility in the event that its critical infrastructure was brought down by a cyberattack. The attack also raised questions of the role of US Cyber Command's role in responding to the attacks.

"When I was here two years ago, if someone asked me about ransomware, I would say that's criminal activity, and the FBI handles ransomware," CYBERCOM leader Gen. Paul Nakasone said in October. But now, "when ransomware affects critical infrastructure, it's a national security issue."

SolarWinds

Technically, news of a major breach of US government networks through a Texas-based IT company happened at the end of 2020, but the fallout continued throughout 2021. The SolarWinds hack, carried out by Russian intelligence as part of a cyberespionage campaign, breached both US government networks as well as contractors. The 2021 fallout saw the NSA urge industry to adopt zero-trust cybersecurity measures and increased calls for government and industry collaboration on cybersecurity. As part of the government's response, President Joe Biden signed a wide-ranging executive order earlier this year to bolster federal cybersecurity. Microsoft warned in October that the hackers that carried out the SolarWinds operation are at it again.

Combined, the Colonial Pipeline, SolarWinds and ongoing ransomware efforts have forced the Pentagon to grapple with questions about what its role should be when it comes to protecting America in cyberspace. It's not a question easily answered; expect the department to continue to grapple with it in 2022.

Letting the subs go by, letting the budget hold me down: 2021 In Review

The Year That Was for the U.S. Navy.



Navy Secretary Carlos Del Toro published his new strategic guidance in October. The Navy's goals are the same as they ever were. (U.S. Air National Guard / Ryan Campbell)

By JUSTIN KATZ on December 28, 2021 at 10:14 AM

WASHINGTON: One song comes to my mind when I consider what 2021 has meant for the US Navy: “Once in a Lifetime,” by the Talking Heads. The famous refrain from that tune being: “Same as it ever was, same as it ever was.”

Before I dwell on that thought, a confession. I came to Breaking Defense during the summer, but prior to that I had taken a hiatus from the Navy beat to report on cybersecurity. While that meant I wasn’t paying quite as much attention to the Pentagon for the first several months of 2021, it did give me the chance to return to this beat with fresh eyes. When I returned, my discussions with sources and others mostly amounted to catching up on issues.

That brings me back to the Talking Heads. As I understand it, “Once in a Lifetime” is primarily about how we go through the motions of daily life without always questioning why we do what we do. We end up with a “large automobile” or “a beautiful house” because that is society’s expectation, but did we need or want either of those things?

None of this is to suggest the Navy or Marine Corps is absent minded, trotting along without thought. But it's hard to ignore that 2021 has been a year for the services where things were, largely, the same as they ever were. Whether as a result of lack of will or strength from Navy leadership, or because of direction from above, significant changes or pivots simply didn't happen in 2021.

For example, see this story about Navy Secretary's Carlos Del Toro "new" strategic guidance published in October. He touts his four "Cs": China, COVID, culture and climate change. I am not suggesting these pillars are misguided or ill-conceived, but is this really any different than what the Navy has been doing in recent years? I would argue no.

Another conversation I sought when I returned to the Navy beat was the ongoing struggle between the Navy's desires to proliferate unmanned systems in their fleet, matched against congressional concerns about whether the technology and strategy is wholly baked. The consensus I got from those in Congress, industry and elsewhere is the fight is the same as it ever was: the Navy's programs remain as ambitious as lawmakers will allow, but the narrative to explain that strategy is still not coherent enough to completely bring lawmakers aboard.

These issues may be a result of the first year for a new administration at the White House, at least indirectly. To date, the Navy has a confirmed secretary, a nominee for under secretary and no sight or hints about who may become the acquisition executive. At this same time during the Trump administration, Hondo Geurts was settling into his new office as acquisition chief for Navy Secretary Richard Spencer.

It is not my job to give hot takes about my beat; I go to great lengths to maintain a Rolodex of intelligent former Navy folks to do that for me. But my hot take about the Navy's progress this year on its many goals — China, unmanned, Columbia-class submarines — is that this has been a year of keeping things on track, but that's about it.

