# "CYCLE TIME" —

# A Military Imperative As Well

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Dean Clubb, President of the Defense Systems of Electronics Group, Texas Instruments, Inc., makes in his article, beginning on page 175, a reasoned and impassioned plea to DoD to incentivize its defense contractors so that "minimum cycle time" and integrated development can become the primary criteria in defense procurement awards and in performance evaluation. From TI's commercial experience, where he feels the business conditions to be quite similar, Dean extrapolates that Defense Procurement emphasis on "minimum cycle time" and Integrated Product Teams can produce striking improvements for DoD in product quality, significant reduction in product cost, and more rapid new product introduction.

The upper management in the Department of Defense has challenged the acquisition community to reduce cycle time by at least 50% by the year 2000. However, within the bowels of DoD, vested interests (that are responsible for previous piece-part, sequential, nonintegrated procurement processes) are now developing antibodies to fight this threat to their survival. Skilled in this survival adaptation, these bureaucratic forces are mutating like their biological viral equivalents into new forms both impervious to these new DoD directives and yet maintaining their ability to impede processes like those proposed by Dean Clubb. The only way to thwart their successful mutation is to inject as many as possible strong white corpuscles into the fray so as to overwhelm them before they mutate. The off-line military defense establishment is giving its all at the blood bank, but so far the fighting military appear not to be active in this needed blood donation campaign.

So far the fighting part of the U.S. military have viewed all this cycle time discussion quite passively, seeing it as part of the endless chain of well-intended attempts by new administrations to do better than their predecessors in the morass of government procurement. So far, the fighting military have not seen Dean Clubb's argument for "minimum cycle time" procurement as the sine qua non of their military capability. If the senior fighting military could come to the realization of the absolute criticality of minimum cycle time to their service's survival, then perhaps they could donate their energies and overwhelm the antibodies to change before they develop a strain completely impervious to minimum cycle time.

It is the intent of this short article to try to convince the senior fighting military that minimum cycle time is indeed the next best thing to sliced bread from the fighting man's perspective, and thereby to induce strong intervention within their organizations to assure its wholehearted adoption throughout their services, who in the end execute the predominance of defense procurement.

## Military Argument For Minimum Cycle Time Procurement

The reason for strong military endorsement of minimal cycle time is a military, not a financial, one. The figures of merit of minimal cycle time probably are the differences between winning and losing wars, not the savings of 10–15% in procurement costs.

Current lack of understanding of this absolutely critical phenomenon lies in the roots of our past which produced a requirements process responsive to the era of Soviet confrontation. In that era, the United States was threatened by a mortal enemy with sufficient technical ability and resources to provide a broad range of technological improvements to the capabilities of their forces. Because their world of technology and our own were separate, we were poorly equipped to know in which direction they were going, and were therefore obliged to follow all of the directions that we suspected that they might follow.

In that era, the overwhelming Soviet threat to our national interests forced us to implement a requirements process that was based on a threat model of an unknown but competent isolated enemy. The urgency of that perceived threat obligated us to counter with an extremely broad-based program of product introduction, no matter what the impact to the U.S. economy.

Today, things are quite different. The threat today is much more sinister, because it is for the most part optional. The United States today has no equivalent of the former Soviet threat in Central Europe on which to base all its action, nor is it probable that there will be an equivalent of the attack on Pearl Harbor, which in

1941 precipitated us involuntarily into war with a major power.

Our military intervention in the next decade will necessarily have to be "one–off" individual decisions made by the President and the Congress based on their view of the importance of such intervention compared to the threat to the lives of American personnel involved. Also, today our financial situation is quite different from that of the years of the Reagan military buildup. We probably will never again in our productive lives see the procurement budgets of those now bygone years.

Worse yet, no longer are we contending with an industrially isolated state from whom our technology advantages could be deprived until they appeared in the field. Now, anything we intend to have in advanced military technology is in no time available to everyone else who hears of our interest. This technology is available from friend or enemy, through third parties privy to our best technology. The product applications that were previously unavailable to our enemies now is instantly available to anyone who wants it. It used to take our former Soviet enemies quite a long time to develop weapons by themselves. Now these secrets can be obtained far more quickly from our friends using technology shared by the multi-country industrial consortia around the world. Everyone—ourselves and our enemies—can and do react quickly to technological changes.

One way to look at the threat to our military forces today is that at least for several decades there will be no long-term threat and that the short-term threat cannot be defined. The threat will be different from every one of our enemies, and the threat we hold for each of them will vary depending on how we attempt to posture ourselves.

In our open post-Cold War society our potential enemies can see what we are doing to improve our military capability, and they can straightforwardly be expected to change directions to thwart us. (An example might be the upgunning we now contemplate in any future U.S. Main Battle Tank (FMBT). If we go for a 140mm gun as a main armament, that's the way the enemy can go, delayed only by the time needed to copy the broadly available technology. If an enemy sees us decide on rockets for main armament of an FMBT, then it will either copy that upgrade or procure a defensive system based on the same generation of technology.

The real threat to the defeat of U.S. forces in this era is, to use the commercial terms, potential dominance in product cycle time by our potential enemies. All our enemies need to do is to be able to adapt our current technology to the particular circumstances of their operational environment faster than we can learn what they are up to and respond with improvements that vitiate their actions. If we can't do that, we are probably never going to deploy our forces. And if

that happens, U.S. military forces will have been thoroughly defeated, although it may never show as such on history's scoreboard.

Our only hope is to be the winner in a "cycle time race," where unfortunately our enemies have the advantage of access through our open society to our technology. Our only hope in this unpredictable new world is to prepare technologically for everything an enemy might decide to do, but because of our uncertainty and financial limitations build very little for the field until we know what is going to be needed, and then to build it lickety-split.

Building things lickety-split is the sine qua non of what Dean Clubb's paper is all about. American industry has for a decade been living in a world of intense competition but at the same time intense technological sharing. In the 1980s we used to get our clocks cleaned in that world, inventing new technology that others could copy and get to the market quicker than we could, even with our head start. Now, however, with Dean's minimum cycle time emphasis, U.S. industry is now beginning to regain product initiative and is winning worldwide product acceptance in the auto, communications, computer, and medical equipment industries.

Dean and Texas Instruments have had no other alternative than to play in the only commercial game available to them. They cannot sit on their hands and continue product strategies that no longer apply. The alternative, changing with the times, is that no one will use their products in the future and that they will go out of business. That is not at all different from the plight of U.S. military today.

The choice for the fighting military is almost equivalents to those of Texas Instruments: Get with minimum cycle time and respond to the marketplace, or get out of business because no one will use your products. What industry calls market research DoD must copy with its intelligence systems, so it can predict correctly what products should go to the marketplace. In periods of curtailed investment in the business world, little is put into the market that the public cannot be expected to need and therefore buy. The same is inevitably the case for defense procurement.

To conclude this companion piece to Dean Clubb's fine article, let this author advise the fighting military that minimum cycle time is of extreme importance to their future, and that the military at the highest levels must actively engage in taking on the reduced cycle time challenge. Our senior military must fight any bureaucracy that appears to thwart things crucial to our nation's defense. Bureaucracies are hard to change. They survive because they can mutate with amazing alacrity. Unless the senior fighting military are willing to give their blood to this worthy cause, they may see their own bureaucracy defeat a concept of the greatest importance to their future.