

Patrol Boat Requirements Shaping an Emergent Market

Patrol vessels are the fastest growing segment in the naval shipbuilding industry, a trend expected to continue as fleets retire obsolescent Cold-War era assets and look toward platforms capable of supporting missions unforeseen only a few decades ago. S&SI explores the situation in Africa.

Multi-Capable for Multi-Tasking

International smuggling, coastal petrol tanker hijackings, and maritime kidnappings, while on the decline, represent substantial challenges for often poorly funded small patrol boat inventories of affected nations. Procurement funds are often directed toward larger Offshore Patrol Vessels (OPVs), corvettes, and frigates, however. Yet patrol assets are heavily relied upon to monitor vital shipping routes, conduct fisheries protection and Exclusive Economic Zones (EEZ) monitoring, while simultaneously continuing to combat piracy and smuggling duties. Considering Africa's expanding oil and gas industries and associated coastal and offshore infrastructures, relying on patrol boat inventories often well in excess of useful service lives could result in capability gaps as assets increasingly require servicing. The risks of unexpected maintenance downtime resulting from breakdowns will multiply as platforms age.

Many sea services continue to utilise legacy Cold War vessels in this category, rimarily serving in capacities better suited to the second tier, the basic inshore patrol boat. As many African Navies look to replace ageing inventories, missions and costs must be taken into account, counter-piracy and increasingly. counter-petrol piracy, hijacking, fisheries, and EEZ patrol will be among capabilities in demand. Multipurpose hull designs with options for light weapon and sensor fit, suited to policing duties over naval combat-type tasking are available and entering service with several organisations. Expediting delivery for often eager clients, commercial standards can be used in construction of smaller patrol boats, types not expected to engage in surface actions with enemy warships.

Raison d'être

With low fuel prices the root cause, large tanker firms are routing ships around southern Africa to avoid paying Suez Canal and Red Sea transit fees, dramatically increasing traffic through areas only recently experiencing declines in piracy. Increased tanker traffic calls for a higher level of naval patrolling, necessary to secure shipping lanes, both nearshore and at sea. Rapid economic development, combined with growing population centres in coastal areas are generating increased sea-based security requirements. Looking at current fleet inventories across African coastal nations, the need for an appropriate mix of patrol assets becomes apparent. For the shipbuilding industry, predicting the next sales opportunity can be complex, calling for detailed needs analysis, and more critically, close in-country relationships.

"Patrol boats, particularly smaller craft, are very difficult to track since a lot of these are 'pop-up' projects that go without the long lead times standard for larger ship programmes", according to Amy McDonald, Director of Consulting Operations at American Maritime International (AMI), speaking with NAVAL FORCES on 6 January.

"Sub-Saharan Africa, not surprisingly, is the smallest region in regards to forecasted new ships and acquisitions, most Sub-Saharan African nations are in the market for patrol boats and craft to conduct EEZ patrols and anti-piracy-smuggling operations," she noted.

Referring to AMI's 2016-2035 Global Naval Forecast, McDonald said, when combined, nations in Sub-Saharan Africa are anticipated to comprise 3% of the overall worldwide spending on naval vessels of all types, shipbuilders in these nations can be expected to produce 2% of all new construction ships for naval and Coast Guard service. "We estimate the total spend for this region to be approximate US\$3.308.700.000," McDonald said.

Mauritania – Major Deliveries Enhance Small Fleet Capabilities

The nation's Navy continues with a roadmap to build its maritime capability to a level sufficient to patrol its 235,000km² EEZ. Last May, two 60m Chinese-made patrol boats, similar to the "Huangpo" class were delivered. The ships were ordered in 2014. Seven years earlier, a pair of former Spanish Navy "Conejera" class patrol boats were transferred to Mauritanian service. Originally commissioned in 1981-1982, these hulls are approaching the 40-year mark and may soon be due for replacement, based on operational condition and economy of operation.