Lastly, it is my job as a reporter to give credit where it is due, so this is a hat tip to my colleague Valerie Insinna. Her piece correlating Air Force actions to Taylor Swift songs helped inspire the framing device for my own thoughts.

For national security space, running to stand still: 2021 In Review

US leaders this year faced difficult decisions against a backdrop of rapidly growing challenges from potential adversaries, and a booming commercial space sector that innovation-wise is leaving the Defense Department and the Intelligence Community in the dust.



By THERESA HITCHENS on December 28, 2021 at 1:22 PM

WASHINGTON: Saying it was a busy year in space is an understatement. National security leaders grappled with how to overhaul pretty much everything built up over the past 60-odd years — from doctrine to force structure, to classification of threat and capabilities, to integration with allies, to acquisition processes.

All that churn was set to a backdrop of rapidly growing challenges from potential adversaries, and a booming commercial space sector that, innovation-wise, is leaving the Defense Department and the Intelligence Community in the dust.

Indeed, perhaps the most spectacular stories of the year were the test by China of a new through-space weapon (the parameters of which remain murky due to secrecy in both Washington and Beijing) and Russia's almost unbelievably callous destruction of a satellite in Low Earth Orbit (LEO) at an altitude where the resulting debris now threatens the crews, including their own cosmonauts, aboard the International Space Station.

Both actions rattled the White House, the Pentagon and Congress. The Russian anti-satellite (ASAT) test in particular, because of the potential for subsequent harm from its debris field, was roundly denounced by Cabinet members attending the first Biden administration's meeting of the National Space Council, chaired by Vice President Kamala Harris on Dec. 1. The concern about the effects of space junk has led the Biden White House to push farther forward than any US administration in recent memory to set international norms against testing and use of destructive ASATs.

The build up of space and counterspace capabilities by Russia and China also arguably has put even more pressure on the barely two-year old Space Force to both step up the US game in space and move more rapidly to reduce the glaring, and long-standing, vulnerabilities in the national security space architecture.

For Chief of Space Operations Jay Raymond, it thus was a year of juggling competing priorities: the need to finalize a new organizational structure and cadre optimized to better confront a more complicated space environment; the imperative to find ways to better protect legacy satellite systems and capabilities; and the necessity of analyzing, planning and budgeting for tomorrow's (hopefully) less vulnerable more and sustainable ones.

On the latter task, Space Force's new Space Warfighting Analysis Center (SWAC) took its first steps toward crafting plans to put into place a more resilient architecture starting with missile warning; while the Space Development Agency moved out to contract for its first set of prototype satellites in LEO to populate its vision of a National Defense Space Architecture. That said, the US remains a very long way from fixing its current reliance on a few, very expensive, highly vulnerable military satellites for almost every key mission.

At the same time, Raymond has struggled with a risk-averse space acquisition culture characterized by a byzantine decision-making structure featuring multiple, overlapping fiefdoms — another legacy of the past that DoD seemingly is unable to shed, despite leaders recognizing it is no longer fit for purpose.

Meanwhile, Congress is still waiting for the Pentagon's long overdue plan to take just the first step in streamlining space acquisition: setting up a single space acquisition authority independent of the Air Force acquisition czar. By law, that has to happen by Oct. 1, 2022. The Biden administration has finally nominated Frank Calvelli to the post, but he will need to put on his racing shoes to catch up with congressional expectations.

The need for, and difficulty of, fixing space acquisition is linked to the foundational requirement for the Pentagon to clarify the roles and missions of the newest military service versus its sisters, particularly the Army — but just as importantly with the National Reconnaissance Office, the National Geospatial-Intelligence Agency, the Missile Defense Agency, and SDA. The flare up this past year over who is in charge of providing and buying space-based intelligence, surveillance and reconnaissance for tactical operations — including acquiring cheaper and rapidly proliferating commercial capabilities — is only one example of the wider roles and missions debate that as yet remains unresolved.

