

# Spurring an Endless Arms Race

The Pentagon Girds for Mid-Century Wars

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*Why is the Pentagon budget so high?*

*On March 13th, the Biden administration unveiled its [\\$842 billion](#) military budget request for 2024, the largest ask (in today's dollars) since the peaks of the Afghan and Iraq wars. And mind you, that's before the hawks in Congress get their hands on it. Last year, they added \$35 billion to the administration's request and, this year, their add-on is likely to prove at least that big. Given that American forces aren't even officially at war right now (if you don't count those [engaged in](#) counter-terror operations in Africa and elsewhere), what explains so much military spending?*

The answer offered by senior Pentagon officials and echoed in mainstream Washington media coverage is that this country faces a growing risk of war with Russia or China (or both of them at once) and that the lesson of the ongoing conflict in Ukraine is the need to stockpile vast numbers of bombs, missiles, and other munitions. "Pentagon, Juggling Russia, China, Seeks Billions for Long-Range Weapons" was a typical [headline](#) in the *Washington Post* about that 2024 budget request. Military leaders are overwhelmingly focused on a potential future conflict with either or both of those powers and are convinced that a lot more money should be spent now to prepare for such an outcome, which means buying extra tanks, ships, and planes, along with all the bombs, shells, and missiles they carry.

Even a quick look at the briefing materials for that future budget confirms such an assessment. Many of the billions of dollars being tacked onto it are intended to procure exactly the items you would expect to use in a war with those powers in the late 2020s or 2030s. Aside from personnel costs and operating expenses, the [largest share](#) of the proposed budget — \$170 billion or 20% — is allocated for purchasing just such hardware.

But while preparations for such wars in the near future drive a significant part of that increase, a surprising share of it — \$145 billion, or 17% — is aimed at possible conflicts in

the 2040s and 2050s. Believing that our “[strategic competition](#)” with China is likely to persist for decades to come and that a conflict with that country could erupt at any moment along that future trajectory, the Pentagon is requesting its largest allocation ever for what’s called “research, development, test, and evaluation” (RDT&E), or the process of converting the latest scientific discoveries into weapons of war.

To put this in perspective, that \$145 billion is [more than](#) any other country except what China spends on defense in toto and constitutes approximately half of China’s full military budget. So what’s that staggering sum of money, itself only a modest part of this country’s military budget, intended for?

Some of it, especially the “T&E” part, is designed for futuristic upgrades of existing weapons systems. For example, the B-52 bomber — at 70, the oldest model still flying — is being [retrofitted](#) to carry experimental AGM-183A Air-Launched Rapid Response Weapons (ARRWs), or advanced hypersonic missiles. But much of that sum, especially the “R&D” part, is aimed at developing weapons that may not see battlefield use until decades in the future, if ever. Spending on such systems is still *only* in the millions or low billions, but it will certainly balloon into the tens or hundreds of billions of dollars in the years to come, ensuring that future Pentagon budgets soar into the trillions.

## **Weaponizing Emerging Technologies**

Driving the Pentagon’s increased focus on future weapons development is the assumption that China and Russia will remain major adversaries for decades to come and that future wars with those, or other major powers, could largely be decided by the mastery of artificial intelligence (AI) along with other emerging technologies. Those would include robotics, hypersonics (projectiles that fly at more than five times the speed of sound), and quantum computing. As the Pentagon’s 2024 budget request put it:

“An increasing array of fast-evolving technologies and innovative applications of existing technology complicates the [Defense] Department’s ability to maintain an edge in combat credibility and deterrence. Newer capabilities such as counterspace weapons, hypersonic weapons, new and emerging payload and delivery systems... all create a heightened potential... for shifts in perceived deterrence of U.S. military power.”

To ensure that this country can overpower Chinese and/or Russian forces in any conceivable encounter, top officials insist, Washington must focus on investing in a major way in the advanced technologies likely to dominate future battlefields. Accordingly, \$17.8 billion of that \$145 billion RDT&E budget will be directly dedicated to military-related science and technology development. Those funds, the Pentagon explains, will be used to accelerate the weaponization of artificial intelligence and speed the growth of other emerging technologies, especially robotics, autonomous (or “unmanned”) weapons systems, and hypersonic missiles.

