COMMENTARY

Understanding and Challenging "The Digital Air Force" USAF White Paper

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Abstract

This short article is an examination, constructive critique, and epilogue to "The Digital Air Force" USAF White Paper. The article characterizes the white paper in terms of where it falls in a traditional stratification of guidance documents, categorizes the white paper in terms of international relations theory and philosophy, identifies and challenges four key assumptions, and concludes by suggesting that the paper's most important contribution is in its implied meaning for global warning intelligence. The four key assumptions challenged are that the world can best be understood as entering into phases of technological advancement as a coherent whole; that the most effective way for a military to win over great-power adversaries is to evolve its own capabilities in lockstep with the changing character of the technological landscape; that the best way to attack or defend an increasingly digital entity is with increasingly digital weapons and defenses; and that government-sourced innovation is appropriately equivocal with military technological advances.

Introduction

On Tuesday, 9 July 2019, Acting Air Force Secretary Matthew Donovan made comments accompanying the release of "The Digital Air Force" USAF White Paper, which is now publicly available.[1] Written outside of a traditional strategy or policy vehicle, the white paper characterizes how senior leaders conceive of the Air Force's current and future relationship with technology.[2]

This short article characterizes the white paper in terms of where it falls in a traditional stratification of guidance documents, categorizes the white paper in terms of international relations theory and philosophy, identifies and challenges four key assumptions, and concludes by suggesting that the paper's most important contribution is in its implied meaning for global warning intelligence.[3]

"The Digital Air Force" USAF White Paper falls squarely into the vision and guidance category.[4] It is in the same strategic class as purpose, intent, values, and interests; somewhere subordinate to national interests or dominant philosophical trends in the national intellectual character.[5] The paper contains some general objectives and also hints at some ends, ways, and means; however, it is not structured

to assign objectives to particular offices of primary responsibility, nor does it capture costs or risks associated with its proposed ways and means.

In terms of international relations theory, the writer(s) of the white paper take a primarily neorealist perspective, with a secondary bend toward futuristic constructivism. Thucydides' classical realism is nearly absent.[6] There are no overt references to fear, the role of the state, the role of the Air Force as subordinate to a state actor, or how the Air Force and the state in any way capture the realist tendencies of the humans that make up the military and the state.[7] There are, however, overt references to dominance.[8] Classical liberalism is also auspiciously absent.[9] There are no references to joint, interagency, coalition, allies, how technology allows one to cooperate with an adversary and thereby deter conflict, or how technology enables more efficient cooperation in achieving the stated objectives more generally. Neorealism is strong in the paper.[10] Recapitalization is a strong theme, in which the need to recapitalize is based in interests, scarcity of resources, and a security dilemma.[11] Constructivism is a weak to moderate influence in the paper, taking a neoconstructivist or futurist-constructivist form.[12] The paper suggests that the Air Force will work with industry to create artificial intelligence, which will then assist human actors in more efficiently assigning meaning to changes in the operational environment. The human and inhuman intelligence together in some proportion will then predict and act, creating a reality more favorable to Air Force interests.[13]

In addition to a neorealist and futuristic constructivist perspective, the writer(s) of the white paper fall into a scientistic philosophical category.[14] The white paper is not scientifically or dialectically expository, as it does not propose a thesis and an antithesis, finally arriving at a synthesis.[15] The paper is, however, scientistic, as one of its basic philosophical premises is that one can understand the environment, the problem, the actors, and oneself using science or technology. Of course, that premise itself cannot be proven by science or technology and is, therefore, a philosophy.[16] Coming astride this powerful philosophical trend in the national and military intellects are other latent ideas:

Science and technology explain themselves.[17] The virtues of science and technology are self-evident and implicative. There are fewer and fewer important distinguishing characteristics between human intelligence and artificial intelligence. Despite the facts that machines cannot imagine and have no will, one is increasingly tempted to personify them with terms that have historically applied to living things, for example, "kill the network" and "the critical node is dead." This white paper blurs the lines even further, stating that the Air Force requires networks that are "self-healing"—without distinguishing between curing, healing, restoring, and repairing— essentially stripping *healing* of the social reintegration

implication the term has traditionally carried in Western social anthropology.[18] The paper goes further still, stating in its final line that "we will become a digital Air Force," suggesting that not only can machines take on human qualities but also that our organizations can also take on digital qualities.[19] Of course, the idea behind digitizing something is about how data is expressed, and expression is a matter of how living things exchange thoughts.[20] An animal mind, desiring to share an idea, expresses that idea onto the mind of another living thing through some form of communication or display of information.[21] Digital display is one of those mediums.[22] For the expressing animal entity to "become digital" is an interesting reversal of traditional subordinate relationships: from "active intellect to expression to medium to pression to active intellect" now inverted to be "blended intellect to impression or expression."