Meanwhile, US Space Command leader Gen. James Dickinson also was busy reorganizing and rethinking how space operations will be both best utilized and better protected in future wars, which under the new Joint Warfighting Concept (JWC) will be all about connectivity. A key question continuing to bedevil his team is how SPACECOM can and should integrate Space Force, Army, Navy and Air Force personnel and kit into components in support of both its own combat needs and those of the other combatant commands.

SPACECOM also took steps to figure out how to better work with allies and partner nations, looking to actually bring them into requirements planning rather than relying on duct tape and glue to slap together forces in crises operations. Those efforts, too, faced obstacles because of strict space classification policies and processes that also seem to be writ in stone despite widespread pressure from Pentagon leaders to revamp them — efforts led by long-time milspace champion Gen. John Hyten, who just retired as vice chair of the Joint Chiefs of Staff.

Indeed, Hyten's retirement represents something of an end of an era for national security space. He was involved (often in or very near the driver's seat) through the multiple past reorganizations of DoD space: the creation of the first Space Command in 1985; its 2002 dismantling and the shift in operational responsibility to Strategic Command; SPACECOM's stand up in August 2019; the various reorganizations of acquisition structures at DoD and under Air Force Space Command; and the creation of the Space Force on Dec. 20, 2019. Hyten also spearheaded the implementation of the JWC, and the development of the baseline requirements for the accompanying Joint All Domain Command and Control (JADC2) strategy for which space is a key enabler.

Hyten used the last months of his service to chide DoD and Congress for not moving fast enough in what he clearly sees as a heated race to stay ahead of America's potential adversaries in space. His frank frustration sums up, in a way, a year marked by a lot of running — without much ground visibly gained.

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Section 2:
2022: Looking Ahead

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For the Army, looming budgets and multi-domain everything: 2022 Preview

Here's the key Army storylines we'll be tracking at Breaking Defense next year.



We're diving into the 2022 storylines. (Photo by Army National Guard Sgt. Joshua A Syberg)

By ANDREW EVERSDEN on December 29, 2021 at 8:42 AM

The word of the year for the Army is “budget.” The buzzword (buzzphrase?) of the year is “multi-domain operations.”

But while senior leaders exhausted their talking points on those topics this year, next year could be the year we start to see what all the hullabaloo was all about.

Here are the 2022 storylines we at Breaking Defense are watching for the Army next year.

It's All About The Money

If 2021 was a year that Army leaders warned of deep cuts hurting priority programs, 2022 could be the year the service starts to see those impacts.

At a conference in September, Secretary of the Army Christine Wormuth said the service will “have to look really carefully” at its 31+4 modernization programs as the service develops its fiscal 2023 budget request, which will likely come out early next year.

“There are definitely, I think, going to be more tough choices ahead. But we’re also looking, you know, we’re trying to find savings wherever we responsibly can and also try to be innovative in terms of how we’re managing the many demands on our budget,” Wormuth said at the Defense News conference.

Furthermore, Wormuth revealed in November that the service started an analysis exploring the “fundamental questions” of the Army — how it fights, where it fight, what capabilities it needs to fight, including deep evaluation of its 31+4 modernization priority programs.

Leaders warned this year that significant budget cuts could harm the Army’s broad modernization programs — ranging from hypersonic weapons to augmented reality goggles. Army Chief of Staff Gen. James McConville highlighted in November that 24 of the Army’s 35 modernization programs will be in prototyping in fiscal 2023. Budget cuts risk slowing progress on those programs already in prototyping, while funding slashes also threaten longer term modernization projects — like future vertical lift programs or next generation combat vehicles — that don’t field to soldiers until close to the end of the decade.