Artificial intelligence (AI) is of particular interest to the Department of Defense, given its wide range of potential military uses, including target identification and assessment, enhanced weapons navigation and targeting systems, and computer-assisted battlefield decision-making. Although there’s no total figure for AI research and development offered in the unclassified version of the 2024 budget, certain individual programs are highlighted. One of these is the Joint All-Domain Command-and-Control system (JADC2), an AI-enabled

matrix of sensors, computers, and communications devices intended to collect and process data on enemy movements and convey that information at lightning speed to combat forces in every “domain” (air, sea, ground, and space). At \$1.3 billion, JADC2 may not be “the biggest number in the budget,” [said](#) Under Secretary of Defense Michael J. McCord, but it constitutes “a very central organizing concept of how we’re trying to link information together.”

AI is also essential for the development of — and yes, nothing seems to lack an acronym in Pentagon documents — autonomous weapons systems, or unmanned aerial vehicles (UAVs), unmanned ground vehicles (UGVs), and unmanned surface vessels (USVs). Such devices — far more bluntly called “[killer robots](#)” by their critics — typically combine a mobile platform of some sort (plane, tank, or ship), an onboard “kill mechanism” (gun or missile), and an ability to identify and attack targets with minimal human oversight. Believing that the future battlefield will become ever more lethal, Pentagon officials [aim to replace](#) as many of its crewed platforms as possible — think ships, planes, and artillery — with advanced UAVs, UGVs, and USVs.

The 2024 budget request doesn’t include a total dollar figure for research on future unmanned weapons systems but count on one thing: it will come to many billions of dollars. The budget does indicate that \$2.2 billion is being sought for the early procurement of MQ-4 and MQ-25 unmanned aerial vehicles, and such figures are guaranteed to swell as experimental robotic systems move into large-scale production. Another \$200 million was requested to design a large USV, essentially a crewless frigate or destroyer. Once prototype vessels of this type have been built and tested, the Navy plans to order dozens, perhaps hundreds of them, instantly creating a \$100 billion-plus market for a naval force lacking the usual human crew.

Another area receiving extensive Pentagon attention is hypersonics, because such projectiles will fly so fast and maneuver with such skill (while skimming atop the atmosphere’s outer layer) that they should be essentially impossible to track and intercept. Both China and Russia already possess rudimentary weapons of this type, with Russia [reportedly firing](#) some of its hypersonic Kinzhal missiles into Ukraine in recent months.

As the Pentagon put it in its budget request:

“Hypersonic systems expand our ability to hold distant targets at risk, dramatically shorten the timeline to strike a target, and their maneuverability increases survivability and unpredictability. The Department will accelerate fielding of transformational capability enabled by air, land, and sea-based hypersonic strike weapon systems to overcome the challenges to our future battlefield domain dominance.”

Another 14% of the RDT&E request, or about \$2.5 billion, is earmarked for research in even more experimental fields like quantum computing and advanced microelectronics. “The Department’s science and technology investments are underpinned by early-stage basic research,” the Pentagon explains. “Payoff for this research may not be evident for years, but it is critical to ensuring our enduring technological advantage in the decades ahead.” As in the case of AI, autonomous weapons, and hypersonics, these relatively small amounts (by Pentagon standards) will balloon in the years ahead as initial discoveries are applied to functioning weapons systems and procured in ever larger quantities.

## Harnessing American Tech Talent for Long-Term War Planning

There's one consequence of such an investment in RDT&E that's almost too obvious to mention. If you think the Pentagon budget is sky high now, just wait! Future spending, as today's laboratory concepts are converted into actual combat systems, is likely to stagger the imagination. And that's just one of the significant consequences of such a path to permanent military superiority. To ensure that the United States continues to dominate research in the emerging technologies most applicable to future weaponry, the Pentagon will seek to harness an ever-increasing share of this country's scientific and technological resources for military-oriented work.