Ghana – Continuous At-Sea Presence Now Possible

To effectively defend its 560km of coastline and territorial seas from maritime criminals and threats, augmenting its patrol fleet, since

2010, the Ghana Navy has procured new and second-hand vessels. AMI data provided by McDonald indicates Ghana's patrol boat inventory includes; four US-built "Defender" class small response boats; one former Republic of Korea Navy "Chamsuri" class patrol boat, transferred in 2011; and four new 46m "Bilka" (Snake) class patrol boats. Delivered in 2012, these were built by China's Poly Technologies Incorporated. In 2012, two refurbished Type 143 ("Gepard" class) fast attack craft (FAC) were delivered from German Navy surplus. At the time of commissioning, a senior official commented the new patrol boats allowed the country to maintain a continuous at-sea presence. Up to three 1000t OPVs may be acquired to enhance marine security and law enforcement activities by the 2018 timeframe. According to the Defence IQ's 2016 patrol boat and offshore vehicle market report these may come from South Korean sources

A new naval headquarters building inaugurated last August at the naval command in Accra will serve as control centre for the country's Vessel Traffic Management and Information System (VTMIS). Installed in 2012 by a consortium of European firms, the system consists of eight remote sensor sites, three remote stations, three crewed stations, and a command centre. VTMIS is used to identify potential pirate activity, routing naval patrols in the most efficient possible manner. Visiting the new facility, Ghana's President John Dramani Mahama said there were plans to add two additional OPVs to the fleet. Meanwhile, the country's Naval Dockyard has been expanded and modernised.

Opportunities for new patrol boats sales may be identified within the reformed Marine Police Unit. According to a notice on the Africa-Netherlands Port Development Partnerhip website, "four out of the six boats being operated by the Marine Police Unit of the Ghana Police Service have been grounded due to lack of maintenance." In early January, the Navy arrested 17 individuals for illegal fishing activities, a growing problem. Quoted in *News Ghana*, Flag Officer of the Navy's Eastern

Command, Commodore Moses Beick-Baffoe, said illegal fishing cost "upwards of 100 million Euros," while posing a serious economic threat to 10% of Ghana's 24 million population depending on the industry. Ghana's Marine Police are additionally tasked with oil and gas field patrol duties, additional justification for new assets.

Nigeria – Reclaiming Lost Capabilities with Domestic and Foreign Acquisitions

According to the International Maritime Bureau's (IMB) 2016 piracy report, "vessels of all types are being targeted by armed groups along Nigeria's rivers, anchorages, and ports, and up to 118nm [218km] from the coast, though many attacks are believed to go

unrecorded." IMB recorded "31 incidents in the first nine months of 2016, up from 12 in the same period last year, with Nigeria accounting for 10 of these reports." While the Nigerian Navy and Coast Guard have done much to stem incidences of piracy, hijacking, and maritime crimes, given the age and condition of much of the country's fleet, sufficient assets to continue the task will be necessary. In 2015, the state of the nation's fleet was clarified by Navy leadership, only 50% of all available assets were operable, a statistic the service has slowly improved with a steady delivery of new vessels, foreign and domestically built.

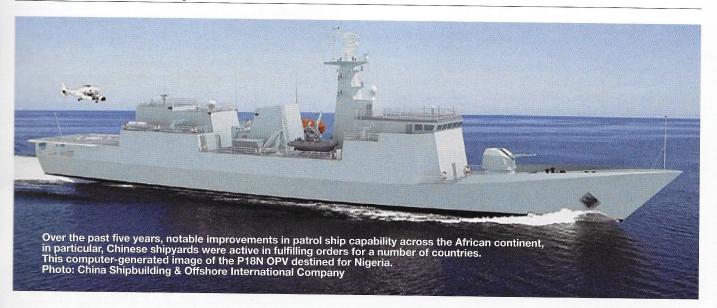
Max Blade

is a US-based defence journalist covering naval and asymmetrical warfare issues.





- △ As demonstrated by Nigeria, offshore energy infrastructure are particularly vulnerable to terrorist attack. Costs associated with a constant security presence in proximity to installations are very high; yet incomparably low to those following a successful terrorist attack on an oil platform. Pictured is a new 25m long SHALDAG Mkll fast patrol craft that will help the Nigerian Navy battle rampant maritime crime. (Photo: Nigerian Navy)
- ✓ Mauritania has developed a five-year plan to develop its Navy into a force that is capable of defending the country's EEZ, with the largest warship in service, the OPV "Liman el Hadrami" (P 601), "donated" by the People's Republic of China. Photo: Mauritanian Navy



"The Nigerian Navy is primarily composed of vessels made in German, French, Italian, and British yards, procured in the 1970s-1980s. The US provided 'Defender' class patrol craft, and the former USCGC 'Chase' (WHEC 718) through the foreign military sales process," McDonald underlined.

