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# America's Military Is Choking on Old Technology

FP [foreignpolicy.com/2018/01/29/americas-military-is-choking-on-old-technology/](https://foreignpolicy.com/2018/01/29/americas-military-is-choking-on-old-technology/)

## Argument

As its rivals invest in new military hardware, Washington is stuck refurbishing obsolete equipment.



A U.S. Air Force 'Reaper' drone passes a C-130 cargo plane at an airbase in the Persian Gulf on Jan. 7, 2016. (John Moore/Getty Images)

In a seminal 1958 article, Edward Katzenbach wrote about how militaries had been determined to maintain large horse cavalry formations well into the 20th century — “a capacity for survival that border[ed] on the miraculous” — despite overwhelming evidence from World War I that a cavalry charge on the modern battlefield was ludicrous. In the words of the last U.S. Army chief of cavalry, who insisted on maintaining tactical horses in the face of armored vehicles, “When better roller skates are made, Cavalry horses will wear them.”

The U.S. military has come a long way since then — but there's still reason to believe it may be willing to put shiny new roller skates on horses. It's no secret that the Department of Defense is working to keep pace with rapid technology developments in the private sector. But the debate has focused mostly on the *acquisition* of technology. There is a paucity of discussion around the converse: innovative ways of *discarding* technology. But, absent a

concerted commitment, dismantling the obsolete aspects of America's existing force will likely be a larger challenge than building the force of tomorrow.

The current rate of technological change may make many current U.S. military systems obsolete in the coming decades. Advances in artificial intelligence, autonomous vehicles, material science, and nanotechnology threaten to produce qualitative — not just incremental — change in the conduct of warfare in the near future. Although the U.S. has spent far more on standing military forces than other countries, for far longer, this accumulated advantage is also a vulnerability. It presents an opportunity for Washington's international adversaries and competitors to reap the advantage of their backwardness and leapfrog the U.S. with emerging technology. This is exacerbated by the Pentagon's commitment to significant investment in existing systems, the proverbial "last year's model."

There are many hindrances to efficiently divorcing the U.S. military from old technologies. First, for technology to be widely adopted across an enterprise like the Pentagon, it needs to be woven into bureaucratic structures, which are inherently sticky. Recruitment and training of personnel for specialized skill sets, the development and implementation of standard operating procedures, costly facilities, maintenance, and other supporting investments are necessary to enable the use of technology. Further, bureaucracies often build their identities around technology, turning threats to the technology into threats to the organization's very essence. The resulting entities are often large, complex, and full of self-interested actors who seek to maintain and expand their bureaucratic realms. Once these organizations exist, they are extremely difficult to dismantle. Therefore, if a bureaucracy and its culture have been "purpose-built" around a particular technology, then it may be extremely difficult to nimbly leverage new technologies.

The revolution in naval architecture (wood to iron) and propulsion systems (sail to steam) in the late 19th century is a great example of this. Despite proving their value during the Civil War, steam-powered ironclads faced vociferous opposition in the 1870s from naval leadership, who sought to undermine these technologies and the new class of professional engineers associated with them. William McBride summarized this conundrum when he said, "Military hierarchies seek stability, and when a new technology challenges that stability, the reaction can be sharp and hostile." The Pentagon and the supporting defense industrial base's adverse reaction to the Third Offset Strategy underscored this dynamic.

New technology may also offend the romanticized values of a profession. One anonymous British observer, upon seeing an ironclad ship for the first time in 1861, bemoaned: "It is not to be supposed for a moment that our high-spirited youth of the aristocracy, and our race of seamen ... would practise a profession of butchery and destruction from behind iron walls ... Those who know any thing of sailors must see the charm of the life which animates them; and it is only surprising that any who confess their sympathy for the profession should be advocating the construction of engines (they cannot be called ships) devoted to all the grossness and barbarity of war, while they are deprived of every thing attractive to a sailor." The Pentagon has experienced a similar sentiment today with institutional pushback against drones. The Air Force and Navy continue to wrestle with recruitment, retention, and career

advancement within the drone operator community, due to among other factors, a preference toward the existing manned warplane community.

Compounding the challenge of cultural resistance is the fact that a set of external interest groups can accrue around the maintenance of a particular military technology. Major defense firms and lobbyists seeking profits and members of Congress seeking jobs in their districts ensure that legacy defense programs continue for years beyond their “state of the art” days. For these actors, replacing and upgrading existing systems with expensive new features (referred to as “gold-plating”) seems to be the safest way to satisfy their parochial interests.

Nick Kotz’s classic study of the B-1 bomber shows how major investment in military technology can be driven by such interests. Rather than adjusting investments to changing conditions (improved Soviet air defenses), older concepts (manned strategic bombers) were fitted with ever more extravagant technologies. Such dynamics also exist with the Trident submarine, MX missile, and even the F-35 Joint Strike Fighter. They run the risk of resulting in what Mary Kaldor coined a “baroque arsenal” of expensive and outdated platforms that bog down force structure. Simple logic dictates that a race to acquire new technology while simultaneously maintaining investments in obsolete technology will result in bankruptcy.

The private sector would suffer from the same affliction if it were not for the fact that markets help tear down old technologies as soon as new ones emerge. But that doesn’t happen nearly as efficiently in government bureaucracies. Since their work is not disciplined by commercial market forces, they allow ineffective technologies and the companies that support them to survive — and even thrive — simply due to their ability to navigate the political system. This is best exemplified by Defense contractors that build their technology platforms in numerous congressional districts. Given the political cost of potential job losses, these platforms and their associated jobs become difficult not only to eliminate but even to modify in a significant way.

Acquisition professionals in the Pentagon do not necessarily need to slash and burn their way through their existing technology, but they do need to commit to a strategy that recognizes the changing technological landscape and the threats it already poses. A senior official, whether it be the chief management officer or the new undersecretary for acquisition and sustainment, should be *specifically* charged with identifying obsolete technological investments and supporting their replacement. This does not need to be a zero-sum game where equipment is scrapped never to be seen, or replaced, again. As the National Defense Strategy makes clear, defense leaders can reduce institutional resistance by ensuring new technologies directly address existing missions. There are several notable examples of initiatives that do so, such as the Defense Innovation Unit – Experimental, SOFWERX, and the U.S. Army’s Asymmetric Warfare Group and Mad Scientist initiative. These specialized entities have been created to identify, vet, and integrate innovations from the emerging tech environment; a parallel effort needs to be focused on shedding obsolete technologies, as necessary.

Maintaining America’s military advantage is not just about acquiring the latest technology. It is about the people, organizations, and cultures that enable the technology. For such “tech divorces” to be successful, leadership needs to be mindful of those who will be affected.

Personnel will need to be retrained. Career incentives will need to be re-engineered. New organizational cultures will need to be cultivated to replace those that are threatened or destroyed. Outdated equipment may be repurposed or made available to partner nations, rather than simply scrapped. The key to navigating such a disruptive process is to be proactive, thoughtful, and — most importantly — strategic. Divorces are always disruptive, but they can — if managed — be purposeful.

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