V-22 OSPREY
Expanding the Operational Space

As Canada considers its search and rescue options, the V-22 is an obvious candidate to be in the mix. "Too expensive" will be the immediate response from those who have not seriously looked at the operational flexibility that such a platform offers. The range and speed of the V-22, coupled with distinct possibilities for increased acquisition numbers, combine to make it a player.

Looking at Canada's defense capability enhancements for the decades ahead, it is crucial to consider value propositions. The off-the-shelf price of a platform is neither indicative of its full mission value nor does it accurately represent potential hidden costs or savings as it impacts across the entire military mission spectrum.

For instance, the V-22 has operationally demonstrated a number of cost-avoidance impacts on U.S. Marine Corps operations. Notably, in both Iraq and Afghanistan, the plane can cover the entire operational battlespace. As such, costly and dangerous forward operating bases have been obviated. The V-22 has been able to operate from single operational bases to facilitate support and maintenance, and has proven it can cover the entire operational territory.

It is a plane, not a rotorcraft. It is a tiltrotor airplane and has confounded commentators as to how to classify it or how to assess its operational impacts.

Fortunately for Canada, extensive use of the Osprey by both the USAF and the USMC has answered many of the questions about its utility, operational impact and durability.

And with the evolution of Arctic missions clearly expanding, a capacity to operate with greater range and speed is an obvious necessity.

Getting it Right

One difficulty with any complex multi-mission system is that it takes time to get it right in the development, production and manufacturing process. In today's internet age, however, those critical stages are being negatively affected, as blogs and articles at various phases of that evolution become "google finds" forever, and "growing pains" receive more, and repeated, attention than in the past.

The problem is that context is lost and operational experience is negated. Many examples abound: from the A380, to the 787, to the A400M, the V-22 and the F-35. These platforms are significant enhancements over what came before, but all have been deemed "troubled programs", which simply reminds us that evolution takes time – but *transformation* takes time and effort.

Today, the Osprey has progressed from a "troubled program" to an operational reality which is transforming Air Force and Marine Corps operations. Its demonstrated use in Iraq, Afghanistan, in Operation *Odyssey Dawn* in Libya, and worldwide at this point, is transforming the way the USMC operates, and with it the U.S. Navy-USMC team.

It has gone from "troubled" to "transformational" – but only the operators seem to have noticed.

A U.S. Customs and Border Patrol helicopter awaits passengers as a Navy MV-22 Osprey tilt-rotor aircraft lands in the background near the U.S. Embassy in Port-au-Prince, Haiti. The U.S. military is conducting humanitarian and disaster relief operations as part of Operation Unified Response after a 7.0 magnitude earthquake caused severe damage in Haiti, Jan. 12.

U.S. NAVY PHOTO: MASS COMMUNICATION SPECIALIST 2ND CLASS CANDICE VILLARREAL

The Osprey at 5 years

The V-22 has completed its first five operational years with the USMC. Over those five years, I have interviewed operators, maintainers and many Osprey squadron commanders. During this time, the plane has gone through various phases of deployment evolution – and with that evolution, the Marines have worked with the contractors to evolve the support capabilities for the plane.

In September 2007, the Osprey was deployed for the first time to Iraq. USMC Commandant General James T. Conway, and Deputy Commandant of Aviation LtGen John Castellaw announced a decision to deploy the Osprey into combat in spite of the fact that virtually all public commentators thought this was too early for what they deemed an "untested" aircraft.

The plane has not only performed well, but in five short years has demonstrated its capability to not only have a significant impact on combat ops but to re-shape thinking about concepts of operations.

The evolution of the con-ops surrounding this aircraft provides a solid foundation for innovation and transformation of operational concepts for the USN-USMC team – if boldness can overcome timidity.

The plane started in Iraq, built around a famous diagram showing the speed and range of the aircraft in covering the vast countryside. As one Marine commented: "The MV-22 in the AO was like turning the size of the state of Texas into the size of Rhode Island."