Networking With Allies

Another story to watch in 2022 is that Army’s path toward the its annual sensor to shooter exercise called Project Convergence. Project Convergence is the Army’s contribution to Joint All-Domain Command and Control, but McConville loves to add an additional “C” to the front of the acronym, Combined Joint All-Domain Command and Control, to emphasis the Army fights as a combined force with allies and partners.

To do that, the Army’s systems must also connect with allies’ systems. So next year, Project Convergence will include allies and partners, likely starting with Five Eye nations, as it aims to develop networked systems that not only integrate into the joint force but also with allied systems.

After 2022 highlighted challenges with integrating situational awareness platforms within the joint force and bandwidth constraints, it will be interesting to see what comes out of the Army’s adventure in the Yuma desert with allies next year.

The Future Of War-Fighting

The Army has spoken of multi-domain operations in competition and conflict with China or Russia for several years. But next summer, the service’s revised foundational document — Field Manual 3-0 — should be release to reflect multi-domain operations.

In my colleague Colin Clark’s preview last summer, the new field manual will likely formally recognize in service doctrine that the Army isn’t operating in “peace,” but rather in constant “competition” with peers in Russia and China.

The document will likely also contain changes to the service’s formations at the corps and division level to make the service more effective in the multi-domain fight.

High-Dollar Vehicle Competition

The Army plans to award a new contract for its Joint Light Tactical Vehicle program in the fourth quarter of fiscal 2022, potentially worth \$6.5 billion.

Incumbent JLTV manufacturer Oshkosh Defense has built 14,000 JLTV’s so far and recently was awarded another task order for 1,600 more vehicles. The contest is one that GM Defense, recently re-established by its parent company and looking to rack up wins, has on its target list. Oshkosh believes it has a good chance of winning given the sheer amount of JLTVs its made so far.

The contract winner will deliver about 17,000 JLTVs and 10,000 trailers. The final RFP is scheduled to come out in late January.

The Pentagon's new strategy might already be behind the times: 2022 Preview

A Russian invasion of Ukraine could derail the Defense Department's planning.



The Pentagon has big work ahead of it in 2022, with the release of a new National Defense Strategy planned for early next year. (US Army/Sgt. 1st Class Marisol Walker)

By VALERIE INSINNA on December 29, 2021 at 11:02 AM

WASHINGTON: What big changes can the Pentagon anticipate in 2022? To paraphrase James Carville, “it’s the National Defense Strategy, stupid.”

The 2018 National Defense Strategy clearly articulated that China was the United States’ biggest strategic threat, and stated that the Defense Department must take action to modernize the force and regain its technical edge in order to deter and — if all else fails — win a conflict against Beijing. There was just one problem: The strategy never truly got implemented, as domestic politics and a global pandemic overtook plans to reform the military.

Now, about a year after President Joe Biden took office, the department is on track to release a new strategy in early 2022. The big questions: How are his administration’s defense priorities different from those of the Trump administration? What kind of rhetoric does the strategy contain pertaining to China, and what should the department do differently to deter and beat China? What roles and objectives should the US have in the Middle East, now that forces have exited Iraq and Afghanistan?

Finally, and most importantly, what does the department need to do to implement its strategy, and what changes to the military's modernization plans are necessary to make that happen? One major tell will be the fiscal 2023 budget: Will the services advocate for substantial shifts, such as divesting force structure, canceling programs that no longer support US strategy, and starting new ones that do? Or will it be just more of the same?

Earlier this month, Mara Karlin, who is performing the duties of deputy undersecretary of defense for policy, characterized the new strategy thusly: "We will in many ways focus on getting after the China challenge while ensuring that we are responsibly working with our closest allies and partners to deal with many of the other challenges we also see metastasizing and shifting and not going away."

Obviously, that statement doesn't give a lot away, and the devil will be in the details.

Two other major studies due to be released next year — the Nuclear Posture Review and Missile Defense Review — could also lay the groundwork for greater transformation, especially if the administration backs a reduction in US nuclear armaments or proposes delaying ongoing modernization efforts like the Ground Based Strategic Deterrent program for replacing current intercontinental ballistic missiles.

