

# Skyworks Global, Scaled Composites target US Army's FVL with VertiJet

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## Key Points

- Skyworks Global and Scaled Composites are teaming to develop the VertiJet gyrodyne
- A new procurement and investment environment allows innovators the opportunity to enter a military aircraft market dominated by prime contractors

Skyworks Global and Scaled Composites will offer their VertiJet gyrodyne aircraft for one of the US Army's various Future Vertical Lift (FVL) competitions, according to an executive.

John Michel, Skyworks Global executive director and retired US Air Force (USAF) brigadier general, told *Jane's* on 9 July that VertiJet can fulfill a variety of military missions including combat search and rescue (CSAR); ship-to-shore logistics; intelligence, surveillance, and reconnaissance (ISR); armed escort, and special operations. While the US Army has an active competition in Future Attack Reconnaissance Aircraft-Competitive Prototype (FARA-CP) and a potential competition for Future Long-Range Assault Aircraft (FLRAA), Michel said the team had not determined which competition, or competitions, to pursue.



*Skyworks Global and Scaled Composites are targeting a USD6–8 million unit price for their VertiJet gyrodyne aircraft. (Skyworks Global)*

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The VertiJet is a runway-independent aircraft that can take off and land vertically and hover similar to a helicopter. VertiJet will incorporate technologies designed and developed by Skyworks in the US Defense Advanced Research Projects Agency's (DARPA's) Heliplane programme to achieve an estimated top speed of 644 kph and a range of 1,000 nm with a maximum payload of 454 kg. Michel said Skyworks and Scaled Composites are targeting VertiJet's unit cost for the USD6–8 million range.

DARPA's Heliplane was designed to combine the key attributes of a helicopter and a fixed-wing aircraft: vertical take-off and landing (VTOL) and hover capability of a rotary-wing aircraft combined with high speed and efficient cruise capability of a fixed-wing aircraft. The VertiJet features twin-jet engines, a large rotor for take-off and landing, four weapon hardpoints underneath the fixed wings, and twin booms with a horizontal stabiliser.

Michel estimated that VertiJet, commercially, would be in the light business jet category, and that the team envisions the aircraft to be 10–15% below standard operating cost. The real value, he said, is in eliminating, or drastically reducing, infrastructure for vertical flight as the aircraft can take off and land from small platforms such as, for example, tennis courts or cruise ships.

Skyworks and Scaled Composites were quietly discussing a teaming arrangement for about 18 months and have just signed the deal. Michel said the team's strategy for appealing to the Pentagon will be first building a demonstrator to perform in the civilian realm. The two companies, he said, have just started building the demonstrator and expect to aggressively move into buildout.

“Our goal is we are going to have something out there in the wild by, ideally, no later than early” second quarter 2020, Michel said.

Securing Scaled Composites for its VertiJet effort is a big deal, according to an industry expert. Mike Hirschberg, Vertical Flight Society (VFS) executive director, told *Jane's* on 9 July that the company has been one of the top names in innovative composite aircraft designs over the past 30 years. A team led by Scaled Composites and its founder Burt Rutan in 2004 won the Ansari XPRIZE for SpaceShipOne, which was licensed by Richard Branson to create Virgin Galactic.

SpaceShipOne was a three-place, high-altitude research rocket designed for sub-orbital flights to 32,800 ft altitude. Scaled Composites also helped develop the massive Vulcan Aerospace Stratolaunch air-launch carrier aircraft before the company was disbanded following the death of founder Paul Allen in late 2018. Scaled Composites also bills itself as focusing on cost-effective development projects delivered on a short schedule with much of its work resulting in a new aircraft concept allowing it to fly an average of one new aircraft per year.

Hirschberg said Scaled Composites has deep institutional knowledge on advanced concepts and low cost aircraft.

“You cannot get a better company or name for someone to be partnering with,” Hirschberg said. “They are the top name in advanced prototyping.”

## Comment

There is a better investment and procurement atmosphere today than there was in the 2000s when DARPA was experimenting with Heliplane. Not only did the US economy collapse in 2008, but the Heliplane's agency champion, Don Woodbury, was promoted and left the programme. Woodbury is now Skyworks Global's chief technological adviser.

The growth in Silicon Valley and information technology (IT) has produced a level of venture capital and investment funds that were not available 10–15 years ago. This growth is providing innovators and inventors with capital to pursue revolutionary aircraft concepts such as electric vertical take-off and landing (eVTOL).

In addition, the US Army's new aircraft procurement strategy and the Pentagon's overall emphasis on accelerating acquisition have created a new environment. Companies with innovative concepts have an opportunity to enter a market traditionally dominated by large prime contractors such as Boeing and Sikorsky.