This, in turn, will mean capturing an ever-larger part of the government's net R&D budget at the expense of other national priorities. In 2022, for example, federal funding for non-military R&D (including the National Science Foundation, the National Institutes of Health, and the National Oceanic and Atmospheric Administration) represented [only about 33%](#) of R&D spending. If the 2024 military budget goes through at the level requested (or higher), that figure for non-military spending will drop to 31%, a trend only likely to strengthen in the future as more and more resources are devoted to war preparation, leaving an ever-diminishing share of taxpayer funding for research on vital concerns like cancer prevention and treatment, pandemic response, and climate change adaptation.

No less worrisome, ever more scientists and engineers will undoubtedly be [encouraged](#)—not to say, prodded — to devote their careers to military research rather than work in more peaceable fields. While many scientists struggle for grants to support their work, the Department of Defense (DoD) offers bundles of money to those who choose to study military-related topics. Typically enough, the 2024 request includes \$347 million for what the military is now calling the University Research Initiative, most of which will be used to finance the formation of “teams of researchers across disciplines and across geographic boundaries to focus on DoD-specific hard science problems.” Another \$200 million is being [allocated](#) to the Joint University Microelectronics Program by the Defense Advanced Projects Research Agency, the Pentagon's R&D outfit, while [\\$100 million](#) is being provided to the University Consortium for Applied Hypersonics by the Pentagon's Joint Hypersonics Transition Office. With so much money flowing into such programs and the share devoted to other fields of study shrinking, it's hardly surprising that scientists and graduate students at major universities are being drawn into the Pentagon's research networks.

In fact, it's also seeking to expand its talent pool by providing additional funding to historically Black colleges and universities (HBCUs). In January, for example, Secretary of Defense Lloyd Austin announced that Howard University in Washington, D.C., had been [chosen](#) as the first such school to serve as a university-affiliated research center by the Department of Defense, in which capacity it will soon be involved in work on autonomous weapons systems. This will, of course, provide badly needed money to scientists and engineers at that school and other HBCUs that may have been starved of such funding in the past. But it also begs the question: Why shouldn't Howard receive similar amounts to study problems of greater relevance to the Black community like sickle-cell anemia and endemic poverty?

## Endless Arms Races vs. Genuine Security

In devoting all those billions of dollars to research on next-generation weaponry, the Pentagon's rationale is straightforward: spend now to ensure U.S. military superiority in the

2040s, 2050s, and beyond. But however persuasive this conceit may seem — even with all those mammoth sums of money pouring in — things rarely work out so neatly. Any major investment of this sort by one country is bound to trigger countermoves from its rivals, ensuring that any early technological advantage will soon be overcome in some fashion, even as the planet is turned into ever more of an armed camp.

The Pentagon's development of precision-guided munitions, for example, provided American forces with an enormous military advantage during the Persian Gulf Wars of 1991 and 2003, but also prompted China, Iran, Russia, and other countries to begin developing similar weaponry, quickly diminishing that advantage. Likewise, China and Russia were the first to deploy combat-ready hypersonic weapons, but in response, the U.S. will be fielding a far greater array of them in a few years' time.

Chinese and Russian advances in deploying hypersonics also led the U.S. to invest in developing — yes, you guessed it! — anti-hypersonic hypersonics, launching yet one more arms race on planet Earth, while boosting the Pentagon budget by additional billions. Given all this, I'm sure you won't be surprised to learn that the 2024 Pentagon budget request [includes \\$209 million](#) for the development of a hypersonic interceptor, only the first installment in costly development and procurement programs in the years to come in Washington, Beijing, and Moscow.

If you want to bet on anything, then here's a surefire way to go: the Pentagon's drive to achieve dominance in the development and deployment of advanced weaponry will lead not to supremacy but to another endless cycle of high-tech arms races that, in turn, will consume an ever-increasing share of this country's wealth and scientific talent, while providing negligible improvements in national security. Rather than spending so much on future weaponry, we should all be thinking about enhanced arms control measures, global climate cooperation, and greater investment in non-military R&D.

If only...

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