The country's coastal patrol force, organised under the Nigerian Coast Guard, is being re-equipped with domestically built 8.2m patrol-gunboats. Last August, 30 of these new hulls, built by Epenal Boat Builders Ltd., were handed over to service officials. According to an article in South African on-line publication defenceweb, during the ceremony, Nigerian Chief of Naval Staff, Vice Admiral Ibok Ete-Ibas remarked domestic production costs were half the price of overseas acquisitions. "Mounting operational challenges and progressively dwindling economy necessitated the Navy to explore more cost saving options through local construction of these

patrol boats," he said. The boats are reportedly fitted with ST Kinetics 40mm automatic grenade launcher (AGL). An additional 20 hulls now under construction will round out the order. Earlier, a notice in *defenceweb* reported a contract with Sri Lanka initiated last May was recently completed with delivery of six new "Arrow" class patrol boats and "three unspecified inshore patrol craft."

The Nigerian Navy's ocean-going patrol assets include NNS "Unity" (F 92), commissioned last December. A variant of the People's Liberation Army Navy (PLAN) Type 056 corvette, the ship is the second and final P18N class OPV ordered from China Shipbuilding and Offshore International Ltd. (CSOIL). F 92 will join NNS "Centenary" (F 91) after undergoing system integration and outfitting at the Nigerian Naval Shipyard in Port Harcourt, a move intended to help develop domestic warship construction capability. In 2013, CSOIL was awarded contracts to upgrade Port

Harcourt Naval Yard, enabling construction and maintenance of vessels to 10,000 deadweight tonnes. Dockyard upgrades include a new jetty, dry dock, and other additions. A further 10 OPVs are planned to enter service by 2020 according to Defence IQ's report.

Continuing a mandate to build 100% domestic sourced patrol boats, a second hull, NNS "Karaduwa" (P 102), was recently commissioned under the auspices of the Seaward Defence Boat programme, joining the fleet last December. Built at Nigerian Naval Dockyard Ltd., P 102 joins NNS "Andoni" (P 100). A third hull, type-designated SDB II, is under construction, local news reports state this unit will be longer than earlier versions at approximately 50 metres.

Lack of available patrol assets and a growing threat to critical offshore infrastructure has compelled the oil and gas segment to take up protective matters independently. According to *defenceweb*, previously unknown militant



groups, "apart from the terrorist threat posed by Boko Haram insurgency are staging disruptive attacks on oil platforms and pipeline infrastructure." Well known in Nigeria for its large security expenditures, in December MarineLink News reported the Shell Petroleum Development Company recently secured four Damen Stan Patrol 1605 security vessels. After completing sea trials last April, these boats were delivered to intermediary firm C&I Leasing Plc. MarineLink reports the four boats "will provide security patrol and escort services for tankers calling in and out of the Nigerian Light Natural Gas Bonny terminal." Taking into account heavy automatic weapons used in maritime crimes, before delivery the ships were fitted with additional crew area ballistic protection at Damen Shipyards in Gorinchem, the Netherlands. The Dutch shipbuilder provides on-site training, service and parts for these boats from its local facility at Port Harcourt.

Highlighting the need for increased patrols and additional assets, last May, the 'Niger Delta Avengers,' a previously unidentified militant group, claimed responsibility for attacking and destroying an offshore oil platform owned by Chevron Corporation. In post-attack reporting, a UK Financial Times headline pointed out the group's attack targeted an underwater pipeline, compelling Shell to temporarily cease operations at its Forcados Terminal, Nigeria's largest. The severity of the country's security situation, and inability of its naval force to secure offshore oil and gas installations, as currently organised and equipped, could lead to sales of modern, multipurpose patrol craft, to government, or energy company security forces.

In April 2016, *Daily Post Nigeria* reported Vice Admiral Ibok-Ette Ibas reassigned senior naval staff in an "effort to reposition the Nigerian Navy for greater efficiency." The na-

tion's dependency on oil and gas exports, combined with proven infrastructure vulnerability has placed it at substantial risk of financial collapse in the face of relentless insurgent and piracy activities.