Of course, all of that policy and strategy could be upended if Russia creates a more immediate geopolitical crisis by invading Ukraine, a move US intelligence sources have reportedly indicated could happen as soon as early next year. As of the writing of this story on Dec. 22, tensions are high, with The New York Times reporting that the US and UK have dispatched cyber experts to Ukraine, in an effort to blunt cyberattacks the countries believe could be delivered by Russia in the near future.

And with the Omicron variant of coronavirus spreading, the military will continue to be challenged to maintain readiness during the ongoing COVID-19 pandemic. The services have begun kicking out servicemembers who have refused to get vaccinated, but it remains to be seen how aggressive the department will be in implementing a vaccination mandate for federal contractors; that order is currently in limbo after a federal judge issued an injunction, but several defense contractors — most notably Huntington Ingalls Industries — have said that they will not mandate the vaccine for all of its workforce.

Meanwhile, the Army on Dec. 21 announced it has developed a single vaccine that appears to be effective against all COVID variants. That could have huge implications, not just for the US military, but for populations worldwide.

Another big priority for the department is the issue of climate change, which Defense Secretary Lloyd Austin has called an "existential threat" for US national security. Over the past year, the Pentagon has put out several reports — such as the climate risk analysis and climate adaptation plan — laying out the effects of climate change on the military and putting forward recommendations on how to cut the department's own carbon footprint. In 2023, we hopefully will see whether any of that analysis has teeth.

Finally, the midterm elections could generate further turmoil in Congress that could make it even more difficult for lawmakers to pass the FY22 appropriations bill, move forward with the FY23 defense policy and budget bills and confirm the list of nominees for key defense leadership positions — where the Pentagon already has a number of nominees stalled out over partisan holds.

Republicans have shown they are effective at holding the line versus the Democrats razor-thin majority. With a strong chance to flip both chambers in November and members fleeing Washington to hit the campaign trail over the course of the year, it's hard to envision a scenario where Congress works more effectively, and not less, than in 2021.

2022 will set the stage for whether the Biden administration can actually make meaningful changes for the Pentagon's budget and policy. No matter what decisions come out of the department, one thing is clear: Expect fireworks.

For Space Force, it's acquisition, acquisition, acquisition: 2022 Preview

In 2022, the Pentagon will need to see real movement on acquisition reform to reduce long understood vulnerabilities that have been essentially ignored for many years.



Lockheed Martin's Next Generation Overhead Persistent Infrared Geosynchronous Earth Orbit (NKG) Block 0 early missile warning satellite.

By THERESA HITCHENS on December 29, 2021 at 1:12 PM

WASHINGTON: Of all the moving and shaking (not to mention shenanigans) likely to happen next year in military space, acquisition reform will be the one key topic to keep the keenest eyeballs on. As is often the case in governance, process will be a big factor in setting policy.

Change is being set in motion now by Air Force Secretary Frank Kendall, who is no stranger to Defense Department acquisition problems. How fast and how far those changes will go is anyone's guess, especially as Congress will need to be firmly on board for anything at all to happen. And up to now, the Department of the Air Force has not always acquitted itself well with Capital Hill in regard to transparency.

In particular, acquisition reform will be needed to allow what will be, under the best of circumstances, a painful and expensive overhaul of the Pentagon's satellite and space system architecture aimed at reducing long understood vulnerabilities that have been essentially ignored for many years.

To build a resilient force structure, Space Force leaders want to develop what they are calling a “hybrid architecture,” mixing small constellations of large, exquisite and expensive military satellites with large constellations of smaller, less costly-but-still-bespoke satellites dispersed into a variety of orbits. Creating that architecture — which would include commercial space systems and services — will not be easy, nor cheap. If it was, even the hidebound and byzantine space acquisition bureaucracy would have done it already.

