



# SMALL WARS

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## JOURNAL

## Disruptive Thinking and how the iPad changed Close Air Support in Afghanistan

By [Michael Christman](#)

SWJ Blog Post | May 15 2012 - 4:48am

**Editor's Note:** *This entry was also posted in slightly different form at the [Disruptive Thinkers blog](#). For those unfamiliar with the intricacies of the bureaucracy surrounding naval aviation, what may seem like a relatively simple effort to gain approval to use iPads in the cockpit of an attack aircraft is no small feat. The lesson here lies not only in the innovation, but also in the persistence in pushing the system to serve the need, and not a small bit of luck in having a former test pilot who was not only willing, but eager to be disruptive in an unresponsive system - and had the knowledge to do so productively - on staff at 3rd MAW.*

Most Marine Corps aviators who have served in Afghanistan in a close air support (CAS) role have used or heard of iPads being used to store and view the over 1000 maps that make up the Helmand Valley. These maps are made using high resolution imagery on which every compound is identified by a unique number. This allows aircrew to quickly correlate friendly and enemy locations and more effectively provide accurate and timely aviation fires in support of ground forces, ultimately saving the lives of young Americans and their allies. The downside of this system, which originally required aircrew to carry all 1000 map sheets, is that they had to sort through 30 lbs of maps to find the appropriate map sheet. In fact, there are so many maps sheets that they won't all physically fit in the cockpit. Finding the right map could take several minutes, precious time during a fire fight.

In order to solve this problem an enterprising AH-1W Cobra attack helicopter pilot, Captain Jim "Hottie" Carlson, developed a system to electronically stitch these maps sheets together so that a pilot could view them on an iPad. With the iPad's embedded GPS the Cobra now had a moving map, something that the early 1990's era helicopter is lacking. On his own initiative and without official Marine Corps support Captain Carlson was able to provide the aging aircraft with a navigational system as advanced any available in the civilian world, all for less than \$1000 per aircraft. So efficient was his solution that an entire HMLA can be outfitted with iPads for less than the cost of fuel for one day of combat operations in Afghanistan.

While the technical details of the "Combat iPad" are best left for another discussion the interesting story lies in discussing the key factors that allowed Captain Carlson, along with several other individuals, to overcome the bureaucratic hurdles they faced in bringing this program to bear.

First and foremost Captain Carlson was the right person in the right place at the right time. As one of the senior pilots on the deployment Captain Carlson had the tactical expertise and credibility to 1) understand the problem and 2) to navigate the bureaucratic morass of the Marine Corps. Additionally, he had a technical background (a computer science major) that allowed him to view the problem from a different angle and come up with a unique solution.

Second, Captain Carlson had the support of key players both in the squadron and at 3rd Marine Aircraft Wing (MAW). LtCol William “Hoss” Bufkin, a Cobra pilot who served on the Wing staff was in the perfect position to help work through the bureaucratic red tape needed to bring these tablets to the battlefield. LtCol Bufkin had previously served as an evaluation pilot with the AH-1Z upgrade program and was no stranger to the aviation procurement process. With his experience he was able to work through or around many of the top level bureaucratic challenges of procuring iPads and getting approval for their use in flight. LtCol Bufkin knew that the bureaucracy would tell him “no” when it came to asking for this new technology, but had the will to effectively fight the system in order to get this critical piece of equipment to the fleet.

Third, Captain Carlson had the entrepreneurial spirit and work ethic needed to solve this problem. It is interesting to note that many (but not all) of those Marines involved in the original iPad solution and those who have continued to improve on the program have had experience as civilians before joining the Marine Corps. Did their experiences before entering military service help them in solving this unique problem? Some may argue that because they began their professional careers in places where innovation and entrepreneurial spirit were valued that they were already comfortable working in environments where unique approaches to problem solving existed. This is not to say that those who have worked in the civilian world are more likely to be Disruptive Thinkers than those without civilian experience (Colonel John Boyd, inventor of the OODA loop and one of the most influential military thinkers of the 20<sup>th</sup> Century began his military career by enlisting in Army at age 17). However, it would be fair to say that we in the military too often write off potential solutions to problems because they do not fit into our preconceived notions of what fits into doctrine. The real question is whether we want to promote this entrepreneurial problem solving spirit. If so how do we do it in a large organization like the Marine Corps?

I would argue the Marine Corps is going to need more of these types of Marines as we enter the next 10-15 years of fiscal austerity. As is often quoted, “we’re out of money, its time to think”. We as Marines, especially the Staff NCOs and company grade officers, need to do better at taking responsibility for our own organization. The following are some ideas of how Disruptive Thinkers can be more effective.