In addition to taking a primarily neorealist, futurist constructivist, scientistic approach to military affairs, the writer(s) assume that the world can best be understood as entering into phases of technological advancement as a coherent whole (i.e., "Our world is entering a new age of technological discovery and advancement.")[23] This basic assumption of a coherent technological community may be a cosmopolitan overstatement of integration. A growing divide between the rich and poor, as well as burgeoning realism, makes the world less unified by technological advancement and more so broken into groups, some of which possess powerful technological tools, and some of which are increasingly disadvantaged.[24] The fractious community situation makes technological integration subservient to economic situations, as well as to whether or not users choose to integrate, depending on their political conceptions.[25] Whereas the paper assigns technological advancement as the defining characteristic of a global community's evolution, changes in economics, climate, and politics may be even more salient drivers of how military power is applied to cope with global evolution.

Second, the writer assumes that the most effective way for the military to win over great-power adversaries is to evolve its own capabilities in lockstep with the changing character of the technological landscape. In this assumption are subordinate assumptions: that modern war can be categorically divided into a previctory phase, and then a victory point in time and space—that modern wars have definitive winners and losers—and that the respective militaries are the primary agents of the winners and losers. In fact, modern warfare is a process without a clearly defined end state, made up of subordinate end states as communities continue to pursue increased influence for their espoused value systems and relative economic power.[26] To draw clear lines between harnessing technology and gaining in relative influence, the paper would have to connect technological advancements to either a value or economic interest(s).

Third, the writer assumes that the best way to attack or defend an increasingly digital entity is to use increasingly digital weapons and defenses. This assumption may have to be qualified, as human beings are still the primary agents of the defended and defending entities, and the violent or nonviolent force required to coerce human beings into conforming to another's will has not changed in its essence or substance—only in its accidents.[27] Furthermore, the increasingly digital force would in this way present a problem to its adversary that is relatively much simpler to solve than previously. As a force emphasizes its technological edge more than its human edge—its (artificial) reasoning over its will, opportunity, or creativity—it makes the adversary's problem increasingly scientific and less human. All the adversary has to do is determine how best to undermine something digital, which is relatively easy compared to how best to undermine another's creativity.

Fourth, the paper equates government-sourced innovation with military technological advances. This is likely an outgrowth of an organizational cultural ritual that equates innovation and technology generally; however, many important technological advances in war have not first been exogenous to war.[28] Many times, the historical military innovation was in how military leaders interpreted the implications of adversary technology on the environment and then responded to that change effectively—not necessarily harnessing the same technology as was already present in the environment when forming their effective responses. One such example, from Emily Goldman and Richard Andres's "Systemic Effects of Military Innovation and Diffusion," is simply the way the US military revolutionized the method commanders conceive of information operations.[29] This is an important evolution in thought about technology but is not in and of itself technological.

Since innovation is a rise in efficiency or effectiveness without a corresponding rise in real or opportunity costs, some of the most important military innovations have not been technological at all. In proposing that the military leader begin to pace innovation off of commercial-off-the-shelf technology, the paper perhaps unwittingly suggests that the military leader's responsibility-driven likelihood to innovate is increasingly the beneficiary of companies' profit-driven likelihood to innovate, instead of the other way around. Military innovation then becomes subordinate to the economic conditions that permit commercial innovation, which in turn creates a distorted mutually implicative dependency among a military's charge to create a permissive environment for the economy, the military's need for companies in that economy to innovate, and the economy's need to expand in areas where financial interests depart from security interests.

In addition to prompting concerns in the areas of these four key assumptions, the paper understates its own importance—stopping short of explicitly noting the most immediate and important effect of "The Digital Air Force" on operational effectiveness. Up to this point, human beings have pretended to be able to adequately describe the operational environment. Teaming with machines, human beings may be able to begin to adequately describe that operational environment, for the first time.

The 2013 version of Joint Publication 2-0, *Joint Intelligence*, introduced a then-new term to replace what used to be *indications and warning* in the same document.[30] The publication defined *warning intelligence* as broken into emerging and enduring warning concerns. The increasing automation of data discovery and digitization of decision-making loops has its strongest impact in the former: "emerging warning concerns." The thousands of factors that lead to the use of violent coercive force in a point in time in space—the holidays, the weather, the cultural proclivities, the intensity of coalition activity in the area, the relative success or failure of previous attempts, the flavor of recent ideologue propaganda on YouTube—all of the perhaps statistically significant factors that must at once be identified by regression, modelled and fed into a predict can now be actioned. The connection between warning and the commander's acceptable level of risk is being completely reformed.

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Notes

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