One factor that will set the direction of future acquisition and the pace of movement toward resilience is the fate of the Space Development Agency. By law, SDA has to be integrated into the Space Force (it was created under DoD's Research & Engineering office) by Oct. 1, 2022. The questions will be how that integration actually ends up happening.

In particular, new space acquisition executive and former NRO deputy Frank Calvelli (assuming he is confirmed) will need to manage SDA's approach to rapidly iterating prototypes for new satellites and ground systems, while at the same time figuring out how to turn those prototype systems into “real-boy” programs of record without stifling that innovation. And of course, the 2023 budget for SDA will be an indicator of which way the wind is blowing.

Another touch point for determining how serious Space Force is about resiliency will be the effort to develop new missile satellites under the Next Generation Overhead Persistent Infrared (Next-Gen OPIR) program. Budgeted at \$14.5 billion through 2025, the program already faces congressional skepticism, even as Space Systems Command ponders whether to change course and augment the currently planned constellation of five birds — three in Geosynchronous Orbit (GEO) and two in elliptical polar orbits — with a set of satellites in Low and/or Medium Earth Orbit.

A related question is how Next-Gen OPIR fits in with SDA's plans for new missile warning/tracking satellites in LEO (carrying a sensor developed by the Missile Defense Agency) that can better keep tabs on highly maneuverable hypersonic missiles. Figuring out the future missile warning and tracking architecture was the first effort of the new Space Warfighting Analysis Center (SWAC), but the results remain classified. The fiscal year 2023 budget request, hopefully, will provide some clues.

Watching the Navy's words vs its actions in the Indo-Pacific: 2022 Preview

The Pentagon has long talked up its pivot to the Indo-Pacific. What does that actually look like?



The Gabrielle Giffords (LCS 10) patrols in the South China Sea in 2020 with the Naval Strike Missile mounted. (Photo via the US Navy)

By JUSTIN KATZ on December 30, 2021 at 7:44 AM

WASHINGTON: Long before an Army two-star general boarded the last United States military aircraft leaving Afghanistan this summer, there was already a growing political consensus about the strategic importance of shifting America's focus away from the Middle East and towards countering China — part of an overall pivot to the Indo-Pacific.

The question, then, is what this much-ballyhooed pivot will look like practically, and specifically for the US Navy. After two decades of the US military being focused mostly on the desert environments of the Middle East, what will it mean for the sea services — Navy, Marines and even Coast Guard — to turn their attention wholly to places such as the South China Sea?

In this Navy reporter's opinion, the transformation (or lack thereof) that the sea services make in light of the country shifting its attention away from the Middle East and to the Indo-Pacific will be the biggest news story to watch in 2022.

If you ask Navy or Pentagon officials what this pivot looks like, they will tell you that it has already begun, and that through both words and action, the military is preparing itself for a range of possibilities. The most pressing possibility that comes to mind is what happens if China were to invade Taiwan, a situation that feels more plausible than it has in recent history.

What would that look like for the US military? The Navy occasionally announces freedom of navigation exercises in the South China Sea, which often contain interactions with Chinese military forces attempting to assert their territorial claims. In the build up to a more direct confrontation with China, would these interactions become more frequent or aggressive? Would the Navy's already high operational tempo for its fleet increase even further with more vessels deployed forward to Japan?

Alternatively, short of a direct confrontation with China, the changes may be more subtle. The Pentagon's recently published Global Posture Review — or at least, the few unclassified elements the military discussed with the media — did not seem to make any significant force structure changes, despite claiming to be focused on China.

During the confirmation hearing for Adm. Chris Grady to become the vice chairman of the Joint Chiefs of Staff, lawmakers took note. Sen. Josh Hawley, R-Mo., asked Grady if he was concerned the review did not mention a single region in which the US military should withdraw resources or decrease its activities. Grady's answers mostly deferred on Hawley's questions, praising the GPR's process rather than examining its results.

This reporter will not make predictions about China's intentions toward Taiwan or what a realistic, large-scale combat operation in the South China Sea would look like. Smarter individuals in the Pentagon and elsewhere are doing just that, and are far more qualified to do so. But as a reporter, my job is to listen to what is said and then compare it to what happens.