It was the only "helicopter" that could completely cover Iraqi territory. In this role, however, the testing of support and operational capabilities was somewhat limited as Marines tested out capabilities and dealt with operational challenges. The plane was largely used for passenger and cargo transport in support operations in difficult terrain and operating conditions, yet its impact was immediate. As Major General Walsh, now Deputy Commander of the USMC Combat Command, and then the air boss of Marine Air in Iraq, commented:

"With the CH-46s in Iraq, I had to put out Forward Arming and Refueling Points (FARPs) to support them. This meant sending convoys, equipment, and Marines out to operate and secure the FARPs. This also required protecting the FARPs after they were in place.

"With the Osprey, I could simply leap past all of that. The Osprey completely changed how we operated. The demand became to use the Ospreys throughout Iraq because it could go through Iraq in one day easily, and just run around the battle space. It changed completely how we used our heliborne assets."

The V-22 was used for assault operations from the beginning but, over time, the role would expand as the support structure matured, readiness rates grew, and airplane availability become increasingly robust.

From the beginning, the aircraft impressed and foreshadowed later developments. With the withdrawal of U.S. forces from Iraq there was a roll up of forward operating bases. This meant the remaining forces had to cover more ground and provide protection at greater distance. Enter the Osprey, which did not require FOBs to provide lift and support to forward deployed forces.

Next on the agenda was the beginning of deployments to Afghanistan, which of course continue. The Afghan phase of deployments has seen the aircraft and its operators transition to more assault combat operations over time – to the point where the latest Osprey squadron just came back from Afghanistan with record setting assault operations for the platform.

A metric to measure the transition can be seen in the number of named operations the Osprey squadron participated in in Afghanistan. Over time, the Osprey squadrons have significantly increased their involvement in what the military calls "*named operations*" (air assault operations in support of U.S. and coalition forces). The latest squadron VMM-365 *(the Blue Knights)* conducted nearly 200 named operations – a 20-fold increase over the preceding squadron in Afghanistan.

But it took a while for the concepts of operations to change and for commanders to understand fully that they didn't have to operate in the constricted operational box of a couple of hundred miles for the ARG-MEU (Amphibious Readiness Group/Marine Expeditionary Unit), and could instead consider a 1,000-plus operational area.

Suddenly the situation in Libya hit the news, and linking the Osprey to the USN-USMC G/ATOR (Ground/Air Task Oriented Radar) opened up a whole new capability. Seamlessly linking support services on shore with the deployed fleet via the V-22 allowed the Harriers aboard the USS *Kearsarge* to increase their sortie rates dramatically. By providing a whole new speed and range enablement of the strike fleet aboard a large deck amphibious ship, the future was being re-defined by the Osprey.

And now fast forward to Bold Alligator 2012, the largest amphibious exercise held since 1996. A major difference from 1996

to 2012 was the appearance of the Osprey. Indeed, the existence and deployment of the Osprey changed the entire approach to thinking about amphibious assault.

While observers stood on the beach waiting for the assault, Ospreys were already part of taking an "enemy" fort deep in the terrain. And not only that, one of the Ospreys had deployed from a supply ship!

Over this 5-year period, the Marines built up a significant and growing number of "Osprey Nation" members, and these folks then generated further capacity to learn and change. For Canada, this "Osprey Nation" would be a key asset as part of its solution set to Search and Rescue.

The US Army, which does not operate Ospreys has often asked the Marines to operate MEDEVAC missions for them in Afghanistan. As Lieutenant Colonel Christian Harshberger, Commanding Officer of VMM 365, the Blue Knights, commented about the US Army and the Osprey in Afghanistan:

"They became very interested in working with us on Medevac missions. They would pop their equipment modules into the Osprey and have us fly to where the injured soldier was operated throughout the AOR. There were a couple of times we got to the action so quickly that the Army was bringing the wounded up to the Forward Operating Base and we were arriving. What would take a helo 35 minutes to do we could do in 13."

Expanding Mission Options

Lt.Col. Boniface led and witnessed the impact of the Osprey on U.S. operations in *Odyssey Dawn*. He also led the Ospreys in *Bold Alligator 2012*, and from his perspective, the dynamics of change are simply beginning.