Cameroon - Impending Delivery Rounds Out Navy's Patrol Boat Trio

At press time, a retired 300t former French Navy P400 class patrol boat is scheduled for impending delivery. Based on a commercial design, last year the boat was refurbished by the French firm Sofema. Sea trials were carried out in the Mediterranean last year. Recommissioned as CNS "Dipikar" in Cameroonian Naval Service, the second-hand hull will provide the Navy with a long-range patrol capability, in excess of 4,500nm (8,335km). "Dipikar" will join two P-108 patrol craft acquired in 2014. Built by China's Poly Technologies, the pair are armed with 76mm PJ26 cannons, based on the Russian AK-176 gun. A year before, two Aresa 2400 CPV DEFENDER patrol boats, built by the Spanish Grup Aresa Internacional were commissioned into the Navy. The 2016 World Defence Almanac also lists two 32m ARESA 3200 OPVs in service.

Equatorial Guinea – Acquisition Pause for New Asset Training

Over the past decade, naval capabilities have steadily increased with addition of several relatively large patrol ships. Frigate-sized, and arguably comparably armed, the Navy's primary ocean-going patrollers include the hybrid, Bulgarian-made, and locally modified, "Wele Nzas" (F 073), delivered in 2014. The ship joined "Bata" (F 047), commissioned in

2012. Based on the OPV88 design, the latter is armed with a 76mm gun and two 30mm cannons. One 50m PV50M patrol vessel, also built in Bulgarian yards, is in service. Israel also has proven a major source of supply. In 2011, two OPV62, 470t patrol ships entered service, built by Israel Shipyards; the design is a non-missile equipped variant of the SA'AR 4 combatant. Six years earlier, two SHALDAG MkII FACs were also acquired. A sea service well equipped on the high end, only two Ukrainian-made KALKANE inshore patrol craft are available for low-intensity inshore situations.

Equatorial Guinea's current ship mix neglects smaller, multipurpose boats capable of extended patrols with low crew requirements. A situation without quick resolution as explained by Oscar Nkala, "post-delivery of the F 073 "Weles Nzas" in 2014, Equatorial Guinea has stopped the acquisition of new vessels and focused on training its forces which have expanded far beyond the 2500 level." Nkala, a South Africa- based military journalist specialising in African defence and aerospace, answered questions for NAVAL FORCES via email on 11 January.

Gabon – Political Tensions Slowing Patrol Boat Acquisition Process?

Plans to purchase a new OPV, and to refurbish former French Navy P400 class patrol vessels appear to have stalled. According to industry, following a 2014 Memorandum of Understanding (MoU), French shipbuilder Piriou refurbished "La Tapageuse" (P 691) in 2015, intending to transfer the hull to Gabonese authorities soon thereafter. To date, there are no reports or confirmations this ship has left France. Additionally, construction of the planned OPV52 has not commenced. This unit

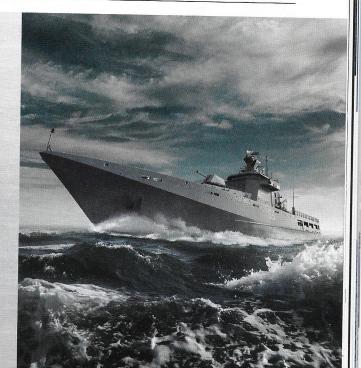


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was originally scheduled for completion and delivery in 2016, according to *defenceweb*.

Meanwhile, the Gabonese Navy will continue relying on two P400s in its inventory since 1988. Perhaps more appropriate to the inshore and counter-piracy role, four RODMAN 66 patrols, delivered in 2006, supplement the larger 57mm gun armed P400 patrol ships. Commentators have suggested remarks by French officials questioning results of Gabon's 2016 presidential elections may be a factor. If placed on the open market, the single refurbished P400 patrol ship would be attractive to a number of naval forces, leaving Gabon's requirement for new hulls unmet.

Angola - New Maritime Surveillance Capacity Gives Navy Upper Hand

According to AMI International's naval forecasting data, "with virtually no ship-building capability and a limited defence budget, Angola will continue to rely on foreign suppliers for its future naval requirements." The report continues; "with its historical ties to Brazil and Europe and growing defence ties with China, the Angolan Navy needs to acquire inexpensive ships and patrol craft, the sea service will likely use suppliers able to provide financing and flexible contract terms and the used international market to meet its needs."

Angola is at mid-point modernising its naval patrol capabilities, highlighted by major investments in new ships and a National Maritime Surveillance System (NMSS). In January 2016, the nation's president signed contracts with Finmeccanica and SELEX ES (now Leonardo) for NMSS coastal radars and repeater systems.

