Dalek Dyad: The Twoness of Technology

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Our Profession's ability to incorporate technology should be viewed through the lens of today's larger societal technological trends. Numerous studies have examined technology's economic effects; historically, these studies showed increased productivity and job creation, but more recent analyses are finding wage stagnation alongside productivity gains. This apparent dichotomy is, in part, the product of the so-called "Second Economy" where transactions occur without human intervention.

Other studies have examined interpersonal dynamics and found that as technology becomes more anthropomorphically humanlike, an **Uncanny Valley**[1] exists in which people find the interactions simply "too creepy." One of the most interesting hypotheses to emerge from this line of research is the **Threat to Human Distinctiveness,** which opines that lifelike robots "…trigger concerns about the negative impact of this technology on humans, as a group, and their identity more generally because similarity blurs category boundaries, undermining human uniqueness."[2]

This paper extends the Threat to Human Distinctiveness Hypothesis to examine the element of trust as an existential consideration for our Profession. In this view, our ability to embrace future technology will ultimately depend less upon how we define war and more about how we define ourselves.

In Philip Dick's book The Defenders, the Leadies - robots built to wage war on behalf of mankind - conduct an analysis of war to determine its purpose. Their sole finding: war is a human need.

As a computer replaces much of his crew to operate and fight the USS ENTERPRISE, the fictional CAPT Jim Kirk ponders the meaning of command in this brief soliloquy: "There are things men must do to remain men."

This ubiquitous theme, from Frankenstein to Dr. Who, is emerging in our profession as we seek a Third Offset Strategy. While still lacking coherence, this strategy's pursuit of revolutionary technologies is well understood. Technology is welcomed as a means to deliver consistent outcomes at ever-decreasing costs while simultaneously imposing costs on our adversaries. When compared to lifecycle personnel costs – recruiting, retention, sustainability through health care and pensions – there is a lot to like.

At the tactical level, where users interact with technology daily, there is a very different range of reactions. Automated systems, where the output is always the same based on if/then logic, potentially threaten the livelihood of those with particular skillsets. Autonomous systems, on the other hand, make determinations about multiple outcomes based on probability calculations and thus more closely resemble human decisions. Despite the overwhelming evidence that human decision-making is laced with biases and heuristics that often produce suboptimal outcomes, we deem this process as the sole purview of humanity. Autonomous systems therefore become existential threats to our Profession because they attack what makes us distinct.

The views expressed in this paper are those of the author and do not reflect the official policy or position of the Department of the Navy, Department of Defense, or the U.S. Government.

This variance between the strategic and tactical levels in the efficacy of technological solutions reveals an inverse relationship to that of interpersonal trust (Figure 1). Surveys completed by the Army War College for more than 30 years consistently find that trust is proximate: the more distant the relationship (e.g. a private's relationship to a general officer), the less trust exists between the two.

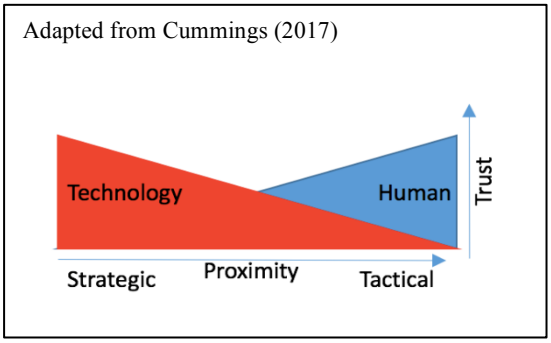

Figure 1: Trust Variance

The findings of greater trust in closer proximity is also consistent with the threat to human distinctiveness hypotheses. At the tactical level, there is a homogeneity of purpose, be it mission or survival, which each person subscribes to. Homogeneous behaviors follow: to protect each other *for each other's sake*, not for the general or the admiral. The unwillingness to distinguish outcomes from valorous behavior drew the ire of many during the drone warfare medal rollout.

A friend and colleague penned a piece wherein he noted the wisdom and need of the medal, but questioned its precedence above the Bronze Star. He wrote,

> Capt Dick Winters, of Band of Brothers fame, earned a silver star for his actions to silence the guns at Brécourt Manor in June of 1944. The remainder of his team earned bronze stars. They thrust bayonets into the beating chests of an enemy intent on skulling them with a rifle, shovel, or rock and watched their sweat-soaked friends bleed out and turn cold in nameless, muddy fields….
>
> In the end, we should be wary of what the [Drone Warfare] medal signals. Culture is changed with rewards and punishments. There are those that accuse our largely sedentary and overweight society of pursuing sanitized push-button warfare for fear of taking casualties. They accuse our Profession of lacking the will to locate, close with, and engage the enemy. Do we really want to say to the men and women who wear the uniform, the citizens we protect, the allies with whom we partner, and the foes looking for chinks in our armor that a medal is more important than mettle itself?

In short, an acknowledgement of technology's effectiveness was surpassed by the need to acknowledge our humanness. It is this very definition of who we are that slows the acceptance of technology, especially technology that approximates human attributes – either real or perceived. Understanding this fact yields a few general guidelines for avoiding the uncanny valley of military technology:

1) Place revolutionary technologies on alternative platforms to avoid the bias towards legacy systems;
2) Introduce revolutionary technologies that accomplish different missions or approach an existing mission in an entirely different way; and,
3) Screen those who would work alongside the technology to determine their level of acceptance/resistance to technology.

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The Daleks from *Dr. Who* lost their distinctiveness as a species in pursuit of greater combat efficiency. As we continue to gain insights from technology's impact on society, more guidelines will likely emerge that create the distinction between the man and the machine. Our profession demands that we remember war is a human endeavor and that technology is a means, not an end.

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[1] Mori, M. (2012). The uncanny valley (K. F. MacDorman & Norri Kageki, Trans.). IEEE Robotics and Automation, 19(2), 98–100.
[2] Ferrari, F., Paladino, M.P. & Jetten, J. Int J of Soc Robotics (2016) 8: 287.

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