"There is a tsunami of change coming when we talk about the ability to fight an enemy and to support Marines ashore. We can increase our area of operations (AOR) exponentially because we can spread out our ships; now we have an aviation connector that can move Marines a tremendous amount of distance and in a very short amount of time. We can also use this capability to leverage our other aviation assets like our AV8-Bs, CH-53's, AH-1Ws and UH-1Ys to support the MAGTF [Marine Air-Ground Task Force] and ultimately damage the enemy's will to fight. Let's not just move 50-100 miles ashore, but let's move 200-500 miles ashore, and do it at an increased speed, range and lethality."

There is change, not just for the USMC, but other U.S. services as well. The impact of putting F-35Bs and Ospreys aboard the new USS America class assault ship will transform that new large deck amphibious ship into a significant strike asset and, with the retirement of the USS *Enterprise,* provides a new "aircraft carrier" capability for the USN-USMC team. The Osprey is clearly a key enabler of this evolution.

The USN itself is considering a major buy of Ospreys for its large deck carriers. The Osprey can replace the C-2 Greyhounds and provide combat capability in place of simple transporters. It can also be modified to become an air-refueling asset. Currently, the USN is hampered by using F-18s to refuel F-18s, which certainly limits carrier operations. With the Osprey as an air refueler, whole new possibilities are opened up for USN aviation as well.

To date, the Osprey has limited connectivity and C2 functionalities. This clearly will change as the Marines bring on the F-35B and rethink connectivity in the battlespace. And clearly the USN and USMC will invest in evolving C2 capabilities for the fleet; this is another development from which Canada might benefit.

"Clearly, the number 1 change next up for the Osprey is to get significant upgrades in capability to work with other assets," said Lt.Col. Boniface. "We have an excellent mission computer but it is largely designed to operate the plane and is not designed to link either as a fleet or with the force. We need to modify the mission computer to be network enabled. This will be especially important as the F-35 Bravo joins the fleet. We will have a significant C5ISR asset and we need to ensure that it has seamless connectivity with the Osprey."

The USAF Special Operations forces (AFSOC) using the Osprey have already invested in various specialized elements aboard the Osprey which can facilitate its expanded operational envelope.

According to the USAF:

"The CV-22 can perform missions that normally would require both fixed-wing and rotary-wing aircraft. The CV-22 takes off vertically and, once airborne, the nacelles (engine and prop-rotor group) on each wing can rotate into a forward position.

"The CV-22 is equipped with integrated threat countermeasures, terrain-following radar, forward-looking infrared sensor and other advanced avionics systems that allow it to operate at low altitude in adverse weather conditions and medium to high threat environments."

And over time, the USAF is likely to expand the mission sets of the Ospreys, notably in conjunction with other deployment packages. Recent dynamics in Benghazi and Gaza underscore the need for insertable and tailorable force packages, and for the USAF, their Ospreys could well be in the mix.

Global Strike

The U.S. may need a ready "global strike force", able to insert within a very short period of time to go up against the kind of enemy the West may face, on a very regular basis, and in so doing the Osprey contribution would be highlighted.

The focus on global strike has largely been on a peer competitor, but the lessons of the last decade highlight the need for insertion forces which can do some of what was done in Iraq and Afghanistan without rolling out half of the deployable U.S. military.

The recent Israeli test of an offense defense enterprise against the Hamas and Iranian power projection included several elements: defensive anti-missile systems, strike systems against missiles and tunnels, and the targeting of Hamas leadership.

The Israel version of insertable strike was demonstrated in Gaza as a key element of the package. Perhaps the USAF and related elements can craft such a relevant capability.

Bundling Ospreys and fighters into an insertable strike package could prove a useful asset, but the organization needs to incorporate such a capability in its planning. UAVs require long periods of preparation for target determination, however, rapid reaction needs appropriate tools in place and someone in the cockpit.

This is more Special Forces or USMC, but the recrafting of USAF air capabilities into small tailored strike packages able to scramble from anywhere in the world on short notice might well be a core capability to deal with a range of threats to be met in the period ahead.

Rather than baptizing the term "global strike" with ICBMs, why not focus on tailorable Osprey/fighter/tanker packages?

In short, the Osprey is having a growing impact on US military operations across the board. These roles will make the Osprey a very viable program for a long period to come.

For Canada, this means that there is a core community of a wide range of Osprey users in the United States, which can be leveraged. What may have looked like a gamble 10 years ago is now a sure bet for performance and evolution of capability based on a transformational program. FL

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