A key piece of Angola's naval modernisation plan, the Angolan Naval Power Development Programme (Programa de Desenvolvimento do Poder Naval de Angola; Pronaval), initially included acquisition of seven Brazilian-made "Macaé" class patrol boats. A memorandum of understanding for the deal was signed in 2014, with the first four units constructed in Brazil, and the remainder in Angola. By 2015, however, the deal was terminated. According to Nkala, in September 2016, Angola and the Middle Eastern-based Privinvest Shipbuilding Group signed what appears to be a deal aimed at replacing the failed "Macaé" class acquisition.

"Angola signed up for the acquisition of 'a wide range' of Navy vessels, and in return, Privinvest and Simportex agreed to establish a shipyard in Angola to handle local construction, maintenance, repair, and overhaul of its range of vessels." Nkala noted the Privinvest Shipbuilding Group incorporates a number of major shipyards; including German Naval Yards Kiel (GNYK), Constructions Mécaniques de Normandie (CMN), Isherwoods, Nobiskrug GmbH, PISB (comprising Hellenic Shipyards and Abu Dhabi Marine), and Lindenau Werft GmbH.

Securing the country's 1,600km coast-line from low-intensity threats and maritime crimes may be more cost-effectively carried out with a new inventory of multipurpose patrol boats smaller in size then a "Macaé" class. An impending capability gap, the Navy's small patrol boat inventory, consisting of five, 97t, former Spanish Navy "Argos" class, originally commissioned in 1991, are now approaching the 40-year mark. Purchased in 2009, five 25t ARESA PVL-70 patrol boats are insufficient to maintain a continuous at-sea presence.

Namibia – Brazilian Equipment, Training and Influence Shaping Sea Service

The Namibian Navy is equipped with two large patrol ships, a former Brazilian Navy "Grajau" class and the frigate sized, Chinese-built multipurpose patrol ship NS "Elephant" (S 11). Two donated "Namacurra" class small harbour patrol boats, and a pair of newer Brazilian-made "Marlin" class patrol boats round out the country's current maritime capability. Last July, The Namibian news site reported a Marine Corps component was established. Initially formed around an infantry battalion structure, Brazilian technical assistance was provided. Concurrently, a new naval training school was set up with assistance. The current mix of small patrol boats and high-endurance patrol vessels leaves a gap in mid-range options. Here, 'pop-up' sales opportunities may present themselves for boats offering low operational cost. During the new unit's inauguration ceremony, Namibian President Hage Geingob hinted at further expansion of the country's sea services, "no longer will our Navy just be a coastal patrol division, now, it will be a deterrent to potential enemies and have the capacity to defend our coastline, our Navy can now play a role in peace and war," he said.

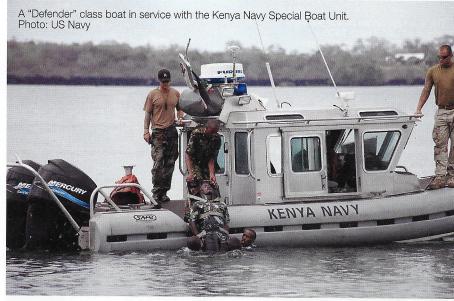
South Africa – Project BIRO Awaits RfP

With the most developed sea service in the region, operating both complex frigates and submarines, South Africa has requirements for a multipurpose amphibious assault ship (LHD) and a hydrographic research vessel



(AGS), according to AMI data. Presently, industry awaits a Request for Proposal (RfP) under Project BIRO to build three inshore patrol vessels and three OPVs, replacing three "Warrior" class patrol ships. Planned to carry containerised mine-clearing equipment, the yet to be selected OPVs will facilitate retirement of the Navy's aging "River" class coastal minehunters. According to a report from the South African Institute for Security Studies, "if fully implemented, BIRO will result in the South African Navy acquiring these vessels by 2018. Project BIRO's expanded capacity would then enable South Africa to mount cheaper, more focused and more effective missions and operations against the threats and challenges it encounters in its maritime domain, especially illegal fishing and trafficking."

Armscor, South Africa's arms procurement agency, issued two separate RfPs in December 2014 for three 'multimission' OPVs and three 'multimission' inshore patrol vessels. South African government and naval selection officials can expect proposals from beking & Rasmussen/Veccraft Marine, AUSTAL, Damen Schelde Naval Shipbuilding (DSNS), DCNS, Fincantieri, Fr. Lürssen Werft, Israel Shipyards, NAVANTIA, and thyssenkrupp Marine Systems. Contractual requirements stipulate construction must be carried out at domestic shipyards.