**1-Be a Disruptive Doer, not just a Disruptive Thinker.** Good ideas are a starting point but actions speak louder than words. Captain Carlson put in hundreds of hours of his own time, in addition to flying combat missions, in order to get the Combat iPad up and running. If he and LtCol Bufkin had simply talked about their solution and hadn’t put in the work we would still be sifting through 30 lbs of paper maps.

**2-Be ready for a bureaucratic knife fight.** It often takes a strong personality who is willing to get his nose bloodied to affect the bureaucratic inertia of large organizations. Choose your battles wisely and have your proverbial “stuff in one sock”. You may only get one chance to convince someone that you have a better way. Make it count. Nixon summed it up best when spoke about Admiral Rickover, the father of the modern nuclear Navy:

"I don't mean to suggest ... that he is a man who is without controversy. He speaks his mind. Sometimes he has rivals who disagree with him; sometimes they are right, and he is the first to admit that sometimes he might be wrong. But the greatness of the American military service... is symbolized in this ceremony today, because this man, who is controversial, this man, who comes up with unorthodox ideas, did not become submerged by the bureaucracy, because once genius is submerged by bureaucracy, a nation is doomed to mediocrity."

**3-Don't forget that the Marine Corps is a warfighting institution, not a think tank.** The Marine

Corps isn't an organization like Google that requires constant innovation out of its employees. The Marine Corps more like McDonalds, in that it needs employees to uphold a standard to ensure that customers can get the same hamburger in New York as they can in Tokyo. With the Marine Corps you can expect that any given battalion will perform just as well another. To provide this service both McDonalds and the Marine Corps have had to develop and enforce a single standard throughout their organizations. While this process may seem at times anathema to innovation or Disruptive Thinking, it is as at our core what makes us good.

**4- Sometimes you can do more good outside of the military.** There is a great tradition of American citizens leaving military service and going on and changing the world. FBI director Robert Mueller and FedEx founder Fred Smith ([http://www.washingtonpost.com/national/on-leadership-fred-smith-fedex-ceo-video-highlights/2011/07/15/gIQASV7PGI\\_video.html](http://www.washingtonpost.com/national/on-leadership-fred-smith-fedex-ceo-video-highlights/2011/07/15/gIQASV7PGI_video.html)) both earned Purple Hearts as Marine infantry officers in Vietnam. While the Marine Corps is a great organization, there are other great organizations out there. America, not just the military, needs innovative leaders.

With that being said, some responsibility does lie on leadership. We do a very poor job at leveraging our best minds and our most talented leaders. The Marine Corps leadership can change this in several different ways:

**1-Bring “centralized command, decentralized control” back to the Marine Corps.** Innovation is often a bottom up process, where those closest to the fight have the best solutions. Giving subordinate commanders flexibility to make these decisions will allow the most creative junior leaders to develop innovative solutions to existing problems. As General Patton said, “Never tell people how to do things. Tell them what to do, and they will surprise you with their ingenuity.”

Avoiding micro-management is risky for the commander and managing that risk is a difficult task, but giving someone “enough rope to hang himself” does two important things. First, it provides a learning environment for that junior leader, and second it helps to separate the mediocre from the exceptional. Anyone can follow orders, but the best will excel in the absence of direction.

**2-Strive to keep the best and brightest officers and SNCOs in the Marine Corps.** Every organization from Apple to FedEx to the CIA deals with losing talent. However, the military has a unique problem in that it is an “agricultural” organization, meaning that it can't hire on mid level leaders like other organizations. Majors and colonels must be “grown” from the ground up. If you want effective Colonels and Generals you need to keep effective Lieutenants and Captains. As Colonel Paul Yingling (USA) said, “It is unreasonable to expect that an officer who spends 25 years conforming to institutional expectations will emerge as an innovator in his late forties. “

The post-OIF/OEF Marine Corps will present unique challenges and opportunities for the next generation of Marines. Fewer resources and an undefined mission will pose challenges that most Marines have yet to experience. However, this also offers an opportunity for innovative Disruptive Thinkers and Doers to reshape the Marine Corps into the organization that will fight our nation's future enemies, whoever they may be. Hopefully they stick around.

## About the Author



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Mike Christman is a captain in the Marine Corps and an AH-1W Cobra pilot. He deployed to Afghanistan in 2011 with HMLA-267 and is currently a forward air controller with 1st Air/Naval Gunfire Liaison Company.

**Available online at : <http://smallwarsjournal.com/blog/disruptive-thinking-and-how-the-ipad-changed-close-air-support-in-afghanistan>**

### **Links:**

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