Comparing the Pentagon's words about the Indo-Pacific and their actions in the region will be my top story for 2022.

It's 'delivery time' on JADC2: 2022 Preview

It's unclear how much the Pentagon is spending on JADC2 and it needs to provide examples of progress next year.



The Army's Joint Systems Integration Laboratory hosted its second communications exercise (COMMEX 2) at Aberdeen Proving Ground April 5-16. (Kaitlin Newman/US Army)

By ANDREW EVERSDEN on December 30, 2021 at 9:45 AM

WASHINGTON: Last June, the three-star general in the Pentagon overseeing the services' efforts to breathe life into Joint All-Domain Command and Control had a message on a call with reporters: "It's delivery time."

So as the Department of Defense in 2022 continues to spend opaque billions trying to connect sensors to shooters, we will be on watch for a string of tangible, specific wins that the Pentagon and the services can point to show progress on what's shaping up to be its biggest modernization push in decades.

"This really starts our work. It's now implementation time," Lt. Gen. Dennis Crall, CIO/J6 of the Joint Chiefs of Staff, told reporters in June shortly after Secretary of Defense Lloyd Austin signed the JADC2 strategy. "Planning is good. Talk is good. Now it's delivery time, and we've been given a clear signal to begin pushing these outcomes to the people who need them."

The military services' are working individually on their own contributions towards Joint All-Domain Command and Control. The Army has its Project Convergence, the Air Force is developing its Advanced Battle Management System and the Navy has its highly classified Project Overmatch. The efforts are guided by the Joint Chiefs of Staff, but the high-ranking officials at that organization are not involved in the day-to-day efforts on building out JADC2.

2021 saw the completion of the JADC2 strategy and its accompanying implementation plan, which, as of late November, was sitting on Deputy Secretary of Defense Kathleen Hicks' desk. As of publication, it doesn't appear that document has been signed out; with DoD spokesperson Eric Pahon telling Breaking Defense that the deputy secretary's office has "nothing to provide" on the JADC2 implementation plan.

While the details of the implementation plan are largely classified, Army Brig. Gen. Rob Parker, director of the JADC2 Cross-Functional Team, highlighted the seven minimum viable products that JADC2 will deliver on first: cloud capabilities; DevSecOps software development environment; zero-trust cybersecurity, network transport layer; assault breaker II, an anti-access/area denial capability; mission partner environment; and Identity, Credential and Access Management, or ICAM.

Parker highlighted progress on ICAM and mission partner environment earlier this year. But there are a few areas that the department is struggling to find solutions. The first is zero-trust cybersecurity; the military is having a difficult time finding zero-trust cybersecurity capabilities that will work in the chaotic battlefield environment.

As for cloud, the department (finally) killed its Joint Enterprise Defense Infrastructure and replaced it with a new enterprise cloud contract called the Joint Warfighting Cloud Capability, a new multi-vendor enterprise cloud that will aim to provide network connection from the battlefield back to the Pentagon and enable JADC2. Contracts for JWCC are supposed to be awarded in April.

Next year, the department will also have to continue to work out its challenges with federated mission networking to allow disparate networks to draw information from the same resource pool. And it will continue to grapple with data standards.

As Army leaders highlighted at Project Convergence this year, the services and Joint Staff have loads of work to do to connect each individual services' Common Operating Picture — which provides commanders an overview of the battlefield — into one standardized picture for the joint force. The department will likely continue to run into similar problems with countless platforms.

The challenge of covering JADC2 is that it's hard to know how much money the Defense Department is spending on it every year. Almost every program has an "all-domain" tagline. No budget line for JADC2 exists.

Congress has deeply slashed the Air Force's ABMS, citing lack of clarity around the program. The Navy rarely speaks publicly about its Project Overmatch and said its funding is classified across four budget lines. The Army, at least, provides some clarity around its spending on modernization efforts and hosts a media day for its Project Convergence.