Kenya – New Navy Operations Tempo as NATO Counter-Piracy Patrols End?

Primarily a fleet composed of large patrol ships armed with high-calibre naval guns, KNS "Jasiri", a 1,400t OPV delivered in 2012, after seven years of contractual delays,

represents Kenya's largest Navy ship. In service since 1997, two 488t "Shupavu" class large patrol craft are armed with a single Leonardo 76mm/62 naval gun in a hull built to civilian standards. A pair of 315t, converted "Nyayo" class fast missile attack craft delivered in 1988, and a single P400 large patrol boat donated in 2011 for anti-piracy duties round out the patrol fleet. This year,





Kenyan Fisheries Patrol Boat Design Specifications

Johs. Gram-Hanssen A/S Builder: overall: 54.70m Length Length of hull: 50.90m Depth: 4.50m Draft molded: 2.20m Displacement: 350t Lightweight: Engine/propulsion: Hybrid system, two controllable pitch propellers,

Manufacturers: MTU, Servogear, MJP
Number: Two for controllable pitch

propeller (CPP) and one for waterjet propulsion 2x4,000kW for CPP and 2,720kW for waterjet max. 35 kts;

Speed: max. 35 kts; cruise 20-25 kts
Accommodation: 35

Design features a helicopter landing pad and hoist deployable rigid inflatable boat

Output:

the country's fisheries protection authorities will take delivery of a state-of-the-art hull, ordered from Danish shipbuilding design and construction firm Johs. Gram-Hanssen A/S, now in the final construction stages at a partner yard in Bangladesh. Characteristics for the new ship are provided by JGH Marine A/S, the company maintains a local office in Kenya.

Tanzania – New Hulls Spark Interest in Fleet Expansion

The nation's small Navy is receiving substantial support from the People's Republic of China, refreshing inventory while enhancing skills through joint training exercises. In 2015, two new "Haiying" class patrol boats were

acquired, built by Poly Technologies, a subsidiary of China Poly Group Corporation. The boats are variants of the highly versatile Type 037 submarine chaser. Proving the nation's maritime component with means to combat its piracy problems was a point made by Tanzanian President Jakaya Kikwete during commissioning ceremonies. According to defenceweb, he said; "Commissioning of these two patrol ships has come at the right time following the increase of crimes like illegal fishing and piracy, we need to strengthen our forces to safeguard our natural resources [...] There is no alternative, protecting our territorial sovereignty is a costly endeavour, this is only the beginning, we have plans to bring in even bigger ships, and now the remaining part is mobilising funds."

With the end of Operation OCEAN SHIELD on 10 December 2016, NATO formally ended counter-piracy patrols off the Horn of Africa, underway since 2009. While piracy may have fallen in the presence of NATO's naval might, the IMB maintains a single successful merchant vessel hijacking, "will rekindle the Somali pirates desire to resume their piracy efforts."

Conclusion

According to McDonald of AMI, predicting future markets for patrol boat sales is a unique undertaking. It is important to note, budgets, decision-making, and operational culture around patrol boat sales are all very different from the traditional sales patterns of Navy buyers of larger platforms, since the procurement process is often compressed from years down to months, far faster than other newbuild projects.

Expeditionary Warfare

Stephen W. Miller

USSOCOM Mobility Acquisitions Update

Improving the tactical and operational mobility of Special Operations Forces has been a focus of the US Special Operations Command over the last several years. This has included acquisition programmes for all mobility platforms. *NAVAL FORCES* looks behind the push that recognises the need to enhance the tactical and operational capabilities to insert and move Special Operations Forces teams in the face of increasingly capable opponents.

New Bulldog

As explained by a Special Operations Command (SOCOM) spokesperson: "The command's approach to acquisition is to include its requirements with those of other programmes when suitable. Should SOCOM have specific needs that these programmes cannot meet its will then seek alternatives and may purse sole development."

SOCOM's joining of the US Marine Corps' (USMC) acquisition of the CV-22 OSPREY is an example SOCOM addressing its requirements by capitalising on the development initiative of another service. Their acquisition of this tilt-rotor aircraft provided great capabilities. As stated by Colonel Eric N. Forsyth,