That lack of public clarity isn't slowing things down, with the department poised to push more money into the JADC2 effort moving forward. This year, the Pentagon created an additional fund, called the Rapid Defense Experimentation Reserve, to provide money towards promising technology that could further JADC2.

The unknown but likely increasing amount of money spent on JADC2 further brings into focus the fact that there isn't an individual person or office to hold accountable for wrongdoing, wastefulness or failure on Joint All-Domain Command and Control. We'll see what progress the department makes on the effort next year.

Managing China, whether through threats or talk: 2022 Preview

Expect the political battle over the island nations like Fiji or the Solomons to be a big part of Chinese-American geopolitics in the new year.



Multinational navy ships and a submarine steam in formation during a group sail off the coast of Hawaii during RIMPAC 2020. (File)

By COLIN CLARK on December 30, 2021 at 11:44 AM

MELBOURNE: There are few left in the Indo-Pacific outside of the People's Republic who believe China is a benevolent power intent on complying with and enhancing international law and bolstering its neighbors.

The trend seems pretty clear: Beijing will deploy money, lots of verbal threats and weapons to get its neighbors to do what it thinks they should do, all while bolstering China's domestic economic situation.

How are the governments of the South China Sea and the Pacific behaving in the face of this conduct? We've seen Australia bind itself much more closely to the United States by enhancing ties through the AUKUS agreement. Two newspapers reported this week that Japan and the US have agreed to a plan to deal with a "Taiwan emergency." While neither government has confirmed the reports, the stories appear to be well sourced and are in reputable news outlets.

In the smaller states of the Pacific — much more vulnerable to blunt tools of influence than the Philippines, Vietnam, South Korea or Japan — the battle is more visible. Take Fiji, for example. In 2020, two Chinese diplomats reportedly attacked and seriously injured a Taiwanese delegate at the Grand Pacific Hotel, site of a celebration of Taiwan's national day. The government in Fiji did not take action, something seen as a kowtow to Beijing. In next year's likely elections, Fiji's former leader Sitiveni Rabuka may well take a different approach to current Prime Minister Frank Bainimarama, and push back against China's tentacular offers of cash and aid.

While Fiji may move away from Beijing, elsewhere in the region the PRC continues to find success. Riots erupted last month in the capital of the Solomons after its prime minister declared he would seek diplomatic relations with Beijing. On Christmas Eve, the island state declared Beijing will send a half-dozen officers to train the Solomons police in riot control and provide non-lethal assistance.

The question becomes how will America, along with its allies and partners, manage this fundamental conflict between China and other states in the region. The Five Eyes countries seem solidly opposed to China's efforts to change the liberal international order, embodied by the Treaty of Westphalia, the Geneva Conventions, the Nuremberg Convention and the United Nations. China has long argued it doesn't have to accept the boundaries of international law because it did not shape them or because they are not congruent with Chinese law.

China's position on the South China Sea seems to make US and allied diplomacy and military force the likeliest means to successfully influence the PRC. Although there have been several credible predictions that China may actually go to war against Taiwan within the decade, the US, Japan, Australia and other countries are taking actions to make clear to China that the cost of military action would be beyond the PRC's ability to sustain.

An intriguing signal lies in the just-passed National Defense Authorization Act, which urges the Biden Administration to invite Taiwan to take part in the next RIMPAC, the huge multinational exercise which in the past has included forces from Australia, Brunei, Canada, France, Japan, New Zealand, the Philippines, South Korea, Singapore and the United States. As recently as 2018, China itself had been invited to RIMPAC, but was disinvited that year because of its conduct in the South China Sea.

The Biden Administration and Congress seem intent on vigorously managing China's pressure on Taiwan and on the liberal international order. Australia, Japan and other allies seem intent on taking similar actions. Does that mean a greater emphasis on threats or on talks? That may depend more on China's actions than on Washington's planning.